ENVIRONMENTAL-DOCUMENTS



Environmental Impact Report

for

Rams Hill Specific Plan

SP 80-01

RAM'S HILL COUNTRY CLUB
LSP79-01
EAD Log #79-11-1

RECEIVED
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San Diego County
DEPT. OF PLANNING & LAND USE

REPLACEMENT PAGE

COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE October 18, 1979

(Revisions through February 6, 1980 included)

TO: Planning Commission

FROM: Environmental Review Board

SUBJECT: Environmental Impact Report for Ram's Hill Country Club, LSP79-01, EAD Log #79-11-1

The Environmental Review Board (ERB) has reviewed the enclosed Environmental Impact Report (EIR). Based on the discussion of the issues that follow, the ERB recommends that:

1. The EIR be certified as being complete and in compliance with the provisions of the California Environmental Quality Act (CEQA).

2. It be found that the project as proposed will have significant and not mitigable impacts on Solid Waste Disposal and Traffic Access into the Borrego Valley, potentially significant and not mitigable Radio Noise impacts, potentially significant and unresolved Air Quality impacts, unresolved Visual and Cumulative Impacts and significant but mitigable impacts on Valley Circulation; Archaeological and Biological Resources, Public Services, Grading, Flood Hazard, Sewage Disposal, Seismic Hazard and Dark Sky, and not significant Short Term Water Availability impacts.

3. The mitigation measures that appear in Enclosure "A," the EIR Discussion, be made conditions of project approval.

ERB DELIBERATIONS

On motion of members Evans/Weeks, it is recommended that the EIR be certified as being complete and in compliance with the provisions of CEQA.

Ayes:	6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes:	0 - None
Absent:	1 - Hurlburt

On motion of members Evans/Heiter, it is recommended with regard to the Major Issue of Water Availability, that it be found that this project by itself will not have a significant impact in the short-term (1995), however, long-term water availability for future development in the Valley is unknown at this time and a comprehensive groundwater study should be made although not necessarily by this applicant.

Ayes:	5 - Erickson, Escher, Evans, Heiter, Melbourn
Noes:	1 - Weeks
Absent:	1 - Hurlburt

On motion of members Weeks/Evans, it is recommended that the Major Issue of Seismic Hazard be found significant but mitigable.

Ayes: 6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes: 0 - None
Absent: 1 - Hurlburt

On motion of members Weeks/Evans, it is recommended that the Major Issue of Sewage Disposal be found significant but mitigable.

Ayes: 6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes: 0 - None
Absent: 1 - Hurlburt

On motion of members Evans/Weeks, it is recommended that the Major Issue of Public Services be found significant but mitigable.

Ayes: 6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes: 0 - None
Absent: 1 - Hurlburt

On motion of members Erickson/Weeks, it is recommended that the Major Issue of Solid Waste Disposal be found significant and not mitigable due to environmental impacts associated with establishing new disposal sites or transportation impacts of transporting materials to other sites.

Ayes: 6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes: 0 - None
Absent: 1 - Hurlburt

On motion of members Evans/Escher, it is recommended that the Major Issue of Dark Sky be found significant but mitigable.

Ayes: 5 - Erickson, Escher, Evans, Heiter, Melbourn
Noes: 1 - Weeks
Absent: 1 - Hurlburt

For the record Weeks voted No because he felt that additional light from any induced growth would not be mitigable.

On motion of members Evans/Melbourn, it is recommended that the Major Issue of Radio Noise be found potentially significant but not mitigable by this project or local government but would require FCC action.

Ayes: 6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes: 0 - None
Absent: 1 - Hurlburt

On motion of members Evans/Weeks, to recommend that the Major Issue of Cumulative Impacts be found significant and not mitigable failed to pass.

Ayes: 3 - Evans, Melbourn, Weeks
Noes: 3 - Erickson, Escher, Heiter
Absent: 1 - Hurlburt

In addition, the Environmental Review Board recommended that there has been no significant change in the conditions addressed in GPA76-02 with regard to Growth Induction, Energy and State Park Impacts and the previous environmental findings should go forward. See Background section.

The major issues which were addressed during the GAP process, Energy Consumption, Growth Induction, and State Park Impacts and have not substantially changed since the Environmental Review Board identified them as significant adverse impacts and the Planning Commission and Board of Supervisors found them to be not significant, were not readdressed during the ERB hearing.

EAD RECOMMENDATIONS TO THE ERB

The Environmental Analysis Division (EAD) has identified the following Major Issues, and our recommendations for findings of significance are as follows:

1. Water Resources: Significant but mitigable *
2. Air Quality: Significant and unresolved
3. Circulation: Valley Access: Significant and not mitigable
   Valley wide Circulation: Significant but mitigable
4. Visual Impact: Significant and only partially mitigable by conditions imposed at the implementing permit level
5. Biological Resources: Significant but mitigable
6. Archaeology: Significant but mitigable
7. Grading: Significant but mitigable
8. Solid Waste Disposal: Significant and not mitigable due to environmental impacts associated with establishing new disposal sites or transportation impacts of transporting material to other sites
9. Seismic Hazard: Significant but mitigable
10. Sewage Disposal: Significant but mitigable
11. Flood Hazard: Significant but mitigable
12. Public Services: Significant but mitigable
13. Dark Skies: Significant but mitigable
14. Radio Noise: Significant but mitigable
15. Cumulative Impacts: Potential exists for substantial adverse impacts
16. Growth Induction, Energy Impacts, State Park Impacts: No significant change in the conditions as presented in GPA76-02. Refer to the Background section for a summary of those findings.

*Staff felt strongly that this issue dealing with groundwater availability was significant and mitigable by a comprehensive groundwater study done by the applicant before the project was approved. As such, EAD recommended the following mitigation measure (deleted by the ERB):

> Prior to project approval by the Board of Supervisors, the applicant shall demonstrate to the satisfaction of the Environmental Analysis Coordinator that there exists an adequate longterm water supply for the proposed project which does not involve longterm groundwater mining. ...

Such demonstration must be based on a thorough independent study and may occur in the form of County approval of a Comprehensive Groundwater Management Plan for the Borrego Water District.

However, the ERB disagreed and felt this applicant should not be required to do the water study. The ERB did agree, however, that a comprehensive groundwater study needed to be done in the near future. Some discussion went on at the ERB meeting about property owners contributing to the cost of a groundwater study.

Respectfully submitted,

Kathy Leitola

KATHLEEN A. LEHTOLA, Secretary
Environmental Review Board

KAL:NW:sb

Enclosures:
A. Environmental Impact Report Discussion, Pages A-1 to A-12.
B. Letters of and Responses to Public and Other Agency Comment, Pages B-1 to B-43.
C. Applicant's Responses to Letters of Public Comment
D. EIR (excluding Draft EIR) for the Borrego Springs (Di Giorgio) General Plan Amendment
E. Planning and Land Use Comments regarding Authorization of Latent Powers EIR
F. Supplemental Correspondence from APCD
G. Draft EIR, prepared by PRC TOUPS

Copies: Project Planning, Department of Planning & Land Use #0173
Project Planner, Steve Lister #0173
Anna Pecus, #A655
Di Giorgio Development Corp.
PRC Toups Corp.

ENVIRONMENTAL IMPACT REPORT DISCUSSION

PROJECT: RAM'S HILL COUNTRY CLUB, LSP 79-01, EAD LOG #79-11-1

PROJECT DESCRIPTION

The proposed project is a Specific Plan for a Large Scale Project on a 2,158 acre portion of a total 3,124 acre property.

The Specific Plan proposes a total of 780 dwelling units on 596 acres as 530 PRD units on 102 acres (6 du/acre), 200 single family units on 127 acres (3 du/acre), 50 estates on 124 acres (1 du/2 acres), a 350 unit three story hotel complex on 56 acres, a golf course on 160 acres, a wastewater treatment plant, fire station, and medical clinic. The Specific Plan also includes 966 acres of future development areas, and 1,562 acres of open space.

This Specific Plan proposes the following phasing over a 5 year period

	1-3 yrs	4-5 yrs	5 yr total
ESTATE LOTS	18	32	50
SINGLE FAMILY LOTS	99	101	200
CLUSTER HOMES	278	252	530
HOTEL RESORT	175	175	350
	Clinic		
	Golf Course		
	Waste water treatment plant		

PROJECT LOCATION

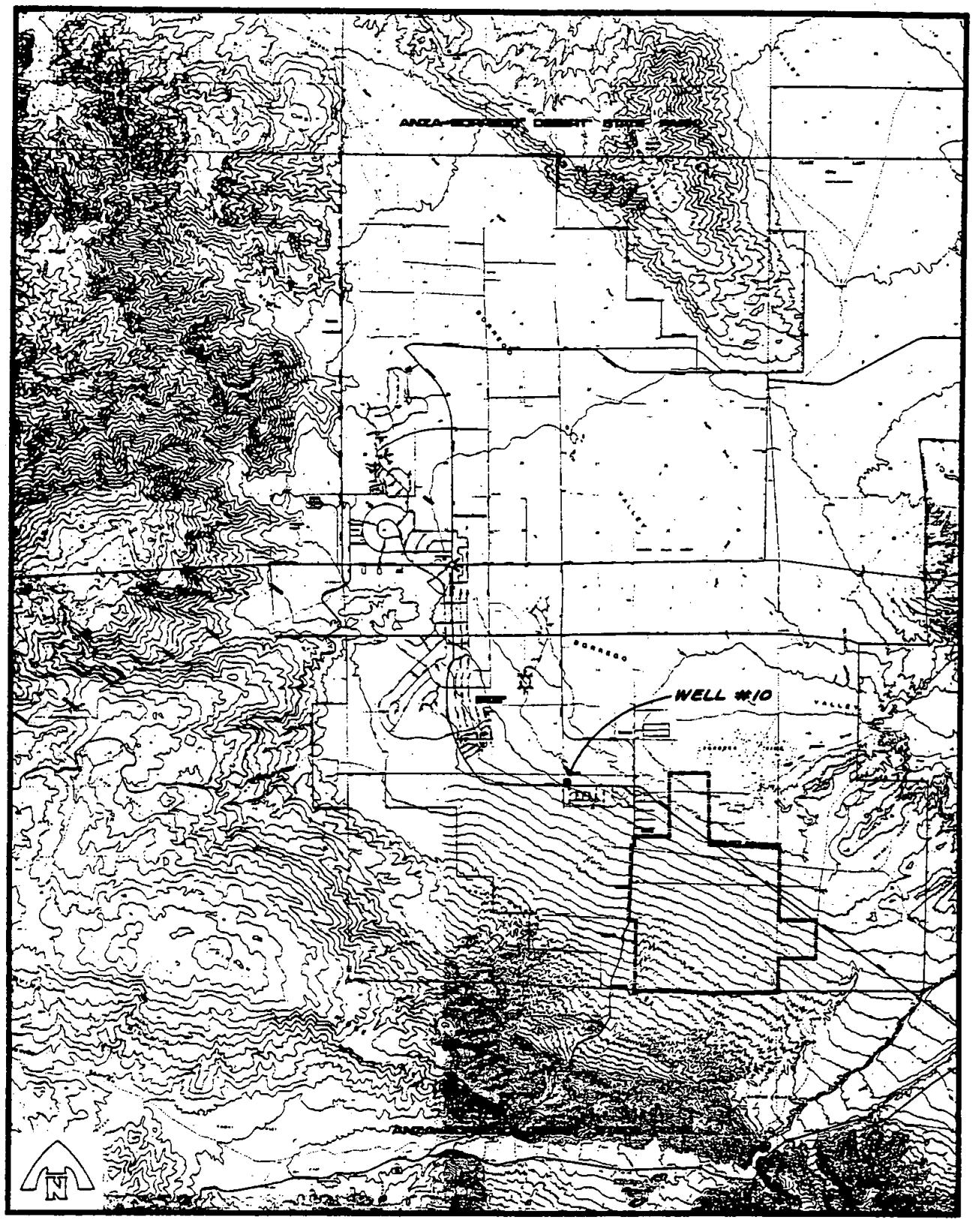
The project site is located on the south slope of the Borrego Valley, an unincorporated area east of the Peninsular Mountain Range in the Anza-Borrego desert of San Diego County. The project site is 65 miles northeast of metropolitan San Diego, 40 miles south of Palm Springs, and 25 miles west of the Salton Sea. The project location in the Borrego Valley is shown in Figure 1.

Primary access to the site is provided by Yaqui Pass Road, which traverses the western boundary of the site. Secondary access is provided by Borrego Springs Road through the northeast portion of the site.

LAND USE FACTORS AND SURROUNDING LAND USES

The project site has been designated as a Specific Planning Area, with an overall allowable density of one dwelling unit per two acres (SPA 0.5).

The project site and surrounding property is zoned "Limited Control" (S-87) as is the majority of Borrego Valley. Implementation of the project would require rezones on protions of the site from LC (S-87) to C-42, R-U-6, RR-0.5, R-S-3, S-80, and S-88. Full zoning will be established upon submittal of tentative maps, planned development and major use permit applications.



project location in valley

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FIGURE 1

BACKGROUND

The proposed project follows an earlier PDP application (PDP 74-03, EAD Log #74-11-211 which was not processed to completion due to the need for an appropriate change in the Land Use Element of the County General Plan before the PDP could be properly processed. Accordingly, the project property was the subject of General Plan Amendment GPA 76-02 (EAD Log #75-GP-14) at which time 1,457 DUs were contemplated on 1,457 acres (1 du per acre), a portion of the entire 3,000+ acre ownership. In Board of Supervisors hearings (Dec. 16, 1976), the allowable number of DUs was decreased to 0.5 DU over the entire 3,000+ acre ownership, this is reflected in the present project proposal.

This EIR has been prepared to provide a higher level of resource information needed before effective mitigation measures could be formulated. The previous Draft-EIR (prepared for PDP 74-03) and subsequent GPA material are primarily regional in coverage, allowing assessment of community but not site specific impacts per se.

Eight Major Issues (Growth Induction, Energy, Circulation, State Park Impacts, Biology, Solid Waste Disposal, Water Supply, and Sewage Disposal) were addressed in the Borrego Springs General Plan Amendment EIR for GPA 76-02 heard by the Board of Supervisors in December, 1976. Of the eight issues, five have been reformulated and mitigation measures proposed, as appropriate, on the basis of new information made available in this EIR or information available due to availability of design specifics.

The three remaining Major Issues (Growth Induction, Energy, and State Park Impacts), not readdressed in this EIR are primarily regional in nature and are not highly dependent on the size of this proposed specific plan. We find no significant change in the conditions which would warrant changes in the previous environmental findings.

The three previously addressed issues are summarized from the General Plan Amendment as follows:

1. Growth Induction. Borrego Springs is unusual compared to other low population areas of the county in that there are a large number of undeveloped small parcels (3 acre or less) legal building sites (estimated at present to be approximately 3,500 lots) which could be built-out without need of any discretionary permit review. The concern centers on this growth potential as it might be affected by market stimulation following development of a project in the Borrego Springs area such as the proposed Specific Plan.

   Energy. Energy needs for development in the Borrego Springs area are seen as significantly high compared to other county areas due to two factors: 1) The relative remoteness of the project from other urbanized area, and 2) high summer temperatures, with a resultant higher energy need for transportation and space cooling needs.

   State Park Impacts. Due to the fragility of State Park resources (primarily archaeological and biological resources), there is a concern that major development in the Borrego Springs area will result in both primary impacts (those associated with project development and its habitation) and secondary impacts (those associated with increased unofficial or unauthorized usage of the Anza Borrego Desert State Park) that stem from a general increase in area population and increased popularity and use of park areas immediately adjacent to the proposed project.

Mitigation

Although each of these issues can be mitigated to some degree by project design, effective long term mitigation measures that would clearly reduce impacts to levels of insignificance are beyond the regulatory ablity of the implementing permits of the project (Major Use Permits and Subdivision permits.

Summary

1. The Environmental Impact Report was heard by the Environmental Review Board on October 9, 1975 and on a four to two vote the Environmental Review Board found that the project would have significant adverse impacts for four reasons.

   A. Growth-inducing factor impact of improvements necessitated by the project,

   B. Adverse energy impacts because of the remoteness of the site; landscaping; heating and cooling requirements,

   C. The location of a semi-urbanized area in the middle of the desert, and

   D. Circulation-would require expansion of the circulation system.

The ERB split three to three on biological impacts but held that they were not significant because similar species were protected by the surrounding park.

2. The Planning Department recommended denial of the General Plan Amendment for these reasons and for the fact that it still felt that the project should be considered as part of an overall plan for the valley.

   On February 21, 1976, the Planning Commission rejected staff recommendation and by a six to one vote recommended approval of the General Plan Amendment of development of the total site.

MAJOR ISSUES:

1. Groundwater (See the Following Mitigation Measure)

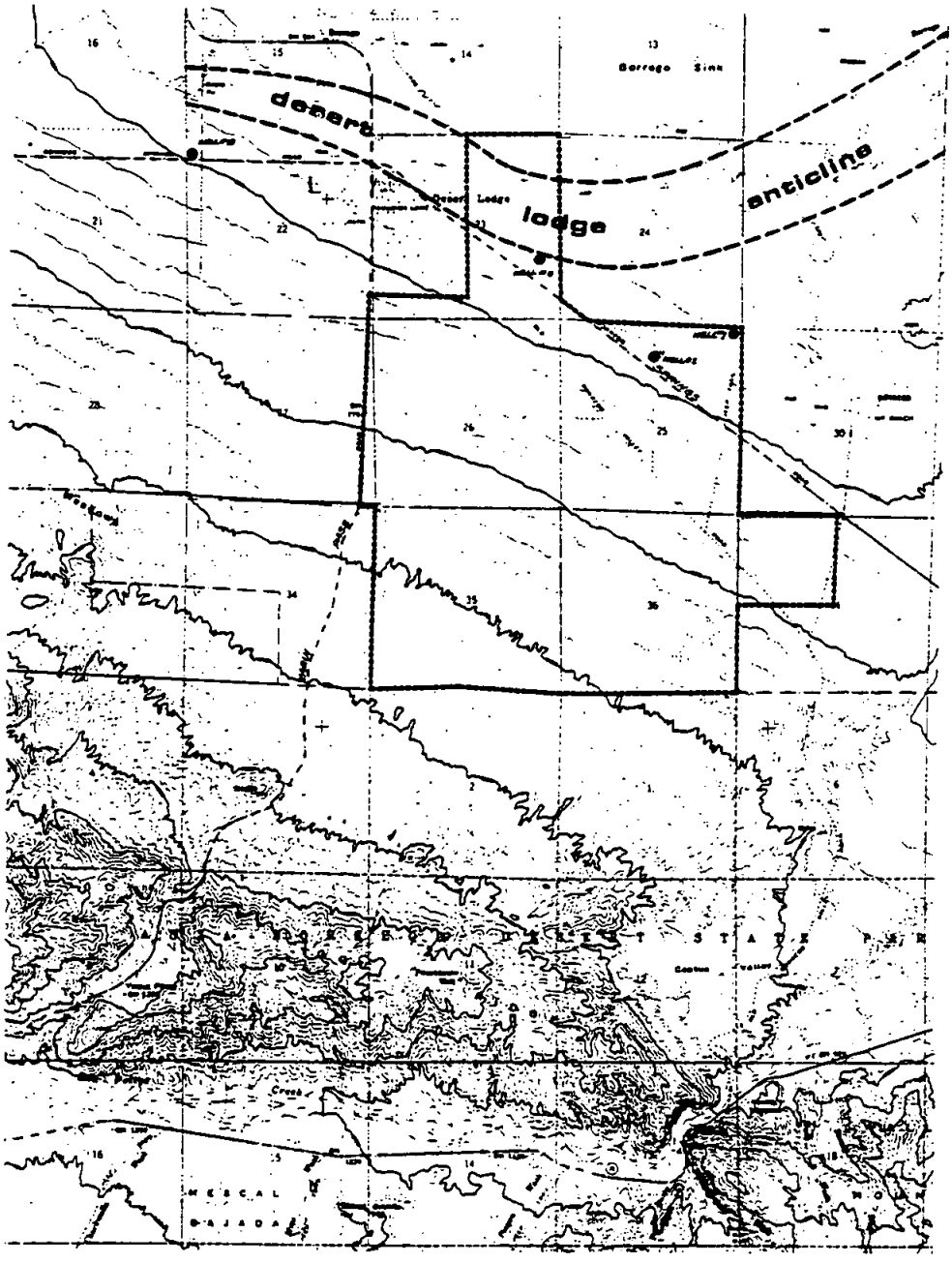
The total dependence of the Borrego Valley on groundwater underscores the need for assurance that longterm unmanaged groundwater mining and sewage disposal will not occur.

The draft EIR presents an evaluation of the past studies of groundwater resources in the Borrego Valley and concludes that any additional development (including the current Ram's Hill proposal) will result in groundwater mining unless agriculture is curtailed. Specifically, based upon current estimates the consumptive use of water in the Valley exceeds long-term groundwater recharge by approximately 300 acre feet/year.

The draft also concludes that under worst estimated conditions of recharge, groundwater could potentially be mined at a rate of 2,130 acre feet per year (Draft EIR, page 151). (Under higher recharge estimates, mining would not occur by 1985 development.) The potential exists that induced growth or development of the 2,500 already created lots, and/or development of the Borrego Country Club could create moderate groundwater mining throughout the Valley in the near future. Another scenario which limits groundwater extraction from the area under the project site south of the desert anticline, Fig. 2, under estimated worst case estimates, indicates that a 200 foot lowering of the water table under Ram's Hill within 45 years is possible. The potential exists here for localized subsidence or collapse of the underlying water bearing strata.

Additionally, water supply in the Valley is provided by six relatively small and uncoordinated private water companies. The opinion seems generally accepted that should this condition be allowed to continue with increased development in the Valley, the danger of unintentional overdraft exists. Since the proposed project is situated in the southern groundwater basin of Valley (and geographically isolated from existing water sources) it is necessary to establish a water supplying entity to accommodate the project. Consistent with this need, there exists a concurrent proposal to authorize the latent powers of the Borrego Water District and annex Ram's Hill to that agency as a source of water supply (Fig. 3). (See Enclosure E for Planning and Land Use Department comments regarding the Draft Authorization for Latent Powers and Annexation EIR.) There seems little doubt that the addition of one more supplier (Borrego Water District) would simply compound the problem of uncoordinated groundwater extraction unless some action is taken to tie together all consumptive use of water in the Valley. That action could be accommodated through approval of a Comprehensive Groundwater Management Plan for the entire Borrego Valley. In that context the draft EIR for the LAFCO application for authorization of latent powers for the District states that there appears to be no guarantee at this time that the District will be in a position to develop and implement a comprehensive groundwater management plan. Clearly, the total dependence of the Borrego Valley on groundwater underscores the need for assurance that groundwater mining will not occur.

Finally, it should be noted that water quality problems have occured in the north and central groundwater basins. As a result of continuing fertilization, nitrate salts have infiltrated to portions of the groundwater table resulting in nitrate levels in excess of potable water standards in those areas. Since the proposed project site is geologically isolated from the areas where such conditions have occured, it is important that adequate controls be exercised over the water reuse programs and areas subject to heavy fertilization such as the golf course.

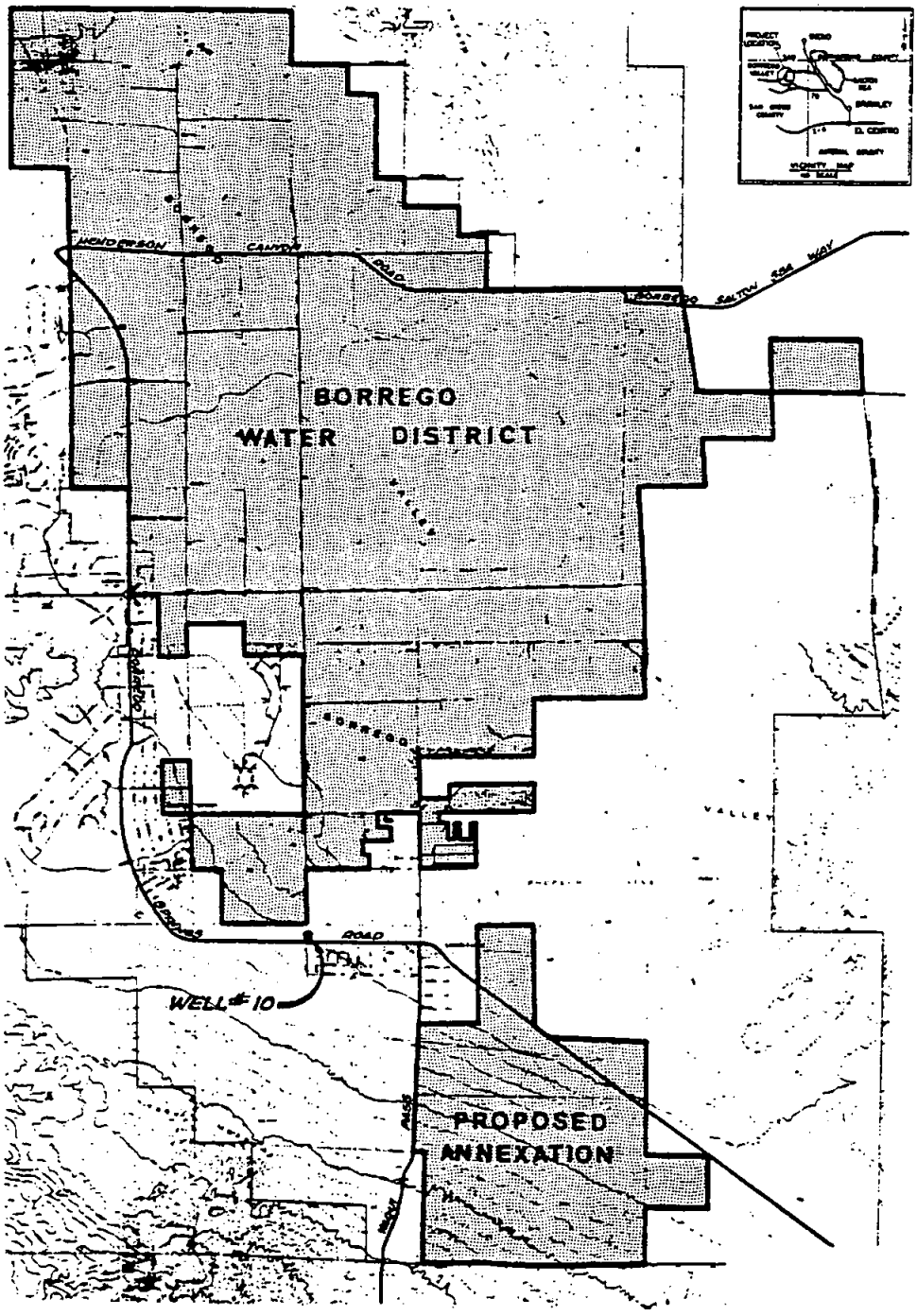


desert lodge anticline

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FIGURE 2



proposed annexation to
borrego water district

N

NO SCALE

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RAMS HILL

FIGURE 3

2. Air Quality (No Mitigation Measure Proposed)

Project implementation will increase emissions in the Southeast Desert Air Basin, a Basin currently proposed for designation as a Class I or pristine air basin. Adoption of a pristine designation would prohibit any increase in activity which would degrade the air quality below that quality which existed in 1977. A small increment of deterioration might be allowed by the Air Resources Board. Present air quality of the valley is expected to be exceptionally good due to current low emissions and its topographic isolation from the San Diego Air Basin. Air quality monitoring has not been conducted in the Borrego Valley and there is, therefore, no baseline against which to monitor the incremental degradation which might be allowed by the Clean Air Act if Class I designation is approved. The Draft Environmental Impact Report relies heavily on the attainment of 1985 automobile emissions standards to conclude that the project will not have a significant impact on the air quality of the Valley. The assumption that these 1985 emission standards will be met may be premature in view of the fact that some automobile manufactures are currently petitioning for relief from 1981 standards. The current energy shortage can only increase pressure to delay the attainment of these standards. Assuming, however, that 1985 automobile emission standards will be met, predicted automobile emissions from the project would increase 1985 NO_x emissions by 40 percent. Without the project, NO_x emissions would decline by 14 percent. The other predicted lower emissions from improved 1985 automobiles, may be negated largely (as in the case of carbon-monoxide) or partly (hydrocarbons) by development of the project. The Air Resources Board has expressed concern that development in the Valley between 1977 and the adoption of an emissions model might absorb the entire potential allowable increment of deterioration.

Additionally electrical power generation for the project will contribute to emissions in the San Diego Air Basin, which currently exceeds State and Federal Standards.

3. Circulation (See the Following Mitigation Measure)

According to the land use pattern contained in the site plan and trip generation factors, the Ram's Hill project will generate 13,500 trips per day from the 5 year plan, necessitating road expansions in the project site area. Additionally, high projected growth in Anza Borrego Desert State Park visitation, together with Ram's Hill development will result in significant traffic impacts on several existing Borrego Springs intersections, local and access roads during the peak seasons. Seasonal/weekend congestion which occurs now along access routes into the Valley will be aggravated. Figures 4 and 5 illustrate projected 1985 traffic assignments with and without the developments.

Mitigation Measure

As a condition of the Specific Plan and prior to approval of any Final Maps by the Board of Supervisors, the applicant shall:

A. Have reached an agreement to the satisfaction of the Director of the Department of Transportation to dedicate right-of-ways and make circulation element improvements as deemed necessary.

B. And if deemed necessary by the Director of DOT, shall place a cash deposit, amount to be determined by the Director of the Department of Transportation, in the Community Service Trust Fund for further improvement of Circulation Element roads in the area. This deposit is to mitigate significant

4. Visual Impacts (Partial Mitigation Proposed)

The project if implemented will alter visual quality of the desert panorama. The project which proposes to develop a substantial portion of a 1500 acre development area within a 3000 acre ownership with this Specific Plan includes plans for a golf course, 3 story hotel complex, condominiums and single family units. This development, due in large part to its size and the topography of the Valley will be visible from numerous vantage points throughout the Valley including the major scenic access road into the Valley.

Mitigation at the discretionary/implementing permit level with regard to development height, reflectiveness, color harmony with surroundings is not possible. Partial mitigation through a "desert sensitive" landscaping plan is presented under Major Issue 7: Grading.

5. Biological Resources (See the Following Mitigation Measure)

Implementation of this project will directly adversely effect desert biota within the project site and has the potential to adversely impact adjacent habitat.

The project site within the concept plan area exhibits three major undisturbed wildlife habitats and vegetative communities: Mesquite Woodland, bordering the offsite Borrego Sink; Creosote Bush Scrub, and Ridge and Wash areas, occupying the southwestern portion of the property. The area of development within this Specific Plan will impact only the Creosote Bush Scrub community directly. Impacts will result due to direct removal of native vegetation/loss of wildlife habitat, a potential 2,200 residents of the project site, alteration of water runoff rates, patterns and availability, introduction of exotic and/or weedy non-natives due to irrigation and landscaping. Offsite impacts are possible due to the above considerations as well as increased traffic on major access roads and increased access to offsite areas.

In addition, two species of birds of rare occurence, Crissal's Thrasher, known to occur in San Diego County only in the Borrego sink area, and Swainson's Hawk, a depleted species found primarily in the desert during migration will be impacted by the development.

A primary concern exists relative to indirect impacts to resources located southwest of the project, an area designated as "not a part" on the Specific Plan map. (See Project Alternatives at the end.)

Project Alternatives

Although the parcel designated as Not A Part, located southwest of the Specific Plan area, is not within the Specific Plan area, it is shown on conceptual plans for the property, and this parcel contains both biological and archaeological resources that are considered to be significant. Preservation of this area could be achieved if an equivalent portion of the area now described as open space were to be developed in lieu of the Not a Part area, with the streets now shown to be stubbed out at the Not-a-part boundary terminated in cul-de-sacs one-lot distance from the Not-a-part boundary; with the Not-a-part parcel to be then placed in open space.

Mitigation Measures

As a condition of the Specific Plan and prior to use and reliance on associated Major Use Permits and prior to subsequent Final Map approvals by the Board of Supervisors:

5-A: The applicant shall grant an open space easement to the County of San Diego over the area identified as Open Space on the submitted Specific Plan to the satisfaction of the Environmental Analysis Coordinator. This open space to be maintained under developer ownership until the total project is submitted to allow for a potential shift of development from the southwest portion of the concept plan site to other adjoining areas within that open space, if future environmental analysis of subsequent development plans indicates that such action is necessary to preserve the archaeological or biological resources of the southwest portion.

5-B: All implementing permits required to return to the Environmental Review Board.

5-C: As a condition of the Specific Plan, the applicant shall have a Spring biological survey (late March-April) conducted to determine the presence of rare and endangered plants and these survey results shall accompany all TM and other implementing permits.

6. Archaeology (See the Following Mitigation Measures)

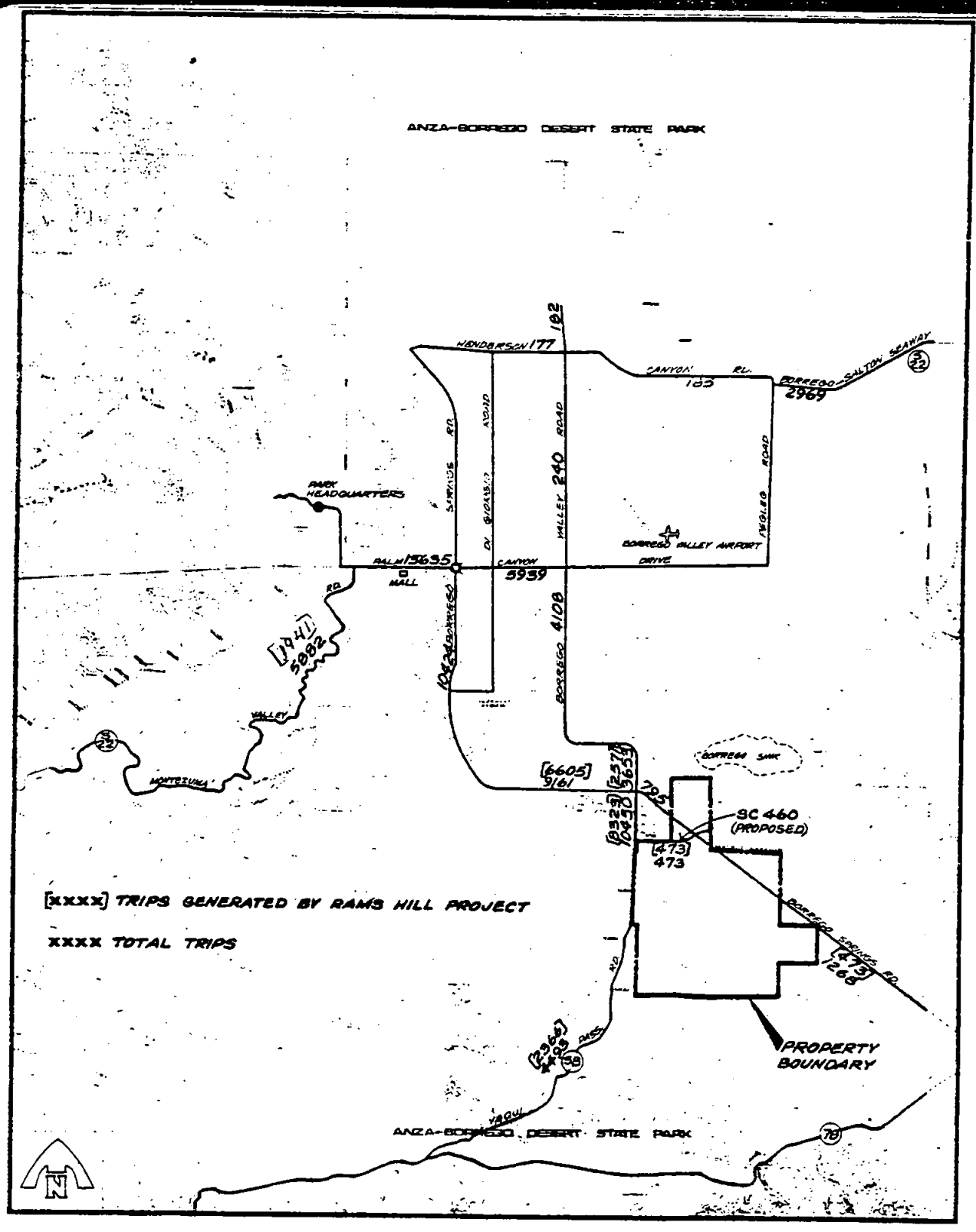
Implementation of this project will result in significant direct and indirect impacts to seven archaeological sites. The only direct impacts will be to an historic chimney (site 1) and a small portion of a sleeping circle complex (site 2). The balance of site 2 and sites 3,4,5,6,7 will be indirectly impacted by increased human traffic, relic collectors, and off-road vehicles.

A primary concern exists relative to indirect impacts to resources located southwest of the project, an area designated as "Not a part" on the Specific Plan map.

Site 2 comprise of a dense cluster of 75 "sleeping circles" (ref. M.J. Rogers, Ancient Hunters of the Far West, 1966, Copeley Press), trails, broken pots, flaking areas, and at least two metates. The site consists of a great many level areas atop gravel covered ridge remnants of ancient alluvial forms, which slope north toward Borrego Sink. The ancient trails link the circles which are probably the floor areas of houses or brush structures. Most theorists hypothesize these features to be at least 7000 years old. The site covers approximately 144 acres south of the proposed development. The rest of the sites lie in open space and will not be directly impacted by this project.

Mitigation Measures

Prior to use and reliance on associated Major Use Permits and prior to subsequent Final Map approval(s) by the Board of Supervisors, the applicant shall to the satisfaction of the Environmental Analysis Coordinator:

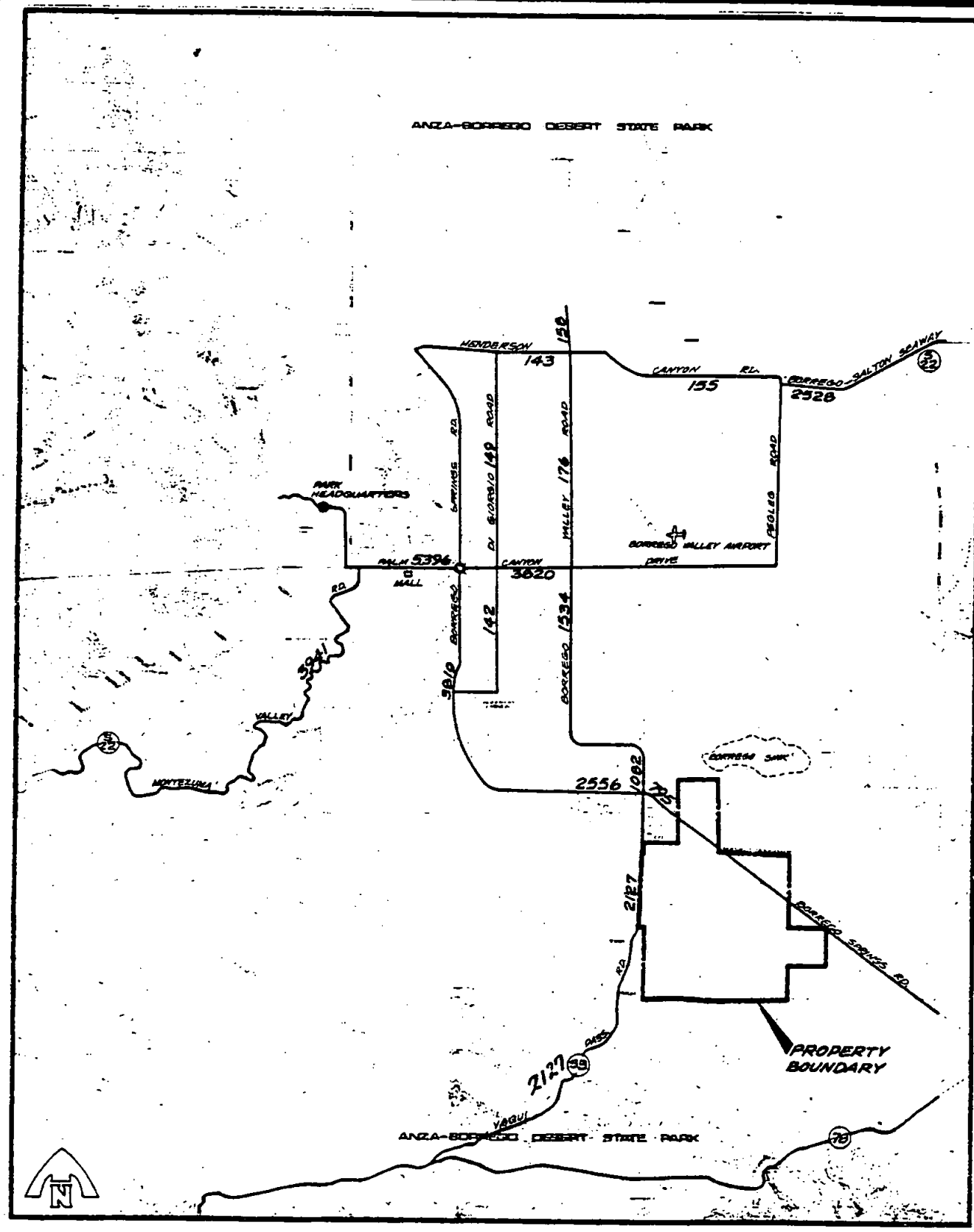


1985 borrego springs traffic assignment with rams hill

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FIGURE 4



1985 borrego springs traffic assignment
without rams hill

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FIGURE 5

6-A. Record sites 1-7 at the California Archaeological Site Survey at San Diego State University and submit the numbers to the Environmental Analysis Division.

6-B. A qualified archaeologist shall be retained who will personally conduct a micro-map operation of the entire surface of site 2, with accompanying photographic documentation of features. The goal will be to document the location and configuration of sleeping circles and associated features in relation to topography and drainage courses. Surface artifacts shall be plotted, recovered, analyzed, and described in a summary report. That report shall be submitted to the Environmental Analysis Division.

6-C. A qualified archaeologist shall be retained to prepare a research design orienting a salvage excavation and documentation of those features of site 2 to be impacted by project construction. That research design must be submitted for approval to the Environmental Analysis Division prior to commencing salvage operations.

6-D. A qualified archaeologist shall be retained to personally conduct the salvage operation, per the approved research design, analyze the recovered data, and submit a summary report to the Environmental Analysis Division.

6-E. Submit a copy of the tentative map with the precise locations of sites 3,4,5,6 and 7 plotted on the main open space area to the Environmental Analysis Division. This map must be accompanied by individual site maps illustrating the configuration of the sleeping circles and surface artifacts, as insurance against indirect resource destruction from future project residents.

Project Alternatives

Although the parcel designated as Not A Part, located southwest of the Specific Plan area, is not within the Specific Plan area, it is shown on conceptual plans for the property, and this parcel contains both biological and archaeological resources that are considered to be significant. Preservation of this area could be achieved if an equivalent portion of the area now described as open space were to be developed in lieu of the Not a Part area, with the streets now shown to be stubbed out at the Not-a-part boundary terminated in cul-de-sacs one-lot distance from the Not-a-part boundary; with the Not-a-part parcel to be then placed in open space.

7. Grading (See the Following Mitigation Measures)

Grading necessary for project implementation, an estimated 1,969,000 cubic yards, will result in substantial landform modification and removal of vegetative cover, exposing the fragile desert soil mantle to greatly accelerated erosion potential.

Mitigation Measures

As a condition of the Specific Plan to the satisfaction of the Directors of Planning and Land Use and the Department of Transportation and the Environmental Analysis Coordinator:

7-A: A "desert sensitive" landscaping plan for rehabilitation of graded and otherwise disturbed areas will be required. This plan shall include, to the maximum extent possible, utilization of non-irrigation dependent native vegetation.

7-B: Grading in the estate lots areas (2-5 acres) shall be limited to that necessary for road and pad construction.

8. Solid Waste Disposal (No Mitigation Measure Proposed)

The proposed project could significantly impact the life expectancy of the Borrego landfill and will contribute to the regional need for new disposal methods and sites.

The Borrego landfill has a estimated remaining life expectancy of twenty years based on current population levels. The landfill site is now receiving 18,000 tons of solid waste per year. This five year Specific Plan will contribute an additional 1172 tons per year based on 780 dwelling units and 350 hotel suites- Ultimate development over a span of 12-15 years will result in 1562 dwelling units and 600 hotel rooms significantly decreasing the life expectancy of this landfill site. Not included in the above impacts are an estimated 600 persons who would move to Borrego to work at the resort and any other secondary population growth induced by the project.

9. Seismic Hazard (See the Following Mitigation Measures)

The project site and entire Borrego Valley are exposed to high seismic risk. The San Jacinto Fault Zone and Elsinore Fault Zone are located approximately 11 and 15 miles to the northeast and southwest respectively. Additionally numerous smaller faults including the Coyote Creek fault occur within 3-10 miles of the project site. A seismic event without adequate compensating structural design of buildings could cause extensive structural damage and/or loss of life.

Mitigation Measure

As a condition of the Specific Plan:

On site geologic studies shall be conducted to ensure appropriate soil treatment, foundation and structural design to withstand maximum bedrock acceleration as identified in the July 28, 1973, Woodward Gigienski and Associates Study and any findings subsequest to this analysis to the satisfaction of the Director of Department of Transportation.

10. Sewage Disposal (See the Following Mitigation Measure)

Sewage disposal facilities are not now available to serve the project. Disposal via septic systems and a package treatment plant are proposed by the applicant. Irrigation use of the reclaimed effluent is proposed when the flow exceeds 100,000 gal. day. (This is estimated to occur 3-4 years into the development plan during peak season only.)

Mitigation Measures

As a condition of the Specific Plan and prior to approval of any Final Subdivision Maps by the Board of Supervisors:

10-A. The applicant shall demonstrate to the satisfaction of the Director of Planning and Land Use (via Regional Water Quality Control Board and County Health Department approval) that adequate, appropriate sewage disposal facilities are available to serve the project.

10-B. The site specific impacts of the waste water treatment plant will be subject to additional review via the preparation of an EIR supplement and addendum.

11. Flood Hazard (See the Following Mitigation Measure)

The project site, as is the entire Borrego Valley is subject to severe flash floods which without adequate mitigation could result in extensive property damage and potential loss of life.

Although the project site is not located at the mouth of a canyon, where flood hazard and flood concentrations are greatest, it is none the less located below Yaqui Ridge and subject to sheet flow flooding as evidenced by the alluvial formation on which it rests and numerous arroyos on the upper steeper southern most areas of the site.

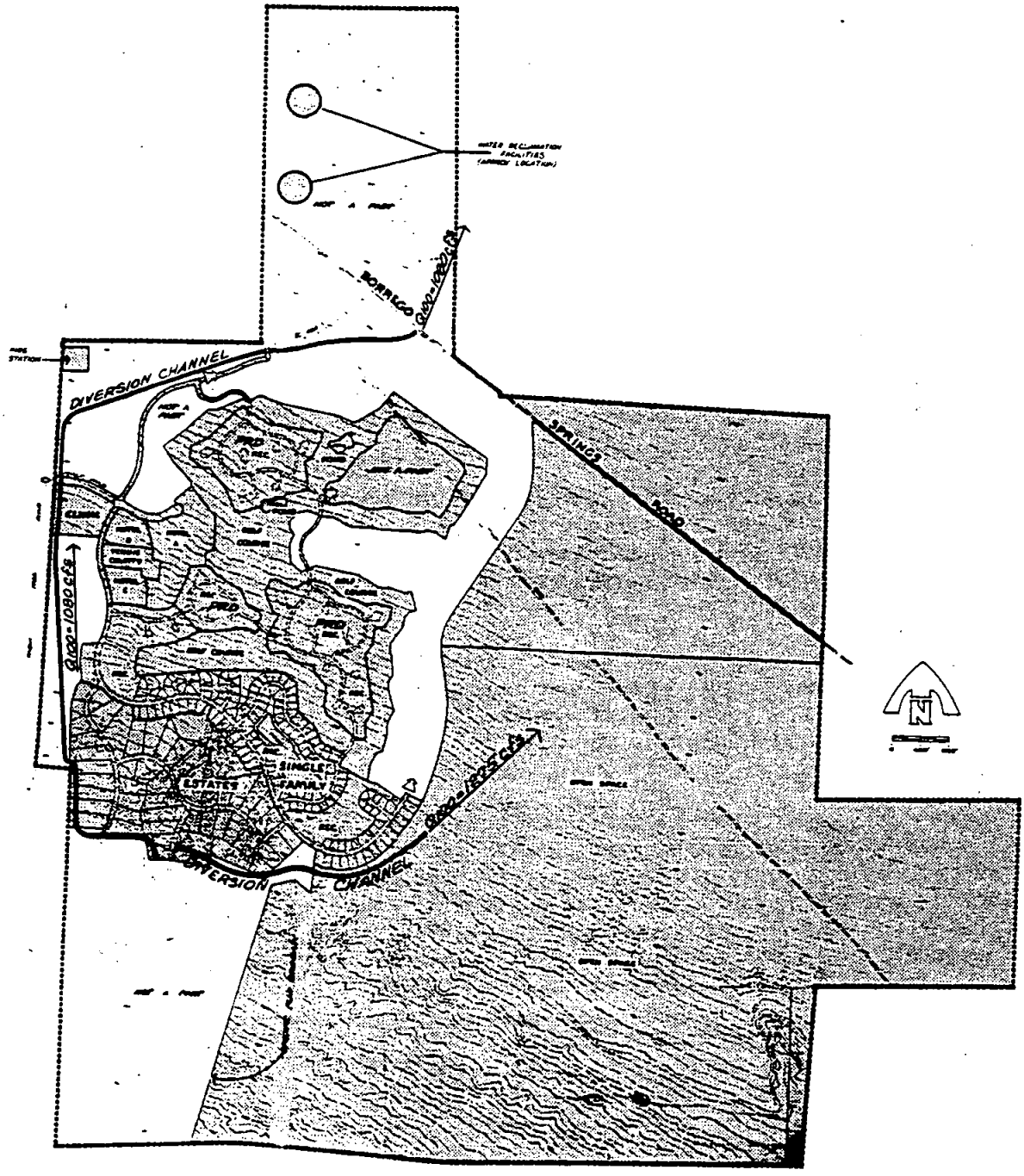
The applicant proposes to mitigate the potential flood hazard on site through the construction or two stabilized earth channels, of 100 yr. storm level capacity to direct flow around the perimeter of the project (See Figure 6). The two southern most estate lots would not be included in this protection device.

Final engineering has not been completed on the structure design but preliminary calculations indicate the need for 15 feet wide and five feet deep channels. Additional protection is proposed via a two foot high levee/wall of masonry block extending along the northern side of the east-west portion of the diversion channel. Flood protection will be provided for the sewage treatment plant and percolation basins as required by the Regional Water Quality Control Board.

As pointed out in the Draft Environmental Impact Report the flood control structures will minimize flooding hazard on site but due to the unpredictable intensity and location of storms, it is still possible that the development could sustain major flood damage.

Mitigation Measures

As a condition of the Specific Plan and prior to final approval of any implementing permits, the applicant shall design appropriate flood control measures to the satisfaction of the Director of Sanitation and Flood Control, and the Regional Water Quality Control Board.



flood protection map

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 6

12. Public Services (See the Following Mitigation Measures)

A. Schools

Estimated generated figures indicate that Ram's Hill project could generate 47 primary and 58 secondary students. Ultimate (10-12 years) development could generate approximately 94 primary and 116 secondary students. Secondary induced growth from project related jobs could result in the additional generation of students. The draft EIR estimates a generation of 52 primary and 70 secondary students based on 350 project created jobs and 175 new households. The Borrego Springs Unified School District indicates that the school system currently has the capacity to handle this increase in students. However projected growth from other development may cause the school enrolled to exceed capacities.

B. Sheriff's Protection

The Sheriff's Department estimates that in order to serve Ram's Hill under full build-out conditions in 1985, two additional deputies would be required to maintain the present level of service.

C. Fire Protection

The proposed project will significantly increase the demand for fire protection within the Borrego Springs Fire Protection District.

Mitigation Measures

12 As a condition of the Specific Plan and prior to Board of Supervisor's approval of any Final Maps the applicant shall:

A Show evidence to the satisfaction of the Director of Planning and Land Use that school availability letters are available for the project.

B Show evidence to the satisfaction of the Director of Planning and Land Use that provision has been made for the developer's contribution of funds or equipment as deemed necessary by the Borrego Springs Fire Department to maintain adequate fire protection services for the District.

13. Dark Sky (See the Following Mitigation Measure)

Without mitigation, development of Ram's Hill could significantly impact the quality of the dark sky to the east of Mt. Palomar and Mt. Laguna Observatories. both the Mt. Palomar Observatory, operated by the California Institute of Technology, and the Mt. Laguna Observatory, operated by San Diego State University, are experiencing deteriorating viewing conditions due to the cumulative increase of background light produced primarily by high intensity out-door lighting sources of the streetlight dawn to dusk class of lighting fixtures. Ram's Hill is located 32 miles east of Mt. Palomar Observatory and 24 miles northeast of Mt. Laguna Observatory. The eastern sky is currently undisturbed by light sources and consequently a relatively small light source such as the proposed project could have potentially more severe impacts than development to the west.

Mitigation Measures

13-A As a condition of the Specific Plan, all street lighting shall be limited to the number required for safety purposes, and all lighting associated with commercial and recreational areas shall be of the high cut off luminaire design, with no projection of light above the horizontal and shall utilize high or low pressure sodium lamps.

14. Clark Lake Radio Observatory -Radio Noise

Possible operation of radio transmitters of substantial power by project residents could adversely affect Clark Lake Radio Observatory. As discussed in the Rodriquez Borrow Pit EIR (P77-64, EAD Log #77-5-4), Clark Lake Radio Observatory (CLRO) is a major state-of-the-art radio observatory and highly subject to interference by a wide variety of sources of radio frequence energy. The primary concern relative to this project is radio transmitters (rather than incidental radiation from automobiles, electrical appliances, etc.) operating on frequencies less than 140 Megahertz on the project site, and such transmitters will be more or less line of sight to CLRO with no intervening mountains or hills that can afford protection. After conversations with the Federal Communications Commission, three radio services would appear to be the primary concern: the Broadcast Radio Service, Amateur Radio Service, and the Citizens' Band Radio Service.

Investigation indicates that the County cannot directly or indirectly regulate authorized radio transmissions by stations such as Broadcast, Commercial, Military, Amateur, or Citizens Band or licensees operating under a valid FCC license, or subject to licensing requirements, for the purposes of preventing or controlling interference by such devices or persons. According to the Federal Communications Commission (FCC) such regulation by local or state governments is preempted by the Communications Act of 1934: 82 Stat 290; 47 U.S.C. 302, a position likewise taken in Schroeder v. Municipal Court of Los Cerritos, 73 Cal App 3rd. 841 (141 Cal Rptr 85). (The emphasis is on the intent of regulation and the FCC states that devices such as antennas can be regulated for aesthetic or safety purposes, Commercial and Broadcast facilities can be regulated as a business or commercial land use activity per se, although incidental interference from electrical motors, automobiles, appliances, etc. not subject to FCC licensing can be regulated via land use controls, such as was the case in the Rodriquez Borrow Pit application.)

In addition, it is noted that the FCC can establish any required controls, and at present the FCC has proposed the exact type of regulation required (creation of a radio quiet zone) in Proposed Rulemaking. SS Docket No. 78-352, following petition by the National Radio Astronomy Observatory (NRAO) at Green Bank, WV, and the Naval Research Laboratory (NRL), Sugar Grove, WV. on March 8, 1978. It is also noted that the general topic of interference (although primarily to home entertainment devices) has been the subject of considerable attention at the Congressional level (HR-11812 of 1978; S-864, HR-8496, and HB-8079 of 1977; and HR-7052 of 1976).

Lastly, although it is not implied that reliance can be placed on CC & Rs, it is expected that CC & Rs common to this type of development will occur as a standard practice of the developer. Such CC & Rs typically if not always include restrictions against outdoor antennas of the typed needed for effective transmitting with appreciable amounts of power (100 watts or more).

Mitigation Measure

Not required at local level, and required mitigation can be achieved by FCC action. It is also noted that imposition of a radio quiet zone by the FCC would, according to the FCC, affect all existing as well as future radio transmitting stations and licensees, thus resolving a concern that existing stations in operation prior to the FCC establishment of a radio quiet zone might be allowed to continue operation.

15. Cumulative Impacts (No Mitigation Measures Proposed)

Cumulative impacts as defined in the State EIR Guidelines refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects.

Also under Section 15082, Mandatory Findings of Significance, a project shall be found to have a significant effect on the environment if the project has possible environmental effects which are individually limited but cumulatively considerable. As used in the subsection, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

The draft EIR attempts to evaluate the cumulative impacts of 1995 development of two Specific Plan phases of Ram's Hill with a total of 1,562 du's, 600 hotel rooms, a medical clinic, complementary range of resort facilities and development of the Borrego County Club at 782 residential units and incidental growth. The conclusion is that the cumulative impacts of these projects would substantially change the character of the Valley by converting the present small community of 1,600 people into a large scale desert resort with a population exceeding 10,000. (Discussion can be found in the Draft-EIR pgs. 196 - 200.) Cumulative impacts so discussed would magnify impacts to all resources in the Valley. The most substantial impact identified being the impact on water supply. Potential development discussed above could create a more substantial groundwater mining condition than predicted on available information.

ENCLSOURE B-1

LETTERS OF AND RESPONSES TO PUBLIC AND OTHER AGENCY COMMENT

During the 45 day public review period that commenced on July 31, 1979 and ended on September 28, 1979 (a total of 59 calendar days), fourteen (14) letters of public and other agency comment were received. Staff responses appear in brackets ([ ]).

The State Clearinghouse 45 day review period commenced on September 4, 1979, and ended on October 20, 1979 (State Clearinghouse number (SCH) 79091206).

1. From A.E.J. Engel, Ph.D., D. Sc., Geologist, who limited his comments to water quantity and quality and made the following comments in summary:

Because future precipitation and agricultural activities remain unknowns, and there exists no other rational, obvious source of water available at acceptable costs, any decision based upon recharge of more than 6000 acre feet per year would appear dangerous if not irresponsible.

If we use the 6000 acre feet value and contemplate the projected population increase in the valley to some 10,000 people in 1995 (EIR, Rams' Hill) coupled with water needs imposed by attendant golf courses, agriculture, commercial operations, et al, the following sequence of events is likely:

1. Water mining will continue, perhaps increase appreciably, within the Borrego Reservoir throughout the next 10 to 15 years (EIR, BWD and EIR, Rams' Hill).

2. Concentrations of highly soluble salts, especially nitrates, TDS, and perhaps organic wastes, will increase rapidly and poison major segments of the water supply far beyond the recent poisoning documented in the Borrego Springs area.

3. Concentrations of dissolved salts in the water, which now may average ~ 500 to 900 ppm (EIR, Borrego Water District, page 24, 1979) may rise to levels in excess of the 1000 ppm regarded as a safe upper level for continous human consumption. Sodium content of the waters will increase. If so those most seriously affected by high sodium will be senior citizens who dominate the population of much of the Borrego Valley.

4. The future of Borrego Springs and any related community drawing upon the Borrego water supply will be severely jeopardized.

5. In view of concurrent demands for water in every community throughout Southern California, it is unreasonable to suggest that a satisfactory alternative or additional economic source of quality water will be found at costs possible to Borrego Springs.

6. The entire community of Borrego Springs and environs may expect dramatic dilution in equities of properties of the type currently existing along the Salton Sea.

7. In this scenario those land owners of presently undivided parcels throughout the Borrego Springs area would find their holdings essentially worthless except as desert scenery.

In the light of possible events such as those suggested above which are typical of almost every highly developed desert basin of the world, we reiterate that prior to any further decisions about expanding water use, and distribution, a study of the sort we have proposed above is imperative. These studies must necessarily predate all decisions regarding the possible additional use of water by Rams' Hill, and before any greatly expanded development is permitted within the Borrego Springs area itself.

Failure to make appropriate studies, by able scientists not on payrolls of either developers or the B.W.D. may spell disaster for the community Borrego Springs. [See Major Issue and Mitigation Measure #1]

2. From the Department of Parks and Recreation, Anza-Borrego State Park addressing several possible longterm effects of the project on the State Park: The possible need for a second power transmission line across Park lands; the projected need for widening of the road system throughout the Valley; the impact on the Park if groundwater supplies are inadequate and an aqueduct for importing water is required.

   [See Major Issues #3 and #1. Impacts of the project on the State Park were previously addressed in GPA 76-02. We find no significant change in the conditions which would warrant changes in the previous environmental findings.]

3. From the Department of Fish and Game: stating that a more acceptable development would be the incorporation of the "Recommendations to Reduce Biological Impacts" Biology Appendix, pages 12-13, into the project design, and the need to control ORV use in unauthorized areas.
   [See Major Issue and Mitigation Measure #5]
4. From Conservation Call: discussing the projects growth inducing impacts and resulting water supply and air quality problems.
   [See Major Issue #1 and #2. Growth inducing impacts of the project were addressed in the previous General Plan Amendment GPA 76-02. We find no significant change in the conditions which would warrant changes in the previous environmental findings.]

5. From the Sierra Club: discussing their opposition to urbanization of the Valley based on the information presently available on resources and conditions. The concerns include: groundwater mining, availability, and the project impacts to water quality; high consumption of energy for space cooling and water pumping; urban level demand for public services; increased air flights into the Valley with noise and air quality impacts; increased traffic congestion coming into the Valley from the west; impacts of auto emissions on the air quality of the Valley (current proposed for class A).

   [See Major Issues #1, #2, #12, #3].

6. From LAFCO: stating that although the Draft-EIR assumes that the water district's latent powers will be authorized for both sewer and water service and that annexation of Ram's Hill to that district will occur (See Authorization of Latent Powers for the Borrego Water District EIR) both are independent actions and should not be assumed before the Commission has made its decisions. In addition LAFCO comments that a number of value judgements which lapse into project advocacy, appear in the Draft-EIR and such judgements have no place in an objective informational document.

[See Major Issue #1].

7. From Clark Lake Radio Observatory: Radio emissions from Ram's Hill could seriously disrupt the facilities' radio astronomical observations.

[See Major Issue #14].

8. From the Desert Protective Council: stating that the mitigation measures and alternatives do not alleviate the concerns expressed in past hearings and the DPC continues to question the adequacy of conclusions derived relative to the impacts on air, water, State Park, energy, traffic, archaeological resources and wildlife habitat.

[See Major Issue #1, #2, #3, #6, #5].

9. From Century 3: Stating that the environmental findings are not clear, the social and economic benefits are also vague, the EIR appears to be biased and the project should be delayed due to the following:

Rationale for Delayed Project

The EIR notes a number of facts and conditions which justify a delayed project.

1. The "success" of the project (changing the whole valley) depends on active government participation (p.187).
2. That participation (preparation of a community plan) is not in the forseeable future (p.187, p.34, p.17).
3. This project alone (whole valley does not change) has significant adverse environmental impacts (p.212).
4. This project alone (without induced growth) has no significant overriding social and economic benefit (p.192).

[See Major Issue #15.]

10. From the San Diego County Archaeological Society: addressing the significance and rarity of Site #2 and stating the preferred mitigation is preservation and due to the likelihood of indirect impacts the necessity of documenting all features and their relationship to each other.

[See Major Issue #6.]

11. From the Air Pollution Control District addressing the proposed Tristeno Air Basin classification of the Borrego Valley and commenting on the methods used in the Draft EIR to ascertain this project's impact on the Valley air quality.

[See Major Issue #2].

12. From the Borrego Springs Community Association reaffirming their support of the project.

[No response necessary].

13. From the Borrego Springs Chamber of Commerce supporting the concepts and specifics of the project.

[No response necessary].

14. From the Health Services Agency requesting clarification of several issues as they relate to accessibility of health services to be provided by the Scripps Satellite Clinic.

[No response necessary.]

The following comments were received after the close of the State Clearinghouse review period on October 20, 1979 and are included without staff response.

15. On December 3, 1979, a letter was received from the Environmental Health Branch through the State Clearinghouse: commenting that increased irrigation will compound Borrego Valley's perennial eye gnat problem.

16. On December 3, 1979 from the Air Resources Board: commenting on the methodology utilized in emissions estimations, the need for additional mitigation measures to minimize the air quality impacts from this development, and the need for a discussion in the draft of the Prevention of Significant Deterioration provisions of the Clean Air Act.

1-7-77

temp. add c/o General Delv
A. Engel
Victor, Mt., 598
tel. 406-642-6686

Ms. Nancy Whalen
S.D. Co. Environmental Analysis Division
San Diego Ca., 92123

Dear Ms Whalen,

Please note the enclosed comments re Ramo Hill EI
Frankly, I'm shocked that problems of water quality are lar
ignored in this EIR. Hence I have limited my comment to wate

There is a lot of water in the world. The Ocean, inland sea
dal. The amount to drink & use in agriculture is vanishingly
small in most desert region. In most, potable water is rare, if pres

Lack of discussion of the Nitrate infiltration at Borrego
can not be inadvertant. Lack of a frank study of salinity is very se

The question is not ~~if~~ Borrego will destroy the quality of
reservior of ground water, merely when!

We have the whole, sad history of despoiled desert basin
of the world that tell us their story. We desperately need a good restudy.

There are many other unaddressed questions & problems in
the EIR. I dealt with water because of its importance to life.

In haste. Very sincerely
A Engel

P.O. Box 471
Borrego Springs, CA. 92004

August 29, 1979

To: Whom It May Concern

From: A.E.J. Engel, Geologist

Regarding: Rams' Hill EIR, Borrego Valley, California

The EIR on Rams' Hill is seriously deficient in many ways. Some of the more disturbing errors of omission relate to the quality of water, especially as water quality deteriorates under the impact of irrigation (with fertilizers) and the recirculation of resultant salt-laden waters.

In Borrego Springs the problem is exacerbated because:

(A) farms and golf courses lie astride the major aquifers,

(B) fertilizer containing nitrogen is used extensively thereon,

(C) resulting salts, especially the highly soluble salts such as nitrates, chlorides, et al, are leached through the porous sands and gravels into the water reservoirs.

(D) the resulting, more saline groundwater is recirculated during irrigation and domestic uses, carrying additional salts into the reservoirs.

(E) as mining of water proceeds the feedback continues and salinities increase, to the point where amounts of nitrate and total dissolved solids approach or exceed those considered safe for human consumption ($\approx$45 ppm nitrate and $\approx$1000 ppm TDS).

If we assume the underground reservoirs are crudely interconnected, a decade or more of watering, fertilizing, and salting of the underground reservoir (especially with overdraft) may render much of the underground water unfit for human consumption.

This is the classic desert basin cycle observed throughout the world.

In this context it should be noted that over 90 percent of the water used in the Borrego region is for agriculture, golf courses, and landscaping (EIR, Rams' Hill, p. 140 Table IV-0-1). Further, much of the water consumed by humans takes the form of sewage enriched in organic wastes, nitrogen and other salts.

Leaching of soluble salts and sewage downward into the water reservoirs is accentuated during heavy desert storms that drop from one to several inches of water on the salted substrate.

The resulting problems involving salinization of groundwater are serious in the light of recent experiences with water in Borrego Valley wells. For example, in 1975 concentrations of nitrate in one of the Borrego Springs Water

Company wells at Borrego Springs rose "abruptly" from "safe" values to over 100 ppm which is considered unsafe for humans (EIR, Borrego Water District, and Notice to Customers, 1975-76). Accordingly, some water from this well was diluted with water from one or two less impacted wells, but finally usage of the poisoned well had to be abandoned (Public Notice to Customers).

At the time that water in this well became undrinkable, the Borrego Springs Water Company had only one or two viable wells for the entire community. An additional well on County Club Drive collapsed. The resultant heavy pumping of the one or two viable wells, through old pipes, for long distances, produced silt and sulfate laden waters in homes normally supplied by the collapsed well. These contaminated waters were not only unfit for human consumption, but also full of sediment and total dissolved solids. They clogged plumbing fixtures, washing machines, filters, and created a serious hazard over a period of some 7 months until a new well could be hastily drilled by the Borrego Springs Water Company. It is this water system with a few cosmetic touches from which the Rams' Hill Country Club Project proposes to supply most of its needs (EIR, Borrego Water District).

With increased growth within Borrego Springs proper and any annexation of Rams' Hill by a Borrego Water District, there exists the strong probability of continued and significant water mining. This is conceded in the Rams' Hill EIR (Table IV-O-4, page 145).

Under these conditions recycling of waters bearing highly soluble nitrates and other salts will cause continued increase in the salinity of the underground waters. With continued water mining, salt buildup could impact much of the north Borrego reservoir and create a serious hazard for the entire community including the Anza-Borrego Park System.

As is recognized (EIR, Rams' Hill, Table IV-O-4) the future of agriculture in the Borrego Valley is unpredictable, but at present more lands are being put into citrus groves. In addition, at least two, perhaps more golf courses are scheduled to evolve (Borrego Park and Rams' Hill). This means that for the next few years the total amount of water (with fertilizer) used for irrigation will equal, perhaps exceed recharge (unless there is a sudden climatic change).

Clear, specific recognition of the above cited situation and its inherent dangers should accompany any EIR on Rams' Hill, or in a major expansion of dwellings, golf courses and landscaping in the Borrego Springs Area.

The problem cannot and will not be solved by recourse to the tired old data used in the Rams' Hill EIR. Moreover, evaluation of these problems cannot be left to geologists and engineers employed by either the developers or the Borrego Springs Water Company. Proof of this is the suppression of the nitrate problems and any suggestions for corrections.

A possible clue to the potential hazards exists in the repeated claims by both the B.S.W. Co. and the Rams' Hill developers that "no more studies are needed."

Without a thorough, dispassionate study by the most qualified water scientists, geologists and chemists, these problems will be swept under the sands.

Need for the study is obvious if we consider the proposed increase in population to some 10,000 people with attendant commercial and golf course

activities in the region. (see pages 198-199, 203, 210 and 211, Rams' Hill, EIR) and subsequent discussions of water consumption and water mining.

The history of nitrate buildup to poisonous levels in at least one Borrego Springs Water Company well (since 1974?) is evidence of the extremely fragile nature of the reservoir and the potential for loss of large segments of the water reservoir for human consumption. It is also probable from the fragmentary well data and from projections into the future of the average precipitation over the last 40 years, that the postulated expansion of Borrego Springs per se to some 2500 to 4000 more dwellings, one to three more golf courses, and attendant agricultural and commercial activities could unduly stress and degrade the Borrego aquifers.

In the Rams' Hill EIR a water crisis of serious dimensions is conceded as a possibility (page 196) but this crisis is dismissed with the casual comment that "acquisition of a substitute future water supply should one become necessary, would be the responsibility of Public Agencies" (page 196). In other words, if our concerns have any basis in fact, we have no recourse other than to explain the catastrophe to "Public Agencies," who of course have the final responsibility of deciding whether a dangerous gamble on water quality can be justified without further study.

There is, moreover, no specific discussion in the Rams' Hill EIR of the almost impossible task and incredible cost of reclaiming nitrate and Na-rich waters or waters with excessive total dissolved solids as these may continue to develop.

The suggestions for alternate sources of water are ridiculous.

There is also no attempt to relate or reconcile the contradictory inference that (A) the north Borrego Valley water reservoir per se is relatively homogenous and interconnected and (B) the documented large variations in water level, salt content, and water quality from well to well within the northern reservoir (see EIR, BWD, Table 5.2-1, and DWR, 1968).

In view of the serious questions, especially the dangers of major pollution associated with probable water mining operations, and the suppression of the problems encountered to date, no major expansion of the Borrego Springs water system per se should be seriously considered, much less approved until far more definitive studies are undertaken.

The obvious source of such a study would be the highly qualified water scientists in the Water Resources Branch of the United States Geological Survey. Discussions with U.S.G.S. officials in the San Clemente office of the U.S. Geological Survey indicates they are capable and willing to undertake such a study. Current costs are on the order of $125,000 to $150,000. One-half of these costs would be borne by the Geological Survey and the other half to be obtained within the State, County, and Community. Obviously, problems as important as those in question involving the lives of thousands of people and investments of many millions justifies expenditure of some $75,000 to quantify and more clearly define the problems of water quality, water degradation, water mining as well as simply amounts of water.

Amount of Water

Discussions of (A) the amount of water in the Borrego reservoir and (B) recharge of the reservoir that appear in the Rams' Hill EIR are unacceptable. The problems are discussed with inadequate and poorly determined, old, data, and numbers. A careful restudy of the problem by competent scientists who do not have a vested interest in land development is imperative prior to any decision to utilize water from the Borrego Springs Water Company in the Rams' Hill Development.

Specifically, concepts of the size, and internal structure of the valley reservoir are simplistic at best. Geological studies during the last decade by geologists of the U.S. Geological Survey (U.S.G.S. Professional Paper, Borrego Mountain Earthquake, 1969) and our own studies in the Borrego Sink and adjacent mountains suggest that Borrego Valley is transected by at least four major faults and fold systems and numerous subordinate structural features. These produce steeply dipping zones of varying permeability which may not permit free movement of groundwater within adjoining reservoirs. The complex fault system coupled with the so-called "Desert Lodge anticline" as well as horsts and folded segments of the relatively impervious Palm Springs Formation, imply critical deviations from the concept of a dual, possibly quasi-contiguous reservoir (see also, page 153, EIR, Rams' Hill). The suggestion of a complex and fragmented reservoir appears substantiated by existing well data suggesting a related pattern of unequal water levels, uneven yields, and differing salinities of clusters of wells within the Borrego Sink (DWR, 1968; EIR, BWD, Table 5.2-1 and cross section page 11B).

Unfortunately, most wells, and over 85 percent of water consumed in Borrego Valley, are privately controlled (EIR, SWD, page 6), and it is difficult if not impossible for a private citizen to obtain adequate necessary information regarding water from these wells to resolve these problems.

The future of agriculture is a major unknown, as is future weather.

The suggested studies by the U.S. Geological Survey would unearth enough contemporary and historical data to permit refinements in estimates of the reservoir size, internal complexity, yields, water degradation, and salinities of most wells and a dispassionate analysis of the related plethora of data that now exists.

The present values of recharge ranging from 3300 acre feet (Lough, 1973) to the optimistically high values of some 11,000 or more acre feet (BLM and others, EIR, BWD, Table 2) surely can be refined. Estimates of recharge are, however, especially subject to errors due to our ignorance of precipitation over the next 50 to 100 years. If the data on precipitation from the last 40 years are extrapolated into the future, the value of some 6000 acre feet recharge per year suggested by Threet (BWD, EIR, Table 2) may not be unreasonably high. If the general decrease in average precipitation indicated for the last 3000 years continues - and this is suggested by precipitation data between 1935 and 1975 - average recharge in the Borrego Basin in the next 50 years could be nearer Lough's figure of 3300 acre feet. Either value is far too low to prevent water mining.

Because future precipitation and agricultural activities remain unknowns, and there exists no other rational, obvious source of water available at acceptable costs, any decision based upon recharge of more than 6000 acre feet per year would appear dangerous if not irresponsible.

If we use the 6000 acre feet value and contemplate the projected population increase in the valley to some 10,000 people in 1995 (EIR, Rams' Hill) coupled with water needs imposed by attendant golf courses, agriculture, commercial operations, et al, the following sequence of events is likely:

1. Water mining will continue, perhaps increase appreciably, within the Borrego Reservoir throughout the next 10 to 15 years (EIR, BWD and EIR, Rams' Hill).

2. Concentrations of highly soluble salts, especially nitrates, TDS, and perhaps organic wastes, will increase rapidly and poison major segments of the water supply far beyond the recent poisoning documented in the Borrego Springs area.

3. Concentrations of dissolved salts in the water, which now may average ~500 to 900 ppm (EIR, Borrego Water District, page 24, 1979) may rise to levels in excess of the 1000 ppm regarded as a safe upper level for continous human consumption. Sodium content of the waters will increase. If so those most seriously affected by high sodium will be senior citizens who dominate the population of much of the Borrego Valley.

4. The future of Borrego Springs and any related community drawing upon the Borrego water supply will be severely jeopardized.

5. In view of concurrent demands for water in every community throughout Southern California, it is unreasonable to suggest that a satisfactory alternative or additional economic source of quality water will be found at costs possible to Borrego Springs.

6. The entire community of Borrego Springs and environs may expect dramatic dilution in equities of properties of the type currently existing along the Salton Sea.

7. In this scenario those land owners of presently undivided parcels throughout the Borrego Springs area would find their holdings essentially worthless except as desert scenery.

In the light of possible events such as those suggested above which are typical of almost every highly developed desert basin of the world, we reiterate that prior to any further decisions about expanding water use, and distribution, a study of the sort we have proposed above is imperative. These studies must necessarily predate all decisions regarding the possible additional use of water by Rams' Hill, and before any greatly expanded development is permitted within the Borrego Springs area itself.

Failure to make appropriate studies, by able scientists not on payrolls of either developers or the B.W.D. may spell disaster for the community Borrego Springs.

A.E.J. Engel, Ph D, D.Sc.
Earth and Environmental Sciences

B-10

STATE OF CALIFORNIA—THE RESOURCES AGENCY EDMUND G. BROWN JR., Governor

DEPARTMENT OF PARKS AND RECREATION
Anza-Borrego Desert State Park
Borrego Springs, California 92004
(714) 767-5311

419.1-622

August 13, 1979

Ms. Nancy Whelan
Environmental Analysis Division
County of San Diego
9150 Chesapeake Drive
San Diego, California 92123

Dear Ms. Whelan:

Thank you for the opportunity to review and comment on the Rams' Hill Country Club Environmental Impact Report.

Several possible long-term effects are of concern to Anza-Borrego Desert State Park.

On page 115 the possible need for a second power transmission line for the Borrego Valley is discussed. Any transmission line would, of course, have to pass over State Park System lands. One of the prime resources of this great desert park is the unimpaired vistas giving visitors scenes of vast areas without anything manmade. A transmission line marching across unspoiled terrain immediately brings everything to scale and lessens the enjoyment of the viewer. Beyond the aesthetics, there is an initial disruption of the plant and animal populations of the area during construction of the line. And there is a continuing disruption when periodic maintenance occurs.

A second transmission line would not be desirable from the park point-of-view. Using the existing poles and upgrading the service might be a viable alternative.

But the real answer is to quit the dependence on outside power sources. Surely, if solar power is ever to be successful the Borrego Valley has to be a prime candidate for a location. Sun is virtually omnipresent. A prototype solar energy system for Rams' Hill would not only be a conventional energy saver but also a park saver.

On page 133 widening of county roads is mentioned. Park lands would also be impacted by this proposal. Safe roads are important but if the purpose of road widening is only to save a little time then a great many other considerations should prevail. Wider roads mean more blasting for road cuts, more surface run-off causing more erosion, an increased mortality rate for animals attempting to cross the roads and a high visual impact from increasing cuts and fills along the roadway. All of these lessen the quality of the visitors experience to the park.

Page 150 deals with the possibility of the need for importation of water if the underground supplies within the Borrego Basin prove to be inadequate for future development. The specter of an aqueduct/canal/pipeline across the park is too gross to imagine. Growth should be limited to the existing water resources of the valley.

Page 151 also deals with the water table of the valley. The possibility of a levee and infiltration pond system for the mouth of Coyote Canyon is raised. Any such work contemplated should be done entirely on private lands in that area. The developer of Rams' Hill owns adequate land in the mouth of Coyote Canyon for this possible use. There are constant pressures for the park to open up its lands in Coyote Canyon, Henderson Canyon, Borrego Palm Canyon, Hellhole Canyon, Dry Canyon, and Tubb Canyon for flood control dikes, levees, siltration basins, etc. This project should not increase these pressures.

If I can clarify any of these points please don't hesitate to call on me.

Sincerely,

MAURICE H. GETTY
Manager
Anza-Borrego Area

MHG/jt

cc: Ronald C. McCullough

STATE OF CALIFORNIA—RESOURCES AGENCY EDMUND G. BROWN JR., Governor

DEPARTMENT OF FISH AND GAME
350 Golden Shore
Long Beach, CA 90802
(213) 590-5113

August 23, 1979

County of San Diego
Environmental Analysis Division
9150 Chesapeake Drive
San Diego, CA 92123

Gentlemen:

The Department of Fish and Game has reviewed the Environmental Impact Report for Ram's Hill Country Club describing the development of 2,158 acres in eastern San Diego County. We wish to submit the following comments for your consideration.

This development would be more acceptable from a natural resources point of view if the "Recommendations to Reduce Biological Impacts" on pages 12 and 13 of the Biology section, Technical Appendix, Volume I were incorporated into the project. Unquestionably, the greatest long term impact will be from off-road vehicles. The closure of Old Borrego Valley Road would be a positive measure to reduce ORV activity in the eastern portion of the property. This, plus any other steps that would control ORV use in unauthorized areas, should be carefully considered.

Thank you for the opportunity to comment on this proposed project. If you have any questions, please contact Dwayne C. Maxwell or Jack L. Spruill of our Environmental Services staff. The telephone number is (213) 590-5137.

Sincerely,

for Matthewson

Fred A. Worthley Jr.
Regional Manager
Region 5

B-13

CONSERVATION CALL
3942 Hughes Court
San Diego, Ca. 92115

Telephone: (714) 583-8486

30 August 1979

79-11-1

Nancy Whalen
Environmental Analysis Division
County of San Diego
9150 Chesapeake Drive
San Diego, CA 92123

Dear Ms. Whalen:

We find the Environmental Impact Report for the Rams Hill Country Club project to be unsatisfactory. Despite its length, the findings do not reveal the basic faults of the project.

From the first, we have thought that it would be growth-inducing in an area where such growth is not desirable, with the problems and water supply and air pollution surely following. The wilderness atmosphere of Anza-Borrego Desert State Park would be adversely affected.

We ask that the Rams Hill Country Club project be disapproved.

Sincerely,
Roscoe A. Poland
Roscoe A. Poland, Director

AS WE SAVE THE NATURAL WORLD, WE ALSO SAVE OURSELVES

Sierra Club
San Diego Chapter
1549 El Prado, Balboa Park
San Diego, California 9210[illegible]

To: Environmental Review Board

From: Desert Subcommittee

Subject: Ram's Hill Country Club

Although the item before you at the present time is Phase I of the Ram's Hill project, decisions being made now have much greater implications for the future of the Borrego Valley than the development of 596 acres might imply.

The Sierra Club has consistently been opposed to the urbanization of the valley based on the information presently available on resources and conditions there. The two developments approved in concept in recent years - Ram's Hill and Borrego Country Club - can change Borrego Springs from a town of 1200 to a city of close to 20,000. And these estimates do not take into full account the secondary growth these developments probably will generate.

Since the area in question is rural and in many places totally undeveloped by man, the opportunity to use foresight in the planning process exists. Unfortunately, you are being asked to make these important decisions without adequate data. The water question illustrates this point very well.

During the original DiGiorgio hearings all sorts of numbers and estimates were bandied about. Finally 25 years was settled upon. For the projected population it was said that there was enough groundwater for 25 years. Water mining was anticipated by 1986. Even if there is a sufficient quantity of water when it is pumped from elsewhere in the valley than the projects' locations, will the quality be adequate for human consumption? Some wells have apparently already been closed due to nitrate poisoning.

It is our position that no approvals such as Ram's Hill be given until the many questions surrounding the water situation are studied in detail by a US Geological Survey team. You owe it to present and future residents of the valley as well as to all county residents to determine the availability of and projected quality of the water supply. As stated in the EIR "... acquisition of a substitute future supply, should one become necessary, would be the responsibility of public agencies." At earlier hearings such substitutes as importation of water were deemed essentially impossible.

CPO has said that "The Borrego Valley is one of the least desirable locations in the region for new development from an energy standpoint." Estimates of the energy need for space cooling in Borrego Springs are enormously greater than in the metropolitan San Diego area. Furthermore, increased demand for water requires energy for pumping. The increased load as a result of anticipated growth might well require the addition of another transmission line to the valley.

Another question is the impact this urbanization will have on many of the services government provides in theurban areas of the county. What about animal regulation, the assessor, building inspection, road maintenance stations, courts, library and social services? Will new branches, substations and offices be created to serve this remote urban area? Or will county personnel have to expend time and gasoline to drive out there? Or will the residents drive in? Certainly if they are living in an urban area they will expect urban level services.

The remoteness of the site will undoubtedly lead to many auto trips into and out of the valley. The EIR concerns itself mainly with traffic in the valley itself, and does not deal adequately with travel from the metropolitan areas of San Diego and Los Angeles. It seems unlikely that roads into the valley from the west could safely carry a large increase in traffic. And what about increased flights into and out of the valley for those frequenting their second home retreat? The noise and air pollution involved in increased air traffic has not been addressed.

The State Air Resources Board has proposed Class A status for Anza-Borrego Desert State Park. The Sierra Club feels that urbanization of the valley will have serious air quality implications for the region and for the park. The EIR concludes that Ram's Hill would not affect the Class A designation because "The decrease in VMT and trip-related emissions per vehicle from 1978 to 1985, because of more stringent controls on vehicle emissions, would more than outweigh the projected increase in automobile activity resulting from the project. It isour belief that reliance upon the implementation of these controls is not advisable. According to a recent newspaper article (San Diego Union, August 25, 1979) "The government gave automakers permission yesterday to exempt tens of thousands of cars from the tough 1981 emission standards and indicated more waivers may be coming."

We are concerned about the results the flood prevention measures proposed might have on surrounding properties. The San Diego County General Plan considers an extensive system of earth levees to be the best method of flood protection in this area, and in the past the Department of Sanitation and Flood Control has stated that the entire levee system proposed in the General Plan would be needed if part of the system is constructed in the valley. If a maze of levees and channels is necessary to protect life and property, what kinds of impacts will these have? What will the visual impacts on the park be and on the scenic highways in the vicinity of the project?

Many socioeconomic questions remain unanswered. Since much of the applicant's proposed justification for the plan is based on the claim that there is a downward trend in the Borrego Springs economy there should be trend data presented in the EIR to support or refute such a statement. Such data should also be available to prove the so-called sociceconomic benefits of the project are indeed adequate to over ride the considerable environmental impacts.

In summation it is apparent that there is a potential for the creation of many long term problems and costs for the county plus substantial environmetal damage. If San Diego were to receive extensive benefits in return, thisproject might be justified. Reflection on the following questions suggests that this does not seem to bethe case.

Will the proposed development help San Diego County to solve present problems

> by increasing housing supply especially for moderate and lower income families?

by creating jobs close to present concentrations of unemployed or underemployed persons?

by encouraging mass transit?

by revitalizing downtown?

by reducing air pollution?

by cutting back on energy consumption?

It seems unwise to step into a situation without further study that may create problems when so many unsolved ones now present a challenge to governments in the San Diego region.

Sincerely,

Penny L. English

Penny L. English
Desert Sub-committee
Sierra Club, San Diego Chapter

B-47

(714) 236-2015 · san diego
Local agency formation commission
1600 pacific highway · san diego, ca. 92101

chairman
Tom Hamilton
County Board of Supervisors

executive officer
Michael J. Gotch

counsel
Donald L. Clark

members
Ralph W. Chapman
Otay Municipal Water District

Dr. Charles W. Hostler
Public Member

William J. Karn
Fallbrook Public Utility District

Dr. Lucy Killea
Councilwoman, City of San Diego

Gloria McClellan
Councilwoman, City of Vista

Lucille V. Moore
County Board of Supervisors

alternate members
Alex L. Adams
Padre Dam Municipal Water District

Dell Lake
Councilman, City of Lemon Grove

Stanley A. Mahr
San Marcos County Water District

Paul Eckert
County Board of Supervisors

September 24, 1979

TO: Kathleen A. Lehtola, Director
Environmental Analysis Division (0175)

FROM: Laurie J. McKinley, Acting Executive Officer
Local Agency Formation Commission (A216)

RE: Draft EIR - Rams Hill Country Club, LSP 79-01
Log #79-11-1

Thank you for the opportunity to review and comment on the Draft EIR for the Rams Hill project. As you know, LAFCO is currently circulating a Draft EIR for a related project, the request by the Borrego Water District for authorization of its latent powers to provide water service. LAFCO has also received a companion proposal, a request for annexation of the Rams Hill project site to the Borrego Water District.

Project plans envision operation of water and sewer services by the Borrego Water District, which has led to the proposal for authorization of the District's latent powers at this time. Our review of the Draft EIR has consequently focused on the water and sewer aspects of the project.

Throughout the narrative, the Draft EIR assumes that the District's latent powers will be authorized for both sewer and water service and that annexation of the project site to the District will occur. Both authorization of a special district's latent powers and approval of an annexation proposal are independent actions by LAFCO and should not be assumed before the Commission has made its decisions.

There are a number of possible alternatives for providing the public agency which the Colorado River Basin Regional Water Quality Control Board is expected to require to operate the project's sewage treatment plant and sewer

system. The Draft EIR technical appendix (Volume II, Chapter VI) mentions the various alternatives, but only the alternative of using the Borrego Water District is evaluated in any detail. For LAFCO's purposes as a responsible agency, the Final EIR should examine the alternatives for providing services in greater detail.

In general, the Draft appears to depend upon a number of value judgments and predispositions about what is the best means for providing services to the project and what is best for the Borrego Valley as a whole. As an example, the Draft states that the Borrego Springs community is "an isolated area with inadequate public and private facilities (Draft EIR, page 10)." In reviewing the related LAFCO proposals, we have heard from a number of residents, property owners, and business persons in Borrego Springs who express the belief that the level of services is adequate for their needs. The point I am making is that such judgments as the example cited lapse into project advocacy and have no place in an objective informational document.

Again thank you for the opportunity to comment. Please call me or Bernie Rhinerson of my staff if there are any questions concerning these comments.

Very truly yours,

Laurie J. McKinley

LAURIE J. MCKINLEY
Acting Executive Officer

LJM:rs

B-19

UNIVERSITY OF MARYLAND
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF PHYSICS AND ASTRONOMY

MAILING ADDRESS:
CLARK LAKE RADIO OBSERVATORY
P. O. BOX 128
BORREGO SPRING, CALIFORNIA 92004

Sept. 26, 1979

Environmental Review Board
Attn: Ms. Kathleen Lehtola, Secretary
Environmental Analysis Division
9150 Chesapeake Drive
San Diego, CA 92123

Ref: Ram's Hill Country Club
LSP 79-01
Log# 79-11-1

Dear Board Members:

At the Clark Lake Radio Observatory, Borrego Springs, CA, we are concerned about the possibility that radio emissions from the Ram's Hill area could seriously disrupt our program of radio astronomical observations. Although Ram's Hill is at least as distant from Clark Lake as most other parts of the Borrego Valley, we are not as well protected by the terrain in its direction. Coyote Mountain protects us from most of Borrego, but Ram's Hill is practically line-of-sight through a saddle in the hills.

Due to its distance, we do not believe that normal residential activities,(for example, the operation of automobiles, pumps, heaters, air conditioners, radio or TV receivers, etc.) in the Ram's Hill area will interfere with our work. However, radio transmitters in the frequency range that we observe -- 0 to 140 MHz -- could be disasterous. Therefore, we request that the ERB prohibit fixed radio transmission at the Ram's Hill development in the frequency range 0 to 140 MHz. Note that this would prohibit FM and TV transmitters. On the other hand, it would allow mobile transmitters, such as those in the Citizen's Band. Mobile transmitters may cause problems, but a prohibition of them would be unenforceable. It would also specifically allow Amateur Radio transmitters in the 2-meter VHF band. Such transmissions are above 140 MHz and should cause us no difficulty.

Thank you for your cooperation.

Sincerely Yours,

William C. Erickson, Director
Clark Lake Radio Observatory

cc; Dr. M.R. Kundu
Mr. H. Kriemelmeyer
Mr. G.J. Kuhrts III
Dr. M.J. Mahoney
Dr. W.M. Cronyn

B-20

THE DESERT PROTECTIVE COUNCIL INC.

A NON-PROFIT ORGANIZATION

To safeguard for wise and reverent use by this and succeeding generations those desert areas of unique scenic, scientific, historical, spiritual and recreational value and to educate by all appropriate means children and adults to a better understanding of the desert.

BOX 4294 • PALM SPRINGS • CALIFORNIA 92262

ADVISORY PANEL

LYMAN BENSON
Pomona College
CHARLES M. BOGERT
American Museum Nat. Hist.
SYLVIA BROADBENT
Archeologist
JOSEPH F. CARITHERS
National Park Service
THOMAS CLEMENTS
Univ. of Southern Calif.
WALTER P. COTTAM
University of Utah
EDWARD B. DANSON
Museum of Northern Ariz.
NEWTON B. DRURY
Conservationist
KAREN FOWLER
Living Desert Reserve
LYLE GASTON
Biochemist
C. EDWARD GRAVES
Photographer & Writer
CARL HUBBS
Scripps Inst. Oceanography
DON GREAME KELLEY
Editor & Author
DALE S. KING
Naturalist & Publisher
GEORGE E. LINSAY
Calif. Academy of Sciences
EDWIN D. McKEE
Geologist
ROBERT STEBBINS
Herpetologist
VASCO M. TANNER
Brigham Young University
RALPH E. WELLES
Conservationist & Author
FRITS W. WENT
Desert Research Institute
MAURINE WHIPPLE
Author
JAMES WHITEHEAD
Environmentalist

DATE: 10-11-79

REPLY TO:

3941 Clark
San Diego, Ca 92103

STATEMENT FOR RAMS' HILL EIR
LSP 79-01 Log 79-11-1

The DPC appreciates the opportunity to comment on the EIR for Rams' Hill, Borrego Valley.

In the interest of your reading time, this report will be brief. The items mentioned have been documented by previously submitted testimony and are on file with the County under DiGiorgio's Borrego Springs General Plan Amendment.

The EIR appears to be inadequate and incomplete, with conclusions that are questionable under existing County Planning and implementation programs as well as State and Federal regulations.

Though the volumne of material in the EIR is three times greater than that for Borrego Springs, the facts have not changed.

The development is premature and is not in conformity with the County or CPO programs for development.

It is in a remote area and will require additional energy for transportation to and from the project. The use of aircraft for this purpose was not factored into the air/energy program.

The increasing costs of energy and electricity are inadequately addressed.

The water quantity question remains unresolved in spite of new graphs and quotations.

The water quality is not adequately covered.

Wastes from this project must be handled by generators of the waste and not by public funding.

Public services will not be supplied though the land and possible some facilities will be made available.

The possibility of power lines across state park lands has not received proper attention.

The possibility of flood devises and recreational facilities on park property have been suggested.

A dormant water district will be reactivated for the sole(?) purpose - "stated purpose" - of supplying water to Rams' Hill. The alternative is to deny water service to members of the dormant district. (See EIR for Authorization of Latent Powers for Borrego Water District, pg 41.)

Roads will have to be widened, in some instances jeopardizing the integrity of the State Park through which they cross.

The plan for archeological protection is inadequate, if not ridiculous. The watering of plants could accelerate growth of soft-fiber plants while dampening or melting artifacts.

The disposal of floodwaters in diversion channels terminating off-site is irresponsible and will place a burden on the public. There is no guarantee that the waters diverted to the Phase II site will remain on that site and not impact Borrego Springs Road and other properties downhill.

The air will be impacted by the project on both long and short term bases. The ARB proposal for Class A may be prejudiced. The report includes no comment from ARB. The assumptions relative to air circulation patterns are questionable. There are no studies that are authentic.

The impact of a lowered water table on surrounding property, expecially state park resources, has not been thoroughly explored

The visual impacts of the project, the flood diversion channels, the buildings, the commercial area, will have an adverse effect on valley visitors though the project residents and visitors will have an in-turned view of golf courses, etc.

The problem of dark skies and clear skies is ignored; astronomers at Laguna Mt and Clark Lake will be effected.

Housing for low and moderate income families is not included on the site. Affordable housing is close to town and will require transportation for builders and employees.

The State Parks are being tagged for the location and management of off-road vehicle activity.

The public has been identified as the source of income for the operation of public services in the Valley including some located on Phase I property.

The cumulative effects of Phase I as well as Phse II and Borrego Country Club have been "crystal balled."

IN SUMMARY, the DPC finds that the Phase I of Rams' Hill retains all of the adverse impacts covered in previous testimony and has added the reactivation of the Borrego Water District to its list of impacts.

The EIR, for all of its wordiness and new covers, has not alleviated the problems; it has tried to explain the problems away with glossier charts and the antiquated data.

The DPC maintains that the project is premature, is prejudicial of orderly planning in a remote area sans public services, is in conflict with County and CPO Planning Goals and Growth Patterns, and will adversely effect taxpayers, visitors and residents. The greatest and most adverse impact will be on the Anza-Borrego Desert State Park which is an internationally recognized desert resource.

Respectfully submitted,

Mary Swedlius

Mary Swedlius, Secretary

cc: Air Resources Board
State Parks and Recreation
Water Resources Board

B-22

THE DESERT PROTECTIVE COUNCIL, INC.

A NON-PROFIT ORGANIZATION

To safeguard for wise and reverent use by this and succeeding generations those desert areas of unique scenic, scientific, historical, spiritual and recreational value and to educate by all appropriate means children and adults to a better understanding of the desert.

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GEORGE E. LINSAY
Calif. Academy of Sciences
EDWIN D. McKEE
Geologist
ROBERT STEBBINS
Herpetologist
VASCO M. TANNER
Brigham Young University
RALPH E. WELLES
Conservationist & Author
FRITS W. WENT
Desert Research Institute
MAURINE WHIPPLE
Author
JAMES WHITEHEAD
Environmentalist

DATE: August 27, 1979

REPLY TO:

3750 El Canto Dr
Spring Valley, Ca 92077

Statement for the ERB hearing, August 30, 1979 on LSP 79-01, Log # 79-11-1, Rams Hill.

The Desert Protective Council, Inc, was advised that the ERB hearing scheduled for August 30th has been postponed until September 13, 1979.

Detailed comments will be submitted at that time, though the official notice of 7-31-79 stated that comments will be received until November 19, 1979.

In reviewing the EIR for Rams' Hill, the DPC finds that mitigation measures and alternatives do not alleviate the concerns expressed in past hearings.

For the record, the DPC continues to question the adequacy of conclusions derived from the EIR relative impact on clean air, water, State park, energy, and traffic as well as archeological, habitat and land form alterations.

Please advise the Desert Protective Council of all changes of times and places of hearings as well as of future hearings. Please use the address listed above for rely.

Harriet Allen

Harriet Allen, President
714-469-5179

B-2

Citizen's Coordinate
Century 3
1549 El Prado
San Diego, CA 92101
Tel: 232-7196

September 6, 1979

To: Environmental Analysis Div.

Subject: Borrego DiGiorgio Development
Log #79-11-1

Environmental Impact Report Inadequate

This EIR fails to address clearly the purpose of the project which is to irreversibly change (p. 5, p. 212) the Borrego Valley from scattered seasonal residential use to a permanent year round major resort community with full urban services. The environmental impact of that irreversible change needs clear analysis and definite findings. Since the stated intent of the project is significant growth in the valley, the EIR should directly address the impacts of a "successful" project which will change the character of the entire Borrego Valley. The clear intent of CEQA is to have the EIR inform decision makers of the "worst case" environmental impacts. This EIR fails to clearly analyze the significant long term impacts which will result from major changes in the scale and kind of development in the Borrego Valley.

Environmental Findings Not Clear

Since the EIR is not clear whether the project is to change the whole valley or just to build the first phase of this particular large scale project, the environmental findings are vague. The Executive Summary on p.5 and p.6 sets the standard for vagueness on the important subject of groundwater. Included by inference in an opening sentence as one of four important adverse environmental impacts, we are told in the next sentence that the "project" should not impact groundwater. But then again it might if annexation fails. And even so the changing hydrologic characteristics have an impact on habitat that cannot be mitigated. Finally, if both projects were built out, that could cause a major groundwater mining condition.

With that kind of uncertain unclear finding the EIR is not useful in decision making. The EIR is inadequate.

Social and Economic Benefits Not Clear

The EIR seems to conclude that some adverse environmental impacts exist which need overriding social and economic benefits. These benefits are more vague than the environmental findings. The Borrego Valley is a "half-formed" (p.193) economic community and presumably will become viable (full-formed?) if doubled from 1500 to 3000 permanent people. That may not be true, however, since winter boom times with 2200 people residing and 8000 to 10,000 weekend peak populace (p.10) the valley still has limited and extremely expensive services (p.214). There is no credible analysis of what permanent population will provide a sound economic base for the urban services expected by residents and seasonal visitors.

Social benefits are also vague. They included increased and more diverse recreational opportunities. This is exceedingly difficult to accept since the desert experience is now readily available through State Park facilities and golf and tennis can be found

Citizen's Coordinate
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San Diego, CA 92101
Tel: 232-7196

throughout San Diego County. And then it is acknowledged that San Diego winters are not so severe and that many prospective residents will come from other U.S. cities. What real social benefit can be found in simply providing more isolated winter resort accomodations for non-residents?

EIR Biased

In addition to being vague the EIR is consistently biased in favor of the project. Most glaring is the failure to address cumulative environmental impacts (of all the fully intended induced growth) while accepting as factual social and economic benefits which are purely speculative. Another example is the discussion of land use patterns in the Borrego Valley. Existing development is described which is commonly recognized as leapfrog urban sprawl, that is isolated unrelated spots of urban development. In the Borrego Valley, however, this is known as "distinctly nodal" (p.33) and this new project is completely in character with that form of development and would integrate (p.38) with the existing pattern of nodal development. Such special pleading language to justify one more leapfrog patch of urban sprawl in Borrego Valley shows unacceptable bias in the EIR.

Rationale for Delayed Project

The EIR notes a number of facts and conditions which justify a delayed project.

1. The "success" of the project (changing the whole valley) depends on active government participation (p.187).
2. That participation (preparation of a community plan) is not in the forseeable future (p.187, p.34, p.17).
3. This project alone (whole valley does not change) has significant adverse environmental impacts (p.212).
4. This project alone (without induced growth) has no significant overriding social and economic benefit (p.192).

The lack of government participation to encourage this project or any other growth in Borrego Valley is well established. The County will experience a fiscal cost since "tax revenues (only) somewhat offset public expenditures" (p.194). There is the further attitude of private sector reluctance to provide mortgage money for second homes (p.188).

These facts in the EIR provide a substantial basis to find that this project will be one more false start of a true community in the Borrego Valley. This false start will have significant adverse environmental impact without overriding benefits.

Conclusions

1. The EIR is inadequate by reason of being vague with respect to project definition; cumulative impacts; specific environmental impact findings; social and economic findings; and project bias.
2. Adelayed project is justified since without a community plan and government support of public facilities this current project will cause significant adverse environmental impact without social and economic benefit.

San Diego County Archaeological Society, Inc

Environmental Impact Report Review Committee
2325 Loring Street San Diego, CA 92109

12 September 1979

To: Environmental Analysis Division
County of San Diego
9150 Chesapeake Drive
San Diego, CA 92123

Subject: Rams' Hill Country Club Environmental Impact Report
LSP 79-01 Log #79-11-1

Gentlemen:

On behalf of this committee, I have reviewed the archaeological portions of the subject report, prepared by PRC Toups Corporation.

In general, the field investigations and the proposed mitigation actions appear to be adequate for this project. One possible exception is in the ambiguity with which mitigating measures for the impacts on Site #2 (Cal:E:15:4) are proposed.

Site #2 is rightly characterized as significant and rare, and the preferred mitigating measures are rightly given as preservation and protection. Salvage measures are proposed for the small portion of the site which evidently cannot be preserved. The value of Site #2, to a greater degree than is true of most sites, lies in the whole and in the interrelationships between the parts (sleeping circles, trails, etc.) rather than in each individual part. Furthermore, indirect impacts on the preserved portions of the site as a result of adjacent residential use, despite protection measures, are very likely. Accordingly, it is imperative that all portions of the site, and not just those in the limited areas of encroachment, be thoroughly documented by nondestructive techniques. All portions should be mapped. All portions should also be fully recorded photographically.

Thank you for the opportunity to review this report.

Sincerely,

Don Laylander

cc: chm, SDCAS EIRRC
pres, SDCAS
ACT
file

B-27

Sierra Club
San Diego Chapter
1549 El Prado, Balboa Park
San Diego, California 92101

To: Environmental Review Board

From: Desert Sub-committee

Subject: Rancho Mill Country Club

Although the item before you at the present time is [illegible] I am [illegible] probably desirable I [illegible] the Future of the Borrego Valley then the development of this area might imply.

The Sierra Club has consistently been opposed to the urbanization of the Valley based on the information presently available to us. We still are opposed to this development. The two developments approved in concept in the last years - Rancho Mill and Borrego Country Club - can change Borrego Springs from a community of 1200 to a city of close to 20,000. And these estimates do not take into full account the secondary growth these developments probably will generate.

Since the area in question is rural and in many places totally undeveloped it can be a catastrophe to use Borrego in the planning process unless. Unfortunately, you are being asked to make these important decisions without adequate data. The water question illustrates this point very well. During the original EIR hearings all sorts of numbers and estimates were published about. Finally 25 years was decided upon. But the projected population it was said that there was enough groundwater for 25 years. Water planners now anticipate by 1985. Even if there is a sufficient quantity of water what it is going to [illegible] in the valley, will it be [illegible] for [illegible] Rancho Mill [illegible] and there due to [illegible] [illegible] [illegible]

animal regulation, the assessor, building inspection, road maintenance stations, courts, library and social services? Will new branches, substations and offices be created to serve this remote urban area? Or will County personnel have to expend time and gasoline to drive out there? Or will the residents drive in? Certainly if they are living in an urban area, they will expect urban level services.

The remoteness of the site will undoubtedly lead to many auto trips into and out of the valley. The EIR concerns itself mainly with traffic in the valley itself, and does not deal adequately with travel from the metropolitan areas of San Diego and Los Angeles. It seems unlikely that roads into the valley from the West could safely carry a large increase in traffic. And what about increased flights into and out of the valley for those frequenting their second-home retreat? The noise and air pollution involved in increased air traffic has not been addressed.

The State Air Resources Board has proposed Class I status for Anza-Borrego State Park. The Club feels that urbanization of the valley will have serious air quality implications for the region and for the Park. Conclusions in the EIR are admittedly based only on "probable" behavior of atmospheric parameters and "approximations." Clearly more study is needed in this area also.

We are concerned about the results the flood prevention measures proposed might have on surrounding properties. The San Diego County General Plan considers an extensive system of earth levees to be the best method of flood protection in this area, and in the past the Department of Sanitation and Flood Control has stated that the entire levee system proposed in the General Plan would be needed if part of the system is constructed in the valley. If a maze of levees and channels is necessary to protect life and property, what kinds of impacts will these have? What will the visual impacts on the Park be and on the scenic highways in the vicinity of the project?

Many socioeconomic questions remain unanswered. Since much of the applicant's proposed justification for the plan is based on the claim that there is a downward trend in the Borrego Springs economy there should be trend data presented in the EIR to support or refute such a statement. Such data should also be available to prove the so-called socio-economic benefits of the project are indeed adequate to over-ride the considerable environmental impacts.

In summation, it is apparent that there is a potential for the creation of many long-term problems and costs for the County plus substantial environmental damage. If San Diego were to receive extensive benefits in return, this project might be justified. Reflection on the following questions suggests that this does not seem to be the case.

Will the proposed development help SD County to solve present problems

by increasing housing supply especially for moderate and lower income families?

by creating jobs close to present concentrations of unemployed or under-employed persons?

by encouraging mass transit?

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by revitalizing downtown?

by reducing air pollution?

by cutting back on energy consumption?

It seems unwise to step into a situation without further study that may create problems when so many unsolved ones now presents a challenge to governments in the San Diego region.

Sincerely,

Bernard L. Engle

Desert Sub-committee
Sierra Club, San Diego Chapter

Enclosure 13-30

HEALTH SYSTEMS AGENCY OF SAN DIEGO AND IMPERIAL COUNTIES

PUBLIC REGIONAL HEAL PLANNIN BOD

October 22, 1979

Ms. Kathy Lehtola
Environmental Analysis Coordinator
County of San Diego
9150 Chesapeake Drive
San Diego, California 92123

Dear Ms. Lehtola:

Thank you for providing the HSA staff the opportunity to review the health component of the Environmental Impact Report for the Rams' Hill Country Club.

In reviewing the document, staff has identified the following issues that warrant clarification as they relate directly to the accessibility of health services within the Borrego Springs area.

1) Emergency Care: The provision of emergency medical care in the Borrego area has become a matter of immediate concern by the HSA. Present providers, i.e. Dr. Woolcott, the Fire Department, the Family Health Center and the Borrego State Park Rangers, frequently encounter situations in which efforts to transport emergency victims and gain access to medical care for those victims have been severely handicapped.

   Given the present circumstances, it would appear that the emergency facilities proposed by the applicant should be sufficient to accommodate all emergencies that occur on the Rams' Hill premises and when indicated provide for transport to the nearest appropriate hospital.

   With regards to emergencies occurring outside the Rams' Hill complex, the Scripps Satellite Clinic could serve as an invaluable link within the existing system through coordination of hours of operation with other emergency medical care providers in the area.

2) Coordination of Services: Whenever feasible, the HSA encourages coordination of services as a means of improving health services, eliminating duplication of effort and ultimately reducing health care costs. The Family Health Center, a satellite of the Clinica del Salubridad which operates in Borrego, has already expressed a desire to refer patients to the new clinic for stress testing and diagnostic services.

3) Patient Population: The Borrego area has a large agricultural

2831 CAMINO DEL RIO SOUTH, SUITE 204 / SAN DIEGO, CALIFORNIA 92108
714 / 297-4721

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industry that employs migrant farm workers. At present, these individuals, predominantly low-income Medi-Cal and Medicare carriers, have access to medical care only from the Family Health Center of the Clinica del Salubridad three days per week or from Dr. Woolcott at the Scripps Clinic. The proposed satellite clinic could fill a tremendous gap in health care delivery by extending its services to include this low-income and indigent population who so desparately need it.

4) Hours of Operation: The Borrego Fire Department presently handles all emergency medical situations that arise within the city of Borrego. The Department operates two off-road ambulances to pick up patients in the isolated areas of the city with relatively few problems. However, precious time is lost in locating a medical facility that is open, or the local physician. Therefore the need to have the new clinic's hours and/or staffing flexible enough to meet a critical need is quite essential.

Because of the significance of all of the issues raised it is the opinion of the Staff that approval of the application be withheld until the Scripps Clinic has provided answers to the following questions:

1) What specific emergency services will be available and how does the applicant propose to provide and/or facilitate emergency medical care and transport?

2) Will the applicant provide emergency medical care for non-country club members or affiliates?

3) What arrangements will the applicant make to co-ordinate its emergency medical activities with those of other providers in the area?

4) How, if at all, does the applicant intend to share services available at the facility with other providers in the community in order to make those services more accessible to the Borrego community?

5) Will the facility provide non-emergency care to non-country club members or affiliates; if so will the applicant accept Medi-Cal and Medicare reimbursement?

6) When and under what circumstances would services be available to individuals who are unable to pay?

7) What are the anticipated hours of operation for the facility? Does this schedule take into account the operating hours of other providers in the community? Has the applicant contacted the other providers in the area in order to best co-ordinate the schedule?

Please direct any questions or comments to Daynese Williams in the HSA Planning Department.

Sincerely,

Daynese A. Williams

Daynese A. Williams
Health Planning Associate

cc: Rick Q. Danks
cc: Tom Edwards

DAW:kmf

Exhibit B-32

BORREGO SPRINGS COMMUNITY ASSOCIATION

POST OFFICE BOX 57
BORREGO SPRINGS, CALIFORNIA 92004
714/767-3114

April 18, 1979

Dept. of Land Use & Environmental Regulation
Community Services Agency
County of San Diego
9150 Chesapeake Drive
San Diego, CA 92123

Attention: Mr. Harry A. Trax, Senior Planner

Gentlemen:

Reference is made to your letter of March 28th concerning the Rams Hill Country Club Proposed Large Scale Project (LSP 79-01) and inviting our comments upon the impact of the Project upon this Association.

At this meeting on April 5th, the Board of Directors of this Association agreed that the subject Project would have a substantial and beneficial impact upon our members and the value of their properties. This was a reaffirmation to the Board of Supervisors of San Diego County.

Sincerely,

James L. Brainerd
President

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Borrego Springs

CHAMBER OF COMMERCE
Box 66, Borrego Springs, Calif. 92004
(714) 767-5555

October 11, 1979

Mr. Harry Fox
San Diego County Planning Dept.
L.S.P. Sec.
9150 Chesapeake Drive
San Diego, Calif. 92123

Dear Mr. Fox:

The Board of Directors of the Borrego Springs Chamber of Commerce has passed a resolution supporting the concept and specifics of the Rams Hill Subdivision.

The Chamber feels that the Rams Hill project is a positive step in the orderly growth of the Borrego Springs desert, and that it would have a significant positive economic impact on the Borrego Springs community.

We can see little danger to the environment based on the concept now being processed. The proposed Rams Hill development will provide the community with a much stronger social and economic stability, unlike its past experiences.

Our organization of 200 members stands ready to give its full support to the Rams Hill project.

Sincerely,

William Snedecor
President

cc: San Diego County Board of Supervisors
Supervisor Eckert, 5th District

L



IN THE HEART OF THE ANZA-BORREGO DESERT STATE PARK

P-37

AIR POLLUTION CONTROL DISTRICT

COUNTY OF SAN DIEGO

J. Sommerville
Control Officer

9150 Chesapeake Drive
San Diego, Calif. 92123
(714) 565-5901 (MS 0176)

RECEIVED
OCT 17 1979
ENVIRONMENTAL ANALYSIS DIV.

October 17, 1979

Kathy Lehtola
Environmental Analysis Division
County Mail Station 0175

SUBJECT: RAMS' HILL COUNTRY CLUB, ENVIRONMENTAL IMPACT REPORT

The Air Pollution Control District has reviewed the above referenced Environmental Impact Report (EIR) and has the following comments with regards to the Air Quality Section of the EIR and the Air Quality Appendix.

The Environmental Impact Report includes a brief discussion of several important Air Quality related issues, namely:

- Lack of any air quality monitoring in Borrego Valley.
- Lack of an emissions inventory for the area.
- Air quality in the Borrego Valley should be exceptionally good.
- The Borrego Valley at the present time has a low level of local emissions.
- The California State Air Resources Board staff has proposed that the Anza Borrego Desert State Park be considered as a Class I Air Quality Area (a Federal classification pursuant to the Clean Air Act as amended August 1977).

While the EIR identifies these important air quality issues, the <u>significance</u> of these issues is not adequately discussed in the report.

To begin with, the first four issues identified above are the reasons why the Anza Borrego Desert State Park is designated as an unclassifiable air quality control region for the pollutants carbon monoxide (CO), nitrogen dioxide (NO_2), and particulates (TSP) pursuant to Section 107(d)(1)(E) of the Clean Air Act as amended in August 1977.

Additionally, this area has been designated as an attainment area for sulfur dioxide (SO_2). The entire San Diego air quality control region, of which this area is a part of, has been designated as a non-attainment area for ozone.

The Clean Air Act provides that any area that is unclassifiable or classified as an attainment area shall be subject to part C (relating to the prevention of significant deterioration of air quality). Such provision is contained in Section 161 of Part C, which states:

> "In accordance with the policy of section 101(b)(1), each applicable implementation plan shall contain emission limitations and such other measures as may be necessary, as determined under regulations promulgated under this part, to prevent significant deterioration of air quality in each region (or portion thereof) identified pursuant to section 107(d)(1) (D) or (E)."

The final issue identified above, correctly indicates that the Anza Borrego Desert State Park has been proposed for classification as a Class I area. However, the intent and purpose of this designation should be included in the EIR.

The purpose of part C of the Clean Air Act (as specified in Section 160) is:

> (1) to protect public health and welfare from any actual or potential adverse effect which in the Administrator's judgment may reasonably be anticipated to occur from air pollution or from exposures to pollutants in other media, which pollutants originate as emissions to the ambient air), notwithstanding attainment and maintenance of all national ambient air quality standards;
> (2) to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value;
> (3) to insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources;
> (4) to assure that emissions from any source in any State will not interfere with any portion of the applicable implementation plan to prevent significant deterioration of air quality for any other State; and
> (5) to assure that any decision to permit increased air pollution in any area to which this section applies is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decisionmaking process.

To reiterate, the most significant fact the EIR identifies is that the eastern portion of San Diego County, which Borrego Valley is a portion of, is assumed to have Clean Air because of the relatively low emissions in the area and the assumed lack of intra-basin transport of air pollution. The lack of air quality monitoring data makes it difficult if not impossible to determine what the current levels of pollution might be. Without this base line data, we cannot know if the area currently exceeds the National Ambient Air Quality (NAAQ) standards; if it is just barely meeting the NAAQ standards; or if it is well under the standards. Until said monitoring data is obtained, it is not possible to determine what constitutes a significant increase of emissions. It may be that <u>any</u> increase of emissions may be significant.

The entire San Diego Air Basin has been designated as a non-attainment area for ozone as previously identified. As such, San Diego was required to develop and implement a plan to reduce air pollution emissions to assure attainment of the applicable standards based on the adopted Series IVB population projections. The Series IVB population projections include the East County major statistical area (MSA) in which the project is located.

This area's 1980 population projection was for 11,000 persons. Currently the January 1979 SAN DIEGO COUNTY DATA BASE, POPULATION AND HOUSING ESTIMATES indicates a population of 11,600 for the entire east county MSA. The Series IVB population estimate for 1985 for the east county MSA is 12,700.

This means that the entire east county MSA can accommodate an additional 1,100 people by the year 1985 and still be consistent with the growth projections contained in the SIP.

The EIR indicates (on page 192) that the total projected 1985 population - both permanent and seasonal for the Borrego Valley area would be 6,382. Assuming no other growth occurred in the rest of the entire east county major statistical area, the increased population in the Borrego Valley area as a result of this project potentially represents a 42% increase above the 1985 Series IVB population estimate for the said planning area. Consequently, the project is inconsistent with the Series IVB population projections.

The draft EIR should inform the decision-makers and the public that the project is potentially inconsistent with the adopted strategy to attain and maintain the National Ambient Air Quality Standards as prescribed in the Clean Air Act. Failure to make reasonable further progress toward attaining the standards may (1) cause sanctions to be imposed, thereby jeopardizing state and federal funding for sewers and highways in the region, and (2) place prohibition on major new source construction.

In summary, the District would like to reiterate that our region's strategies to attain the NAAQS are based on projected emission trends which, in turn, are based on the adopted Series IVB population projections. The decision-makers have flexibility in planning for future growth, but additional growth must be offset by more stringent controls, that are legally enforceable, to account for the increased pollution.

Some additional comments on the Environmental Impact Report are as follows:

1. The EIR relies entirely on the improvement of automobile emissions to conclude that the emissions from Rams Hill plus the Borrego Desert State Park traffic will improve to such a degree that the emissions in the valley will be less than they are presently.

   The concerns that the District have about this conclusion is that the emissions presented in Table IV-J-2, page 91, appear to be incorrectly calculated and they do not account for emissions due to increased air traffic; increased gasoline sales, additional support services or cummulative emissions from other projects that may be implemented in the valley as a result of the implementation of the Rams Hill project.

   Table IV-J-2 on page 91 indicates 1978 and 1985 reactive hydrocarbon emissions for peak and off-peak seasons. A check of the method used to obtain this data indicates that 1975 emissions factors were used with 1978 vehicle data. This method is incorrect since it does not take into

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account the expected reduction of emissions due to the change in vehicle population when newer, less polluting cars are purchased.

An additional comment on the contents of Table IV-J-2 is that the data was calculated using the countywide average vehicle mix. This mix assumes approximately 0.6% heavy duty diesel trucks and approximately 3.0% heavy duty gasoline powered trucks. This assumption appears to be incorrect after a telecon with Chuck Green of Caltrans. Caltrans data indicates that approximately 17% of the traffic on County road S2 is truck traffic of which approximately 10% is heavy duty gasoline trucks and 6.0% heavy duty diesel. The percentage of trucks into the area would be expected to increase even more since all goods must be trucked into the project area and as the population increases, so would the demand for goods increase. The importance of this difference or increased percentage of trucks in the calculations is that most of the vehicle emission improvements is due to the improved emissions of light duty auto and trucks. Therefore, some of the improved emissions that the analysis includes in the calculations may not be realized.

It is the Districts position that Table IV-J-2 and the appropriate Tables in the appendix should be revised using an interpolated 1978 emission factor which includes an adjustment for a greater percentage of heavy duty diesel and gasoline trucks.

By using the adjusted interpolated 1978 emission factors, a more realistic comparison of the 1978 and 1985 emission can be made.

2. The eastern portion of the San Diego Air Basin has been designated as unclassifiable for the pollutants CO, NO_2 and TSP and an attainment area for SO_2. It is the intent of the Clean Air Act to prevent significant deterioration in such a designated area. Given this intent, the decision-makers should be provided with sufficient information to assist them with an analysis of <u>all</u> potential air quality impacts. Therefore, it is the Districts position Tables IV-J-2 thru 4 should include emissions from any potential source, such as, but not necessarily limited to, vehicles, aircraft, support services, gasoline transfer and commulative emissions from other projects that may be implemented as a result of this project. For purposes of comparing project impacts, these Tables should depict the 1985 emissions with and without the project.

   This would graphically illustrate any air quality impacts as a result of the implementation of the project.

3. As stated above the EIR does not quantitatively address the emissions due to an increase in air traffic. The statement is made in the EIR that the airport has been improved and is capable of handling up to 300,000 LTO's. Either this number is incorrect or the potential for a significant increase in air traffic in the Southeast Desert Air Basin exists. The emissions related to aircraft should be calculated and included in a comparison table of emission before and after implementation of the project.

4. The draft environmental impact report does not discuss the District's exemption of Phase II vapor recovery requirements for gas stations in the eastern portion of the San Diego Air Basin. The reason that service stations are exempt from the District's Rules at the present time is because of the relatively low throughput at these facilities. However, if this project and other projects in the area are approved, then the cummulative effect may be that the volume of gasoline dispensed at these facilities, would necessitate the implementation of the District's Rules with regard to Phase II vapor recovery. This should be discussed in the EIR.

5. The growth induction impacts may be under estimated. This project may require additional support personnel that may live in the valley year-round. Such personnel would include, but not necessarily be limited to, gardners, maids, plumbers, painters, etc.

Until the above issues are addressed adequately, the appliciant's conclusion THAT FUTURE EMISSIONS WILL BE LESS THAN PRESENT EMISSIONS is without foundation.

Raymond L. Weeks

RAYMOND L. WEEKS
Environmental Management Specialist

RLW:cr

cc: Air Resources Board
Environmental Protection Agency

B-39

State of California
GOVERNOR'S OFFICE
OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814
(916) 445-0613

EDMUND G. BROWN JR.
GOVERNOR

November 28, 1979

Planning Director
San Diego County
9150 Chesapeake Drive
San Diego, CA 92123

SUBJECT: SCH# 79091206 - RAMS' HILL COUNTRY CLUB

Dear Planning Director:

The enclosed comments were prepared by Department of Health Services regarding your project. These comments were not included in the package you received dated October 20, 1979 certifying State review of your draft environmental document.

To ensure compliance with the intent of the California Environmental Quality Act you should attempt to incorporate these additional comments into the preparation of your final environmental document.

Sincerely,

Laura Ellison

for Stephen V. Williamson
State Clearinghouse

SVW/lla
Attachment
cc: Ken Fellows, DWR

State of California

Department of Health Services

Memorandum

To : Steve Williamson
State Clearinghouse
1400 10th Street, Room 121

Date : OCT 05 1979

Subject: SCH# 79091206
Rams Hill Country
Club EIR - Borrego
Valley

From : Environmental Health Branch

Development of large areas requiring irrigation will compound Borrego Valley's perennial eye gnat problem. Mitigation activities conducted by the Borrego Valley Mosquito Abatement District are barely sufficient at the present time and cannot cope with additional demands. The eye gnat problem (and the somewhat lesser mosquito problems) should be considered in the environmental impact report and appropriate mitigative measures should be discussed.

If you have any questions, please contact Theodore A. Smith at 8-631-7823 or 714-237-7823.

Kenneth Buell

Kenneth Buell, Chief

B-41

STATE OF CALIFORNIA EDMUND G. BROWN JR., Governor

AIR RESOURCES BOARD
1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812
(916)322-5350

November 26, 1979

Ms. Kathy Lehtola
Environmental Analysis Division
County of San Diego
9150 Chesapeake Drive
San Diego, CA 92123

Dear Ms. Lehtola:

In reviewing the draft environmental impact report (DEIR) for the Rams' Hill Country Club, we have found major inadequacies in the air quality analysis prepared by the PRC Toups Corporation. These inadequacies are outlined as follows:

1) Page 94 of the DEIR states: "As with any development, the Rams' Hill project would increase the level of emissions within the Borrego Valley air space over that level which would exist without the project. Because of the increasing regulation of motor vehicles, however, total emissions in the Borrego Valley are proposed to be slightly lower in 1985 than with full implementation of Rams' Hill and the anticipated increase in State Park visitorship than the total volume in 1978." The technical appendix, however, shows a projected VMT increase from 1978 to 1985 as high as 36% for the Borrego Valley and 47% for the Mountain Crest area. Also, in estimating the 1978 emissions, this DEIR used 1975 emissions factors. By using the 1975 base year, the total emission calculations for 1978 would be excessively high and, in turn, inaccurate. This DEIR needs to recalculate the 1978 emissions using 1978 emissions factors and then reassess and demonstrate the emissions associated with this project will not degrade further the existing air quality in Borrego Springs and Anza-Borrego Desert State Park.

2) Chapter 1, Section 21002 of the California Environmental Quality Act (CEQA) states: "The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and the procedures required by this division are intended to assist public

agencies in systematically identifying both the signficant effects of the proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects." In the air quality section of this DEIR there needs to be a detailed analysis of all feasible mitigation measures (including sight-specific mitigation measures which can be incorporated into the project's design), to minimize the air quality impacts from this development. This analysis appears necessary because of the substantial size and location of the project. Possible mitigation measures might include shuttle service, vanpooling, and a bicycle-pedestrian pathway system throughout the proposed project.

3) The assertions made in this DEIR that reduced emissions for 1985 from automobile controls will offset the increased emissions associated with this project, resulting in a nonsignificant air quality impact, is inaccurate. The Borrego Valley is currently designated nonattainment for ozone and requires substantial emissions reductions by 1987 to attain and maintain the ambient air quality standard for ozone. Thus, emissions associated with major development, if unmitigated, will hinder attainment of the standard; such development needs to be considered as having significant air quality impacts.

4) This DEIR needs to include a discussion of the Prevention of Significant Deterioration (PSD) provisions of the Clean Air Act because the Anza-Borrego Desert State Park is an ARB staff proposed area for reclassification from a current Class II to a Class I PSD area.

Part C of the Clean Air Act requires a PSD program for areas where national ambient air quality standards have not been exceeded. Federal regulations have been developed to guide the preparation of approvable state plans to meet the Part C requirements. These regulations, Code of Federal Regulations (CFR), Title 40, Part 51.24, can be found in the June 19, 1978 Federal Register, Vol. 43, No. 118. These regulations describe how general area growth and development may, through its contribution of emissions, constrain the granting of permits to major emitting sources. Specifically, Section 51.24(o)(3) states, "... upon request of the State, the owner or operator shall also provide information on: ... (ii) The air quality impacts and the nature and growth which has occurred since August 7, 1977 in the area the source or modification would affect."

5) The DEIR states that the emissions factors used in emission calculations were obtained from the San Diego County APCD. However, the October 17, 1979 letter from Raymond L. Weeks of the San Diego

County APCD states that the emissions factors are incorrect because of the miscalculated percentage of heavy-duty diesel trucks and heavy-duty gasoline-powered trucks in the composite emission factors. This DEIR also needs to include projected emissions with corrected emissions factors.

It is necessary that the above issues be addressed prior to final certification of the DEIR and a decision on the project. We would also like to be advised of any action taken on this project.

If you have questions or concerns, contact Richard DeCuir of my staff at (916)445-0960.

Sincerely,

Daniel Lieberman for

William C. Lockett, Chief
Regional Programs Division

cc: H. Allen
P. Bobel, EPA
M. Swedelius, Desert Protective Council, Inc.
R. Weeks, San Diego County APCD

DiGiorgio Development Corporation

ENCLOSURE C

October 10, 1979

Kathy Lehtola, Director
Environmental Analysis Division
San Diego County
Department of Planning and Land Use
9150 Chesapeake Drive
San Diego, California

Attn: Nancy Whalen

Re: Responses to Public Comments on Rams Hill DEIR

Dear Ms. Lehtola:

We have reviewed the various letters of comment submitted by organizations and individuals on the Rams' Hill Draft Environmental Impact Report and have prepared the attached Responses. To assure a thorough discussion of the issues, a Response has been prepared for each letter, each letter having been assigned a number and each "comment" within each letter assigned a sub-number.

I have also requested that our various consultants be available to assist County Staff with any questions you have regarding our Responses or the Project in general. Please contact either Tom Weber, the project manager, or Nancy Laswell, the principal environmental consultant, regarding any additional input. Both are available through the PRC Toups (454-9162).

These Responses address a variety of technical issues raised in the public comments. I would like, however, to respond on two general issues that appear in several of the letters: first, that Di Giorgio Corporation has attempted to avoid an objective evaluation of this Project; and, second, that development in Borrego is inappropriate at this time.

Di Giorgio has been involved full-time in the planning and public review of this Project since 1973. During that six-year process, we have employed those consultants that we believe are the best available. The following list of top-rated consultants illustrates our dedication to thorough planning and the development of the best possible project:

Original Concept Plan	Simon Eisner and Associates (specialists in desert design)
Final Project Design	PRC Toups, La Jolla (specialists in environmental sensitive planning)
Preliminary Engineering	Lawrence, Fogg, Smith and Associates
Principal Environmental Coordinators	PRC Toups, Environmental Studies Group (Nancy K. Laswell, project manager)
Geology	Woodward Clyde and Associates
Traffic	Toups-Voorhees
Energy	PRC Toups, Orange and Phoenix
Water	Linden Burzell Dr. Richard Threet
Liquid Waste	Lowrey & Associates (Dennis O'Leary, project manager)
Biology	Pacific Southwest Biological Services (Mitchel Beauchamp)
Archaeology	Archaeology Consulting and Technologies (Stanley Berryman)
Socio-Economics	Sanford Goodkin Research Associates Economic Research Associates
Air Quality	WESTEC Services and PRC Toups
Noise	PRC Technical Applications San Diego Acoustics

As for the second issue, Di Giorgio believes that there are excellent reasons for this development at this time. We can understand and appreciate the concern of persons for the preservation of a "desert atmosphere" in the Valley. However, the Borrego community has had 30 years of marginal existence and economic difficulty. It does not have sufficient population or economic base for adequate public services or private businesses. Rams' Hill offers an environmentally sensitive project that can assist in providing that base. As shown by the presentation before the Board of Supervisors in 1976 and recent examples, the community is in strong support of this Project.

The Di Giorgio Corporation has been an active participant in the Borrego Valley community for over 30 years. The developments that Di Giorgio have constructed are uniformly a high-quality product. As a result of years of study and planning, Di Giorgio believes that Rams Hill is needed now in order to make the Borrego economy viable and provide needed resort and residential facilities.

Di Giorgio has also worked long and hard to finance the establishment of a Scripps Satellite Clinic at the site to bring advanced medical services to this part of the County. Rams Hill will provide the means to bring this clinic to the Valley.

An evaluation of the Rams Hill Project requires that recognition be given both to our six years of effort to openly and fairly plan and analyze this Project with the best experts available and to the

unique development we are proposing which is designed to be both environmentally sensitive and a benefit to the struggling community. Di Giorgio appreciates having an opportunity to respond to the public comments to the DEIR and we respectfully request that this letter and our Responses be made a part of the County's official record on the DEIR and the Specific Plan. Copies are enclosed for that purpose.

DI GIORGIO DEVELOPMENT CORPORATION

George J. Kuhrts III
Vice President

cc: Randy Hurlburt, Chairman,
Environmental Review Board
Steven Lister, Project Planner

DI GIORGIO DEVELOPMENT CORPORATION

Responses to Public Comment

Rams' Hill
Draft Environmental Impact Report

October 1979

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General correspondence on transmission lines from Department of Parks and Recreation

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

1.0 CENTURY 3
LETTER DATED SEPTEMBER 6, 1979

COMMENT 1.1

"Environmental Impact Report Inadequate

"This EIR fails to address clearly the purpose of the project which is to irreversibly change (p. 5, p. 212) the Borrego Valley from scattered seasonal residential use to a permanent year round major resort community with full urban services. The environmental impact of that irreversible change needs clear analysis and definite findings. Since the stated intent of the project is significant growth in the valley, the EIR should directly address the impacts of a 'successful project' which will change the character of the entire Borrego Valley. The clear intent of CEQA is to have the EIR inform decision makers of the 'worst case' environmental impacts. This EIR fails to clearly analyze the significant long term impacts which will result from major changes in the scale and kind of development in the Borrego Valley."

RESPONSE TO COMMENT 1.1

The purpose of the Rams Hill Project is to create a resort residential complex in the Borrego Valley. The Project is clearly defined in paragraph no. 1 of the Introduction and in the 23 pages of Project Description. In addition to this Rams Hill Project other large scale projects are proposed for the Borrego Valley including both the second phase of Rams Hill and the Borrego Country Club project. The Rams Hill DEIR correctly assesses both the irreversible changes of this Project (this Specific Plan) and of these planned or proposed projects which may or may not occur. See the Cumulative Impact section of the DEIR, Section VI. B. The Cumulative Impact section includes valley-wide analysis of socioeconomic impacts, and impacts on biology, traffic, noise, air pollution, energy, dark skies, visual quality, public services, growth and water availability.

In providing information on the anticipated impacts of the Rams Hill Specific Plan the environmental consultant has consistently analyzed the "worst case" environmental impacts. Examples of worst case analyses are found in Sections IV.E.2., IV.F.2., IV.F.3., IV.G.2., IV.G.3., IV.J.2., IV.L.2., IV.L.3., IV.O.1., IV.O.2., IV.O.3., IV.P.3., IV.R.2., and IV.R.3.

The DEIR clearly and thoroughly analyzes the significant long term impacts that this and other planned or proposed projects may have which would result in "major changes in the . . . development in the Borrego Valley." The rate, character and type of growth which could be expected from implementation of this Specific Plan are analyzed in Section VI.A. of the DEIR. This growth includes growth directly resulting from the Project and induced secondary growth in the service sector. The impacts of this primary and secondary growth are also analyzed in each of the sections on public services and in the section on socioeconomic impacts. See Sections IV.B., Q., R., T. The second paragraph of page 195 in the section on Growth Inducing Impacts states: "The impact of both phases of Rams Hill on the valley would be to significantly and irreversibly change the character of the Borrego Valley from a small town to a major recreational resort area." More importantly, the DEIR states the reasons and ramifications of such a change. See Sections IV.O., IV.Q., and VI.A., B.

COMMENT 1.2

"Environmental Findings Not Clear

"Since the EIR is not clear whether the project is to change the whole valley or just to build the first phase of this particular large scale project, the environmental findings are vague."

RESPONSE TO COMMENT 1.2

The purpose of this DEIR is clearly spelled out to be an assessment of the environmental impacts of this Specific Plan. In conformance with CEQA, however, this DEIR must evaluate potential cumulative impacts of the ultimate build-out of the Rams Hill Project (which would require a second specific plan) and other planned or proposed projects in the vicinity. See CEQA §21100; CEQA Guidelines §15143. This has been done in the cumulative impacts Section VI.B.

COMMENT 1.3

"The Executive Summary on p.5 and p.6 sets the standard for vagueness on the important subject of groundwater. Included by inference in an opening sentence as one of four important adverse environmental impacts, we are told in the next sentence that the 'project' should not impact groundwater. But then again it might if annexation fails. And even so the changing hydrologic characteristics have an impact on habitat that cannot be mitigated. Finally, if both projects were built out, that could cause a major groundwater mining condition.

"With that kind of uncertain unclear finding the EIR is not useful in decision making. The EIR is inadequate."

RESPONSE TO COMMENT 1.3

The DEIR clearly defines the potential impacts to groundwater in the analysis contained in Section IV.O. and in the Technical Appendix on Water. In summary, the Rams Hill Country Club could consume a substantial portion of water directly underlying the Project. If not mitigated, this could cause localized groundwater mining accompanied by local subsidence. Annexation to a basinwide district would provide one alternative mitigation measure. The changing hydrologic conditions referred to in the executive summary relate to changing surface conditions and not to groundwater. This

is discussed in Section IV.G. of the DEIR. The cumulative impact, assuming that both phases of Rams Hill and the Borrego Country Club are built, would be to create a minor groundwater mining condition. This is discussed in Section IV.O., and in the Technical Appendix on Water.

COMMENT 1.4

"Social and Economic Benefits Not Clear

"The EIR seems to conclude that some adverse environmental impacts exist which need overriding social and economic benefits. These benefits are more vague than the environmental findings. The Borrego Valley is a 'half-formed' (p.193) economic community and presumably will become viable (full-formed?) if doubled from 1500 to 3000 permanent people. That may not be true, however, since winter boom times with 2200 people residing and 8000 to 10,000 weekend peak populace (p.10) the valley still has limited and extremely expensive services (p.214). There is no credible analysis of what permanent population will provide a sound economic base for the urban services expected by residents and seasonal visitors."

RESPONSE TO COMMENT 1.4

One of the overriding social and economic benefits of the Rams Hill Project will be to strengthen the local economy. The Valley economy is highly cyclical as discussed in the sections on socio-economic conditions and growth. See Sections IV.B., VI.A. Local businesses experience adequate activity during the winter season but close down partially or entirely during the summer months. The major impact of increased growth will be to increase the summer activity and thereby help stabilize business by reducing the heavy losses of the off-season months. The strong support of the local business community for the concept of the Rams Hill Project was dramatically shown in the testimony and appearances made by representatives of this group during the 1976 General Plan Amendment hearings concerning this Project.

Other overriding social and economic benefits include provision of a primary care medical facility sorely needed in the Valley, provision of a broader range of services and recreational facilities for visitors to the Park and Borrego Valley, and revenue benefits to the County.

COMMENT 1.5

"Social benefits are also vague. They included increased and more diverse recreational opportunities. This is exceedingly difficult to accept since the desert experience is now readily available through State Park facilities and golf and tennis can be found throughout San Diego County. And then it is acknowledged that San Diego winters ar not so severe and that many prospective residents will come from other U.S. cities. What real social benefit can be found in simply providing more isolated winter resort accomodations for non-residents?"

RESPONSE TO COMMENT 1.5

The provision of a range of recreational facilities and experiences in the desert is a goal of the San Diego County General Plan, Recreation Element. The Board of Supervisors, through their policies have acknowledged the desirability of demand for different types of desert experiences by differing groups of people. Recreational facilities throughout San Diego County are enjoyed by both residents of the County and non-resident visitors. The Rams Hill Project will conform to this pattern of tourism.

This Comment of Century 3 misses the point that the recreational facilities to be provided by Rams Hill are not available in the Park and not adequately available in the Valley to respond to existing demand.

COMMENT 1.6

"EIR Biased

"In addition to being vague the EIR is consistently biased in favor of the project. Most glaring is the failure to address

cumulative environmental impacts (of all the fully intended induced growth) while accepting as factual social and economic benefits which are purely speculative. Another example is the discussion of land use patterns in the Borrego Valley. Existing development is described which is commonly recognized as leapfrog urban sprawl, that is isolated unrelated spots of urban development. In the Borrego Valley, however, this is known as 'distinctly nodal' (p.33) and this new project is completely in character with that form of nodal development. Such special pleading language to justify one more leapfrog patch of urban sprawl in Borrego Valley shows unacceptable bias in the EIR."

RESPONSE TO COMMENT 1.6

Century 3's claim of "bias" is notably unsupported by any specific facts or citations to the DEIR. The documents supporting the DEIR were prepared by a highly qualified team of consultants with excellent individual reputations in their respective fields. The water study was prepared by Linden Burzell, general manager of the San Diego County Water Authority and Dr. Richard Threet, professor of geology at San Diego State University. The liquid waste study was prepared by Dennis O'Leary, recognized as the leader in waste water treatment facility planning in San Diego. The planning and land use material was prepared by PRC Toups, a nationwide multi-disciplinary engineering, research and design firm.

As previously shown, cumulative impacts are addressed at length in the DEIR. See Section VI.B. The Borrego Valley has a population of approximately 1600 people and a total of about 950 dwelling units. Even if all these residences are located in one cluster, the community could hardly be defined as "urban." The Valley does exhibit a pattern of clustered units focused on recreational facilities. This pattern has been defined as "nodal". The Rams Hill Project would conform to this clustered pattern. The concept of "urban sprawl" or "urban leapfrogging" is simply not applicable to the Borrego Valley.

COMMENT 1.7

"Rationale for Delayed Project

"The EIR notes a number of facts and conditions which justify a delayed project.

"1. The success of the project (changing the whole valley) depends on active government participation (p.187).

"2. That participation (preparation of a community plan) is not in the forseeable future (p.187, p.34, p.17).

"3. This project alone (whole valley does not change) has significant adverse environmental impacts (p.212).

"4. This project alone (without induced growth) has no significant overriding social and economic benefit (p.192).

"The lack of government participation to encourage this project or any other growth in Borrego Valley is well established. The County will experience a fiscal cost since 'tax revenues (only) somewhat offset public expenditures' (p.194). There is the further attitude of private sector reluctance to provide mortgage money for second homes (p.188).

"These facts in the EIR provide a substantial basis to find that this project will be one more false start of a true community in the Borrego Valley. This false start will have significant adverse environmental impact without overriding benefits."

RESPONSE TO COMMENT 1.7

The Applicant has expended several million dollars and seven years in the environmental assessment, study, processing, and public review of the Rams Hill Project to ensure that this will not be another "false start" in the Borrego Valley. On the other hand, Century 3 correctly recognizes that this Project alone will not change the whole Valley, and for such change to occur government would have to become directly involved.

Century 3 fails to note that the Rams Hill Project (and particularly this Specific Plan) does not require a change in the County's General Plan. The land uses have already been approved by

the Board of Supervisors in GPA 76-02. The Board of Supervisors has already considered the general valley environmental impacts of the proposed Project as part of GPA 76-02 and found them to be not significant. The Board also made findings of overriding social and economic benefits from the concept plan. Future growth and major project developments in the Valley, as with the Rams Hill Project, will require both environmental analysis and in-depth planning such as Rams Hill has already experienced.

Economic Research Associates is conducting an analysis of the Rams Hill Project on public revenues and expenditures. Their preliminary analysis indicates that Rams Hill will generate more tax revenues than will be expended on public services for the Project and additional services generated by induced growth. This is primarily due to the large degree of "self-containment" designed into the Project, for example the road, water and sewer systems. See for example DEIR Sections IV.O., P., Q.

The shortage of mortgage money in prior years in the Valley was largely a function of a stagnant local economy. With economic growth, such as the Rams Hill Project, this will become a diminishing problem.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

2.0 SIERRA CLUB, SAN DIEGO CHAPTER, LETTER UNDATED

COMMENT 2.1

"The Sierra Club has consistently been opposed to the urbanization of the valley based on the information presently available on resources and conditions there. The two developments approved in concept in recent years - Ram's Hill and Borrego Country Club - can change Borrego Springs from a town of 1200 to a city of close to 20,000. And these estimates do not take into full account the secondary growth these developments probably will generate."

RESPONSE TO COMMENT 2.1

The DEIR for this Specific Plan assumes a "worst case" position and finds that if Rams Hill is developed to its maximum potential (a second specific plan being required) and Borrego Country Club is fully developed and all related secondary growth occurs, then the existing community of about 1,600 people could expand to a moderate resort community of about 10,000 people. See Section VI.B. Based on research with the County's Regional Growth Management team, the Sierra Club's growth projections appear excessive. The cumulative growth projection contained in the DEIR address the issue of secondary growth in great detail. See Sections IV.O., Q., R., and VI.A of the DEIR.

COMMENT 2.2

"During the original DiGiorgio hearings all sorts of numbers and estimates were bandied about. Finally 25 years was settled upon. For the projected population it was said that there was enough groundwater for 25 years. Water mining was anticipated by 1986. Even if there is a sufficient quantity of water when it is pumped from elsewhere in the valley than the projects' locations, will the quality be adequate for human consumption? Some wells have apparently already been closed due to nitrate poisoning."

RESPONSE TO COMMENT 2.2

The Sierra Club is mistaken in its report of the results of the various public hearings on the Rams Hill Project conducted in 1976. For example, the study prepared by the County's geohydrologist concluded that the groundwater within the first 200 feet of the water table would last about 300 years if Rams Hill is approved. See DEIR Technical Appendixes Volume II.

Since the 1976 hearings four more substantial investigations of the groundwater resources in the Valley have been made. All seven studies of the resources made to date agree that there are about 1.3 million acre feet of water available in the first 200 feet of the groundwater table. This groundwater table extends to at least a depth of 900 feet. Current reasonable projections are that this known water supply will have a useful life expectancy of 342 years under worst case assumptions. Worst case consists of mining the known water table at a rate of 3,800 acre feet per year, which in turn assumes full development of Rams Hill (second specific plan required), full development of Borrego Country Club, substantial secondary growth induced by these projects, and continued agricultural consumption at non-reduced rates. See "Focused Environmental Impact Report, Borrego Water District, Latent Powers Authorization," San Diego County LAFCO, Section 5.1, a copy of which is attached.

The quality of water in the Borrego Valley is exceptionally good. This is discussed in Section IV.O. of the DEIR. One well, Borrego Springs Water Co., Well #4, in the Valley was shut down in 1976 and 1977 due to high nitrate concentration. This well was constructed in the 1940's as an irrigation well (rotary dug, gravel packed and perforated so as to pick up all available water regardless

of mineral quality). When funds became available, a new well was drilled some 50 or 60 feet to the west of Well #4 using a design which prevented entry of water from near the surface of the groundwater into the well. This new, properly constructed well is pumping 150% as much water as the old well. Nitrates, TDS and related dissolved mineral constituents in the new well are extremely low (NO_3 = 3; TDS = 300 ppm). The problem of high nitrate levels in potable drinking water can be solved in most instances through proper well construction.

COMMENT 2.3

"It is our position that no approvals such as Ram's Hill be given until the many questions surrounding the water situation are studied in detail by a US Geological Survey team. You owe it to present and future residents of the valley as well as to all county residents to determine the availability of and projected quality of the water supply. As stated in the EIR '. . . acquisition of a substitute future supply, should one become necessary, would be the responsibility of public agencies.' At earlier hearings such substitutes as importation of water were deemed essentially impossible."

RESPONSE TO COMMENT 2.3

There have been more than seven professional geohydrological studies made of the quantity and quality of water in the Borrego Valley groundwater basin. These studies agree on the volume of water in storage in the first 200 feet of the water table. One of the studies was conducted by the United States Bureau of Reclamation in 1968. The Applicant agrees that further studies of groundwater should be conducted to more fully understand the Borrego Valley basin. The most appropriate agency to conduct these studies would be a local agency, such as the Borrego Water District, which would design an on-going monitoring and study program. The Rams Hill Project would facilitate such a program through generation of revenues to the District.

It is not true, as stated by the Sierra Club, that prior hearings on the Rams Hill Project deemed the importation of water to the Borrego Valley "essentially impossible." According to the General Manager of the San Diego County Water Authority, 90% of the water being used today in San Diego County is imported. At least two recent studies have considered projects which would bring new water into the County through the Borrego area.

COMMENT 2.4

"CPO has said that 'The Borrego Valley is one of the least desirable locations in the region for new development from an energy standpoint.' Estimates of the energy need for space cooling in Borrego Springs are enormously greater than in the metropolitan San Diego area. Furthermore, increased demand for water requires energy for pumping. The increased load as a result of anticipated growth might well require the addition of another transmission line to the valley."

RESPONSE TO COMMENT 2.4

The Applicant cannot tell either the context or the relevancy of the alleged CPO statement. No citation is given. On its face, the quotation appears questionable given the high potential for development of alternative energy sources, especially solar power, in the Borrego Valley.

The DEIR fully discusses the energy requirements of the Project on pages 102-117. The impacts described by the Sierra Club are identified and quantified in Section IV.L.

COMMENT 2.5

"Another question is the impact this urbanization will have on many of the services government provides in the urban areas of the county. What about animal rgulation, the assessor, building inspection, road maintenance stations, courts, library and social services? Will new branches, substations and offices be created to serve this remote urban area? Or will county personnel have to expend time and gasoline to drive out there? Or will the residents drive in? Certainly if they are living in an urban area they will expect urban level services."

RESPONSE TO COMMENT 2.5

The key to answering the question of what impacts will occur to the government services described in this comment is found in the tax revenues to be generated by the Rams Hill Project. As previously indicated, Economic Research Associates' preliminary analyses indicate that Rams Hill will generate more tax revenues than will be expended in public services.

It cannot reasonably be anticipated that residents of Rams Hill will "expect [an] urban level [of public] services." This development is meant to be a recreational and resort complex that by its very location is removed from urban centers. Any increase in the services required of county personnel in areas such as animal regulation, assessment, building inspection, libraries, etc., will be mitigated by the increased tax revenues described above. Furthermore, many public services in the Valley are underutilized today because of a lack of a sufficient population base, making the per capita cost of public services high. With Rams Hill, this population base would be strengthened, and existing public services utilized more to their potential.

COMMENT 2.6

"The remoteness of the site will undoubtedly lead to many auto trips into and out of the valley. The EIR concerns itself mainly with traffic in the valley itself, and does not deal adequately with travel from the metropolitan areas of San Diego and Los Angeles. It seems unlikely that roads into the valley from the west could safely carry a large increase in traffic. And what about increased flights into and out of the valley for those frequenting their second home retreat? The noise and air pollution involved in increased air traffic has not been addressed."

RESPONSE TO COMMENT 2.6

The DEIR analyzes regional trips generated by the Project both in Sections IV.N., in the Air Quality Technical Appendix, and

in the Traffic Technical Appendix. The number and length of long distance trips are analyzed and the potential impacts on access roads into the valley from the west discussed. See Technical Appendices Vols. I & II.

COMMENT 2.7

"The State Air Resources Board has proposed Class A status for Anza-Borrego Desert State Park. The Sierra Club feels that urbanization of the valley wil have serious air quality implications for the region and for the park. The EIR concludes that Ram's Hill would not affect the Class A designation because 'The decrease in VMT and trip-related emissions per vehicle from 1978 to 1985, because of more stringent controls on vehicle emissions, would more than outweigh the projected increase in automobile activity resulting from the project. It is our belief that reliance upon the implementation of these controls is not advisable. According to a recent newspaper article (San Diego Union, August 25, 1979) 'The government gave automakers permission yesterday to exempt tens of thousands of cars from the tough 1981 emission standards and indicated more waivers may be coming'."

RESPONSE TO COMMENT 2.7

The emission factors used in the air quality section of the DEIR and in the Air Quality Technical Appendix were those provided by the San Diego County Air Pollution Control District, as approved by both the State Air Resources Board and the Environmental Protection Agency. These factors have been developed based on extensive research by local, state and federal governments, and are the best possible estimates of the volume of emissions from the local automobile fleet for projected years. The most significant air quality problem in the Borrego Valley is the result of emissions from off-road vehicles. These emissions constituted almost 40% of the total pollutant load during a 1978 peak season week. Emissions from ORV's were not assumed to decline by 1985.

It is possible that emissions standards for some automobiles may have been slipped by EPA. The strategy of EPA and the federal

government, however, continues to be reduction of primary source pollutants in vehicle emissions. The impact of the exemption of a class of automobiles from standards for one year on future emissions factors should be analyzed by the State ARB, EPA and the APCD.

The future impacts of Rams Hill on Valley air quality were projected based on the continuation of existing trends in automobile usage. Considering the increased costs of petroleum and the reduction in supplies, these projections seem unrealistic. It is far more likely that automobile use will be greatly reduced in future years. Such considerations would substantially reduce the pollutant load projected as the "worst case" for the Borrego Valley.

COMMENT 2.8

"We are concerned about the results the flood prevention measures proposed might have on surrounding properties. The San Diego County General Plan considers an extensive system of earth levees to be the best method of flood protection in this area, and in the past the Department of Sanitation and Flood Control has stated that the entire levee system proposed in the General Plan would be needed if part of the system is constructed in the valley. If a maze of levees and channels is necessary to protect life and property, what kinds of impacts will these have? What will the visual impacts on the park be and on the scenic highways in the vicinity of the project?"

RESPONSE TO COMMENT 2.9

The flood protection structure necessary to protect the Rams Hill Project is a diversion channel which is designed as a wide swale diverting local sheet flows around the Project. No levees will be necessary as a result of this Project. The system is described in the DEIR on page 68, and pictured on page 67.

Apparently, the Sierra Club has confused the location of the Rams Hill Project with the system of levees that has been contemplated for other portions of the Borrego Valley that, unlike Rams Hill, are subject to flash flooding out of canyon mouths.

The Rams Hill Project, because of its location on the South Slope of the Borrego Valley, has significantly less potential for flooding than these other areas. In fact, the Borrego Valley Flood Control District has no plans for levees to be built in the South Slope area.

COMMENT 2.10

"Many socioeconomic questions remain unanswered. Since much of the applicant's proposed justification for the plan is based on the claim that there is a downward trend in the Borrego Springs economy there should be trend data presented in the EIR to support or refute such a statement. Such data should also be available to prove the so-called socioeconomic benefits of the project are indeed adequate to over ride the considerable environmental impacts."

RESPONSE TO COMMENT 2.10

Contrary to the Sierra Club's statement, the Applicant has never claimed that "there is a downward trend in the Borrego Springs economy." Rather, the Applicant has stated that the economy has been cyclical, suffers from stagnation and is in need of economic incentives. This information, well known to Di Giorgio because of its 35 years of involvement in the local economy, is also well substantiated by input from local merchants and businessmen. Testimony to these facts by local Borrego citizens was offered and received into evidence during the 1976 hearings on Rams Hill, hearings in which the Sierra Club participated.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

3.0 CONSERVATION CALL LETTER OF AUGUST 30, 1979

COMMENT 3.1

"From the first, we have thought that it would be growth-inducing in an area where such growth is not desirable, with the problems and water supply and air pollution surely following. The wilderness atmosphere of Anza-Borrego Desert State Park would be adversely affected."

RESPONSE TO COMMENT 3.1

The growth inducing impacts of the Project are quantified in Section VI.A. and quantified in Section IV.O. and in the technical appendix on water in Volume II. Air pollution is analyzed and quantified in Section VI.J. and the Technical Appendix on Air Quality in Volume I.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

4.0 THE DESERT PROTECTION COUNCIL, COUNCIL, INC. LETTER AUGUST 27, 1979

COMMENT 4.1

"The Desert Protective Council, Inc., was advised that the ERB hearing scheduled for August 30th has been postponed until September 13, 1979.

"Detailed comments will be submitted at that time, though the official notice of 7-31-79 stated that comments will be received until November 10, 1979."

RESPONSE TO COMMENT 4.1

The Applicant finds it singularly unhelpful to receive a written comment to the effect that "oral comments will follow." A key part of the CEQA review is to obtain all comments at an early stage in order to provide the decision maker with as much information as possible and give all parties an opportunity to respond.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

5.0 THE CALIFORNIA DEPARTMENT OF FISH & GAME LETTER AUGUST 23, 1979.

RESPONSE TO COMMENTS 5.0

The Applicant believes that no response is necessary.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

6.0 THE CALIFORNIA DEPARTMENT OF PARKS AND RECREATION AUGUST 13, 1979.

COMMENT 6.1

"On page 115 the possible need for a second power transmission line for the Borrego Valley is discussed. Any transmission line would, of course, have to pass over State Park System lands. One of the prime resources of this great desert park is the unimpaired vistas giving visitors scenes of vast areas without anything manmade. A transmission line marching across unspoiled terrain immediately brings everything to scale and lessens the enjoyment of the viewer. Beyond the aesthetics, there is an initial disruption of the plant and animal populations of the area during construction of the line. And there is a continuing disruption when periodic maintenance occurs.

"A second transmission line would not be desirable from the park point-of-view. Using the existing poles and upgrading the service might be a viable alternative."

RESPONSE TO COMMENT 6.1

Whether or not a second transmission line into the Borrego Valley will ever be required is highly problematical. As this comment points out, there may be many ways to meet future power demands, such as system upgrading, that will not require a new transmission corridor. Furthermore, if new lines were placed in the same area as the existing corridor, many of the aesthetic impact concerns raised in this comment would not occur. For example, such a line would not be affecting "unspoiled terrain" and existing "vistas" would only be incrementally impacted.

Finally, the Comment fails to point out that the State Department of Parks and Recreation has officially taken the position that current state law prohibits the placement of new transmission lines in the Anza Borrego Desert State Park. During public hearings in 1977, Herbert Rhodes, then the Director, submitted a sworn Affidavit

to this effect. (See Affidavit of Herbert Rhodes dated July 5, 1977 filed in the public records of the State Energy Resources Conservation and Development Commission proceedings on the Sundesert Nuclear Plant, Notice of Intention Hearings, Docket No. 76-NOI-2.) This position is further confirmed in the letter and memorandum of Mr. Rhodes dated May 19, 1977 and July 12, 1977, respectively, copies of which are attached.

COMMENT 6.2

"But the real answer is to quit the dependence on outside power sources. Surely, if solar power is ever to be successful the Borrego Valley has to be a prime candidate for a location. Sun is virtually omnipresent. A prototype solar energy system for Rams Hill would not only be a conventional energy saver but also a park saver."

RESPONSE TO COMMENT 6.2

The Applicant agrees that the Borrego Valley is an ideal location for the application of solar technologies. In fact, the Rams Hill Project will utilize extensive solar water and space heating applications.

COMMENT 6.3

"On page 133 widening of county roads is mentioned. Park lands would also be impacted by this proposal. Safe roads are important but if the purpose of road widening is only to save a little time then a great many other considerations should prevail. Wider roads mean more blasting for road cuts, more surface runoff causing more erosion, an increased mortality rate for animals attempting to cross the roads and a high visual impact from increasing cuts and fills along the roadway. All of these lessen the quality of the visitors experience to the park."

RESPONSE TO COMMENT 6.3

Both Montezuma Valley Road and Yaqui Pass Road currently experience moderate congestion on weekends during the peak of the tourist season for Anza Borrego Desert State Park. The congestion is caused by slow moving campers and mobile homes driven by visitors

to the state park. During weekdays and off peak season weekends the two roads are relatively free flowing. By 1985, the park has projected that the number of park visitors will increase from 1,000,000 in 1979 to 1,500,000. These visitors will travel on the impacted roads primarily during peak season weekends, significantly increasing the level of congestion. The Rams Hill Project will incrementally add to the volume of traffic on these two major access roads. The County Circulation Element designates both Montezuma Valley Road and Yaqui Pass Road as major roads with 82 feet of paving on 102 feet of right of way. Today these roads are built to less than half of that standard. By 1985 it is projected that, for safety reasons, the level of improvements on the roads should be increased to accomodate traffic which is generated almost entirely by the State Park. Such improvements would be subject to review under CEQA.

The existing right of way for Yaqui Pass Road from Borrego Springs Road to Highway 78 is between 40 to 60 feet. The existing right of way over the most congested area of Montezuma Valley Road as it descends the grade into the Valley is 40 feet. Therefore, before any improvements could be made to expand the paved area of the roads, the County would need to acquire additional right of way from the State Park. The Park has the legal authority to deny any and all such requests but could agree to expansion should they feel that the safety conditions warrant such improvements. The County does not have the authority to condemn State Park lands for road improvements.

COMMENT 6.4

"Page 150 deals with the possibility of the need for importation of water if the underground supplies within the Borrego Basin prove to be inadequate for future development. The spector of an aqueduct/ canal/pipeline across the park is too gross to imagine. Growth should be limited to the existing water resources of the valley."

RESPONSE TO COMMENT 6.4

The purpose of an environmental impact report is to discuss not only the probable impacts of a proposed project, but also the worst case impacts of a proposal. As discussed in the DEIR in Section IV.0. the worst case impacts of implementation of all the proposed projects in the Valley, plus a continuation of the present rate of buildout in existing lots and buildout of potential secondary growth would be to create a minor groundwater mining situation in which the first 200 feet of the aquifer would be exhausted in about 350 years. The DEIR states that at such a time importation of water may be a possibility. Projects for pipelines to the Valley have been proposed in the past by agencies such as the Department of Water Resources. The right of way for such a pipeline would, however, have to be granted by the State Park. In summary, importation of water into the Valley is highly unlikely. The Valley has adequate water resources to support development of this phase of Rams Hill if the current trends in domestic and agricultural water use continue as expected.

COMMENT 6.5

"Page 151 also deals with the water table of the valley. The possibility of a levee and infiltration pond system for the mouth of Coyote Canyon is raised. Any such work contemplated should be done entirely on private lands in that area. The developer of Rams Hill owns adequate land in the mouth of Coyote Canyon for this possible use. There are constant pressures for the park to open up its lands in Coyote Canyon, Henderson Canyon, Borrego Palm Canyon, Hellhole Canyon, Dry Canyon, and Tubb Canyon for flood control dikes, levees,

siltration basins, etc. This project should not increase these pressures."

RESPONSE TO COMMENT 6.5

This Project will have no direct impact on the areas of the Valley mentioned in this Comment inasmuch as it will be located in a completely different part of the Valley. The DEIR correctly points out alternatives and future possibilities for flood control and basin recharge measures which would benefit the Borrego Valley as a whole.

State of California

Memorandum

Wade Ellis Keller Newman

76-NO1-2

ENERGY COMMISSION FILED

JUL 12 '77

To : Honorable Huey Johnson, Secretary for Resources

Attention Mr. Frank Goodson
Project Coordinator

Date :

Subject: SCH 77042624, Sundesert Project

RECEIVED

JUL 11 1977

LHF

From : Department of Parks and Recreation

The California Department of Parks and Recreation has reviewed the Environmental Report (ER) forwarded by the Nuclear Regulatory Commission (NRC). It is our understanding this report will be used as a basis for the preparation of the Draft Environmental Impact Statement (DEIS) by NRC. Our concerns relating to this project are in three areas:

1. The protection of cultural resources at this plant site. The NRC has not consulted with the State Historic Preservation Officer (SHPO) on the eligibility of the site for the National Register of Historic Places (NR). This Department has reviewed the report described on page 2.6-3 prepared by the Imperial Valley College Museum, and awaits further information on the remains of General Patton's maneuvers, a statement of the Native American values of the prehistoric sites, and a request for determination of eligibility for the NR by the NRC. Figure 4.2-3, Work Schedule, indicates more land modifications are due soon.

2. Cultural resources on transmission corridors. We note that the Native American values of the archeological sites have not been addressed. The archeological information is insufficient to address meaningful comparison of the various alternatives or the assessment of the given alternatives as the most feasible in the prospective cultural resources preservation. We would also appreciate an assessment of the alternative route located between the two lanes of Interstate 8, as this route ascends the Sierra from the Yuha Basin (southern alternative). Finally, we suggest the NRC comply with 36 CFR Part 800 in its earliest stage of planning and prior to any decision concerning this undertaking.

3. Transmission routes through Anza-Borrego Desert State Park. (ABDSP) Figure 3.9-4, Proposed and Alternative routes, depicts the proposed route crossing ABDSP and the alternative avoiding ABDSP. The placement of transmission lines within this property is prohibited by California statute. ABDSP is a National Natural Landmark. Sufficient alternatives exist for the transmission routes outside ABDSP and Figure 3.9-1, Termination Points, Proposed Routes and Load Centers, indicates a study corridor from Deavers to Rainbow. The Temecula Canyon Preserve is State-owned property and has the same protection as ABDSP.

Please route request for detailed information or assistance to Mr. James P. Tryner, Chief, Resource Preservation and Interpretation Division, telephone number (916) 445-7067.

Herbert Rhodes
Director

G-3/315
JMDoyle

cc: Mr. Whitehead, (2)
Mr. Harrison
Mr. Eisenberg
Mr. Jim Rote, Agency Office

Mr. Loyd Forrest
California Energy Resources and
Development Commission
1111 Howe Avenue
Sacramento, CA

Dr. Mellon

STATE OF CALIFORNIA—THE RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

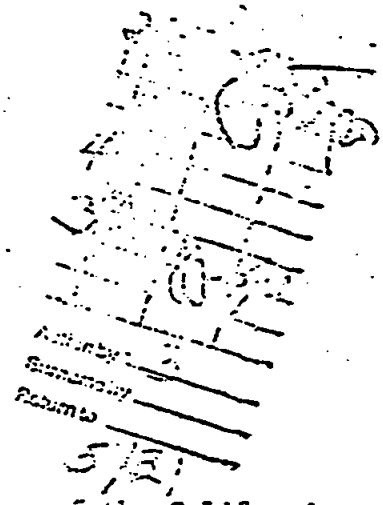
DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 2390

SACRAMENTO 95811

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MAY 19 1977



Mr. Ed Hastey, State Director
U.S. Bureau of Land Management
2800 Cottage Way, Room E-2841
Sacramento, CA 95825

Dear Mr. Hastey:

Recently members of my staff attended the second meeting of the California Desert Area Conservation Area Advisory Committee in Barstow.

An examination of the maps displaying the routing of transmission lines from the proposed Sundesert Nuclear Power Plant indicates the lines will be routed through the southern portion of Anza-Borrego Desert State Park.

We believe state legislation prohibits the placing of lines within this park, and are opposed to the use of the park for this purpose.

Discussions between Mr. James Burns, Resource Agency, and Mr. Frank DeVore, San Diego Gas and Electric, indicated the utility does not plan on routing the lines through the park.

The planning maps should reflect this situation. The project reports and E.I.S. material should be clarified also.

Sincerely,

Herbert Rhodes
Director

cc: Mrs. Claire Dedrick, Resource Agency
Mr. J. Burns, Resource Agency
Mr. Loyd Forrest, Energy Commission, Howe Avenue, Sacramento, CA 95825
Mr. Frank DeVore, Vice President, San Diego Gas & Electric, P. O. Box 9211
San Diego, CA 92112

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

7.0 COMMENTS ON ENGEL LETTER

COMMENT 7.1

"The EIR on Rams' Hill is seriously deficient in many ways. Some of the more disturbing errors of omission relate to the quality of water, especially as water quality deteriorates under the impact of irrigation (with fertilizers) and the recirculation of resultant salt-laden waters.

"In Borrego Springs the problem is exacerbated because:

"(A) farms and golf courses lie astride the major aquifers,

"(B) fertilizer containing nitrogren is used extensively thereon,

"(C) resulting salts, especially the highly soluble salts such as nitrates, chlorides, et al., are leached through the porous sands and gravels into the water reservoirs,

"(D) the resulting, more saline groundwater is recirculated during irrigation and domestic uses, carrying additional salts into the reservoirs,

"(E) as mining of water proceeds the feedback continues and salinities increase, to the point where amounts of nitrate and total dissolved solids approach or exceed those considered safe for human consumption (45 ppm nitrate and 1000 ppm TDS).

"If we assume the underground reservoirs are crudely interconnected, a decade or more of watering, fertilizing, and salting of the underground reservoir (especially with overdraft) may render much of the underground water unfit for human consumption.

"This is the classic desert basin cycle observed throughout the world.

"In this context it should be noted that over 90 percent of the water used in the Borrego region is for agriculture, golf courses, and landscaping (EIR, Rams' Hill, p. 140 Table IV-O-1). Further, much of the water consumed by humans takes the form of sewage enriched in organic wastes, nitrogen and other salts."

RESPONSE TO COMMENT 7.1

The classic desert hydrologic cycle does not describe the hydrologic system of the Borrego Valley. Mr. Engel has defined the

feedback cycle of a closed water system in which all water not evaporated or transpired at the surface returns to the aquifer and in which no natural recharge of the basin occurs. If such a system actually was in operation, and there was no solution as Mr. Engel contends, then there would never be development throughout the inland desert climate zone anywhere in the world. Mr. Engel is correct in stating that farms and golf courses lie astride the major aquifers in the Borrego Valley. In fact, essentially all development in the valley has occurred on lands overlying the groundwater basin.

However, Mr. Engel is incorrect concerning the functioning of the feedback cycle. The Regional Water Quality Control Board for the Colorado District has studied desert groundwater basins extensively. Their research has concluded that water applied to the desert surface percolates only a short distance into the substrata. Most of the water is drawn back up toward the surface through capillary action, over time. The Regional Water Quality Control Board has concluded that only a small portion of the water not directly consumed at the surface ever reaches the water table. The salts in the discharged water are trapped in the substrata and do not re-enter the aquifer in a significant quantity. The studies conducted by the Regional Water Quality Control Board have included extensive monitoring of septic systems. Even under conditions of heavy water application such as occur with these systems, the capillary action prevents much water from re-entering the aquifer. All the biologic wastes in the sewage are purified in the first 30 feet of percolation. This is fully discussed in the DEIR in Section VI.P.

Mr. Engel contends that a decade or more of watering, fertilizing and salting of the underground reservoir (especially with overdraft) "may render much of the underground water unfit for human consumption." History and experience in the Borrego Valley does not support such a conclusion. Between 1950 and 1962 the volume of water pumped in the Valley was 2 1/2 times greater than that volume pumped today. Mining was occurring. Almost 97% of this water was used for agriculture and landscaping. Since then substantial water has continued to be used for irrigation. The groundwater basin has obviously not been rendered unfit for human consumption. Water quality in the new Borrego Springs Water Company Well No. 4 is of exceptionally high quality. Water quality is thoroughly discussed in the Rams Hill DEIR in Section IV.O. and in the Technical Appendix on Water, Volume II. The water quality in the Valley is further discussed in the DEIR on the activation of the Borrego Water District's latent powers, a copy of which is attached.

COMMENT 7.2

"Leaching of soluble salts and sewage downward into the water reservoirs is accentuated during heavy desert storms that drop from one to several inches of water on the salted substrate."

RESPONSE TO COMMENT 7.2

The average annual rainfall in the Borrego Valley is from 3.5 to 5.0 inches per year. This rainfall is highly sporadic, frequently occurring in explosive thundershowers which affect only a small portion of the Valley, or more often affecting the foothills and mountains. This is discussed in the DEIR in Section IV.I. The vast majority of recharge occurs from underground and surface channels leading out of the canyons from the west. This is discussed in Section IV.F. The volume of salts which reach the aquifer is very

low both because of the sporadic rainfall and because of the capillary action discussed previously. As also discussed previously, sewage does not percolate into the aquifer and does not contaminate water resources. The purpose and function of the Regional Water Quality Control Board is to prevent such occurrences. They do this by issuing permits after examining the safety of proposed septic systems. Before construction can occur on any lot in the Borrego Valley the Regional Water Quality Control Board must issue such a permit.

In fact the Regional Board is concerned with minimizing water consumption by recycling resources whenever possible. The Rams Hill project has been designed to minimize the volume of water pumped by recycling virtually all of waste water, or up to 100,000 gallons of water per day, for use on the golf course.

COMMENT 7.3

"The resulting problems involving salinization of groundwater are serious in the light of recent experiences with water in Borrego Valley wells. For example, in 1975 concentrations of nitrate in one of the Borrego Springs Water Company wells at Borrego Springs rose 'abruptly' from 'safe' values to over 100 ppm which is considered unsafe for humans (EIR, Borrego Water District, and Notice to Customers, 1975-76). Accordingly, some water from this well was diluted with water from one or two less impacted wells, but finally usage of the poisoned well had to be abandoned (Public Notice to Customers)."

RESPONSE TO COMMENT 7.3

The well to which Mr. Engel refers must be Borrego Springs Water Company Well No. 4 (formerly Di Giorgio Well No. 10). This well was constructed in the 1940's as an irrigation well. The well was drilled by the rotary method, gravel packed and perforated in order to produce all available water regardless of mineral quality. When funds became available, the Water Company drilled a

new well some 50 to 60 feet west of Well No. 4 using a design which prevented entry of water from near the surface of the groundwater into the well. This new, properly constructed well is pumping 150% as much water as the old well. Nitrates, TDS and related dissolved mineral constituents are extremely low (NO_3 = 3 ppms TDS = 300 ppm). Thus, the problem of nitrates affecting well water can be solved in most instances by proper well construction.

The nitrate problem in the Borrego Valley is probably a naturally occurring phenomenon rather than one created by human action. Early drilling records in the Valley clearly indicate that there were naturally occurring pockets of high salinity and high nitrate water. A. F. Peterson, the geologist retained by Di Giorgio to conduct their initial drilling program encountered water high in nitrates and TDS at Borrego Springs Water Company Well No. 4 when it was first drilled as an irrigation well in the early 1950's. To solve this problem, Peterson sealed off the first 280 feet of the well with blank casing -- the same solution which was successfully used at the new Water Company well.

COMMENT 7.4

"At the time that water in this well became undrinkable, the Borrego Springs Water Company had only one or two viable wells for the entire community. An additional well on County Club Drive collapsed. The resultant heavy pumping of the one or two viable wells, through old pipes, for long distances, produced silt and sulfate laden waters in homes normally supplied by the collapsed well. These contaminated waters were not only unfit for human consumption, but also full of sediment and total dissolved solids. They clogged plumbing fixtures, washing machines, filters, and created a serious hazard over a period of some 7 months until a new well could be hastily drilled by the Borrego Springs Water Company. It is this water system with a few cosmetic touches from which the Rams' Hill Country Club Project proposes to supply most of its needs (EIR, Borrego Water District)."

* * *

"The history of nitrate buildup to poisonous levels in at least one Borrego Springs Water Company well (since 1974?) is evidence of the extremely fragile nature of the reservoir and the potential for loss of large segments of the water reservoir for human consumption. It is also probable from the fragmentary well data and from projections into the future of the average precipitation over the last 40 years, that the postulated expansion of Borrego Springs per se to some 2500 to 4000 more dwellings, one to three more golf courses, and attendant agricultural and commercial activities could unduly stress and degrade the Borrego aquifers."

RESPONSE TO COMMENT 7.4

Mr. Engel comments on a Borrego Springs Water Company well on County Club Drive which collapsed. This was Company Well No. 2, a well which was poorly constructed on a low budget and which had served beyond its useful life. Here again, the Water Company drilled a replacement well on the same parcel of land approximately 100 feet away from the well that failed. The new well is of excellent quality. Well production, mineral quality and pumping conditions are considered excellent.

Mr. Engel is mistaken about the source of the water system that will supply the Rams Hill Project. He has alleged that water will be provided by the Borrego Springs Water Company. As fully discussed in the DEIR in Section IV.O., the water supply system for the Rams Hill Project will be fully self-contained, it will not utilize any facilities of the Borrego Springs Water Company. Water will be supplied by four wells, one of which is off-site. The water quality in all four wells is exceptionally high. All four wells were constructed utilizing modern, state of the art, techniques to ensure the continuing high quality of the water supply.

COMMENT 7.5

"With increased growth within Borrego Springs proper and any annexation of Rams Hill by a Borrego Water District, there exists the strong probability of continued and significant water mining. This is conceded in the Rams Hill EIR (Table IV-O-4, page 145)."

RESPONSE TO COMMENT 7.5

The volume of water currently and historically consumed in the Borrego Valley has been fully discussed in the Rams Hill DEIR Section IV.O., and in the Technical Appendix on Water in Volume II. Water mining is a function of recharge and consumption. The Valley had a history of water mining from 1950 to 1968, when the population was less than half of its current level. In the last 10 years with a doubling of the population, water consumption for domestic purposes still equals only 600 acre feet per year, or about 5% of the total water consumed in the Valley. The single most significant factor in water mining in the past, and for potential water mining in the future, is the extent of agricultural activity - not the extent of domestic development.

COMMENT 7.6

"Under these conditions recycling of waters bearing highly soluble nitrates and other salts will cause continued increase in the salinity of the underground waters. With continued water mining, salt buildup could impact much of the north Borrego reservoir and create a serious hazard for the entire community including the Anza-Borrego Park System."

RESPONSE TO COMMENT 7.6

The interplay of salt levels and water consumption is discussed above in Responses 7.1 to 7.3. An accurate description and an accurate discussion of these matters are contained in Sections IV.O. and IV.P. of the DEIR, in the Technical Appendices on Liquid Waste and Water, and in the Borrego Water District DEIR.

COMMENT 7.7

"As is recognized (EIR, Rams Hill, Table IV-O-4) the future of agriculture in the Borrego Valley is unpredictable, but at present more lands are being put into citrus groves. In addition, at least two, perhaps more golf courses are scheduled to evolve (Borrego Park and Rams Hill). This means that for the next few years the total amount of water (with fertilizer) used for irrigation will equal, perhaps exceed recharge (unless there is a sudden climatic change).

"Clear, specific recognition of the above cited situation and its inherent dangers should accompany any EIR on Rams Hill, or in a major expansion of dwellings, golf courses and landscaping in the Borrego Springs Area."

RESPONSE TO COMMENT 7.7

The DEIR acknowledges the potential growth in agricultural water consumption over present agricultural consumption and acknowledges the probable increase in water to be consumed in landscaping. See Technical Appendix on Water and Borrego Water District DEIR Section 5.1. It should be recognized, however, that the average annual volume of water consumed in the 1940's and 1950's in the Borrego Valley was 3-1/2 times greater than the average annual volume of water consumed in the Valley in recent years (the last decade). The volume of agricultural use has been as much as 4 times greater than the volume presently used for agricultural use. The potential "worst case" impacts of the development referred to by Mr. Engel have been fully discussed in the DEIR in Section IV.O. and in the Technical Appendix on Water. The future water trends are also discussed at length in the Borrego Water District DEIR Section 5.1, attached hereto.

COMMENT 7.8

"The problem cannot and will not be solved by recourse to the tired old data used in the Rams Hill EIR. Moreover, evaluation of these problems cannot be left to geologists and engineers employed by either the developers or the Borrego Springs Water Company.

Proof of this is the suppression of the nitrate problems and any suggestions for corrections."

RESPONSE TO COMMENT 7.8

The Technical Appendix on Water in the Rams Hill DEIR is the tenth major study of the Borrego Valley groundwater basin since 1945. As with all credible scientific investigations it drew on material developed painstakingly by other scientists and investigators. The consultants employed by the Applicant have outstanding qualifications in the field and credibility with governmental decision makers. Mr. Linden Burzell is the general manager of the San Diego County Water Authority and has specifically worked on problems of water quality and quantity in the Borrego Valley for 25 years. Mr. Dennis O'Leary is a foremost water quality engineer in San Diego County and was head of the Regional Water Quality Control Board. PRC Toups has an outstanding reputation in the environmental field for thorough, objective investigations.

COMMENT 7.9

"A possible clue to the potential hazards exists in the repeated claims by both the B.S.W. Co. and the Rams' Hill developers that 'no more studies are needed.'

"Without a thorough, dispassionate study by the most qualified water scientists, geologists and chemists, these problems will be swept under the sands.

"Need for the study is obvious if we consider the proposed increase in population to some 10,000 people with attendant commercial and golf course activities in the region. (see pages 198-199, 203, 210 and 211, Rams' Hill, EIR) and subsequent discussions of water consumption and water mining."

RESPONSE TO COMMENT 7.9

Neither the Borrego Springs Water Company, to our knowledge, nor the Applicant have taken the position that the Borrego Valley groundwater basin should not be studied further. However, the

volume of technical data on the basin reveals that ample information exists upon which to base a sound decision on the ability of the basin to support the level of development proposed at Rams Hill. Seven scientific studies basically agree that 1.3 million acres of water are stored in the first 200 feet of the groundwater table. That table extends at least 900 feet deep. All seven studies also conclude that the recharge rate is approximately 11,000 acre feet per year. This data reveals that the first 200 feet of the groundwater table can support development for between 350 and 1350 years. The Applicant believes that a groundwater management program based on ongoing monitoring and study should be developed by an approximate public agency such as the Borrego Water District. Details of existing water studies are discussed in Section IV.O., the Technical Appendix on water and in the DEIR on the Borrego Water District.

COMMENT 7.10

"In the Rams' Hill EIR a water crisis of serious dimensions is conceded as a possibility (page 196) but this crisis is dismissed with the casual comment that "acquisition of a substitute future water supply should one become necessary, would be the responsibility of Public Agencies" (page 196). In other words, if our concerns have any basis in fact, we have no recourse other than to explain the catastrophe to 'Public Agencies,' who of course have the final responsibility of deciding whether a dangerous gamble on water quality can be justified without further study."

* * *

"The suggestions for alternate sources of water are ridiculous."

RESPONSE TO COMMENT 7.10

•One of the goals of an EIR is to analyze the consequences and impacts of a project, and then suggest alternative ways that such consequences and impacts may be mitigated. Mr. Engel fails to note that the Rams Hill DEIR uses the most conservative - not the most probable - set of assumptions. Only when one assumes a

"worst case" scenerio and also assumes that no mitigation is undertaken do the cumulative effects of the potential development of Rams Hill have potential serious impacts. The function of public agencies is to protect the common good. In fact, the County Water Authority, a local public agency, is responsible for almost 90% of the water supply used in San Diego County.

COMMENT 7.11

"There is, moreover, no specific discussion in the Rams' Hill EIR of the almost impossible task and incredible cost of reclaiming nitrate and Na-rich waters or waters with excessive total dissolved solids as these may continue to develop."

RESPONSE TO COMMENT 7.11

The recent experience of the Borrego Springs Water Company in solving the problems of domestic water with high nitrate concentrations illustrates the relative ease with which the nitrate problem can be solved. Furthermore, almost 90% of the water consumed in the Valley is used for agriculture and landscaping. Nitrate rich water is put to excellent use on such areas. The presence of nitrates in the water in fact reduces the need for artifical application of fertilizers.

COMMENT 7.12

"There is also no attempt to relate or reconcile the contradictory inferrence that (A) the north Borrego Valley water reservoir per se is relatively homogenous and interconnected and (B) the documented large variations in water level, salt content, and water quality from well to well within the northern reservoir (see EIR, BWD, Table 5.2-1, and DWR, 1968)."

RESPONSE TO COMMENT 7.12

The study performed by the Department of Water Resources plotted the contour lines of the Borrego Valley groundwater basin. These contours are symetrical revealing natural underground flow of water through the entire crossection of the underlying formations.

This study, as well as the other 10 studies, have revealed that the basin is a bowl filled with alluvium which contains water. The alluvium is varying in depth throughout the Valley depending upon both the rate of deposition of the alluvium and the relative elevation of basement rock. These factors in no way contradict the statement that the basin is relatively homogeneous and inter-connected. The water which is contained in the basin, just like the alluvium, has been stratified into layers which have varying characteristics. When a well is drilled it transects these various layers. The differing water quality depends upon the layers of water from which the well is drawing. A well can be perforated to draw only certain layers of water which have desired characteristics. This is clearly revealed in the example of the new Borrego Springs Water Company Well No. 4 discussed in Comment 1.4 above.

COMMENT 7.13

"In view of the serious questions, especially the dangers of major pollution associated with probable water mining operations, and the suppression of the problems encountered to date, no major expansion of the Borrego Springs water system per se should be seriously considered, much less approved until far more definitive studies are undertaken.

"The obvious source of such a study would be the highly qualified water scientists in the Water Resources Branch of the United States Geological Survey. Discussions with U.S.G.S. officials in the San Clemente office of the U.S. Geological Survey indicates they are capable and willing to undertake such a study. Current costs are on the order of $125,000 to $150,000. One-half of these costs would be borne by the Geological Survey and the other half to be obtained within the State, County, and Community. Obviously, problems as important as those in question involving the lives of thousands of people and investments of many millions justifies expenditure of some $75,000 to quantify and more clearly define the problems of water quality, water degradation, water mining as well as simply amounts of water."

RESPONSE TO COMMENT 7.13

Mr. Engel again erroneously concludes that the Rams Hill Project would be served by the distribution and well system of the Borrego Springs Water Company. Rams Hill will have a self-contained domestic water system served by four wells recently drilled by the developer specifically for Rams Hill. A new distribution system will have to be constructed from these wells.

As identified in these Responses, the groundwater resources of the Borrego Valley have been substantially studied for over two decades. During the six-year review of the Rams Hill Project the groundwater resources were thoroughly evaluated by County staff and the applicant's consultants. These reports concluded that groundwater sufficiency was not a significant issue for this Project. That position was adopted by the County in approving GPA 76-02 which established the Rams Hill SPA and provided for 1600 units at the site.

The County General Plan, Land Use Element, adopted January 1979, reiterated this position in Policy 1.7. It states that development can occur to the level provided by the Land Use Element but that no plan amendment to further increase density will be allowed until community planning and resource studies, including water studies, are completed. The Di Giorgio Corporation proposal and position is consistent with the County's position.

The USGS has stated to representatives of Borrego Water District that it would be willing to update the 1968 water study published by DWR. However, the USGS has stated that no study design has been made, that manpower is currently overloaded, that the timing of any such study is uncertain and moreover, that such a study would

probably take a minimum of two to three years to complete. Most importantly, USGS has stated that such a study can best be conducted in conjunction with an appropriate local agency such as the Borrego Water District.

The objections voiced by Mr. Engel to the existing body of data on the Borrego groundwater basin would not be resolved simply by one more study by USGS. If such were the case, then the 1968 DWR study which was conducted by USGS scientists should have already resolved Mr. Engel's questions on water storage and recharge. The type and quantity of data which have been developed are more than sufficient for general planning decisions. More refined groundwater management issues will need to be resolved by refined analysis. Such analysis can best occur during an ongoing full-time study program conducted by geohydrologists and engineers dedicated to investigation of a single basin. Such an ongoing program will be implemented through a groundwater management program such as that proposed by the Borrego Water District.

COMMENT 7.14

"Amount of Water

"Discussions of (A) the amount of water in the Borrego reservoir and (B) recharge of the reservoir that appear in the Rams' Hill EIR are unacceptable. The problems are discussed with inadequate and poorly determined, old, data, and numbers. A careful restudy of the problem by competent scientists who do not have a vested interest in land development is imperative prior to any decision to utilize water from the Borrego Springs Water Company in the Rams' Hill Development."

RESPONSE TO COMMENT 7.14

Within the last ten years seven major studies of the Borrego Valley groundwater basin have been published. These studies are discussed in depth in the Technical Appendix to the Borrego Water

District DEIR. In fact, the Borrego Valley groundwater basin is the most extensively studied basin in San Diego County. The scientists who have conducted these seven studies are highly respected in their fields. For example, the amount of water in storage in the reservoir -- a calculation which Mr. Engel claims is unacceptable, and poorly determined -- was calculated by the same group of scientists at USGS whom Mr. Engel proposes should restudy and recalculate the basin. The consultants retained by the Applicant to study water in the Valley are leaders in water engineering and geology in San Diego County. Linden Burzell, who is General Manager of the San Diego County Water Authority, has 25 years of experience in water development in the Borrego Valley. Dr. Richard Threet is a professor of geology at San Diego State University. Neither professional has a "vested interest in land development" in Borrego.

As explained above, water from the Borrego Springs Water Company system will not be used to supply the Rams Hill Project. Rams Hill will be totally self-contained and will utilize four new wells drilled specifically for the project and a new distribution system.

COMMENT 7.15

"Specifically, concepts of the size, and internal structure of the valley reservoir are simplistic at best. Geological studies during the last decade by geologists of the U.S. Geological Survey (U.S.G.S. Professional Paper, Borrego Mountain Earthquake, 1969) and our own studies in the Borrego Sink and adjacent mountains suggest that Borrego Valley is transected by at least four major faults and fold systems and numerous subordinate structural features. These produce steeply dipping zones of varying permeability which may not permit free movement of groundwater within adjoining reservoirs. The complex fault system coupled with the so-called 'Desert Lodge anticline' as well as horsts and folded segments of the relatively impervious Palm Springs Formation, imply critical deviations from the concept of a dual, possibly quasi-contiguous reservoir (see also, page 153, EIR, Rams' Hill). The suggestion of a complex and

fragmented reservoir appears substantiated by existing well data suggesting a related pattern of unequal water levels, uneven yields, and differing salinities of clusters of wells within the Borrego Sink (DWR, 1968; EIR, BWD, Table 5.2-1 and cross section page 11B)."

RESPONSE TO COMMENT 7.15

In an area of substantial faulting activity, such as the Borrego Valley, it is reasonable to assume as Mr. Engel has stated that the subsurface geology is highly complex. There have been several wells drilled which have been essentially unproductive due to impermeable subsurface materials. With the large volume of well records available it is now improbable that new wells will encounter such difficulties if a qualified geologist is retained and if proper well drilling methods are employed. However, Mr. Engel incorrectly states that the pattern of well levels is either unequal or unrelated. The water level contours which were prepared as part of the 1968 DWR investigation are remarkably uniform throughout the valley suggesting a strong interrelationship of aquifers. These contours are based on measured well levels. In fact, the well levels on the south side of the Desert Lodge Anticline are in hydrologic continuity with those of the north suggesting water flow within or around the anticline itself. The gradual changes in water level across the valley relate to the bowl shape of the underlying bedrock, the resulting difference in depth of water-bearing alluvium, and the distance from major sources of recharge (such as Coyote Creek) and heavy agricultural use (such as the northern part of the Valley). The groundwater management study proposed as part of the latent power application of the Borrego Water District would include a renewed investigation of subsurface geology in order to provide a clearer understanding of subsurface water conditions.

The information referred to by Mr. Engel is discussed in Sections IV.C., IV.O. and the Technical Appendix on Water in the Rams Hill DEIR and throughout the DEIR on the Borrego Water District.

COMMENT 7.16

"Unfortunately, most wells, and over 85 percent of water consumed in Borrego Valley, are privately controlled (EIR, SWD, page 6), and it is difficult if not impossible for a private citizen to obtain adequate necessary information regarding water from these wells to resolve these problems."

RESPONSE TO COMMENT 7.16

The Di Giorgio Corporation was instrumental in initiating water development in the Borrego Valley and historically has produced by far the largest volume of water. Their records are the most extensive in the Valley. However, the consultants' reports have been based on all data obtainable from public as well as this, and other, private sources. Again, to resolve potential future problems it would be advantageous to encourage a groundwater management agency in the Valley. The Borrego Water District is by far the most logical choice for such an agency.

COMMENT 7.17

"The future of agriculture is a major unknown, as is future weather."

RESPONSE TO COMMENT 7.17

The future of agriculture is discussed in the DEIR, Section IV.D. and Section IV.O. Climatic trends are discussed in Section IV.I.

COMMENT 7.18

"The suggested studies by the U.S. Geological Survey would unearth enough contemporary and historical data to permit refinements in estimates of the reservoir size, internal complexity, yields, water degradation, and salinities of most wells and a dispassionate analysis of the related plethora of data that now exists.

"The present values of recharge ranging from 3300 acre feet (Lough, 1973) to the optimistically high values of some 11,000 or more acre feet (BLM and others, EIR, BWD, Table 2) surely can be refined. Estimates of recharge are, however, especially subject to errors due to our ignorance of precipitation over the next 50 to 100 years. If the data on precipitation from the last 40 years are extrapolated into the future, the value of some 6000 acre feet recharge per year suggested by Threet (BWD, EIR, Table 2) may not be unreasonably high. If the general decrease in average precipitation indicated for the last 3000 years continues - and this is suggested by some of the precipitation data between 1935 and 1975 - average recharge in the Borrego Basin in the next 50 years could be nearer Lough's figure of 3300 acre feet. Either value is far too low to prevent water mining."

RESPONSE TO COMMENT 7.18

Mr. Engel contradicts himself in his letter. Whereas earlier he refers to "inadequate and poorly determined, old data and numbers" he now refers to the "plethora of data that now exists". There have been seven major studies of the groundwater basin since 1968. Each study has drawn upon the material and expertise of former studies. The currently estimated recharge rate of 11,000 acre feet per year is, in fact, a refinement of earlier studies which proposed lower recharge rates. The preliminary finding in the draft Mr. Lough report of 3,300 acre feet per year was subsequently refined by Mr. Lough himself to 11,000 acre feet per year. The Threet report stated that the recharge rate during the drought period of 1935 to 1975 may have been as low as 6,000 acre feet per year. Based on known fluctuations in precipitation levels, however, Mr. Threet believes that it is realistic to assume that 11,000 acre feet per year is a

reasonable long term annual recharge rate and one that could safely be used for planning purposes.

The numerous reports on water in the Borrego Valley which analyze recharge rates, precipitation and mining are discussed in detail in the Technical Appendix to the DEIR on the Borrego Water District.

COMMENT 7.19

"Because future precipitation and agricultural activities remain unknowns, and there exists no other rational, obvious source of water available at acceptable costs, any decision based upon recharge of more than 6000 acre feet per year would appear dangerous if not irresponsible."

RESPONSE TO COMMENT 7.19

The data presented in both Section IV.O. of the DEIR on Rams Hill, the Technical Appendix on Water for Rams Hill, the DEIR on the Borrego Water District and the Technical Appendix to the Borrego Water District do not support Mr. Engel's conclusions regarding recharge. In fact, an annual recharge rate of only 6,000 acre feet per year is very conservative.

COMMENT 7.20

"If we use the 6000 acre feet value and contemplate the projected population increase in the valley to some 10,000 people in 1995 (EIR, Rams' Hill) coupled with water needs imposed by attendant golf course, agriculture, commercial operations, et al, the following sequence of events is likely:

"1. Water mining will continue, perhaps increase appreciably, within the Borrego Reservoir throughout the next 10 to 15 years (EIR, BWD and EIR, Rams' Hill).

"2. Concentrations of highly soluble salts, especially nitrates, TDS, and perhaps organic wastes, will increase rapidly and poison major segments of the water supply far beyond the recent poisoning documented in the Borrego Springs area.

"3. Concentrations of dissolved salts in the water, which now may average 500 to 900 ppm (EIR, Borrego Water District, page 24, 1979) may rise to levels in excess of the 1000

ppm regarded as a safe upper level for continuous human consumption. Sodium content of the waters will increase. If so those most seriously affected by high sodium will be senior citizens who dominate the population of much of the Borrego Valley.

"4. The future of Borrego Springs and any related community drawing upon the Borrego water supply will be severely jeopardized.

"5. In view of concurrent demands for water in every community throughout Southern California, it is unreasonable to suggest that a satisfactory alternative or additional economic source of quality water will be found at costs possible to Borrego Springs.

"6. The entire community of Borrego Springs and environs may expect dramatic dilution in equities of properties of the type currently existing along the Salton Sea.

"7. In this scenario those land owners of presently undivided parcels throughout the Borrego Springs area would find their holdings essentially worthless except as desert scenery."

RESPONSE TO COMMENT 7.20

The DEIR on Rams Hill discussed the potential impacts of cumulative growth in the Borrego Valley on the groundwater resources. This discussion can be found in Section IV.B. of the Rams Hill DEIR as well as Section 5.1. of the Borrego Water District DEIR. Each of Mr. Engel's seven conclusions have been dealt with in the individual comment responses above. In summary:

(1) The DEIR's on both Rams Hill and the Borrego Water District have stated that a minor long term water mining condition may occur in the Borrego Valley if present agricultural trends continue or if agricultural water consumption increases. The County Department of Agriculture has reported that continuation or expansion of current

agricultural activity levels is highly unlikely due to the economics of production in the Borrego area.

(2) The Borrego groundwater basin is not poisoned. Pockets of high nitrate and high TDS waters occur naturally throughout the aquifer as revealed by early well pumping and drilling data. The Regional Water Quality Control Board for the Colorado region has stated that contamination of groundwater from organic wastes is highly improbable with use of approved septic systems. The Rams Hill Project will not contaminate water. The bacteria in the sewage will be purified within the first 30 feet of percolation. In fact, most of the waste water will be treated for reuse on the golf course.

(3) Average water quality in the Borrego Valley is exceptionally good. The new well drilled by the Borrego Springs Water Company produces water with TDS levels as low as 300 ppm and nitrate levels under 5 pphm. The wells which will serve Rams Hill produce water with TDS levels in the range of 450 to 600 ppm. There are wells in the Valley which produce water with high concentrations of both TDS and nitrates. Through proper water management techniques these lower quality waters can be used for non-domestic purposes thereby conserving higher quality water for domestic use. Such water management techniques are widely used in groundwater basins throughout California.

(4) There is no evidence that the quantity or quality of water in the Borrego Springs area is jeopardized. Even under the worst case projections, there is ample water in the first 200 feet of the groundwater table to supply the Valley with water for about 350 years.

(5) The general manager of the San Diego County Water Authority has reported that two recent studies have proposed plans to import water to the coastal metropolitan areas via a pipeline through the Borrego Valley. While any such importation of water to the Valley as reported that two recent studies have proposed plans to import water to the coastal metropolitan areas via a pipeline through the Borrego Valley. While any such importation of water to the Valley is highly unlikely, for the reasons stated above, it is not unreasonable to assume that Borrego, like the rest of San Diego County will have alternative ways of supplementing its existing water supply in future years.

(6) The groundwater situation in the Salton Sea is totally unlike the situation in Borrego. Due to a lack of land use controls, lot speculation was rampant in the Salton Sea area in the 1950's and 1960's. Even at that time it was recognized that the Salton basin had insufficient supplies to serve the newly created lots. In fact, developers at the Salton Sea in 1960 proposed to appropriate water from the Borrego basin in order to serve Salton Sea lots. This proposal was defeated by citizens in Borrego largely through the agency of the Borrego Water District.

(7) Water is a critical resource in desert areas. However, Mr. Engel does not support his supposition that water quantity and quality in Borrego is threatened. The continuing viability of land prices in the Valley will be a function of their economic utility. Agricultural activity has expanded to its logical maximum according to the San Diego County Department of Agriculture. The future of the Valley most logically lies in second home-resort developments

which are less resource consumptive than either agriculture or urban and suburban development. Resort industry will provide a solid economic base for areas, such as Borrego Springs, that are removed from urban population centers.

The potential adverse impacts of cumulative growth in the Borrego Valley on the groundwater resources are discussed in Section IV.B. of the DEIR on Rams Hill and in Section 5.1 of the DEIR on the Borrego Valley. Each of Mr. Engel's seven conclusions have been dealt with in the above individual responses of the Applicant.

COUNTY OF SAN DIEGO

ENCLOSURE E

Environmental Analysis Division

Community Services Agency

9150 Chesapeake Road (MS 0175), San Diego, California 92123 . . . Telephone 565-3757

October 12th, 1979

Local Agency Formation Commission
1600 Pacific Highway
San Diego, California 92101

Attention: Bernie Rhinerson

Subject: AUTHORIZATION OF LATENT POWERS FOR THE BORREGO WATER DISTRICT
EAD Log Number 79-5-4

BACKGROUND

The Borrego Water District has applied to LAFCo for authorization to exercise its latent powers for water service. This District encompasses a forty three-square mile area east of Yaqui Pass Road and southwest of Borrego Springs Road in the south Borrego Valley area. It comprises approximately one-half of the private inholding on the Borrego Valley. Additionally, the District proposes to annex Ram's Hill, a development of seven hundred eighty units on two thousand one hundred fifty three acres (3.36 square miles). The General Plan designates the Ram's Hill area "SPA 0.5" and the proposed development is consistent with the plan. The remainder of the land within the District's boundary is designated multiple rural use by the General Plan, allowing minimum parcel sizes of 4, 8 and 20 acres depending upon slope of the terrain.

The County of San Diego has completed its review of the subject proposal. Based upon that review we have the following comments:

GROUNDWATER RESOURCES

We find that the Environmental Impact Report provides an accurate assessment of the groundwater resources in the Borrego Valley by identifying the following facts:

1.) Any additional development in the Borrego Valley (including Ram's Hill) will result in groundwater mining, unless agriculture is curtailed. This fact is illustrated on Page 3.

Present Consumptive Use:

Human Use	8300ac. ft./yr.
Native Vegetation	3000ac. ft./yr.
Total:	11300 acre foot/year

Mean Annual Recharge: 11,000 acre foot/year

Estimated Current Annual Deflict: 300 acre foot/year

2.) Presently, water supply within the Borrego Valley is provided by six relatively small and uncoordinated private water companies. The opinion seems generally accepted that should this condition be allowed to continue with increased development in the Valley, the danger of unintentional overdraft of the groundwater supply exists. There seems little doubt that the addition of one more supplier (Borrego Water District) would simply compound that problem unless the proposed authorization of latent powers for the District includes the authority (and responsibility) of coordinating the production and supply of water for all development in the Valley.

Because of the problems noted in the preceding discussion and because there appears to be no guarantee at this time that the District will be in a position to fund, develop and implement a comprehensive groundwater management plan for Borrego Valley, we feel that the draft EIR does not presently provide a sufficient range of potential mitigating measures for possible overdraft of the groundwater supply in the Valley. Therefore, please include and discuss the following additional mitigating measures:

1.) Limit development of the entire Borrego Valley through limiting the development capability of the County General Plan. (This would require concurrent action by the County of San Diego).

2.) Limit the authorization of latent powers for the Borrego Water District to the area included in the current Ram's Hill development proposal.

3.) Establish a limitation on per capita water use or on total district water use (this would require new State legislation).

4.) Redefine the boundary of the Borrego Water District to include all existing development in the Borrego Valley. This mitigating measure would require that the District coordinate all production and supply of water by the six private companies that are currently operating.

5.) Prepare a comprehensive groundwater management plan which identifies the safe yield of groundwater and coordinates all production and supply of water in the Borrego Valley to ensure that a condition of long-term overdraft does not occur.

6.) Demonstrate the administrative and financial capability to prepare and implement the comprehensive groundwater management plan addressed in item 5. (above) and provide a timetable for full implementation of the plan.

GROWTH INDUCEMENT

The basic premise of the EIR is that authorization of latent powers for the Borrego Water District would not encourage growth. With this assumption, the report focuses on the issues of water quantity and management. We believe that the latent powers authorization may induce growth and this possibility should be discussed in the EIR. The availability of water is the key to further growth in the Borrego Valley just as

it is in many locations. There is water in the Valley but it is not currently accessible on a large scale. It is contradictory to assume that an authorization that would enable the annexation of a project such as Ram's Hill would not also attract other projects of equivalent magnitude. In fact, it may be necessary for the District to encourage growth in order to generate sufficient revenues to carry out its plans.

Pursuant to this concern the EIR needs to supply the following missing elements:

1.) Discuss the above factors which may result in the project inducing additional growth.

2.) Provide an analysis in general terms of resultant impacts, including but not limited, to water and air quality, building, and sewage treatment.

AIR QUALITY (Reference page 12, last paragraph)

The text states, "Air quality in the Borrego Valley is exceptionally good. While no area....the California Air Resources Board has proposed that they be classified as a "Class A" or pristine air quality area."

Please augment this paragraph using the air quality section of the draft EIR for the Ram's Hill development proposal as a guide and indicate that Federal law prohibits degradation of air quality below the level experienced in 1975.

GENERAL COMMENTS

Additional general comments involving presentation in the draft EIR are provided in Attachment I.

Thank you for the opportunity to review this document. I hope that our comments have been helpful. If any additional questions arise on this matter, please contact Mr. R. Rodgers at (714) 565-5749.

Respectfully,

Paul C. Zucker

PAUL C. ZUCKER, Director
Department of Planning and Land Use

PCZ:RLR:cb

Attachment:

Draft cc: Hurlburt
Gray
Nielsen
Welsh
Zucker

ATTACHMENT I

General Comments

1. Reference figures following page 11 of the text.

   a. Please number the figures for easy reference.

   b. Please indicate the area covered by the soils map.

   c. Please indicate where the Borrego Valley cross section is taken.

   d. Please provide more complete labeling of these figures including scales if appropriate.

2. Reference Table 5.2-1 Page 24

   Are 1951-1965 water samples the most current data available? We note that the mean nitrate concentration exceeded to standards for potable water at the time that the data was compiled. Since additional nitrate "poisoning" has occurred since 1965 due to continued fertilization, it seems appropriate to update that information to the present time.

3. Reference Table 5.2-2 Page 25

   Please identify the report that was used as the source for data presented in this table. Also provide units for the concentrations presented, i.e., ppm, if applicable.

4. Reference page 10, paragraph 5.

   The text states: "This seismicity could have significant potential impacts on water quality, and will be described in more detail in that section." However, no further discussion of those impacts can be found in the EIR.

5. Reference Appendix A, page 10, first paragraph

   The text states: "The scope of this appendix was partially defined by a letter from IPO, which is included at the end of this report." However, there is no copy of the IPO letter in the draft EIR.

Attachment 4
of the entire
GPA package

COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE October 9, 1975

ENCLOSURE D

TO: Board of Sup
Planning Com

FROM: Environmental Review Board

SUBJECT: Environmental Impact Report for BORREGO SPRINGS (Di Giorgio) GENERAL PLAN AMENDMENT (GPA), A SUB-ITEM OF GPA75-03 [Log #75-GP-14]

The Environmental Review Board has reviewed the enclosed Environmental Impact Report (EIR). Based on the discussion of issues which follows, the Environmental Review Board (ERB) recommends that:

1. The EIR be certified as being complete and in compliance with the provisions of the California Environmental Quality Act,

2. It be found that the project as proposed will have a substantial adverse (significant) environmental impact;

3. The attached Mitigating Measures be made conditions of project approval.

ERB DELIBERATION

On motion of Mr. Schell, seconded by Mr. Manganelli, the enclosed Environmental Impact Report (EIR), consisting of Enclosures A through H, is approved by the Environmental Review Board (ERB) during this regular meeting of the ERB this 9th day of October, 1975, with all voting members being present.

AYES: 4
NOES: 2
ABSTENTIONS: None

Four reasons were given for the significant [substantial adverse] finding:

1. Growth-inducing factors; impacts of improvements necessitated by the project,

2. Adverse energy impacts because of the remoteness of the site, landscaping; heating and cooling requirements,

3. The location of a semi-urbanized area in the middle of the desert, and

4. Circulation -- would require expansion of the circulation system.

The ERB split 3/3 on the issue of biological impacts, with the following dissenting position by the 3 NO voting ERB members:

> Biological impacts will not be significant because of the protection of similar biological species by the 500,000+ acres of the Anza-Borrego Desert State Park.

DAVID C. NIELSEN, Secretary
Environmental Review Board

DCN:BKW:leb

Enclosures:
A. Environmental Impact Report Discussion, pages 3-14
B. Draft EIR prepared by the Office of Environmental Management (June, 1975) 36 pages
C. Letters of Public Comment 2 pages
D. Reference Sources, 1 page
E. Mitigating Measures, 1 page
F. Mitigation Recommendations, 1 page
G. Supplemental Information supplied by the applicant during the ERB meeting of October 9, 1975
H. Letter from the Department of Sanitation and Flood Control

cc: William Chatham (A652) project planner, I.P.O.
Michael Evans (A655), I.P.O.
Mr. Bud Kurtz of Di Giorgio Corporation, the applicant
Mr. D. Stutz, representative of the applicant
Mr. M. H. Getty, Anza-Borrego State Park
Ms. Janet Motley, Deputy California Attorney General
Conservation Committee, Audubon Society
Desert Protective Council
San Diego Chapter, Sierra Club
M. Niederman, LAFCO, MS #216

ENVIRONMENTAL IMPACT REPORT

DISCUSSION

PROJECT: BORREGO SPRINGS (Di Giorgio) GENERAL PLAN AMENDMENT (GPA), A SUB-ITEM OF GPA75-03 [Log #75-GP-14]

PROJECT DESCRIPTION

The proposed project is located about 5 miles (8 km) SE of the community of Borrego Springs (the nearest area of population concentration), and consists of 1,457 acres (590 hectares) in Sections 23, 25-27, and 35 of T11S, R6E, SBPM (Supv. Dist. V)

The proposed project is to amend 1,457 acres now designated as Agriculture in the Land Use Element of the County General Plan to new designations that will facilitate an urban development project (see p. 1 and 5 of the draft EIR). Present zoning (L-C) and Land Use classification would allow up to 583 D.U.s. The proposed amendment would allow 2,502 D.U.s.

Preliminary project plans indicate that the applicant intends to construct up to 1,457 D.U.s (a density of 1 D.U./acre). However, the environmental review of this project has been based on what could result if the proposed amendment is approved, and the discussion centers on potential and regional impacts.

Existing air quality and general noise conditions in the Borrego Valley are satisfactory at the present time. It is not anticipated that development (as discussed in the applicant's preliminary design plans) would result in deterioration to below standard conditions, but air quality could be affected dependent upon the extent and nature of secondary growth in the region.

MAJOR ISSUES

1. Growth Induction

The applicant has discussed project design intentions which would have a lower level of impacts than what the actual proposed amendment could induce. However, there is no way to assure that the preliminary design plans discussed would actually be implemented. The following discussion covers both the amendment proposal and the applicant's discussed intentions.

As discussed in the draft EIR, approval of 36 Tentative Maps or equivalent subdivision actions has resulted in the creation of 3,076 recorded lots (of the 3,577* approved lots) in the

* This value does not include any lots that have been created via Tentative Parcel Map (TPM) or other lot splitting action.

Borrego Valley. It is estimated that about 21% of the recorded lots are occupied, and there is a concern that approval of this amendment plus major development in the amendment area may induce a rapid development of the recorded or approved but presently unoccupied lots. This high potential for extremely rapid population growth can be reduced, even if the amendment is approved and amendment area development follows, by establishing a partial building moratorium by limiting the number of building permits issued in any one year.

a. Amendment proposal:

As discussed in the draft EIR (ref: pp. 21-22), this amendment could result in major population increases in the Borrego Valley. Project implementation to the proposed allowable densities plus development of existing approved lots (TM produced), due to secondary growth induction, could result in up to a 940% population increase in the Borrego Valley. In addition, even if provisions can be made to accommodate the population magnitudes, a greatly increased rate of growth could place excessive demands on all public services.

The average annual growth rate of the Borrego Valley has significantly increased over the 1960-1975 census periods:

Census Year	Permanent Population, Borrego Valley	Average Yearly Increase From Previous Census
1960*	780	-
1970*	828	0.6%
1975**	1174	8.36%

* Federal census
** County census

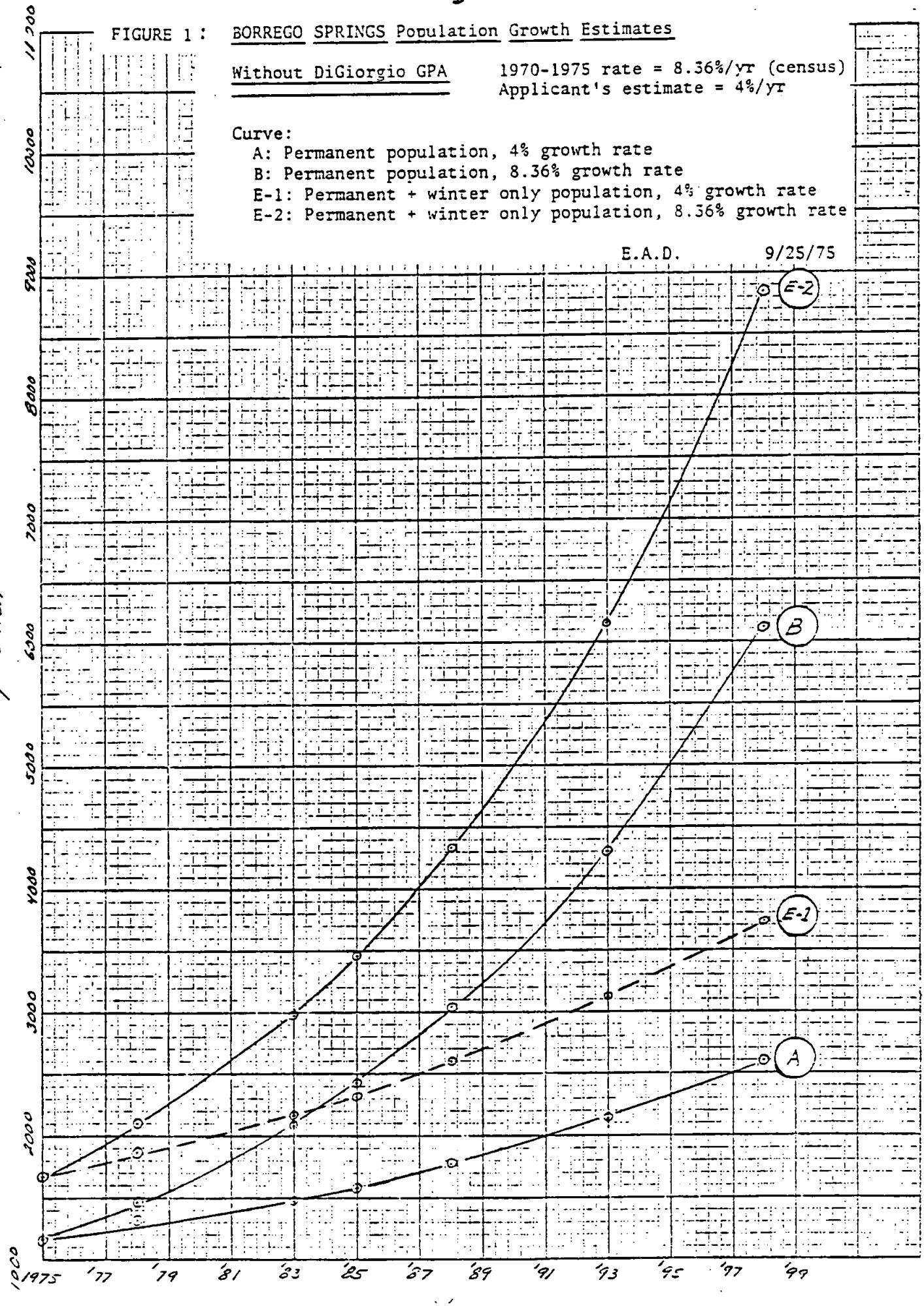
Although there is no way to ascertain if the present 8.36% growth rate will remain constant, there are no data to suggest that the 8.36% annual growth rate will decrease. See Figure 1 for future population estimates without amendment approval.

FIGURE 1 : BORREGO SPRINGS Population Growth Estimates

Without DiGiorgio GPA

1970-1975 rate = 8.36%/yr (census)
Applicant's estimate = 4%/yr

Curve:
A: Permanent population, 4% growth rate
B: Permanent population, 8.36% growth rate
E-1: Permanent + winter only population, 4% growth rate
E-2: Permanent + winter only population, 8.36% growth rate



5 X 5 TO THE ½ INCH 358-6 KEUFFEL & ESSER CO.

b. Preliminary project design

The applicant, however, has discussed (in preliminary design plans) a lower density of development than what could be actually allowed if the proposed amendment is approved (development of 1,457 D.U.s rather than 2,502 D.U.s); see Table 1 and Figure 2 for population estimates. Although the applicant would not be bound to the preliminary design plans discussed, the preliminary design would reduce the severity of the environmental impacts to varying degrees.

The applicant has also discussed an intent to significantly utilize native vegetation for landscaping, reclaim water from sewage effluent for irrigation when the total volume exceeds 100,000 gpd, and construct a golf course in the central area.

2. Energy

Development following project approval will have an adverse energy impact due to: 1) higher than average demands for space cooling during summer weather, and 2) its relative remoteness from: major medical facilities, entertainment centers, and commercial areas.

As discussed in the draft EIR, the Borrego Valley experiences summer temperatures considerably higher than most areas of San Diego County. The need for space cooling during a major portion of the year, plus relative energy needs for transportation will substantially increase regional requirements for petroleum derived energy. In addition, if a large amount of native vegetation is replaced by non-drought species, relative amounts of energy to pump water will be increased in direct proportion to the increased need for watering. Conservative estimates for increases in energy for water pumping for irrigation/watering of non-native vegetation on a per acre basis range up to 1500% over San Diego Metropolitan areas.

Estimates of the need for space cooling, compared to the metropolitan San Diego area, range from 277 to 1,945% higher for the warmest months of the year (see Table 2). The peak electric power demand during 1974 (summer) for the Borrego Valley was about 6000 kw (about 71% of the peak capacity of the Borrego Valley system).

Public transportation in the general area is lacking, although commercial air transport to the area exists. The nearest major medical facilities are in the Coachella Valley area, about 45-60 miles distant.

TABLE 1: Projected Population Estimates for Borrego Valley

	Population (a)			
	Without GPA approval		With approval (b)	
Year	4%*	8.36%**	4%*	8.36%**
1978	1875	2093	2261	2479
1983	2145	2967	4459	5281
1988	2317	3463	5402	6548
1988	2595	4331	6544	8509
1993	3114	6141	7853	12066
1998	3737	8707	9424	17109

(a) Total Population (Permanent + winter only residents), approximately 70.1% are permanents as of 1975.

(b) At a development rate of 150 D.U./year, to a maximum of 1,457 D.U. in the project area***

* 4% Growth rate (applicant's estimate)

** 8.36% Growth rate (based on 1970-1975 censuses)

*** The applicant's stated preliminary design plans -- the amendment per se could allow up to 2,502 D.U.s.

FIGURE 2:

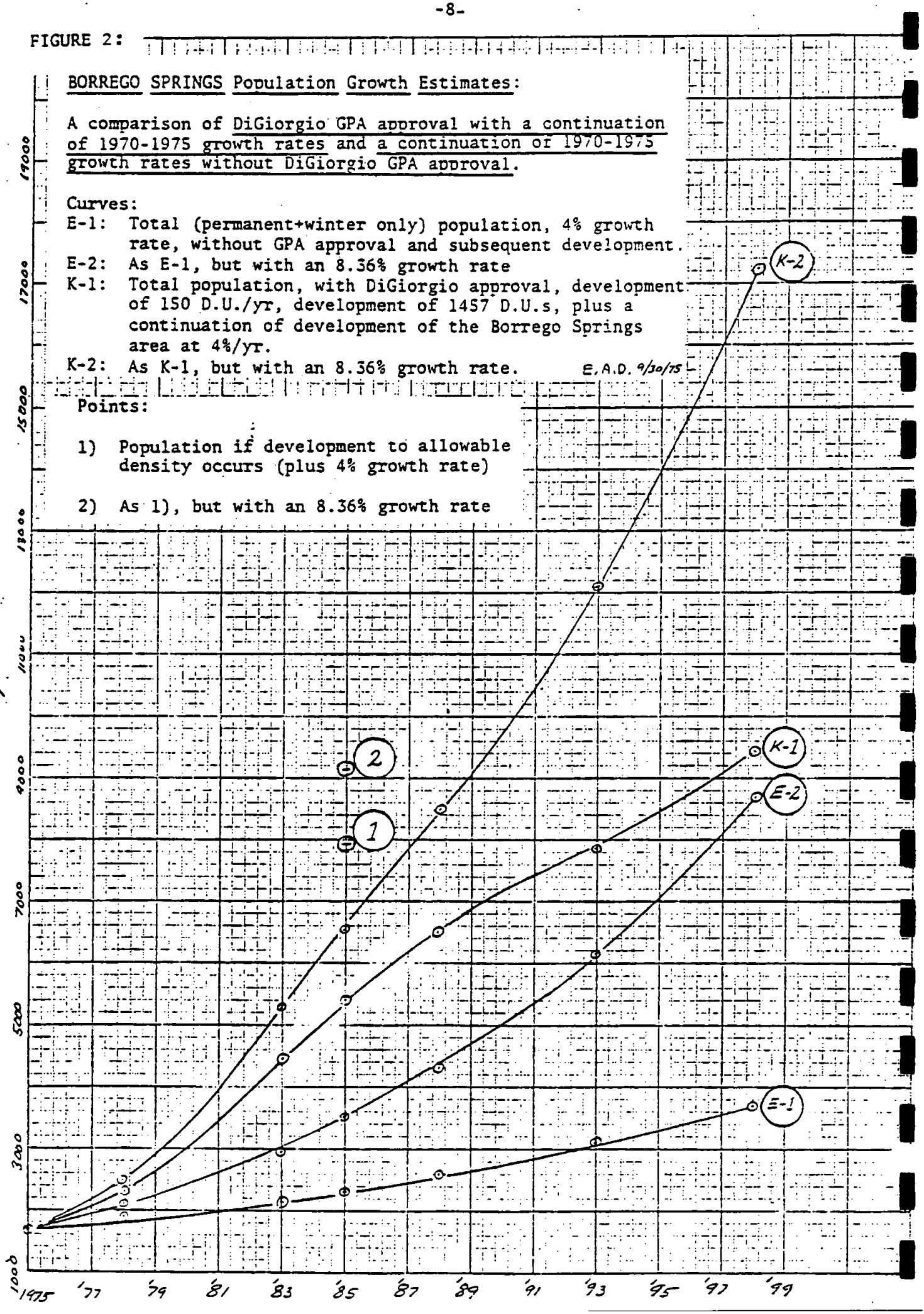

BORREGO SPRINGS Population Growth Estimates:
A comparison of DiGiorgio GPA approval with a continuation of 1970-1975 growth rates and a continuation or 1970-1975 growth rates without DiGiorgio GPA approval.
Curves:
E-1: Total (permanent+winter only) population, 4% growth rate, without GPA approval and subsequent development.
E-2: As E-1, but with an 8.36% growth rate
K-1: Total population, with DiGiorgio approval, development of 150 D.U./yr, development of 1457 D.U.s, plus a continuation of development of the Borrego Springs area at 4%/yr.
K-2: As K-1, but with an 8.36% growth rate.
E.A.D. 9/30/75
Points:
1) Population if development to allowable density occurs (plus 4% growth rate)
2) As 1), but with an 8.36% growth rate
Total Population
19000
17000
15000
13000
11000
9000
7000
5000
3000
1000
1975
'77
'79
'81
'83
'85
'87
'89
'91
'93
'95
'97
'99
K-2
K-1
E-2
E-1
2
1

TABLE 2: Various Comparative Energy Need Estimates for Space Cooling in Borrego Springs*

Air Conditioning Thermostat Settings**		% Higher for Borrego Springs*
San Diego Metro	Borrego Springs	
70	70	574
70	85	277
75	75	1945
75***	80	1539
75***	85	1134
75	90	728

* compared to the San Diego Metropolitan area, for the six warmest months of the year (May-Oct), based on Mean Maximum Temperatures (ref: Close, D.H. et al. [1970]), on a per D.U. basis.

** in degrees Fahrenheit

*** most realistic comparisons

The applicant has expressed the intention of minimizing the amount of non-native landscaping. If this is realized, the amount of energy to maintain landscaping will be significantly reduced.

The applicant, however, does not concur with staff analysis relative to the need for space cooling, and has provided an alternate evaluation of potential energy impacts (see Enclosure G).

3. Circulation

Full development of the proposed area will necessitate road expansions in the Borrego Valley. If secondary induced growth rates become major, the road system region wide will require modification and expansion.

4. State Park Impacts

An increase of human activity in the amendment area will increase the potential for adverse secondary impacts on biological and archaeological resources of the Anza Borrego Desert State Park. The fragility of desert biota has been discussed in the draft EIR and by the California Native Plant Society, et al. (letters of public comment). Although the amendment area and the Borrego Springs area in general are surrounded by the 500,000+ acre Anza Borrego State Park, activities along the borders of the park can impact on margin areas of the park. ORV usage has damaged some areas of the park, and control of ORV users has proven to be difficult.

Proper design of any given development can, however, minimize such impacts, especially if localized vegetation removal is minimized and ORV usage restricted in land adjacent to the park.

Potential usage of the State Park area by ORV users may be reduced if the recently State approved 10,000 acre ORV site (about 5 miles from the project site) is developed and utilized.

5. Biology

Development in the amendment area could adversely affect the biota on an estimated 6200 acres (including the amendment area) due to: a) the removal of native vegetation/loss of wildlife habitat, b) a change in water availability in the soil, c) an alteration of runoff rates and patterns, d) an increase in the level of human activities in the area, e) an

introduction of more roaming household pets in the general area; f) an increase of TDS and other contaminants levels in the soil/groundwater table.

Such impacts, however, can be greatly reduced by specific project designs. A design which would utilize native vegetation for landscaping plus reduce densities along margins of the 500,000+ acre Anza-Borrego Desert State Park could reduce impacts on both area biota and on the State Park.

6. Solid Waste Disposal

The solid waste disposal facility in the Borrego area was estimated in 1973 to have a useful life to 1983. The known population as of 1973 was 828 permanent residents (1970 census). The proposed preliminary project design plus an 8.56% growth rate in the non-amendment area (1970-1975 censuses) would increase the permanent population by a factor of 5.1 by 1988 (from 1174 to 6400 permanent individuals). The estimated build-out of the project would be sometime in mid 1988 (with 1457 total D.U.s proposed, and a 150 D.U./year construction rate proposed). As such, the present landfill will be filled well prior to the time of project completion.

The San Diego County Department of Sanitation and Flood Control has stated (see Enclosure II) that "... the present [solid waste disposal] operation is less than satisfactory in many respects ... [the] department is requesting funds for 1976-77 for the purpose of acquiring a new site ... [and] The planned new site would be large enough to serve the entire area, including an allowance for additional development, for a period of not less than twenty years."

7. Water Supply

Based on the Water Budget for Borrego Valley, C. F. Lough, County of San Diego (Nov., 1974, 28p.), long-term water supply problems may occur in the Borrego Valley dependent upon the extent and type of development.

a. The long-range growth potential of Borrego Valley is dependent upon water supply. The amount of groundwater available is finite. Its rate of depletion is dependent upon the rate and total amount of population growth.

b. In the short-range (25 years) there is adequate groundwater available for the proposed project from other Di Giorgio property areas if not the immediate site.

c. In the long-range, it may be necessary to prevent contamination of the groundwater by tertiary treatment of effluent or exportation of sewage.

If the water table is allowed to drop up to 200 feet, the projected population (see Table 1) for 1983 would mine-out available water in ground storage in approximately 450 years. If the ultimate population stabilizes at a projected level of 46,200 people (ref: Integrated Planning Organization), the estimated mine-out time would be about 350 years (see Table 3).

8. Sewage Disposal

The Borrego Valley is subject to a continuing degradation of soil and/or groundwater quality (see page 14 and 33-34 of the draft EIR) due to the closed system of water supply and subsequent water usage and return of used water to the soil and/or groundwater table.

The degree of potential groundwater contamination is dependent upon the depth of the groundwater table and type of soil. The groundwater table is estimated to be 90 to 300 feet deep, and overlain by rather pervious sand and alluvium that may have a higher potential for percolation than other areas.

The preliminary design of the applicant proposes to secondarily treat sewage from dwellings where the D.U. density is 1.0 or more/acre. A percolating public sewer system for the effluent will be used until the effluent volume reaches 100,000 gpd, whereupon the effluent would be used to water the planned golf course(s).

ALTERNATIVES

1. Denial of the amendment. This would reduce the maximum number of potential D.U.s and limit the types of land usage in the amendment area, but would not resolve the potential excessive rate of growth problem in the Borrego Valley.

2. Delay of amendment approval until a Community Plan can be developed. A Borrego Valley Community Plan could act to place controls on the potential maximum density and potential excessive rate of growth problems related to Borrego Valley. This alternative, however, would take at least 1 to 2 years to implement.

TABLE 3: Estimated Mine-Out Times For Selected Population Values*

Borrego Valley Population**	Mine-out time in years
8,509 (a)	453
12,066 (b)	443
17,109 (c)	429
25,000	408
46,200 (d)	350
100,000	203
156,200 (e)	50

Legend:

(a) estimated 1988 population with project approval, development per the applicant's stated preliminary proposal, and an annual growth rate of 8.36%, and no increase in the 1970-1975 average annual growth rate of 8.36%.

(b) as (a), but for 1993.

(c) as (a), but for 1998.

(d) I.P.O. estimate of ultimate Valley population.

(e) Allowable population under the existing General Plan.

*Based on the Water Budget for Borrego Valley report, C. F. Lough (1974) 28p.; estimates are based on allowing a 200-foot drop in the existing groundwater table.

**Total population (ref: Table 1)

3. Amendment approval with the following conditions (restricted to the amendment area):

   a. All sewage disposal in the amendment area over 1 D.U./acre will be via a complete sewage treatment system.

   b. Replacement of native vegetation in the amendment area with non-native, non-desert species will be limited. The amount of replacement of native vegetation should be equal to or less than the sum of the minimum required building pad areas.

   This alternative would reduce adverse impacts related to the amendment area, but would not resolve regional problems.

4. Amendment approval with the following conditions (which apply to the amendment area and the Borrego Valley):

   a. The conditions of alternative 3 (above) plus,

   b. A restricted or complete building moratorium in the Borrego Valley until:

      (1) modern complete sewage treatment can be provided for all homes on parcels of less than 1 acre,

      (2) a solid waste recovery facility can be constructed and is operative or until an adequate sanitary landfill for the present potential and proposed D.U.s in the Borrego Valley can be developed.

   c. The native vegetation replacement provision of Alternative 3b would apply to all development in the Borrego Valley.

   A restricted building moratorium could be based on the issuance of a limited number of building permits per year, accounting for the number of permits issued but not used during the previous year.

   This alternative would act to reduce the adverse impacts associated with the project and help reduce potential excessive growth rates in the Borrego Valley.

Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE C

PUBLIC COMMENTS

One letter from the public and four letters from public agencies were received during the public review period that ended on August 18, 1975:

1. From the California Native Plant Society: addressing the biological fragility of desert biota and discouraging development in desert areas (see Major Issues #4 and 5).

2. From the Comprehensive Planning Organization (two letters - the second letter an addition to the first): discussing groundwater problems (supply and possible degradation), flash flooding problems, and expressing opposition to development in this area (see Major Issues #7 and 8). The second letter proposes that a special land classification be designed to protect and preserve desert areas in the County (see Mitigation Recommendation #4).

3. From the County Department of Sanitation and Flood Control: stating that the land is "flood prone from sheet flow..," but not recommending any specific control measures.

4. From the County Division of Noise Control and Industrial Hygiene: discussing the terminology used in the draft regarding sewage treatment and stating that sewage should be fully treated via an "advanced" type of facility (see Major Issue #8).

Prior to this General Plan Amendment proposal, a PDP (Private Development Plan) was proposed by the same applicant and for the same area. During the public review period for the PDP (PDP74-03), six letters were received from the public. Although the PDP was withdrawn from active processing, the PDP and this proposed amendment are related. Thus, the six letters will be addressed in this report:

5. From the San Diego Chapter of the Sierra Club,

6. The Desert Protective Council,

7. Mr. Howard Allen,

8. B. B. Smith,

9. A. P. Graeber, and

10. Dr. and Mrs. H. G. Moehring

All of the above six letters (#5-10) discussed the problem of water supply and groundwater contamination (see Major Issues #7 and 8). The first two letters also discussed general development problems in relation to the Borrego Valley (see Alternatives 1-4).

LAW OFFICES
MITCHELL, SCHMIDT, D'AMICO, McCABE & STUTZ
2170 FOURTH AVENUE
SAN DIEGO, CALIFORNIA 92101

AREA CODE 714
TELEPHONE 236-1133

JOHN A. MITCHELL
DONALD W. SCHMIDT
SEBASTIAN D'AMICO
JOHN J. McCABE, JR.
A. DAVID STUTZ

August 25, 1975

Mr. Brad Williams
Land Use Environmental Regulation
Environmental Analysis Division
915 Chesapeake Road
San Diego, California

Re: Borrego Springs

Dear Brad:

By way of confirmation of our telephone conversation on August 25, 1975 I respectfully request a copy, when available, of any supplimentary report prepared by yourself for the Environmental Review Board hearing on Thursday, August 28, 1975. I would also appreciate receiving copies of the citizen letters mentioned in your original report.

Kindly contact the undersigned or my secretary Sue, at 236-1133 when these documents are available and I will see that they are picked up at your office.

Sincerely,

A. DAVID STUTZ

ADS:sn

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AUG 26 1975
ENVIRONMENTAL ANALYSIS DIVISION

COMPREHENSIVE PLANNING ORGANIZATION OF THE SAN DIEGO REGION

SUITE 524
SECURITY PACIFIC PLAZA
1200 THIRD AVENUE
SAN DIEGO, CALIF. 92101
(714) 233-5211

July 31, 1975

Mr. Gerald Hermanson
County Planning Department
Mail Station A-30

Dear Mr. Hermanson:

The following comment is forwarded to you as an addition to our earlier response to your request for CPO staff input on the proposed Borrego Springs General Plan Amendment to be considered by the Planning Commission in September 1975.

In view of the fact that the Borrego Springs area, and other desert areas within the County, are uniquely different from the urbanized coastal plain and the mountain areas of San Diego; and because of the subtle balances required to sustain and perpetuate the interdependent ecosystems of the desert environment, it is recommended that the County adopt a new general plan land use classification specifically for the desert areas of the County. Such a classification should be supported by appropriate policies and ordinances that would result in the long-term preservation and protection of the desert for the enjoyment and benefit of all the people in San Diego County and the State.

Sincerely,

ARTHUR LETTER
Intergovernmental Relations
Coordinator

AL/sh

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COMPREHENSIVE PLANNING ORGANIZATION OF THE SAN DIEGO REGION

SUITE 524
SECURITY PACIFIC PLAZA
1200 THIRD AVENUE
SAN DIEGO, CALIF. 92101
(714) 233-5211

July 15, 1975

Mr. Gerald M. Hermanson
Planning Department
County of San Diego
Mail Station A30

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16 JUL 75 15 57

Dear Mr. Hermanson:

This letter is in response to your request for comments on the Borrego Springs General Plan Amendment. It should be emphasized that these are staff comments and have not been approved or reviewed by the CPO Board of Directors.

The following comments concern environmental impacts likely to result if the General Plan Amendment is approved and implemented.

1. The Borrego Springs area is dependent upon local ground water for meeting its water supply requirements. Because it is located in an arid desert climate, groundwater replenishment is a major factor. Continued withdrawal of groundwater to the extent needed to serve developments already approved plus the population which the General Plan Amendment would allow, could eventually result in depletion such that local water needs could not be safely met. In addition, the adopted Regional Open Space Plan and Program suggests a potential large agricultural preserve in the Borrego Valley north of Borrego Springs. A substantial portion of the area's groundwater supply will be needed to support this activity if fully developed. An alternative would be water importation. However this is a very costly public expense. A thorough analysis of the groundwater supply for the entire Borrego Springs area and the long term effects of increased land use densities upon it, is needed prior to the consideration of either extensive agricultural or residential proposals.

2. The Colorado River Basin Regional Water Quality Control Board, which has jurisdiction over water quality in the Borrego Springs area, recognizes that wastewater discharge increases the mineral content of groundwater. This can result in a health nuisance through bacteriological contamination and may cause odor problems.

The possible impact of sewage effluent on groundwater quality should be assessed to determine the type of treatment required and the economic feasibility of treatment facilities.

3. Flash floods are common to the Borrego area and present a hazard to life and property. There is no logically definable pattern by which to measure when or where a flash flood will occur. Flood protection tools such as channelization or diking may prove partially effective against flash flooding. Borrego Springs, however, is quite remote from the major urbanized western portion of the county and has a very low population base. Because of the high capital costs involved in the construction of flood protection facilities and the existence of many flood protection needs in the major urbanized areas, the Regional Water Resources Plan and Program, now under consideration for adoption by CPO member agencies, has recommended a low-priority (beyond 1985) for the construction of flood control facilities in the Borrego area. In July of 1972 the County of San Diego Department of Sanitation and Flood Control completed a "General Plan for Flood Control Improvements" in Borrego Valley. While this report covered the major floor area of the Valley it omitted many smaller areas due to budgetary limitations. It appears that the General Plan Amendment area may have been one of those omitted. The implications of flash floods in the project vicinity and the possible public costs, therefore, should be more closely analyzed prior to approval of any requested residential uses in the Amendment area.

4. Any decision to allow substantial residential development in the Borrego Valley at this time should be considered premature, as there are already approximately 3000 approved lots in Borrego, only about 10% of which are developed. The financial impact of development of this isolated area into a scattered suburban community should be examined fully. It would be appropriate to assure the establishment of a full service district (or a municipal incorporation) capable of providing services, including police protection.

5. If the General Plan Amendment is approved and subdivision proposals in the area are submitted, a determination as to whether they would constitute a land project as defined in Section 11550.5 of the State Business and Professions codes should be made. If a determination that the subdivision is a land project is made, a notice of intent should be sent to the State Clearinghouse and CPO

as required by AB 1301 and implemented in Sections 1000 through 1030 of the State Administrative Manual.

Thank you for the opportunity to comment on the Borrego Springs General Plan Amendment.

Sincerely,

ARTHUR LETTER
Intergovernmental Relations Coordinator

AL:j

75-GP

COUNTY OF SAN DIEGO

KNRIIEXWORKSXADEWOX
Community Services Agency

Department of Sanitation & Flood Control

C. J. HOUSON
Director

County Operations Center, 5555 Overland Avenue, San Diego, California 92123 . . . . . Telephone: 565-5325

August 6, 1975

TO: Dept. of Land Use and Environmental Regulations (A-30)
Attention: Mr. Bill Chatham

FROM: Director of Sanitation and Flood Control (O-380)

SUBJECT: Borrego Springs General Plan Amendment

Mr. James Lewanski and Mr. Charles Smith of Lawrence, Fogg, Smith and Associates, and Mr. George Kuhrts III of DiGiorgio Corporation recently met with staff of this department regarding the subject land use changes and the Private Development Plan (PDP). Since the PDP is not now being considered, our letter of July 11, 1975 on the PDP should be disregarded.

While the subject General Plan Amendment involves land that is flood prone from sheet flow and flow in undefined channels, we have no objection to changing the land use from agricultural to residential. Future actions in the land development review process will assure that improvements will be properly protected from flood hazards.

B. V. ELKINS
Director (Acting)

By Joseph C Hoffmaster
For B. H. HOFFMASTER
Deputy Director

RLB:pg

Copy: Zone 5 Advisory Commission
✓Environmental Analysis Division, M.S. A-215
Lawrence, Fogg, Smith & Associates
DiGiorgio Corporation

RECEIVED
AUG 07 1975
ENVIRONMENTAL ANALYSIS DIVISION

COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE July 29, 1975

TO: David Neilsen
Director, Environmental Analysis Division

FROM: Norman E. Schell
Chief, Division of Noise Control & Industrial Hygiene

DRAFT ENVIRONMENTAL IMPACT REPORT ON BORREGO SPRINGS (DiGiorgio) PLAN

The Health Department Staff has reviewed the Draft Environmental Impact Report for Borrego Springs (DiGiorgio) General Plan Amendment (GPA), a part of GPA 75-03.

On page 24 under groundwater quality, the term "tertiary" treatment may be misleading because this could be interpreted to mean disinfection. This term also appears at the bottom of page 27. The word "advanced" should be substituted.

Norman E. Schell by G. L.

NORMAN E. SCHELL, Chief
Division of Noise Control
and Industrial Hygiene

RECEIVED

JUL 31 1975

ENVIRONMENTAL ANALYSIS DIVISION

SIERRA CLUB

FOUNDED IN 1892

SAN DIEGO CHAPTER

HOUSE OF HOSPITALITY
1549 EL PRADO, BALBOA PARK
SAN DIEGO, CALIFORNIA 92101

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ENVIRONMENTAL REVIEW BOARD

COMMENTS ON EIR, BORREGO SPRINGS PROJECT-DI GIORGIO

The San Diego Chapter, representing some 4500 members in San Diego and Imperial Counties is appreciative of the opportunity to comment on the EIR for the Borrego Springs Project proposed by the Di Giorgio Corporation, owners and the Di Giorgio Development Corporation promoters of the PRD.

The San Diego Chapter would not oppose the concept of the PRD as presented in the EIR but would have to take issue with some of the material within the EIR, itself. The S.C. would concur that sprawling 2½ and 40 acre parcels are expensive to develop and could be detrimental to the aethetics and economics of the area. The project has potential for a PRD that will be beneficial but the data and plans must be refined prior to submission to the decision-making process.

Starting with water which is basic to all life, there are some interrelated matters which appear to be inadequately addressed in the EIR. For example:

1. The geological structure of the underground water basin is not delineated in terms of future water quality and quantity.
2. The relationship of the proposed dams in the canyons on the perimeter of Borrego Valley is not discussed.
3. The cumulative effects of future developments on other sites, some of which are already authorized, is not considered (III-41)
4. No reuse or recycling of water will be considered until a later phase (III-69)
5. No indication is made of the sites of the water storage facilities nor the energy required to pump the water to these sites, nor their special mitigation measures if located in areas E and E1 on pages III-34.
6. Findings and alternatives on water quality are not fully coordinated in II & III on hydrology; contradictions appear in some sections related to drainage, water runoff and erosion (III,8,10,11 and IV, 2 & 4 and EIR Matrix 1.) nor project use of water would be less than agriculture (IV-8).

Sewage and drainage problems are lightly touched upon whereas the multiplicity of side-effects and long-term, cumulative impacts may create major changes in the Borrego area are omitted. Percolation of sewage effluent into the Borrego sink needs expanding & clarifying (III-13) Only "visual" inspection was used to determine that there would be no significant adverse effect due to septic systems (III-69) Recycling of waste water is put off until another phase (III-12) Mosquitos and other problems associated with the oxidation ponds are not mentioned directly. The problem of odors downwind is not

mentioned, nor is increased evaporation and additional water and chemical molecules in the air. It would appear that the oxidation ponds would be located near the Honey mesquite area (III-12, III_69 and map on III-34) but no data is offered as to the precise location or effect of the ponds on this species.

No protection of wildlife from contact with the high hazard and toxic materials that may be in the sewage in the ponds is mentioned.

The EIR does not mention primary or secondary treatment; apparently the drains will "feed" directly into the ponds (III-68). Drainage from paved areas, rooftops, roads and compacted areas is treated in various ways that gloss over real facts: EIR Matrix 1, III-8,10,11 & IV-2,4. There is no proposal forbidding the washing down of paved areas, for example.

The long-lasting by products of solid waste dumps as well as toxic and hazardous substances found in solid waste disposal sites is not mentioned at all. Drainage of these materials into the water table is not mentioned. AfterPhase 1, what are plans? (III-70.)

Siltation and compaction are inadequately addressed, particularly the many facets of compaction related to water runoff vs water penentration with resultant effects on vegetation and subsequently on wildlife and air quality.

Erosion is partially covered under grading and construction, but its full dimension is not explored with its attendant siltation and dust problems.

Dust, both during construction and afterwards, especially as a result of travel on intra-project roads, is not adequately dealt with in relation to effects on plan or wildlife or effects of particulate matter in the air within the project or downwind.(III-28, IV-3). Page III-27 suggests 10,000 trips may be generated out of project, 10,ooo dust-makers in the project but data not clear IV-5.

The EIR fails to mention energy alternatives and supplements in its section on utilities. It is irresponsible to disregard methods of augmenting the energy supply, such as solar and wind assists, deep cellar construction, sun angle and wind angle considerations in siting structures and landscpaing, insullation, double roofs, thick walls, covered walks, porticos, etc. as well as natural lighting and air cooling. Underground of utilities on site is commendable, but how about consideration of impact on the whole valley of the utility lines servicing the project? (III-70) No mention is made of providing intra-project trams or public vehicles - only cars, walking, horses or bikes. Add this item to Air in IV-6 as #5.

Aethetic aspects and visual impact of project on travelers must be addressed carefully, particularly in the specific plan stage. Roofs and all of their accoutriments and attachments should be dull-finished and blend with area to alleviate the impact of looking down upon them from the State Park and various roads and passes. This area is highly visible for miles.

Because the desert view belongs to all, solid blocks of walls, fences, landscaping and facilities (IV-4,6,7) should be used sparingly and only when no alternative is possible. A wall of tamarisks such as at Casa del Zorro should not be permitted to block the view from Yaqui Pass Road.

There were a few astonishing assumptions in the EIR, for example on III Palm Springs and LaCosta (coastal community) were used to project Borrego Spings' future. Why not use a parallel desert development such as California City for comaprision instead of La Costa?

There seems to be no desire or need to consider cumulative impacts of projects. (III-41)

As D i Giorgio already owns most of Borrego's commercial area there is "no need to compete." Are we therefore supporting a type of desert monopoly by condoning this project? Taxpayers will be supporting the public sewer and water systems (EIR Matrix 1) What will be the financial and economic impact?

"The development of the project will not pose a risk to health or safety of residents of Borrego Springs, either now or in the future." IV-9. How can this be guaranteed or justified from above incomplete and inadequate data?

Many pages were used to extol the financial advantages of the project relative to the school system, but not one word or one penny was allocated to educating the residents of the project as to the benefits, usefulness, beauty and appreciation of desert wildlife and vegetation, views and wonders and enjoyment of the adjacent State Park lands

The S.C. would commend the owners and project promoters for their foresight in limiting use of ORVs within project. However, there seems to be no plan for "parking" these vehicles "outof sight" -- will driveways and curbstones and roads be lined with vehicle clutter?

The project will apparently appear as an oasis in the desert. Whether the following discussion should be addressed to water or vegetation is moot. Use of vegetation requiring as much water as is contemplated so that temperature and humidty change, must be considered as a major impact. Both animal and plant life have evolved their desert-like characteristics over long eons of time. Rapid changes in their environment could cause all manner of problems, whether for good or bad, only time will tell.

How much better it would be to keep the oasis area small, the temperature and humidity changes to a minimum, and retain the desert characteristics over the majority of the project. Use of plants indigenous to the area will be a water-saver (and plant-saver) in the long run. The introduction of exotic species may result in undesirable infestations and replacements, particularly thistles.

Planners are to be commended for their proposal to keep perimeter road away from exterior lines, especially near the State Park. Roads

fences and such structures are barriers to wild life movements and migrations as well as physical hazards to indiviual creatures. Night lights, car lights, noises and movements disrupt nocturnal creatures that perform so many necessary tasks while we sleep. Residents along the perimeters should receive special instructions about their role in relation to wildlife as they may be in more intimate contact with it than those living the inward confines.

This is an impressive project, the owners and promoters have the interests of the community at heart. With some additional thinking and planning, a project that will be truly compatible with the desert could be developed, a project that is truly a desert experience in living and not a living-in-another-city experience in an ex-desert atmosphere.

The corporation is to be commended for its willingness to preserve archeological sites as open space and to provide other open space and low density areas to preserve the "open" feeling. (Incidentally, "sensitivity classification" have been removed from the Open Space Plan for San Diego County.)

submitted
Conservation Committee

THE DESERT PROTECTIVE COUNCIL INC.

A NON-PROFIT ORGANIZATION

To safeguard for wise and reverent use by this and succeeding generations those desert areas of unique scenic, scientific, historical, spiritual and recreational value and to educate by all appropriate means children and adults to a better understanding of the desert.

BOX 4294 • PALM SPRINGS • CALIFORNIA 92262

June 14, 1975

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JUN 17 1975

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STATEMENT ON EIR, BORREGO SPRINGS PROJECT SAN DIEGO COUNTY, CALIFORNIA

The DiGiorgio Corporation is recognized for its leadership in the Borrego area in the fields of growth and development. The EIR indicates a project of a scope and nature not seen in the Valley previously, and as such, raises questions as well as favorable comments.

We concur that sprawling and unplanned development of 3000 acres would be catastrophic for Borrego (IV-8,2,4)

We concur that it takes money to attempt such a project (IV-8,3); we are concerned that justification for the project may be tied to the rather high occupancy figures developed in the document. Experts in the field of housing, revenue generation, taxation and budgeting would be better able to comment on such aspects of the EIR.

The DPC is known for its interest in protecting the integrity of the desert and it is to these matters that we address the following comments.

THE VIEW of the desert as one tops the crest at Yaqui Pass near the Bill Kenyon memorial marker (Kenyon was a DPC member) is most impressive and indescribably satisfying. As such, it deserves the most sensitive and discrete design. It would be the suggestion of DPC to require landscaping and buildings to be confined to one story or at most two; that structures, buildings, fences and windbreaks be located toprovide continuing views of the desert, without solid walls, plantings and structures. That, additionally, roofs and buildings be rendered in earth colors without shiny surfaces such as are found on air conditioners, etc. Roofs willreplace the desert floor in the viewshed, and must be carefully planned.
The view from the State Park should be protected as well as from the road. All utilities and service lines should be undergrounded, both inside the project and leading into it. Location of water storage facilities are not listed precisely in relation to areas E and E-1 on map III-34.

SOIL COMPACTION is a problem in many desert areas as it increases the rate of run off of water and slows the penentration of rainwater as well as domestic sprinklers. This

matter is not fully described, for it effects the rate of erosion as well ability of plants to "take hold."

DUST will be a problem, not only to people, but to plants and animals. Dust coats the leaves and stems of plants, effecting the transpiration and photsynthesis processes. This, in turn, effects the lives of animals dependent upon greens and leaves for moisture as well as noursihment. Some desert animals never drink open water. This matter does not seem to be thoroughly addressed in the EIR for there seems to be no recognition that the "desert standard" roads of gravel will likely continue to be a source of dust. Dust is not addressed in the air sections, either. If the roads are covered with a dust-retardent, then there may be chemical side effects on nearby vegetation as well as in runoff waters. If the roads are paved, then there will be other problems. Perhaps this section needs a little more work; certainly the visual attractiveness of gravel roads is far more appealing ina setting like this than paved roads!

ROADS should be set well back from the perimeter, especially adjacent to the state park boundary; the safety and well-being of the vegetation and wildlife is essential. They should be respected as the State Park area is the great panoramic backdrop for this project. With this idea, the DPC concurs and compliments the DiGorgio corpoation for its foresight on road design.

The DPC would encourage the Di Giorgio Corporation to publish the full list of persons sitting on the ARCHEOLOGICAL review board, though it concurs in the decision to keep confidential known sites and to offer protection through open space designations. (II-21, III-36.)

Though there is little WILDLIFE inhabiting the area, it appears that wildlife may travel through it. During periods of construction and later, it is recommended strongly that water sources be maintained and migration routes respected. Siltation (IV-5) and oxidation ponds, drainage ways (both planned and natural), culverts and swales will disorient wildlife and will alter their food sources. These animals lead a precarious existence at best, but they are and must remain a part of our total desert system. Fences and/or barriers should be built with wildlife in mind, especially along park boundaries.

An education program should be instituted immediately to assist the residents and visitors in understanding the importance and desirability of wildlife -- not from a "Bambi complex" point of view but from a scientific and eco-system understanding.

VEGETATION should be safe for animals and people (Oleanders present problems as do some other plants.) Vegetation should be compatible with the desert and should not be water-dependent. It should be planted far enough apart so individual plants do not have to compete for space and water, with the realization that many desert plants (like alpine plants) re-

many decades to reach maturity. Ground covers should be selected with great care so as to do the job without requiring large quanities of water for starting and maintaining.
Extreme care should be exercised to prevent exotic and noxious plants from entering Borrego Valley; an educational program should be established immediately.
The visual aspects of vegetation and landscaping should be considered. The oasis effect may be refreshing, but the humidity and temperature changes as well as increased moisture particles in the air must be weighed against the desire of residents and visitors to expecience "desert" conditions. To some people, it may be a matter of "life and breath," as well as beauty.

WATER QUALITY AND QUANTITY is of concern to the DPC as there is a vast area of desert outside of the DiGiorgio 3000 acres that depends on the Borrego Valley underground water supply. The San Felipe Wash from Borrego to the Salton Sea is dependent for much of its water from the Borrego area. The DPC realizes that water is a limited resource and as such must receive expert attention, both as to quality & quantity. With added evaporation in the DiGorgio area, the quantity and quality downstream may be altered....as then will the wildlife and flora below Borrego Valley.

The amount of ground water available to this project may be compromised by proposed dams in the upper canyons of the Valley - a scheme presently opposed by DPC for its cumulative effects on the total basin.

The QUALITY of the water running off from paved surfaces and drainage systems as well as percolating through the soils will make changes in the total quality (TDS) of water. The plans appear to call for oxidation ponds directly connected to the drainage systems. The pollutants contained could effect wildlife and care should, therefore, be taken to restrain wildlife from contact with these waters, both from the land and the air. This section of the project needs further delineation for public health and aesthtic concerns as well as wildlife.

UTILITIES and their distribution systems have caused extensive visual as well as ground scarring and disruption. The DPC has sought rational locations for utility lines to service public and private areas. Undergrounding is essential, and proper routing, both singly and in conjunction, is a must.

DPC regrets that no consideration has been given to use of solar and/or wind devises for supplemental energy sources nor to alternatives in building designs and materials. DPC considers this section inadequately addressed.

DPC does commend the project designers and promoters for protecting the Honey mesquite, but hopes that its survival will not be compromised by the oxidation ponds which seem to be located in same area.

WASTE DISPOSAL is of concern to DPC as the long-lasting effects of landfills and solid wastes and eventual percola-

tion of toxic materials into the ground water can alter desert life patterns. The EIR touches only briefly on the problem and it is felt that the future of waste disposal in Borrego Valley is inadequately addressed.

In the evaluation of alternatives (IV-7,8) it is inferred that agriculture uses more water than projects. Is there material available to substantial this claim?

Clarification of the use of drains, culverts, natural and planned systems is needed (EIR Matrix 1 and III-8,9,10,11 and IV -2,4)

The EIR does not consider the cumulative effects of this project along with others presently authorized and in the future in considering the total impact of demand for water (III-41) nor are there plans for recycling and reusing water prior to phase II. This is a great deficiency in the EIR and should be considered by the decision makers.

DPC appreciates the opportunity to comment and would like to be advised as to the date of all further actions relating to Borrego Springs.

Submitted for Executive Director by W. R. Allen

local contact, DPC, 3750 El Canto Drive, Spring Valley, 92077

3750 El Canto Drive
Spring Valley, Ca 92077
May 31, 1975

RECEIVED
JUN 17 1975
BOARD

To: San Diego County OEM
From: H.M. Allen
Subj: EIR for Borrego Springs DiGiorgio Project

Though we do not oppose the project, we cannot speak in favor of it until certain questions are answered as there is a potential for problems of concern to taxpayers and adjacent landowners.

We are located within a couple of sections of the project as per attached area map.

Of deep concern is the availability of water of potable quality. Water demands will increase but there seems to be no plan to monitor the cumulative demands of projects both on an individual and corporation basis.

It is our understanding that agriculture in the Valley was phased out not long ago due to wind problems and increasing chemical content of the water rendering it unsuitable for use on some crops. Transportation and unionization were additional problems but not as critical as the first two.

It is further stated that there is sufficient water for about 65,00 people. Is this a guaranteed figure? Can we be guranteed potable water at today's level or will domestic water have to be treated prior to use.

We are concerned, secondly, about the air quality particularly the odors downwind from the oxidation ponds; we seem to be directly downwind from them.

There will be dust raised during construction, but how about later from the gravel roads inside the project.

The EIR does not discuss fully the socio-economic impacts of failure of this project under the Alternative section. To add a bit of humer to your day, please look at page IV-10, under F-1, paragraph 2, third line: an expended tax rate --- is this a typo or a Freudian slip?

Anyway, we would like to know why the project just west of the proposed PRD failed to prosper: was it water, or premature, or poor market analysis or lack of suckers? It has been almost static for the past couple of decades.

The success of DiGorgio's project and justification for enhanced school revenues and county services is based on a very high occupancy rate in the project area. Based on the experience

of realtors in this area, are the figures realistic?

Sufficiency of front-end funds are proclaimed, but what costs will we taxpayers have to assume if the project is a failure? Can this be used as a tax write-off for the benefit of the conglomerate at our expense? Is the County requiring completion bonds or some guarantee?

It was interesting to see the carrot and stick approach that the EIR suggests in relation to the school system in Borrego: promises of great revenues and new sites (what happens to the old?) while conversely threatening educational degredation if the project is not approved. Twelve pages are devoted to this exercise. Are any members of the DiGiorgio family or corporation on the school board and other districts that might benefit from the project? (Flood control, mosquito abatement, fire department, etc?)

What classification for revenue generation will be applied to dwelling units which are to be rented out? Is there a difference, tax-wise, between familes renting directly and a programmed rental service which is inferred under the project? Are different schedules required by county tax assessor, and by county Health Department?

On page III-71, the EIR mentions increases in County services for the Borrego area. If this project is the financial success that it is touted to be, and assures the readers that it will bring only economic gain to the community, why will there be an increase in welfare?

Why would services like flood control for the project be offered when purportedly there is no such problem in the project area?

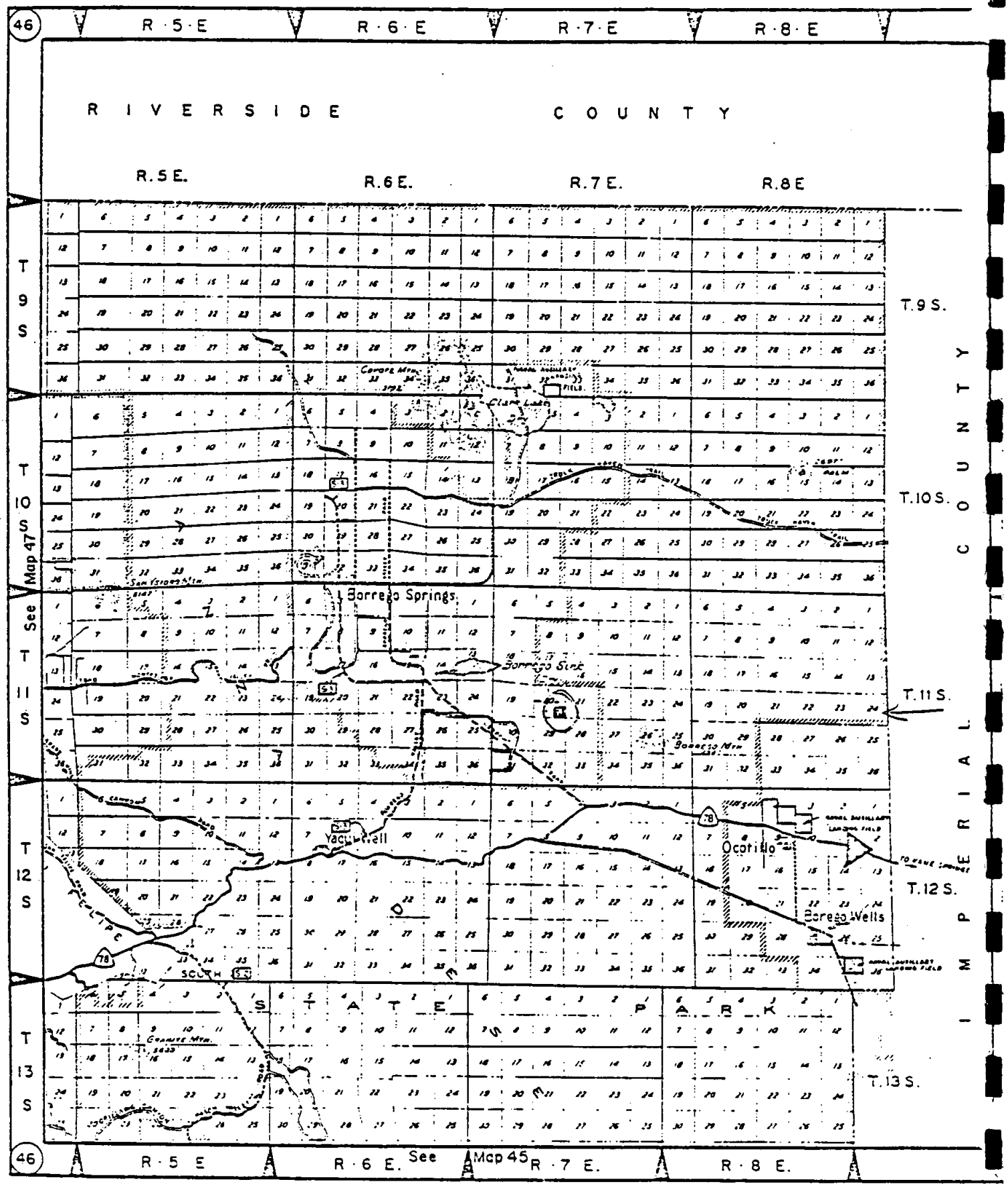
Nor would mosquito abatement be necessary as no mention of such problems is raised in the discussion on oxidation ponds and golf course water traps, etc.

It was assuring to read that the project would site the libraries and clinics and retail stores to face public access areas.

It is hoped that the project designers and decision-makers will keep in mind the vast and unrestricted and irreplaceable view that meets the eyes of travelers descending into the Valley, particularly from Yaqui Pass, and will keep wind breaks, sound barriers and buildings to a low profile with an open, see-the-view feeling that has been the right of the public to enjoy for the past hundreds of years - be they our prehisotic natives or European ancestors or our heirs.

Mr. DiDiorgio wants to do to his land what he wishes; so do we in our own small way. We want the clean water, pure air and vistas that were a part of our decision to purchase in Borrego. With a little more exploration of alternates, there could be conditions built into the project that would assure all of us a good future in Borrego.

SE 1/4 of E 1/4 Sec 20 11S- E



Borrego Springs, California
92004

June 9, 1975

RECEIVED

JUN 11 1975

ENVIRONMENTAL REVIEW BOARD

San Diego County Environmental Review Board
Office of Environmental Management
1600 Pacific Highway, Room 260
San Diego, California 92101
(714) 236-3720

SUBJECT: Comments on BORREGO SPRINGS PROJECT (PDP 74-03, File #74-11-2113) EIR draft.

1. This EIR draft, under the heading "Groundwater", on p. IV-2 says: "there will be a very slow gradual increase in the ground water TDS as a result of ground water recharge from the percolation beds associated with the sewage treatment plant proposed for this development"..A number of other variables also exert influence upon these changes: salinity of the water supply, effluent salinity, volumn of ground water extraction, rates of ground water movement, basin geology and other water uses in the basin. To attempt to predict the precise effect of a given discharge upon ground water quality, without evaluation of each of these factors, would result in conclusions of doubtful reliability, to say the least...

2. Assuming that each of the proposed 3224 dwelling units would house 2.3-3.0 people, the population to be served would be between 8,000 and 10,000. In round numbers this would spell a million gallons of water used per day, on the basis that under more or less urban conditions at least 100 gallons per person per day are required.

3. If 1,000 gallons of water are taken from the groundwater daily and then returned with an increased load of dissolved solids, it is clear that -- even allowing for a four inch annual rainfall -- the ground water will be cycled and re-cycled into an impotable state of salinity (much like the Los Angeles basin has managed to cycle and re-cycle its atmospheric pollutants to yield an intolerable smoggy atmosphere).

4. A further threat to potability of the water has to do with the volumn of groundwater extraction. A daily extraction of one million gallons of water has the potential to tax groundwater levels to the point of salt-doming (i.e., underground replenishment may draw on highly saline pools and levels), further to increase the dissolved solids and non-potability of the water.

5. Thus from the consideration of water supply alone, the environmental impact of the proposed development puts at unreasonable hazard the existing Borrego Valley's, as well as its own proposed, water supplies.

Sincerely,

Beth Bennett Smith

Beth Bennett Smith
(Property owner, Rancho Borrego)
4421 Upland Street
La Mesa, Calif. 92041

Borrego Springs, California
92004

RECEIVED
JUN 6 1975
ENVIRONMENTAL REVIEW BOARD

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Office of Environmental Management
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W. Calvin P. Scanlon
3866 Yaqui Path
Borrego Springs
Ca. 92004

RECEIVED
MAY 30 1975
ENVIRONMENTAL MANAGEMENT

Borrego Springs, California
92004

San Diego County Environmental Review Board
Office of Environmental Management
1600 Pacific Highway, Room 260
San Diego, California 92101
(714) 236-3720

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H. G. Moehring
5/29/75

Jonath E. Mahring

Dr. & Mrs. H. G. Moehring
Box 91
Borrego Springs, CA 92004

Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE D

REFERENCE SOURCES

In addition to those cited in the draft EIR,

Technical References

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Close, D. H., et al. (1950) Climates of San Diego County. U. of Calif. Agr. Ext. Serv./U.S. Weather Bureau. 128 p. + encl.

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Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE E

MITIGATING MEASURES

1. Archaeology

   As part of any specific development plan proposal for the amendment area, a detailed archaeological survey should be conducted by a qualified archaeologist (ref: Attachment "C" of the San Diego County Procedures for Environmental Impact Review).

2. Sewage Disposal

   Specific development plans for the amendment area should include a proposal for a secondary treatment plant or an advanced sewage treatment plant that will avoid an increase in total dissolved solids (TDS) and other contaminants of the groundwater table or soil mantle. No sewage disposal via septic tank/leach lines should be allowed in the amendment area where the development density is greater than 1 D.U./acre.

3. Water Supply/Biology

   Any non-agriculture specific development plan for the amendment area should limit the amount of replacement of native vegetation by species of plants that require relatively large amounts of water.

4. Requirement for a Specific Plan

   Any development should be via the processing of a Specific Plan, thus insuring a maximum level of planning and environmental review (ref: letters of Public Comment #5 and 6).

Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE F

RECOMMENDATIONS WHICH CANNOT BE MADE CONDITIONS OF APPROVAL

1. The county should consider a delay of amendment approval and/or controls to prevent extensive building rates in the Borrego Valley until:

   a. a larger or expanded sanitary landfill is provided, or

   b. a solid waste recovery facility can be constructed for the Borrego Valley.

2. The county should consider planning restrictions for desert area subdivisions and equivalent development that will limit the amount of native vegetation to be replaced by non-native non-desert species to an area equal to the minimum required building pad area. Such restrictions should not apply to agriculture activities.

3. The county should develop a community plan for the Borrego Valley. This, however, would require at least 2 years to implement. In the interim, the county should consider developing growth controls for the existing recorded and approved but unoccupied lots. Such control could be in the form of a limited number of building permits to be issued in any one year and accounting for the number of issued but unused building permits at the end of a given year. Any developed community plan should include provisions for a growth phasing schedule for the entire Borrego Valley area.

4. The county should consider the creation of a new land use classification for desert areas, per the recommendation of the Comprehensive Planning Organization. The Land Use classification should reflect concerns over the generally biologically sensitive nature of desert areas. The general provisions of the Multiple Use Open Space classification is suggested as a basic guideline.

Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE G

The following supplemental information was presented to the Environmental Review Board meeting of October 9, 1975.

The applicant, in providing information relative to potential energy impacts, disagreed with staff analysis of potential energy impacts, claiming that energy impacts will be less than those predicted by staff.

ENCLOSURE G

LAWRENCE • FOGG • SMITH AND ASSOCIATES

ELWOOD A. LAWRENCE F.A.S.C.E.
ROBERT K. FOGG F.A.S.C.E.
CHARLES A. SMITH F.A.S.C.E.

CONSULTING CIVIL ENGINEERS
8580 LA MESA BLVD., SUITE 102, LA MESA, CALIF. 92041
TELEPHONE 460-9000

October 9, 1975

To: Environmental Review Board
County of San Diego, California

From: Charles A. Smith, Civil Engineer
Consultant and Project Engineer for
DiGiorgio Borrego Springs Development
(General Plan Amendment GPA 75-03, Log 75-GP-14)

Subject: Response to Energy Statement page 7 of
Environmental Impact Report
(GPA 75-03, Log 75-GP-14)

Paragraph 2 of page 7 of the EIR states "estimates for increases in energy for water pumping range up to 1500% over San Diego Metropolitan Areas." We would like an explanation of how this 1500% figure was derived. We have developed the preliminary engineering study for the water supply to phase I of this proposed development. During compilation of water statistics we compared water consumption in desert areas to those in the metropolitan area of San Diego and found the average annual consumption in gallons per capita per day in the desert areas to be <u>at most</u> 3 times that in the San Diego metropolitan area. Since the energy required for pumping this water varies directly, as the demand, it is difficult to understand how the increases in energy for pumping water could exceed at most 300%. It should be further pointed out that during the hot summer months in the desert area, only 25% of the homes in the areas are occupied, thus further reducing this percentage figure during these periods.

With respect to space cooling figures referred to on page 7 of the E.I.R., figures were obtained from San Diego Gas and Electric Company regarding energy studies made for air conditioning a typical 3 bedroom home in various areas, including the metropolitan San Diego area and the Borrego Springs area.

These studies indicated the average need for space cooling in the Borrego area could be about 319% higher than the metropolitan area during the warmest months. However, this analysis was based on 1500 hours of operation per year of the air conditioner in Borrego Springs. There are 8760 hours in one year (365 days x 24 hours/day) $\frac{1500 \text{ hrs.}}{8760 \text{ hrs.}} = 0.1712 = 17\%$ of the year that the air conditioners are operating in the desert area. Further during hot summer months statistics show only 25% of residences in the desert area are occupied. Further referring: $0.1712 \times 0.25 = .0428 = 4.28\%$. Thus only 4.28% of the total hours in a year are air conditioned in the desert area consuming energy. Therefore the above mentioned 319% increase in energy should be reduced to: $319\% \times .0428 = .1365 = 13.65\%$. Thus there is only a 13.65% <u>total</u> energy increase

LAWRENCE • FOGG • SMITH AND ASSOCIATES

ELWOOD A. LAWRENCE F.A.S.C.E.
ROBERT K. FOGG F.A.S.C.E.
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CONSULTING CIVIL ENGINEERS
8580 LA MESA BLVD., SUITE 102, LA MESA, CALIF. 92041
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in any one year period from space cooling. In addition, it should be emphasised that these figures are based upon a temperature in the home being 75° F. in both areas. Practically, in desert areas reducing the temperature inside to 75°F. would be quite cold compared to outside temperatures ranging from 100°-115°F. An 80°F. inside temperature would seem to be more typical, thus affecting a further energy reduction. Also the comparision was between fully insulated homes in both areas. Statistics show the majority of homes in metropolitan San Diego are not fully insulated. Thus the analysis shows further energy reduction is likely. Finally, no mention is of the fact that when weather is ideal in desert areas people congregate there and thus relieve the energy consumption on systems from whence they came (such as heating) and which energy consumption is generally not needed during the mild weather period in the desert areas.

ENCLOSURE II

COUNTY OF SAN DIEGO

COMMUNITY SERVICES AGENCY

Department of Sanitation & Flood Control

C. J. HOUSON
Director

County Operations Center, 5555 Overland Avenue, San Diego, California 92123 . . . . . Telephone: 565-5703

TO: Dave Nielsen, Acting Chief
Environmental Services Division

FROM: Director, Department of Sanitation & Flood Control 0380

SUBJECT: Expected Site Life - Borrego Landfill Disposal Site

This department has been asked to comment on future plans for solid waste disposal in the Borrego Springs area.

Please be advised that although the present site would be expected to serve until about 1983, the present operation is less than satisfactory in many respects. In order to provide more satisfactory service, this department is requesting funds for 1976-77 for the purpose of acquiring a new site.

The planned new site would be large enough to serve the entire area, including an allowance for additional development, for a period of not less than twenty years.

If you require additional information, please call Glenn Baker at 565-5703.

B. V. ELKINS
Acting Director

By _____
for J. S. Burke
Deputy

GGB:tea

RECEIVED
OCT 10 1975
ENVIRONMENTAL ANALYSIS DIVISION

ENCLOSURE F

COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE January 30, 1980

TO: Kathy Lehtola (0175)
Environmental Analysis Division

FROM: Ray Weeks R2W
Environmental Management Specialist (0176)

SUBJECT: REVISED AIR QUALITY IMPACT SECTION FOR THE PROPOSED RAMS' HILL EIR

We have reviewed the revised air quality impact section and recommend the following corrections. In view of the time schedule, we recommend that this letter be attached to the air quality impact section and suffice for the needed revisions.

Section 5, Existing Emissions (Page 4), second paragraph, first sentence, reword to read as follows: "This study provides the basis for baseline data information on existing emissions for the Borrego Valley."

It should be noted that while the project related emissions may be helpful in establishing a baseline emission inventory for the Borrego Valley area, the emissions estimation for off-road and park visitorship should be re-examined. The off-road and park visitorship emissions may be significantly less than estimated in the report. This is because it was assumed that the activity in the park would continue to increase in the next five years as it has done in the previous five years. In view of rising gasoline costs and possible gas rationing in the future, the foregoing assumption appears incorrect. Another area of potential error exists when the low amount of estimated fuel usage is compared to the significantly large number of projected vehicle miles traveled. The amount of fuel usage does not support the estimated number of vehicle miles traveled for the Borrego Valley area.

An emissions inventory for the Valley should include an indepth analysis of off-road and park usage.

Section C-1 Potential Impacts on the Borrego Valley Page 18, second paragraph, fifth sentence. Reword as follows: ". . . Class I - Pristine Areas, an area where almost any increase in atmospheric pollution would be unacceptable; Class II would correspond to those areas in which moderate increases in atmospheric concentration would be acceptable, as provided in Part C of the Clean Air Act, but pollution over the level of the ambient air quality standards would not; Class III - Those areas which do not exceed the standards and in which new major industrial developments and/or population growth are encouraged. Air pollution emissions would be acceptable up to the level where the secondary ambient air quality standards would not be exceeded."

RW:mk

RAMS' HILL
COUNTRY CLUB

ENVIRONMENTAL IMPACT REPORT

January 15, 1979

Prepared For:

DIGIORGIO DEVELOPMENT CORPORATION

507 The Mall, P.O. Box A
Borrego Springs, CA 92004
714/767-5151

Prepared By:

PRC TOUPS CORPORATION

2223 Avenida de la Playa
La Jolla, CA 92037
714/454-9162

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I. INTRODUCTION

Rams' Hill Country Club is a Specific Plan for 2,158 acres of a 3,124 acre property on the south slope of the Borrego Valley. The Specific Plan proposes 530 PRD units, 200 single family homes, 50 estate lots, a golf course, a 350-room hotel, tennis courts, a medical clinic and sewage treatment plan on 596 acres; 1,562 acres will be dedicated as permanent undeveloped open space. The remaining 966 acres which are not included in this Specific Plan are covered by a concept plan for the property. This 966 acres will be formally planned in a second Specific Plan to be filed after five years. These Specific Plans would be implemented by a phased series of tentative maps, special use permits and grading permits.

A. Purpose

The following Environmental Impact Report (EIR) is prepared pursuant to the amended guidelines adopted by the San Diego County Board of Supervisors and in compliance with applicable sections of the California Public Resources Code and related Guidelines for implementation of the California Environmental Quality Act.

This report discusses both the immediate and long-term impacts resulting from the development and implementation of the Specific Plan on a 2,158 acre portion of a 3,124 acre property located on the south slope of the Borrego Valley in the unincorporated area of eastern San Diego County. The property is shown on the Regional Vicinity Map and Local Vicinity Map, Figure III-A-1 and Figure III-B-1. The site can be located in the Thomas Brothers Map Book on page 402, coordinates 5C, 5D, 6C and 6D.

This report will address the potential environmental impacts of a series of discretionary permits and applications which will ultimately be reviewed by the San Diego County Planning Commission and Board of Supervisors. This review will include the following permits and applications:

1. A large scale project application for a 2,158 acre portion of the total 3,124 acre property pursuant to the Board of Supervisors Policy I-59; the remaining 966 acres will be the subject of a subsequent large scale project application.

2. A Specific Plan encompassing 2,158 acres of the 3,124

acre property in detail, and a concept plan for the 966 remaining acres.

3. One rezone application which would change the existing LC (S-87) zoning as follows: 219 acres to C-42; 102 acres to R-V-6; 124 acres to R-R-5; 126 acres to R-S-3; 1577 acres to S-80; and 966 acres to S-88.

4. A major use permit application pursuant to Section 2425 of the County Zoning Ordinance for a 350-room resort hotel.

5. A major use permit application for the major impact services and utilities including the waste water treatment plant pursuant to Section 2805 of the County Zoning Ordinance.

6. A series of planned residential development permits for planned residential units and single-family areas pursuant to Section 2146 of the County Zoning Ordinance.

7. A major use permit for ambulance services for the medical clinic pursuant to Section 2845 of the County Zoning Ordinance.

8. A series of tentative subdivision maps and accompanying final maps allowing the cumulative creation of 780 individual home sites, a 350-room hotel complex, a medical clinic, commercial facilities, waste water treatment facilities, fire station, golf course and numerous open space/recreational lots.

9. A series of grading permits to allow the implementation of the tentative maps.

The purpose of this report is to present a broad overview, addressing issues and impacts concerning the entire development. It is intended that this report will consider, in detail, the large scale project application, Specific Plan Map and Text, Concept Plan Map, and any rezone applications that might be filed pursuant to plan implementation. This report is also intended to cover the tentative map, major use permits and grading permits for implementation of the first phase of the Specific Plan.

This EIR is also intended to cover the annexation of the 3124-acre property to the Borrego Water District, the formation of a 1562-acre Improvement District within the Borrego Water District, and the construction of facilities to provide sewer and water service to the project.

Impacts specific to the second phase tentative map, final map, grading plan and PRD Special Use Permit will be addressed by supplemental information to be filed with the second phase of development.

The Rams' Hill Country Club property is owned and is being developed by DiGiorgio Development Corporation, 507 The Mall, Borrego Springs, California 92004, phone (714) 767-5151.

B. Organization of this Report

The information in this EIR is separated into several topic areas:

II. The Executive Summary presents the major findings and conclusions of the report.

III. The Description of the Project is a full description of the Rams' Hill project within the context of the Borrego Valley community.

IV. The Environmental Analysis presents the full findings of the investigation as they pertain to individual areas such as biology or air quality.

V. The alternatives present a discussion of feasible alternatives and the impacts resulting from each.

VI. The Environmental Summaries present the issues which are significant environmentally, and include significant impacts, cumulative impacts, growth inducing impact, mitigating measures, significant unavoidable impacts and long term-short term impacts.

The heart of the report is contained in the individual chapters of the environmental analysis. Each of these chapters is divided as follows:

(1) Existing Setting - a discussion of the existing situation of the property or within the affected jurisdictions.

(2) Potential Impacts - a listing of those impacts, both beneficial and adverse which could be expected to occur if the project is implemented as proposed. The impacts will be categorized to the extent possible relative to the level of impact.

(3) Analysis of Significance - a discussion of the significant issues and those mitigating measures which are recommended to reduce the potential adverse impacts. This section will also include a discussion of those features of the project's design or implementation plan which would mitigate the potential environmental effects, and the extent to which the environmental effects are reduced to insignificant levels.

II. EXECUTIVE SUMMARY

The Rams' Hill Specific Plan would create a 3,124 acre residential-resort complex in the sparsely settled Borrego Valley. The variety of residential land uses include 530 planned residential units, 200 single family units on one-third acre lots, and 50 custom home estate units on two to five acre lots. The resort land uses include a 350-room hotel, a 18-hole golf course, 15 tennis courts, 12 swimming pools, and support commercial facilities including retail shops, restaurants and boutiques. A medical clinic affiliated with Scripps Clinic, La Jolla, would be constructed in association with the project. The Rams' Hill project would be a major node in the Borrego Valley attracting visitors from the coastal metropolitan areas and other states.

Because of its scale, the Rams' Hill project could initiate a major change in the character of the Borrego Valley community. Despite several false starts, the valley has not grown successfully to date. Rams' Hill would have beneficial impacts by assisting in the development of a viable economic community in Borrego Springs, by providing major medical services to the valley and state park area, and by increasing the diversity and number of recreational opportunities available in San Diego County. The project could induce some additional growth in the Borrego Valley which would have similar impacts.

The project would have four important adverse environmental impacts accompanying the development. First, with proper public agency management of water resources in the Valley, the project should not impact groundwater. Should the project not be annexed to a public agency, however, a condition of local groundwater mining could occur accompanied by localized subsidence of the southern basin. This would be fully mitigated by annexation to the Borrego Water District. The activated District would have the authority to become the groundwater management agency for the majority of the Valley. Second, the project could impact the biology and habitat of the desert by increasing human presence, and by changing the hydrologic characteristics on and off site. The impact on habitat cannot be fully mitigated. The impact on hydrology would be somewhat mitigated by project design and by the operation practices of the waste water treatment facility. Third, the project would temporarily overburden the public services in the valley. This would be fully mitigated once services are expanded to accommodate the extra growth. Fourth, the project could impact a significant rare archaeological resource. This would be mitigated by preservation and protection. The project could also have less

significant impacts by increasing the level of traffic on the roads and increasing energy consumption. The use of solar energy would substantially reduce domestic energy consumption. On site, the project would be subject to a significant flooding and seismic hazard. Flooding hazard would be substantially mitigated by protective structures and seismic hazard would be mitigated by proper construction. The project would require substantial grading. Rams' Hill would not have significant impacts on agriculture, geology, soils, air quality, climate, noise, dark skies, liquid waste or schools.

The project would include an urban level of services. The developer would construct a water distribution system and waste water treatment plant for the project. The project site is proposed to be annexed to the Borrego Water District which would operate and maintain the water and sewer systems. The fire station which could be required for this project could be constructed through establishment of a special assessment district.

The Rams' Hill project would include a medical clinic affiliated with Scripps Clinic in La Jolla. Since the valley and surrounding desert area do not have adequate emergency and primary medical facilities, this clinic would provide a much needed benefit for the entire community.

The Rams' Hill project would incrementally but not significantly impact the State Park. The number of people visiting the State Park should increase to over one million by the time the Rams' Hill Specific Plan is fully implemented. The level of impact to the park from Rams' Hill would, therefore, be insignificant compared with the high level of annual use.

A major concern of the County of San Diego today is rapid growth in areas which do not have an adequate level of public services available. Two large scale resort projects, Rams' Hill and the Borrego Country Club, are proposed in the Borrego Valley. The cumulative impacts of these projects on police and fire protection if they were built out would be substantial. Also, if both were built out, the projects could cause a major ground water mining condition. The level and rate of growth in the valley could change substantially if both projects were built, changing the valley into the major desert resort area in San Diego County.

In conclusion, development of the Rams' Hill Specific Plan would have some substantially adverse environmental impacts. The project, however, would beneficially impact the valley economy locally, and the San Diego County economy as a whole, provide needed medical services, and create a valley with recreational resources which would benefit San Diego County.

III. PROJECT DESCRIPTION

A. Location and Existing Conditions

Rams' Hill Country Club is a 3,124 acre property located in the Borrego Valley, an unincorporated area east of the Peninsular Mountain Range in the desert of San Diego County. The project site is 65 miles northeast of metropolitan San Diego, 40 miles south of Palm Springs and 25 miles west of the Salton Sea. Figure III-A-1 is a Regional Vicinity Map of the project.

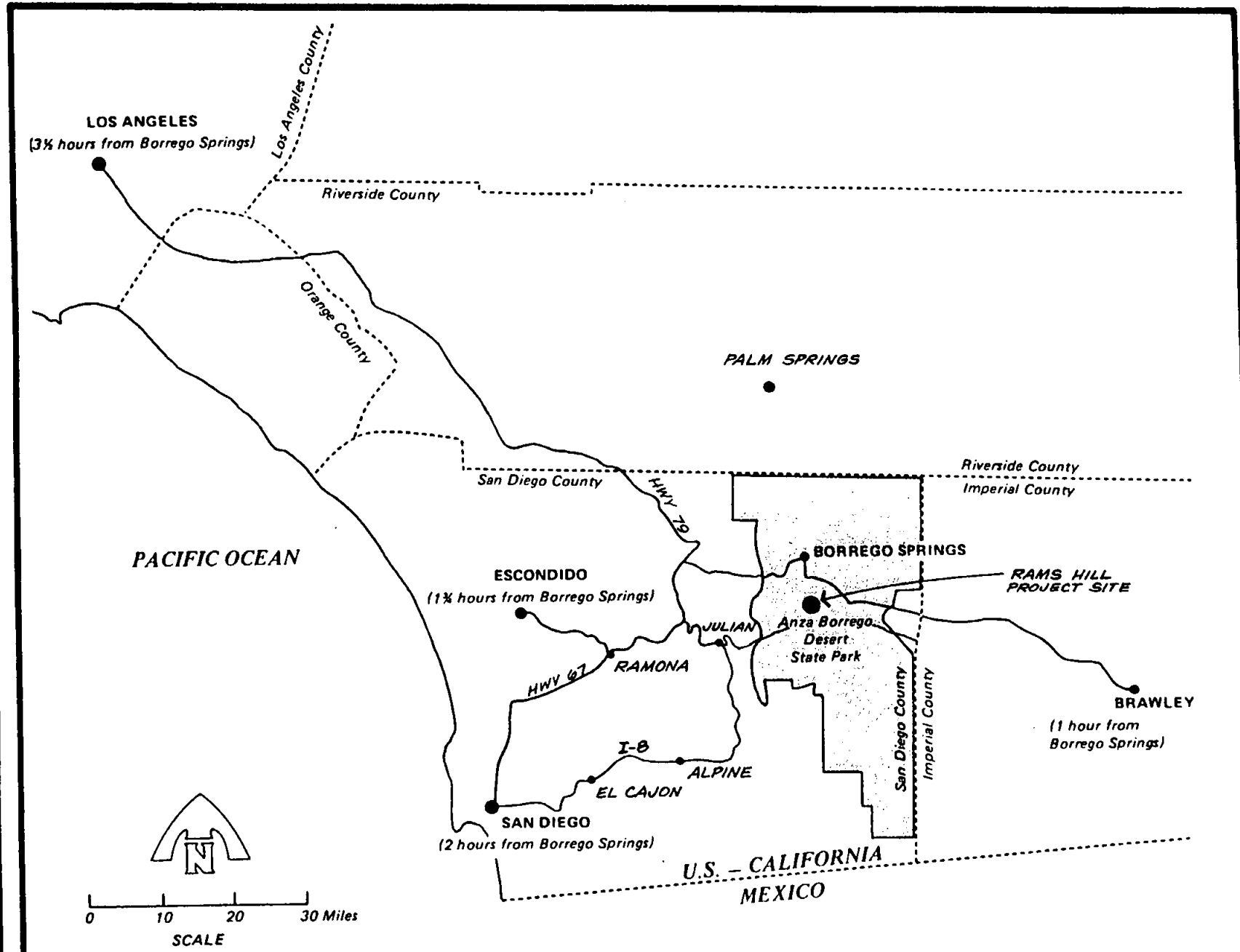
The Rams' Hill Country Club site has been designated on the San Diego County General Plan as a Specific Planning Area, with an overall density of one dwelling unit per two acres (SPA 0.5). In addition, at the time that designation was applied, the Board of Supervisors also adopted a general concept plan for the property referred to as Exhibit C-9. Board of Supervisors' Policy I-59, which governs development of large scale plans, requires the preparation of a Specific Plan for that portion of a total property proposed for development within a five year time frame, and the preparation of a concept plan for the remainder. The purpose of this EIR is to analyze in detail the potential environmental effects of the development proposed on 2,158 acres included in the first five year Specific Plan for the Rams' Hill property; and to analyze to the greatest extent feasible the effects of full development of the Concept Plan for the remaining 966 acres of the property.

B. Project Description

The Rams' Hill project would be located on the south slope of the Borrego Valley, immediately south of the Casa del Zorro Resort. The site is five to six miles southeast of the business district of the desert community of Borrego Springs and adjacent to the Anza Borrego Desert State Park. Primary access to the site is provided by Yaqui Pass Road, which runs along the western boundary of the property. Secondary access is provided by Borrego Springs Road, which traverses the northeast portion of the site. These two arterials, both two-lane, paved County highways, provide the principal southern access into the existing Borrego Springs community. Figure III-B-1 is a map of the project location in the Borrego Valley.

The project site is currently vacant. Over a small area, indications of previous agricultural use and the remains of a single structure are present. The property slopes gently upward from northeast to southwest, with elevations ranging from 475 feet near the Borrego Sink on the northern boundary, to 1,150 feet at the southwest corner adjacent to Anza Borrego Desert State Park. Figure III-B-2 is a slope analysis of the site. Eighty

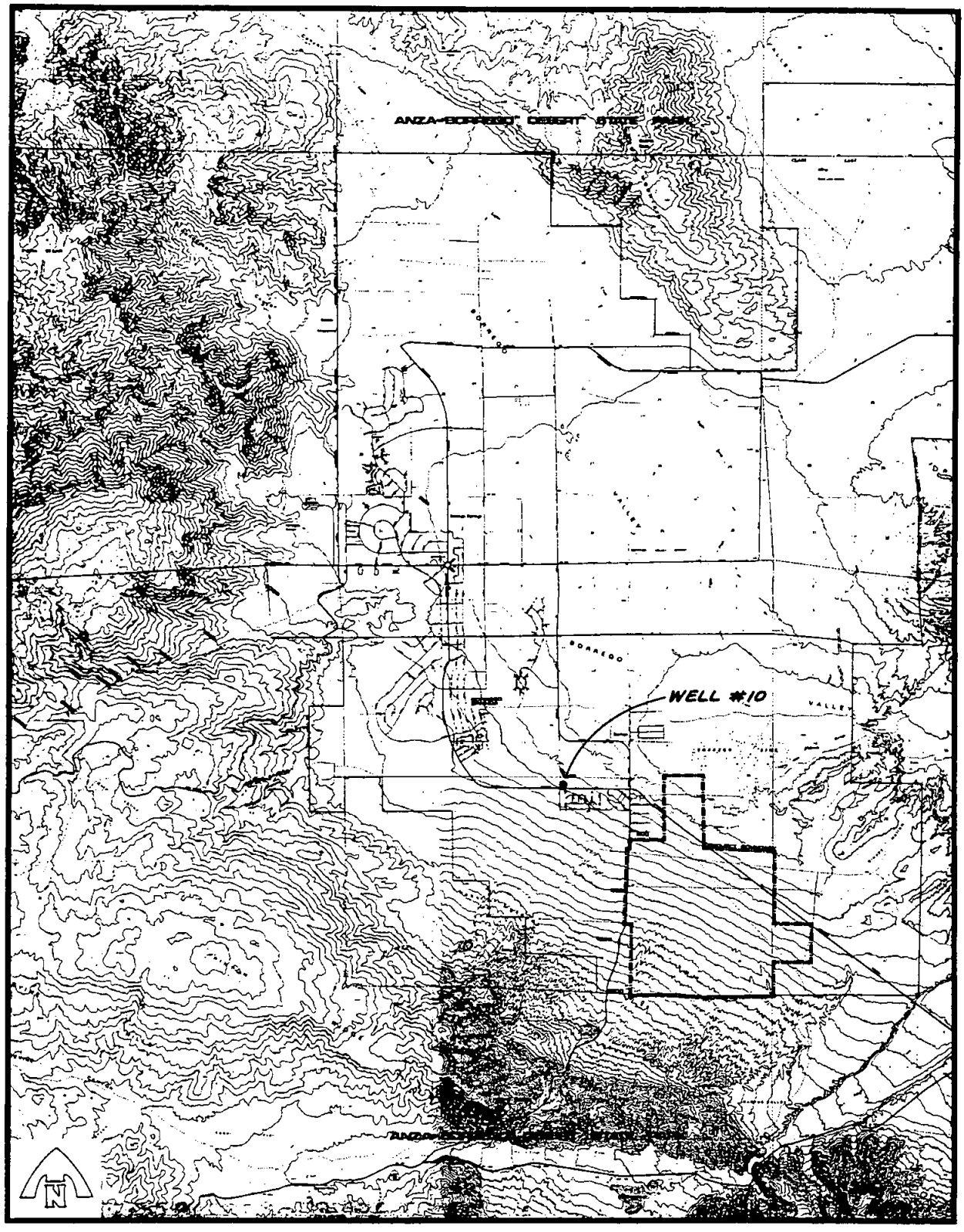
RAMS HILL



regional vicinity map

Figure III-B-1

PROJECT LOCATION IN VALLEY



project location in valley

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RAMS HILL

percent of the site is a smooth alluvial surface with a slope of zero to six percent. The remainder is a dissected alluvial fan having slopes of seven to 15 percent. These steeper areas are largely concentrated in the southwest quarter of the property outside the entire site. Figure III-B-3 is a spatial analysis of the site. Figure III-B-4 is a USGS map of the site.

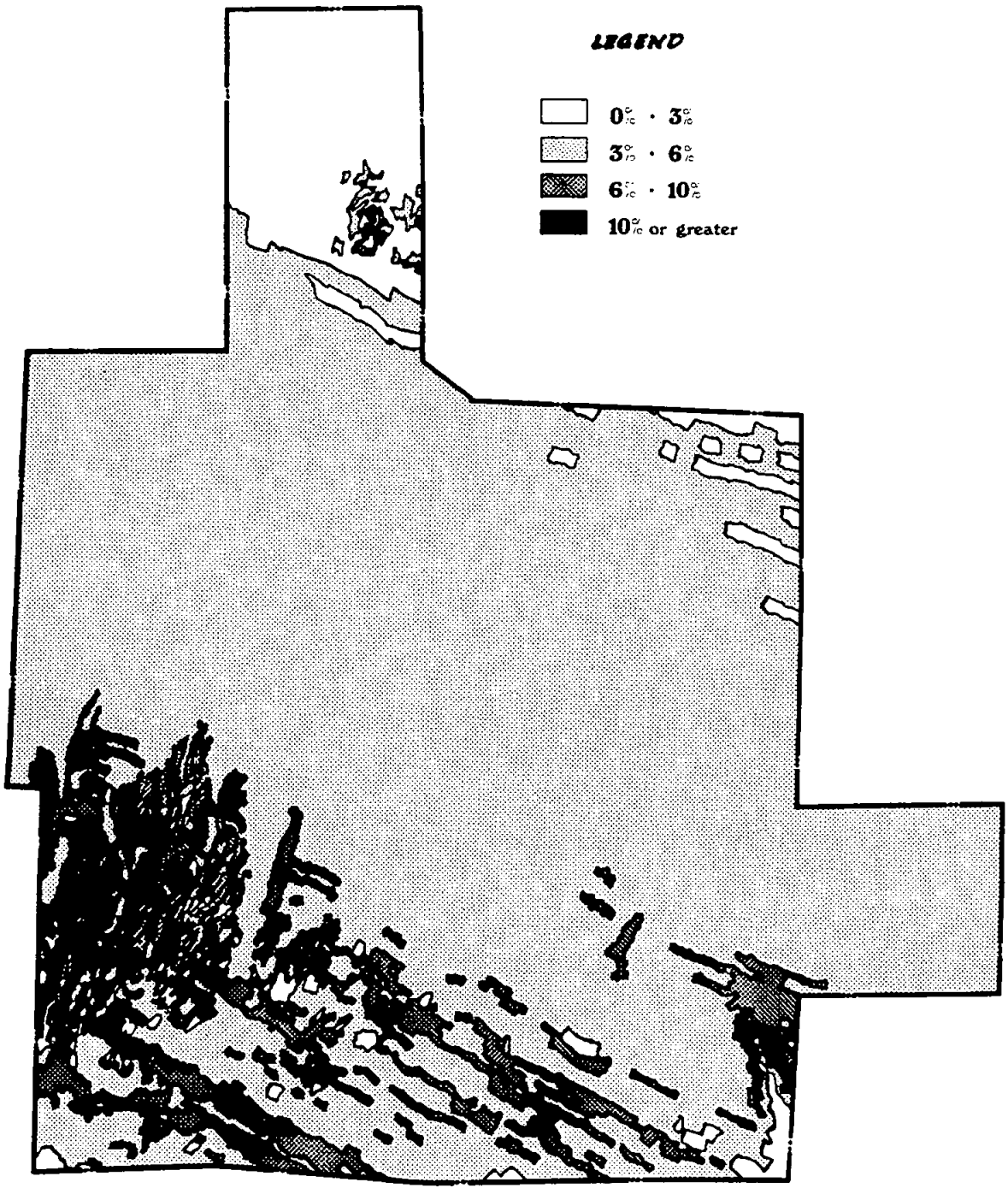
The Rams' Hill property is presently an open undisturbed habitat, a continuation of the ecosystem of the adjoining Desert State Park. The site contains three vegetative communities: A Mesquite Woodland bordering the Borrego Sink; a Ridgewash community covering the dissected southwest quarter; and a Creosote Bush Scrub community which is the dominant vegetation over the majority of the site. The site is easily viewed from all areas in the valley and is an integral part of the desert panorama.

The Borrego Valley, with the Borrego Springs community, is the major desert resort area of San Diego County. The valley is a 70 square mile, privately owned enclave in the Anza Borrego Desert State Park. The 1975 Special Census identified the permanent population of the valley as 1,174. The Integrated Planning Office estimated the population in 1978 to be 1,570. (1) Seasonal visitors during the winter months swell the valley population to approximately 2,220; on a peak weekend, the number of people in the valley, including permanent residents, visitors, campers and day tourists in the Anza Borrego State Park, can reach 8,000 to 10,000.

The factors affecting the development of the Borrego Valley, both historically and currently, differ substantially from those of other communities in San Diego County. The area is geographically isolated from the metropolitan area and has a very limited economic base. The area once supported extensive agriculture, but now functions primarily as a retirement and resort community. Unlike other communities in the region, the area is not tied into the imported water or sewer service structures of San Diego County. Development in the valley is served by ground water and private sewage systems. The Borrego Valley has a history of speculative land sales which have produced a substantial number of residential lots with minimal improvements. The prime factors limiting development on these lots appear to be lack of accessible resort facilities, scarcity of financing for individual construction and, more recently, the attitude of the County toward growth in outlying areas. For a complete discussion of growth characteristics, refer to the sections on growth inducement and socio-economic conditions. As a result of this history and current circumstances, the nucleus of the Borrego community exists in an isolated area with inadequate public and private services.

Figure III-B-2

SLOPE ANALYSIS



slope analysis

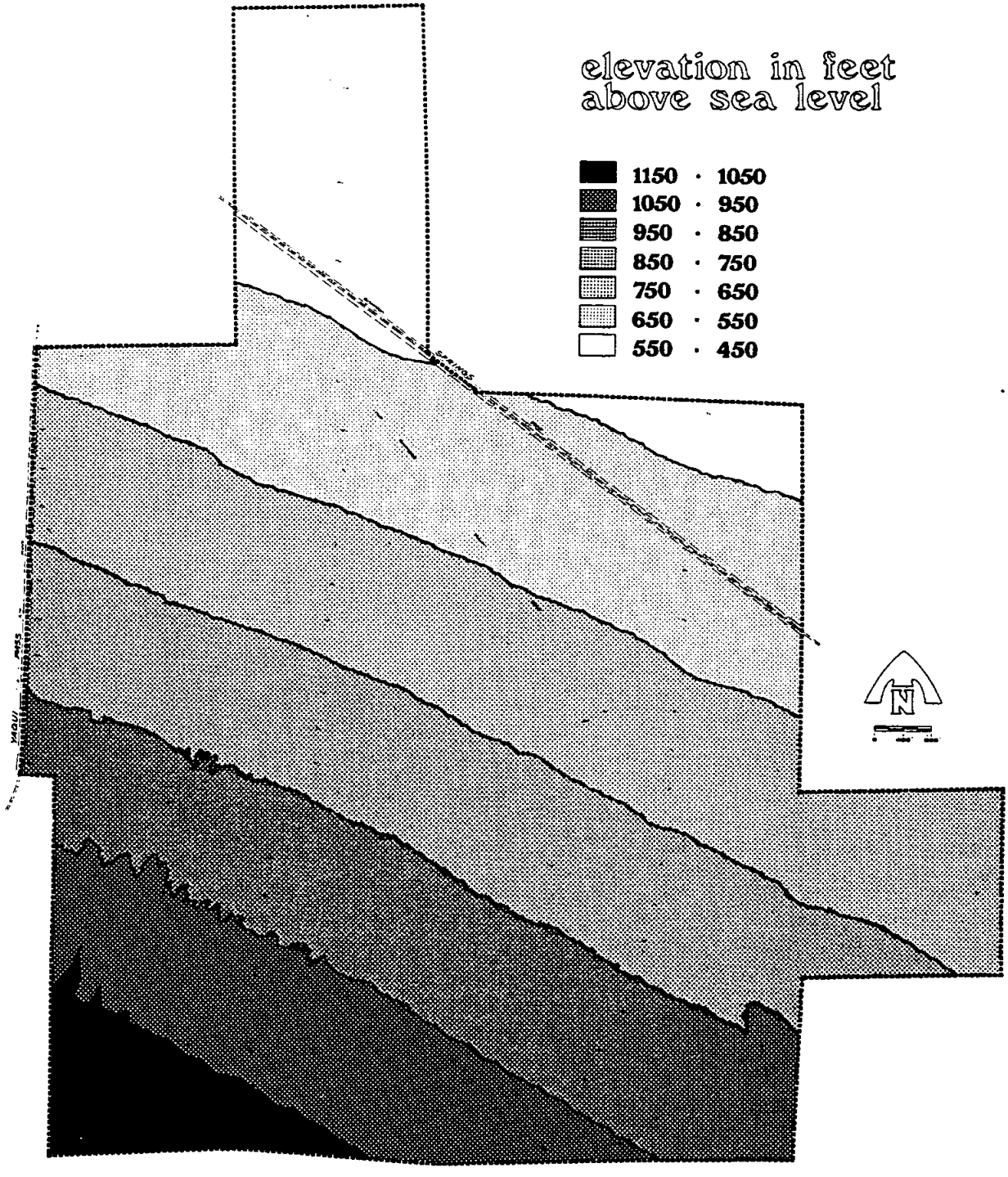
NO SCALE

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RAMS HILL

Figure III-B-3

SPATIAL ANALYSIS



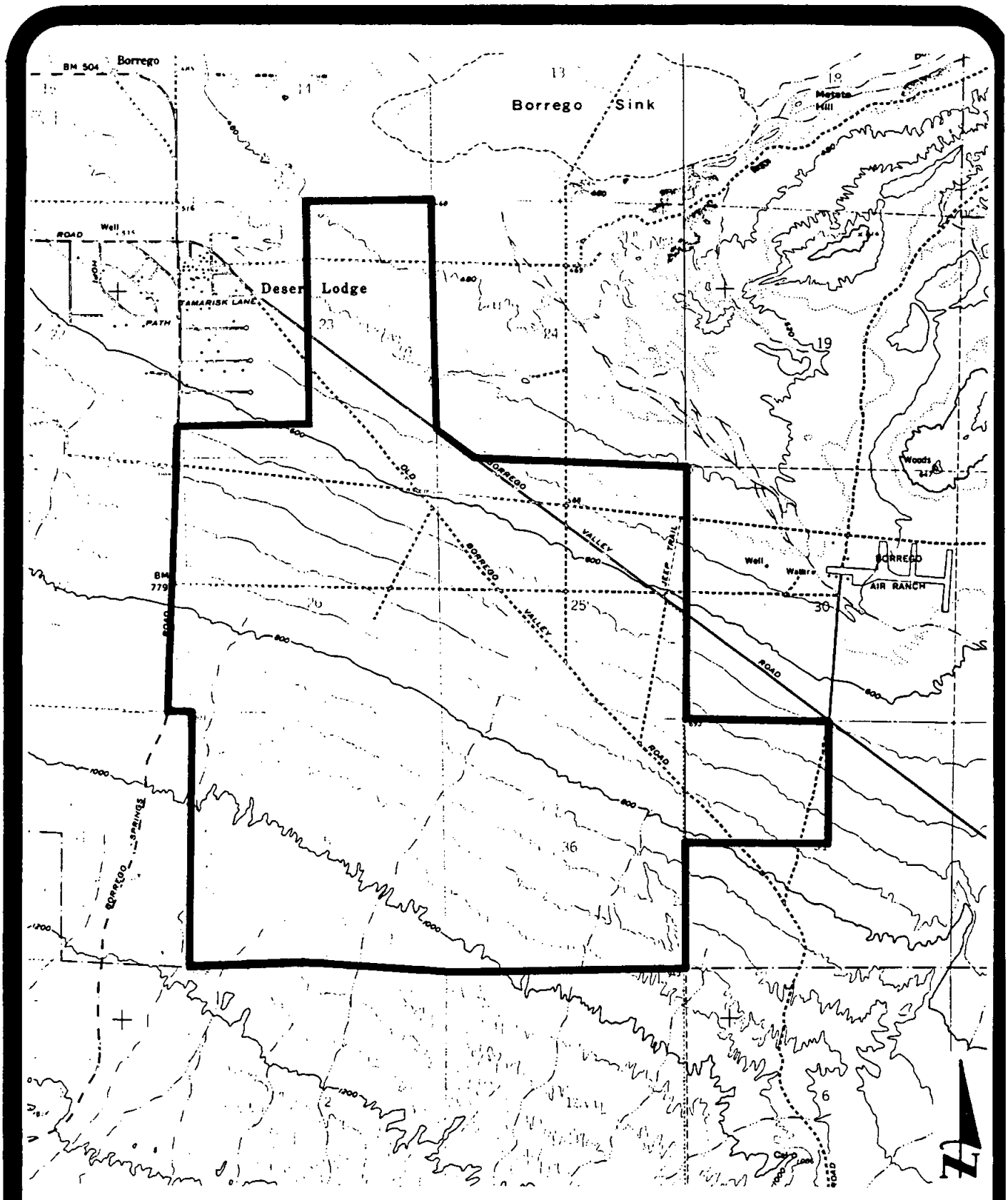
spatial analysis

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Figure III-B-4

USGS MAP OF SITE



U.S.G.S. map

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This would include a medical facility; tax funds for local parks, school services and the library; and a sufficient population base for adequate year-round commercial facilities. The project would provide its own water service and sewage disposal system, including a waste water reclamation plant. Residential development at Rams' Hill would emphasize second home development consistent with the resort orientation. The total project is designed for resort and vacation home uses rather than as a year-round retirement community. Economic studies for the project estimate that fewer than 30 percent of the residential units would be used by year-round occupants.(3) This 30 percent would double the number of current year-round inhabitants in the Borrego Valley and would substantially improve the viability of the summer economy.

D. Project History

In the early 1970's, the County of San Diego regulated large scale plans through a process for Private Development Plans. In 1974, the DiGiorgio Development Corporation submitted a Private Development Plan (PDP) to the County for the entire 3,124 acre property. The PDP proposed development of the total holding over an extended period at an overall density of one dwelling unit per acre. (This would have provided twice the density allowed under the current Specific Planning Area designation). Under these PDP procedures, it was determined that development would require a General Plan Amendment.

During the processing of the PDP/General Plan Amendment for the project, the County eliminated the PDP procedures for review of large scale projects. A Specific Planning process, defined by the Board of Supervisors Policy I-59, was developed subsequently to replace the previous PDP procedures. On November 29, 1976, after much consideration, the Board of Supervisors adopted General Plan Amendment 76-02 (GPA 76-02), which designated the Rams' Hill property as a Specific Planning Area (SPA) with an allowable maximum residential density of one dwelling unit per two acres (1,562 DU's total). Development was limited to approximately half of the site. The remaining area was to be designated as permanent open space when development took place on the site. Figure III-D-1 is a reproduction of Exhibit C-9 of GPA which is the Board-approved Concept Plan governing development on the Rams' Hill property. The General Plan Amendment further specified that the Specific Plan or Plans for the Borrego Springs Specific Planning Area 0.5 could allow for:

1) A range and mix of residential, commercial and medical uses and facilities which are consistent with accepted design principles as determined appropriate by the County and with provision of necessary public services and facilities; and

Figure III-D-1

EXHIBIT C-9

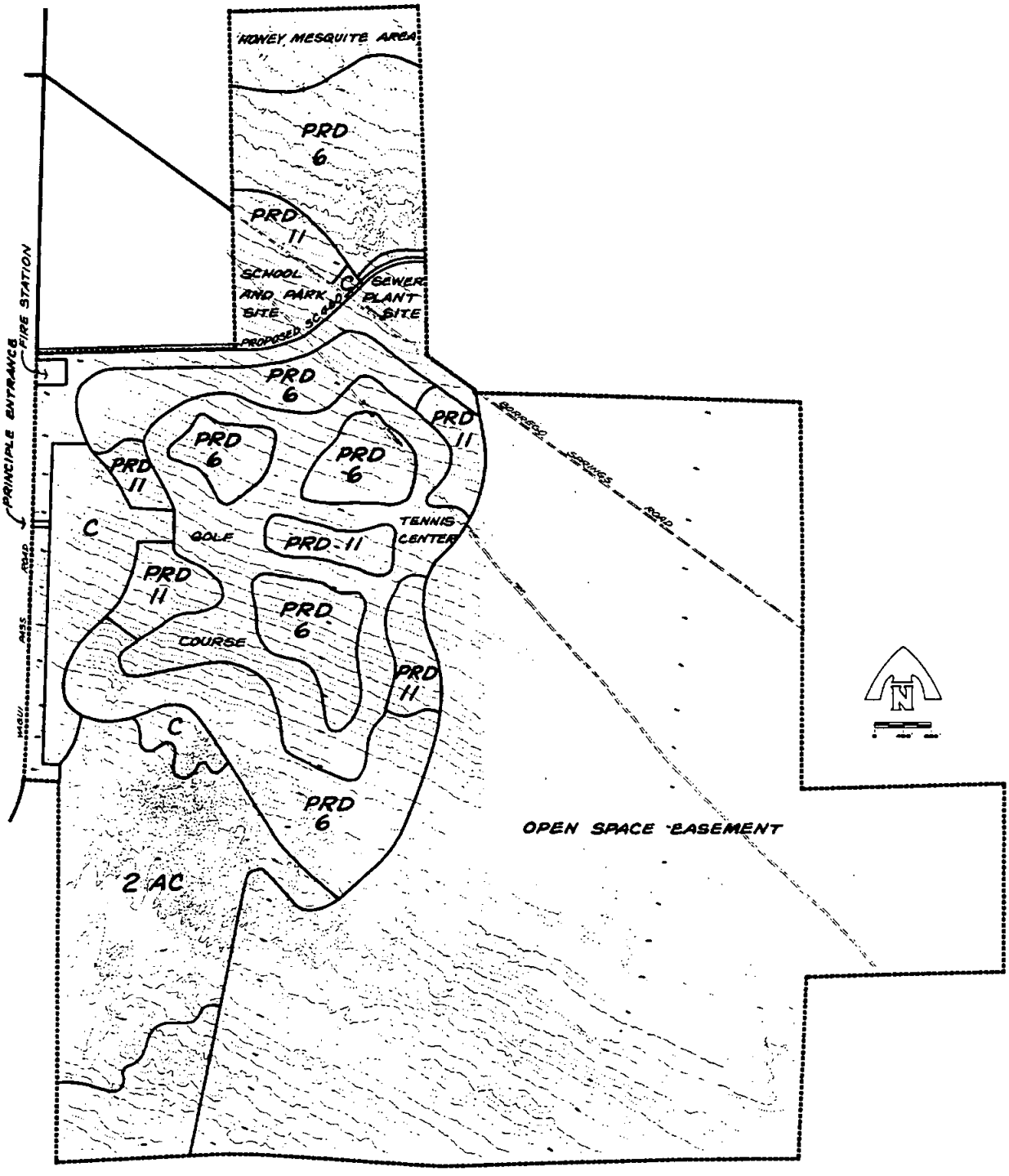


exhibit C-9 of san diego county general plan - amendment 76-02

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2) Other land uses as may be necessary or convenient for recreation and for the provision of commercial and other support services for the future residents of the Specific Planning Area and other properties.

The DiGiorgio Development Corporation, in accordance with the requirements and limitations of General Plan Amendment 76-02 and the further requirements of Board of Supervisors' Policy I-59 which governs "Large Scale Project Review", proposes to implement the Rams' Hill Country Club through a series of two Specific Plans. This is the EIR on the first Specific Plan.

The Board of Supervisors generally initiates each Specific Plan upon the submittal of an Initial Plan Conformance Report. The Board must approve the processing of a Specific Plan even for areas designated as requiring them. The Specific Plan must identify all development proposed on the site within a five year period and the means of implementing that development. Each Specific Plan in turn will be implemented through a phased series of tentative maps, special use permits, and zoning reclassifications. These discretionary actions are discussed in the Land Use section.

E. Regional Growth Management Plan

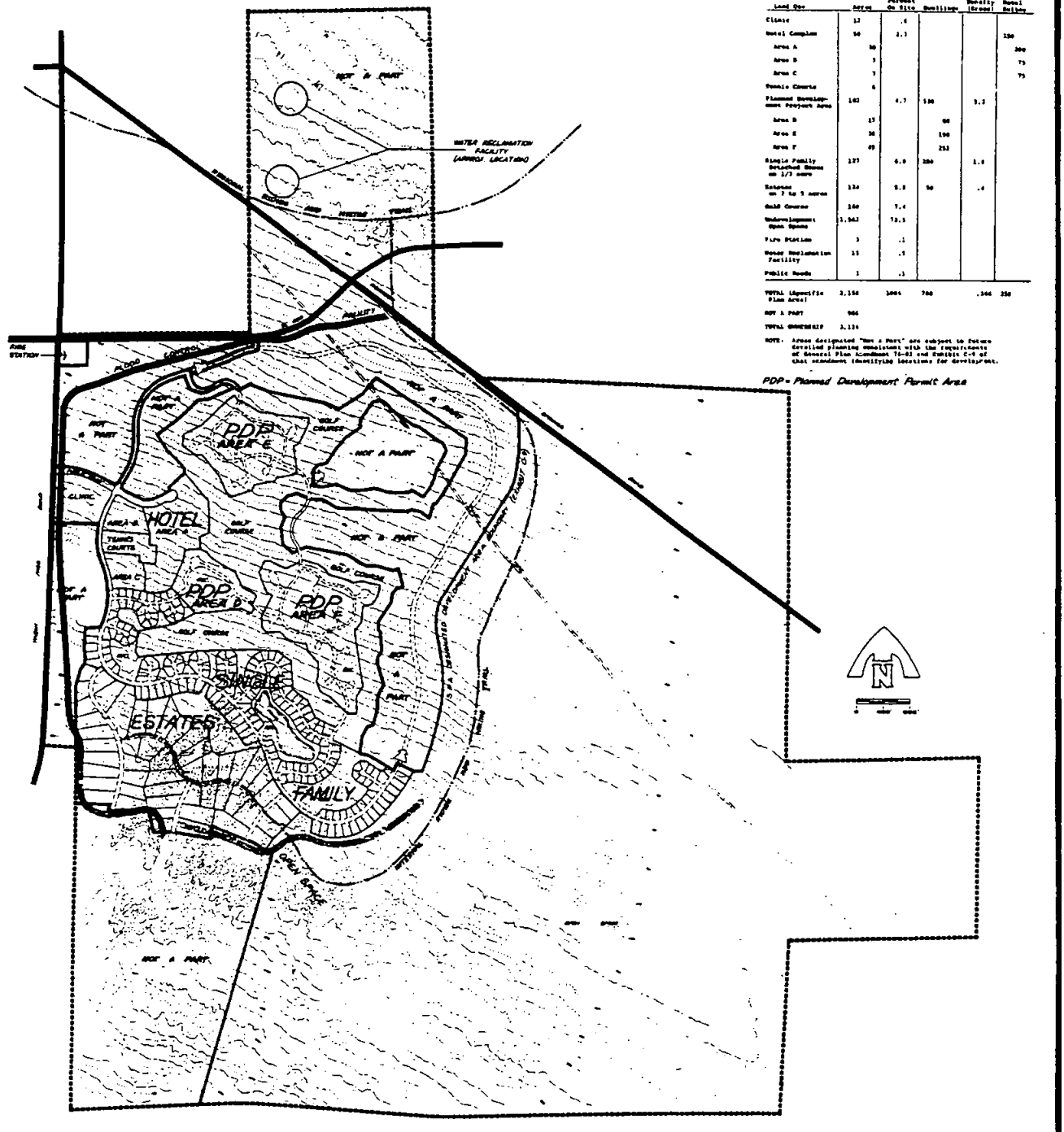
The Regional Growth Management Plan has designated the Borrego Valley as a "Special Study Area". Under this plan the County will accept no new applications for changes in the General Plan which would result in an overall increase in the potential number of dwelling units. No such applications will be accepted for properties in the valley until a cumulative environmental analysis and long-range plan are prepared for the area. The County at this time has no plans for the preparation of the necessary environmental analysis or community plan.

F. Specific Plan

The Rams' Hill Country Club is envisioned as a desert-resort complex. The development is anticipated to be primarily residential-resort with complementary hotel, commercial and recreational facilities. The initial phase of the project, planned through this Specific Plan, proposes 780 dwelling units and 350 hotel suites on 596 acres and 1,562 acres of natural undeveloped open space for a total of 2,158 acres. Central features of this plan are a medical diagnostic facility and a large hotel-resort complex, including a golf course, tennis complex and small retail shops. Figure III-F-1 is a map of the Specific Plan. Approximately 70 percent of the 2,158 acres included in this Specific Plan are to be retained as permanent natural open space, in conformance with Exhibit C-9 or GPA 76-02, the Concept Plan which governs land use for the project. A substantial portion of the remaining 596 acres of this Specific

Figure III-F-1

SPECIFIC PLAN MAP



Rams Hill Country Club
Specific Plan Land Use

Land Use	Acres	Percent Of Site	Dwelling	Density (Gross)	Hotel Rooms
Clubs	12	.6			
Hotel Complex	50	2.3			150
Area A	30				300
Area B	7				
Area C	7				
Tennis Courts	6				
Planned Development Project Area	142	6.7	136	3.2	
Area D	17		68		
Area E	36		136		
Area F	89		252		
Single Family Detached Homes on 1/3 acre	127	6.0	384	3.0	
Estates on 1 to 5 acres	134	6.3	90	.6	
Golf Course	156	7.4			
Undevelopment Open Space	1,562	73.5			
Fire Station	3	.1			
Water Reclamation Facility	11	.5			
Public Roads	3	.1			
TOTAL (Specific Plan Area)	2,156	100%	760	.366	150
NOT A PART	966				
TOTAL OWNERSHIP	3,121				

NOTE: Areas designated "Not a Part" are subject to future Carlsbad planning consistent with the requirements of General Plan Amendment 76-01 and Exhibit C-4 of that amendment identifying locations for development.

PDP = Planned Development Permit Area

specific plan map

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Plan would include various other open space uses, including extensive common areas and an 18-hole golf course on 160 acres. A waste water treatment plant and water distribution system would be constructed by the developer for this Specific Plan. These facilities would be designed and sized to be expanded to fully accommodate the ultimate project development.

With full implementation and maximum theoretical occupancy of this Specific Plan, the population of Rams' Hill, including residents and resort visitors, is projected to be 2,229. The actual occupancy at the project would vary seasonally from approximately 90 percent occupancy of 2,007 people during mid-winter, to less than 30 percent occupancy of 650 people during the summer. Detailed information on population and phased growth is provided in the section on growth inducement.

A more precise, detailed project description is included in the Rams' Hill Country Club Specific Plan which is being submitted under separate cover.

G. Concept Plan

Each Specific Plan must detail the development proposed for a five-year phase, and address, in concept, development for the remaining portion of the property. Definitive plans have not yet been formulated by the developer for subsequent development beyond this five year program. Future development would be governed by Exhibit C-9, the Concept Plan for the project approved by the Board of Supervisors in GPA 76-02. This plan limits future development to approximately the western half of the site. Figure III-D-1 is Exhibit C-9, the concept map governing future development beyond this Specific Plan.

The Specific Plan develops the core of the project on 596 acres; future development would probably be an expansion outward from the area proposed for development under this Specific Plan. The total holding retains 966 acres within it, marked "Not a Part" of the current Specific Plan. This area provides for a logical expansion of the hotel, planned residential developments and some limited commercial uses. In addition to development in these areas, other possible areas of expansion would be along Yaqui Pass Road and to the east and north of the Specific Plan Area. Future residential development would probably be similar to that planned for the Specific Plan--PRD units, single-family detached homes, and large-lot estates.

The total holding capacity of the Specific Plan Area is 1,562 dwelling units. It is currently anticipated by the developer that the ultimate project would include the total allowable density of 1,562 residential units and a 600 room hotel-resort. The developer plans to implement the complete project over a 12 to 15 year period.

H. Description of Land Uses

The sections which follow detail information for this five year Specific Plan program only. Table III-H-1 is a summary of proposed land uses under this Specific Plan.

1. Hotel Complex

The resort hotel complex would occupy approximately 50 acres, or two percent, of the 2,158 Specific Plan acres. The central hotel facility, marked "Hotel A" on the Specific Plan Map, would be located on a 30 acre site to provide a spacious atmosphere consistent with the desert environment. The facility would consist of a three-story hotel having 200 rooms (in the five year program). The usual support functions, including restaurants, conference rooms and boutiques, would be contained in common areas within the hotel building. The hotel also would serve as a clubhouse for the golf course and tennis facility. The main hotel would include approximately 136,000 square feet. Each guest room would be approximately 500 square feet; common areas would include approximately 36,000 square feet. A six acre area immediately southwest of the main hotel facility would be reserved for the tennis courts, although they would occupy only a portion of the space. In addition to the central facilities, two smaller hotel areas, marked "Hotel Area B" and "Hotel Area C" on the Specific Plan Map, would be used for bungalow units. These two areas, totalling 14 acres, would provide for 150 rooms/suites, with 75 suites in each area. Each suite would contain approximately 800 square feet. The bungalows would be low profile clustered units located west of the main hotel facility next to the tennis courts. Two swimming pools would be constructed within the total 50 acre hotel facility.

2. Clinic

As an adjunct to the hotel-resort operation, the plan proposes the development and operation of a diagnostic medical clinic located on a 12-acre site west of the central hotel. The facility is currently intended to be a satellite of the Scripps Clinic and Research Facility and would provide much needed primary medical care for Borrego residents and the residents of Rams' Hill. The Borrego community presently has one doctor and a part-time clinic, staffed by a nurse practitioner. There are no acute or emergency facilities. Besides providing primary care, specialty clinics could be conducted on a regular basis using the staff of the Scripps Clinic Medical Group. An executive physical examination program would be developed at the facility. The building would be a single story, low profile structure containing approximately 6,300 square feet. For more information on medical facilities in the valley, refer to the section on socio-economic conditions.

TABLE III-H-1

Rams' Hill Country Club
Specific Plan Land Use

Land Use	Acres	Percent On Site	Dwellings	Density (Gross)	Hotel Suites
Clinic	12	.6			
Hotel Complex	50	2.3			350
Area A	30				200
Area B	7				75
Area C	7				75
Tennis Courts	6				
Planned Residential Units	102	4.7	530	5.2	
Area D	17		88		
Area E	36		190		
Area F	49		252		
Single Family Detached Homes on 1/3 acre	127	6.0	200	1.6	
Estates on 2 to 5 acres	124	5.8	50	.4	
Golf Course	160	7.4			
Undevelopment Open Space	1,562	72.5			
Fire Station	3	.1			
Water Reclamation Facility	15	.5			
Public Roads	3	.1			
TOTAL (Specific Plan Area)	2,158	100%	780	.366	350
NOT A PART	966				
TOTAL OWNERSHIP	3,124				

NOTE: Areas designated "Not a Part" are subject to future detailed planning consistent with the requirements of General Plan Amendment 76-02 and Exhibit C-9 of that amendment identifying locations for development.

3. Residential

The Rams' Hill project would include three types of residential units: PRD units, single family homes on one-third acre lots, and custom-built estate homes on two to five acre lots.

The heart of the residential development at Rams' Hill would be the planned residential development (PRD) areas to be sited within and along the golf course. Three PRD areas totalling 530 units would be constructed in this Specific Plan phase. These units are designed as low-profile homes with walled gardens, each containing 1,500 to 3,000 square feet. Each would be constructed in a space envelope sufficient for home and terraces. Three to five dwelling units would be clustered together. These clusters would then be grouped around landscaped cul-de-sacs with supplementary parking bays. Substantial open space would be provided between units and clusters, resulting in an overall density within the PRD areas of 5.2 dwelling units per acre. Each of the three planned residential areas would have separate recreational areas with swimming pools, tennis courts and the required common open space. The common areas would be landscaped to the extent practical with low-maintenance desert plants.

In addition to the 530 PRD units, Rams' Hill would include 200 single-family detached homes situated on one-third acre lots. The homes are envisioned as low-profile residences, containing between 2,200 and 3,000 square feet, constructed in harmony with the desert environment. The single-family home area would include commonly held and operated recreational facilities, such as tennis courts and swimming pools.

The third type of residential development at Rams' Hill would be 50 single-family homes on estate lots ranging between two and five acres in size. These homes would be custom built containing a minimum of 2,500 square feet. It is anticipated that the home and landscaping would encompass approximately one-half acre of each estate lot with the remainder of each lot left in natural vegetation. This would, in part, preserve the open desert panorama.

4. Open Space

Approximately 73 percent of the 2,158 acres would be retained in underdeveloped open space. This includes the entire eastern one-half of the property. General Plan Amendment 76-02, by which the Specific Planning Area designation was adopted, required that this 1,562 acres be preserved as open space and stipulated that this acreage be the total open space requirement for the project.

To maintain the open desert atmosphere, additional open space would be provided throughout the project. Where landscaping is used, it would be designed and planted to provide a compatible transition between the natural environment and the developed areas. Planting would emphasize desert and drought resistant species. In 1973, the DiGiorgio Development Corporation established a 200 acre nursery in the Borrego area to produce necessary low-water use trees for eventual transfer to this site. Additional open space would include the 160 acre golf course. This course would encircle the PRD areas. Roughs would be left in natural vegetation. Substantial open areas in the hotel complex, open space in the PRD areas and substantial natural areas in the large lot residential and estate developments would also be provided. Total open space, that area not covered by structures or paving and being primarily natural in appearance, has not been calculated but can be estimated at more than 90 percent of the site.

5. Public Facilities

The original scheme, approved as Exhibit C-9, identifies four primary public facilities: a local park site, an elementary school site, a fire station site and a waste water treatment facility.

In regard to the school site, the project is not expected to generate sufficient students to support an additional elementary school. In regard to the proposed local park site, the County Department of Parks and Recreation, Park Development Division has stated that the project would have ample on-site recreational facilities for residents. Therefore, they would recommend payment of fees rather than dedication of park land. That would enable the application of fees for more general local park use in the Borrego area. (4)

A three acre site is reserved for a future fire station. The fire district would provide facilities at this location as implementation of the project warrants these improvements. The waste water treatment facility site and the fire station site are included in the Specific Plan Area.

6. Waste Water Treatment Plant

North of Borrego Springs Road, a waste water reclamation facility utilizing an oxidation ditch method of secondary treatment would be constructed and paid for by the developer to serve the project. This plant would process liquid waste from the hotel, medical clinic, PRD units and single-family units. The 50 two to five acre lots would use private septic systems. The designed plant would be sited on a five acre parcel; an additional ten acre parcel has been dedicated for percolation beds. (Figure III-B-3) The sewage treatment plant would be dedicated to a public agency. This agency would operate it at no cost to the district through a special assessment district.

The oxidation ditch is a method of secondary sewage treatment which utilizes a modified form of the activated sludge process. While the plant would be constructed to treat an average daily flow of 250,000 gallons, its capacity could be reduced below that volume by adjusting the water surface elevation in the oxidation ditch. This design would assure better and more economical performance during low flow periods. Sewage produced at Rams' Hill would be reclaimed as one source of irrigation water for the planned 18-hole golf course. After secondary treatment, the sewage effluent would be disinfected and pumped to an irrigation storage pond on the golf course. The golf course irrigation system would have more than enough demand to consume the highest volume of reclaimed water produced. Percolation beds would be provided for disposal during low flow periods and for emergency backup. These beds would be located immediately south of the mesquite woodland and would have sufficient capacity to dispose of the entire output of the reclamation plant on a continuous long-term basis.

The treatment plant has been sized to accommodate maximum flows from the Specific Plan phase. The plant has been designed to be easily expanded to handle the flows projected for full project implementation, after both this Specific Plan and the subsequent Specific Plan are fully constructed.

The designated sewage treatment plant site includes approximately 15 acres including one five and one ten acre parcel. The plant itself would cover approximately one and a half acres of a five acre parcel close to Borrego Springs Road. The ten acre parcel, located closer to the Borrego Sink, has been designated for the percolation basins. The facility would be designed and constructed by the developer who would then dedicate the facility to a public agency. The waste water treatment facility would be owned and operated by the agency. The Local Agency Formation Commission is currently reviewing the application for the annexation of the Rams' Hill site to the Borrego Water District, a California Water District with the legal authority for sewage treatment and water supply. The system would meet anticipated waste discharge requirements of the Regional Water Quality Control Board and would comply with Title 22 standards of the State Health Department. For a full discussion of waste discharge, refer to Liquid Waste.

7. Water Supply

In addition to operating the waste water treatment facility, it is proposed that the Borrego Water District serve as the managing agency for provision of water. Although the Borrego Water District does not maintain a water distribution system or waste water disposal facility at the present time, it does have designated existing powers to do so. There are three existing wells

on the project site and one on a separate DiGiorgio property one mile to the west. These wells would be annexed to the water district for the supply of water to the project in the initial phase. Future water supply would be developed and managed by the District.

The water supply system would be constructed and paid for by the developers. Operational expenses would be born by residents and guests at Rams' Hill pursuant to the formation of a special assessment district.

8. Vehicular Circulation

Access to the Rams' Hill site is provided by two existing roads; Yaqui Pass Road and Borrego Springs Road. A third road, SC 460, which is not in existence at this time, is shown on the San Diego County Circulation Element, Sheet 3, as a collector road with an east-west alignment through the center of the property. Figure III-H-1 is the circulation element for the Borrego Valley. The developer is planning to locate SC 460 north of the Circulation Element location in conformance with its location on Exhibit C-9 of GPA 76-02. (Figure III-D-1) A fourth road, Old Borrego Valley Road, which is currently a dirt trail, is shown on the Circulation Element as a collector road with a north-south alignment across the eastern edge of the property.

The County of San Diego Department of Transportation has determined that the road network planned for Rams' Hill is in conformance with the County Circulation Element. The developer is currently in negotiations with DOT regarding the necessary improvements. As of a letter dated September 5, 1978, the Department of Transportation has recommended that the following on and off-site improvements will be necessary:

- That portion of Yaqui Pass Road, SF 1406, adjacent to the Rams' Hill project and designated as a Major Road on the Circulation Element, must be dedicated and improved to a one-half width of 51 feet. The off-site portion of that road north to Borrego Valley Road presently has from 24 to 32 feet of paving. With the additional traffic onto that road from Rams' Hill, that road would need to be widened to a minimum of 40 feet of AC paving prior to the ultimate development of the project.

- That portion of Borrego Springs Road, SA 190, within or adjacent to the Rams' Hill project, must be dedicated and improved to a width of 51 or 102 feet, depending on the location of the road with respect to the boundary of the project.

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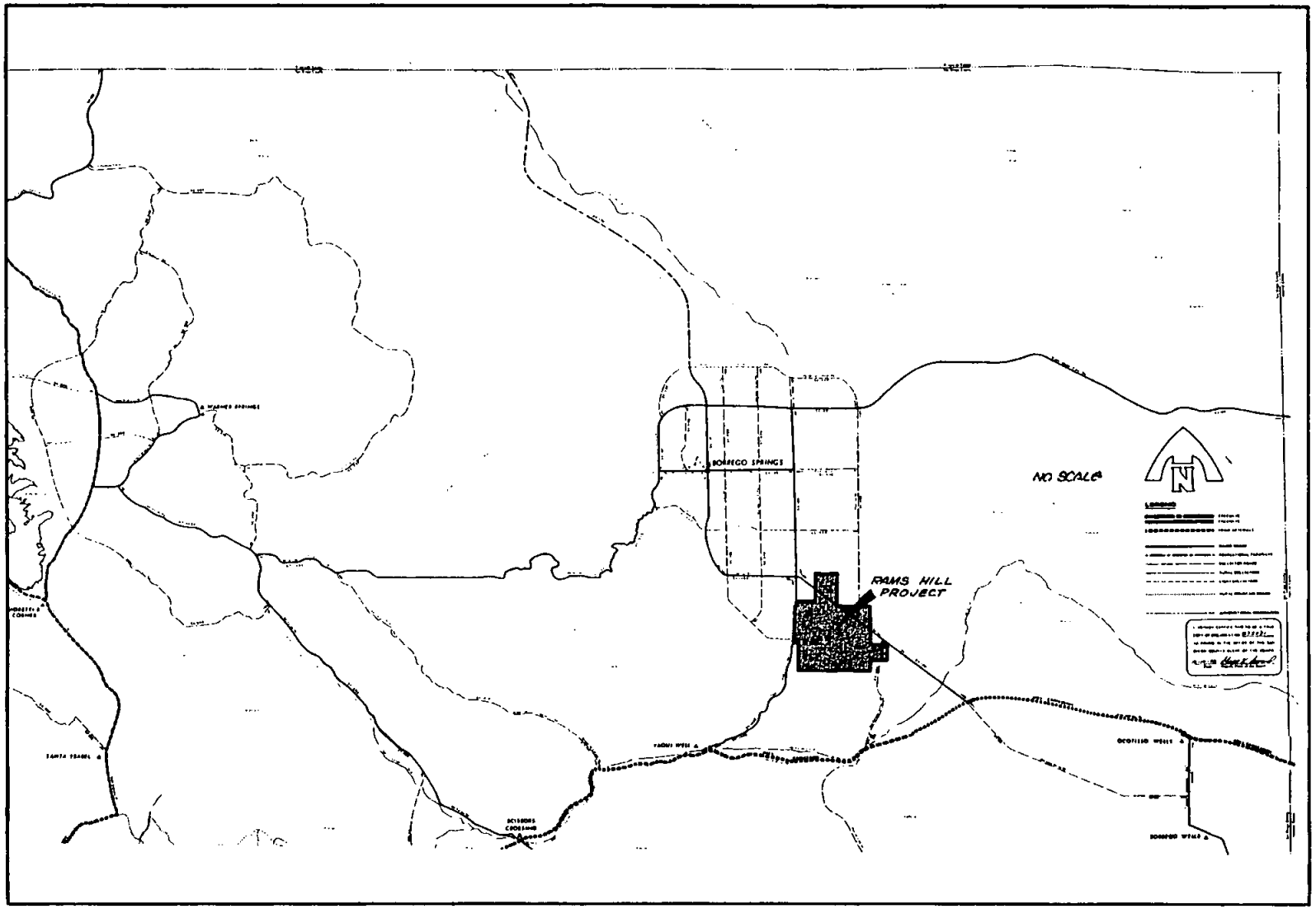
- That portion of Borrego Springs Road, SA 190, within or adjacent to the Rams' Hill project, must be dedicated and improved to a width of 51 or 102 feet, depending on the location of the road with respect to the boundary of the project.

Figure III-H-1

SAN DIEGO COUNTY CIRCULATION ELEMENT
SHEET 3

RAMS HILL

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san diego county circulation element, sheet no. 3

- That portion of SC 460 adjacent to Rams' Hill designated as a collector road on the Circulation Element must be dedicated and improved with Rams' Hill to a width of 84 feet. (1)

- That portion of Old Borrego Valley Road, SC 500, within the Rams' Hill boundaries should be offered for dedication to a width of 84 feet. DOT will recommend rejection by the Board of Supervisors. No improvements are required by DOT.

A regional riding and hiking trail will be dedicated in conformance with the County Regional Riding and Hiking Trail Element across the northern peninsula of the property. The Department of Transportation has determined that an easement width of 20 feet with an eight foot width tread will conform with the Regional Riding and Hiking Sub-element of the General Plan.

With the exception of the entrance road to the project, which is approximately 2,000 feet long, internal circulation for the project would be provided by private roads. The private roads, which would cover approximately three acres, are being used to maintain the integrity of the neighborhoods and to provide the type of security appropriate to a resort where residences are not occupied on a continuous basis. While internal roads would be private, most would be built to County standards, although total rights-of-way might not be as wide as on public roads. The use of cul-de-sacs, especially in the condominium areas, would be maximized to create a mini-neighborhood concept within the project site. The private roads would be constructed using desert paving materials and other site oriented techniques. Desert crossing dips, rather than underground conduits, would be constructed to carry storm waters. A secondary access would be constructed from the internal loop road to Borrego Springs Road. This road would be for egress and emergency vehicle use only to preserve the integrity of the internal security system.

9. Phasing

This Specific Plan would be implemented on a phased basis. Development is expected to gradually occur over the entire five year period, with the type and rate of residential development dependent upon market conditions and agency approvals. It is anticipated that approximately one-half of the residential units would be constructed in this first three years with the remaining one-half constructed in the last two years. Table III-H-2 summarizes the anticipated development schedule.

TABLE III-H-2

Proposed Schedule of Development

Land Use	1-3 Years	4-5 Years
Hotel rooms	175	175
PRD units	278	252
Single family	99	101
Estates	18	32

In addition to residences, development during the first three years would include construction of the golf course, tennis courts, the hotel complex and the clinic. Public facility infra-structure necessary to support development, including the waste water treatment plant and water distribution system, would also be constructed at the outset.

The development pattern in the Borrego area is a product of having many partially completed projects dispersed over the valley. These projects tended to be relatively small, single purpose projects without the long-term commitments required for development in the area. The Rams' Hill project has been planned with recognition of this history. It is to be a total community which would begin with a major hotel-resort complex and then expand into a range of residential uses. It would provide for planned growth over an extended period with adequate facilities and a diversity of uses. It is an alternative to the dispersed, unplanned, "adventure" development that has been the history of the Borrego area.

10. Continued Maintenance

The maintenance of the open space, landscaping, private streets, and recreational facilities would be done through private assessments. There would be homeowners' associations for the various PRD units. The landscaping of the single-family homes would be privately maintained. Fees would be established for meeting the requirements of each unit and the pro-rata costs of certain commonly held facilities or commonly used services, such as the basic circulation streets, the natural open space area and security services. The major public facilities, such as hotel, golf course and clinic, would be maintained by the owners or operators of those facilities.

11. Grading

The developer has stated that a purpose of the project design was to minimize grading to the extent possible. Over 80 percent of the property is under six percent slope. The intensive land uses, including the PRD units, hotel-resort complex and single-family homes would be located in the flat central portions of the property. The steeper areas have been designated as estate lots. Grading in the estate area would only be done for roads and pads. Individual homes would be custom built, thereby preserving major natural areas, and minimizing erosion potential.

Precise grading plans will be completed as final designs and tentative maps are prepared. Based on preliminary grading studies using "typical situations", it is estimated that grading for the streets, single-family homes, PRD units, hotel, clinic, flood control system, waste water facility and golf course would require 1,969,000 cubic feet of cut and fill, or approximately 3,300 cubic yards per developed acre. It is anticipated that minimal grading for streets and pads would occur on the estate lots.

Significant grading would be done only to create the golf course, including ponds, and to excavate the flood diversion channel around the perimeter of the development. For the ponds on the golf course, maximum cut and/or fill, which would occur in only two places, would be 30 feet. Contour grading would also be done for landscaping and sculpturing. Maximum slope gradient in conjunction with the maximum cut-fill in two areas would be one and a half to one for the drainage channel and for the large decorative golf course pond.

12. Public Service Contacts

In order to investigate what impact the Rams' Hill project would have on the affected public agencies, the following were contacted:

Mr. Richard Shope
San Diego County Sheriff's Department
Planning Research Division
P. O. Box 2991
San Diego, CA 92112

Chief Jack Hanson
Borrego Springs Fire Protection District
P. O. Box 898
Borrego Springs, CA 92004

Dr. Norman Guith
Superintendent, Borrego Springs Unified School District
P. O. Box 235
Borrego Springs, CA 92004

Mr. Bob Allen
Solid Waste Division
San Diego County Department of Sanitation and Flood Control
8995 Complex Drive
San Diego, CA 92112

Copies of the service letters and agency responses are included in the Technical Appendices.

IV. ENVIRONMENTAL ANALYSIS

A. LAND USE

1. Existing Setting

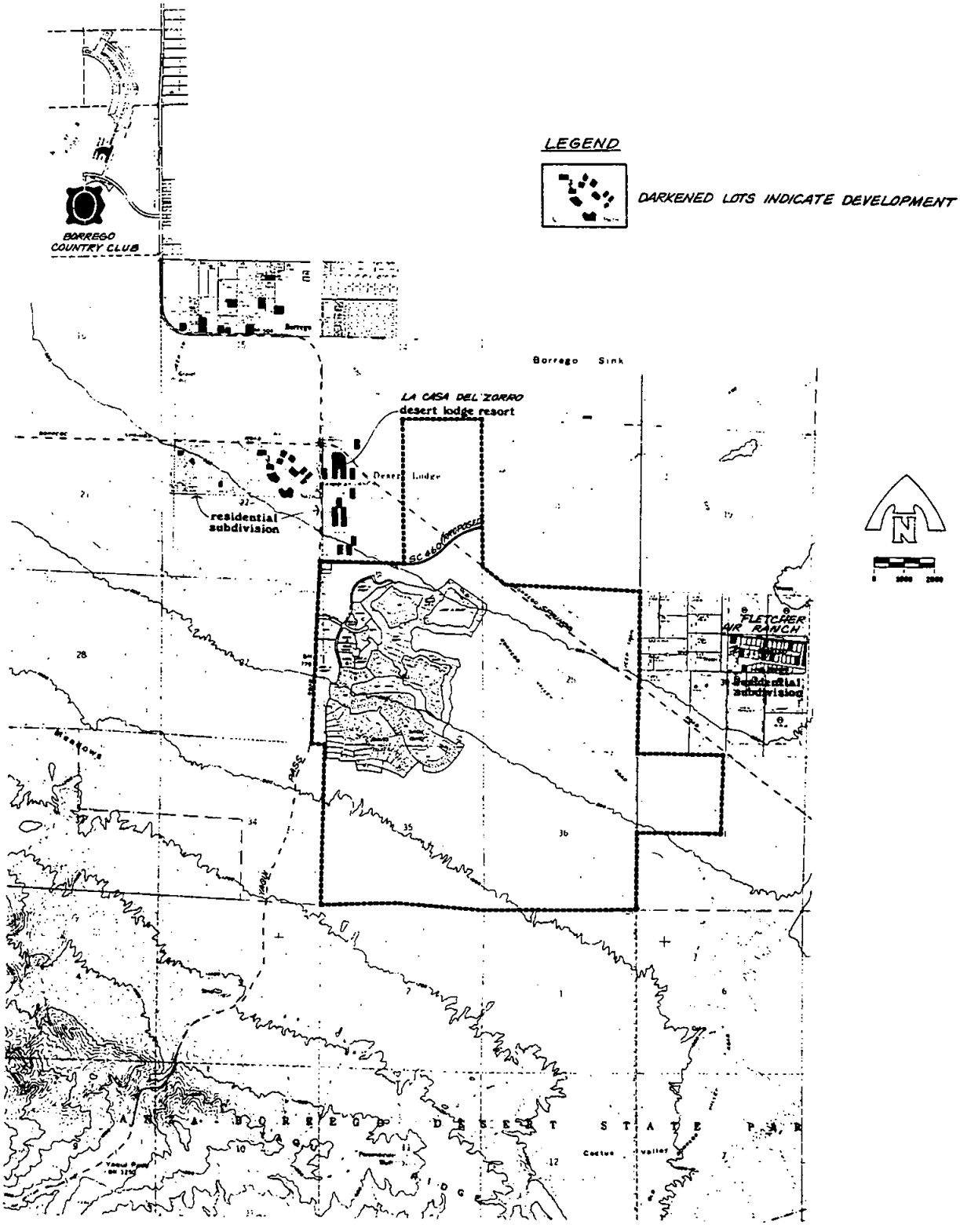
The Rams' Hill Country Club would be located on a 3,124-acre parcel on the south slope of the Borrego Valley. Yaqui Pass Road borders the western side of the property. Borrego Springs Road traverses the northeast section of the site. Both roads are paved two-lane County highways. Figure III-B-1 is a local vicinity map of the property. Two currently undeveloped roads are designated by the County Circulation Element as crossing the property: SC 460 is a designated collector road crossing the center of the property from west to east. The developer proposes to relocate this road north of this designated alignment in conformance with Exhibit C-9 of GPA 77-02. Old Borrego Valley Road, currently a dirt trail which crosses the property diagonally from northwest to southeast, is designated as a collector road which would traverse the eastern panhandle of the site from north to south. Figure III-H-1 is the Circulation Element as it applies to the project.

The Rams' Hill site is presently vacant. Sparse desert vegetation covers the property. A small area shows indication of previous agricultural use and the remains of a single structure. The property is generally flat with nearly 80 percent of the site being under six percent slope. Only a small area in the southwest corner, which is outside the area proposed for development, is over ten percent slope. Figures III-B-2 and III-B-3 are the slope map and spatial analysis map on the project.

The land surrounding Rams' Hill, like the project site itself, is largely vacant. Figure IV-A-1 is a map of surrounding land uses. The Anza Borrego Desert State Park adjoins the property to the south and southwest. Many portions of the area to the west and northwest are divided into parcels for residential development, though they have few improvements. The most substantial use within the vicinity of the project is the Casa del Zorro resort, located immediately north of the project at the junction of Yaqui Pass Road and Borrego Springs Road. This resort includes 18 cottages, 12 suites, four studios, a large lodge and restaurant facility with a swimming pool and two tennis courts. In total, approximately 50 single-family residences, in addition to the resort, are located in the general area west and northwest of Rams' Hill.

Figure IV-A-1

LAND USE MAP



land use map

PRC TOUPS CORPORATION

RAMS HILL

The area north and east of the project site is sparsely developed with fewer residences than the area to the west. Most of this land to the north and east, including the entire Borrego Sink, is held in larger ownerships. The Fletcher Air Ranch, consisting of approximately 50 one-acre parcels, numerous dwelling units and a small airstrip and auxiliary buildings, is the main development to the north and east of the site.

The form of development in the Borrego Valley is distinctly nodal. A certain portion of the residential development has been a product of random construction. Many homes are scattered at wide intervals on individual lots throughout the valley. These individual homes do not form a particular pattern. The major concentrations of residential development, however, are "projects" which form distinctive nodes. The heart of the community of Borrego Springs is an area extending from Christmas Circle west three blocks to the Mall. This area is the main commercial area in the valley. The most significant residential node is the De Anza Country Club in the northwest corner of the valley, three to four miles from Christmas Circle. This node is distinctive both in its separation from the heart of town and its characteristic as a golf course "oasis". A second major concentration point is the Roadrunner Mobile Home Park, about a half mile east of Christmas Circle on Palm Canyon Drive. This node contains the densest development in the valley. The third node is formed by the Casa del Zorro Resort and the partially developed residential subdivision immediately west of the resort. This node, adjacent to the northern portion of the Rams' Hill property, at the intersection of Yaqui Pass Road and Borrego Springs Road, is about five miles southeast of Christmas Circle. A fourth node, located on the east and west sides of Borrego Springs Road, is formed by a partially developed subdivision and the beginnings of the Borrego Country Club development two miles south of Christmas Circle. The Borrego Country Club property was the subject of a recent General Plan Amendment, GPA 77-02. Through the amendment, the property became designated as a Specific Plan area with an overall density of 0.77 dwelling units per acre. This action provided no net density increase, consistent with the Board's recent policy to limit growth in the valley to existing densities. The partially developed subdivisions in the third and fourth nodes are remnants of the boom in speculative subdivision activity in the late fifties and throughout the sixties. The Rams' Hill project would integrate with this pattern of nodal development.

a. Community Plan and Regional Growth Management Plan

The Borrego Valley is a 70 square mile private enclave in the Anza Borrego Desert State Park. Figure IV-A-2 is a map of the relationship of the site and the valley to the State Park. The valley is an unincorporated community in the County of San Diego. Although the citizens have requested one, no Community Plan has been developed for the valley. None is planned for the immediate future because the County has assigned Borrego a low priority in the community planning process. The Borrego Valley has been designated as a Special Study Area on the County Regional Growth Management Plan which has been adopted in concept by the Board of Supervisors. For the Desert Special Study Area in the vicinity of Borrego Springs, no application for changes in the General Plan which would result in an overall increase in the potential number of dwelling units will be accepted until a cumulative environmental analysis and long range plan are prepared for the area.

2. Potential Impacts

The Rams' Hill Specific Plan conforms to the Specific Plan Area requirements applied to the property in GPA 76-02, and conforms to the Regional Growth Management Plan for the County.

The land use allowed on the Rams' Hill Specific Plan Area was specified in GPA 76-02 as follows:

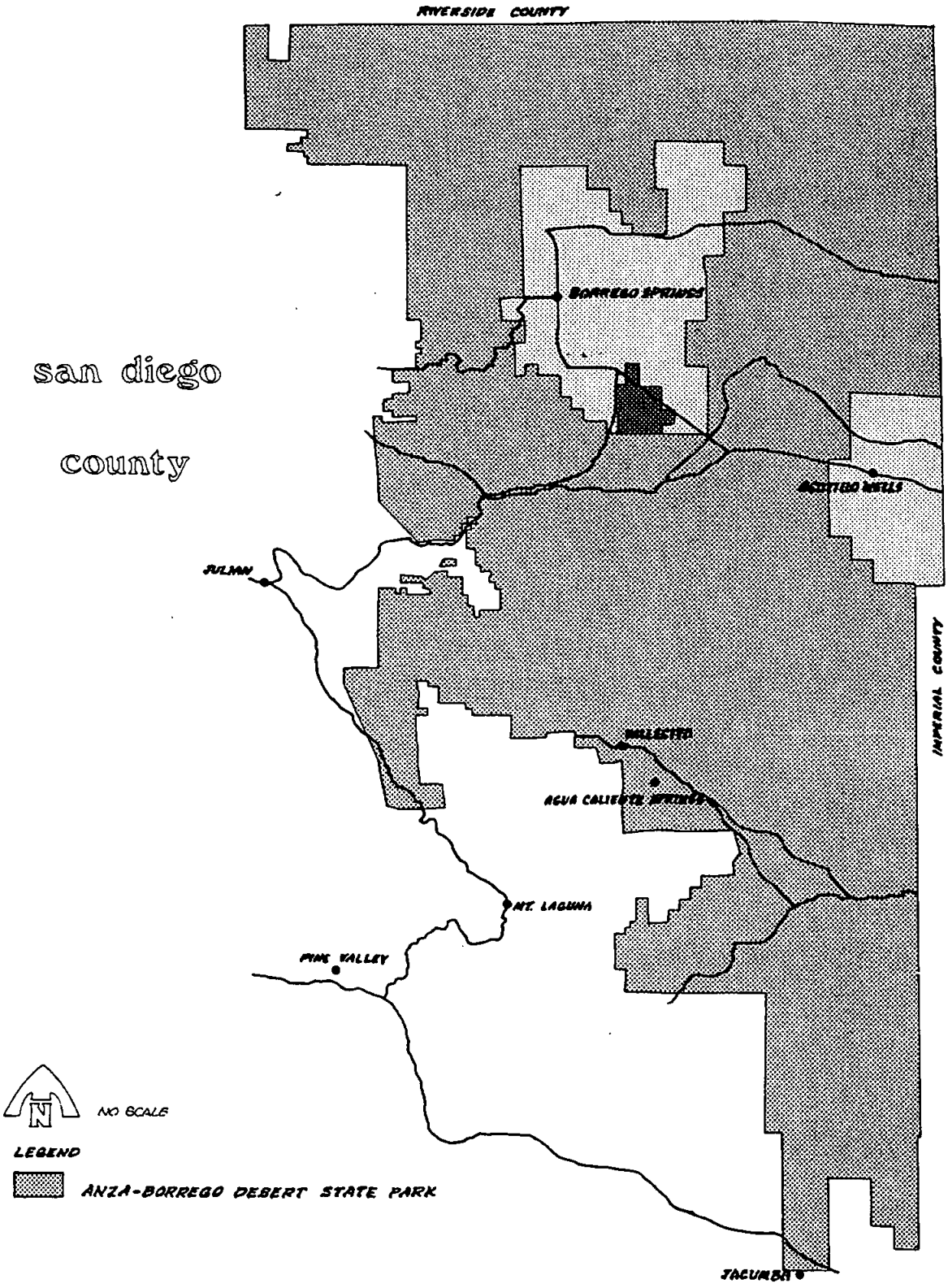
1. The maximum residential density for this area shall be an overall one dwelling unit per two acres with a maximum of 1,562 dwelling units on 3,124 acres.

2. Development shall occur in general conformance with the concept plan dated November 12, 1976, and identified as Exhibit C-9. (Plate 3).

3. The Specific Plan may allow for a range and mix of residential, commercial and medical uses and facilities which are consistent with accepted design principles as determined appropriate by the County and with the provision of necessary public services and facilities; and "other land uses as may be necessary or convenient for recreation and for the provision of commercial and other support services for the future residents of the specific planning area and other properties..."

Figure IV-A-2

ANZA BORREGO DESERT STATE PARK



anza-borrego desert state park

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RAMS HILL

The Department of Land Use and Environmental Regulation determined in May, 1978 that the land use proposed for the property and the location of the proposed development as set forth in the Initial Plan Conformance Report is consistent with the requirements set forth in General Plan Amendment 76-02. As required by the Board of Supervisors Policy I-59, "Large Scale Project Review", the Specific Plan identifies only that potential development proposed for a five-year period.

The Specific Plan would provide for a residential development density of less than one dwelling unit per two acres. All development proposed for the project would be restricted to the appropriate area identified in Exhibit C-9. All of the area required to be retained as permanent natural open space would be retained in that category. Additional uses proposed for the site would be limited to those allowed by the General Plan Amendment. A complete discussion of project land uses is contained in the Project Description.

When implemented, the Rams' Hill Specific Plan would increase the number and variety of second home and retirement housing stock available in the valley. Commercial, resort and a range of recreational opportunities would be provided in addition to the residential units. The desert resort would provide increased services to residents and visitors to Borrego Springs and Anza Borrego Desert State Park. The project would increase the economic base of the community and the ability of the area to attract investment from elsewhere. This is discussed more fully in the sections on Growth Inducement and socio-economic conditions.

A much needed primary care medical facility for the Borrego Valley would be provided thereby enhancing the availability of health care service throughout the San Diego desert area. The Borrego Valley does not have adequate medical services today. This facility would provide emergency, acute and primary care, and an executive physical program.

The project would provide its own sewage disposal and water distribution systems. A site for a new fire station to serve residents of the property and adjacent developments would be provided. A gross density of one dwelling unit per 2.7 acres is proposed in this Specific Plan phase. When implemented, Rams' Hill would convert the property from a large, relatively undisturbed parcel to a residential/resort land use while retaining over half the site in natural open space.

The Board determined on August 1, 1977, that the proposed Rams' Hill project is consistent with the Regional Growth Management Plan since no application for a change to the General Plan which would result in a higher density is proposed.

The Rams' Hill project would conform with uses in the surrounding area. The nearest developments, Casa del Zorrow, Fletcher Air Ranch and Borrego Country Club are all desert resort/second home complexes. However, this is a major project proposing intensive development in an unurbanized area which has a low level of public services. This may be viewed as a significant adverse impact. See the sections on socio-economic conditions and growth inducement for a full discussion of both sides of this issue.

a. Zoning

The property is presently zoned "Limited Control" (S-87). This was a zone applied in 1969 to all properties in the County which had not then been zoned. It was intended to be a temporary application. Final zoning for Borrego Valley is planned to be applied upon completion of a community or a subregional plan. This designation allows one dwelling unit for 2½ acres or any use with a special use permit.

The majority of the Borrego Valley remains in LC (S-87) zoning. The few exceptions are a PRD-9 (R-V-9) zone for the circle at Borrego Country Club, and R-1 (R-S-4) zone for the newer development at De Anza Country Club, an R-2 (R-V-15) zone for the Road Runner Mobile Home Park, and R-3 (RU-29) zone for the areas adjacent to the Mall Shopping Center, and a C (C-36) zone for The Mall.

The land surrounding Rams' Hill is zoned LC (S-87). The resorts at Casa del Zorro and the Fletcher Air Ranch are both uses which were pre-existing before the implementation of the LC zone in 1969.

In order to implement the proposed project, the use designations on portions of the site would need to be reclassified from LC (S-87) to C-42, R-V-6, RR-.5, R-S-3, S-80, and S-88. Full zoning would be established upon submittal of tentative maps. Table IV-A-1 illustrates the precise land uses and designations proposed.

Major use permits would be required for implementation of the hotel-resort, waste water treatment plant and ambulance services. Planned development permits would be required for the planned residential areas and single-family areas. Site development plans would be required for the entire project upon submittal of the tentative maps.

3. Analysis of Significance

This project would impact land use in the Borrego Valley by committing a large portion of the valley to high intensity resort uses. These uses are consistent with the smaller scale projects in the valley. The project has, however, been designed substantially to mitigate potential impact. The project is a planned development rather than a haphazard subdivision. Two-thirds of the residential units would be clustered in the central portions of the property to minimize grading and land conversion. Half the property would be dedicated as permanent undeveloped open space.

The proposed project conforms to the San Diego General Plan and the Regional Growth Management Plan and provides a wide variety of housing, recreational and commercial-resort opportunities. The project is consistent with the existing nodal pattern of development in the valley.

TABLE IV-A-1

PROPOSED ZONING

Use Designation	Land Use	Acres	Location	Allowed Density	# Units Proposed
C-42 with major use permit pursuant to Section 2425	Hotel	50	West Central Portion of site, east of Yaqui Pass Road entrance	40 du/acre	350
C-42	Golf Course	160	Central portion of site	0	0
C-42	Tennis Courts	6	Adjacent to hotel in west central portion of site	0	0
C-42	Fire Station	3	Junction of Yaqui Pass Road and SC 460	0	0
R-V-6 with Planned Development Permit pursuant to Section 2146	Planned Residential Development	102	Clusters located within and along golf course	6 du/acre	530
R-R-.5	Estates	124	Southwest portion of site	1 du/2 acres	50
R-S-3 with Planned Development Permit pursuant to Section 2146 for common recreation areas	Single family homes	127	Central portion of site along eastern and southern perimeters of golf course	3 du/acre	200

TABLE IV-A-1
continued

PROPOSED ZONING

Use Designation	Land Use	Acres	Location	Allowed Density	# Units Proposed
S-80	Dedicated Undeveloped Open Space	1,562	Eastern one-half of property	1 du/8 acres	0
S-80 with Major Use Permit pursuant to Section 2805	Waste Water Treatment Plant	15	North of Borrego Springs Road	1 du/8 acres	0
S-88	Future Development Areas	966	North, south and within areas proposed for development	0	0
S-84 with Major Use Permit for Ambulance Services	Medical Clinic	12	West of major hotel and adjacent to Yaqui Pass Road	0	0

B. SOCIO-ECONOMIC CONDITIONS

The following section is based on census data gathered by the Integrated Planning Office for the years 1975 and 1977, and information provided by the Borrego Springs Chamber of Commerce. The census data describes the characteristics of the permanent residents of Borrego Springs in terms of age, income, employment status and housing type. Because a significant portion of the population in Borrego is seasonal, and the census data does not include these part-time residents, the Chamber of Commerce has provided invaluable assistance in identifying characteristics of the composite population. The demographic and economic growth patterns in the valley are discussed in the section on Growth Inducement.

1. Existing Setting

Borrego Springs is a resort community which does not have a self-contained economic base. The economy, which is marginally viable during the summer, relies upon resort activity, tourism and a small business and service sector. A large portion of the money spent in the valley is earned elsewhere. Agriculture was the major economic activity in the past. Since the late 1950's, it has undergone a dramatic decline and is now only of minor importance.

Resort activity, in conjunction with tourism from the Anza Borrego State Park, is the main basis of the valley economy. The population in Borrego is comprised of approximately one-third full-time residents; one-third part-time residents, who live in Borrego from four to eight months each year; and one third weekenders. Maximum seasonal population in the valley in 1977 was approximately 2,200. Campers and day visitors to the park swell the valley population to three and four times normal levels on the weekend. Approximately 800,000 people visited the headquarters of Anza Borrego Desert State Park in 1977; by 1980 this number is expected to increase to 1,000,000. This resort and tourist activity supports a small, undersized business community. The commercial sector is not adequate to handle maximum demand during the winter. Expansion of the commercial sector is limited by the lack of year-round residents. The population in the summer cannot support even a basic service sector. This lack of population causes most businesses to close entirely during the summer. Those businesses which remain open, even with intermittent hours, tend to lose money.

Agriculture used to play a major role in the valley. In the late 1950's DiGiorgio Corporation farmed almost 2,200 irrigated acres producing grapes and asparagus. Only about 300 of these acres are under production today, including the

150 acre tree farm. An additional 600 acres is farmed currently by other interests. By the mid-1960's, agriculture was becoming increasingly less viable because of labor shortages, costs of transportation and costs of pumping water. Agriculture is expected to continue to decline in the foreseeable future.

The demographic characteristics reported in the census for the valley strongly reflect the resort nature of the community. Over 50 percent of the population is more than 45 years old. In the county as a whole, only 28 percent is over 45. Over 20 percent of the men in Borrego are more than 65 years old. On the opposite extreme, 45 percent of the county-wide population is under 25 years of age; only 31 percent of the population of Borrego is under 25.

These age characteristics are extremely significant in the valley economy and society. The school system is currently functioning at less than half capacity. Labor is scarce. Sixty-one percent of the population is not in the labor force, and an additional three percent are students. As expected with this labor shortage, the unemployment rate in Borrego is less than four percent of the labor force. The unemployment rate in the county is 9.5 percent.

Apart from the small business community, the majority of the labor force in the valley is lower income, being primarily Mexican laborers. These laborers live only a portion of the year in Borrego, while their families remain in Mexico.

An extreme shortage of low and moderate income housing prevents many skilled tradesmen and construction workers who are employed in Borrego from living there. The development of a stable labor force is hampered by the fluctuations in business demand and by the high cost of living in Borrego. A diversity of housing types is not available. The housing stock is aimed primarily at the vacation/resort market. Over one-third of the stock in 1977 was occupied seasonally during the mild winter months. About one quarter of the stock is mobile home units in the Roadrunner Mobile Home Park, an adult resort community. The De Anza Community Club, the most exclusive resort in the valley, has sold 310 lots to date. Homes on the golf course range from $105,000 to $350,000.

In contrast to many communities with a large proportion of elderly persons, Borrego Springs is not a poor community. Mean income in the valley in 1975 was $12,377, almost $1,400 higher than the county-wide average. The income distribution reveals that while 15 percent of the population earns less than $5,000 annually, 25 percent earns more than $20,000 a year.

The number of low income families reflects the economic condition of the agricultural work force.

The demographic characteristics of the permanent population probably reflect the characteristics of the seasonal residents. While no official census data has been gathered, it could be expected that the seasonal residents also are older than the county-wide average; wealthier than the average; and with far fewer children per household. The De Anza Country Club development for example, with 310 lots in the northwest valley, contributes no children to the Borrego Springs school system. The 300 unit Roadrunner Mobile Home Park is also an all-adult development.

A primary problem in the valley is the lack of adequate medical facilities. Primary medical care is currently provided by one physician and a clinic. Dr. Woolcott, who is 66 years old, has been practicing medicine in Borrego Springs for seven years. His office is open four days per week. It has the necessary equipment for x-rays, EKG's and minor lab tests. Recently, he has been joined by one physician's assistant. The Clinica Salubridad offers hypertension diagnoses and treatment, social services, family counseling and laboratory services. An ophthalmologist, an optometrist and a podiatrist visit Borrego about twice each month. Emergency care is available from the fire department (whose capabilities are described in the fire protection section) and, to a limited extent, by rangers from the Anza Borrego Desert State Park. Acute-care hospital facilities are available in Brawley, which is an hour away by car or in Escondido, which is two hours away by car. Since there is a large percentage of older people in addition to lower income people in the valley, the shortage of medical facilities is especially serious. It has been projected that by 1985, the valley will need two full-time primary care physicians in winter.

2. Potential Impacts

Over the long term, the Rams' Hill project could tend to solve some of the socio-economic problems in the Borrego Valley. It may help stabilize the economy by increasing the permanent year-round population. The project would increase the commercial base, thereby expanding services available to residents and park visitors. It would also increase the tax base and this would add support to the public service sector.

The project would include a primary care medical facility affiliated with the Scripps Clinic in La Jolla. In addition to providing primary care, this facility would offer limited

emergency care and executive physical services. The clinic would provide diagnostic capabilities in pulmonary function analysis, EKG's and EKG stress testing. Facilities also would include radiology equipment and a laboratory. The clinic's initial phase is projected to include as many as three primary care physicians. Specialists from Scripps Clinic in La Jolla would visit the valley on a continual, rotating basis. The clinic would be able to expand in the future as valley medical needs increase.

An expanded discussion of the economic impacts of the project is included within the section on Growth Inducement. Residents at Rams' Hill would continue the existing socio-economic trends of the Borrego Valley. The residents would be expected to be older, wealthier and with fewer children than the population of the county as a whole. It is anticipated that the development would be similar to the De Anza Country Club and Casa del Zorro resorts.

Over the short term, the construction phase of the Rams' Hill project could have some significant impacts on the Borrego Valley community. The implementation of the project would require a significantly larger work force than resides in the valley today. Some of these workers could be expected to commute from the metropolitan areas. A portion of the workers, however, will find accommodations in the valley either by renting pre-existing homes or perhaps importing a mobile home. These workers would strain an already tight housing market. The additional units could potentially impact public services such as fire protection. Normally the construction phase has an immediate impact by creating a shortage of public services. The impacts occur before planned services are available and excess service capacity is available when the construction phase has passed. The construction worker might also significantly impact the services in the Anza Borrego State Park due to increased activity including increased ORV usage.

The Rams' Hill project would probably have the beneficial impact of making surrounding property in the valley more valuable. This would especially be true of other nearby resort areas such as the Fletcher Air Ranch, Casa del Zorro and Roadrunner Mobile Home Park. The project might also provide the impetus for a more rapid development of contemporary projects such as Borrego Country Club project.

3. Analysis of Significance

The construction phase might significantly impact the Borrego Springs community by creating a housing shortage and a strain on public services such as fire and sheriff's protection.

These impacts could be expected to be transient, disappearing when the public service sector expands to accommodate increased demand. The housing impacts could be substantially mitigated by development of a mobile home park in the Borrego Valley. This would provide immediate housing.

The Rams' Hill project is not anticipated to have any long term adverse impacts on the Borrego Valley. The project would, however, increase property values throughout the valley enclave and perhaps induce increased growth. No mitigating measures are proposed nor are any deemed necessary.

C. LANDFORMS/GEOLOGY/SOILS

1. Existing Setting

The Rams' Hill property is located on a north-facing alluvial fan. The property slopes gently upward from northeast to southwest with elevations ranging from 475 feet near the Borrego Sink to 1,150 feet in the dissected southwest quarter adjacent to the Anza Borrego Desert State Park. Figure III-B-4 is a USGS map of the site. A spatial analysis reveals that 80 percent of the site is relatively flat with natural slopes of 0-6 percent; the remainder of the site is heavily dissected with steeper slopes ranging from 7-15 percent. (Figure III-B-4) These steeper areas are largely concentrated in the dissected southwest quarter.

A preliminary investigation of geologic conditions was completed by Woodward-Gizienski and Associates in 1973 (5) and updated by Woodward-Clyde Consultants in 1977. (6) A description of the geology of the south slope is included in Dr. Richard Threet's report "Hydrology of the Southern Borrego Valley." (7) Dr. Threet's description is based on a report by the California State Department of Water Resources. (8)

a. Surface Features

The Rams' Hill site is characterized by dissected alluvial fans above the 800 foot elevation and by a smooth alluvial surface below 800 feet. Surface soils, generally consisting of well-graded sands exhibiting little or no cohesion, are relatively uniform throughout the property. The eroded fans above 800 feet typically have a greater percentage of large cobbles. (6) Dense caliche zones resulting from cementation by calcium carbonate are present in erratic patterns at various depths over the entire site. (6)

b. Subsurface Conditions

No site-specific studies of subsurface conditions have been done. The following discussion, based upon Dr. Threet's report, is drawn from regional data. The Rams' Hill property is underlain by predominantly alluvial deposits of medium dense to dense sands with gravel, sandy silts and silty clays lying at depths of 50 to 1,150 feet. The geologic formational units which are most relevant to the Rams' Hill site are: (1) crystalline basement rock of schist and granitic rock; (2) the red clay and minor amounts of fine sand of the non-marine Palm Springs Formation; (3) the "older allumivum" which truncates and lies unconformably on the preceeding formations beneath most of

Borrego Valley; and (4) the "younger alluvium" which was deposited in structural and topographic depressions in and on all the older formations. Figure IV-C-1 is a geologic cross-section.

Beginning in the southwest corner, the geology consists of crystalline basement rocks composed of schists and granitic rocks at shallow depths. These rocks probably extend beneath much of the Borrego Valley. The basement rock is thinly covered by the terrestrial clays and sand of the Palm Springs Formation. Moving toward the northeast, the Palm Springs Formation becomes thicker and is gradually covered by a thick layer of "older alluvium". A "younger alluvium" has been deposited in structural and topographic depressions. Figure 1 is a geologic cross-section trending southwest to northeast showing an interpretation of typical subsurface conditions beneath the property. (7) An expanded description of the subsurface geology is contained in the Water Section of this EIR.

c. Economic Geology

A review of "Mines and Mineral Resources of San Diego County, California, County Report 3", prepared by the California Division of Mines and Geology, (9) indicates there are no commercial size deposits of minerals or aggregates on the property. According to available data, the Quaternary alluvials deposits have not yielded commercial quantities of minerals or aggregate.

d. Soils

The U. S. Department of Agriculture San Diego Soil Survey (10) identifies three soils present on the site: Carrizo Very Gravelly Sand (CeC): Sloping Gullied Land (SrD); and Mecca Sandy Loam, Saline (MoA). Figure IV-C-2 is a map of the soils on the property.

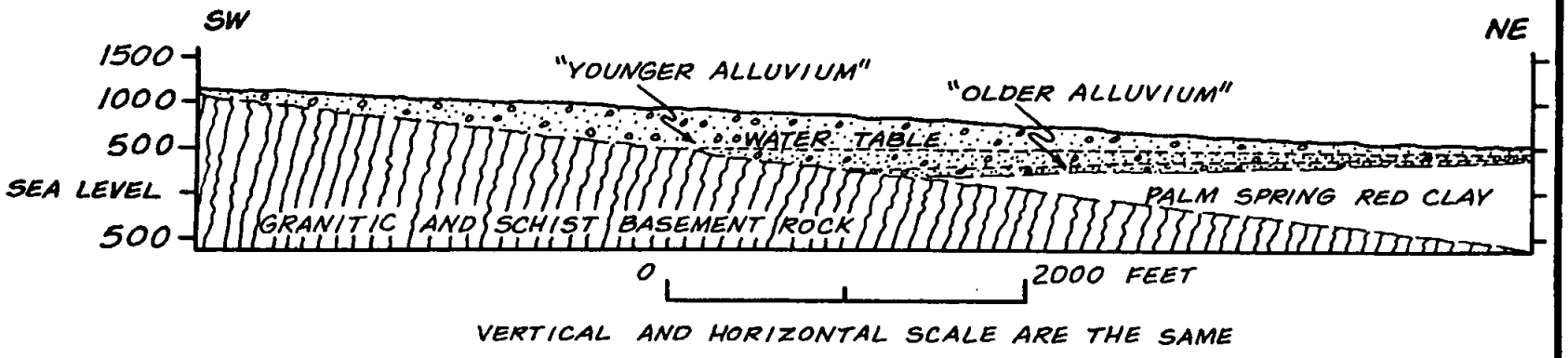
Carrizo Very Gravelly Sand,(CeC), which covers approximately 77 percent of the property on the gently to moderately sloping fans and floodplains, is derived from granitic alluvium. The fertility of CeC is very low, permeability is very rapid, available water holding capacity is 1.5 to three inches. Run-off is very slow to slow; and erosion hazard is moderate. The soil is slightly calcareous, mildy alkaline and marginally suited to growing alfalfa, grapes, citrus, jojoba, ornamental trees and nursery stock.

Sloping Gullied Land (SrD), which covers approximately 20 percent of the site in the south and southwest corners, is characteristic of desert alluvial fans adjacent to mountains. It consists of a wide variety of material derived

Figure IV-C-1

GEOLOGIC CROSS SECTION

RAMS HILL



geologic cross-section

from igneous, sedimentary and metamorphic rocks. The fertility is low; drainageis good to excessive; runoff is rapid; and erosion hazard is severe. This soil has no value for farming because of landform characteristics. The establishment and maintenance of permanent vegetation is desirable for erosion control.

Mecca Sandy Loam, Saline (MoA), covers approximately three percent of the property on the tip of the panhandle adjacent to the Borrego Sink, where slopes are nearly flat. The soil is slightly calcerous and moderately saline. The water table fluctuates, but is generally located at a depth of more than 60 inches. While the fertility is moderate, its suitability for crops is limited by poor drainage and salinity. Tillage pans form easily. Runoff is slow; erosion hazard is slight. Water holding capacity is six to 7.5 inches. The land is most suitable for range.

Characteristics of the soil types are listed below.

Table IV-C-1

Soils

	Carrizo Very Gravelly Sand	Sloping Gullied Land	Mecca Sandy Loam Saline
Symbol	CeC	SrD	MoA
Percent on Property	77	20	3
Natural Drainage	Excessive	Good to somewhat excessive	Slight
Subsurface Permeability	Rapid to very rapid	Moderate	Moderate
Erosion Susceptibility	Moderate	Severe	Slight
Shrink Swell Potential	Slight	Slight	Slight
Sewage Effluent Disposal Limitation	Slight	Severe	Moderate
Runoff Potential	Very slow to slow	Moderate	Slow
Inherent Fertility	Low	None	Medium

Figure IV-C-2

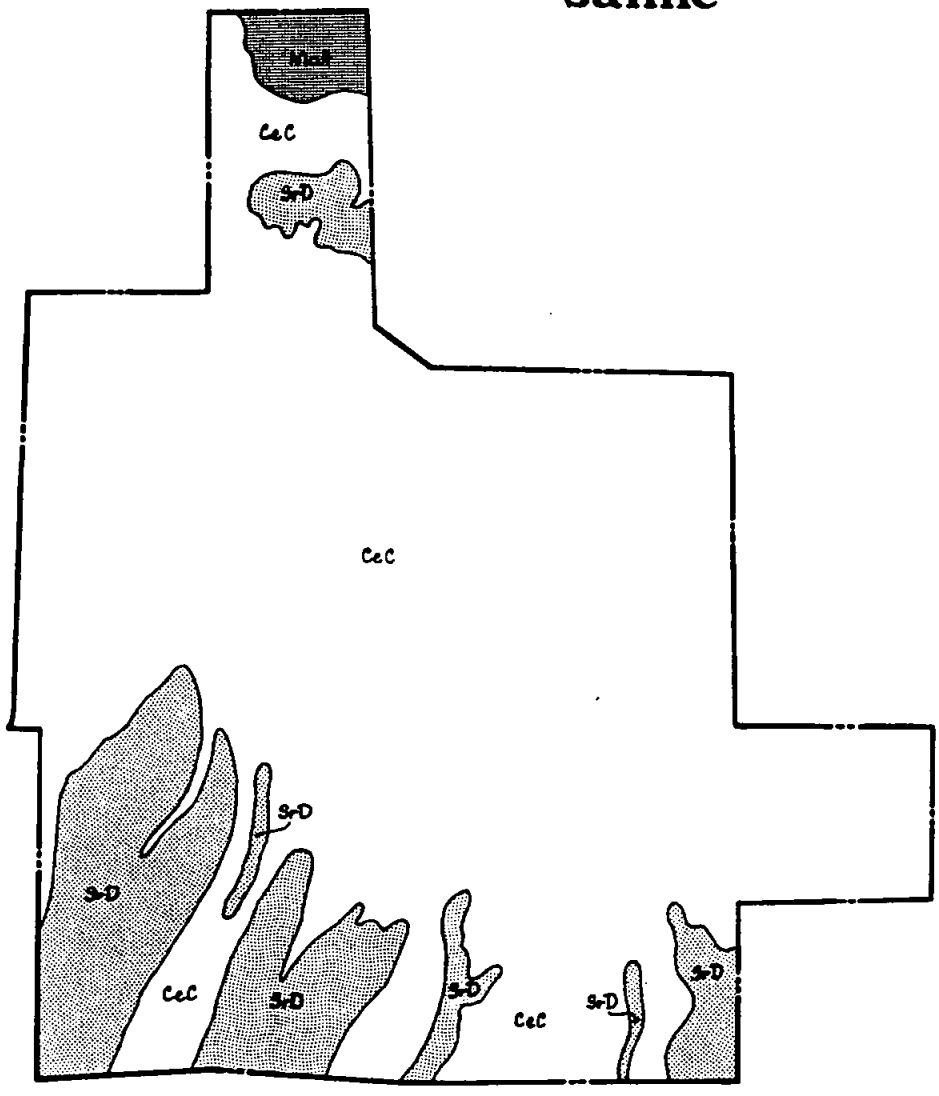
SOILS MAP

legend

SrD - sloping gullied land

CeC - carrizo, very gravelly sand

MoA - mecca sandy loam, saline



N

soils map

SCALE 1:24000

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2. Potential Impacts

Implementation of the Rams' Hill project would result in alterations to the landforms due to grading, recompaction and associated activities.

Grading activities have the potential to create adverse environmental impacts associated with erosion, soil stabilization failures, dust generation and aesthetics. Problems with erosion and soil stabilization are discussed in detail in the Geologic Hazards section. Aesthetics are considered in the Visual Quality section.

Precise grading plans will be completed as final designs and tentative maps are prepared. Based on preliminary grading studies using "typical situations", it is estimated that grading for the streets, single family homes, PRD units, hotel, clinic, golf course, and flood diversion system would require 1,969,000 cubic feet of cut and fill, or approximately 3,300 cubic yards per developed acre. It is anticipated that minimal grading for streets and pads would occur on the estate lots. The majority of this grading will occur during the first phase in conjunction with development of the golf course.

Substantial grading would be done to create the golf course and to excavate the flood-diversion channel around the perimeter of development. Maximum fill bank height would be 30 feet and maximum cut depth would be 30 feet. This maximum cut-fill would occur for two areas: the decorative ponds and flood channels. Average cut and fill for the developed acres would be less than three feet. Maximum slope gradient would be one and a half to one for the drainage channel and for the large decorative pond on the golf course.

3. Analysis of Significance

The proposed project would irreversibly change the form of the south slope alluvial fan by grading. Grading impacts have been mitigated by project design. Over 80 percent of the property is under six percent slope. The intensive land uses, including the PRD units, hotel-resort complex and single family homes, would be located in the flat, central portions of the property. The steeper areas have been designated as estate lots. Grading in the estate area would only be done for roads and pads. Individual homes would be custom built leaving major natural areas.

All grading would conform to the County grading standards. These standards govern construction practices and require that the site be intensively watered to keep dust generation to a minimum.

No impacts to economic geology or the subsurface of the land are anticipated. No mitigating measures are deemed necessary, therefore, none are proposed.

D. AGRICULTURE

1. Existing Setting

Agriculture has in the past played an important role in the economy of the Borrego Valley. The crops which have been historically significant include grapes, alfalfa, asparagus, citrus and ornamental trees. Most of the agricultural activity has taken place in the northern portions of the valley where the soils and micro-climatic conditions are most favorable. Like many desert basins, the Borrego Valley has an abundance of ground water which has been easily tapped for agricultural enterprise. Although the soils of the valley are considered marginal for most crops because of their low fertility, they lack nothing in mineral content which would limit their capabilities. (12) In the late 1950's DiGiorgio Corporation produced grapes and asparagus on 2,200 acres in the northern portion of the valley. Today total farmed acreage has fallen below 900 acres. DiGiorgio farms about 300 irrigated acres; another 600 acres are farmed by others. The primary factors limiting the viability of agricultural enterprises are the uncertain labor supply, expense of transporting goods to market, and the cost of pumping water. All of these factors make farming uneconomical.

Approximately 77 percent of the Rams' Hill site is overlain by the Carrizo Very Gravelly Sand (CeC) soil type. Although this soil is very low in fertility, combined with an adequate water supply, it could produce such crops as alfafa, grapes, citrus,ornamental trees, nursery stock and jojoba. Freezing should not pose a threat to crops grown on the site because of its elevated location on the alluvial fan. From the perspective of the suitability of soils, 77 percent of the site is viable for agriculture. Sloping Gullied Land (SrD) is the soil type covering approximately 20 percent of the site. This soil is suitable for range, but not for crops because of the intensive management required to prevent the accumulation of salts and the formation of tillage pans. (10)

2. Potential Impacts

Currently, agriculture is not an economically viable activity in Borrego. There is nothing which intrinsically limits over 80 percent of the site for agriculture, however, should cultivation become feasible at some later point in time.

Agriculture, therefore, is a potential alternative land use for the Rams' Hill property, although one which is not practical

today. This alternative use would require a significantly greater volume of water than the proposed resort use. In the late 1950's and early 1960's some localized areas in the valley subsided as much as 12 feet because the heavy agricultural water use caused the water table to dramatically drop.

3. Analysis of Significance

The Rams' Hill development would irreversibly commit 596 acres of undeveloped land to residential-resort uses, precluding future conversion to agriculture. The 1,562 acres to be dedicated to the County as permanent undeveloped open space would still be available at a later stage for agricultural use though new approvals for any such use would have to be obtained. Portions of the remaining "unplanned" 966 acres which are planned in concept but are not included in this Specific Plan also could possibly be used for future agricultural activities.

The Borrego Valley has a surplus of land which potentially could be converted to agriculture uses, but which is not being cultivated at the present time. Even the better agricultural lands located on the northern side of the valley are not being utilized currently. Much land, in fact, is being withdrawn from agriculture. Therefore, the construction of the proposed residential-resort complex on the south slope would not significantly impact the agricultural economy of the Borrego Valley. No mitigating measures are deemed necessary.

E. GEOLOGIC HAZARDS

1. Existing Setting

The Rams' Hill site is subject to potential impacts from geologic hazards including seismicity, erosion, slope failure and shrinkage.

The Borrego Valley is seismically active. The area is bounded on the north and south by two major fault zones, the San Jacinto and Elsinore, located approximately 11 and 15 miles to the northeast and southwest respectively. In addition, numerous smaller faults lie within ten miles of the project site: Earthquake Valley fault is 9½ miles away; Coyote Creek fault is five miles away; two smaller,unnamed faults are between 2½ and three miles away. The San Andreas fault zone is located approximately 30 miles to the east along the Imperial Valley. No located or inferred fault traces are present on site. Figure IV-E-1 is a fault map of the Borrego Valley.

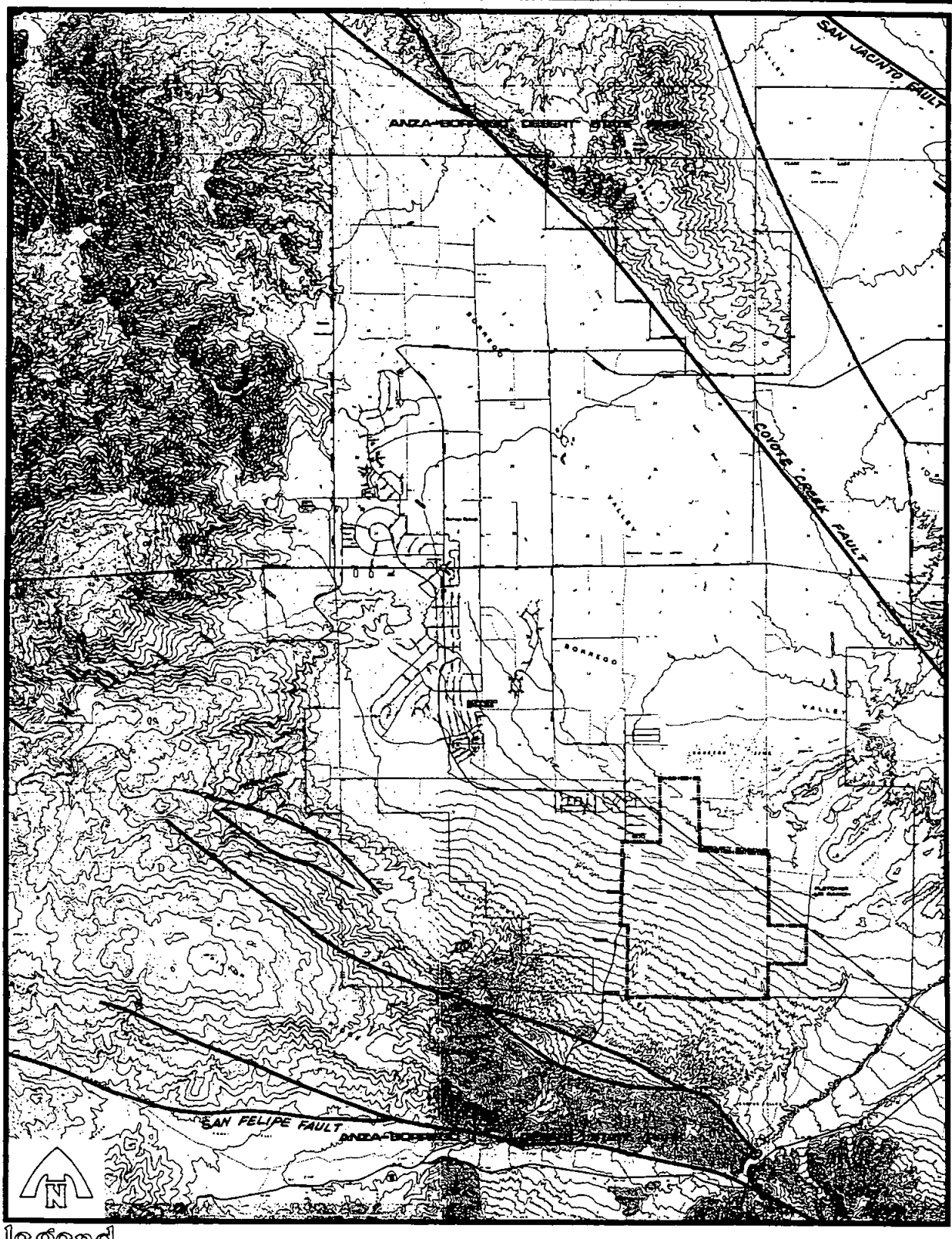
All of the indentified faults pose a potential threat to residents in the Borrego Valley, as well as to residents of the Rams' Hill development. This seismic hazard is probably as severe as in any place in San Diego County. This hazard can be considered less severe, however, than that in some other parts of the state such as San Francisco. Studies indicate that an earthquake having a Richter magnitude of 7.3 could occur once every 60 years along the San Jacinto fault. This fault, the most active large fault in the county, has a maximum probable earthquake magnitude of 7.5 to 7.8. (11) A quake of this magnitude could cause severe damage in Borrego Springs. In 1968, the Coyote Creek fault, a branch of the San Jacinto which trends northwest to southeast along Coyote Canyon and the steep northeast face of Borrego Mountain, gave rise to an earthquake of magnitude 6.8 near Ocotillo Wells. This earthquake seriously damaged one structure in the community of Borrego Springs, and caused extensive minor damage to windows, glasses, and other breakables.

The Elsinore Fault zone is the largest active zone in the county. Studies indicate that an earthquake having a Richter magnitude of 7.3 could occur once every 60 years along the Elsinore Fault. The maximum probable earthquake along the fault system is 7.6, which could cause serious damage in the Borrego Valley. (11)

Erosion is influenced by material type, grain size, gradient of topography, depth of flow and fluid velocity. The Woodward-Clyde Study indicates that clean sands such as those present onsite are susceptible to erosion, and the County Soil

Figure IV-E-1

FAULT MAP



legend

— inferred fault

— located fault

0 6000'

fault map

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Survey indicates that the erosion hazard over 80 percent of the site is moderate. Transport of smaller grains downslope, therefore, will occur even at relatively low velocities. This process results in hydraulic sorting which tends to reach an equilibrium flow condition after some sediment transport has occurred. Erosion of the on-site sands will occur at velocities in the order of 1.75 feet per second. This velocity corresponds to an overland sheet flow having a flow depth of approximately 0.1 feet on a slope of about 2/3 percent. This value assumes no vegetation on site and is relatively conservative. For further information, refer to the Flooding/Hydrology section.

Slope stability is not a major concern at Rams' Hill. The natural gradient over 80 percent of the site is very gentle, approximately five percent. Figure III-B-2 is a slope analysis of the site. While deep seated slope failure is not a serious problem, the soils on site are very sandy, making the hazard from surface sloughing moderate to severe. (See description of soils in the Geology/Landforms/Soils section.) Preliminary slope stability analyses have been made to evaluate the effects of different slope inclinations. Based on the results of the Woodward-Clyde investigation, slope gradients can be as steep as 2:1 before deep-seated slope failure becomes a serious hazard.

Shrinkage of the soils on site could occur. The soils in most desert areas tend to shrink after excavation and recomposition.

2. Potential Impacts

Woodward-Gizienski and Associates performed a preliminary engineering geological and soil investigation on the Rams' Hill site in 1973. This study was updated in 1977 by Woodward-Clyde Associates. As part of the 1973 report, Woodward-Gizienski analyzed the potential impacts on site resulting from an earthquake of magnitude 7.3 on the Richter scale with an epicenter five miles from the property. The report concluded that ground motion characteristics are likely to vary substantially due to the extreme variation in depth of the soil deposits at the site. The maximum bedrock acceleration which would result on site from the model earthquake is 0.4 g.

In general, the effect of intense shaking on soil deposits is to produce a wide variety of phenomena which include slope failures, fissures, soil compaction or settlement and liquefaction. The Rams' Hill site is susceptible to varying degrees of impact from each of these phenomena, except liquefaction.

The soils on site generally consist of medium dense, well-graded medium to fine sands with about ten percent fine grained material (silt and clay). There is chemical cementation in addition to the small amount of fines which gives the insitu deposits a cemented character. In many areas, the cemented character can be lost when the soil is wetted. This will occur with extensive landscaping. The gentler slopes on the property probably are not susceptible to large sliding or flow type movements. In the steeper areas, some cracking and minor slumping may well occur. The steeper areas have been designated for large lot, custom-home development, thereby minimizing potential damage. Liquefaction is not likely at the site due to the dryness and apparent high relative density of the soils. Compaction and settlement during a severe earthquake may occur, especially in areas of wetting by irrigation (7). These areas correspond to the areas which would be most extensively developed.

There is a strong possibility that earthquake damage from soil compaction and settlement on the Rams' Hill site could occur. Although the potential for settling on site is no greater than elsewhere in the valley, the potential damage might be considered incrementally greater because the relative density of housing is somewhat higher. An earthquake of magnitude 7.3 on the Richter scale could cause extensive structural damage and possible loss of life if adequate mitigation is not implemented in the form of structural designs. The potential damage from shaking to structures could likewise be high,resulting in extensive structural damage and damage to personal property within residences. Both impacts can be fully mitigated by constructing buildings safely to withstand the calculated earthquake impacts.

The potential for erosion damage on 80 percent of the site is slight. (10) Like all desert sites, erosion resulting from rainfall could cause damage to slopes, creation and expansion of gullies, deposits of alluvium in undesirable locations and, possibly, damage to roadbeds and foundations. Flooding potential is significantly less on this site, however, than in other areas of the valley due to the small drainage area and absence of a canyon water shed influence.

The potential for damage from slope failure is not as severe as elsewhere, as long as graded slopes have a gradient which is gentler than 2:1. Surface erosion and sloughing will occur even with extensive mitigation and continuous maintenance will be necessary. (6)

Shrinkage of soils from excavation and grading would probably occur on Ram's Hill as it would throughout much of the desert

province. The magnitude of shrinkage is dependent on the type and density of material on site. Based on analysis performed by Woodward-Clyde, it appears the shrinkage values for the existing near surface soils may range from less than five percent to over 20 percent.

3. Analysis of Significance

The potential damage to structures at Rams' Hill from the identified geologic hazards - seismicity, erosion, slope failure and shrinkage - can be largely mitigated through proper structural design, landscaping and conformance with County codes and standards.

The potential for damage and loss of life from a severe earthquake is substantially mitigated by constructing buildings in conformance with the San Diego County Building Code. The Uniform Building Code, which is implemented through the San Diego County Code, adequately regulates for seismic factors. Its regulations can be supplemented by additional requirements such as on-site geological studies in areas of exceptional seismic and geologic hazard. These studies will be performed prior to construction of units for Phase I. Constructing buildings to withstand the maximum bedrock acceleration of 0.4 g in conformance with the 1973 report prepared for the developer by Woodward-Gizienski would substantially mitigate potential damage and the risk of loss of life.

The erosion hazard on site is slight. This hazard could be mitigated by planting grasses throughout much of the landscaped area and on graded slopes. The golf course rough and all other areas proposed to be left in a natural state may not be artificially revegetated. The use of a grass cover would result in turbulance and a greater loss of energy which would tend to stabilize the soil surface and help retard erosion. Grass covered areas can generally withstand velocities of approximately five feet per second without significant erosion, providing proper maintenance of vegetation is provided.

The naturally occurring erosion hazard on the undeveloped open space would not be mitigated. The area would still be subject to erosion after implementation of the project, as it is today. The areas which are designated "Not a Part" would also be left undisturbed and therefore be subject to natural erosion. The portion of the estate lots which would be left in a natural state and the portion of the single family lots which would be minimally landscaped would likewise be subject to an erosion hazard. The sewage treatment plant and percolation basins would be protected from depostion of eroded materials through the

construction of flood protection structures. (Refer to the Flooding/Hydrology section).

Short term potential impacts from erosion would be much greater during the construction phase and would remain significant until the vegetative cover is re-established.

The potential for slope failure would be mitigated by design and landscaping. Because of the moderate slopes, landsliding due to earthquakes is not expected. Suitable landscaping and provisions for adequate drainage would be implemented in the construction and final engineering stages. No water would be allowed to pond above slopes or to flow over the tops of slopes.

Construction would conform with the County Grading Ordinance, which adequately considers problems of slope stability.

To mitigate potential impacts due to shrinkage, a balance area would be provided in which final grades can be raised or lowered depending on actual shrinkage factors.

The Rams' Hill site is subject to moderate to severe hazard from intrinsic geologic hazards. The hazard from earthquakes is particularly serious, but mitigatable, as it is throughout the Borrego Valley and most of California. Proper construction in conformance with the County Building Code and design based upon a maximum bedrock acceleration of 0.4 g would minimize this hazard to the greatest extent feasible. It would still be possible that some damage could occur during a severe earthquake episode. Erosion in the desert is a problem. This hazard would be minimized by design and landscaping. Erosion hazard would not be mitigated during the construction phase. Because of the flooding hazard and the unpredictability of storms, erosion would remain a problem in the areas which are not carefully landscaped. With the implementation of the mitigating measures, slope failure and shrinkage would not be a significant hazard on the site.

F. FLOODING/HYDROLOGY

1. Existing Setting

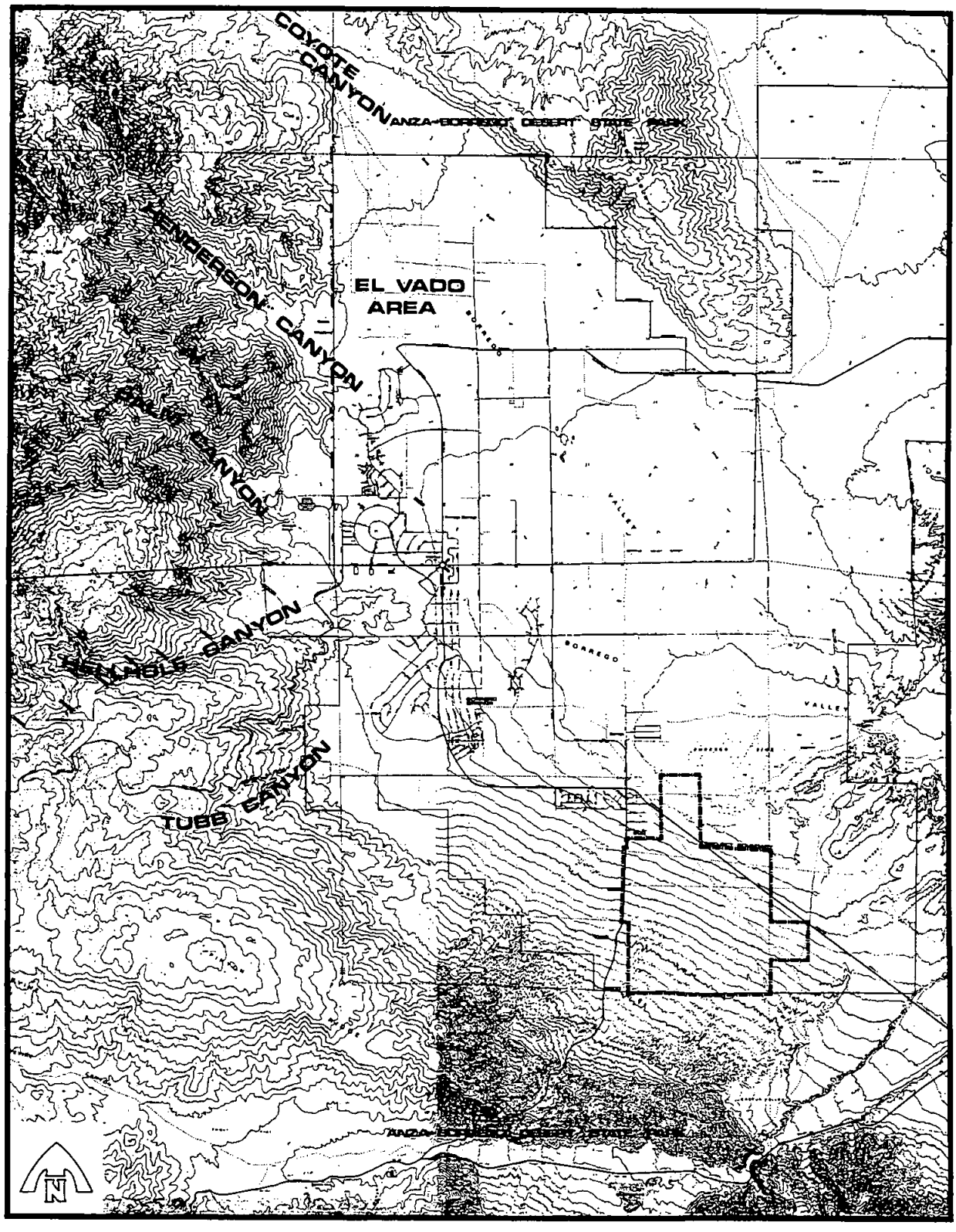
The Borrego Valley, like the rest of the desert southwest, is subject to severe flash floods from the brief, but intense, convective thundershowers that occur during the summer. These storms are primarily due to tropical weather moving north from the Gulf of California. Evidence of extensive past flooding in Borrego is apparent in topographical features, such as the alluvial fans which skirt the base of the encircling mountain ranges The canyons leading out of the mountains are sparsely vegetated and very steep, with overburden composed of low-porosity igneous and metamorphic rock. During severe storms, large quantities of run-off, originating in the canyons and moving at high speeds, can flood areas of the valley. The run-off also spreads in a sheet flow across the fan surfaces, creating an unpredictable pattern of water courses. The result is a high potential, at all times, for flash flooding in all portions of the valley.

Sizable floods have occurred in recent years near Coyote Canyon, Henderson Canyon, Tubbs Canyon, in the El Vado area, near Borrego Springs Road and along Yaqui Pass Road. Figure IV-F-1 is a map of the valley with the canyons identified. Recent floods resulted from relatively minor storms which are much smaller than the design 100-year floods. (13) Most flooding takes place during summer months. Coastal storms which affect the valley in winter usually do not cause flooding because the intensity and volume of rainfall are much lower than that of tropical storms that come in the summer. A major exception is the extensive flooding along Coyote Creek in winter, 1977, resulting from a particularly violent Pacific storm system. This storm front dropped an abnormally large amount of precipitation in a short period of time.

The San Diego County Department of Sanitation and Flood Control has made an in-depth study of the flooding hazard in the Borrego Valley. (13) In 1972, the Department issued a report which quantified the flood potential, and recommended that a series of flood control levees be built to minimize potential impacts. This study did not include the Rams' Hill area because of its unique characteristics. Unlike the rest of the valley, the Rams' Hill area is not at the mouth of a canyon and is, therefore, only subject to sheet flow. Because of this relatively lesser flooding potential, no major improvements were proposed to protect the Rams' Hill property.

Figure IV-F-1

CANYONS



canyons

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RAMS HILL

Although no actual streambeds are located on the Rams' Hill site, there are numerous arroyos or "channels" above the 800 foot elevation which could pose problems to proposed development. The "rational method" was used to assess the flood hazard on this site. This method is set forth in the Design and Procedure Manual for Flood Control and Drainage, prepared for the San Diego County Department of Special Districts-Flood Control in December, 1960. (14) The "rational method", rather than the hydrograph method, was chosen in consultation with Larry Hurt of County Department of Sanitation and Flood Control, because of its special features which make it very effective in analyzing small drainage areas. (15) The drainage area above the Rams' Hill site is small, approximately 6.5 square miles. The "rational method" provides a conservative worst case estimate of flooding hazard on the Rams' Hill site.

The "rational method" calculates the quantity of discarge flow using the formula Q=CIA, where: Q equals the design discharge flow on cubic feet per second; C is the co-efficient of runoff (a term which denotes the percentage of rainfall which is not absorbed by the soil); I is the average intensity of rainfall in inches per hour (which is a function of the 100-year storm intensity and the time of concentration); and A is the contributing drainage area. Using the tables and guidelines in the County Manual, the coefficient of runoff is determined to be 0.55, the worst case for terrain of this nature. The intensity of the 100-year storm is determined to be 2.08 inches per hour. Time of concentration is set at 39 minutes. Applying the formula, Figure IV-F-2 is a map of the hydrology of the area with the seven identified drainage channels on site, their contributing areas and 100-year design flows. Table IV-F-1 summarizes the results of calculations.

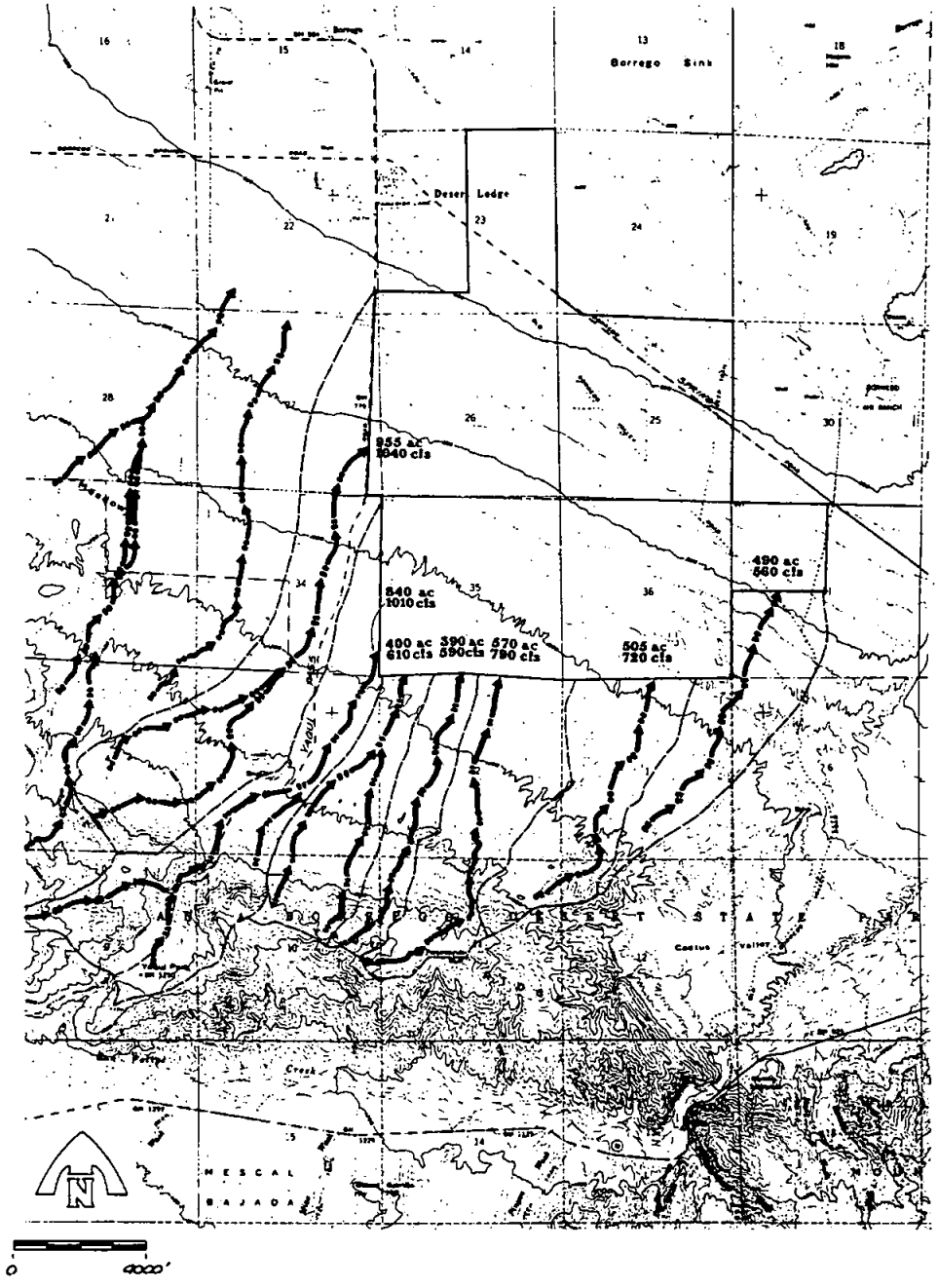
TABLE IV-F-1

POTENTIAL FLOOD HAZARD FROM 100-YEAR STORM

CHANNEL	ACRES IN WATERSHED	PROJECTED VOLUME CFS	CUBIC FEET PER ACRE PER SECOND
1	490	560	1.14
2	505	720	1.43
3	570	790	1.39
4	390	590	1.51
5	400	610	1.53
6	840	1010	1.2
7	955	1040	1.09

Figure IV-F-2

HYDROLOGY



hydrology

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RAMS HILL

The results of this analysis, using the "rational method", are extremely conservative, (i.e.,worst case). The San Diego County Department of Sanitation and Flood Control analyzed flood hazard in the Borrego Valley in 1972, using the hydrograph method.(13) The most severe flood for any major channel analyzed in the County study produced runoff of 1.27 cubic feet per acre per second. The design flood for the Rams' Hill project is 1.5 cubic feet per acre per second (channels 4 and 5). This should not imply that Rams' Hill has a more severe flood potential than other areas of the valley. In fact, the site has a lower potential. The Yaqui Ridge does not have as great a potential for runoff as the higher, steeper mountain ranges which ring the western and northern sides of the valley. In addition, the total size of the watershed which can contribute to flooding on the site is relatively small, approximately 6.5 square miles. De Anza Country Club, for example, is subject to flooding from Coyote Canyon with a watershed of 137 square miles. Rather, these figures imply that flood control measures designed for these calculated storm flows would protect Rams' Hill with a wide margin of safety.

2. Potential Impacts

Because of its unique characteristics, the flood hazard on Rams' Hill is not as great as elsewhere in the valley. A flood of the magnitude projected in Table 1, however, could cause extensive damage to proposed structures on Rams' Hill and potential loss of life should no flood control structures be constructed. Innundation from projected flow potentially could destroy the golf course and wash out roads. Flooding of the major traffic arterials to the west and north of the property could be expected to occur during times of relatively heavy precipitation. In August, 1977, tropical storm Doreen dropped 3.61 inches in Borrego,and Yaqui Pass Road and Borrego Springs Road turned into virtual rivers. Extensive flood damage to homes in the area of Borrego Country Club to the northwest also resulted. Without protective measures, flooding of the proposed waste water treatment plant potentially could halt sewage treatment over a short period and cause a health hazard. Flooding of the percolation basin could spread effluent over a wide area and inhibit percolation capability. These flooding ing hazards on the Rams' Hill site are substantially less than hazards throughout the rest of the valley. They can and would be mitigated substantially and to the satisfaction of the Regional Water Quality Control Board by the construction of diversion channels and levees.

3. Analysis of Significance

In order to protect development at Rams' Hill to the greatest extent feasible, an extensive system of flood control structures would be built encircling the project on the south to divert

flow around and away from proposed structures. Figure IV-F-2 is a map which illustrates the direction and volume of sheet flow calculated using the "rational method", which would result from a 100-year storm. Figure IV-F-3 is a map of the proposed floodworks.

As illustrated in Figure IV-F-2, flood waters which could impact Rams' Hill would originate along the Yaqui Ridge and would flow from a southwesterly direction to a northeasterly direction perpendicular to the topography.

To protect structures from potential impacts, two stabilized earth channels, designed to carry the calculated 100-year storm levels, would be constructed. These channels would direct flow to the west and east around the perimeter of the project, completely separating watercourses from development areas. This would minimize potential damage to the structures and golf course to the greatest extent feasible. Complete separation is the preferred method for the Borrego Valley, recommended by the County Department of Sanitation and Flood Control. (13)

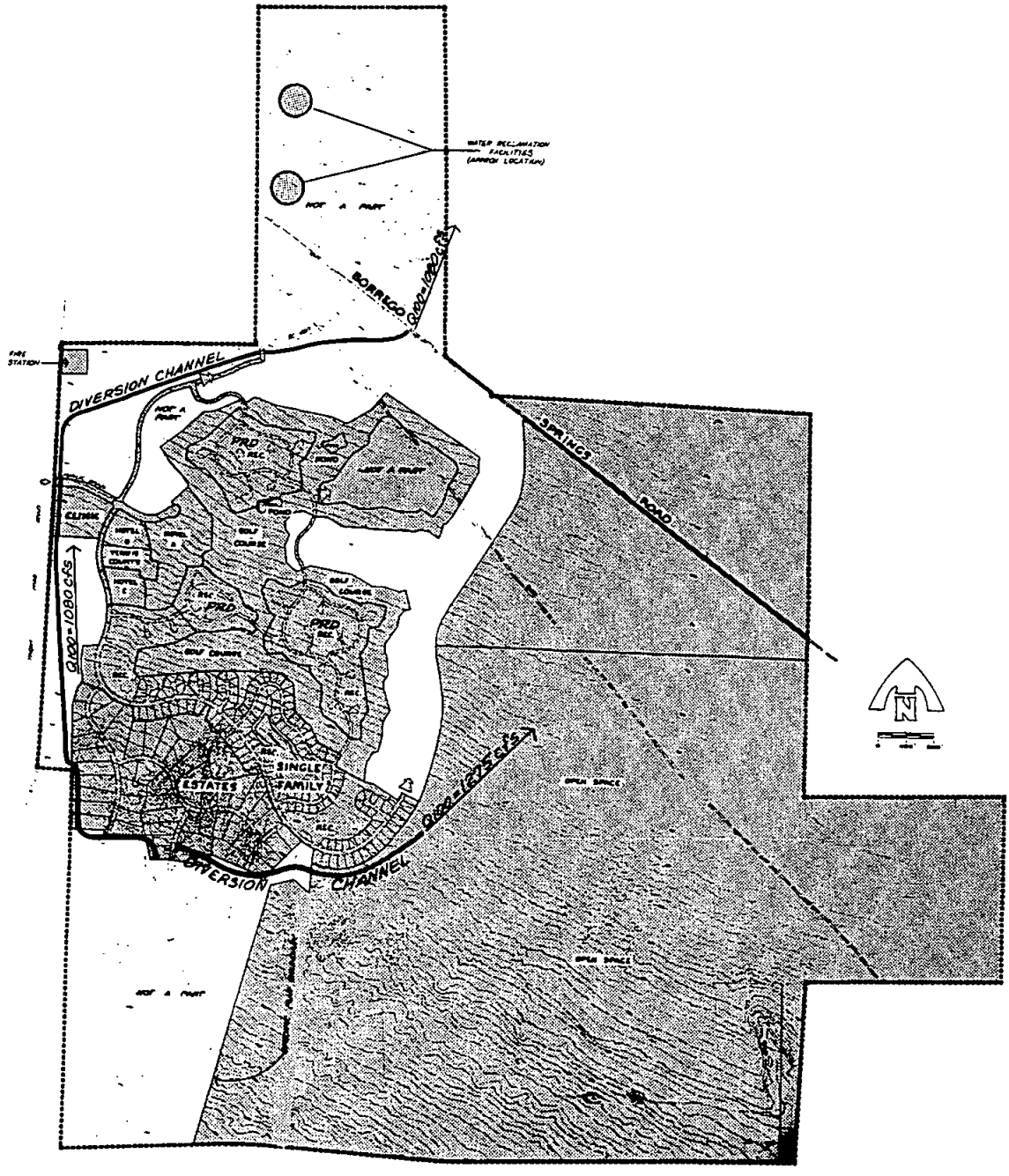
The two channels would be constructed, one slightly south of the other. The southern channel, which would divert flow to the east into open space, would be designed to carry 1,275 cubic feet per second. The northern channel, which would divert flow to the west along Yaqui Pass Road, would be designed to carry 1,080 cubic feet per second. As discussed, the channels are designed with a wide margin of safety. Figure IV-F-3 is a map of these proposed channels.

Final engineering has not been completed on the structure design. Preliminary calculations indicate that the diversion channels would need to be 15 feet wide and five feet deep to have sufficient capacity to carry the predicted flow. The channel which would ultimately be designed would probably be much broader, with a gentler bank, so that the structure would blend aesthetically with the surrounding desert landscape. The channel would be lined with native vegetation. The curves of the diversion swales would be reinforced with rip-rap. The channel would be constructed to the standards of the Borrego Flood Protection District or appropriate County agency. It is proposed that the structures be annexed and maintained by this District.

To provide further protection, a two-foot high levee/wall of masonry block would be constructed extending along the northern side of the east-west portion of the diversion channel. Desert studies have shown that such a wall, if unbreached, in conjunction with a diversion channel, will provide maximum flood protection. The location of the diversion channel was

Figure IV-F-3

FLOOD PROTECTION MAP



flood protection map

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RAMS HILL

based on two parameters: the need to protect the main development, while at the same time preserving the archaeological site immediately south of the estates. As a result, two of the estate lots would not be fully protected against the flooding hazard. Construction of homes of the two impacted lots would, however, pose no greater relative risk than that which exists for the majority of homes in the Borrego Valley, especially for those which are at the mouths of canyons. Specific measures will be necessary to reduce impacts to these lots.

The two proposed channels would divert flow around the property, discharging into undeveloped areas. The northern channel would divert flow into the eastern half of the site. The southern channel which extends along Yaqui Pass Road would discharge into the eastern side of the panhandle north of Borrego Springs Road. The discharge velocity of either channel will be reduced at the point of discharge by riprap and a flared transition section. When the velocity is reduced, as above, impacts to the discharge areas would be minimized.

In addition to flood protection for most of the development, flood protection would be provided for the sewage treatment plant and percolation basins. The design and extent of the necessary measures would be regulated by the Regional Water Quality Control Board. Because the entire Rams' Hill property is subject to innundation by sheet flow, it is not possible to locate the treatment plant out of the 100-year floodplain. The Regional Water Quality Control Board will probably recommend that a diversion channel with a wall, similar to that designed to protect the development, should be designed to protect the plant and the basins.

With the implementation of the flood control structures described above, flooding hazard to the site would be minimized to the greatest extent feasible. The two estate lots described above, however, would remain subject to a significant unmitigated flooding hazard. Because flash storms in the desert are completely unpredictable in terms of location and volume, it is still possible that the Rams' Hill development could sustain major flood damage.

G. BIOLOGY

1. Existing Setting

The Ram's Hill property is located on the south slope of the Borrego Valley adjacent to the Anza Borrego Desert State Park. In its present undeveloped condition, the site can be considered an extension of the park ecosystem. The only disturbances on the site are a dirt road and an abandoned farmhouse. Yaqui Pass Road and Borrego Springs Road, both two lane, paved county highways, bound the property on the west and east, with Borrego Springs Road dissecting a portion of the property.

A biological survey of the Rams' Hill property was conducted in late spring, 1977, by R. Mitchel Beauchamp, botanist, and Stephen J. Montgomery, zoologist. The following is an abstract of their report, which is included in full as a technical appendix to the EIR.

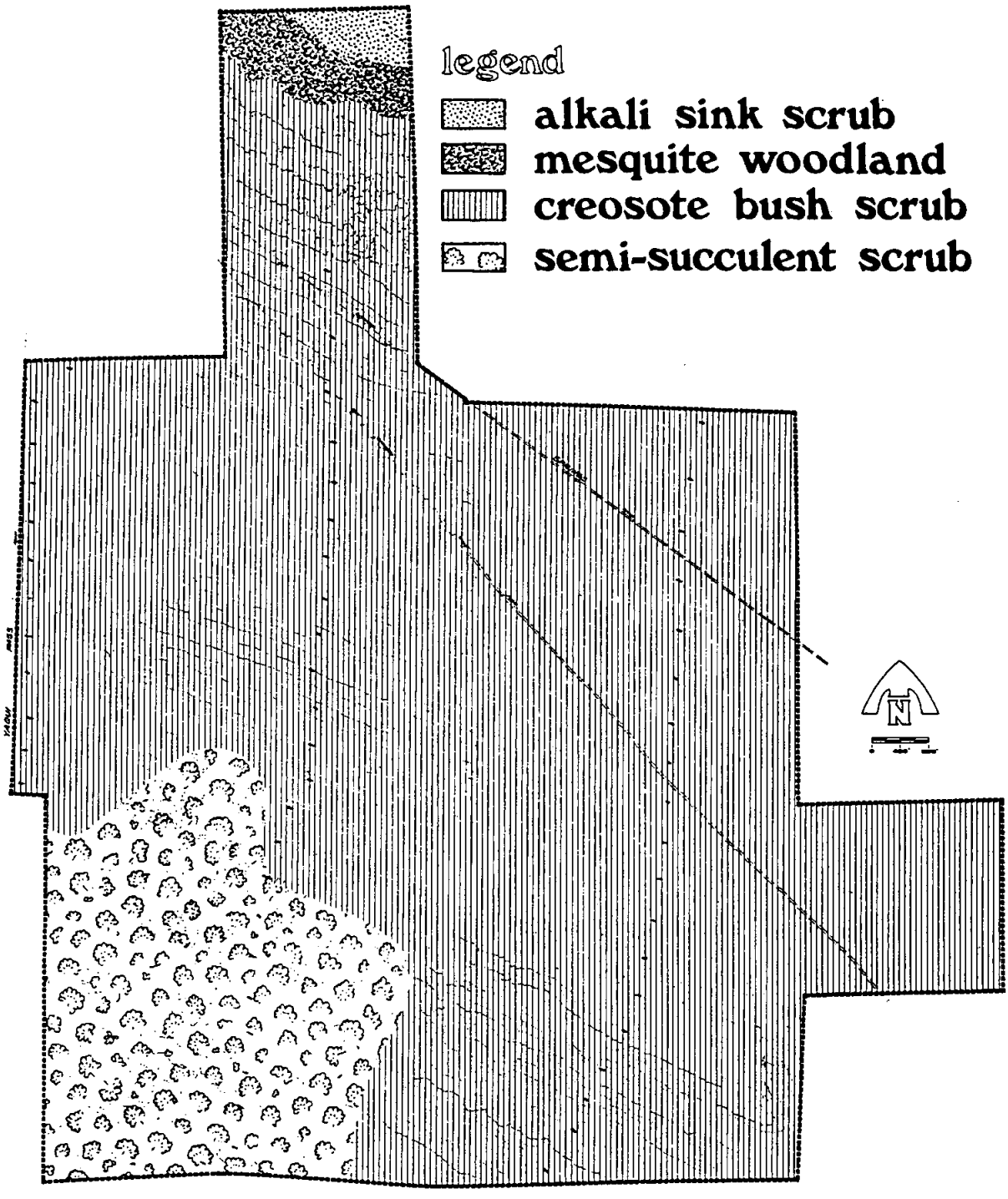
a. Botany

Three distinct habitats are found on the Rams' Hill site. The three are the creosote brush scrub community which covers 70 percent of the site; a ridge-and-wash area in the southwest corner, covering 27 percent of the site; and a mesquite woodland on three percent of the site in the northeast corner adjacent to the Borrego Sink. Each of these habitats is common to the surrounding desert areas. Figure IV-G-1 is a map showing the location of each habitat.

Approximately 70 percent of the site on the gently sloping areas consists of a creosote brush scrub community. This habitat is composed primarily of creosote brush, burro-weed and silver cholla. A complex ridge-and-wash area occupies the southwestern corner of the property. This rugged topography promotes a diverse habitat consisting of a desert wash community in the gullies and semi-succulent scrub along the intervening ridge. Desert lavender, chuparosa and maguey dominate the desert wash vegetation, while pencil cholla, ocotillo, burro-weed, desert barrel cactus and teddy bear cactus dominate the species along the ridges. This diverse ridge-and-wash area occupies approximately 27 percent of the property. The remaining three percent of the Rams' Hill site is occupied by a mesquite woodland forming a narrow strip across the northern peninsula of the property and an alkali sink scrub community abutting the Borrego Sink. Mesquite is the only species comprising the woodland; Haplopappus, Atriplex, and Cleomella are the dominant species in the alkali sink. While all portions of the property provide high quality

Figure IV-G-1

VEGETATION MAP



vegetation map

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RAMS HILL

habitat for desert-adapted animals, the most significant habitats are the mesquite woodland and the ridge-wash complex. The mesquite woodland and the adjacent alkali sink are particularly attractive due to the varied vegetative heights, the abundance of insects, seeds and cover for nests. The variety of species and individual numbers were greater in the woodland than on any other portion of the property. The rugged ridge-wash area is a significant habitat for predatory animals and their prey due to the density of the vegetation and the varied topography.

One sensitive plant species, Lyrocarpa coulteri var. palmeri was found in a single locality on the property. This species is listed by the California Native Plant Society as being of limited occurrence in San Diego desert areas. However, it is not rare or endangered.

b. Zoology

During the survey of the Rams' Hill site, a combined total of 54 bird, mammal, amphibian and reptile species were observed on the property. A naturalist from the Anza Borrego Desert State Park stated that an additional 50 species could be expected on the property if a more extensive survey had been conducted.

One amphibian and ten reptile species, including five lizard and five snake species, were noted on or in the vicinity of the project site during the survey. The one amphibian observed was the California Toad, which was found on a paved road in association with irrigation canals along Borrego Valley Road. Most species were noted in the central and southwestern portions of the site where vegetation is denser. An additional 15 species of reptiles and one amphibian species could be expected during a more prolonged survey. Populations of each of these reptiles commonly occur throughout the valley.

Thirty-three species of birds, 19 of which are permanent residents, were observed on the property during the survey. Two raptors,the American Kestrel and the Great Horned Owl were noted. The most common species were Gambel's Quail, Wilson's Warbler, and Mourning Dove. The mesquite woodland-alkaline sink habitat featured greater numbers and species diversity than any other portion of the site due to the varied vegetative heights. Elimination of the mesquite would reduce habitat for migrants and resident species and likely diminish overall densities in the area. All the observed birds and the additional 20 expected species, are common to the Anza-Borrego desert region.

Ten species of mammals were detected on the property through observation and a limited trapping program. Because of the similarity in habitat with the surrounding park, naturalists state that an additional 14 species would be expected on the site. Typical mammal species include Desert Cottontail, White-tailed Antelope Squirrel, Desert Pocket Mouse, Desert Kangaroo Rat, Desert Woodrat and Coyote. The Coyote was detected in the many washes on the southern portion of the property.

No rare, endangered or threatened animal species were noted on the site in the course of the survey. The Ringtail Cat, a possible visitor to the property and the Golden Eagle, a confirmed visitor, are considered sensitive and are fully protected by California State law. Three bird species, the American Kestrel, Loggerhead Shrike, and Yellow Warbler, are currently included on the Blue List. It is anticipated that three other Blue Listed Species utilize the property for hunting, nesting and foraging. None of these species are experiencing population decline in San Diego County.

2. Potential Impacts

The Rams' Hill property consists of 3,124 acres, of which 2,158 are included in the Specific Plan proposal. (Figure III-F-1) The remaining 966 acres are planned in concept pursuant to the Board of Supervisors approved plan, Exhibit C-9. (Figure III-D-1) Following Exhibit C-9, the eastern half of the property, 1,562 acres, is included in this Specific Plan proposal to be dedicated as natural undeveloped open space.

The heart of this Specific Plan development would be clustered in the west-central portion of the site on 457 acres of the less sensitive Creosote Brush Scrub. An additional 124 acres immediately south of this clustered area would be developed in two to five acre estate lots. A substantial portion of the 596 developed acres would be retained in various open space uses including a golf course and extensive common areas. The identified significant habitats, the Mesquite Woodland and ridge-wash area, are included in the 966 acres planned only in concept at this time and, therefore, are not a part of this Specific Plan. It can be assumed that in the second Specific Plan phase certain portions of these sensitive habitats would be impacted.

The developer has stated that his Rams' Hill design incorporates features to promote the natural open atmosphere of the desert and preserve sensitive areas. Despite this, biological impacts both during and after construction are inevitable. If property mitigation is not implemented, the

proposed development plan could create four potentially significant and adverse biological impacts. First, the project would increase water availability on the site. Increased water availability associated with irrigation of the golf course, landscaping and discharge of waste water to the percolation ponds could facilitate the introduction and proliferation of non-native species in the Mesquite Woodland. The project contains measures incorporated in the design to mitigate this impact. These measures will be more fully discussed under analysis of significance.

Second, the project could significantly impact the hydrologic characteristics of the south slope area. Redirection of wash channels for flood control would lead to a deterioration and alteration of the desert wash habitat. Should ground water below the site be tapped as the exclusive long term supply for the project, rapid reduction in the water table could significantly and adversely impact deep-rooted desert species, diminishing the quality of the habitat on-site and off. This impact may not occur should the project be annexed to the Borrego Water District and should the district carefully regulate water consumption throughout the valley.

Third, the designation of the riding and hiking trails would impact the quantity and variety of species utilizing habitat on the site due to increased human presence. The regional riding and hiking trail is shown on the County Trails Element along the southern perimeter of the mesquite woodland. Dedication and marking of this trail could significantly and adversely impact the numbers of faunal species and individuals utilizing this rare,significant habitat. Likewise, the internal regional riding and hiking trail would be constructed from the estate lots east into the open space area and north to connect with the regional trail. This trail would significantly impact the preservation aspects of this large open area.

Fourth, several of the southernmost estate lots encroach upon the northern fringe of the ridge wash area. Construction of homes on these lots would diminish the quality of this significant habitat and significantly reduce the numbers of large animals and raptors using the area.

Although the majority of the property would remain in a natural, undisturbed state, development would interfere with the foraging behavior of raptors, larger mammals and various species of snakes. By contrast, some wildlife species might increase in number with human habitation due to greater availability of surface water and other factors. Among those species possibly responding to such new resources are the Barn Owl, Great Horned Owl, House Finch, Western Toad, Southern Pocket Gopher and Desert Cottontail.

Short term impacts during the construction phase would occur. Grading and construction would irreversibly damage habitat in the 596 developed acres. Construction workers using off road vehicles could impact additional areas both on and off site. Should material from the site be used as subgrade material on roads, additional biological impacts to the mined areas would occur. For a full discussion of all potential short term and long term impacts, refer to the Biology Technical Appendix.

3. Analysis of Significance

The Rams' Hill project has incorporated in this Specific Plan phase design features to reduce the impact of development on the biota and habitat of the south slope area.

First, in order to reduce the increased availability of subsurface water from the percolation basins, certain operation practices would be observed. The basins must be kept totally free of vegetation to operate properly, thereby reducing the impact of the surface water. The basins would only operate a few months each year during the summer when evaporation is greatest. Subsurface water discharge would be intermittent and minimal, therefore, minimizing impacts to the mesquite.

If the percolation basins were to be operated year round, the additional moisture in the vicinity of the mesquite woodland could significantly impact the woodland and alkalai sink habitats by altering the present vegetative complex. Since these basins would only operate with low effluent flows of under 100,000 gallons per day, over the summer period when evaporation rates are highest, the actual extent of increased moisture would be imperceptible. The impact of the percolation basins would, therefore, be reduced to an insignificant level.

A significant water supply would be available on site from the golf course and landscaped areas. This would lead to an adverse impact through the facilitation of non-native weedy species in the large eastern open space.

Second, the impacts to the water table would be mitigated by the Borrego Water District. The district would be responsible for long-term management of water supply throughout the valley. Careful planning by the district would preclude localized impacts such as that described above. Ground water supplies for the valley are capable of supplying the Specific Plan phase of development without mining. However, should the valley growth rate rapidly exceed the current rate of eight percent a year or should additional new large scale projects such as Borrego Country Club be implemented, water mining could occur resulting in significant

impacts to the water table both on and off site. Refer to the sections on water and cumulative impacts for more information.

Third, the impacts of the regional and internal riding and hiking trails would be mitigated by minimally improving the trails. Even with this, however, the Regional Riding and Hiking Trail would increase human presence in a significant area and could decrease variety of species and number of individuals visiting the habitat.

Fourth, the impacts to the ridge wash habitat by the southern estate lots would be mitigated by design. Grading on these lots would be minimal. Significant portions of the two to five acre lots would be left in a natural state. Nevertheless, the ridge-wash area is utilized by large animals and raptors. These species would reduce their use of the habitat with increased human presence.

In addition to mitigation for specific impacts, the project has been designed to reduce general impacts. The entire eastern portion of the site, including 1,562 acres of the total 2,162 acre plan, would be left primarily in its natural state, continuing to provide a somewhat undisturbed habitat for indigenous species and remaining as a natural extension of the ecosystem of the adjacent Anza-Borrego Desert State Park. Development would be clustered in the center of the site,preserving additional large areas of open space. In the second Specific Plan phase, however, it is anticipated that significant impacts could occur to these habitats. The Mesquite Woodland and the sensitive ridge-wash habitats would remain undeveloped at this time. Within the bounds of County requirements, internal road construction would be minimal and would be designed to serve only the needs of the Rams' Hill residents. The project would irreversibly commit 600 acres of the relatively isolated, undisturbed 3,200 acre desert site to residential and resort development. An artificial hydrologic condition would be established which would increase moisture in the vicinity, facilitating the propagation of non-native weedy species.

Should the project be implemented, the increased number of people in the valley could lead to indirect impacts further degrading habitat from increased human presence. These indirect impacts would be especially severe should construction of Rams' Hill and Borrego Country Club lead to increased recreational use of ORV's in the valley and in the adjacent State Park. It is recommended that the Board of Supervisors close that portion of Old Borrego Valley which crosses the property diagonally from northwest to southeast to minimize the potential use of ORV's on the eastern portion of the site and in the adjacent state park.

H. ARCHAEOLOGY

Two archaeological reconnaissances have been conducted on the Rams' Hill property. The first was conducted in 1973 by Dr. Paul Ezell of San Diego State University, and the second by PRC Toups Corporation in 1977 and 1978. These two studies identified seven archaeological sites on the 3,200-acre property. Two of the sites are on the portion of the property designated for potential development. Five are on the portion designated for permanent open space. The full text of the PRC Toups report is included as a technical appendix.

1. Existing Setting

It is likely that archaeological sites would be located in the Rams' Hill area. The Borrego Sink, which forms the northern boundary of the property, was once a lake. The lake shore would have provided a stable environment for prehistoric peoples of Paleo Indian and Early Archaic times. The animal and plant life which is present in the Borrego Valley today could have been exploited by peoples of Late Archaic times, which extended until the coming of Europeans to the area. Thus archaeological sites representing peoples from Paleo Indian, Early Archaic and Late Archaic times could be located on the property.

a. Record Searches

Background research into recorded archaeological sites on the property was conducted at both the San Diego Museum of Man and San Diego State University Department of Anthropology. No sites had been recorded at the Museum of Man. Records at the University indicated some known sites in the project vicinity. Site numbers but no descriptions of the sites are present in the University records. The sites are designated SDi-4598, SDi-9599, SDi-4600, SDi-4601, SDi-4602. In Ezell's report (1973), one additional site, Cal:E:15:6 was noted on the property. The record searches also revealed an area in the general vicinity of the project which has been nominated to the National Register of Historic Sites (C-490, 1977, Ron May). The Archaeology Appendix contains these record searches.

b. Previous Work on the Property

In October, 1973 an archaeological assessment of Borrego Springs was conducted by Dr. Paul Ezell of San Diego State University. The presence of four sites on the property and one nearby was recorded in this study. The records describe the sites as "sites of aboriginal activity including camp sites, sleeping circles, and trails". (Ezell 1973:2).

Cal:E:15:1 - This site consists of clusters of quartz flakes, chipping waste and several cleared areas of desert pavement. It was designated as a Paleo Indian site in the report.

Cal:E:15:2 - This site is located in a wash and consists of pottery sherds and stone tools. It has been designated a Late Archaic site in the report.

Cal:E:15:3 - This site consists of two cleared circles and two stone tools. It was designated as a Paleo Indian site.

Cal:E:15:4 - This site consists of sleeping circles, cleared areas of pavement and a trail, in association with potsherds and lithic artifacts. It was designated as a Late Archaic site in the report.

Cal:E:15:5 - This site is made up of a wide scatter of ceramics. It was designated as a Late Archaic site in the report.

Cal:E:15:6 - This site consists of a scattering of 20 potsherds.

Cal:E:15:7 - This site is a remnant of a recent cabin, and is not archaeologically significant.

Cal:E:15:8 - This site is off the property and is a large concentration of potsherds and lithic flakes. It was designated a Late Archaic site in the report.

Sites in the Vicinity

C-490 - This site consists of a campsite with an associated hearth, stone tools, flakes, cores, scrapers, metates, sherds, and milling slabs. The site is off the property adjacent to a well-traveled road.

Results of 1978 Survey

The Toups survey of the 3,200-acre property was conducted by two crews of archaeologists. Each archaeologist walked a series of north/south and east/west intersecting transects. The survey revealed two sites within the 1,562 acres designated for potential development and five sites within the 1,562 acres designated to be dedicated as permanent natural open space.

Site 1. (SDi4601 or Cal:E:15:7.)

This site is made up of a very recent stone chimney and is therefore not archaeologically significant.

Site 2 (Cal:E:15:4)

This site consists of approximately 75 unlined "sleeping circles", trails, a light but concentrated pottery scatter, one blade fragment, chipping waste and two metates. These circles are interconnected by the numerous trails. They generally are not associated with the artifacts. The trails continue off the property and probably extend into the foothills. The site is located in the southwest corner of the property. Most of the site is within the area shown as "not a part". The area covered is nearly 2,100 feet north-south by 3,000 feet east/west. It is irregular in outline and follows the alluvial ridges. It is much larger than was indicated in Ezell's report.

Site 3 (Cal:E:15:1 and SDi-4598)

This site consits of stone flakes and two sleeping circles, one of which is stone-lined. It is situated along the top of a low-lying north/south trending ridge in the extreme southeast corner of the subject property.

Site 4 (Cal:E:15:2 and SDi-4599)

This site is situated in a wash area and has, therefore, been susceptible to extensive damage from erosion. Although the Ezell study noted pottery and tools (Ezell, 1973:3), all that was found by the present study were several very large potsherds of Tizon Brownware.

Site 5 (Cal:E:15:3 and SDi-4600)

The site consists of two unlined sleeping circles, three stone-lined circles with four flakes (one utilized) and one core fragment. This kidney-shaped site is roughly 50 feet in length and 20 feet in width.

Site 6

This is an isolated unlined sleeping circle on a small berm near the southern boundary of the project.

Site 7

This small site consists of a stone-lined circle, approximately .7 meters in diameter, situated atop a small hill near Old Borrego Valley Road. It is the right size for a fire hearth, but no evidence of fire was found.

It should be noted here that sites Cal:E:15:5 and Cal:E:15:6 were not relocated. These sites were located near the sink and may have been removed or buried by recent floods. Salvage is not presented here as a means to adequately mitigate impacts upon the resource. It would merely be a method to retrieve some data prior to loss of the resource. Preservation is considered the best mitigation.

Sites 3, 4, 5, 6 and 7 - All of these sites are in the area to be left in open space. It is recommended that indirect impacts could be kept to a minimum through limiting off-road vehicle access to the property. This can be achieved by closing off Old Borrego Valley Road.

2. Impacts of Proposed Action

Implementation of the Borrego Springs planned resort community would result in the loss of Site 1 and a small part of Site 2.

Indirect impacts might also occur on those portions of Site 2 which would not be subject to construction. Sites 3, 4, 5, 6 and 7 might also be indirectly impacted by project implementation. Indirect impacts could occur to Site C-490 located off the property due to increased human presence in the valley. No direct impacts are anticipated to the site due to distance separation.

3. Analysis of Significance

Site 1 - Since this site had been previously recorded and this study did not locate any new significant artifacts, no mitigating measures are recommended.

Site 2 - The size and complexity of this site make it significant and rare. A cluster of sleeping circles and a network of trails is especially rare because so many sites have been destroyed by off-road vehicle activity and vandalism. Preservation of this resource is the best means available to mitigate impacts to it. This can be achieved by providing a buffer zone between the new construction and the resource. A natural buffer of native cholla cactus and ocotillo bush about six feet wide would be sufficient to limit encroachment into the site. Such a buffer, if properly implemented, could be an innovative, aesthetic measure to protect the resource.

Mitch Beauchamp of Pacific Southwest Biologic Services indicates that a barrier of native plants to protect archaeology Site 2 may be difficult to maintain. The density of the cholla and ocotillo on site is probably the maximum natural density for the plants under the existing hydrologic regime. To maintain a standing cactus dense enough to discourage

trespass would therefore probably require substantial irrigation. This irrigation would, in turn, encourage the spread of undesirable weedy species. Should the native plant barrier not prove to be a practical or feasible method to protect the resource, the developer could erect a fence along the southern border of the estate development area to discourage encroachment.

Another recommended means of protection would be to place the site under the control of a homeowners' association. Creation of an open air museum by laying out gravel trails and interpretive signs placed near the features could provide a highly beneficial mitigation of impacts.

Data must be salvaged in the areas of encroachment into Site 2. Salvage of the portion of the data inherent in the site must include the following steps:

(a) Preparation of a comprehensive, problem oriented salvage design.

(b) Preparation of a base map with each "sleeping circle" plotted.

(c) Mapping and collection of all surface artifacts.

(d) Test excavation of 35-50 percent of the affected site area, with the methodology specified in the research design.

(e) Cataloging and analysis of all artifacts.

(f) Performance of pertinent special studies: C14, paleontological, lithic, and ethnobotanical analyses.

(g) Report on findings according to County of San Diego and American Antiquity standards.

Salvage is not presented here as a means to adequately mitigate impacts upon the resource. It would merely be a method to retrieve some data prior to loss of the resource. Preservation is considered the best mitigation.

The Specific Plan does not pose any inherent limitations to implementing this mitigation for Site 2. No development is proposed south of the site. The area adjacent to and north of the site will be developed in estates in Phase 2 of the project. Mitigating measures will need to be completed before the tentative map for the adjacent areas can be approved by the County. The area marked "not a part" will not be developed in any way with this Specific Plan.

Sites 3, 4, 5, 6 and 7 - All of these sites are in the area to be left in open space. It is recommended that indirect impacts would be kept to a minimum through limiting off-road vehicle access to the property. This can be achieved by closing off Old Borrego Valley Road.

I. CLIMATE

1. Existing Setting

The Rams' Hill property is located in the Borrego Valley about 25 miles west of the Salton Sea. The valley is situated at the foot of the eastern slope in the rain shadow of the Peninsular Range and represents the western extremity of the Salton Basin. Topographic and air quality parameters such as wind speed and mixing depths, are discussed at length in the section on Air Quality.

The Borrego Valley is part of the Colorado, or low elevation, Desert of California. As such, it is characterized by climatic extremes. In summer, hot, sunny days and warm nights prevail. The winter season has generally warm days, but cold nights. Although the lowest average temperature minimum for any month is 45°F, below freezing temperatures can occur at night from October into April. The average length of the growing season is 257 days.

Borrego is in a desert. Four classes of large-scale weather phenomena have significant, although not persistent, effects on the climate of the Borrego Valley. (1) Low pressure storm systems from the Pacific Ocean affect the region primarily from mid-October to mid-April. These storms account for heavy rains experienced in the winter of 1978. (2) Occasional incursions of moist and unstable air from the east and southeast during the summer cause widespread rainshowers. These rainshowers are responsible for the majority of the precipitation which normally occurs in the valley. (3) In the summer and early fall, less frequent, but sometimes damaging thunderstorms, or Sonora storms, are experienced. These storms are northernmost remnants of hurricanes that have moved from the eastern tropical Pacific Ocean into the areas of Southern Baja California and thence north. (4) Strong Santa Ana winds, occurring mainly in fall and winter from an extreme buildup of high atmospheric pressure over the inland deserts, disrupt the normal weather in the valley approximately 45 days each year. These easterly winds can cause severe dust storms.

a. Temperature

A temperature summary of the Borrego Valley, derived from data gathered at the Borrego Springs Airport, is given in degrees Fahrenheit.*

Table IV-I-1

TEMPERATURE

MONTH	HIGH	AVERAGE MAXIMUM	MEAN	AVERAGE MINIMUM	LOW
January	86	66.8	50.4	34.0	15
February	90	73.0	56.0	38.9	22
March	94	76.7	60.1	43.5	28
April	106	88.7	70.0	51.4	31
May	114	93.5	74.7	55.8	39
June	115	102.4	82.5	62.5	47
July	116	107.8	89.1	70.4	57
August	119	106.0	87.6	69.1	53
September	121	101.8	83.4	64.9	46
October	107	89.4	71.4	53.4	33
November	95	77.9	59.8	41.7	25
December	88	69.4	53.1	36.8	22
Annual	121	87.8	69.8	51.9	15

* E. L. Felton, California's Many Climates, Pacific Books, 1966.

b. Precipitation

Rainfall in the Borrego Valley is light and somewhat variable, as is typical for the desert provinces. It has been theorized that precipitation in this region is cyclical, with the first half of the century having somewhat more precipitation than the second half. Available rainfall records indicate this may be the case in San Diego County, although rainfall records for Borrego during the first half of this century are lacking.

Estimated annual precipitation in Borrego has ranged from 3.4 inches to 5.06 inches. While some of this rain falls during winter, the heaviest rains occur during thunderstorms in August. The driest portion of the year is typically late spring and early summer.

This low rainfall and lack of extensive vegetation and tree cover result in low relative humidity except during and immediately after rainy periods. Because of high isolation values, evaporation rates in the valley are very high, averaging 25 times more than the available rainfall. The following is a summary of precipitation in inches by month:

Table IV-I-2

PRECIPITATION BY MONTH

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Mean	0.35	0.16	0.36	0.05	0.01	0.04	0.16	1.28	0.22	0.28	0.15	0.73

c. Project Climates

The climatic characteristics of the Rams' Hill site are relatively unique. In 1972 and 1973 the DiGiorgio Corporation conducted a climatic study on site of the type the corporation regularly performs as a basis for agricultural decisions. The survey consists, in part, of placing a recording thermometer on site and taking readings twice a day. The results of the study were striking. The Rams' Hill site is ten to 20 degrees cooler in summer and ten to 20 degrees warmer in winter than other areas in the Borrego Valley. The cooler summer temperatures are apparently due to the higher elevations; the warmer winter temperatures are apparently a result of subsidence whereby the colder air flows down the fan slope settling in the lower areas of the valley.

2. Potential Impacts

Climatological impacts resulting from the implementation of the Specific Plan would be imperceptible. Relative humidity in the valley would not change with development, although there would be increased evaporation from irrigation, swimming pools, transpiration from plants used in landscaping and from automobile exhaust. Project-area temperatures and wind speeds would not change perceptibly. Precipitation in the Borrego Valley would not be affected.

3. Analysis of Significance

No large scale climatological impacts are anticipated. Microclimatological impacts would be minor and confined to the immediate development area. Measures which have previously been proposed to minimize water and energy impacts would also mitigate potential impacts on the microclimatology. Such measures would include the use of evaporative rather than refrigeration cooling units, night watering of the golf course and landscaped areas and the planting of drought resistant plants.

Because the implementation of this project would have no significant impacts on the climate of the Borrego Valley, no mitigation is proposed nor deemed necessary.

J. AIR QUALITY

1. Existing Setting

The following discussion is based on the report, "Air Quality Impacts of the Proposed Rams' Hill Country Club" which is included in full as a technical appendix. The technical reader is referred to this appendix for a complete discussion of the emission factors, pollutant volumes and a full discussion of the impacts for the three air spaces.

a. Topography

The Rams' Hill Country Club property is located in the Borrego Valley, 40 miles south of Palm Springs, 60 miles northeast of San Diego and 25 miles west of the Salton Sea. Figure III-A-1 is a vicinity map of Southern California. The valley is surrounded by mountains on all sides except the southeast. The Santa Rosa Mountains, with extensive elevations above the 6,000 foot level, rim the valley on the north and east. The San Ysidro Mountain Range, at approximately 5,000 feet, is the nearest chain of mountains on the west side. To the south are the Vallecito Mountains, with elevations generally between 3,000 and 4,000 feet. The Borrego Valley is broad and flat, sloping gently to the southeast toward the Imperial Valley. The elevation near Christmas Circle is approximately 500 feet. Figure III-B-4 illustrates the topography of the valley.

The proposed Rams' Hill project is located on the south slope of the Borrego Valley approximately five to six miles southeast of Christmas Circle, adjacent to La Casa del Zorro resort. The property lies on a north facing alluvial fan surface, which extends north from the Yaqui Ridge to the Borrego Sink. Elevations on the property range from 480 feet to 1,180 feet.

b. Meteorology

Only those aspects of meteorology, such as winds and mixing depths, which are directly related to air pollution are discussed here. General climatic data is included in the section on climate. Virtually no monitoring of air quality has been done in the Borrego Valley. Basic climatological data on wind speeds and direction, mixing depths and cloudiness are scant. The following information, therefore, is the "probable" behavior of atmospheric parameters, based on approximations of local peculiarities.

The Borrego Valley is in the rainshadow of the Peninsular Range and is part of the Colorado Desert province. Unlike the coastal areas of San Diego County, the Borrego Valley does not manifest the annual or daily land-sea breeze cycle. General flow in the valley in summer is dependent on the position and strength of the fairly permanent desert low pressure system. Summer air flow has a strong southerly component which results from the steep pressure gradient and the desert low trough. In winter, the flow shifts and winds evidence more of a northerly component from the prevailing basin and area high pressure system.

Winds are generally quiet during the mornings, increasing in intensity and variability during the afternoons. During the late night a drainage flow, which is conditioned by topographical variables, develops. Flow is downslope at night, when the cold air drains into the basins and valleys. During the day the sun heats the eastern face of the mountains and a strong upslope movement develops. In the valley, localized thermal currents develop due to intense surface heating.

No direct measurements of mixing depths have been made in the Borrego Valley. It is anticipated that the maximum daily mixing depth averages about 12,000 feet, the approximate altitude at which the converging marine and desert air masses stabilize. (17) During the day, vertical mixing should be very good because of strong thermal updrafts and the deep mixing layer. Depending upon the effectiveness of the flushing action by large scale currents, pollution dispersion should be fairly effective. It is probable that during early winter mornings, cold air settling in low lying areas and night time radiation create a strong surface-based inversion. After sunrise, the ground is rapidly heated and the surface inversion disappears.

c. Present Zoning and Land Use

The 3,124 acre Rams' Hill property is designated in the County General Plan as a Specific Plan Area with an overall density of one dwelling unit per two acres. The following general uses for this property were designated by GPA 76-02: PRD units; single family residences; two acre estates; golf course; medical clinic; hotel; and resort support facilities, including a mixture of recreational and commercial uses.

In this Specific Plan, 2,158 acres of the total 3,124-acre property would be "developed", including 1,562 acres which would be dedicated as natural, undeveloped open space. Implementation of the Specific Plan would result in the construction of 780 dwelling units, part of the hotel, medical clinic, golf course, tennis courts and a mixture of commercial facilities.

The Specific Plan Area is currently zoned LC (limited control) which allows one dwelling unit per 2.5 gross acres or any use with a Special Use Permit. Proposed zoning is discussed under Land Use.

d. Existing Air Quality

No monitoring of air quality has been done in the Borrego Valley. The following is a "best guess" description of local conditions.

Air quality in the Borrego Valley should be exceptionally good. While no area in the continental United States is believed to be free of pollution episodes, the Borrego Valley, in its sheltered position from transported pollutants and with the low level of local emissions, should be relatively pristine. Although a potential exists for early morning build-up of carbon monoxide because of surface-based inversions, CO emissions are extremly low. CO levels are, therefore, not expected to ever exceed standards. Oxidant levels, likewise, should be very low because of the limited sources and deep mixing depth. The pollutant of most concern in the Borrego Valley is particulates. High volumes of dust do not occur naturally in the desert. Human activities, such as farming and off-highway vehicles, however, can generate extensive dust plumes. It is expected that during high activity periods, Federal particulate standards are frequently exceeded.

Transport of oxidant and its precursors into the Borrego Valley from the coastal metropolitan areas does not appear to be significant. Oxidant from the San Diego Air Basin is trapped by the marine inversion on the coastal side of the Peninsular Mountain Range. Where the marine and desert air masses converge, the oxidant apparently becomes stratified into thin layers and injected into the upper level westerly winds. The pollutants do not concentrate on the eastern face of the mountains because of the well-developed upslope winds during the day. It is anticipated that localized instantaneous oxidant values in the Borrego Valley can exceed federal standards of 0.08 parts per million ozone when the elevated laminae of pollutants are mixed downward to the ground by convection. (18) Hourly oxidant levels, however, are not expected to exceed standard. The Borrego Valley is not in the direct path of air flow from the South Coast Air Basin. Pollution from Los Angeles normally flows through the San Gorgonio Pass, down the Coachella Valley and from there south. Under the infrequent "Santa Ana" condition when air flows shift to north-south, strong winds flowing down the San Jacinto trough could bring pollutants from Los Angeles down both sides to the San Jacinto Mountains, transporting oxidant into the Borrego Valley.

e. Existing Emissions

Information on pollutant emissions has not been gathered in the Borrego Valley. No monitoring of oxidant, carbon monoxide or nitrogen oxides has ever been done. The Southeast Desert Basin APCD did some limited monitoring of particulates in the vicinity of Ocotillo Wells (Burro Bend) to assess the impact of off-road vehicles. A full Emission Inventory, however, has never been done. The valley is on the border between the San Diego Air Basin and the Southeast Desert Air Basin. While it shares climatic characteristics with the rest of the Lower Colorado Desert province, topographically, the valley can be considered a semi-independent air basin. The Borrego Valley was originally designated as part of the Southeast Desert Air Basin. Because of difficulties with planning, the valley was subsequently considered to be part of the San Diego Air Basin (SDAB) in 1977. This designation is strictly administrative, however, since the two areas do not share a common air mass. The Emissions Inventories of 1972 and 1974 do not include Borrego Valley emissions. (19)

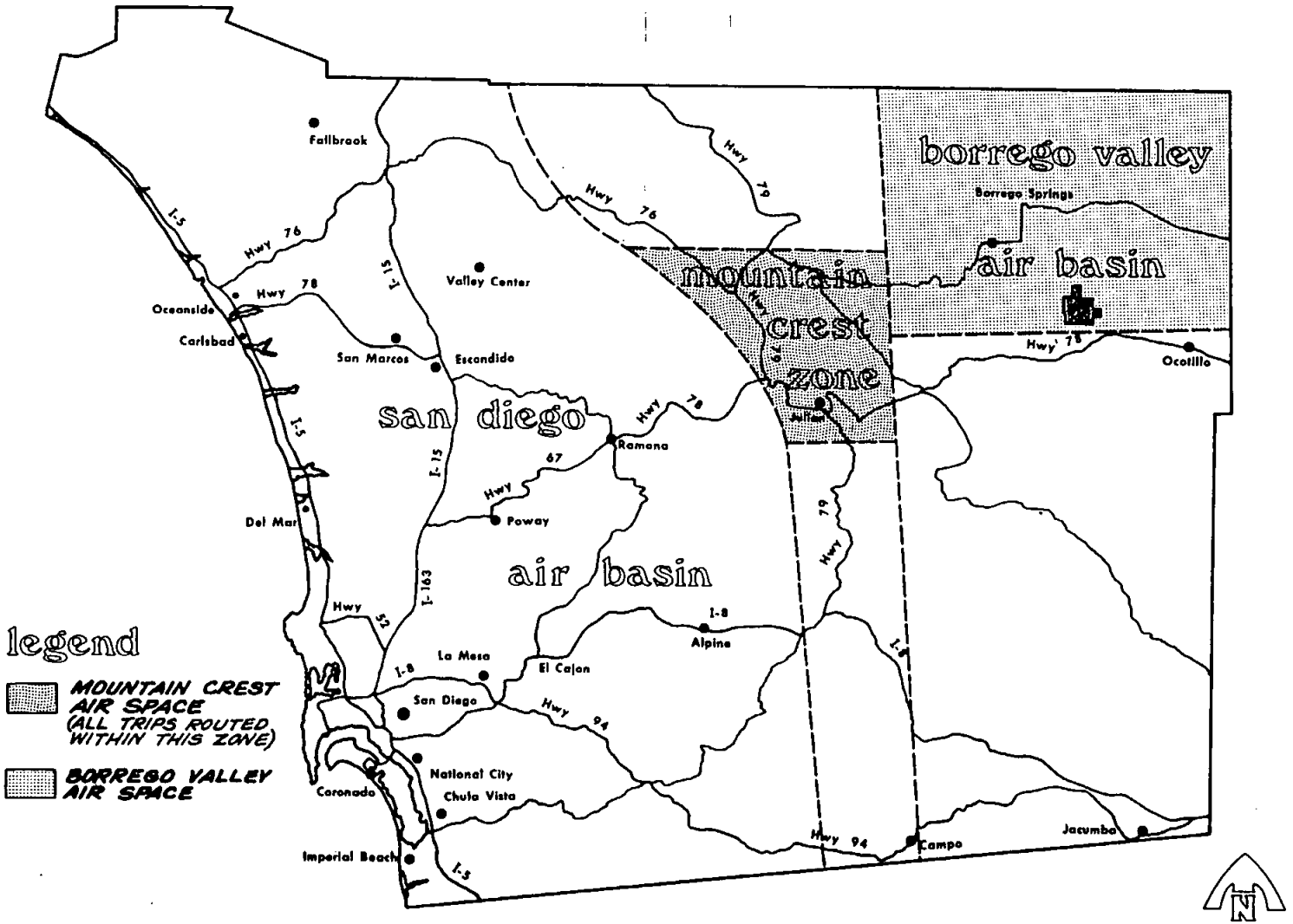
2. Project Emissions and Potential Impacts

The technical reader is referred to the appendix for a complete discussion of factors, summary of calculations, the distribution of pollutants by air space and a fuller discussion of impacts. The air quality analysis was performed after separating VMT, trips and emissions in the (1) Borrego Valley, (2) Mountain Crest area, and (3) San Diego Air Basin. Figure IV-I-1 is a schematic of the three air basins. This abbreviated discussion will include a similar format. The impact analysis used 1978 as the Base Year for emissions in the valley and 1985 as the year for full project implementation. Emissions calculations are summarized in Tables 7 through 20 of the technical appendix.

The most significant air quality issue is the impact of Rams' Hill on the pristine air quality of the Borrego Valley and Anza Borrego Desert State Park. Because existing emissions are so low, it is inconceivable that this project could trigger violations of the hourly Federal Air Quality Standards. The State Air Resources Board has proposed, though, that the Anza Borrego Desert State Park be designated as a "Class A" or pristine air quality area. This would mean that no increase in activity level could occur which would degrade the air quality below that quality which existed in 1975. The quality of the air would be judged based on an Emission Inventory using 1975 data. It is possible that ARB would allow a small increment of deterioration to preclude a permanent future moratorium. Caroline Stromberg of the ARB has voiced concern that Rams' Hill could absorb all of this potential increment. Figure IV-A-2 is a map showing the

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general scheme of air spaces used for air quality analysis

Figure IV-3-1

GENERAL SCHEME OF AIR SPACES USED
FOR AIR QUALITY ANALYSIS

relationship of the Borrego Valley to the Anza Borrego Desert State Park. This map illustrates that emissions in the valley enclave could impact the air quality of less than half the park.

The expanded analysis concludes that the implementation of Rams' Hill would not affect the designation of the State Park as a "Class A" area, nor would Rams' Hill absorb any potential increment of deterioration that is allowed by the State Air Resources Board. The decrease in VMT and trip-related emissions per vehicle from 1978 to 1985, because of more stringent controls on vehicle emissions, would more than outweigh the projected increase in automobile activity resulting from the project. The absolute levels of reactive hydrocarbon emissions in the valley, after implementation of Rams' Hill and a 25 percent increase in State Park visitorship, would decline between 1978 and 1985 not including RHC emissions from off-road vehicles. The level of RHC emission would decline from 8.05 tons per week to 4.76 tons per week in the peak season; and from three tons per week to 2.27 tons per week in the off peak season. Absolute levels of carbon monoxide would likewise decline between 1978 and 1985 from 61.57 tons per week to 45.88 tons per week in the peak season, and from 25.22 tons per week to 21.76 tons per week in the off peak. Figures IV-J-2 and IV-J-3 summarize RHC and CO trends from 1978 to 1985 by emission source. The absolute levels of nitrogen oxides, not including emissions from ORV's, could increase between 1978 and 1985 from 6.58 tons per week to 6.55 tons per week in the peak season; and from 2.67 tons per week to 3.18 tons per week in the off peak season. Figure IV-J-4 summarizes NO_x trends by source.

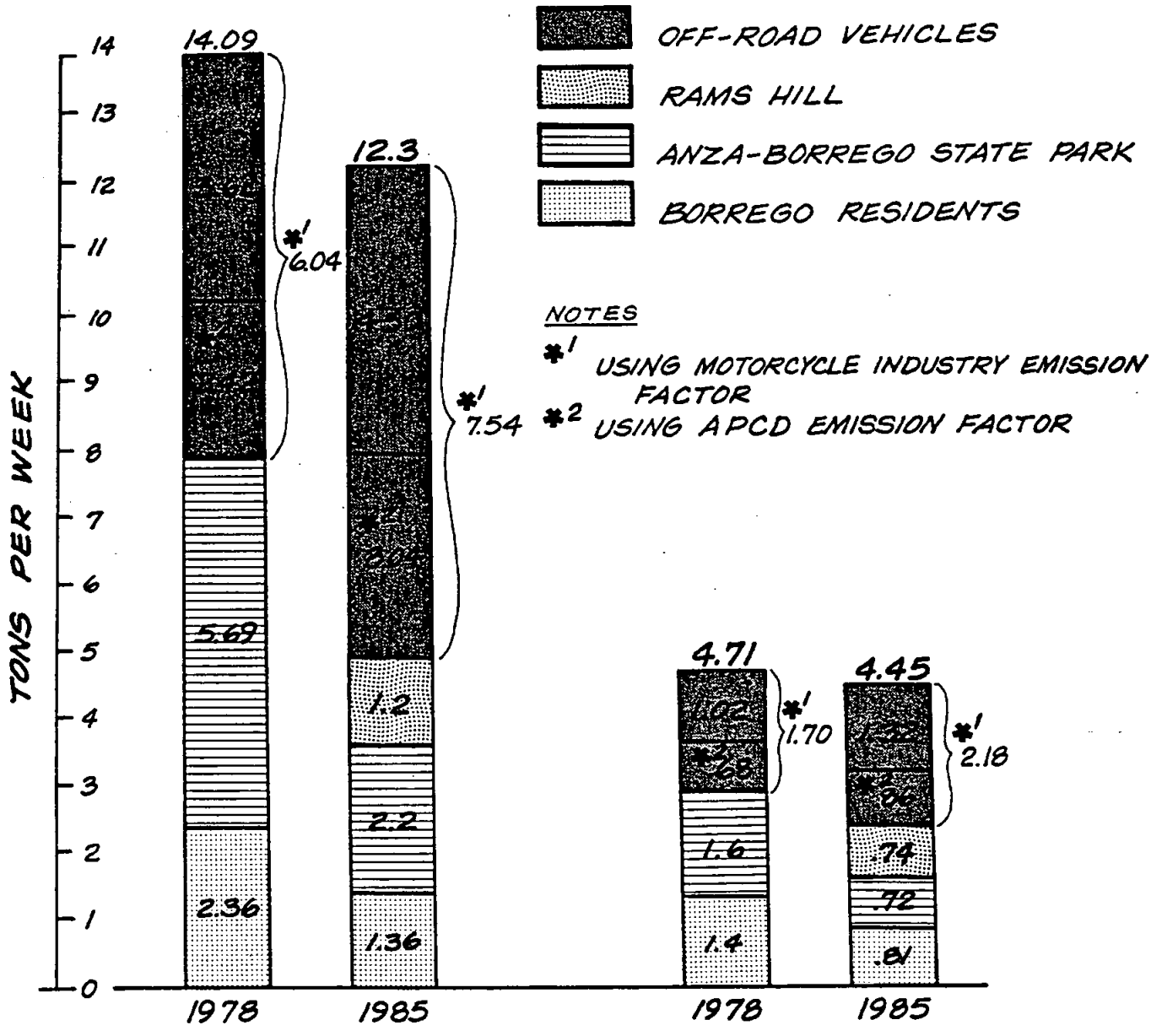
It is interesting to compare projected emissions by source, including park visitors, residents of Rams' Hill, associated activities and ORV's in the valley in 1985.

During a peak visitor season week, approximately 11 to 18 percent of the total RHC emissions would result from activity by permanent residents; 10 to 15 percent would result from Rams' Hill; 18 - 28 percent would result from park visitors; and 39 to 61 percent would result from ORV activity. In other words, emissions from ORV's are projected to be twice as great as from any other mobile source.

Figures IV-J-2 and IV-J-3 illustrate that future activity in the Anza Borrego Desert Park is projected to have a significant impact on the air quality of the Borrego Valley. In 1977, the California State Department of Parks and Recreation was granted a negative declaration by the San Diego County Board of Supervisors for the construction of a Visitor Center for Anza Borrego Desert State Park. This center will be located

Figure IV-J-2

REACTIVE HYDROCARBONS EMISSIONS COMPARISON
BY SOURCE, PEAK AND OFF-PEAK SEASONS
[illegible] 1985

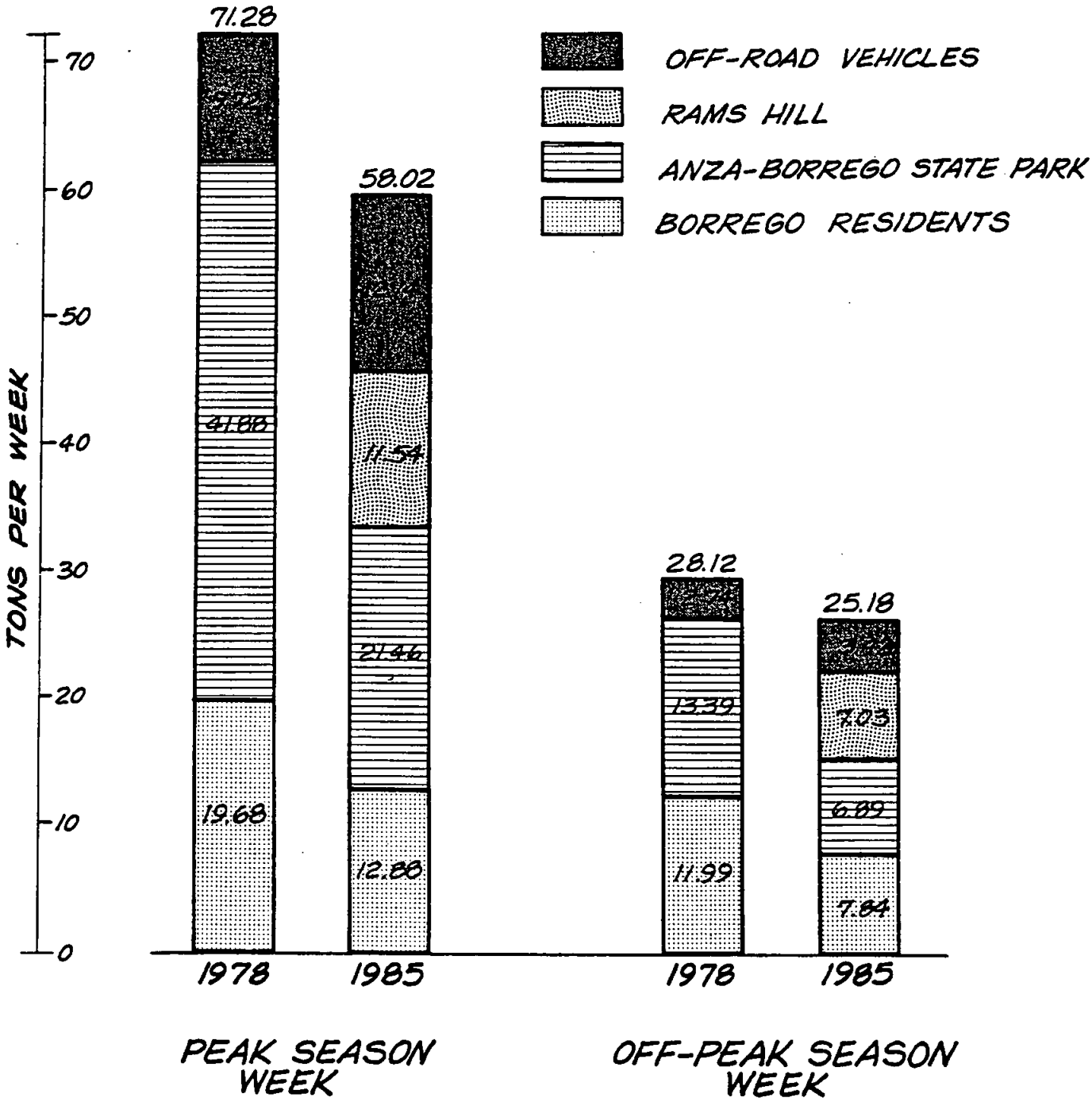


REACTIVE HYDROCARBONS EMISSIONS
COMPARISON BY SOURCE
PEAK AND OFF-PEAK SEASON WEEK
1978 vs. 1985

RAMS HILL

Figure IV-J-3

CARBON MONOXIDE EMISSIONS, COMPARISON
BY SOURCE [illegible] -PEAK SEASON
[illegible] 1985



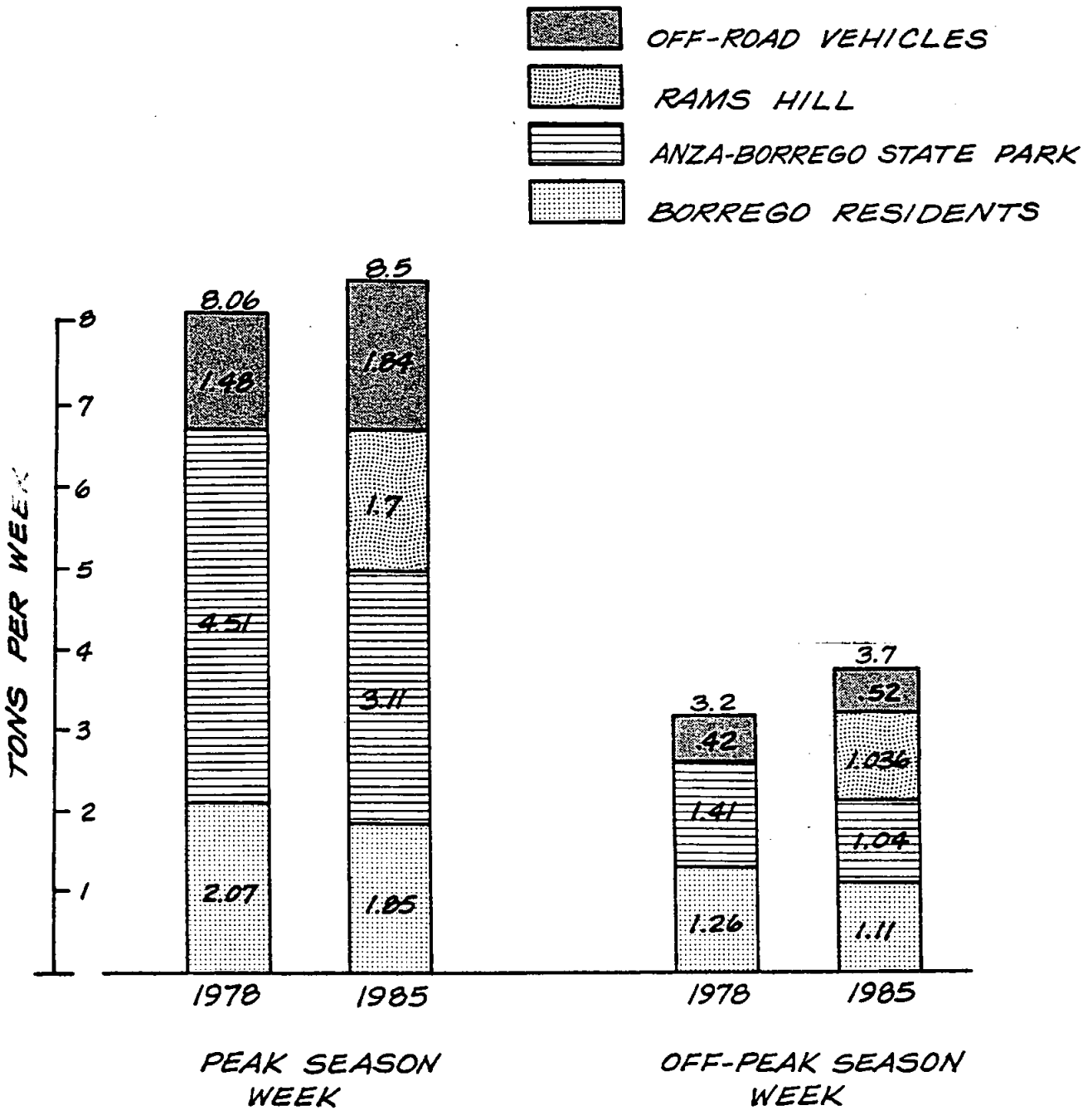
CARBON MONOXIDE
COMPARISON OF EMISSIONS BY SOURCE
PEAK AND OFF-PEAK SEASON WEEK
1978 vs. 1985

RAMS HILL

Figure IV-

NT

SIONS, COMPARISON
AND OFF-PEAK SEASON
1978 AND 1985



NITROGEN OXIDES
COMPARISON OF EMISSIONS BY SOURCE
PEAK AND OFF-PEAK SEASON WEEK
1978 vs. 1985

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at Borrego Palm Canyon, two miles east of the town center of Borrego Springs, and will have parking for 70 vehicles. The center will provide desert interpretive displays for visitors and is anticipated to increase visitorship to the Borrego Valley by 25 percent each year, mostly during the peak visitor season. This increased visitorship will potentially lead to higher ORV usage. The visitor center was determined to have no significant impact on the air quality or traffic flow in the Borrego Valley.

The single most significant emission source in the valley is off-road vehicle activity. Should the State Air Resources Board become concerned about air quality in the Anza Borrego Desert State Park in the future, it is suggested that restrictions be placed on off-road activity within the Park. These restrictions would have the additional benefit of decreasing particulate pollution, preserving archaeological sites, and protecting the desert ecosystem and biological habitat, all of which are being severely impacted by increasing ORV activity.

As with any development, the Rams' Hill project would increase the level of emissions within the Borrego Valley air space over that level which would exist without the project. Because of the increasing regulation of motor vehicles, however, total emissions in the Borrego Valley are proposed to be slightly lower in 1985 with the full implementation of Rams' Hill and the anticipated increase in State Park visitorship than the total volume in 1978.

a. Potential Impacts on the San Diego Air Basin

The Rams' Hill Project would impact the San Diego Air Basin by increasing the number of long distance trips destined for the Borrego Valley and by increasing the level of power plant emissions to supply energy to the project. The analysis in the appendix assumes as a "worst case" that trips destined for Rams' Hill would not otherwise go to Borrego, and that the electricity generated for use at Rams' Hill would not otherwise be used by the same people in homes elsewhere in the San Diego Air Basin.

Based upon the complete analysis set forth in the appendix, Rams' Hill would incrementally increase the levels of RHC, NO_x, CO and particulates emitted in the San Diego Air Basin. This impact would be somewhat mitigated by the seasonal nature of visitorship to the project. Peak levels of RHC and NO_x emissions would occur during the winter months, November through April, rather than during the more critical "smog season", May through October. The emissions of CO, however, would be greater during winter months when the potential for CO buildup is most severe along the coast. While the absolute level of emissions in the San Diego Air Basin is extremely low, any increase in emissions in a non-attainment zone could be considered significant.

b. Mountain Crest

The Rams' Hill project would not significantly impact air quality in the Mountain Crest. Rams' Hill would incrementally increase the levels of RHC, CO and NO_x, due to increased vehicle travel destined for Borrego Springs. RHC emissions in the mountain area would increase by 0.014 tons per day during the peak season and by 0.009 tons per day during the off peak season. CO emissions would increase 0.21 tons per day during the peak season and by 0.13 tons per day during the off peak season. NO_x emission would increase by 0.05 tons per day during the peak season and by 0.03 tons per day during the off peak season.

3. Analysis of Significance

The Borrego Valley is currently a pristine air basin. All efforts to protect air quality and preserve the natural beauty of the valley and the Anza Borrego State Park should be encouraged. The State Air Resources Board and San Diego County Air Pollution Control District should establish a full monitoring program to assess the current air quality in the Borrego Valley. The Air Resources Board and local APCD also should develop an emissions inventory, and impose restrictions on all stationary sources to the greatest extent feasible.

Because Rams' Hill would not impact air quality in the Borrego Valley, no mitigating measures are deemed necessary. The project design, however, does incorporate an internal bicycle trail system, and an internal and regional riding and hiking trail system. All of these would tend to reduce motor vehicle emissions and thereby enhance air quality in the valley. All measures to increase the utilization of these facilities and other alternative modes of transportation should be encouraged.

The number and frequency of air flights to the Borrego Valley would probably increase by 1985, capturing an increasing portion of potential long-distance trips thereby reducing VMT related emissions. The increased level of service would be implemented by Sun Aire Lines.

The level of service of the Rural Lifeline Transit System to Borrego Springs could be increased. This system, which will be implemented from San Diego to Borrego Springs in January 1979, should capture approximately one percent of the long distance commuter trips at current project levels of service.

According to the foregoing analysis, the single most significant emissions source in the Borrego Valley is off-road vehicles. Should the State Air Resources Board and Anza Borrego Desert State Park become concerned about air quality deterioration, it is suggested that a quota on the number and type of off-road vehicles be established and enforced in the park.

The Rams' Hill project would incrementally increase the level of RHC, CO, NO_x and particulate emissions in the San Diego Air Basin. The use of solar energy for domestic space and water heating would substantially mitigate the potential impacts on the San Diego Air Basin by decreasing by about one-third the emissions of CO, NO_x, sulphur oxides, and particulates from power plant generation to supply the project.

An increase in the level of public transportation facilities for long distance trips to and from Rams' Hill, as described above, could potentially decrease VMT and trip related emissions within the San Diego Air Basin.

In conclusion, the Rams' Hill project would not significantly impact the air quality of the Borrego Valley because of the projected reduction in emissions per vehicle. The project would not impact air quality in the Mountain Crest area because existing and projected emissions are so low. The project would increase emissions in the San Diego Air Basin. This increase would be substantially mitigated by project design and provision of alternative transportation. Any increase in emissions in a non-attainment zone, however, could be considered significant and cannot be fully mitigated.

K. NOISE

1. Existing Setting

The primary sources of noise in the vicinity of the project site are traffic, aircraft flyovers and off-road vehicles. The roads which would potentially impact the project include Yaqui Pass Road, Borrego Springs Road, SC 460 and roads for internal circulation. Aircraft using Borrego County Airport and the Fletcher Air Ranch could potentially impact the site. (Figure IV-B-1 is the map of the Borrego Valley). Off-road vehicles, operating mainly on weekends, create noise impacts throughout the Borrego Valley.

Existing noise levels on the project site are well below County standards. A noise survey of the site was conducted in May 1979 by PRC Technical Applications, Inc. This survey, which is included in full as a technical appendix to the EIR, revealed that noise levels on site have not changed substantially since 1978, when a noise survey was conducted by Westec Services, Inc. Little recent development has taken place within the immediate vicinity of the project, although traffic on Yaqui Pass Road has increased due to increased State Park traffic.

Aircraft flyovers are an intermittent source of noise at the project site. Although Rams' Hill is not in a direct flight path to Borrego Valley Airport, it is within the flight route for Fletcher Air Strip. In 1977, the Borrego Airport handled 38,000 flights, including "touch and go's". Data on average daily volumes was not available. It was not possible to calculate associated airport noise due to a lack of information. Very few planes use the Fletcher Air Strip.

According to residents, off-road vehicles operating within the valley on weekends can cause serious disturbances. Information on the number and pattern of ORV's operating in the vicinity of the site is unavailable. Random motorcycle trails on-site indicate that significant numbers of ORV's have used the area in the past.

2. Potential Impacts

A major goal of the developer for the Rams' Hill project has been the preservation of a serene desert atmosphere for the residents and visitors at the development. Large areas of open space, extensive landscaping, setbacks of building pads from internal roads and complete separation of residences from major roads, such as Yaqui Pass Road, are all design features which serve to preserve a quiet, ambient noise level.

Upon implementation of the proposed project, the major on-site noise source would be traffic. The noise levels resulting from this traffic in 1985 and 1995 will be well below County standards as defined in the General Plan Noise Element. The addition of project-generated traffic to other valley roads would slightly increase the amount of noise produced valley-wide. Traffic generated by the Anza Borrego State Park and secondary growth would also slightly increase noise levels.

By 1985, noise levels on-site may increase due to expansion of facilities of proposed roads, population increase and increased visitorship to the site by people touring the Anza Borrego Desert State Park. Using 1995 traffic projections and Wyle Laboratory calculation methods, the following theoretical noise levels were calculated. These estimates assume that all roads would be built to full standard. In addition to that traffic generated by Rams' Hill, it is assumed that other traffic on the roads would continue to increase from 1985 to 1995 in the same manner as it is projected to increase from present day to 1985. The Wyle Report is on file with the Comprehensive Planning Organization and the County Environmental Analysis Division. Table IV-K-1 summarizes the projected noise levels by phase I, phase II and 1995. Figure IV-K-1 is a map of the 1995 projected CNEL levels.

Noise from aircraft flyovers would incrementally increase from 1978 to 1995 with the development of Rams' Hill. Since the completion of the 5,000 foot runway, the capacity of the airport is 300,000 flights per year. The airport can handle any size plane up to private jets. Should use of this airport increase significantly, potential safety hazards might necessitate the installation of a control tower and regulation of flight paths. These measures could also serve to minimize the number of aircraft flying directly over the property, thereby reducing potential noise impacts.

Increased vehicular activity within the Borrego Valley by residents of Rams' Hill would incrementally and insignificantly increase the level of noise in the valley, including traffic noise, aircraft noise and possibly off-road vehicle noise.

Short-term intermittent noise impacts in the valley might be experienced during the construction phase due to increased truck traffic on valley roads. No significant impacts are anticipated in the immediate vicinity of the project. The site is removed from existing homes and structures and there are few potential receptors.

When the 966 acres included in the Concept Plan are fully developed, the level of traffic activity due to the project would increase substantially. It is not anticipated at this

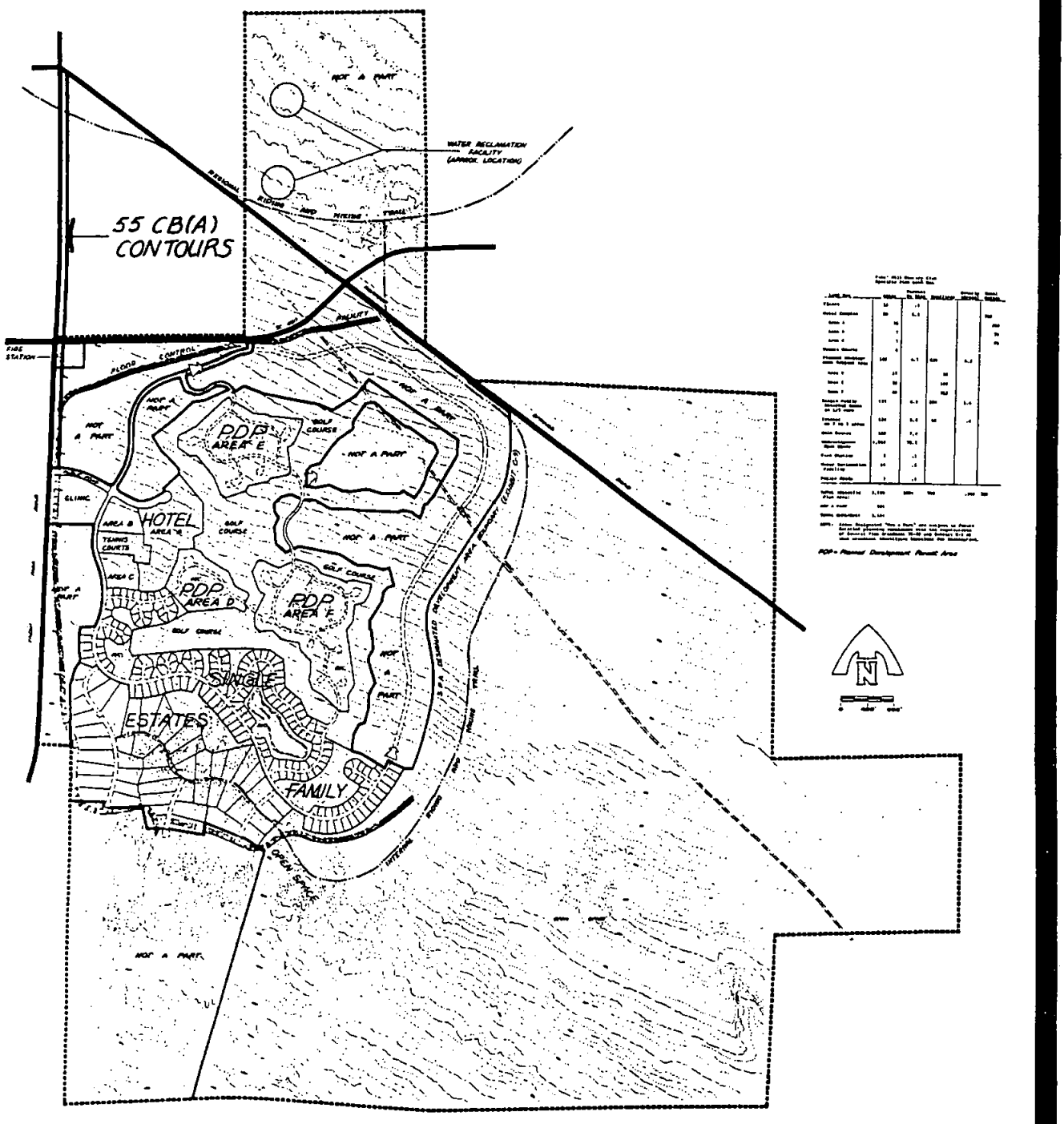
Table IV-K-1

Projected Noise Levels

Road	Distance to Property Boundary (Ft.)	1978 CNEL Noise Level at 50 Feet	Phase I CNEL Noise Level at 50 Ft.	Phase II CNEL Noise Level at 50 Ft.	1995 CNEL Noise Level at 50 Ft.
Yaqui Pass Road between Borrego Springs Road and project entrance	0	50 dB(A)	55 dB(A)	56.6 dB(A)	57 dB(A)
Borrego Springs Road	0	50 dB(A)	50 dB(A)	50 dB(A)	50 dB(A)
SC 460	0	does not exist	50 dB(A)	50 dB(A)	50 dB(A)
Internal Loop Road at Hotel	0	does not exist	52 dB(A)	55 dB(A)	53 dB(A)

Figure IV-K-1

1995 PROJECTED CNEL LEVELS



1995 cnel levels

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RAMS HILL

time that this additional level would create significant noise impacts. However, should the valley population increase more rapidly than anticipated, the roads could generate noise above the 55 dB(A) CNEL level in 1995.

3. Analysis of Significance

No significant noise impacts are anticipated due to implementation of the Rams' Hill project. Increased activity in the valley from the additional population would incrementally, but not significantly, increase traffic-related noise levels.

As discussed above, the on-site design of the project creates large separations between traffic and residences which would serve to preserve the quiet desert environment for residences and guests. Controlled access to the site and the closure of Old Borrego Valley Road, which extends diagonally across the project, would further control traffic-related noise. It is suggested that a covenant be placed on residents and guests prohibiting use of ORV's on the project site.

Noise from off-road vehicles could increase due to recreational use of ORV's by Rams' Hill residents and visitors. This could be mitigated by prohibiting ORV use on the project's open spaces, including the 1,562 acres in the eastern half of the project. ORV activity could also be regulated within the Anza Borrego Desert State Park.

L. ENERGY

1. Existing Setting

Because of its relatively isolated location, the Borrego Valley does not enjoy the diversity of energy sources available in the coastal metropolitan areas. The primary source of energy for domestic and commercial uses is electricity. The valley is not served by natural gas. The Roadrunner Mobile Home Park is the only facility which uses liquified natural gas (LNG). Small users of propane and butane are scattered throughout the valley. Alternative energy sources, such as wind and solar energy, are not widely utilized yet in Borrego, although the valley could prove to be an ideal testing ground for many such alternatives.

As the primary source of energy, electricity is used for home purposes such as heating, cooling and the operation of appliances; for commercial purposes such as lighting; for domestic and agricultural water supply; and for industry. The one industry located in the valley, other than agriculture, is the Borrego Assembly, which manufactures electronic circuit boards.

Electric service is provided by the San Diego Gas and Electric Company which operates one substation in Borrego Springs with a capacity of 8.75 megawatts. One transmission line corridor, which runs adjacent to Borrego Springs Road, serves the substation. San Diego Gas and Electric utilizes an intertied transmission system, so electricity to Borrego Springs can come from numerous generating stations located in the coastal areas using a multitude of fuels. San Diego Gas and Electric was unable to ascertain the number of kilowatt hours used each month in Borrego, although patterns in peak demand were identified. (22)

Electrical consumption patterns in the Borrego Valley evidence a strong seasonality. The peak electrical demand is greatest during the summer when the peak demand at the Borrego Springs substation is between 5.5 and six megawatts per day. This high demand is probably attributable to the high energy consumption for air conditioning and for water pumping. Winter peak demand is approximately 75 percent of summer peak, or four to 4.5 megawatts per day. Space heating is probably responsible for a large portion of this demand. Spring and fall peak demands are approximately 65 percent of the summer peak, or 3.5 to four megawatts per day. (23)

Gasoline and diesel fuels for transportation and commuting are the other primary energy resources utilized in the Borrego Valley. Food and supplies for Borrego Springs are trucked in from the coastal metropolitan areas and from the Imperial Valley. Agricultural products are in turn trucked out to market. Borrego Springs is a resort and second home community for coastal residents. The valley has limited support services so residents make long distance trips to the coastal metropolitan areas for major shopping, medical care, entertainment and other purposes. The valley also features the headquarters of the Anza Borrego Desert State Park. Average trip length into the valley from San Diego is 65 miles; the trip length from El Centro is 65 miles. Locally, the Borrego Springs residential community is dispersed with shopping facilities centralized downtown. The average local trip length is approximately eight miles.

The Borrego Valley provides an ideal setting for utilization of solar energy. The generally clear skies permit the collection of large amounts of solar energy on a year-round basis. Temperatures during the winter are relatively mild, thus reducing the heating lost and improving collector efficiency. Thermal storage is required mainly for providing heat at night and not for prolonged periods of cloud cover. Table IV-L-1 is a table of the estimated available solar radiation at Borrego Springs. Table IV-L-2 is a table of the average temperature and number of heating degree days by month in Borrego Springs.

2. Potential Impacts

The Rams' Hill project would increase the level of energy consumption in the Borrego Valley. Electricity would be used for domestic purposes and to supply power for the sewage system and for water supply. Petroleum fuels would be consumed for transportation. Total domestic consumption would be minimized by the use of solar energy and by basic design constraints. Domestic energy consumption is analyzed in the Solar Energy Feasibility Report prepared by Dr. Dennis Kasper. This report is included in full as Technical Appendix F to the EIR. The Solar Energy Report analyzes the energy consumption for each domestic function (lighting, space heating, appliances) by land use (hotel, condominium, single family home). In addition to the domestic energy

Table IV-L-1

ESTIMATED AVAILABLE SOLAR RADIATION AT BORREGO SPRINGS

	Radiation on Horizontal Surface (BTY/FT^2 day)	Radiation on Surface at 30° from Horizontal (BTU/FT^2 day)
January	1014	1615
February	1364	1904
March	1751	2075
April	2027	2057
May	2286	2066
June	2396	2036
July	2396	2086
August	2212	2111
September	1990	2020
October	1475	1949
November	1106	1679
December	922	1536

From: Kasper, Dennis, "The Effect of Solar Energy on Electrical Energy Demands at Borrego Springs" p. III-3

Table IV-L-2

CLIMATOLOGICAL DATA FOR BORREGO DESERT PARK
AVERAGE TEMPERATURE AND DEGREE DAYS

Month	Average Temperature (a)	Heating Degree Days (b)
January	55.4	293
February	58.4	166
March	61.4	155
April	66.5	52
May	77.6	14
June	87.0	0
July	90.8	0
August	89.3	0
September	84.6	0
October	74.6	9
November	64.3	106
December	57.6	260
Total		1,055
Average	72.2	

(a) Average 1973-1976 Borrego Desert Park, degrees Fahrenheit.

(b) Average 1972-1977 Borrego Desert Park.

From: Kasper, Dennis, "The Effect of Solar Energy on Electrical Energy Demands at Borrego Springs", p. III-5

projection, the energy required to operate public facilities, such as water wells and the sewage treatment plant, has been estimated. The fuel consumed for transportation by residents, guests and commercial service vehicles has been projected based on vehicle miles traveled.

a. Domestic Energy

The Solar Energy Report projects the level of energy consumption for domestic and hotel-resort uses. These uses include space conditioning, cooking, appliances, laundry, and illumination. For purposes of this analysis, a worst case projection of domestic electrical consumption was used. In practice, domestic consumption for electrical appliances tends to be substantially less than this maximum projected figure. The analysis for space conditioning is based on standard formulas in use by the State Uniform Building Code.

Because occupancy fluctuates substantially in a desert resort area such as Borrego Springs, the seasonal occupancy has a significant effect on monthly and yearly energy requirements. The Solar Energy Report projects energy consumption based on a net monthly occupancy factor. Net monthly occupancy equals the percentage of units occupied plus a factor to account for base load usage of unoccupied units. Base load includes energy to maintain minimum lighting, space conditioning and other maintenance needs. During the summer months when the average occupancy is as high as 35 percent, the net occupancy approaches 50 percent, since it is assumed that the unoccupied dwellings would increase the load by about 15 percent. Figure IV-L-2 illustrates the projected occupancy fluctuations which have been used for planning purposes in this study.

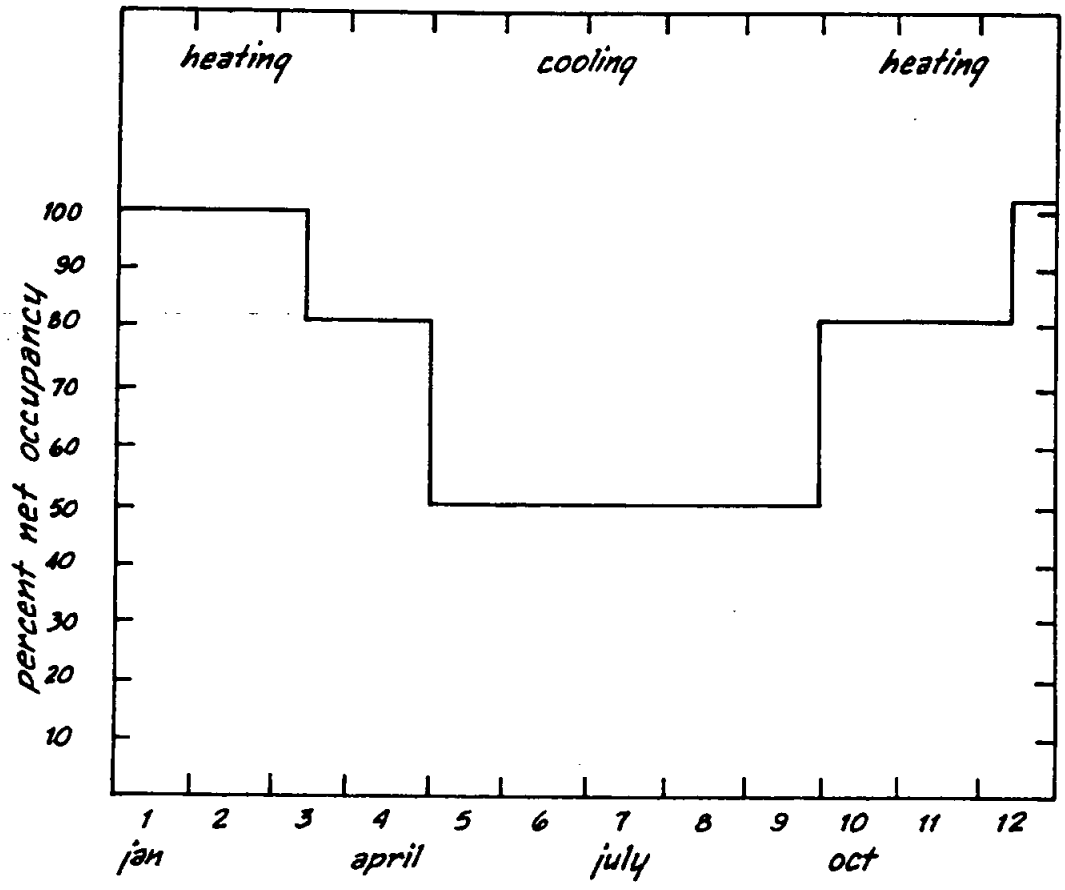
Assuming that the entire energy needs of the project would be supplied by electricity and assuming no mitigation through the use of solar space and water heating, Kasper estimated that the annual electricity demand would be 19,418,700 kilowatt hours. Monthly electricity demand would range from a high of 2,299,500 kilowatt hours in the summer to a low of 913,700 kilowatt hours in the late spring. The peak monthly demand would occur in July even though net occupancy is assumed to be only 50 percent during the month. The large energy requirement in July would be due to the large electrical requirement for air conditioning. In a theoretical worst case context, should year-round occupancy of all dwellings occur, the peak power demands which would occur during July could possibly increase almost two-fold over the projected demands. Table IV-L-3 is a projection of the total energy demands by use each month for the Specific Plan phase of development.

Figure IV-L-1

PROJECTED SEASONAL VARIATION
IN NET OCCUPANCY

FIGURE IV-L-1

Projected Seasonal Variation in
Net Occupancy



b. Solar Energy

The energy requirements would not be met entirely by electricity. Solar energy would be used for pool, water and space heating. Solar energy would not be used for space cooling because no reliable systems are yet available commercially. Dr. Kasper projected the reduction in electricity consumption with the use of solar equipment designed to supply 70 percent of the hot water/space heating requirements for January. A net occupancy and utilization factor of 50 percent for summer was assumed for planning purposes as explained above. Use of solar energy for both water and space heating would substantially reduce annual energy requirements from 19,418,700 kilowatt hours to 13,033,700 kilowatt hours. Peak power savings of 956,800 kilowatt hours per month would occur during December when heating demands would be greatest. Peak power consumption still would occur during summer when no space heating requirements occur and when all water heating is done by the solar system. Table IV-L-4 summarizes the projected reduction in both annual and peak monthly electrical requirements which would be achieved by application of the proposed solar energy system.

c. Water and Sewer Energy Consumption

In addition to the energy required for domestic purposes, electricity would be required to operate the waste water treatment plant and the pumps for water supply. The energy requirements of the waste water treatment facilities have been estimated in the Lowry and Associates report, Waste Water Reclamation, Rams' Hill Country Club, which is included as Technical Appendix E. The electricity to operate well pumps has been estimated based on project projected demand and Borrego well data in "Water Supply for Southern Borrego Valley Project" by Linden Burzell.

Lowry and Associates have estimated the power requirements of the waste water reclamation plant functioning at its design capacity of 250,000 gallons per day. Electrical energy demand would be proportional to the volume of sewage processed by the plant. The larger the flows, the longer the pumps would need to operate. The energy requirements presented below would not be applicable to the marginal volumes which could be expected before the Specific Plan is fully implemented. The estimates would also not apply to flows below 100,000 gpd. These low flow periods would occur during summer months, when sewage effluent is not being recycled for use on the golf course.

Table IV-L-3

TOTAL ENERGY DEMANDS FOR RAMS' HILL SPECIFIC PLAN

Month	Hot Water (KWH)	Space Heater (KWH)	A/C (KWH)	Appliances (KWH)	Total (KWH)
January(100%) a	462,200	904,700	0	753,300	2,120,200
February (100%)	462,200	513,900	0	753,300	1,729,400
March (90%)	416,000	426,500	0	678,500	1,521,000
April (80%)	370,000	132,200	0	603,700	1,105,900
May (50%)	231,100	20,900	282,400	379,300	913,700
June (50%)	231,100	0	1,297,200	379,300	1,907,600
July (50%)	231,100	0	1,689,100	379,300	2,299,500
August (50%)	231,100	0	1,537,700	379,300	1,645,900
September (50%)	231,100	0	1,035,500	379,300	1,645,900
October (80%)	370,000	16,600	0	603,700	990,300
November (80%)	370,000	264,400	0	603,700	1,238,100
December (90%)	416,000	704,500	0	678,500	1,799,000
Total	4,021,900	2,983,700	5,841,900	6,571,200	19,418,700

a Occupancy factor.

From: Kasper, Dennis, "The Effect of Solar Energy on Electrical Demands at Borrego Springs".

Table IV-L-4

REDUCTION IN ELECTRICAL ENERGY DEMAND
WITH SOLAR HOT WATER

Month	Total Energy Demand (KWH)	Total Hot Water Demand (KWH)	Hot Water Energy Demand Supplied by Solar (KWH)	Total Electrical Energy Demand with Solar Hot Water (KWH)
January	2,120,200	462,200	323,500	1,796,700
February	1,729,400	462,200	381,400	1,348,000
March	1,521,000	416,000	415,600	1,105,400
April	1,105,900	370,000	370,000	735,900
May	913,700	231,100	231,100	682,600
June	1,907,600	231,100	231,100	1,676,500
July	2,299,500 b	231,100	231,100	2,068,400
August	2,148,100	231,100	231,100	1,917,000
September	1,645,900	231,100	231,100	1,414,800
October	990,300	370,000	370,000	620,300
November	1,238,100	370,000	336,300	901,800
December	1,799,000	416,000	307,700	1,491,300
Total	19,418,700	4,021,900	3,660,000	15,758,700

a Based on supply 70 percent of January hot water demand with Solar. Other months use:

$$\text{(Jan Solar Supply)} \times \frac{\text{Monthly Rad.}}{\text{January Rad.}} = \text{Monthly Water Supply}$$

b Peak Electrical Requirement

Electricity would be required to operate equipment in the sewage treatment plant including the cominutor, aeration brushes, secondary clarifier, return sludge pump, and reclaimed water pumps. The combined horsepower necessary to run the equipment would be 56 HP per hour. For a maximum flow day, power consumption would therefore be:

56 HP (.746 kw/hour) x (24 hours) = 1,003 KwH/day of maximum flow

During low flow periods below 100,000 gpd, the sewage effluent would not be recycled for use on the golf course, so the reclaimed water pumps would not be operating. The combined horsepower required to run equipment during non-recycling flows would be 36 HP per hour. Power consumption during summer would therefore be:

36 HP (.746 kw/hour x (24 hours) = 645 KwH/day of low flow

Annual energy consumption to operate the sewage treatment plant would be:

265 days (1,003 KwH day) + 100 days (645 KwH/day) = 330,295 HwH/year

In Water Supply for the Southern Borrego Valley, Linden Burzell has estimated the amount of electricity needed to supply water for the project, using four wells, with known flow rates and well depths, three of which are on the property and one of which is on a parcel located a mile away. This analysis can be assumed to be representative of energy requirements to operate wells within the Borrego Valley today. Should the water table drop, the energy needed to pump water would increase. Should wells be used other than the three located on-site and the one located off-site, additional energy would be required to pump water up grades and over longer distances. The total energy expended to supply water to this project, therefore, would probably increase over time. This analysis is a conservative estimate of the amount of electricity needed to supply water for the Specific Plan. Assuming that the Rams' Hill project would require 2064 acre feet of water per year after full implementation of the Specific Plan, the electricity required to operate the four on-site well pumps would be:

$$\frac{257 \text{ KWH} \times 1 \text{ hour}}{1970 \text{ gp} \times 60 \text{ min}} \times \frac{325{,}900 \text{ gallons}}{\text{acre feet}} \times \frac{2064 \text{ acre feet}}{\text{year}} =$$

1,462,547 KWH per year

d. Gasoline Consumption

The implementation of the Rams' Hill project would incrementally increase the amount of gasoline consumed in the Borrego Valley. The valley has limited support services available, so residents of Rams' Hill would make short distance trips within Borrego Valley and long distance trips to the coastal metropolitan areas. This would be somewhat mitigated by the provision of transit service to San Diego by the County Rural Lifeline Transit System which will begin operations in January, 1979. Air line service is also expected to increase with the implementation of the project. Supplies and provisions for residents of the project and for the resort complex would need to be trucked in from nearby coastal areas and from the Imperial Valley. The level of tourism in the State Park could increase above that level currently projected by the California State Department of Parks and Recreation due to increased trips by project residents, guests and resort visitors.

CalTrans has estimated that the 1985 automobile fleet will have a fuel economy of 18.5 miles per gallon. This factor assumes that the "Federal Energy Policy and Conservation Act of 1975", which mandates fuel performance standards for automobiles, is not quite met. Using this factor of 18.5 miles per gallon, the following calculations estimate the amount of gasoline which would be consumed by residents of the project, guests and resort visitors. These calculations include the gasoline associated with trucking supplies into the valley for use at Rams' Hill.

$$18.5 \frac{\text{miles}}{\text{gallon}} \div \frac{167{,}597 \text{ miles}}{\text{peak season day}} = \frac{9{,}059 \text{ gallons}}{\text{peak season day}}$$

$$18.5 \frac{\text{miles}}{\text{gallon}} \div \frac{95{,}539 \text{ miles}}{\text{off season day}} = \frac{5{,}164 \text{ gallons}}{\text{off season day}}$$

$$183 \text{ peak season days} \times \frac{9{,}059 \text{ gallons}}{\text{peak season day}} +$$

$$182 \text{ off season days} \times \frac{5{,}164 \text{ gallons}}{\text{off season day}} = 2{,}597{,}645 \text{ gallons/year}$$

e. Concept Plan

The energy requirements for the second Specific Plan phase can not be precisely determined since the uses are planned in concept only at this time. It is anticipated that the numbers of residential units would double and the number of hotel rooms would increase by 250 units. Therefore it can be assumed that the total domestic energy consumption

would double in the concept phase, as would the energy used for transportation. The energy required to run the waste water facility would more than double since the number of low flow days would be considerably less with more units and with people residing year-round. The energy needed to pump water would increase by about 25 percent.

f. Comparative Energy Use

Because of the climatic and elevation differences, the energy requirements for heating and cooling homes varies widely in San Diego County. One good indicator of these requirements is the climatic design data listed in the Energy Conservation Standards for new residential buildings (California Administrative Code) for various towns in the County. Table IV-L-5 includes design data for a sample of areas in the County.

Table IV-L-5

Climate Design Data
San Diego County

Location	Heating Degree Days	Winter Design	Summer Design
Ramona	2,223	26	99
Alpine	2,104	32	98
El Cajon	1,920	30	96
Escondido	2,052	31	93
Borrego Springs	1,262	28	106
San Diego	1,439	42	84
Envinitas	1,952	39	83
Oceanside	2,092	37	82

As this table indicates, the heating requirements for a home in Borrego are 12 to 45 percent lower than in other parts of the County. The cooling requirements, however, are substantially greater.

San Diego Gas & Electric Company divides San Diego County into three climatic zones: maritime, coastal and inland. The maritime zone includes those areas along the coast, such as Del Mar and Oceanside. The coastal zone includes those areas within a few miles of the coast, such as Chula Vista and Mira Mesa. The inland zone includes areas which are less moderated by the ocean such as El Cajon and Poway. The interior areas such as Ramona and Borrego are also included in the inland zone.

According to data received from San Diego Gas and Electric Company, the average single family all-electric home in the maritime zone uses 11,371 KwH/year; a similar all-electric home in the coastal zone uses 13,966 KwH/year; the average single-family home in the inland zone uses 14,759 KwH/year.

According to data derived from actual meter samples, a typical Borrego residence which is occupied year-round uses 16,635 KwH/year. San Diego Gas and Electric estimates that each Borrego home typically uses 585 KwH/month from late May to late September for space cooling. By contrast only about 15 percent of the homes in the maritime and coastal zones have air conditioning.

The Rams' Hill project will require substantially less energy per unit for heating and cooling than a typical Borrego residence. The Rams' Hill units will be insulated with at least R-19 insulation in the roof and R-11 insulation in the walls. Solar energy systems will be used to meet 70 percent of the space heating requirements. Of the 780 dwelling units proposed, 530 units will be townhouses, which require approximately 30 percent less energy to cool than the typical single-family structure.

The seasonal occupancy anticipated for a second home development such as Rams' Hill will also reduce annual electrical consumption. In similar developments, such as De Anza Country Club and the Roadrunner Mobile Home Park, approximately one third of the units are occupied year round, one third are occupied seasonally and one third are occupied on weekends only. Since as many as two thirds of the units could be vacant during the high energy demand summer months, total annual consumption on the project will be substantially less than the potential maximum consumption.

3. Analysis of Significance

Total annual energy consumption for the project is estimated to be 14,862,542 KwH and 2,597,645 gallons of gasoline per year, based on:

Table IV-L-6

Total Energy Consumption

Domestic	-	13,033,700 KwH per year
Sewage	-	330,295 KwH per year
Water	-	1,462,547 KwH per year
Transportation	-	2,597,645 gallons of gasoline per year

Total domestic energy consumption on the Rams' Hill project would be minimized to the extent feasible by the application of solar technology and passive design techniques. As discussed above, solar energy would be used for pools, water and space heating. The system recommended for use in the Solar Energy Report would be sized at 70 percent of the January hot water/space heating requirement. Implementation of this system would reduce domestic energy demands by one-third from 19,418,700 KwH per year to 13,033,700 KwH.

Passive design and orientation techniques would be encouraged in the siting of the structures to the extent feasible. Proper orientation and shading of buildings would aid in heating a building during cold months and reducing cooling load in the summer. Other design techniques which could be used include maximizing insulation in the roofs and walls, using light colors on building roofs, designing windows and proper landscaping for maximum natural ventilation.

The County Rural Lifeline Transit system will begin service from San Diego to Borrego Springs in January, 1979. The increase in valley population due to the project could create demand to further increase the level of service available from the transit system. Utilization of this service by project residents would decrease the number of long-distance vehicle trips between the coastal areas and the project, thereby reducing gasoline consumption.

The complex would include an internal and a regional trail system to encourage walking, bicycling and riding. Clustering of dwelling units and the provision of services on site would minimize number and length of vehicle trips.

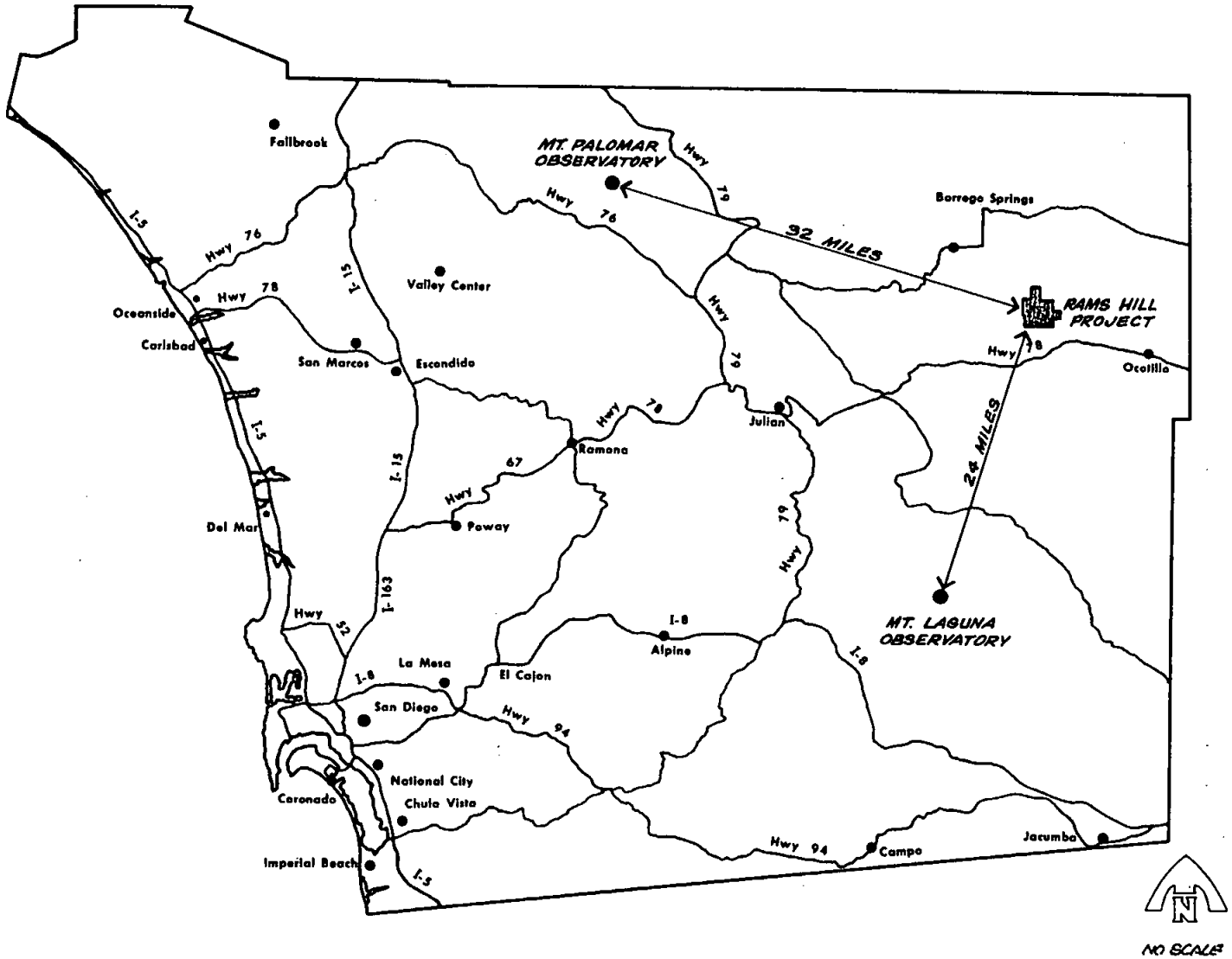
The waste water treatment facility would be designed to handle a large variability in flow volumes, from 250,000 gallons per day in winter to 50,000 gallons per day or below in summer. Effluent would be recycled for use on the golf course during high flow periods, but discharged to percolation beds during low flow periods. This flexibility would provide more efficient and economical performance. Total annual energy required for plant operation would be reduced from a maximum of 366,095 KwH, assuming all pumps would operate 24 hours a day year round, to approximately 330,295 KwH per year.

The Rams' Hill project would significantly increase the amount of energy consumed in the Borrego Valley. Due to the proposed size of the development, San Diego Gas and Electric Company has stated that it is possible that an increase in the capacity of the Borrego Springs substation might be necessary. This could entail the construction of a second transmission line to ensure transmission reliability and some work on the circuit of the distribution system. With the implementation of the second Specific Plan phase and should the Borrego Country Club project also be built, the likelihood that the additional capacity would be needed is significantly greater.

Because there is only one transmission line available currently, a potential exists within the Borrego Valley for a disruption in energy service. Such a disruption of electrical service could have a significant adverse impact

RAMS HILL

PRC TOUPS CORPORATION



dark sky–

location of observatories relative to project site

Figure IV-M-1

LOCATION OF OBSERVATORIES IN SAN DIEGO COUNTY

M. DARK SKIES

1. Existing Setting

The dark sky issue relates to the impact that additional urban illumination can have on the scientific research capabilities of the astronomical observatories in San Diego County. San Diego County is the home of two major astronomical research observatories: the Mt. Palomar Observatory, operated by Hale Observatories, and the San Diego State University Mt. Laguna Observatory. Figure IV-M-1 is a map of the location of the observatories. The renowned Mt. Palomar Observatory houses the world's second largest reflecting telescope, the 200-inch Hale Reflector. Astronomers from around the world wait up to three years to use the Hale Reflector, whose mirror is so powerful that it could detect the striking of a match as far away as San Francisco. The Mt. Laguna Observatory houses a much smaller 60-inch telescope. The sky over the Mt. Laguna Observatory is so dark that it is believed to be the nation's second best dark sky site.

Remarkably few sites in the United States are suitable for observatories because of requirements for clear skies, a stable air mass and dark sky. Mt. Palomar is an outstanding location selected after a ten year search. A number of factors make the Palomar location outstanding. The San Diego mountain area averages approximately 300 clear nights each year. The quality of the "seeing" is excellent because the atmosphere above the site at night is very stable, with a low level of turbulence. The marine inversion, which is responsible for the stability of the night air, traps air pollutants below the crest of the mountains and prevents convection currents from stirring the air mass at higher altitudes. Finally, when the Palomar site was chosen in 1932, the darkness of the natural night sky was particularly good.

Unfortunately, the quality of the dark sky in San Diego County is deteriorating with increasing urbanization. There are three sources of illumination at night. The first is the moon. In practice, difficult observations are always made during the two weeks around new moon, when the moon is not in the sky. The second source of nighttime illumination is the earth's atmosphere. Particles from the sun bombard the upper atmosphere and produce the ionosphere. This ionosphere glows and produces radiation at some selected colors, mostly in the red and infrared part of the spectrum. The third source of nighttime illumination is the artificial light associated with populated areas in the valley and along the coast. The light which is of most concern to

on the community. Should SDG&E studies indicate that the situation warrants the construction of a second transmission line, reliability of service to Borrego would increase substantially, providing a net benefit to the entire community.

A medical clinic would be built on-site which would provide emergency medical services and out patient care for the public. Borrego currently has only one doctor and no hospital facilities. Residents have to seek medical care in coastal areas or in the Imperial Valley. The provision of medical outpatient care would incrementally decrease the number of long distance trips made by Borrego residents.

astronomers is the artificial light emitted toward the blue end of the spectrum, where most astronomical photographic emulsions and photoelectric detectors have their peak sensitivity. Therefore, the natural darkness of the sky depends upon the brightness of the moon, the degree of radiation from the ionosphere and artificial illumination.

Any general decrease in the darkness of the sky in San Diego County is significant because it limits the extent of research which can be performed at the Mt. Palomar and Laguna observatories. The natural brightness of the night sky in Southern California is about 22 magnitude per square second of arc. Observations made with telescopes which point over San Diego and Los Angeles show a substantially higher brightness Mt. Palomar suffered a zenith light pollution level in 1965, which was only about 0.1 magnitude or roughly ten percent of the natural light of the night sky. Los Angeles and San Diego contributed almost equally to this pollution, although from quite different distances. Currently, at Palomar Observatory on the 200-inch telescope, photographic exposures cannot be made for periods of time longer than that required to just record 24th magnitude stars. Skylight fogs photographic plates when exposure time exceeds this value. An approximate calculation indicates that if artificial sky illumination becomes comparable with that from the natural sky, all exposures will have to be two times longer; in other words, the telescope will become less efficient by a factor of two.

Most artificial sky illumination which affects Palomar now comes from the cities of San Diego and Los Angeles. The smaller communities such as Ramona, Escondido and Valley Center, however, which are closer to the observatories, also have a significant impact on the dark sky. Although the quantity of light emitted from these small towns is much lower than that from the cities, the impact of the light sources increases geometrically with the closer distance.

Of particular importance with regard to development, is the eastern perspective from the observatories. To the east of the mountains, the closest major developed area is the Imperial Valley. Because of distance from the observatories, light pollution from the Imperial Valley does not impact the dark sky. Consequently, the darker eastern horizon permits more detailed investigations of the heavens because observation can begin much closer to the horizon, allowing a relatively longer exposure time.

2. Potential Impacts

Development of the Rams' Hill project could impact the quality of the dark sky to the east of the Mt. Palomar and Mt. Laguna Observatories if proper mitigation were not undertaken. The project site is located in the Borrego Valley, 32 miles east of the Mt. Palomar Observatory and 24 miles south of Mt. Laguna. Rams' Hill would include 780 new homes, a hotel-resort complex with lighted tennis courts, and a medical clinic. Each light source would contribute incrementally to the illumination received at the observatories. Because the eastern horizon is currently not plagued by light pollution, impacts to the eastern perspective are relatively more severe than those to the west. Therefore, a small light source, such as the Rams' Hill development, could have an incrementally greater impact than if the development occurred along the coast. Currently there is no acceptable methodology for quantifying and projecting the extent of impact. San Diego Gas and Electric Company and San Diego State University are studying the problem to help provide such a quantitative procedure.

The 966 acres included in the Concept Plan areas would be developed after full implementation of this Specific Plan phase. This second Specific Plan would approximately double the number of light sources at the Ram's Hill project.

3. Analysis of Significance

A number of relatively simple measures would be taken which would significantly reduce the impact of the project on dark skies. These measures would be consistent with the project's goal of promoting the natural desert serenity. The primary objectives of this mitigation are (1) to minimize the amount of ultraviolet radiation emitted by the light fixtures; (2) to avoid any light being directed toward the observatories; (3) to avoid creating any luminous surfaces such as lighted tennis courts; and (4) above all, to prevent the direct projection of light above the horizontal from any light sources.

All outdoor lighting fixtures would be shaded on top so that all light shines downward. This would increase the ground illumination while decreasing the amount of light going into the sky. Cut-off luminaries can be used which emit no light above 90 , thereby eliminating unwanted light scattering into the atmosphere. Either low-pressure mercury lamps equipped with ultraviolet filters or high-pressure sodium lamps can be used in outdoor fixtures.

The most troublesome light for astronomers is that light emitted within certain ultraviolet bands where the astronomical photographic emulsions are most sensitive. These lamps minimize ultraviolet radiation while maximizing light in the visible bands. Quartz or incandescent lamps can be used for decorative lighting as long as they are not directed toward the observatories.

Various design features of the project would minimize light sources. The golf course would not be lighted at night. The tennis courts at the hotel complex and perhaps within the residential areas would be lighted for a limited period each night. Cut-off luminaries using high sodium lamps with flood light configuration should be used to light the tennis courts. All lights for the pools, outside club house facilities and tennis courts would be turned off at a reasonable hour.

If the suggested mitigating measures are implemented, the Rams' Hill project should not significantly impact the quality of the dark sky to the east of the Mt. Palomar and Mt. Laguna Observatories.

N. TRAFFIC

Introduction

The following discussion is based upon an extensive traffic analysis included in full as a technical appendix to the EIR. The technical reader is referred to this appendix for more detailed information on generation factors, assignments and associated data. Because the population of the valley is so low today, and because implementation of Rams' Hill is projected to approximately double this population, the full traffic analysis considered the impacts both to valley-wide circulation and to circulation in the immediate vicinity of the project.

1. Existing Setting

The Rams' Hill site is located in the sparsely settled Borrego Valley in eastern San Diego County. There are four main access routes into the Borrego Valley:

1. Montezuma Valley Road (S22) which serves traffic from points to the west, such as Lake Henshaw and Warner Springs.

2. Borrego Salton Seaway (S22), which serves traffic from points to the east, beyond the Santa Rosa Mountains.

3. Yaqui Pass Road (S3), which serves traffic from points to the south, such as Julian, Agua Caliente and the more densely populated areas of San Diego County.

4. Borrego Springs Road, which serves points to the southeast, such as Ocotillo Wells and El Centro.

The roads in the Borrego Springs community which are most heavily travelled today are Palm Canyon, Borrego Springs and Borrego Valley Roads. Not only do they serve as routes for the State Park and through traffic in the valley, but they also lead local traffic to the major trip attractors in the valley. These attractors include the many State Park subareas which surround the community, the Mall, Christmas Circle, and the County airport. Rams' Hill traffic would rely heavily on these three local roads to provide access to and from these attractors. Access to the Rams' Hill site is provided by Yaqui Pass Road, which bounds the property on the west; and by Borrego Springs Road which transects the northeastern portion of the site. Figure IV-N-1 is a map of the 1978 Borrego Springs Road Network, the Rams' Hill project site, and the 1978 traffic counts.

Borrego Springs is subject to wide variation in traffic volumes during the year. This is due to its location within a popular desert state park only a few hours' drive from the more densely populated areas of San Diego and Los Angeles. Visitors are also attracted by its seasonal weather patterns. Borrego has a cool and pleasant climate during the peak season winter months. By contrast, during off season summer months, temperatures often exceed 100 degrees. These variations result in very high traffic volumes during the months between November and April, with peaks occurring on Saturdays, Sundays and holidays; and by very low volumes during the months between May and October, with the lowest volumes occurring on non-holiday weekdays.

These wide seasonal variations are of major concern. The road system in the area would be over-built for the off-season if only peak season traffic were to be considered, and yet, it would cause severe congestion during the peak season if off-season traffic were to be considered alone.

Analysis is therefore based on peak season, weakday traffic. It is assumed that peak season weekend traffic would be approximately 10 - 20 percent more and that off-season weekday traffic would be 20 to 30 percent less than this model traffic.

a. Trip Generators

The main trip generators in the Borrego Valley today are: (1) the Anza Borrego Desert State Park; (2) the commercial areas of Christmas Circle and The Mall; (3) and the Borrego Valley Airport. The Anza Borrego Desert State Park attracts tourists from outside the valley who also make local trips while visiting the park. Since the various park areas completely surround the residential community in the valley, the State Park traffic must necessarily be routed onto the local roads across the community. Future traffic generated by State Park visitors will thus be an integral part of the traffic impact analysis. Figure IV-A-2 is a map showing the relationship of Anza Borrego Desert State Park to the Borrego Valley enclave.

The Mall and the small shops at Christmas Circle currently serve as the main Borrego Springs commercial trip generators. The several grocery, drug and clothing stores, as well as banks and real estate offices, generate trips by residents, as well as tourists.

The San Diego County Department of Transportation Airports Division operates a small airport in Borrego Springs. It is located north of Palm Canyon Road and east of Borrego Valley

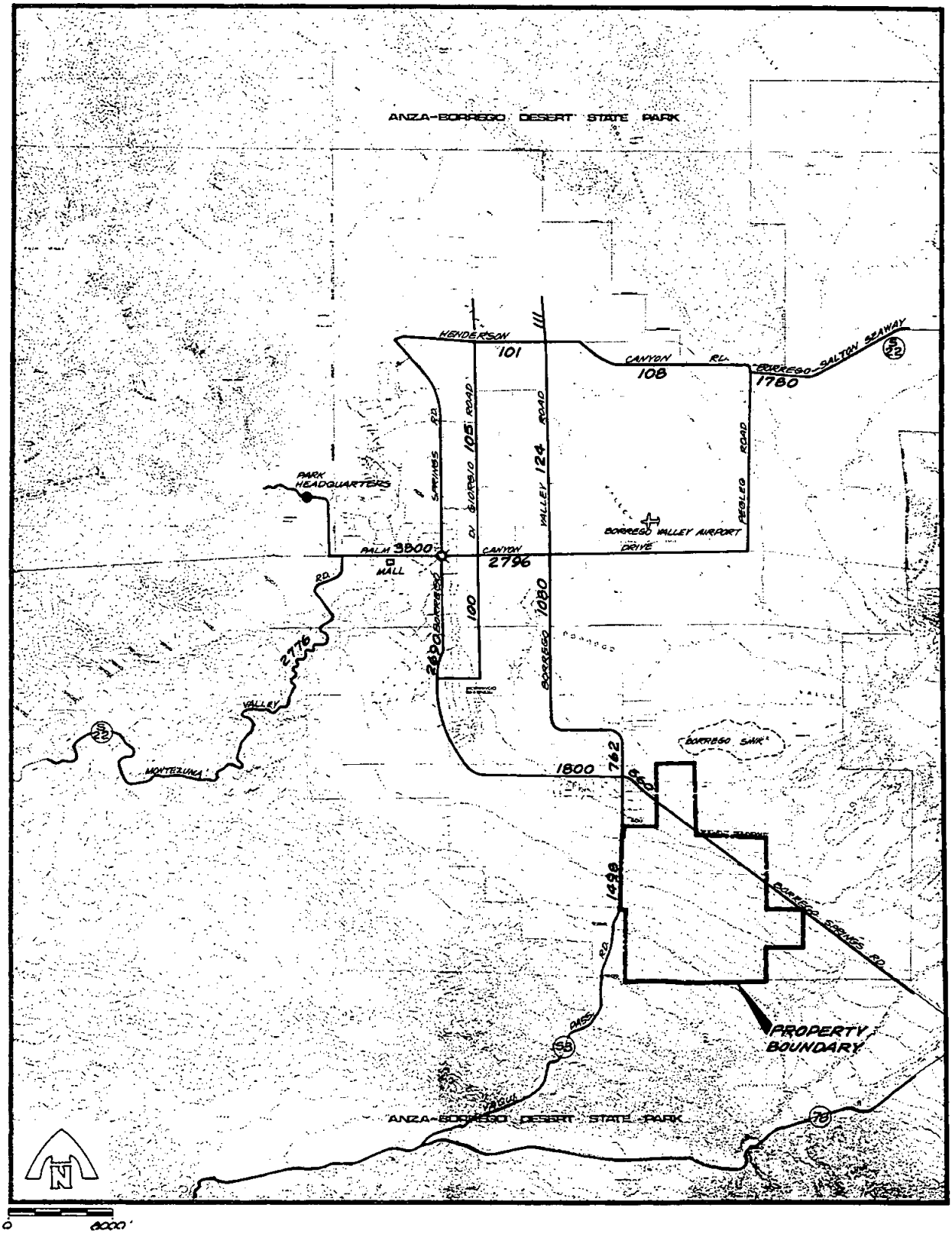
Road. The County recently completed work on the 5,000 foot runway, which is capable of handling 300,000 planes per year. The runway renovation enables the airport to provide service for small jets. Although there are no plans in the near future for a control tower, photo-electrically controlled runway lighting has been installed, making it possible for the airport to function effectively 24 hours a day. The airport is available for both private and commercial flights. Sun Aire Lines is presently running a commuter service to the airport. In 1977, the airport served 38,000 flights, 80 percent of which were for recreation, executive and business purposes. The remaining 20 percent were student cross country trips, group fly-ins and training flights.

b. Existing Traffic Conditions

Since the Borrego Valley is an enclave of the Anza Borrego State Park, circulation within the valley is strongly influenced by Park traffic. The two main access roads into the Valley, Montezuma Valley and Yaqui Pass Roads, often experience high levels of congestion during peak season. Visitor traffic from the west and south bottlenecks on the steep grades and winding paths of the narrow, two-lane rural roads. The passing of slower vehicles is severely restricted by the roads' narrow widths and curves. The existing daily traffic counts on these roads are 2,776 and 1,498. Approximately 20 percent of this 24-hour volume occurs during the peak hours, just before and just after noon. CalTrans and San Diego County DOT assume a capacity of 300-400 vehicles per hour for winding, mountain roads, such as Montezuma Valley and Yaqui Pass Roads. As illustrated in Table IV-N-1 congestion currently occurs during the AM and PM peak hours of the peak season day.

Figure IV-N-1

EXISTING TRAFFIC COUNTS



existing traffic counts – march 30, 1978

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Table IV-N-1

1978
Borrego Springs Main Access Roads
Traffic Profile

	24-Hour Traffic Count 3/30/78*	Trips/Hour AM Peak	Trips/Hour PM Peak	Remaining Daylight Trips Hour[1]	Night Trips Hour[2]
Montezuma Valley Road	2,776	470	480	139	23
Yaqui Pass Road	1,498	345	359	75	12

1 50 percent of 24-hour count (i.e., non-peak hour trips) + 10 hours of remaining daylight

2 10 percent of 24-hour county (i.e., night trips) + 12 hours of night

* Source: San Diego County Department of Transportation Master Traffic Census.

The three roads which serve the central Borrego Springs area, Palm Canyon, Borrego Springs and Borrego Valley Roads, carry the heaviest volumes of local traffic, with 3,800, 2,690 and 1,800 trips respectively. Because of the relatively small number of permanent residents in the Borrego Valley, and because of the dispersed location of the major Borrego trip attractors, there is no significant congestion problem on any of the local Borrego roads today, even during the peak periods of Park visitation.

c. Transit

There is no conventional transit system existing in Borrego Springs today. San Diego County has, however, adopted a Rural Transit Plan that will, in early 1979, provide lifeline transit service to residents in the unincorporated rural areas of the County.

Service to the Borrego Springs area is included in the plan (see the Traffic Appendix). Development of the Rams' Hill project would undoubtedly encourage the future expansion of such a transit plan to further serve the Borrego Springs area.

d. Bicycle

Although the County Bicycle Element contains a bicycle route along Highway 78 to the south of Borrego Springs and beyond Yaqui Ridge, there is no route which directly serves the local Borrego Valley community.

e. Riding and Hiking

The County Regional Riding and Hiking Trail Corridors Map shows a trail encircling the Borrego Springs community. Only a very small portion of this entirely undeveloped trail is included within the northern borders of the Specific Planning Area. No section of the trail has been dedicated to date. The Specific Plan Map illustrates the location of this trail system in relationship to the project site.

f. Scenic Highway

Three scenic highways have been designated within easy traveling distance of the Rams' Hill project. As shown in Figure IV-N-2 the Borrego Salton Seaway, a third priority route, is located at the northern bounday of the Borrego Springs community. Highway 78, an existing route, is located south of Yaqui Pass beginning about five miles from the project site. Montezuma Valley Road, also an existing route, is one of two major access routes into the valley from the west.

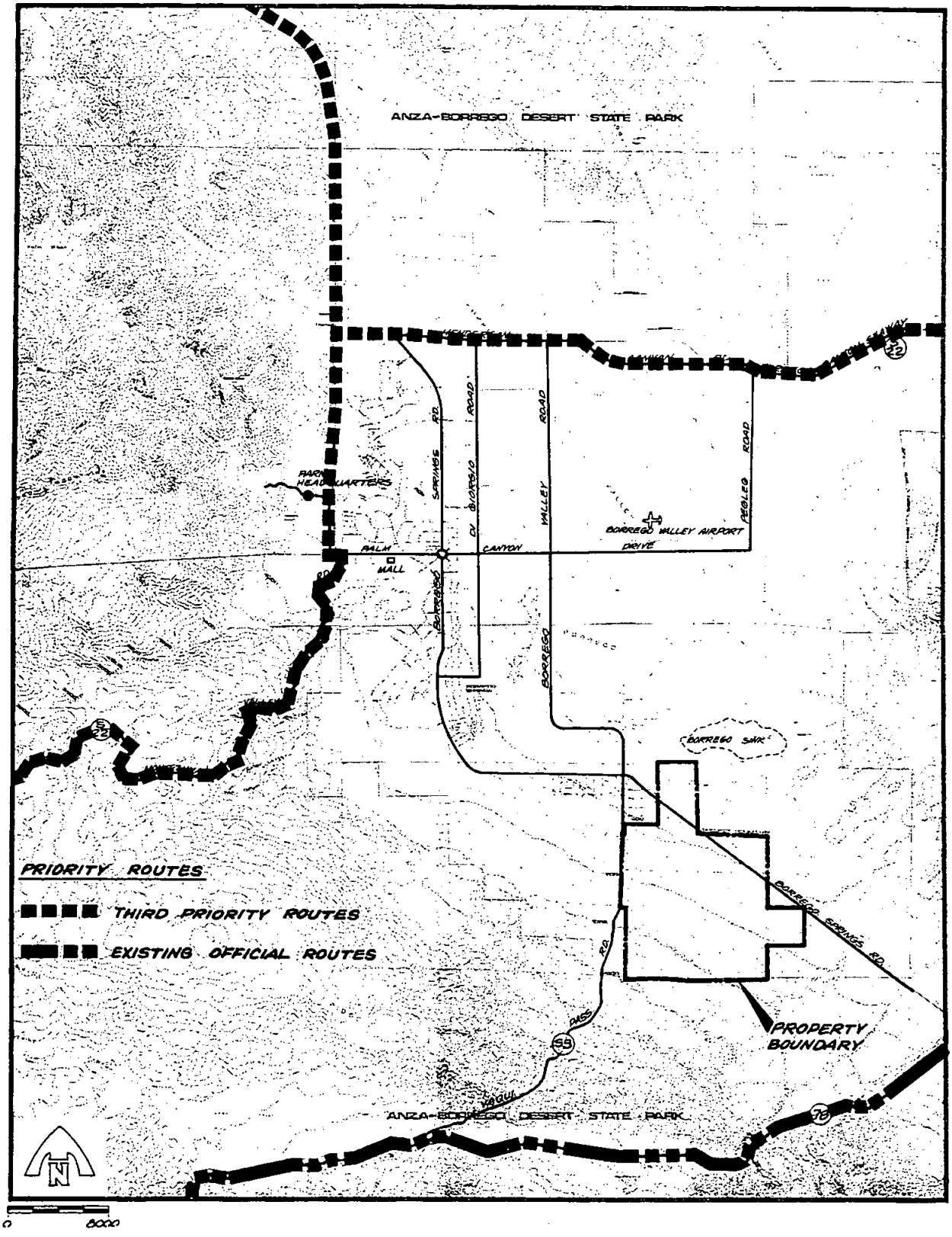
g. Circulation Element

The Circulation Element of the San Diego County General Plan, as adopted by the Board of Supervisors, is a schematic representation of the planned road right of way corridors for which the County believes there will be demand by 1995, or ultimate build-out. The purpose of the Circulation Element is to reserve these corridors for future access based upon designated General Plan land uses.

The Circulation Element for the Borrego Valley is represented on Sheets 3 and 5, (Figure III-H-1) Based upon conversations with County staff, this road network was not designed based upon projected populations or traffic counts, but was designed to accommodate a theoretical "ultimate potential build-out" of the valley.

Figure IV-N-2

SCENIC HIGHWAYS



san diego county scenic highways

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The Circulation Element designates four roads on the Rams' Hill site:

(1) Yaqui Pass Road which bounds the property on the west (SF 1406), is designated as a Major Road with a right of way of 102 feet.

(2) Borrego Springs Road (SA 190), which transects the northeast portion of the site, is designated as a Major Road with a right of way of 102 feet.

(3) SC 460 is designated as a Collector Road with a right of way of 84 feet. Unlike Yaqui Pass and Borrego Springs Roads, SC 460 does not exist at present. The Circulation Element schematic represents SC 460 as bisecting the property from east to west. No adjacent sections of this road have been built or dedicated at present. The developer proposes to relocate this road north of the Circulation Element representation in conformance with Exhibit C-9 of GPA 76-02, the Concept Map governing development on this project. Refer to Figures III-F-1 and III-H-1 to compare the alternate locations for SC 460.

(4) Old Borrego Valley Road (SC 500) is designated as a Collector Road with a right of way of 84 feet. This road is currently a dirt trail which bisects the property from northwest to southeast. The Circulation Element schematic represents this road as bounding the eastern panhandle of the property.

2. Potential Impacts

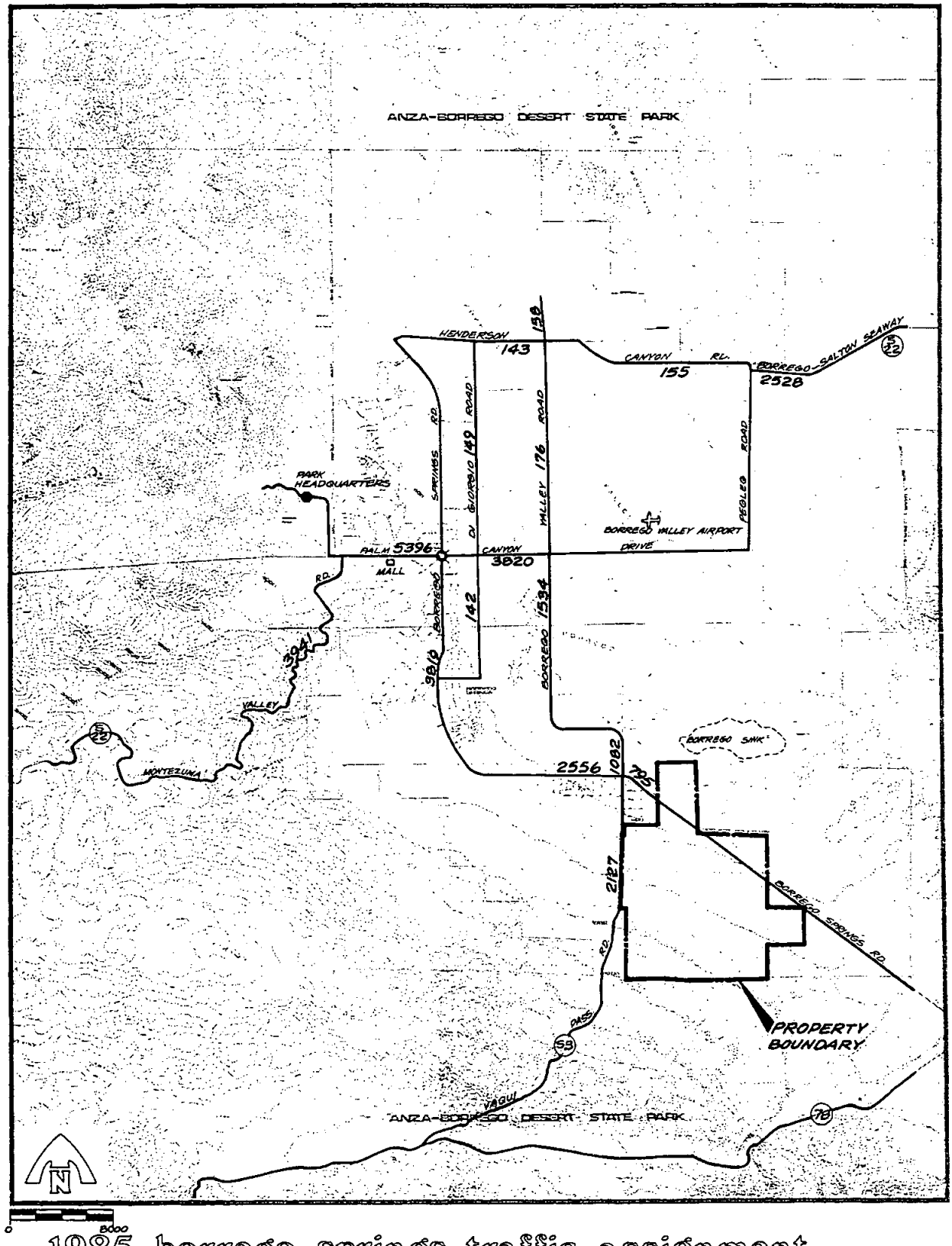
a. Without Rams' Hill 1985

Between 1978 and 1985, traffic volumes in the Borrego Valley will increase by about 42 percent without the implementation of Rams' Hill. Presently the residents account for approximately 41 percent of the trips, while the Park generates approximately 59 percent. The total permanent and seasonal population is projected to increase by 68 percent (see Growth Inducement). Park officials project a growth in attendance at the State Park Headquarters of 25 percent by 1985. (Personal communication with Dora Teal). Figure IV-N-3 shows the 1985 traffic assignment for Borrego Springs without Rams' Hill.

The 1985 Borrego Springs traffic assignment without Rams' Hill indicates minor congestion impacts only on the two access roads

Figure IV-N-3

ASSIGNMENT WITHOUT RAMS' HILL



1985 borrego springs traffic assignment
without rams hill

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into the Valley, Montezuma Valley and Yaqui Pass Roads. Congestion would occur only during peak hours (shortly before and shortly after noon) in the peak season. While County DOT assumes the capacities of these roads as they exist today to be 300 to 400 vehicles per hour, the projected peak hour traffic exceeds those levels, as shown in Table IV-N-2.

Table IV-N-2

1985
Borrego Springs Main Access Roads
Traffic Profile

	24 Hour Projection	#Trips[1] AM Peak	#Trips[1] PM Peak	Remaining Daylight Traffic/Hour[2]	Night Traffic/Hour[3]
Montezuma Valley Road	3941	788	788	197	33
Yaqui Pass Road	2127	425	425	106	18

[1] 20 percent of 24-hour count occurs in each peak hour

[2] 50 percent of 24-hour count (i.e., non-peak hour traffic) ÷ 10 hours of remaining daylight

[3] 10 percent of 24-hour count (i.e., night traffic) ÷ 12 hours of night

All other Borrego Springs roads would continue to offer Level of Service "A".

b. 1985 Traffic Analysis for Borrego Springs with the Rams' Hill Project

The Rams' Hill project includes several commercial/recreational facilities which would generate considerable levels of traffic: one 350-room resort hotel, a sizeable restaurant with banquet

facilities, 13 tennis courts, a medical clinic, and an 18-hole golf course. These uses would generate a total 6,324 trips per peak season weekday. Rams' Hill residents would contribute 938 of these trips while the remaining 5,286 trips would have to enter and leave the project area by the Yaqui Pass Road access.

The Rams' Hill project includes three residential land uses: 530 planned residential units; 200 single family homes; and 50 two to five acre estates. The total number of trips generated by these 780 residential units and destined for points outside the project boundaries is 5302. Figure IV-N-4 is a map of the 1985 traffic assignment with Rams' Hill.

3. Analysis of Significance

a. Impacts of the Rams' Hill Specific Plan on the 1985 Road Network

The impacts of the Rams' Hill development on roads in Borrego Springs and recommended mitigation measures are summarized in Table IV-N-3

Table IV-N-3

Roads Impacted by Rams' Hill Project and Recommended Mitigation Measures

A. Project Vicinity
B. Other Borrego Roads
C. Access Roads to Borrego Valley

	Road	Impact	Mitigation
A.	Yaqui Pass Road (north of access road to project)	None when built to Major Road standards to conform to DOT and Circulation Element requirements	None
	Borrego Springs Road	None	None
	Intersection of Yaqui Pass and Borrego Springs Road	Peak season only: significant congestion and safety hazards caused by turning movements	Traffic signal: normal operation during peak season flashing yellow during off-peak season

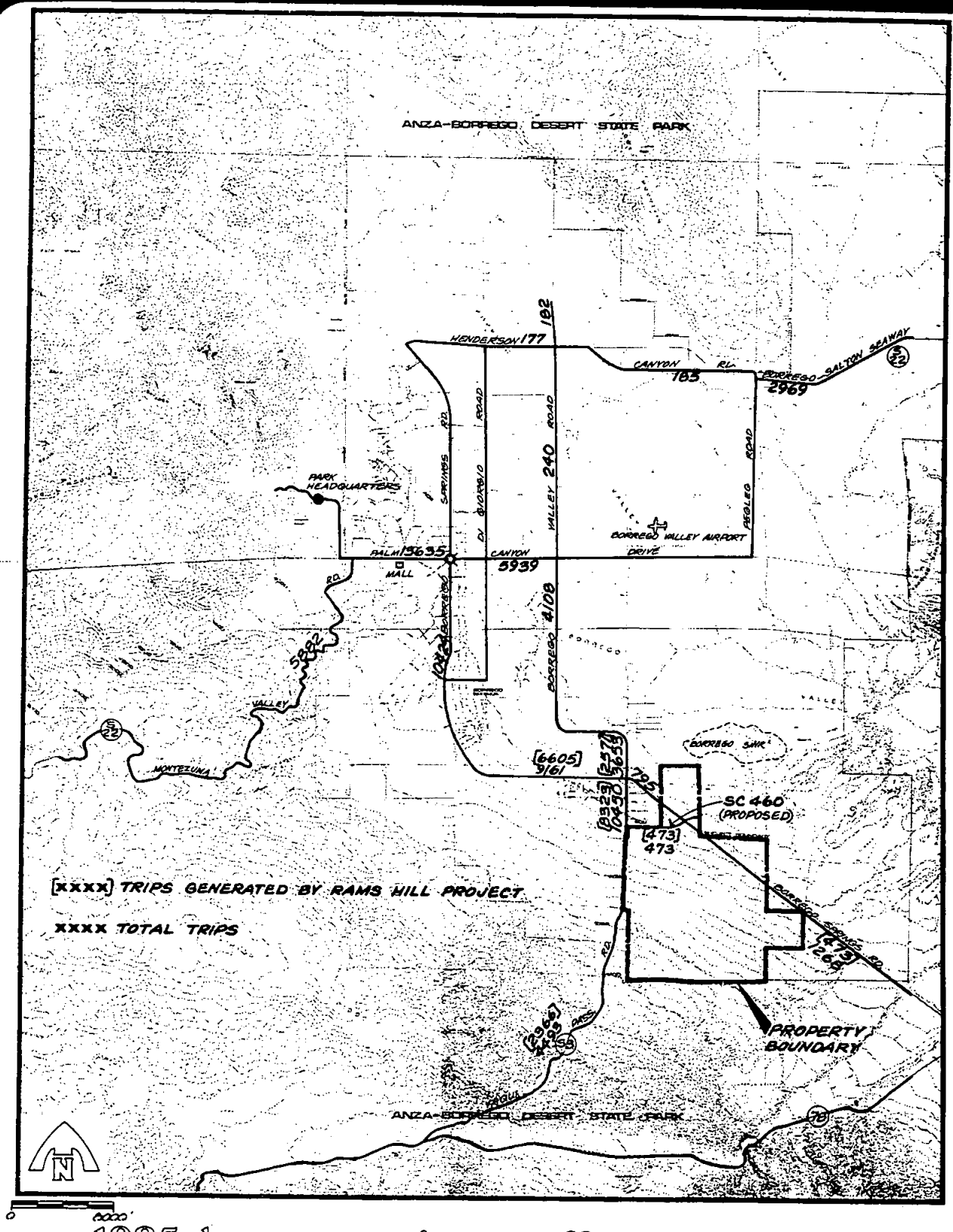
Table IV-N-3 - continued

A. Project Vicinity
B. Other Borrego Roads
C. Access Roads to Borrego Valley

	Road	Impact	Mitigation
B.	Christmas Circle	Peak season only: significant congestion and safety hazards caused by high volumes and driver confusion	Adequate directional signing and roadway striping; construction of roads to County standards (see below)
	Borrego Springs Road (south of Christmas Circle)	Peak season only: significant congestion	Construction to County Major Road standards, widen to allow center left turn lane. Commercial and retail establishments curb cuts should be minimized
	Palm Canyon Road (west of Christmas Circle)	Peak season only: significant congestion	Construction to County Major Road standards, or more turnouts; Lifeline transit service
C.	Borrego-Salton Seaway	None	None
	Borrego Springs Road (south of SC 460)	None	None
	Montezuma Valley Road	Peak season only: significant congestion	Construction to County Major Road standards or more turnouts; Lifeline transit service
	Yaqui Pass Road	Peak season only: minor congestion	More turnouts

Figure IV-N-4

19[illegible] [illegible]TH RAMS' HILL



1985 borrego springs traffic assignment with rams hill

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RAMS HILL

b. Roads in Project Vicinity

Although Borrego Springs and Yaqui Pass Roads are currently paved to only 24 feet, they are both classified as Major Roads on the County Circulation Element, with capacities of between 10,000 and 16,000 ADT. The projected peak season 10,450 ADT on Yaqui Pass Road north of the Rams' Hill access road would be more than adequately served by a road built to a paved width of 40 feet by the developer. Borrego Springs Road south of Yaqui Pass Road has more than enough capacity to handle the projected Rams' Hill and other Borrego traffic (795 ADT), even with its existing paved width.

There could be congestion at the intersection of Yaqui Pass and Borrego Springs Roads caused by the desire of most northbound trips on Yaqui Pass Road to make a left turn, while southbound trips on Borrego Valley Road desire to continue on through the intersection to the project.

SC 460, located at the northernmost boundary of the project, would primarily serve those trips headed out of Rams' Hill toward the southeast (El Centro). With a projected 473 ADT, SC 460 built to County Collector Road standards would be more than adequate.

Table IV-N-4 shows the projected ADT on these roads, the necessary improvements and the County requirements.

c. Other Borrego Roads

Two other local roads, Borrego Springs Road (south of Christmas Circle) and Palm Canyon Road (west of Christmas Circle), which are classified as Major Roads but currently exist as two-lane rural roads, could be expected to carry a substantial number of trips generated by the Anza Borrego Desert State Park and the Rams' Hill commercial/recreational facilities. Table 7 shows the traffic profile for roads projected to be significantly impacted by Rams' Hill. If built to full major road standards as planned by the County, both roads would offer "A" Levels of Service. It is unlikely, however, that these improvements would be made by 1985 since the FY 1979-80 Six-Year Capital Improvements Plan does not include any road improvements in the Borrego Valley. With approximately 2,000-3,000 trips during each of the peak hours, and at their present paved widths, these roads would offer "C" Levels of Service. As illustrated in Table IV-N-5, at times other than the few peak periods, the projected traffic levels fall far below the capacities of these two roads, even with the peak widths which exist today.

Table IV-N-4

Peak Season
1985 Rams' Hill Significantly Impacted Roads Traffic Profile

	24-Hour Traffic Protection	#Trips[1] AM Peak	#Trips[1] PM Peak	Remaining Daylight Traffic/Hour[2]	Night Traffic/Hour[3]
Borrego Springs Road (south Christmas Circle)	10,425	2,085	2,085	521	87
Palm Canyon Road (west Christmas Circle)	13,635	2,727	2,727	682	114

1 20 percent of 24-hour count occurs in each peak hour

2 50 percent of 24-hour count (i.e., non-peak hour traffic ÷ 10 hours of remaining daylight

3 10 percent of 24-hour count (i.e., night traffic) ÷ 12 hours of night

All other Borrego Springs roads would continue to offer Level of Service "A".

d. Access Roads to Borrego Valley

The peak hour traffic for both the existing Borrego Salton Seaway (S 22) and Borrego Springs Road (south of SC 460) is less than 600 trips per hour. They offer Service Level "A" capacities for the projected 1985 ADT of 2,969 and 1,268, respectively.

Table IV-N-4 summarizes the County Department of Transportation requirements and the needed improvements.

e. Conclusion

The internal road network of the Rams' Hill project would more than adequately serve its residential population. Off-site

Table IV-N

RAMS' HILL

COUNTY DOT ON & OFF-SITE RIGHT OF WAY DEDICATION AND IMPROVEMENT REQUIREMENTS AND PROJECTED NEEDS

	Existing Status	Existing ADT	Projected ADT	Necessary Improvements to carry Projected ADT	DOT Requirements	Road Capacity	Excess Capacity ADT
SC 460 between Yaqui Pass and Borrego Springs Rd. through Rams' Hill	does not exist	--	500	36' paved	COLLECTOR RD: 84' ROW dedication 64' paved	10,000 ADT	9,500
SF 1406 Yaqui Pass Road North of access rd to Rams' Hill	2 lanes, 24-32 feet paved	1,498	10,500	Half width of: 51' ROW 40 feet total paved width	MAJOR ROAD: Half width of: 51' ROW dedication 40' paved width	12,000 ADT	5,500 ADT
South of access rd to Rams' Hill	2 lanes 24-32 feet paved	1,498	4,500	Existing roadway adequate	MAJOR ROAD: Half width of 51' ROW dedication. No requirements req.	12,000 ADT	7,500 ADT
Borrego Springs Rd North of SC 460	2 lanes 24-32 feet paved	560	800	Existing paved Roadway Adequate	MAJOR ROAD: ROW 82' paved	10,000 ADT	9,200
South of SC 460	2 lanes 24-32 feet paved	560	1,300	Existing paved roadway adequate	MAJOR ROAD: 82' paved	10,000 ADT	8,700
SC 500 Old Borrego Valley Rd	does not exist	--	--	none	COLLECTOR RD: 84' ROW dedication. Recommended for rejection. No improvements required.		

circulation element improvements, including the improvement by the developer of Yaqui Pass Road (from the entrance of the project to the intersection with Borrego Springs Road) to 40 feet of paved travelled way and the addition of a traffic signal would mitigate to insignificance the significant traffic impact in the project vicinity caused by the Rams' Hill project.

At times other than peak season weekends and holidays, all traffic impacts of the Rams' Hill project on other Borrego Springs access and local roads would be insignificant. During the peak season (November - April), weekends and holidays, the high growth in Anza Borrego Desert State Park visitation expected by State Park officials, together with the Rams' Hill development, would result in significant traffic impacts on several existing Borrego Springs intersections, local roads and access roads. The roadway capacity impacts can be mitigated to insignificance by improvement to full County Circulation Element requirements of Palm Canyon Road, Borrego Springs Road (south of Christmas Circle to Yaqui Pass Road), Montezuma Valley Road and Yaqui Pass Road. They can be partially mitigated by the provision of left turn lanes and pockets at entrances to and exits from residential developments and commercial/retail land uses which generate high trip volumes.

Further partial mitigation can be achieved by requiring new residential developments and business establishments to minimize the number of curbcuts onto the roadway. Partial mitigation measures for the access roads into the Valley include more frequent well-marked turnouts to allow for safe passing of slower vehicles. Finally, the encouragement of the County Lifeline Transit System would, to a limited extent, help to reduce the actual number of vehicular trips entering and leaving the Borrego Valley.

O. WATER

This water analysis is based on a consultant report prepared jointly by Linden Burzell, a registered civil engineer, and Dr. Richard L. Threet, professor of geology at San Diego State University. Their report is included in full as a technical appendix. The ground water conditions in the Borrego Valley have been studied in-depth over the last 35 years. Refer to the consultant report for further references.

1. Existing Setting

While the Borrego Valley is located in the region known as the "Colorado Desert" and receives less than five inches of rain a year, it is underlain by an extensive ground water basin. The valley is not connected to the regional pipelines for imported water, so development in the valley relies exclusively upon the ground water resources. The closest imported water lies approximately 30 miles east in the Imperial Valley. The quantity of water in the aquifer has been the subject of extensive research and concern for the past 35 years. A major consideration in planning for the Rams' Hill project, therefore, was the extent of available ground water resources both underlying the property and valley-wide.

a. Ground Water in the Borrego Valley

As stated above, during the past 35 years, numerous investigations have been made of the hydrogeologic conditions in the Borrego Valley. Most investigators indicate that the long-term annual recharge to the Borrego Valley is in the range of 6,000 to 11,000 acre feet per year. According to experts at the County of San Diego, 11,000 acre feet appears to be the more realistic recharge rate.

The United States Bureau of Reclamation reports that the Borrego Valley aquifers have a capacity of 1.3 million acre feet from the present ground water surface to a depth of 200 feet. Extensive additional water is available in the deeper reserves which extend to a depth of at least 900 feet. It is, therefore, possible to forecast reliably that there will be a negligible difference in the availability of water from wet years to dry years.

The aquifers underlying the Borrego Valley produce abundantly, routinely yielding from five to 50 gallons per minute per foot of drawdown depending upon location, depth, diameter and method of well construction. The occasional dry or poor producing wells recorded have resulted from drilling in locations where the underlying rock formation is at a higher elevation than the ground water elevation, or in areas such as the clay-cored anticline located near the Desert Lodge, which has a very low permeability. As a result of over 30 years experience in constructing wells in Borrego Valley, it

is now possible to readily identify well sites where production of 250 - 1,250 gpm capacity can be obtained using conventional rotary or cable tool drilling methods.

Table IV-O-1 indicates that the total present consumptive water use in Borrego is approximately 11,300 acre feet per year. Consumptive water use is that water which is drawn out of the aquifer and which does not at a later point percolate through the strata to recharge the water table. This level is dramatically below the peak use in the 1950's when agricultural demand was as much as 22,500 acre feet per year. During this ten-year period of heavy agricultural use the water table dropped as much as 11 feet in localized areas in the center of the valley. Within the last ten years of lower use, the water table in the same portions of the Valley has risen five to ten feet.

Agriculture plays the greatest role in determining water use in the Borrego Valley. Agriculture in 1978 used the lowest volume of water in 30 years, yet still consumed almost 70 percent of all water produced. In 1958, during peak agricultural production, agriculture consumed 96 percent of all water produced.

Table IV-O-1

Consumptive Water Use in the Borrego Valley

Acre feet/Year

Use	1950	1958	1962	1968	1978
Agricultural Water	11,435	22,455	13,830	7,260	5,705
Golf Course and Landscape Irrigation (1)	190	790	1,725	1,720	1,450
Domestic Water Use	170	225	265	475	550
Riparian Plant Use (2)	3,000	3,000	3,000	3,000	3,000
TOTAL	14,795	26,470	18,820	12,455	11,305

(1) Includes non-domestic use of water from water service agencies

(2) Threet and other researchers believe that riparian plant use approximately equals 3,000 acre feet/year

b. Hydrogeology of Rams' Hill Site

A complete hydrogeologic description of the Borrego Valley is contained in Addendum A. In summary, the formational units which are important in the southern Borrego Valley are the crystalline basement rock, the Palm Springs Formation, the older alluvium and the younger alluvium. Figure

IV-C-1 is a geologic cross-section of the property. The most favorable prospects for development of ground water are in the areas where the permeable "older alluvium" sands and gravels now lie at or below the regional water table. This table currently stands at an elevation of about 470 feet above sea level in southern Borrego Valley. The crystalline basement rock is generally impermeable, although fractures and weathered zones may yield trifling amounts of water to wells. The Palm Springs Formation is no more likely to yield ground water than the basement rock.

c. Desert Lodge Anticline

The clay-cored Desert Lodge Anticline marks a conspicuous geologic boundary which is important in the hydrogeology of the Rams' Hill site. This anticline is an upwarped flexure (or hump) in the underlying sedimentary strata, and functions very much like a subsurface clay dam. The anticline transects the northern peninsula of the project property and forms an effective boundary which separates the Borrego Valley aquifer into two semi-independent basins. Figure IV-O-1 shows the location of the anticline in relationship to the site. The water levels recorded by the Department of Water Resources, however, seem to show that the ground water of the southern part of the valley is in hydrogeologic continuity with the ground water in the central and northern parts of the valley. That is, that the anticline is not a dam between two water sources but a peninsula creating the appearance of two basins.

The water supply for the initial phase of the Rams' Hill project would be drawn from four wells, three of which are located on site, and one of which is located approximately one mile west of the property. All four wells draw water from the aquifer south of the Desert Lodge Anticline. For planning purposes, the water availability for this southern water basin has been calculated, although it is assumed that water would eventually be supplied by wells north of the property.

The water bearing area of the southern Borrego Valley is confined on the south by basement rock and, on the north by the Desert Lodge Anticline. The cross section of the basin on an aximuth line of 40 indicates a width of water surface of 7,500 feet. This width of water surface will be reduced to about 5,000 feet if the water table is lowered 200 feet. The water bearing area runs for at least 32,000 feet along the 130 aximuth line. Accordingly, the southern basin contains the following volume of water in storage:

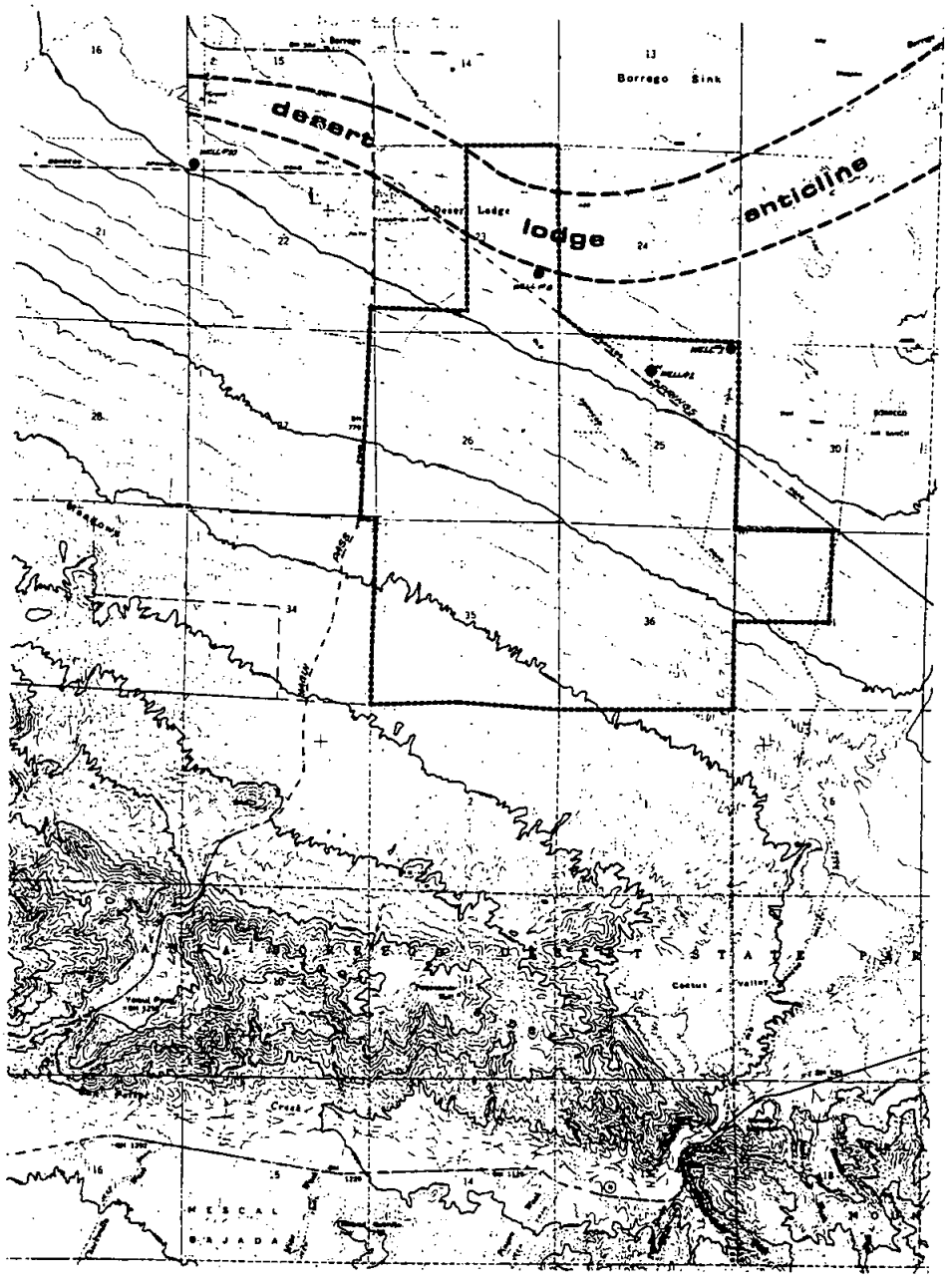
$$\text{Vol} = 32{,}000 \text{ ft.} \times \frac{(7{,}500 + 5{,}000 \text{ Ft.})}{2} \times 200 \text{ ft.} \times \frac{\text{Ac. Ft.}}{43{,}560 \text{ ft.}}^{3} =$$

918,274 ac. ft.

If specific yield averages ten percent, the volume of water available is 91,800 ac. ft.

Figure IV-O-1

DESERT LODGE ANTICLINE



desert lodge anticline

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RAMS HILL

2. Potential Impacts

Because the Borrego Valley relies exclusively on ground water resources, a major issue surrounding the project is ground water mining. To calculate whether Rams' Hill would create a mining condition, the volume of water which will be used in the valley if current growth continues, and the volume of water which would be consumed by Rams' Hill have been forecasted. This total volume has then been compared to the annual recharge of the basin. Because the two water bearing areas, north and south of the anticline, are believed to be in hydrogeologic continuity, these calculations for water mining have been based on the assumption that the two areas will act as one basin.

Furthermore, the analysis has assumed that Rams' Hill would be served by a public water district to provide water to Rams' Hill and other service areas as needed. Under these circumstances, the ground water resources of the entire agency could be used to serve water where needed, thereby making it unnecessary to produce all of the water supply for Rams' Hill from aquifers underlying the project. The agency-wide concept of water service is widespread in all of California. Seldom does any one project rely only on ground water resources which underlie the project in question.

Future levels of water use are difficult to forecast because of the uncertainty in predicting agricultural trends. Since 1958, the number of acres under production has declined by almost 50 percent. Agriculture in the Borrego Valley relied on early marketing of crops at higher prices to offset relatively high production costs. By the mid 1960's, however, the climbing labor and transportation costs reduced the viability of the early marketing strategy. Since then, the costs of energy and water production have tripled, further reducing the ability of Valley farmers to compete in state and national markets. While acreage has declined by 50 percent, the amount of applied water has decreased by 75 percent. With the increasing use of drip irrigation, changing crop patterns and escalating energy costs, it appears realistic to assume that agricultural water use will continue to decline.

In predicting future water use, two trends have been used. The first trend, the worst case trend, assumes that agriculture will continue to be viable, and that the actual acreage will expand. Under this trend, the volume of agricultural water use will be constant. The second trend assumes that agriculture will decline in the Valley. This trend assumes that increasing water costs will make citrus and alfalfa production in the Valley economically unprofitable. In fact, the Borrego Valley today cannot compete with citrus from the Central Valley or Florida because water costs are significantly higher in Borrego than in other major citrus areas. Under this second trend, water use will decline substantially as lands are no longer farmed.

Table IV-O-3 summarizes the water use projected for Rams' Hill. This is a conservative estimate assuming worst case levels of landscape watering. The projection includes a total of 1,584 acre feet. Twenty percent of the use is projected for domestic consumption and 80 percent for landscaping and golf. As the concept plan stage is developed, water use for landscaping will decrease sharply due to increased use of reclaimed water.

Table IV-O-3

RAMS' HILL PROJECT

Estimated Water Use 1985

		Water Use Ac./Ft./Yr.
Hotel 40 acres gross	350 rooms @ .1 AF/YR/RM	35.0
Clinic 12 acres gross	Inside use	5.0
Villas 102 acres gross	530 units @ .3 AF/AC/YR	159.0
Golf Course 160 acres gross	120 acres @ 6 AF/AC/YR less use of reclaimed water 165 AF	555.0
(Golf course water use includes evaporation from ponds; the roughs would not be watered)		
Single Family Homes (1/3 acre site, desert style landscaping) 127 acres gross	200 units @ .75 AF/UNIT/YR	150.0
Estates (2 acre sites, desert style landscaping) 124 acres gross	50 units x 2 AC @ 2.00 AF/AC/YR	200.0
General Landscaping 180 acres	120 acres @ 4 AF/AC/YR	480.0
	TOTAL	1,584.0

Table IV-O-4 consolidates the forecasts of water use for the Borrego Valley under Trends A and B and adds the water use of the Rams' Hill development and the use resulting from secondary growth. Comparing the trends, should agricultural water use remain constant between 1978 and 1985, the development of Rams' Hill would create a minor water mining condition. The 1.3 million acre feet in storage within the first 200 feet would be consumed in 620 years. More intensive pumping techniques such as those currently employed in the Central Valley would then be needed to tap the unestimated resources below 200 feet. These resources are believed to extend to at least 900 feet. Under the more probable Trend B, no ground water mining would occur and the basin would remain in a steady state with recharge approximately equal to use.

Table IV-O-4

Consumptive Water Use in Borrego Valley and a Forecast of Water Use in 1985

	1985 Trend A Including Rams' Hill	1985 Trend B Including Rams' Hill
Agricultural Water	5,700	3,700
Golf Course and Landscape Irrigation	2,050	2,050
Domestic Water Use	780	780
Riparian Water Use	3,000	3,000
Rams' Hill Development	1,600	1,600
	13,130	11,130

a. Differential Lowering of the Water Table

It has been suggested that the Rams' Hill development might cause some accelerated local lowering of the water table

relative to levels in other portions of the Borrego Valley this possibility has been considered in some detail. For a "worst case" scenario, the most severe circumstances were assumed, i.e., that only very limited water movement was possible across the clay-cored Desert Lodge Anticline identified by Threet; and that the project water supply would only be drawn from wells south of the anticline. If the anticline should prove to be an effective barrier, there would be limited water movement from the northern area to the south to supply the wells underlying the project. As the water table is lowered by the Rams' Hill project operation, ground water would then tend to move easterly and westerly toward any depression that is created. A similar situation seems to have developed when the heavy irrigation of grapes in the 1950's caused a localized drop in the water table in the central part of the valley.

Calculations indicate that the area south of the anticline holds at least seven percent of the underground storage of the valley, or about 90,000 acre feet. If the worst condition occurred and the 1,624 acre feet per year demand on Rams' Hill was in fact drawn from only a 90,000 acre-feet southern reservoir, and the rest of the valley drawing their needs of 7,500 acre feet per year from the remaining 1,210,000 acre feet of underground storage in the northern basin, the depletion would result in a more rapid lowering of the ground water table under Rams' Hill. This could result in a lowering of the water table under Rams' Hill by 200 feet in 45 years, assuming that none of the known recharge reached that area; and that ground water failed to move around the anticline at sufficient rate to equalize the water table. Should the water table drop rapidly and substantially, localized subsidence could occur.

Should the water table beneath the Rams' Hill property decline at a rapid rate, the deep rooted native vegetation, such as mesquite and some species of deep rooted cactus, both on site and on other properties in the southern valley, could be seriously impacted.

b. Wells Proposed to Supply the Project

The developer has drilled and tested four wells which are proposed to supply water for the project. Three of these wells are located onsite. The fourth well is located one mile west of the project site on a separate parcel owned by the developer. The four wells are identified on Figure IV-O-1, Desert Lodge Anticline. Water service for the project will initially utilize resources from these four wells. This will necessitate construction of a water main from

Well #10 to the project site, and construction of the necessary infrastructure onsite to connect the wells to a water distribution system. Ultimately, to prevent differential lowering of the water table it will be necessary to utilize water resources from wells in the northern portion of the basin. To facilitate construction and operation of an intertied basin distribution system it is proposed that the project be annexed to and served by the Borrego Water District. The Borrego Water District is making application to the Local Agency Formation Commission to annex the property to the District for the purpose of providing water and sewer service.

Transmitting water from Well #10, the off-site well, will not have any significant environmental impacts. Installation of a transmission main from the well to the project site will result in temporary impacts. This main will be constructed pursuant to standards established by the Borrego Water District, or other appropriate agency. These standards will probably require burying the main pipes 42 to 48 inches deep, and ten feet south of the centerline of Borrego Springs Road. The pipe will be confined to areas already disturbed. Temporary impacts will include intermittent heavy equipment noise, dust and intermittent slowing and diversion of traffic along the road. The transmission main will be maintained by the agency providing water service to the project.

c. Concept Plan

Assuming that the number of dwelling units would double if the 966 acres, planned only in concept at this time, were fully developed, the water consumption for the Rams' Hill project would increase by 350 acre-feet per year at full project implementation. However, the total valley wide consumption of water is expected to continue to decline in 1995 without the approval of additional major new projects such as the Borrego Country Club.

3. Analysis of Significance

The developer has proposed certain water conservation mitigation measures as part of the planning of the Rams' Hill project. Mitigation includes on-site measures, annexation to the Borrego Water District, and consideration of potential future sources should groundwater become seriously depleted.

a. On-Site Measures

Three measures are proposed to conserve water at Rams' Hill: (1) Waste water would be recycled; (2) drought resistant plants would be used for landscaping; (3) a large percentage of the site would be maintained in natural state. Water would be conserved through a waste water management program. The waste water treatment plant for th project would include a system to recycle reclaimed water for use on the golf course. The reclaimed water would be recycled when effluent flows reach 100,000 gallons per day. The capacity of the plant would be large enough and the demand of the golf course great enough that virtually all

At full implementation of this Specific Plan, a maximum of 250,000 gallons of recycled water per day would be available for use on the golf course. (See the Liquid Waste Section, and the Liquid Waste Technical Appendix).

To conserve water further, the following measures would be taken. Drought resistant plants would be used to the maximum extent feasible for landscaping in common areas. Plans for the project include designing the single family homes with desert landscaping and maintaining a natural buffer between the golf course fairways and the single family lots. One half of the site, 1,562 acres, would be dedicated as permanent undeveloped open space, where there would be virtually no increase in water consumption.

In addition, the following measures could be implemented. The landscaping and golf course could be watered at night to help reduce evaporation losses. Water flow restrictors could be included on all faucets. Low flow basin toilets and water efficient dishwashers could be installed in all dwelling units. Covenants banning water consumptive plants, and requiring that substantial landscaping be done with drought resistant species could be placed on estate and single family lots when the final maps are approved. Drip irrigation could be used for shrubbery in common areas.

b. California Water District

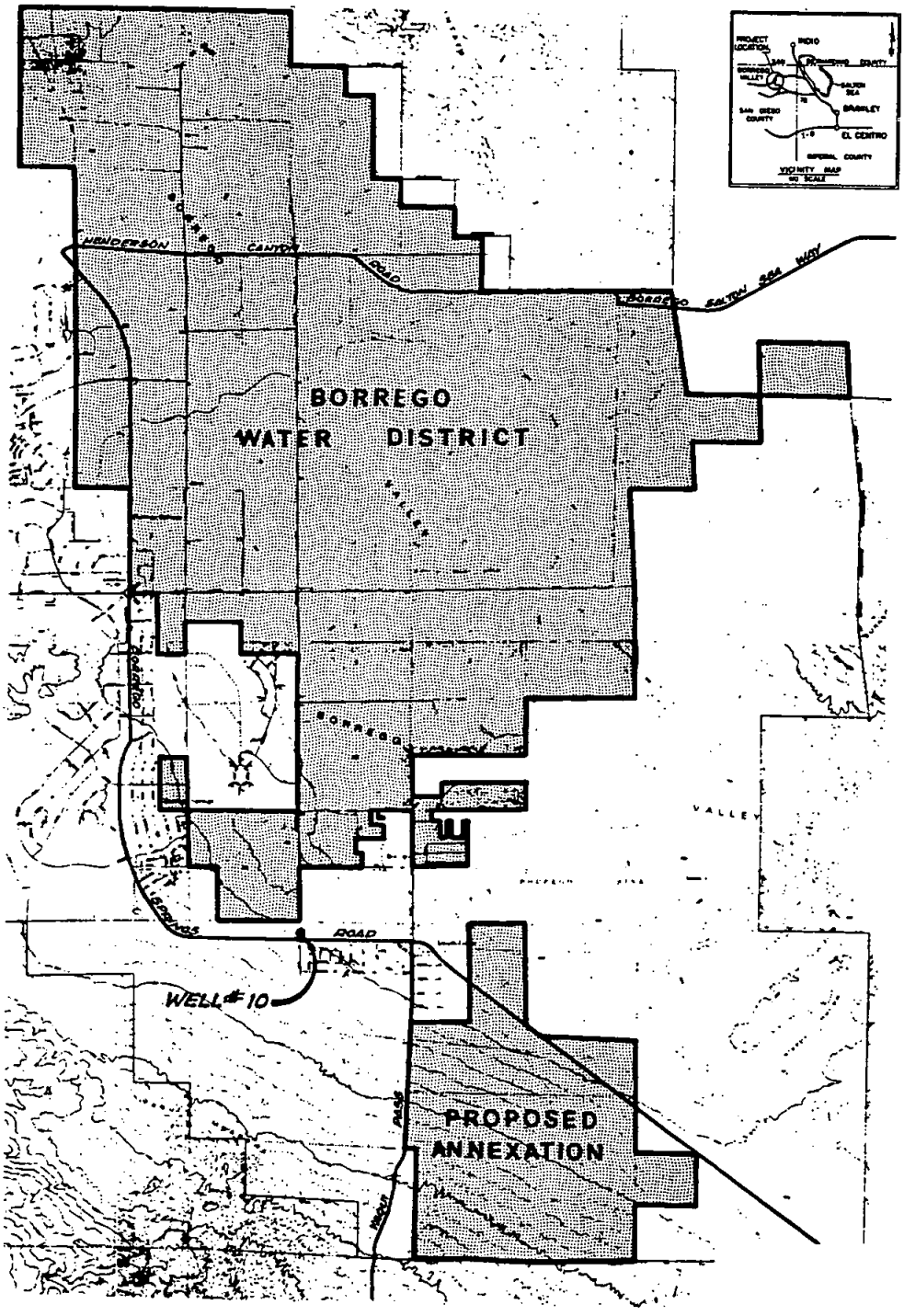
In 1961, property owners in the Borrego Valley formed a California water district, the Borrego Water District, covering an area of roughly 43 square miles. The District lies generally east of Borrego Springs Road and north of the Borrego Sink (Figure IV-O-2). Functional over the past 18 years, the District has its own Board of Directors, consisting of Borrego Valley landowners.

The Rams' Hill site is not currently a part of this water district. Annexations may be made to and by a California water district, subject to review and approval by the Local Agency Formation Commission (LAFCO). The Borrego Water District has made formal application to LAFCO for annexation of the Rams' Hill site concurrent with the processing of this project.

Division 13 of the California Water Code grants to California water districts a wide range of authority with respect to water supply and for a variety of complementary purposes. In addition, a California water district is empowered to operate and furnish facilities and services, within or without the district, for the collection, treatment and disposal of sewage, waste and storm water. The Borrego Water District has made application to LAFCO to activate its latent powers relative to water and sewer service. For a full discussion of the impacts of this activation, refer to the Environmental Impact Report on the application for authorization of latent powers.

Figure IV-O-2

BORREGO WATER DISTRICT



proposed annexation to
borrego water district

N

NO SCALE

PRC TOUPS CORPORATION

RAMS HILL

The developer would pay for the development of the water distribution system and would subsequently dedicate the system to the district to own and operate. A special service district would be formed pursuant to which the guests and residents of the Rams' Hill project would pay for the District's services.

The annexation of the Rams' Hill project to the Borrego Water District would have several beneficial environmental impacts. Because of its size, the Borrego Water District would be better suited to carry on basin and community-wide, long-term water planning than any other existing district in the Borrego Valley. The potential problems with differential lowering of the water table can be prevented through a basin-wide supply agency. Regulation of water usage and equalization of rights to water can be ensured.

c. Alternative Water Sources

The records of San Diego County Water Authority indicate that none of the developed areas of San Diego County has a local water supply of the magnitude of Borrego Valley in comparison to its long range needs. Nearly all of the balance of the developed area in San Diego County must rely upon imported water for its existence. In the event future conditions change and an even higher rate of development occurs, requiring the eventual importation of water to Borrego, there are many possibilities for acceptable solutions within the time frame available for action. Some of these solutions have been proposed by the United States Department of the Interior Bureau of Reclamation. (8)

Typical of several possibilities is the transfer of some Colorado River water via Imperial County. Over 3.5 million acre feet of irrigation water are used each year in Imperial Valley for relatively low value truck crops. It is certainly within the realm of possibility for Borrego to obtain a small supplemental municipal supply from this source. Currently, the City of San Diego owns unused carrying capacity in the All American Canal which could be made available if such a project should be required. The 60 to 70 miles of possible future pipeline involved is not considered to be an unrealistic engineering solution. There are other possible water sources in Imperial Valley, such as the desalting of agricultural return irrigation water,which is being discharged into the Salton Sea in quantities as high as one million acre feet per year.

As early as 1946, a Bechtel Corporation report prepared for the DiGiorgio Fruit Corporation recognized that frequent flash floods from Coyote Creek caused substantial discharge to Borrego Sink. This portion of the natural runoff to the Borrego Valley is lost to evaporation in the sink because it crosses the north half of the valley before it has time

to infiltrate to the underground basins. In July 1972 a report by the County of San Diego proposed a system of levees to minimize loss to Borrego Sink as a refinement of the Bechtel proposal. Flood water salvaged by levees and infiltration ponds proposed in the report would make more water available for recharge to the ground water basin than presently exists.

Another alternative is the long studied high line route for State Project water that traverses the Warner Valley 20 miles west of Borrego. That project has never been forgotten by those who still hope to see the higher level reservoirs like Lake Henshaw used for regulation of imported water. Within the projected time frame available for solving a potential shortage in Borrego under current growth patterns, these possible solutions and perhaps even better ones yet to be devised offer ample justification to predict that Borrego will be able to obtain a supplemental supply if it should need more water.

In conclusion, this Specific Plan phase of the Rams' Hill project by itself and with a continuation of the current growth trend would not significantly impact the water supply in the Borrego Valley. The total ground water resources of the Borrego Valley, including both basins, are more than adequate to supply the projected activity in the Borrego Valley by 1985, including the Rams' Hill development and induced growth. Under the worst conditions of recharge, ground water could potentially be mined at a rate of 2,130 acre feet per year. Under the more realistic recharge assumptions, 1985 development would be well within the constraints of natural recharge, resulting in no ground water mining. Should growth in the valley accelerate substantially, and should the Borrego Country Club project be built, it is possible that moderate ground water mining could occur in the near future. Again, resources are sufficient to provide ample time to develop a comprehensive ground water management plan to prevent unwise use of the resource. A discussion of the number of buildable lots in the Borrego Valley is included in the section on Growth Inducement. Potential impacts of this growth on water resources is discussed in the section on Cumulative Impacts. The Rams' Hill project could create a significant adverse water mining situation in the southern Borrego Valley, should the project not be annexed to the Borrego Water District or another similar water agency. Although highly unlikely, should this situation develop, the water table in the valley could lower differentially creating a significant impact due to localized subsidence.

WATER

Addendum A

Description of Geologic Conditions

This description is excerpted from Hydrology of the Southern Borrego Valley prepared by Dr. Threet in 1972. The various geologic formations of the Borrego Valley region have been adequately described in DWR Bulletin 91-15, which should be consulted along with the Threet report.

The formational units which are most relevant to the Rams' Hill property, in the south portion of Borrego Valley, are: (1) the crystalline basement rock of schist and granitic rock, (2) the red clay and minor amounts of fine sand of the non-marine Palm Springs Formation, (3) the "older alluvium" which truncates and lies unconformably on the preceding formations beneath most of Borrego Valley, and (4) the "younger alluvium" which was deposited in structural and topographical depressions in and on the older formations.

The crystalline basement rock extends to depths of many miles beneath the barren mountains on the northwest, north, west and south sides of Borrego Valley. It lies beneath the thick sequence of sedimentary strata of the Borrego Badlands along the east edge of Borrego Valley, and it lies beneath the sedimentary filling of Borrego Valley, at depths probably as great as one or two miles. The crystalline basement rock lies at a comparatively shallow depth beneath several square miles of pediment, a planed rock surface incorrectly identified in earlier geologic reports as a bajada or deeply alluviated plain, near the southwest corner of the Rams' Hill property. Only extensive drilling or extensive geophysical work would show the exact extent of the buried surface of the basement rock, but the present geologic study suggests than the basement rock lies at a depth of no more than a few tens to a few hundreds of feet, well above the regional water table, in the southwestern portion of the proposed site. The basement rock is generally impermeable, although fractures and weathered zones may yield trifling amounts of water to wells.

The basement rock may be overlain unconformably by sedimentary deposits of the Canebreak Conglomerate, but the basement rock of the Rams' Hill property is more likely to be overlain by the non-marine red clay and fine sand of the Palm Springs Formation. The Palm Springs Formation is known to be several hundred or even a few thousand feet thick in its entirety, in the area between the proposed site and Borrego Mountain and beneath the younger alluvium of the central and northern parts

of Borrego Valley. Only thin remnants probably are present beneath the southern part of the property. In any case, the Palm Spring Formation is no more likely to yield ground water than the basement rock. When a drill hole encounters the telltale red clay of the Palm Spring Formation, there is no reason to drill deeper, in hopes of developing more ground water.

The Palm Spring strata and older formations, including the underlying basement rock, were strongly deformed by earth movements which have affected most of the Southern California region in geologically recent time. Great thicknesses of the older sedimentary cover of the basement rock were removed locally by erosion, and a widespread sheet of sand and gravel was spread to depths of about 100 feet across the region that is now southern Borrego Valley. In spite of its geologic youth, the sheet of "older alluvium" was mildly involved in continuing earth movements in the Borrego Valley region, resulting in up-arched anticlinal ridges and down-warped synclinal valleys trending southwest into at least the east edge of the Rams' Hill property. The more depressed portions of the folded "older alluvium" were covered by deposits of "younger alluvium" and wind-blown sand, while the more uplifted portions were eroded, exposing the underlying red clays of the Palm Spring Formation. The most favorable prospects for development of ground water are in the areas where the permeable "older alluvium" sands and gravels now lie at or below the regional water table, which now stands at an elevation of about 470 feet above sea level in southern Borrego Valley. Figure IV-C-1 shows a necessarily simplified geologic cross-section of the property, as interpreted from the present study.

There is a very tentative additional interpretation of the existence of a northwest-trending fault or oroclinal flexure at depth, approximately beneath Borrego Valley Road. This could have considerable bearing on the occurrence of ground water under the property which may well be substantiated or rejected by results of the test drilling. The only evidence now known for the fault or flexure consists of the pronounced bending westward and northwestward of the axis of the Desert Lodge Anticline, plus the systematic leaning southeastward of the axial planes of the rest of the synclines and anticlines in the group near Sleepy Hollow, east of the property. Both lines of evidence are compatible with an interpretation of right-lateral slip on a northwest-trending fault approximately through Desert Lodge.

Chemical Characteristics of Water Underlying the Borrego Valley

There have been thousands of chemical analyses made on water samples from Borrego Valley. Most samples indicate levels of Total Dissolved Solids in the range of 350-1,000 milligrams per liter (mg/l) with relatively low hardness, i.e., less than 200 mg/l calculated as $CaCO_3$. There are isolated wells which produce water high in nitrates. When the nitrate concentration exceeds 45.0 mg/l, the water is not considered suitable for domestic use; however, it is ideally balanced for irrigation, primarily due to the fertilizer value of the nitrates. Most waters in Borrego contain natural low levels of fluoride, in the range of .5 to 1.0 mg/l -- a level considered ideal for prevention of dental caries. In isolated locations, there have been wells which produce water containing fluorides at levels which are considered excessive and for which either special treatment or blending is necessary before it is used for domestic drinking water. None of these problems occur in the water supply sampled in the vicinity of the Rams' Hill development.

P. LIQUID WASTE

1. Existing Setting

As in many small communities, liquid waste in the Borrego Valley is treated almost exclusively by individual on-site septic systems. One exception is the area designated as the Borrego Country Club Specific Plan Area which is served by a small, private sewage plant operated by the Borrego Springs Park County Water District. The other exception is the Roadrunner Mobile Home Park which uses "master septic tanks" with each tank serving approximately ten mobile home units. However, most homes and businesses in Borrego treat liquid waste on-site with privately owned and maintained septic systems.

The Rams' Hill site is presently vacant and there are no facilities on site for processing liquid waste. The site is not currently within the jurisdiction of a sewer district, however, an existing California Water District is being activated to provide water and sewer service to the project. The Rams' Hill site would be annexed to this district upon its activation. Figure IV-O-2 is a map of the Borrego Water District and proposed annexation.

A proposed waste water treatment facility, which would be owned and operated by the California Water District, would be constructed and paid for by the developer to serve the Rams' Hill project. A special service district would be formed so that the operation and maintenance of the facility would be paid for by the residents and guests of the project. This facility has been described in detail in the Project Description. The developer's consultant, Lowry and Associates, prepared a report, Waste Water Reclamation Rams' Hill Country Club, July 1978, from which the technical data in this section has been drawn. This report is included in full as a technical appendix.

The waste water facility to be build for Rams' Hill would provide secondary sewage treatment plus infiltration. The facility would serve the hotel complex including support facilities, the medical clinic, the 530 multi-family units, the 200 single family units and the fire station. Sewage treatment on the 50 two-acre estate lots would be accomplished by individual septic tanks and leaching facilities on each lot, installed in conformance with San Diego County Department of Public Health standards and Regional Water Quality Control Board requirements. A five acre site has been designated on the Specific Plan for the waste water treatment plant and a ten acre site for the percolation beds (Figure III-F-1, Specific Plan Map).

2. Potential Impacts

Table IV-P-1 presents a summary estimate of sewage production at the end of the Specific Plan period. Total estimated peak sewage production is 224,000 gallons per day. In calculating these flows, it was assumed that domestic sewage production would amount to 250 gallons per day per single family dwelling unit or 70 gallons per person per day, a level generally accepted for residential sewage production among communities in the San Diego area.

Seasonal variations in the rate of occupancy are expected in the new development, much the same as currently occur in the community of Borrego Springs. During the winter, up to 100 percent occupancy is expected over a three or four month period. Summertime occupancy may drop to between 10 and 20 percent, since many of the residences would be used as "second homes". Thus, sewage flows may drop below 50,000 gallons per day during the summer, with peak flows of 250,000 gallons per day during the milder winter months.

The Regional Water Quality Control Board has not issued waste water discharge requirements for the Rams' Hill treatment facility. These requirements will be issued upon final review of the application being submitted by the Borrego Water District. The completed EIR is a key document for this application. A set of tentative waste water discharge requirements which reflect the current policies of the Board has been analyzed. The recommended sewage disposal/waste water reclamation system will meet these anticipated requirements and will comply with Title 22 standards of the State Health Department so that ground waters will be protected from pollution and other adverse quality impacts. The specific requirements and the manner in which they will be met are set forth in Part II of the Lowry Report.

As related earlier, seasonal variations in the rate of occupancy are expected in the new development, much the same as currently occur in the community of Borrego Springs. Thus, sewage flows may drop below 50,000 gallons per day during the summer, with peak flows of 250,000 gallons per day during the milder winter months.

Many chemical analyses which have been made on water samples from the Borrego Valley indicate the levels of total dissolved solids (TDS) to be in the range of 350-600 milligrams per liter (mg/l), with relatively low hardness. (See Technical Appendix H). This is a substantially lower TDS level than that of the Colorado River water used in metropolitan San Diego.

Table IV-P-1

Estimate of Peak Season Sewage Production (1)

	Number of Units	Factor	Sewage Flow GPD
Hotel Complex 350 rooms & suites		100 GPD/Room	35,000
Clinic	25 beds	250 GPD/Bed	6,250
Villas	530 DU's	250 GPD/DU	132,500
Single Family Detached (1/3 acre)	200 DU's	250 GPD/DU	50,000
Fire Station	1	250 GPD	250
Average Peak Season Daily Sewage Flow - TOTAL			224,000 (2)

(1) Applies only to area planned for service by public sewer. Excludes estate lots.

(2) Rounded out to 250,000 gallons per day. Waste water treatment and reclamation facilities would therefore be sized to process an average daily flow of 250,000 gallons per day,

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Average Peak Season Daily Sewage Flow - TOTAL			224,000 (2)

(1) Applies only to area planned for service by public sewer. Excludes estate lots.

(2) Rounded out to 250,000 gallons per day. Waste water treatment and reclamation facilities would therefore be sized to process an average daily flow of 250,000 gallons per day,

Assuming that the mineral quality of the potable water supply would be about 500 mg/l TDS, and assuming that on-site regneration of water softeners is prohibited, the increase of TDS in the sewage and the reclaimed water can be limited to between 250 and 300 mg/l. (See Technical Appendix I)

The developer has included conservation of water as a major goal in the design of the waste water facility. Therefore, sewage produced by Rams' Hill Country Club will be reclaimed as one source of irrigation water for the planned 18-hole golf course. After secondary treatment, the sewage effluent would be disinfected and pumped to an irrigation storage pond/decorative lake on the golf course. The golf course irrigation system would have sufficient demand to consume the highest volume of reclaimed water produced in the Specific Plan Phase. Due to the high cost of analysis required for waste water reclamation, it is economically feasible to use reclaimed sewage effluent for golf course irrigation only during those periods when the volume of reclaimed water available is 100,000 gallons per day or more. Effluent volumes less than 100,000 gallons per day would be disposed of by discharge to percolation beds.

Table IV-P-2

Treatment Methods and Disinfection Requirements for Reclaimed Water

Treatment Compared to Water Use

Title 22, California Administration Code, sets the Requirements for Reclaimed Water Use. Summarized Excerpts from the Code for Health Considerations Relating to Pathogens are as follows:

Article 2

Irrigation of Food Crops Spray Irrigation	- 2.2/100 median, 23/100 once/30 days coagulated, clarified, filtered
Surface Irrigation Orchards and Vineyards	- 2.2/100 median -- oxidized - primary, no coliform

Article 3

Irrigation of Fodder, Filter and Seed Crops	
Fodder, filter, seed crops	- primary
Pasture for milking animals	- 23/100 median -- oxidized

Table IV-P-2 - continued

Article 4

Landscape Irrigation (Public Access) Golf courses, cemetaries lawns, parks, playgrounds, freeways	-	23/100 median -- oxidized

Article 5

Recreational Impoundments Nonrestricted Recreational Imp. (swimming)	-	2.2/100 median, 23/100 once/ 30 days, coagulated, clarified, filtered
Restricted Recreational Imp. (fishing, boating)	-	2.2/100 median -- oxidized
Landscape Impoundment (No public contact)	-	23/100 median -- oxidized

Another way to look at the requirements is to relate the level of treatment to water use allowed. This is shown in the following table:

Treatment	Water Use
Tertiary	
Coagulated, settled, filtered 2 turbidity units Coliform: 2.2/100 median 23/100 once/30 days	Spray irrigation of food crops, nonrestricted recreational impoundments (allows swimming)
Secondary	
Oxidized High Performance Reliable disinfection Coliform: 2.2/100 median	Surface irrigation of food crops, restricted recreational impoundments (allows fishing & boating)
Secondary	
Oxidized Average performance Coliform: 23/100 median	Pasture for milking animals landscape irrigation (for lawns, parks, playgrounds, golf courses)

Table IV-P-2 - continued

Primary	
1/2 ml/l/hr. settleable solids	Orchard and vineyard surface irrigation, fodder, fiber and seed crops

The Health Department and Regional Water Quality Control Board allows irrigation of golf courses using reclaimed effluent which has been processed by secondary treatment facilities. (Table IV-P-2 is a summary of permitted use of reclaimed water.) This effluent would not impact groundwater quality or the potable water supply because very little of it would ever percolate as deep as the groundwater table.(24) Over two-thirds of this reclaimed water would be lost through evapo-transpiration; the remaining one-third would filter very slowly through the substrata, perhaps returning to the surface through capillary action. Because of the volume of water used for irrigation, the stable inorganic substances (salts) would be flushed down below the root zone where they would be deposited. The quality of the soil or the groundwater, therefore, should not be impacted.

Percolation beds with sufficient capacity to dispose of the entire output of the waste water treatment plant on a continuous, long-term basis, also would be provided for effluent disposal. These beds are designed in conformance with State Health Department Title 22 regulations as a planned back-up method to insure safe, reliable disposal of effluent in the event of reclamation plant failure. The beds would also be used as the primary disposal method during periods of low flows when waste water would not be recycled for use on the golf course. These percolation beds would be four to six acres in size. They will be adequately separated from existing project related water well sites, and would be located on the north side of the Desert Lodge anticline, so that the discharge would percolate toward the saline Borrego Sink, rather than into the southern basin from which the potable water would be drawn. The beds would be north of the mesquite woodland to minimize impacts to the habitat and biota. Additional soil study will be necessary at the recommended location for measurement of permeability and final determination of percolation bed size. The Specific Plan Map, Figure III-F, illustrates the ten acre site proposed for the location of the percolation beds.

As with potable water supply for Rams' Hill, the water supply for the adjacent La Casa del Zorro resort will not be impacted by the waste water reclamation facility. Potable water service to La Casa del Zorro is provided by Rancho Borrego Mutual Water Company. This company owns two wells, one of which is located at the intersection of Yaqui Pass Road and Borrego Springs Road, and one of which is located just south of the resort. Distance from the percolation basins to the wells is 2,750 feet and 2,300 feet, respectively. Both wells draw water from the southern basin.

The disposal of effluent in the percolation beds should not impact the quality of groundwater under the Borrego Sink and may in fact improve it. The existing water under the sink is highly alkaline and has high levels of nitrates. The effluent would have a significantly lower level of TDS than this existing groundwater. The overall level of TDS may incrementally improve with the addition of the effluent.

The percolation beds would be used for effluent disposal during periods of low flow, approximately four months each year. During this period it is possible that the increased water availability could facilitate non-native species introduction in the mesquite woodland or sink scrub community. (See Biology). This impact should be minimal. The percolation beds would operate during the period of highest evaporation. The beds must be kept totally free of vegetation to operate properly. Increased water availability in the root zone would be intermittent, minimizing the possibility of non-native species invading the mesquite woodland.

The waste water treatment facility will generate 210 pounds of wet sludge each day at full capacity and 58 pounds each day during the summer. This sludge will be discharged to two solar drying beds located on the plant site. Each drying bed will be 40 feet by 60 feet in size, providing 1.0 square foot area space per capita per day. The sludge will be dried to a maximum water content of 25 percent, with an average water content of 10 percent. Allowing for few variations, the plant will generate between 3.5 and 8 tons of dry sludge each year.

This dry sludge should pose no disposal problem. It could be used by agricultural enterprises in the valley, or disposed of in a sanitary land fill. Eric Lewis of the County Department of Sanitation and Flood Control has indicated that the moisture content of sewage sludge is the most important parameter in disposal. In general, any landfill site can accomodate sludge as long as it is mechanically or air dried to 45 percent solids. The sludge which will be generated at Rams' Hill will be dried in the solar beds to at least 25 percent solids.

The County is developing guidelines for sludge disposal at County landfill sites. Until these guidelines are issued, there are no "approved" sites. Since the sludge at Rams' Hill will be adequately dried, however, the sludge should easily be accommodated at the Borrego Landfill, located approximately five miles northeast of the project. A seven-ton diesel truck will probably collect sludge twice each year and transport the sludge to the landfill. This will require approximately five gallons of diesel fuel each year.

The operation of the treatment plant could potentially increase the ambient noise level in the immediate vicinity by 3 dB(A). This increase would be imperceptible. The resulting ambient level would remain far below the standards for noise described in the Noise Element of the General Plan. This noise would not impact residences at Rams' Hill or adjoining properties. The nearest residence at Rams' Hill would be at least a mile away. The adjoining properties to the north are held in larger ownerships, making it unlikely that a house would be built near the plant in the future.

The portion of the Specific Plan area which is located north of Borrego Springs Road in the sewage treatment plant area is not proposed for development at this time. The area could potentially be developed as part of a subsequent Specific Plan. The level of noise expected to be generated by the facility would be far below the noise standards and no impacts are anticipated in this area in the future.

The waste water treatment facility would utilize an aerobic process. Odor should, therefore, not be a problem since odorous compounds are oxidized in the aeorbic disgester. It is possible that in the warm summer months, the sewage may back up due to low flows. In such instances, it is possible that the sewage would not remain fresh and a slight odor could be present. These odor problems could occur throughout the transmission network, but will probably be minimal in the vicinity of the plant itself. All odor problems would be temporary.

The second Specific Plan phase would double the number of residential units and increase the number of hotel rooms by 250. This second phase would, therefore, approximately double the volume of liquid waste from the project. The waste water treatment plant and percolation beds have been suitably designed and sited to permit easy expansion of the facilities. The developer would be responsible for paying for all necessary improvements to the first Specific Plan phase plant to accommodate planned increased flows.

3. Analysis of Significance

The sewage disposal/waste water reclamation system which would be designed and constructed by the developer is proposed to be owned and operated by the Borrego Water District, a California Water District. The Local Agency Formation Commission will be requested to authorize the exercise of latent sewage collection and treatment and waste water reclamation powers by the District.

The use of on-site regenerated water softeners should be prevented in the service area of the public sewer system to protect the ground water from excess salinity. Because of low salinity of well water, no softeners should be necessary. Because of careful design and operation procedures, liquid waste and the waste water treatment plant should have no significant environmental impacts. During the construction phase the local habitat would be irreversibly changed due to grading and recompaction. The plant has been designed to conserve virtually all the waste water, recycling it for use on the golf course.

Q. SHERIFF'S PROTECTION

1. Existing Setting

The Rams' Hill property falls within the Sheriff's Master Beat 71, which is covered out of the Sheriff's Borrego Office located at 610 Palm Canyon Drive. Response time to the property is approximately ten minutes for priority calls and 13 minutes for non-priority calls.

Normal patrol coverage in Master Beat 71 consists of one patrol unit on duty from 8:00 a.m. to 5:00 p.m. The resident deputy remains on a "call-out" status the remaining 15 hours per day.

There are currently no projected or budgeted increases in staff or equipment for the Sheriff's Borrego Office.

2. Potential Impacts

By itself, the proposed project would incrementally impact the Sheriff's level of service in the area as the development is implemented. Currently there is one patrol per deputy per 1,650 people within the Sheriff's jurisdiction in this area.

The Sheriff's Department estimates that by 1985 current growth trends will necessitate the addition of two deputies in the Borrego Valley to maintain the same level of service available today. This estimate includes service for normal Borrego growth plus service to cumulative projects which recently have been approved in the valley, including Borrego Country Club. In order to serve the Rams' Hill project in 1985, assuming full build-out and occupancy, the Sheriff estimates two additional deputies would be required to maintain the present level of service. Therefore, in 1985, with implementation of Rams' Hill, normal growth and assuming the construction of all other recently approved projects, the Sheriff estimates that the staff in Borrego Springs will need to expand by a total of four additional deputies, in order to maintain the ratio of one deputy per 1,650 population. The yearly cost of a one-deputy car on duty seven days a week eight hours a day is $87,504.

3. Analysis of Significance

The developer has stated that the Rams' Hill development will be designed to incorporate a high level of internal

security, which would minimize the impact on sheriff services. Entry into and egress from the property would be regulated. The residential developments are oriented around cul-de-sacs. This cul-de-sac form of development is designed to create "mini-neighborhoods" thereby reducing through traffic in the project, potential vandalism and associated problems. Use of the second homes would be seasonal in nature and the need for sheriff services would probably be substantially reduced during the summer. The phased development of the proposed project would result in a gradual population increase, thus staggering the impacts upon existing levels of sheriff's protection.

The Rams' Hill project would significantly increase the tax base in the community. These additional tax revenues would somewhat offset the cost of expanded service. In light of Proposition 13, the extent to which tax revenues subsidize public service costs is debatable.

The expansion of Sheriff's service in the valley as a result of Rams' Hill would benefit the entire community. Currently the one deputy in the valley is available nine hours a day and "on call" the remaining 15 hours. Weekend coverage is less complete, with the deputy from Ranchita sharing duty in Borrego. The expanded service necessitated by Rams' Hill would result in more complete service throughout the valley.

It is highly probable that three deputies could provide full service (24 hours a day, seven days a week), instead of the current abbreviated service of eight hours a day, five days a week.

In conclusion, the Rams' Hill project would have a substantial adverse impact on the level of Sheriff's protection in the valley should additional deputies not be assigned to the Borrego Substation. The cost of providing two additional deputies would significantly impact the budget of the Sheriff's Department.

R. SCHOOLS

This discussion is based upon information confirmed by the Borrego Springs Unified School District in a service letter dated August 1, 1978.

1. Existing Setting

The Rams' Hill property lies within the Borrego Springs Unified School District. The District operates one elementary school serving grades K-6 and one high school serving grades 7-12. The school district is attempting to diversify educational opportunities by offering vocational education and a limited number of courses through the Palomar Community College District.

The public schools serving the Borrego Springs community are currently functioning at approximately half of their design capacity. Since 1970 the Borrego Valley has experienced an eight percent annual growth rate as the resort and retirement communities have expanded. Based upon this growth, the school district is projecting a two percent annual enrollment increase for the immediate future. The following table summarizes the existing enrollments and future enrollment trends.

TABLE IV-R-1

Existing Trends: School Enrollment

	Served	1977-78 Enrollment	Projected 1982-83 Enrollment	Capacity
Borrego Springs Elementary 1315 Palm Canyon Drive	K-6	120	132	220
Borrego Springs High School 2281 Digueno Road	7-12	118	130	250

2. Potential Impacts

The County Department of Education recently completed work on a project to help predict the number of students projected to enroll in a given school based upon year round housing types in different parts of San Diego County. Second home developments, such as that anticipated at the Rams' Hill project, however, were not analyzed. It is recognized that second homes generate considerably fewer students than primary residences. For example, there are no students

attending schools in the Borrego School District from the De Anza Country Club development, a similar resort- second home project located in the northwest corner of the Borrego Valley. Therefore, in consultation with the school district, it was agreed that the following generation factors appear reasonable for Rams' Hill:

TABLE IV-R-2

Generation Factors per Dwelling Unit

Grade Level	Detached Units	Attached Units
K-6	.075	.0525
7-12	.100	.0625
TOTAL	.175	.1150

Based on these estimated generation factors, the first phase of the Rams' Hill project could generate 47 primary students and 58 secondary students.

In addition to the students who would be living in the Rams' Hill development, a small number of additional students could be expected as a result of the induced growth prompted by Rams' Hill. Analysts for the County's Regional Growth Management program estimated that this project could provide 350 jobs, resulting in the creation of approximately 175 households in Borrego Springs.

The County recommends use of the following factors to estimate the number of students which might be generated by permanent year-round dwelling units in Borrego: K-6, .3 students; 7-12, .4 students. Based on these generation factors for permanent households, this induced growth could result in an additional 52 primary students and 70 secondary students. These students would be gradually entering the school system over a five year period. Therefore, the total maximum number of students which could be expected to enter the school system as a result of the development includes 99 primary students and 128 secondary students. The following table summarizes the impact of these students on the school district.

TABLE IV-R-3

Projected School Enrollments

School	Grades	Projected 1982-83 Existing Trends	Maximum 1982-83 Existing Trends Plus Rams' Hill	Capacity
Borrego Springs Elementary	K-6	132	231	220
Borrego Springs High School	7-12	130	258	250

The project is located six to eight miles from the Borrego Springs elementary and high schools. Busing of students residing at Rams' Hill to these schools would be necessary. The school district has indicated that busing would not be a problem.

3. Analysis of Significance

The Rams' Hill project would not create any significant adverse impacts on the Borrego Springs School District. Should enrollments continue to grow, 37 acres have been reserved on the property to be dedicated as an elementary school site. The agreed generation factors for Rams' Hill are low, due to the character of the project and the area. It is highly unlikely that the full number of projected students would, in fact, enter the district. Should maximum enrollments occur over the next five to ten years and should no school expansion occur, capacity would be exceeded by 1.5 students per grade. Such a small increase would not warrant construction of new facilities.

During the construction phase it is anticipated that additional students would enter the school district from construction worker's families. Because the district has such a large and under-utilized capacity, these children should not seriously impact the district.

The second Specific Plan phase of the project could double the number of students entering the district schools. These children would not begin to enter the schools until seven to ten years after initial construction of this Specific Plan phase. Because of the large lead time, the school district would have sufficient opportunity to assess more precisely the impacts likely to be generated by this second phase and to plan appropriately.

The school district is currently operating at less than half capacity, resulting in a very poor utilization of capital facilities and an over-staffing at the various grade levels. Increased enrollments would improve capital utilization and increase state subsidies to the district. This would probably result in an overall improvement in the utilization of school system facilities. The increase in state per capita subsidies would be especially beneficial to the community. The current state-wide policy is that by 1980 school district funding will be based entirely on the number of students attending schools in the district.

S. FIRE PROTECTION

The following discussion is based upon correspondence with Chief Jack Hansen of the Borrego Springs Fire Protection District.

1. Existing Setting

The Rams' Hill property lies within the jurisdiction of the Borrego Springs Fire Protection District. The closest fire station to the site, and the station which currently serves structures in the project vicinity, is located at 2324 Stirrup Road, between six and one-half miles away. Response time to the site would be six to eight minutes.

Nine full-time, paid firefighters and approximately seven volunteer firefighters man the Stirrup Road station in shifts of five men each. All personnel are certified as Emergency Medical Technicians, with skills rated between that of advanced first aid and paramedic level one. The staff is divided into three engine companies which man two 2,000 gallon per minute pumpers and one 500 gallon per minute pumper. To facilitate rescue and emergency medical relief services, the District maintains two intensive care ambulances, a four wheel drive ambulance and a rescue equipment truck.

2. Potential Impacts

Implementation of the proposed project would significantly increase the demand for fire protection services within the District. The developer has contacted the Fire Protection District and they have not been able to provide a detailed assessment of the impacts the project could have on the District in light of State Proposition 13. Chief Jack Hansen has stated that the District may undergo some cutbacks in current levels of service, effective July 1, 1979.

The proposed project may require the construction of a new fire station. A class ten insurance rating would be given to all new structures on the property until a new fire station adjacent to or on the development sites is constructed. Implementation of a new station at Rams' Hill would require additional personnel for the District's staff. Additional service vehicles for the engine companies and the rescue and ambulance teams would be necessary. Normally, one fireman is required per 1,000 population.

3. Analysis of Significance

When the General Plan was amended by the adoption of a Specific Planning Area for the DiGiorgio property, a 2.5-acre parcel on the site was designated for the provision of a future fire station. The District, however, has no immediate plans or funds for the construction of a new station or other expansion.

Should the District be forced to assume the financial burden to construct the needed fire station on site this project would have a significant adverse impact on the District. This impact could be mitigated in one of two ways. The developer could construct the fire station to District standards. As an alternative, a special assessment district could be formed and placed on the new owners and guests of the project to capitalize and pay for the operation of the necessary fire station.

Although not stated by the Chief, it is assumed that the new station would require additional service vehicles and men to operate the station. Should a special assessment district not be formed so that the residents pay for the operation of the station, the project could have a significant adverse impact upon the operation of the Fire Protection District.

The development of the Scripps Satellite Clinic at Rams' Hill would significantly mitigate the impact of the project on emergency medical services. The clinic would provide primary and emergency health care for residents throughout the valley and at the Anza Borrego Desert State Park.

The Rams' Hill project would significantly expand the tax base in the valley. The additional tax revenues would somewhat offset the cost of expanded service. In light of Proposition 13, the extent to which local tax revenues will offset the cost of public services is questionable.

T. SOLID WASTE

1. Existing Setting

Solid waste in the Borrego Valley is collected by Desert Waste Systems, a private carrier based in Ramona. Service is provided on a contractual basis with individual owners. At the present time, collections are made at weekly intervals using 20-cubic yard trash compactors. The carrier operates the compactor in Borrego Springs five days a week.

Solid waste is currently deposited at the sanitary land fill located at the eastern end of Palm Canyon Drive, approximately six miles north of the project site. The land fill has a remaining life expectancy at current population levels of approximately 20 years.

2. Potential Impacts

San Diego County Department of Sanitation and Flood Control has confirmed the following generation factors for planning purposes to estimate the volume of solid waste to be produced by the Rams' Hill Specific Plan:

one dwelling unit	2.1 persons/unit
one individual	5 lbs waste/day
hotel complex	3 lbs waste/room/day
medical facility	10 lbs waste/patient/day

The volume of solid waste generated by the residents of the project would vary with the season of year as occupancy rates go up and down. During the peak season, when it can be assumed for planning purposes that 100 percent of the dwelling units would be occupied, 8,860 pounds of solid waste per day would be generated. During the off season, when occupancy is projected to fall below 35 percent, the volume of solid waste generated would fall to 3,224 pounds per day. The following table summarizes the generation rates.

Maximum Projected Solid Waste Generation at Ram's Hill by Season Lbs/Day

Peak Season - (October to April)

Use	# of Units	Occupancy	Factor/Day	Total lbs/Day
Hotel	350	100	3 lbs/room	1,050
Multi-family	530	100	5 lbs/person	5,035
Single-family	250	100	5 lbs/person	2,625
Medical facility	15		10 lbs/patient	150
TOTAL				8,860 lbs/day

Off Season - (May to September)

Use	# of Units	Occupancy	Factor/Day	Total lbs/Day
Hotel	350	100	3 lbs/room	1,050
Multi-family	530	35	5 lbs/person	1,762
Single-family	250	10	5 lbs/person	262
Medical facility	15		10 lbs/patient	150
TOTAL				3,224 lbs/day

3. Analysis of Significance

The projected life expectancy of the Borrego Landfill is approximately 20 years at the current projected rate of landfill development. The landfill site is now being loaded with 18000 tons of solid waste each year. This project will generate 1172 tons per year, thereby increasing the loading by approximately 6% annually.

The project's gradual phasing would stagger the cumulative impacts over five years. Since solid waste disposal is provided by private carrier, the project would not adversely impact service costs for solid waste disposal. The second Specific Plan phase now planned only in concept would increase the total volume of solid waste generated in the valley but would likewise not impact service levels or costs.

The life expectancy of the Borrego Landfill site is currently projected to be 20 years. The Specific Plan phase of the Rams' Hill project would have a significant adverse unmitigated impact upon the life expectancy of the Borrego Land Fill by several years. In addition, it would contribute incrementally to the regional need for new disposal methods and sites on a gradual basis. The expanded tax base resulting from project implementation would somewhat offset costs for the provision of new land fill facilities. As an alternative to providing new land fill sites, the County or another interested public or private agency might wish to utilize solid waste for energy generation or some other alternative use. Should this be implemented, the additional residents and solid waste production at Rams' Hill would have a beneficial impact for the community.

U. VISUAL QUALITY

1. Existing Setting

The site of the proposed Rams' Hill project is presently an open, undisturbed alluvial fan along the southern perimeter of the Borrego Valley. The site contains three vegetative communities including a mesquite woodland bordering the Borrego Sink; a desert scrub community over most of the property; and a ridge-wash community in the southwest quarter. The site is easily viewed from all areas in the valley and is an integral part of the desert panorama. Rams' Hill is adjacent to Yaqui Pass Road and is the first view to the right of the road as one enters the valley traveling north on Yaqui Pass. The Rams' Hill site includes a large portion of the southern Borrego Valley and can be considered a visual resource within the open beauty of this desert basin.

2. Potential Impact

The project would convert a portion of the south slope of the Borrego Valley to a large scale desert resort with introduced landscaping. The resort would include a one-story medical clinic; an extensive ,three-story hotel with detached bungalows; a golf course; streets; parking lots; 530 planned residential units; 200 single family units; 50 estates; and other accessory features. The native vegetation within the area to be developed would be converted from sparse desert scrub to introduced turf and drought resistant landscaping. The 966 acres planned in concept only would likewise change a portion of the desert fan to an intensively developed resort. The concept phase would also be landscaped in a manner appropriate to the desert area. Grading, although minimal, would disrupt the natural, smooth grade of the fan surface. The development, including buildings and landscaping, would be visible from the entire valley, and especially from Montezuma Valley and Yaqui Pass Roads, the two major access routes from the west and south. The waste water treatment facility would be visible from Borrego Springs Road. The project would not, however, block the view of any significant visual resource.

3. Analysis of Significance

As proposed, over half of the site would be dedicated as permanent undeveloped open space, including the entire eastern half of the property. Native vegetation would be used to the extent feasible to landscape the single family resi-

dences and two-acre estates. The large rough on the borders of the golf course would be left in native vegetation. The waste water treatment facility would be screened from view through the use of desert adapted trees and shrubs. The mesquite woodland adjacent to the Borrego Sink, and the ridge and wash area in the southwest corner would not be developed at this time. Plans for these sensitive areas would be fully developed in the second Specific Plan phase.

The developer has proposed that the goal of the Rams' Hill project is to preserve a natural, low-key, desert quality. While the project would convert a portion of an undisturbed alluvial fan to a residential-resort complex, landscaping and development would be sensitive to the desert environment. The project would substantially alter the vista of the Borrego Valley. The significance of this alteration will vary with the values of the observer.

V. ALTERNATIVES

There are a number of potential alternatives that can be considered. The following six are presented as being the most feasible and providing the broadest range of discussion of the issues: (1) development of the same concept plan at a higher density; ((a) 25 percent higher and (b) 50 percent higher); (2) development of the same concept plan at a lower density, ((a) 25 percent lower and (b) 50 percent lower); (3) development of a residential project without resort facilities; (4) development of a resort facility with no residential units; (5) agricultural uses; and (6) no project.

1. Development of the Same Concept at a Higher Density

The first potential alternative to the proposed Specific Plan is the development of the concept plan at a higher density. This higher density would be in addition to that density reserved for development in the second Specific Plan Phase. Two bench marks will be used for this alternative: increasing the density by 25 percent and increasing the density by 50 percent. Density increase above 50 percent is not practical to consider at this time.

a. 25 percent increase

This alternative would increase residential density by 25 percent, or 200 units. The units under this alternative would be located in those areas included for development in this Specific Plan phase. They would not be located in the 1562 acre open space area or in the areas reserved as "not a part". Under this alternative, a series of impacts can be expected. Land use impacts would increase by intensifying development and decreasing open space. Energy consumption for domestic use would increase by about 19 percent. Impacts on public services such as fire, sheriff and solid waste would increase in proportion to the number of units.

This alternative would not substantially increase the significance of impacts to biology, archaeology and noise although human presence and activity would increase. The impacts to biology relate to altering the hydrologic regime of the property, alterations and destruction of habitats, and increased human presence. These impacts would not change substantially. Archaeological impact relates to

development adjacent to a rare resource. This would still occur.

Impacts on air quality and traffic would be marginal since trips from Rams' Hill would only increase by 10 to 12 percent. This alternative would proportionally increase the number of units exposed to a significant flooding and seismic hazard. Grading would not increase substantially since those intensively developed areas are already proposed for grading. No significant impacts would occur to liquid waste since the capacity of the treatment plant could be easily expanded by the developer. The alternative could possibly decrease water consumption because landscaping consumes proportionately more water than dwelling unit uses. The amount of recycled water available to the golf course would increase by 25 percent resulting in a net increase in water used for plants. The short term impacts of this alternative would not be substantially different than those of the Specific Plan proposal.

Increasing the density by 25 percent would increase the social and economic benefits to the Borrego Springs community and to San Diego County. The permanent year-round population could be anticipated to increase thereby assisting in economic viability. The increased density would not substantially increase the recreational opportunities in the County.

b. 50 percent increase in density

This alternative would increase residential density by 50 percent or 390 units. In this alternative the units would be located in those areas included for development in this Specific Plan phase. They would not be located in the 1562 acre open space area, or in the areas reserved as "not a part". The following impacts would occur should this project be implemented: Land use impacts would be substantially more adverse; the intensified development would either eliminate open space or result in multi-story buildings. The design of this project would not blend well with the desert nor would it be consistent with surrounding development. Multi-story buildings would adversely impact visual quality. Energy consumption could be expected to increase by 37 percent. This would probably necessitate construction of additional transmission capability to the valley. Initially, impacts on public services during the construction phase would be no different from the proposal. After implementation, impacts would be substantial and adverse necessitating construction of a new fire station, and additional sheriff's

deputies.

This alternative would substantially alter the character of the Borrego Valley. The intensive development would create more activity of a more intense nature resulting in greater impacts on biology, archaeology, as well as increased noise levels. The volume of traffic and air pollution generated by the project would increase by approximately twenty percent. This alternative would proportionately increase the number of units exposed to a significant flooding and seismic hazard. Grading would not increase substantially since grading would already occur over most of the developed areas. The volume of liquid waste would increase by 95,000 gallons per day. This would be easily accommodated by an increase in the capacity of the treatment plant. Increased liquid waste would have a beneficial impact by making more recycled water available to irrigate the golf course. This alternative would probably decrease net water consumption by reducing the landscaped area and increasing the volume of recycled water. The short term impacts of this alternative would not be substantially different than those of the Specific Plan proposal.

The beneficial impacts to the Borrego economy would increase in proportion to the number of year-round residents at the project. This alternative would increase the number of second home and retirement units in the County of San Diego. The per unit value of the homes could decrease since the higher density development might not have as great a market potential. The recreational benefits for the County as a whole would not change substantially from the proposal.

2. Development of the same concept plan at a lower density

The second potential alternative to the proposed Specific Plan is the development of the concept plan at a lower density. This lower density would reduce the total number of dwelling units constructed during both phase 1 and phase 2 of the project. Two levels of reduced density will be discussed: 25 percent reduction and 50 percent reduction. Reduction by more than 50 percent would not be feasible.

a. 25 percent lower density

This alternative would reduce the number of residential units by 25 percent, or 200 units. The overall density of this phase of the development would be reduced from one dwelling unit per 2.7 acres to one dwelling unit per 3.75 acres. This alternative would increase the amount of open space within the developed areas, but would not change the overall

form of extent of development. Decreasing the density by 25 percent would not substantially change the land use impacts of the project. 596 acres would still be irreversibly committed to resort-residential development. The alternative would be consistent with surrounding development.

Under this alternative a series of impacts would occur. This alternative would not substantially decrease the biological and archaeological impacts. Even this reduced level of human presence and activity would still interfere with the patterns of faunal activity. The hydrological characteristics of the property would be substantially altered. The volume of traffic and air quality emissions generated by the project would decrease by about ten percent. Noise levels would not change substantially. Energy consumption for domestic uses would decrease by 19 percent. Impacts on services would also decrease by 25 percent. Despite this, the number of sheriff's deputies needed to serve the project would not change; the need for a fire station would not lessen. The volume of liquid waste would be reduced by 48,500 gallons per day at peak occupancy. This would not impact the treatment plant since it has been designed to accommodate a wide variety of volumes. This alternative would increase the overall consumption of water by increasing the amount of landscaped area to be irrigated and by reducing the volume of reclaimed water which could be used to irrigate the golf course. The short term impacts of this alternative would not be substantially different from the proposal.

The beneficial impacts to the Borrego community of this alternative would be slightly, but not substantially, less than those of the proposal. The number of permanent year-round residents would still increase substantially thereby assisting in the creation of an economically viable community. The amount and diversity of recreational opportunities in San Diego County would be substantially increased but to a lesser degree than under the proposal.

b. 50 percent reduction in density

This alternative would decrease residential density by 50 percent or 390 units. The area proposed for development under this alternative would not change. The overall density of the Specific Plan would be reduced from one dwelling unit per 2.7 acres to one dwelling unit per 5.5 acres. This alternative would create the following impacts. The land use impacts would not change substantially since the same acreage would be committed for resort-residential uses. Common open space would increase substantially between

the planned residential areas and within the single-family home areas. The land uses would not be balanced with the large resort hotel and the small number of residential units. Impacts on public services would be decreased. The alternative could require one less deputy than the proposal. The need for a new fire station could be eliminated.

This alternative would not change on-site biological impacts. Indirect impacts could decrease with decreased human presence. The impacts to the archaeological site would not be substantially lessened since development would still occur relatively close to a rare resource. Traffic and air pollution generated by the project would decrease by approximately 20 percent. This would not create a significantly lesser impact than that of the proposal. This alternative would proportionately decrease the number of units subject to a significant flooding and seismic hazard. Energy consumption would decrease by 40 percent. Noise levels would decrease incrementally. Grading would not change substantially. The volume of liquid waste would decrease by 90,000 gallons per day. Recycling the waste water would not be feasible during most of the year under this proposal. Therefore the volume of potable water needed to irrigate the golf course would increase. The net impact would be to increase the volume of water consumption due to increased landscaping needs and less recycled water. Short term construction impacts would not change substantially.

The social and economic benefits of this alternative would be substantially less than those of the proposal. A lower density would not be consistent with the intent of the Specific Plan Area or the development objectives and needs of the valley. At substantially lower densities, the project would not provide an adequate population base to help solve some of the critical problems in the valley,including a lack of economic stability during the summer, and underutilization of capital facilities such as schools. Development at a lower density would have all the potentially adverse impacts of development in an undeveloped scenic valley, but would not provide the overriding social benefits to be derived for the community at large.

3. Development of a residential project without resort facilities

The third possible alternative to the proposed Specific Plan is the development of a residential complex without resort facilities. This alternative would include the same number of dwelling units as the proposal in the same location, but

would eliminate the golf course, resort, medical clinic, and large tennis facilities. The Borrego Valley is primarily a second home/retirement community. As explained more fully in the section on growth inducement, a primary factor in the marketability of these second home areas is the development of associated resort facilities.

There are already approximately 2,500 buildable lots in the Borrego Valley. These lots are the product of earlier speculative subdivision activity. Borrego has had several "false starts" for growth in the past because this earlier activity lacked a resort orientation. This alternative is economically infeasible and ignores the explicit intent of the Rams' Hill development and its inherent attractiveness to future residents.

The environmental impacts of this alternative would probably be as follows: The alternative would irreversibly commit 538 acres to residential uses. This would be consistent with earlier land project activity in the valley, but not consistent with the needs of the community. This alternative would increase open spaces within the development and reduce the total irrigated acreage. Without a resort orientation the planned residential units would lose their marketability,perhaps depressing the market potential of the single family units. The estate units could probably maintain their attractiveness. This alternative would not substantially impact the value of development elsewhere in the valley.

The residential alternative would have significant impacts on biology, although not as severe as those of the proposal. The alternative would irreversibly alter the habitat over 538 acres of the south slope, increasing human presence and potential ORV activity. The hydrology of the area would be altered, although not as severely because less acreage would be irrigated. The potential impact to a rare archaeological resource would remain. Energy consumption for domestic uses would decrease by 25 percent. Impacts on public services would decrease in proportion to the reduction in population. Impact to the fire protection district would be incrementally reduced although the need for a new station could still remain. Traffic and air pollution generated by the project would decrease by approximately 50 percent. Noise levels would incrementally decrease. Road noise would decrease by about 3dB(A). This alternative would proportionally decrease the buildings and the number of people exposed to a significant seismic and flooding hazard. Grading would decrease substantially because of the

elimination of the golf course. The volume of liquid waste would decrease by about 20 percent. This alternative would significantly decrease the volume of water use. Elimination of the golf course would save 954 acre feet per year. The recycled water could be applied to the remaining landscaped areas saving an additional 100 acre feet each year. Elimination of the hotel would save an additional 40 acre feet in domestic water use each year. The short term impacts of the alternative would not be substantially different since a large construction force would be needed to build the residential units.

This alternative would substantially reduce the social and economic benefits of the project without significantly changing the magnitude of irreversible environmental impacts. Judging by the failure of similar residential development, the project without a resort would probably not be marketable. Assuming all units would be occupied by 1985, the project would increase permanent year-round population, but not any more than would the proposed Specific Plan. The project would not substantially change the recreational opportunities in San Diego County. The elimination of the medical clinic would be a significant loss to the Borrego Valley and desert community.

4. Development of a resort without residential facilities

The fourth possible alternative to the proposed Specific Plan is the creation of a resort without a residential component. In concept there are three levels of resort development: large, medium and small. A large or moderately scaled resort, however, would not be feasible without residential support. It takes at least 200 residential units to support a golf course. A small scale resort would be the only feasible alternative.

This alternative is conceptualized as a 25 to 60 room resort with swimming pool and tennis courts, but no golf course. A small commerical support facility could be established including a restaurant. The medical clinic would be eliminated.

This alternative would have the following environmental impacts. A small area of perhaps 50 acres on the south slope would be committed to resort uses. This land use would be consistent with the neighboring uses at Casa del Zorro and Fletcher Air Ranch. The geological impacts would be substantially less significant since only one percent of the site could be developed. The habitat would not be significantly impacted and the hydrologic characteristics

would not be substantially changed. The potential impact to the archaeological site could remain but would be less severe with fewer inhabitants. Energy consumption would be reduced dramatically. Traffic and air pollution would be reduced by approximately 90 percent. Impacts to services would be minimal. Noise levels would not be impacted. This alternative would decrease the buildings and people exposed to a significant seismic and flooding hazard. Grading would be insignificant. The volume of liquid waste would be reduced substantially and the project could easily be served by a private septic system. The resort alternative would substantially decrease water consumption to an insignificant level. The short term construction impacts would be reduced to an insignificant level.

While the resort alternative would essentially eliminate most environmental impacts because of the small feasible scale, it would not solve any basic problems in the valley economy. The fluctuations in the valley population which make business solvency precarious in the summer would remain and be reinforced. This problem is more fully discussed in the section on socio-economic conditions. The problems with inadequate health care facilities would remain without the Scripps Satellite Clinic. This alternative would tend to aggravate local problems and would not provide the degree of overriding social benefit to be gained from the Specific Plan proposal.

5. Agricultural uses

The fifth possible alternative is to farm the 3,124 acres. This alternative is compatible with the General Plan designation and would require no special use permits. As discussed in the section on agriculture, farming is not an economically viable activity in the valley at present because of a labor shortage and high costs associated with water and transportation. Should farming become viable, this land could grow a variety of crops including citrus, asparagus, grapes, jojoba and ornamental nursery stock. This alternative would have significant unmitigated impacts to the rare archaeological sites and would result in the destruction of valuable habitat. Farming would also consume many times more water than the proposed development. In the past, farming a similar-sized area in the valley required five times more water than the proposal, causing ground water mining and localized subsidence.

6. No project

The sixth alternative to the proposed Rams' Hill Specific Plan is the "no project" alternative. This issue is highly complex because the Borrego Valley has experienced minimal development to date. Two key issues in the "no project" alternative are: (1) the effect of increased development in the valley on the State Park and (2) the relative benefits of preserving the scenic valley versus the social and economic benefits of development.

The Borrego Valley is a privately owned enclave in the 472,000 acre Anza Borrego Desert State Park. The community of Borrego Springs provides commercial support (such as stores and restaurants) for visitors to the Park. The population is so low, however, that the enclave does not appear to have significant adverse impacts on the Park habitat. The number of visitor days in the Park have increased dramatically since 1970, apparently due to the combination of increased metropolitan populations and mushrooming use of off road vehicles. At the same time the population of Borrego Springs has approximately doubled.

Two of the primary operational goals of the Anza Borrego Desert State Park are the preservation of the quality of the desert environment and the provision of diversified recreational opportunities for the public. Key issues are: will expanded development in the private enclave be consistent with broader state and regional goals for the park; will development impact the quality of the park environment; and will development increase recreational opportunities?

The resolution of these issues is complicated because increased public recreation in a desert area can lead to degradation of the environment. Consequently the balance between serving the public's need for recreation and protecting the habitat in the Park is very tenuous, requiring intensive management practices.

Because of the increasing demand for recreational opportunities in Southern California, the California State Department of Parks and Recreation is actively developing more facilities near the major southern population centers. At the Anza Borrego Desert State Park, the number of annual visitors has doubled since 1970. By 1985, the Park expects the number of visitor days to exceed 1 million. To accommodate this increase, the Park is now constructing a new visitors center on Palm Canyon Drive, two miles west of Christmas Circle at Park Headquarters. An extended initial study was done to assess the environmental impacts of the additional 200,000 visitors days that this center is expected to induce. This initial study found that the marked visitor increase would not significantly impact biology, habitat, air quality, noise levels,

services or cause traffic congestion. The impact of the 200,000 days on the ORV activity was not assessed.

Based upon the conclusions of this initial study, the incremental increase in visitor days in the Borrego Valley as a result of the implementation of Rams' Hill would not have significant adverse impacts on the environment in the State Park. The project would, however, positively support the objective of providing an increased and more diversified range of recreational opportunity in San Diego County.

Should the implementation of Rams' Hill have a significant impact on the level of ORV use in the State Park, it is highly possible that adverse impacts could occur requiring more sophisticated management practices by the Park. In conclusion, the implementation of Rams' Hill would not appear to significantly impact the management goals of the State Park in light of the conclusions of the State's initial study for the visitors center.

Therefore the Rams' Hill project would probably not impact the quality of the State Park. The project would support the park goal of providing increased recreational opportunity and would lead to increased visitor levels. Not constructing the project will not improve the park habitat.

A second issue in assessing the no project alternative is the relative benefits of preserving the scenic valley in a relatively undeveloped state versus the social and economic benefits of development. This is a value question which should be decided by the decision-making body. The economic benefits which the Borrego community will receive from this project have been adequately discussed in the sections on socio-economic conditions and growth inducement.

It is possible that the Borrego Valley within the Anza Borrego Desert State Park should be preserved as a rare natural resource. The valley has unique characteristics including: (1) unusually clean air resulting from unique air flow conditions; (2) an abundant natural water supply; (3) a diverse, complex biotic community; (4) rich archaeological resources; (5) the valley is beautiful and forms a valuable visual resource. From the perspective of the Western United States, the Borrego Valley is a highly unusual and scenic desert resource. Other desert areas with unusual resources such as Phoenix, Palm Springs and Tucson have experienced dramatic building booms in large part to accommodate the second home and retirement home markets. These areas, although developed on a significantly larger scale than is envisioned for the Borrego Valley, have suffered marked degradation of resources.

The no project alternative would result in the avoidance of on-site significant impacts such as on biology, water, noise, archaeology, and services. Maintenance of the status quo would also result in the avoidance of significant indirect and off-site impacts, such as avoidance of increased traffic congestion at Yaqui Pass and avoidance of biological impacts due to increased human presence. No project, however, also means the continuation of a marginally viable economic community in Borrego Springs, lack of medical services, and a fewer number of and less diverse recreational opportunities in San Diego County.

VI. ENVIRONMENTAL SUMMARIES

A. GROWTH INDUCING IMPACTS

1. Existing Setting

The Borrego Valley has experienced an annual growth rate of eight percent since 1970. People who enjoy the desert life come to Borrego for retirement or for seasonal activities. In 1970 the population of Borrego was 828. At present, there are an estimated 1,600 full-time residents in Borrego Springs. During the winter, the population in the valley can swell to 8,000 persons. The winter population includes, in addition to the permanent population, people who own second homes in Borrego and temporary visitors who camp, stay in resorts or are day visitors at the Anza Borrego Desert State Park.

While the percentage growth for Borrego has been fairly high, eight percent over the last ten years, the actual number of new residents in Borrego is quite small, only 772. The County has had an informal "no growth" or "limited expansion" policy for areas without urban levels of service. The Regional Growth Management Plan recommends that no changes be made to the County General Plan in the Borrego Valley until a community plan is prepared. This plan will not be prepared in the foreseeable future because the valley is extremely low on the County's priority list for new community plans. The ultimate shape and density of the future community plan will probably have more influence on growth in Borrego than the development of Rams' Hill.

Prior to the adoption of the Regional Growth Management Plan, the County had established a pattern of not approving General Plan Amendments which would increase densities in the Borrego Valley. As an example, in 1977, the San Diego County Board of Supervisors considered a General Plan Amendment for a 1,090 acre parcel known as the Borrego Country Club, located northwest of the Rams' Hill site. The developer proposed that the parcel be designated a Specific Plan Area with an overall density of 0.77 dwelling units per acre, the approximate existing density of the parcel.

Zoning is another large factor in the development patterns of Borrego. Presently the zoning throughout the majority of this valley is limited control, LC, which allows one dwelling unit per 2.5 acres gross or any use with a special use permit. This zoning does not exclude development on existing legal building sites of less than 2.5 acres, but only new subdivisions, which are the common means of development in the urban areas today. The County has direct control over the rate and location of larger scale project development throughout the valley by its control of special use permits and zoning changes.

Historically, two key factors in the development of Borrego have been the availability of resort-affiliated projects and the policies of lending institutions. Just as government policy is a key factor in large scale project development, individual preferences and banking policies are key factors in individual housing starts. The valley has had a history of speculative land division and lot sales but little development. As a result, Borrego has about 2500 buildable lots many of which would require only a building permit to be developed. However, they also require individual financing and expensive individual construction to be utilized.

Individual construction in the past has been limited by a variety of factors. Perhaps the chief one of these is the scarcity of accessible resort facilities. The typical second home buyer in areas like Palm Springs, tends to buy a home or lot which is part of a "community development". Access to resort facilities such as tennis courts and a golf course is a vital market factor. A community identity and possibly security services are likewise desirable from the perspective of a part-time resident. Lots outside of projects historically have been extremely slow to develop. The demand for these lots has come primarily from permanent residents who have been induced to move to the resort area because of an expanding service sector.

While a large portion of the resort/retirement market is comprised of individuals who have adequate funds to construct or purchase homes without outside financing, a substantial demand also exists from moderately affluent individuals who do seek outside financing. Banks have historically curtailed mortgage funds for resort and retirement housing. Because individuals are not as firmly stabilized in the valley by jobs and family, banks have not tended to view the second home market as a good risk. Until very recently, money was not readily available for home mortgages. Money to construct a new home is still scarce. In conclusion, therefore, the growth in individual home starts has been and probably will continue to be a function of the willingness of people to build on a custom home basis without integrated resort facilities and the willingness of banks to invest.

a. Growth-Existing Trends

Growth in Borrego is not expected to fall below the current eight percent annual rate, at least in the near future.

The number of visitors who maintain second homes in Borrego is growing at a more rapid rate than the permanent full-time residents. In consultation with Phil Steed, analyst for the

County Regional Growth Management Task Force, and Nick Marinovich, a staff research analyst from the Integrated Planning Office, the following factors were used in forecasting existing growth trends of permanent and second-home residents for the Borrego Springs area from 1978 to 1985. No attempt was made to forecast the total number of monthly visitors.

- o seven percent growth rate for permanent population
- o eight percent growth rate for seasonal population (those people who maintain a second home in Borrego)
- o 2.5 people/dwelling unit for second-home residents
- o seasonal percentage occupancy of units as follows:

Table VI-A-1 Seasonal Occupancy of Residences

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Permanent	90	90	90	90	70	70	70	70	90	90	90	90
Second Home	90	90	70	55	35	35	30	30	30	70	90	90

The following table summarizes the projected growth trend for Borrego Springs from 1977 to 1985 without the Rams' Hill project:

Table VI-A-2 Current Growth Trend for The Borrego Valley

	Maximum Population 1977	1985
Permanent	1,570	2,320
Second-Home	650	1,400
	2,220	3.720

Table VI-A-3 Projected Seasonal Distribution of Population in 1985

	Jan	Feb	Mar	Apr	May	June
Permanent	2,088	2,088	2,088	2,088	1,624	1,624
Seasonal	1,260	1,260	980	693	490	420
	July	Aug	Sept	Oct	Nov	Dec
Permanent	1,624	1,624	2,088	2,088	2,088	2,088
Seasonal	420	420	420	980	980	1,260

Potential Impacts of Rams' Hill on Existing Growth Trends

In conjunction with Phil Steed and Nick Marinovich of the County Integrated Planning Office, a worst case analysis of the impact of the Rams' Hill project on the population of the Borrego Valley has been conducted. The purpose of this analysis was to estimate the number of residents who would live at the Rams' Hill project and to estimate the additional new residents who would be induced to move to Borrego as a result of the project but would live elsewhere in the valley. This analysis was based on the following assumptions:

- There would be 2.1 people/single family and estate unit of the Rams' Hill project. This projection is based on second home/retirement factors.
- 1.9 people per PRD unit of the Rams' Hill project.
- Two people per hotel unit of the Rams' Hill project.
- 1.7 person increase in permanent population per job generated.
- 1.11 multiplier (SIC code) used to compute total jobs (hotel, service) generated (Each job directly related to Rams' Hill would generate 1.11 more local jobs).
- Seasonal percentage occupancy as follows:

Table VI-A-4 Percentage Seasonal Occupancy at Rams' Hill

Month	Hotel (200 + 150) units 2 people/unit Occupancy	Persons	PRD Units 530 units 1.9 people/unit Occupancy	Persons	Residential Estate (200 + 150) units 2.1 people/unit Occupancy	Persons	Total
Jan.	90	630	90	906	90	473	2,009
Feb.	90	630	90	906	90	473	2,009
March	70	490	90	906	45	236	1,632
April	70	490	35	352	45	236	1,632
May	35	245	35	352	45	236	833
June	35	245	35	352	45	236	833
July	35	245	35	352	10	53	650
August	35	245	35	352	10	53	650
Sept.	35	245	35	352	10	53	650
Oct.	70	490	90	906	45	236	1,632
Nov.	70	490	90	906	45	236	1,632
Dec.	90	630	90	906	90	473	2,009

Using the above assumptions, the following table summarizes the projected seasonal population distribution in 1985. In this table "Rams' Hill" are the residents and guests who would be in

residence at the project; "Rams' Hill Induced" are the new, permanent residents who would move to Borrego to work at the resort; "Seasonal" are the second-home residents who are projected, using existing trends, to live in the valley but not at Rams' Hill in 1985; "Permanent" are the residents who are projected, using existing trends, to live in Borrego full time by 1985.

Table VI-A-5 Projected Population

Maximum Population (100% occupancy)	1977	1985
Permanent	1,570	2,320
Seasonal	650	1,400
Rams' Hill		2,009
Rams' Hill Induced		655
TOTAL	2,220	6,382

Table VI-A-6 Projected Seasonal Population Distribution in 1985

	Permanent	Seasonal	Rams' Hill	Rams' Hill(Induced)	TOTAL
JAN	2088	1260	2009	589	5946
FEB	2088	1260	2009	589	5946
MAR	2088	980	1632	589	5289
APR	2088	693	1078	589	4448
MAY	1624	490	833	458	3405
JUNE	1624	490	833	458	3405
JULY	1624	420	650	458	3135
AUG	1624	420	650	458	3135
SEPT	2088	420	650	589	3730
OCT	2088	980	1632	589	5289
NOV	2088	980	1632	589	5289
DEC	2088	1260	2007	589	5946

2. Analysis of Significance

Over the short term (one to five years) the forecast which predicts that the population would increase by 72 percent (2,664 people), as described above, is probably conservatively high.

In doing the analysis, it was presumed that the Rams' Hill growth would not absorb any of the normal growth which has been predicted based on existing trends. This assumption is conservative. There are currently about 2500 buildable lots in the valley, a product of earlier speculative subdivision activity. This project would therefore not affect the availability of lots, but rather the availability of constructed, project-affiliated units. A portion of the people who are part of the existing growth trend would therefore probably choose to live at Rams' Hill, rather than construct a new residence at random. For the analysis it was also presumed that the jobs which would be generated by the project would be filled chiefly by people who do not currently live in Borrego. This, again, would probably not be the case, since most of the service jobs at the project would not be the type of job which is traditionally held by the head of a household. The presence of middle income jobs, however, would generate an influx of new residents, once moderately priced housing became available. Therefore, these two presumptions were intentionally used to present a worst case analysis of the amount of growth - direct and induced - which would result from the development of Rams' Hill.

Using this analysis, Rams' Hill would, by 1975, directly and indirectly increase the permanent population in Borrego (the full year residents) by a maximum of 1,110 people, and the seasonal population by a maximum of 2,600 people. While this is a significant impact, it is not necessarily an adverse impact as discussed below.

a. Economic Impacts of Short-term Growth

The Rams' Hill project would probably have a significant, beneficial impact on the private and public sectors of the valley economy. Borrego is only a half-formed community. The nucleus exists but in an isolated area with inadequate public and private services. The economy of the valley functions like a teeter totter: it is up in winter during the height of the tourist season; but the economy is "grounded" in summer when businesses close and services become unavailable. Because of the tremendous fluctuation of demand, many services (such as, TV repair and plumbing) do not exist

locally. Services must be imported from the metropolitan areas and are available imtermittently, if at all. The services which are locally available tend to be operated by only one vendor and,therefore, tend to be extremely expensive.

Increased growth should stabilize the economic base of the community, especially in summer. The implemented project should expand the permanent residential population by 1100 people making it sufficiently large to support full-time services in the summer. The increased population should also stimulate and attract private service. By creating competition and increasing local demand, it is possible that a rudimentary and functional local economy might develop.

The public service sector would be significantly impacted by development of Rams' Hill. For a more complete discussion of impacts refer to the appropriate section pertaining to the service. Characteristically, a substantial increase in population in a small community such as Borrego Springs, whose economy and service sectors are marginally viable, would initially significantly and adversely impact services. Subsequently, once additional capacity is created, the additional population would create a higher standard of service than originally prevailed. In this way, Rams' Hill would initially significantly and adversely impact fire protection, sheriff's protection and solid waste disposal. In time the impact of growth on these services would be to increase the levels of service.

The project would broaden the tax base, increasing property and sales tax revenues to the County and community. These increases would somewhat offset the public expenditures necessary to provide service to the project.

Some public services would definitely benefit from the development of the project. Public schools are currently underutilized, functioning at half capacity. Incremental growth would, therefore, increase the viability of schools, especially in light of the proposed per capita funding to be implemented by the State in 1980. The Rams' Hill project would stimulate the activation of the Borrego Water District. This district would provide service to the project. It could potentially be used to regulate water usage valley-wide, providing a substantial benefit to the entire community.

b. Long-Term Impacts

Borrego does not have an adequate industrial or economic base. The future growth of the valley lies in the resort/second home

market. Trends in government policies toward growth, the condition of the economy, availability of money, more intangible trends in recreation and vacation activities, all will have a decisive role in long-term growth patterns.

The first Specific Plan phase of the Rams' Hill project would stimulate growth in the form of the second phase of Rams' Hill. This second phase would add an additional 2000 to 3000 people to the valley population. The impact of both phases of Rams' Hill on the valley would be to significantly and irreversibly change the character of the Borrego Valley from a small town to a major recreational resort area. San Diego County does not presently have a major desert resort. This could provide a needed recreational resource for the rapidly growing metropolitan population.

The cumulative impacts of the first Specific Plan phase, second Specific Plan phase of Rams' Hill and of the Borrego Country Club project will be more specifically analyzed in the section on cumulative impacts.

Taken by itself the Rams' Hill Specific Plan would not have a significant impact on the Borrego Valley. In relation to other projects, the Rams' Hill development may be environmentally significant. These significant impacts are substantially mitigated by positive social and economic benefits of assisting in the development of a viable economic community in the Borrego Valley and of providing a needed large-scale desert recreational and resort area in San Diego County.

B. CUMULATIVE ENVIRONMENTAL IMPACTS

This section is a projection of the type of cumulative impacts related to the Rams' Hill project which could result if additional major projects planned and/or filed with the County of San Diego for the Borrego Valley were built and fully occupied by 1995. This projection involves numerous uncertainties. The timetable of development may be very different. For example, the projects may not be completed by 1995. Government regulations, the state of the economy, and demand factors may make the second phase of Rams' Hill or the Borrego Country Club projects infeasible at any date. The Borrego Country Club project may develop into a land development project which results in lot sales but minimal improvement. This section is speculative, based upon a conceptual scenario. The following is a description of impacts which could possibly occur based upon tenuous assumptions.

1. Future Setting

This section is written based on two assumption: (1) the Rams' Hill project will be fully constructed by 1995 including two Specific Plan phases with a total of 1,562 dwelling units, 600 hotel rooms, a medical clinic and a complementary range of resort facilities and small retail shops; (2) the Borrego Country Club will be fully constructed and occupied by 1995 at the currently designated Specific Plan density of .77 dwelling units per acre for a total of 782 residential units.

This section assesses the cumulative impacts of the Rams' Hill project if these additional projects are also constructed.

2. Potential Impacts

The cumulative impacts of the three projects would substantially change the character of the Borrego Valley by converting the small community of 1,600 people into a large-scale desert resort area. The total population could exceed 10,000. Land use patterns would significantly change, with property becoming substantially more valuable. The resort areas in the valley would experience increased demand. The number of individual houses built outside of resorts to accommodate an expanded service community, including the construction section, would increase substantially. The socio-economic conditions in the valley could be expected

to change significantly. The proportion of lower income households would be expected to decline as the number of second home residences for wealthy persons and the number of middle income homes increase. The business community would expand significantly and become viable on a year round basis. The number and variety of services available to the general public would increase. The medical needs of the community would increase while at the same time the capacity of medical services available, such as the services available at the Scripps Clinic, would expand.

The cumulative impacts of the three projects on biology and habitat would be substantially greater and more adverse than those of the projects examined individually. In addition to direct biological impacts, the projects would probably have significant adverse indirect impacts on the desert environment of the valley and surrounding Anza Borrego Desert State Park. Increased human presence would probably reduce the number and variety of faunal species. Increased population could also lead to increased ORV activity. Impacts to the State Park can be somewhat mitigated by management practices.

Assuming the same level of automobile use as that prevalent today, the levels of traffic, noise and air pollutant emissions would increase substantially if the three projects were completed. The main western access roads into the valley, Yaqui Pass Road and Montezuma Valley Road, which are already experiencing moderate levels of congestion, would experience significant levels of congestion by 1995 unless major improvements were undertaken. With sufficient road expansion these impacts could be mitigated. As activity levels, especially traffic levels, in the valley increased, noise levels would increase. It is highly probable that noise levels along the major valley roads would exceed a CNEL level of 55dB(A) by 1995 resulting in substantial adverse noise impacts. The level of air pollutant emissions would increase in proportion to increased vehicular activity. The level of emissions per vehicle are projected to decrease substantially by 1995. Although the level of activity in the valley by 1995 would be substantially greater than that today, the air quality would probably not be impacted because of the unique meteorological situation in the valley.

The amount of energy consumed within the valley would increase in proportion to increased population. This could be

substantially mitigated through the newly adopted business code which encourages solar and alternative energy systems. It is probable that SDG&E would have to construct additional transmission lines. Assuming power generation in San Diego, the volume of air pollutants emitted in the San Diego Air Basin would incrementally increase as additional energy is generated and transmitted to Borrego.

The three projects together would collectively create more significant impacts on the quality of the dark skies than each project individually. With proper mitigation, however, none of the projects would significantly increase the intensity of night illumination. The creation of a community of 10,000, in the valley with a current population of 1,600, could be expected to result in significantly more night lighting than would result only from the projects themselves. This could be mitigated through the adoption of an ordinance which would require proper shielding and lighting in the valley.

Initially, services in the Borrego Valley, including fire and sheriff's protection, would be significantly and adversely impacted by the high rate of growth. Once the service sectors adjusted to increased population levels, however, it is highly likely that the quality and level of service by each affected jurisdiction would substantially improve, creating a net beneficial impact. Schools would be beneficially impacted from the initiation of the projects and continue to be beneficially impacted since the district facilities are grossly under-utilized. Collectively the projects would create more substantial adverse impacts on the sanitary land fill facilities in the valley than each would individually.

The visual quality in the valley would be significantly altered by this major expansion of the community.

The most significant cumulative impact of the three projects would be the impact on water supply. The valley is not connected with the County supply of imported water, but relies exclusively on ground water resources. Because of the projected decline in agricultural production in the valley, it is anticipated that ground water supplies could meet the demand of the Rams' Hill project, including both Specific Plan 1 and Specific Plan 2, by 1995. Under the best circumstances, Rams' Hill would not initiate a ground water mining situation. Under the worst condition a minor mining situation could occur, but supplies are projected to

last at least 300 years. The addition of the Borrego Country Club with an additional nine-hole golf course plus the incidental growth that the projects would cumulatively induce would create a significant adverse water mining condition. This could be somewhat mitigated by extensive valley-wide conservation measures including staggered watering days and restrictions on the amount and type of landscaping.

Finally, the cumulative impact of the projects on the valley population would be the inducement of more growth than would be induced from each project individually. The creation of major recreation and shopping areas, the development of exclusive specialty shops and extensive restaurant facilities could be expected, in addition to those at the project. Increased air service would become available, attracting more visitors and potential new residents to the valley and to the Anza Borrego Desert State Park. Improvement of access roads to the valley in response to high levels of congestion could be expected to lead to greater population as people move to the valley from metropolitan areas.

3. Analysis of Significance

The cumulative impact of the Rams' Hill project with 1,562 dwelling units, and Borrego Country Club project with 782 units would be to substantially change the character of the Borrego Valley from a small community to a community of over 10,000 people. This dramatic change would have associated significant impacts on biology, noise, traffic, water, services and visual quality.

The cumulative projects would also have cumulative beneficial impacts by assisting in the development of a viable business community in the valley and by creating a major desert recreational and resort area close to the coastal metropolitan areas.

The projects could increase visitorship levels to the Anza Borrego Desert State Park. With substantially greater number of visitors, each visitor experience could change markedly as services within the park are expanded to accommodate the additional people. The Park may, however, experience significant difficulties in maintaining the quality of the desert environment, and especially the habitat of the endangered Big Horn Sheep, with such expanded use.

4. Conclusion

This section has been a description of the type of impacts

which could occur should the Borrego Valley develop according to the given assumptions. Both the analysis and the assumptions are speculative. This section is an attempt to "crystal ball" the future.

last at least 620 years. The addition of the Borrego Country Club with an additional nine-hole golf course plus the incidental growth that the projects would cumulatively induce would create a more substantial water mining condition. This could be mitigated by the development of the Borrego Water District. For a full discussion refer to the Environmental Impact Report on the authorization of latent powers for the Borrego Water District.

Finally, the cumulative impact of the projects on the valley population would be the inducement of more growth than would be induced from each project individually. The creation of major recreation and shopping areas, the development of exclusive specialty shops and extensive restaurant facilities could be expected, in addition to those at the project. Increased air service would become available, attracting more visitors and potential new residents to the valley and to the Anza Borrego Desert State Park. Improvement of access roads to the valley in response to high levels of congestion could be expected to lead to greater population as people move to the valley from metropolitan areas.

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C. SIGNIFICANT ENVIRONMENTAL IMPACTS

1. Land Use

The project would irreversibly commit 596 acres of relatively undisturbed desert to residential and resort uses, and permanently dedicate 1562 acres for natural, undevelopable open space. Rams' Hill would provide 780 dwelling units, increasing the number and diversity of retirement and seasonal residences available in San Diego County.

2. Socio-Economic Conditions

The project would irreversibly change the character of the Borrego Springs community to a full scale resort community, and would provide a primary and emergency medical facility affiliated with Scripps Medical Clinic in La Jolla, in an area without adequate medical care.

The project would temporarily exacerbate a shortage of moderate income housing because of the influx of skilled workers during the construction phase. The project would assist in the development of a viable economic community in Borrego. It would also significantly increase the recreational resources in San Diego County.

3. Landforms/Geology

Implementation of the Rams' Hill project would result in alterations to the landforms, due to grading, recompaction and associated activities. Grading activities have the potential to cause erosion, dust generation and soil stabilization failures. The plan would require about 1,969,000 cubic yards of cut and fill.

4. Geologic Hazards

The site is located in a seismically active area and could potentially be impacted by an earthquake with a magnitude of 7.3 on the Richter Scale, producing maximum bedrock acceleration of 0.4g. This could cause slope failures, fissures and soil impaction. The erosion hazard on site is slight. In steeper areas, some cracking and minor slumping could occur when the soil is wetted. Shrinkage of the soils from excavation would probably occur.

5. Agriculture

The project would irreversibly commit 596 acres of arable land

to residential-resort uses. Since it is not, at present, economically feasible to farm the land, and better land is available for agricultural uses in the valley, this impact is not significant or adverse.

6. Biology

The project would have a significant impact on the hydrologic regime of the south slope. Should a rapid drop in the water table occur, the project would significantly impact biological species, both on and offsite. Increased water availability could facilitate the introduction of weedy species. The riding trails could significantly impact the number and variety of fauna in the mesquite woodland. Construction would significantly and irreversibly damage the habitat on 600 acres of the site. The project would interfere with the foraging behavior of raptors and larger mammals. By contrast, some wildlife species might increase in number.

7. Archaeology

Implementation of the development would result in the loss of a small part of Site 2, a significant, rare archaeological resource.

8. Air Quality

Rams' Hill would incrementally increase the level of emissions above that which would exist without the project. The project would not significantly impact air quality in the Borrego Valley or the Mountain Crest, but it would incrementally impact the level of emissions in the San Diego Air Basin.

9. Off-Road Vehicles

The project could indirectly increase the level of off-road vehicle use, resulting in impacts to the desert habitat, archaeological resources, air quality and noise.

10. Dark Skies

Development of the Rams' Hill project could impact the quality of the dark sky to the east of Mt. Palomar and Mt. Laguna Observatories if proper mitigation were not undertaken.

11. Noise

Noise from off-road vehicles could increase, due to recreational use of ORV's by Rams' Hill residents and visitors.

12. Visual Quality

The project would significantly change the view of the Borrego Valley.

13. Energy

The Rams' Hill project would significantly increase the level of energy consumption in the Borrego Valley, perhaps requiring an increase in transmission capacity. This energy consumption includes electricity for domestic purposes, and for supplying power for the sewage system and water supply and for transportation.

14. Traffic

Rams' Hill development would generate nearly 12,000 daily trips during the peak season, November through April, and nearly 8,000 daily trips during the off-season, May through October. During the peak season, weekends and holidays, the high growth in Anza Borrego Desert State Park visitation expected by State Park officials, together with the Rams' Hill development, would result in an increase in traffic on several Borrego Springs access and local roads. Significant impacts on certain road segments and intersections can be mitigated to insignificance.

15. Water

The Rams' Hill project would consume about 1,600 acre feet of water per year. There is a possibility that the development might cause some accelerated local lowering of the water table relative to levels in other portions of the Borrego Valley. Should the water table beneath the Rams' Hill property decline at a rapid rate, the deep rooted native vegetation, such as mesquite and some species of deep rooted cactus, both on site and on other properties in the southern valley, could be seriously impacted.

16. Fire Protection

Implementation of the proposed project would significantly impact the demand for fire protection service within the Borrego Springs Fire Protection District, and could require the construction of a new fire station.

17. Sheriff's Protection

The proposed project would incrementally impact the Sheriff's level of service in the area, by requiring two additional deputies per year.

18. Solid Waste

Development of Rams' Hill would significantly impact the life expectancy of the Borrego Land Fill. In addition, it would contribute incrementally to the regional need for new disposal methods and sites on a gradual basis.

19. Liquid Waste

Total estimated sewage production during the peak season at the end of the Specific Plan period is 224,000 gallons per day. Virtually all of this would be reclaimed to irrigate the golf course.

D. MITIGATING MEASURES

The following list of mitigating measures would minimize potential adverse impacts that might occur. For further information refer to the Analysis of Significance in the appropriate section of the Environmental Analysis.

Land Use

Several design features mitigate impacts resulting from the development of a residential-resort complex: (1) the residential units would be clustered; (2) half the property would be dedicated as permanent, undeveloped open space. Extensive landscaping with desert adapted plants would be done.

Landforms/Geology/Soils

Grading is significantly mitigated by design. The intensive land uses, including the PRD units, hotel-resort complex and single family homes would be located in the flat, central portions of the property. The steeper areas would be designated as estate lots where grading would be done only for roads and possibly pads. All grading would conform to the County's grading standards so dust generation would be mitigated to an insignificant level.

Agriculture

No mitigating measures are proposed or deemed necessary.

Geologic Hazards

Potential damage to structure and loss of life from severe earthquake would be substantially mitigated by constructing buildings to withstand a quake of 7.3 on the Richter Scale and a bedrock acceleration of 0.4g. The slight erosion hazard would be mitigated by planting extensive grassy areas throughout the landscaped area and on graded slopes. The naturally occurring erosion hazard on the undeveloped open space, the areas which are designated "not a part", the portions of the estate lots which would be left in a natural state and the portions of the single-family lots which would be minimally landscaped would not be mitigated.

The potential for slope failure would be fully mitigated by design and landscaping. The maximum gradient would be 1½:1. Construction would conform to the County Grading Ordinance.

To mitigate potential impacts due to shrinkage, a balance would be provided in which final grades could be raised or lowered depending on actual shrinkage factors.

Flooding/Hydrology

To mitigate the hazard from flooding to structures, an extensive system of two flood control channels would be built to divert flow around the east and west sides of the developed areas. This system would significantly mitigate the hazard on all but two of the estate lots. The waste water treatment plant and percolation basins would be fully protected from flooding to the satisfaction of the Regional Water Quality Control Board.

Biology

The potential impacts have been mitigated to the extent feasible by design. The eastern portion of the property would remain undeveloped. The southern extent of development would be in estate lots of two to five acres to minimize impacts in the sensitive ridge wash area. The required trails would be only minimally improved. Potential water impacts due to increased water from the percolation basins would be substantially mitigated by operation practices whereby the water would be recycled most of the year rather than discharged.

Archaeology

Impacts to Site 2 would be fully mitigated by preservation. This could be achieved by providing a six-foot wide buffer zone between the new construction and the resource, such a buffer of native cholla or ocotillo bush. Another potential means of protection would be the creation of an open air museum. No mitigating measures are proposed or deemed necessary on site 1. Sites 3, 4, 5, 6 and 7 would be fully mitigated by preservation since they are located in the area to be designated as undeveloped open space.

Climate

No mitigating measures are proposed or deemed necessary.

Air Quality

The APCD should undertake a full monitoring program to assess air quality. To reduce emission levels, the project design includes internal bicycle and riding and hiking trail systems. It is also suggested that Old Borrego

Valley Road be closed to reduce impact from ORV's.

The use of solar energy substantially mitigates potential impacts on the San Diego Air Basin resulting from electrical generation. The use of solar energy for domestic space and water heating would substantially mitigate emissions from power plant energy generation by about one-third. An increase in the level of public transportation facilities for long distance trips to Borrego could potentially decrease trip related emissions within the San Diego Air Basin from long distance trips destined for Rams' Hill.

Dark Skies

To avoid impacting the quality of the dark sky to the east of the Mt. Palomar and Mt. Laguna Observatories, a number of measures would be undertaken. All outdoor lighting fixtures would be shaded on top so that all light shines downward. Cut-off luminaries could be used which emit no light above 90°, thereby eliminating unwanted light scattering into the atmosphere. Either low pressure mercury lamps equipped with ultraviolet filters or high-pressure sodium lamps could be used in outdoor fixtures. The golf course would not be lighted at night. The tennis courts at the hotel complex and perhaps within the residential areas would be lighted only for a limited period each night. Cut-off luminaries using high sodium lamps with flood light configuration would be used to light the tennis courts. All lights for the pools, outside clubhouse facilities and tennis courts would be turned off at a reasonable hour.

Noise

Prohibiting ORV use in the project's open spaces and regulating ORV use in the Anza Borrego Desert State Park would mitigate any increase in noise due to recreational use of ORV's by Rams' Hill residents and visitors. The project design mitigates potential noise impacts on residents and guests of Rams' Hill. Residential units would be separated from major traffic areas; and units would be clustered around cul-de-sacs to reduce through traffic.

Visual Quality

To reduce impacts to visual quality, extensive landscaping using native vegetation would be done throughout the resort, PRD and single family areas of the project. The large roughs on the borders of the golf course would be left in native vegetation. The waste water treatment facility

would be screened from view through the use of desert adapted trees and shrubs. The mesquite woodland adjacent to the Borrego Sink and the ridge wash areas in the southwest corner would not be developed at this time.

Energy

Domestic energy consumption would be reduced by one-third by the application of solar technology and passive design techniques. Solar energy would be used for pool, water, and space heating. Proper orientation and shading of buildings would aid in heating a building during cold months and reducing cooling load in the summer. Other design techniques include maximizing insulation in roofs and walls, using light colors on roofs, and designing windows and proper landscaping for maximum natural ventilation.

Utilization of the County Rural Lifeline Transit system by Rams' Hill residents would decrease the number of long-distance vehicle trips between the coastal areas and Rams' Hill. The complex would include an internal and a regional trail system to encourage walking, bicycling and riding. Clustering of dwelling units and the provision of services on site would minimize number and length of vehicle trips.

The waste water treatment facility would be designed to handle a large variability in flow volumes. Effluent would be recycled for use on the golf course during high flow periods, but discharged to percolation beds during low flow periods. This flexibility would provide more efficient and economical performance.

The medical clinic built on site would incrementally decrease the number of long distance trips made by Borrego residents for medical care.

Traffic

Should the on and off site improvements required by County Department of Transportation,in their letter dated September 5, 1978,be fully implemented, the following additional measures would be needed to fully mitigate traffic impacts throughout the Borrego Valley.

Left turn pockets and a traffic signal at the intersection of Yaqui Pass and Borrego Springs Roads, which would flash a yellow caution light in the off-season and which would operate normally in the peak season, would greatly increase the safety and capacity of that intersection, and thus mitigate any impact there to insignificance. A four-way stop would be sufficient even in the peak season until full build-out of the project.

Adequate signing and striping around this traffic circle should be implemented in order to facilitate orderly and safe traffic flow. Signs posted for vehicles approaching the circle from all directions should clearly indicate directions to major Park and community attractions, while lane striping should clearly indicate travelled way and shoulders.

Improvement to County Major Road standards would mitigate the projected Borrego Springs peak season traffic impacts on these roads to insignificance. Since it is unlikely that such substantial improvements will be made in the near future, efforts should be made by the County to widen the paved roadways where necessary to create a center left turn lane or left turn pockets for entrance to and exit from residential developments and commercial/retail land uses. Furthermore, new developments and business establishments should be required to minimize the number of curbcuts onto the roadway.

Improvement to County Major Road standards would mitigate projected Borrego Springs peak season traffic impacts on these main access roads to insignificance. This measure, however, is unlikely to be implemented due to financial and terrain constraints. More well-marked turnouts on these narrow sloping roads, to allow for passing of slower vehicles, would greatly increase traffic flow and safety.

Should the lesser level of improvements discussed in the text be implemented rather than those required by DOT, no measures other than those discussed above would be necessary to fully mitigate circulation impacts.

Liquid Waste

The construction and careful operation of the proposed waste water treatment plant would mitigate to an insignificant level all potential impact, except direct construction impact, due to liquid waste. Sewage produced by the Rams' Hill development would be reclaimed as irrigation water for the golf course. Effluent volumes less than 100,000 per day would be dispersed by discharge to percolation beds.

Schools

The project would not create any adverse impacts on schools. Therefore no mitigation is proposed or deemed necessary. A 37 acre site has been reserved to be dedicated as an

elementary school site should one become necessary at a future time.

Fire Protection

A 2.5 acre parcel on site has been designated for the provision of a fire station. The development of the Scripps Satellite Clinic would significantly mitigate the impact of the project on emergency medical services. The project would not mitigate the adverse impacts resulting from the immediate necessity of constructing a new fire station. A service district could be formed to pay for construction, operation and maintenance of the new station.

Sheriff's Protection

The Rams' Hill development is designed to incorporate a high level of internal security, which would tend to mitigate the impact on sheriff services. Entry into and egress from the property would be regulated. The residential developments are oriented around cul-de-sacs, designed to create "mini-neighborhoods" thereby reducing through traffic, potential vandalism and associated problems. Use of the second homes would be seasonal in nature, and the need for sheriff services would probably be substantially reduced in summer. The Rams' Hill project would significantly expand the tax base in the community. The additional tax revenues would somewhat offset the cost of expanded service

Solid Waste

The gradual phased construction of the project would stagger impacts over five years. The impacts of the project on the sanitary land fill could be mitigated to an insignificant level by developing the capability in the valley to generate low grade energy from solid waste. This would in turn reduce impacts of electrical generation from fossil fuels along the coast, and would minimize the need for additional transmission capacity.

Water

There are three types of mitigating measures available to the project. Responsibility for the on-site measures and the application for annexation to the Borrego Water District would be the developer's. Acquisition of a substitute future supply, should one become necessary, would be the responsibility of public agencies.

On site, a series of measures are proposed to conserve

water at Rams' Hill. Up to 250,000 gallons of waste water would be recycled to irrigate the golf course. Drought resistant plants would be used for landscaping. A large percentage of the site would be maintained in a natural state. In addition, the following measures could be implemented. The landscaping and golf course could be watered at night to help reduce evaporation losses. Water flow restrictors could be included on all faucets. Low flow basin toilets and water efficient dishwashers could be installed in all dwelling units. Covenants banning water consumptive plants, and requiring that substantial landscaping be done with drought resistant species could be placed on estate and single-family lots when the final maps are approved. Drip irrigation could be used for shrubbery in common areas.

Annexation through the approval of LAFCO of the Rams' Hill project to the Borrego Water District would have several beneficial effects. Because of its size, the Borrego Water District would be better suited to carry on basin and community wide, long-term water planning. The potential problems with differential lowering of the water table could be prevented through a basin-wide supply agency. Regulation of water usage and equalization of rights to water could be ensured.

Potential future water sources would be considered should ground water become seriously depleted. Some possible solutions to this problem have been proposed by the United States Department of the Interior Bureau of Reclamation.

E. Significant Irreversible Environmental Changes

The discussion of irreversible impacts will be divided into two sections: (a) impacts should the project be successful and occupied over a long term; and (b) impacts should Rams' Hill be constructed but not succeed on the market. This latter discussion is extremely pertinent in view of the history of land development in the Borrego Valley.

(a) Impacts of a Long Term Project

The implementation of the Rams' Hill Specific Plan could irreversibly change land use patterns in the Borrego Valley and could result in the continual commitment of resources which make removal or non-use thereafter unlikely. The project would irreversibly commit 596 acres on the south slope to resort and recreational uses. Portions of an additional 966 acres could be irreversibly committed in the second Specific Plan phase. Should both phases of the project be implemented, this project could irreversibly commit the Borrego Valley to expanded development and additional resort uses. The project would increase the population of the valley community and expand business facilities. The expanded service sector would result in more housing in the valley. Should development expand significantly beyond projected levels due to growth induced by the project, a ground water mining condition would develop, which would irreversibly commit the valley to an unsafe water yield. Increased population would irreversibly impact habitat, energy consumption, traffic levels and public services.

(b) Impacts of a Short Term Project

The Borrego Valley has had numerous false starts for growth. The Rams' Hill project could fail, as have projects in the past. The following discussion assumes that the project fails after the construction phase. The direct and indirect irreversible impacts would then be less significant. Habitat would be destroyed on the developed acres. Adjoining habitat could be significantly altered due to increased human presence and activity. With sufficient time a new plant assemblage would develop to replace those destroyed plants. The local hydrologic system would be changed only as long as irrigation continued. Should ground water mining occur, the impact would cease if activity ceased. Experience with ground water mining and associated subsidence elsewhere in the valley indicates that the water table would stabilize with cessation of activity. Impacts to the archaeological sites would be irreversible. Grading

impacts and damage to desert pavement would be irreversible. The construction of all buildings and facilities would probably be irreversible, as would impacts to the visual quality, and to the sanitary land fill facilities. The impacts which would not be irreversible include: air quality, noise, energy, traffic levels, dark skies, fire protection and sheriff's protection. Construction of additional road capacity would not irreversibly lead to increased traffic levels since roads are not used to capacity today.

F. The Relationship Between Local Short Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The Rams' Hill project would have certain cumulative and long-term effects on the environment. This specific plan phase of 780 dwelling units would induce the second phase of an additional 782 dwelling units. The cumulative impacts of both phases would be to irreversibly commit the Borrego Valley to long term resort uses. The environmental impacts resulting from this cumulative growth are fully discussed in the section on Cumulative Impacts. (Part VIB)

Besides committing other portions of the valley to additional growth and possibly resort uses, the project could narrow the range of management options available to the Anza Borrego State Park, especially pertaining to wilderness areas. The project would not pose long-term risks to health and safety. In fact, the development of the medical clinic affiliated with Scripps Clinic would enhance health and safety in the Borrego Valley and surrounding State Park areas.

The Borrego Valley is a half-formed community. The economy is marginally viable during the summer months when services are severely curtailed, or not available at all. During the busy winter months the range of services available is limited. With the rapid growth in the coastal population, more recreational opportunities will need to be developed within easy travel distance of metropolitan areas. This project should be developed at this time to assist in solving the social and economic problems of the Borrego Valley and supply recreation for the metropolitan areas. Postponing Rams' Hill for five years or even ten years would not lessen the environmental impacts of the development, but would delay the realization of the overriding benefits.

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California State Department of Parks and Recreation

Planning Division

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Bob Ladner Terry Dougherty
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Pacific Telephone

Desert Waste Systems of Ramona

Kawasaki Motorcycle Corporation:

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Casa del Zorro Resort

VII. SOURCES

A. AGENCIES AND ORGANIZATIONS CONSULTED

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(18) Global Weather Consultants. A Preliminary Study of the Air Pollutants over the California Desert, Report submitted to Bureau of Land Management, December 1977.

(19) San Diego Air Pollution Control District, 1974 Regional Emissions Inventory: San Diego Air Basin June 1977.

(20) Michael Alberson and Michael Sloop, San Diego County Air Pollution Control District, personal communication, August 1978.

(21) Stromberg, Caroline, California State Air Resources Board, Conservation Group, personal conversation, July 1978.

Energy

(22) Williams, Bruce, San Diego Gas & Electric Co., Planning Division, personal correspondence, August 1978.

(23) Williams, Bruce, San Diego Gas & Electric Co., personal communication, August 14, 1978.

Liquid Waste

(24) O'Leary, Dennis, Lowry and Associates, personal conversation, August 1978.

Supplemental
Environmental Impact Report
for the Rams' Hill Country Club EIR
(County of San Diego EAD Log #79-11-0)
Annexation of the Rams' Hill Country Club
Property to the Borrego Water District

San Diego County, California

Lead Agency:

Local Agency Formation Commission
1600 Pacific Highway
San Diego, CA 92101

Applicant:

Di Giorgio Development Corporation
507 The Mall, P. O. Box A
Borrego Springs, CA 92004

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1.0 INTRODUCTION

The Borrego Water District is a California Water District which currently encompasses 43 square miles of the floor of the Borrego Valley. The District was established in 1961 under the California Water District Law to protect groundwater resources in the valley. In December 1979 the latent powers of the District were "activated" by the San Diego Local Agency Formation Commission for a wide range of water service activities. The objectives of this activation included provision of water and sewer service to the Rams' Hill Country Club project located outside the boundaries of the District, and development of a comprehensive groundwater management program for the valley. The DiGiorgio Development Corporation has currently made application to LAFCO to annex the 3,200-acre Rams' Hill site to the Borrego Water District for water and sewer service, and has applied for activation within these 3,200 acres of its "latent powers" for sewer service.

1.1 Purpose

The following Supplemental Environmental Impact Report (SEIR) is a focused analysis of water and sewer service issues for the Rams' Hill Project prepared pursuant to the guidelines adopted by the San Diego Local Agency Formation Commission and in compliance with applicable sections of the California Public Resources Code and related State EIR Guidelines for implementation of the California Environmental Quality Act. This report is a supplement to the Rams' Hill Country Club Specific Plan EIR prepared for the County of San Diego (EAD Log #79-11-1) which is available from the County of San Diego Environmental Analysis Division, 9150 Chesapeake Drive, San Diego, CA 92123. The Rams' Hill EIR is incorporated herein by reference.

This report will address the potential environmental impacts of an application by the Di Giorgio Corporation to annex the 3,200-acre Rams' Hill Country Club property to the Borrego Water District in order to provide water and sewer services; and of an application by the Borrego Water District to activate its latent powers within this 3,200-acre site for the provision of sewer service. These applications will ultimately be reviewed by the San Diego Local Agency Formation Commission.

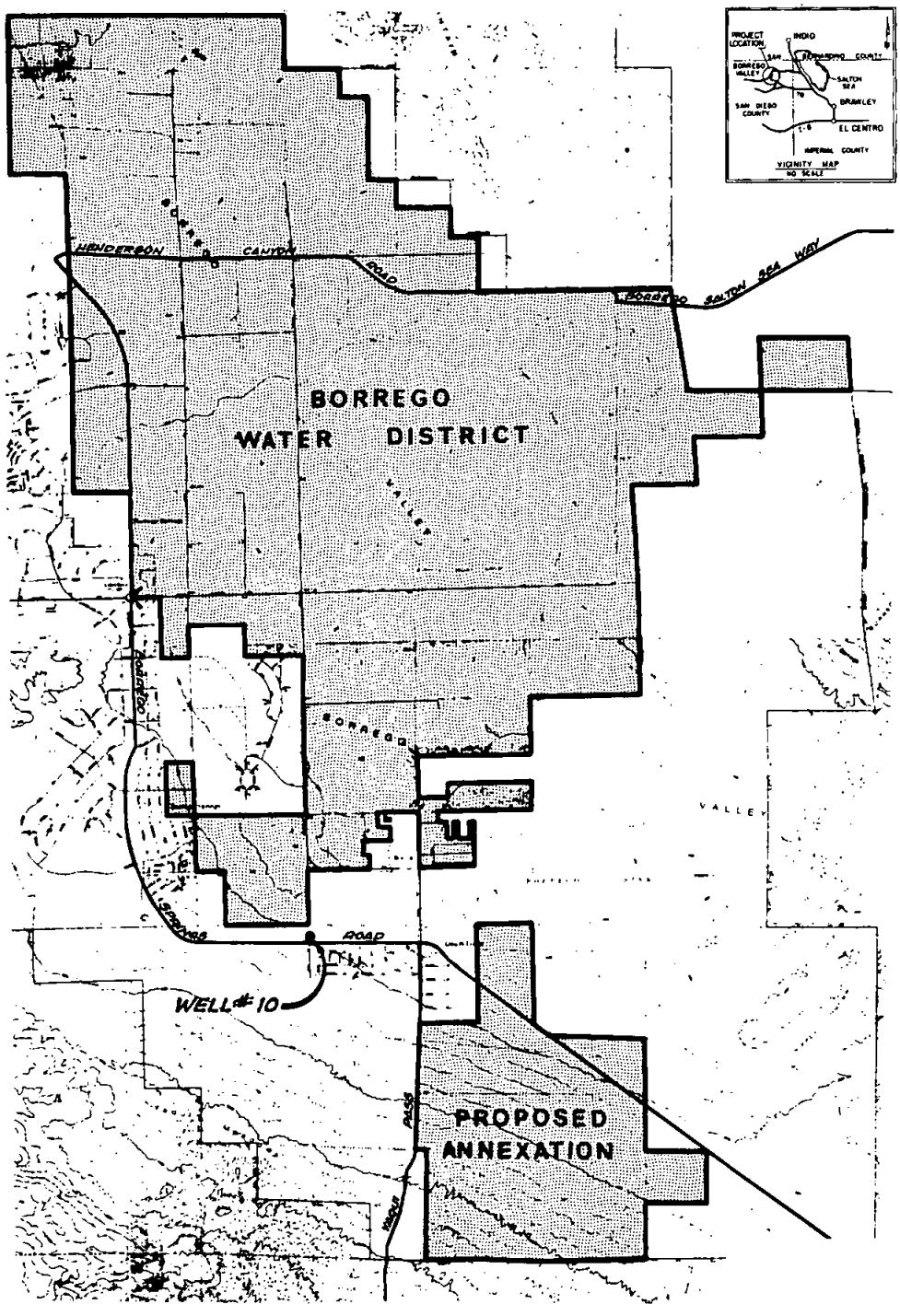
The purpose of this report is to more fully discuss both the short-term and long-term issues and impacts which could potentially occur due to annexation of the Rams' Hill Country Club site and the provision of water and sewer service to the proposed development. A full description of the Rams' Hill development is included in the Rams' Hill Country Club Specific Plan EIR (San Diego County EAD Log #79-11-1). Actions associated with the project, and their implications, will be discussed in relation to their likelihood. It is not feasible to evaluate in detail many of the long range actions which the District could undertake to provide water service to Rams' Hill. For this Supplement, short-term impacts will be those which could occur by 1985; long-term impacts will be considered within the time frame of 2030.

Impacts specific to any construction activity which may be undertaken by the District pursuant to water and sewer service for Rams' Hill have been discussed in the Rams' Hill Country Club Specific Plan EIR. (San Diego County EAD Log #79-

11-01). Impacts specific to provision of sewer service and specific to the waste water reclamation facility proposed for Rams' Hill are also discussed in the Rams' Hill Country Club EIR.

The Borrego Water District offices are located at 507 The Mall, Post Office Box B, Borrego Springs, California 92004, telephone (714) 767-5314. The District boundaries and the boundaries of the proposed annexation are shown on the map of the Borrego Water District, Figure 1.1-1. The District and the proposed annexation can be located in the Thomas Brothers' Map Book, Page 402.

FIGURE 1.1-1



proposed annexation to
borrego water district

NO SCALE

PRC TOUPS CORPORATION

RAMS HILL

1.2 Organization of this Report

The information in the Supplement to the Rams' Hill Country Club EIR is separated into the following topic areas:

2.0 Executive Summary presents the major findings and conclusions of the report.

3.0 The Project Description is a discussion of the Rams' Hill project and the need for annexation to the Borrego Water District.

4.0 The Environmental Setting overview includes general information on the water resources of the Borrego Valley. This section does not contain an analysis of impacts.

5.0 The Environmental Analysis presents the full findings of the focused investigation of potential environmental effects of the project.

6.0 The Alternatives section presents a discussion of feasible alternative solutions for the provision of water service and the impacts resulting from each, including the "no project" alternative.

7.0 The Summaries section includes a summary of impacts and mitigations; effects which cannot be avoided, significant irreversible impacts, and long-term versus short-term impacts.

8.0 The Sources section contains a listing of publications, agencies and individuals consulted in preparing this report.

2.0 EXECUTIVE SUMMARY

The annexation of the 3,200-acre Rams' Hill property to the Borrego Water District requires the approval of the Local Agency Formation Commission. The impacts of the Rams' Hill project have been analyzed in the Rams' Hill Country Club Specific Plan EIR (San Diego County EAD Log #79-11-1). This supplemental EIR is focused on issues of the water needs of the Rams' Hill Country Club project, valleywide water quality, draw-down, geohydrology and groundwater transfer.

Reasons for the Project

The purpose for the annexation is to provide water and sewer service to the Rams' Hill development by a public agency. The Regional Water Quality Control Board requires that the waste water reclamation facility for the project be operated by a public agency. It may be possible that the project will require transfer of water from other parts of the valley at some point in the future. This transfer could be accomplished through the legal authority and jurisdiction of the District.

The water resources in the Borrego Valley have been studied in twelve separte reports prepared between 1946 and 1979. Seven of these studies focused on the volume of water in storage in the basin, the long term annual recharge rate, and the volume of consumptive use. These reports substantially agree that there are 1.3 million acre feet of water in storage within the first 200 feet of the water table. Significant uncalculated resources are stored in the aquifer below 200 feet. The long term annual recharge rate is estimated to be 11,000 acre feet per year. Current research estimates that present consumptive use is 11,300 acre feet per year including 8300 acre feet per year for human uses and 3000 acre feet per year for native vegetation.

Potential Effects of the Project

- Long-term development of the Rams' Hill Country Club may require transfer of water from the northern and central portions of the valley to serve the project located in the southern valley. This transfer would avoid any potential impacts of draw-down of the water table in the southern valley.

- The Borrego groundwater basin is currently in a state of minor overdraft. Despite this, transfer of water to the project is not expected to impact the quantity or quality of the water basin-wide and is not projected to impact the availability of water in the northern and central portions of the valley.

- Neither operation of the proposed water and sewer systems for the project nor transfer of water to the project from northern or central wells are projected to be accompanied by water quality impacts.

- No existing wells or future well sites other than the four wells which have been drilled by the developer to serve the project have been identified at this point in the process. Any such identification would be purely speculative. Without this information, specific impacts to or from future wells, particularly in the northern valley, cannot be analyzed.

- The proposed water system for the Rams' Hill project has the necessary capacity and storage to meet the water demands of the project. The system conforms to the water works standards adopted in January, 1980 by the California Department of Health and codified in Title 17, California Administrative Code, Sections 7050 through 7081.

- Transfer of groundwater to the project, should it become necessary in the long run, is not expected to increase the potential for legal suits over water rights.

- Transfer of groundwater is a common way of providing water service to a community. Such transfer is already occurring in the valley today in the service area of the Borrego Springs Water Company.

- The Borrego Water District may, in the future, acquire water in other parts of the valley to serve Rams' Hill by contracts to purchase, or lease, or by a license to use water. The District may also receive a gift or bequest. It is not necessary for the District itself to own water rights in order to provide water service anywhere in its jurisdiction or to implement a groundwater management program.

The alternatives to this project which have been analyzed in this EIR include: "no project", Borrego Springs Water Company, mutual water company, other private utilities, private wells and other public agencies. The no project alternative would require the developer to seek another public or private agency to provide water and sewer service to the project. It does not appear to be feasible to utilize the Borrego Springs Water Company, a mutual water company or another private utility to provide water service to the project because such an agency would probably be unable to obtain the necessary permits and licenses to operate a waste water treatment facility. Creation of a new public agency in the southern Borrego Valley does not appear to be desirable since none of the alternative agencies have authorities beyond those of the Borrego Water District which would enable them to better perform the functions of a water and sewer agency. It is not legally feasible to provide water service to the project by private wells since state law requires water service to lots owned by more than six persons to be provided by either a public utility or agency. Expansion of the jurisdiction of the Borrego Water District may be a logical step in the development and implementation of their groundwater management plan.

3.0 PROJECT DESCRIPTION

3.1 Project Location

The Borrego Water District encompasses 43 square miles of the Borrego Valley, an unincorporated area east of the Peninsular Mountain Range in the desert of San Diego County. The Valley is located 65 miles northeast of metropolitan San Diego, 40 miles southeast of Palm Springs and 25 miles west of the Salton Sea. Primary access to the valley is provided by State Highway 78, Yaqui Pass Road (S3), Montezuma Valley Road (S22) and Borrego-Salton Seaway (S22). Figure 3.1-1 is a regional vicinity map. The Borrego Water District is bounded generally by Borrego Springs Road on the south, DiGiorgio Road on the west, the Anza Borrego Desert State Park on the north, and the "Badlands" area on the east.

The Di Giorgio Corporation is applying to annex the 3,200-acre Rams' Hill Country Club site located on the south slope of the Borrego Valley, immediately south and east of the Casa del Zorro Resort to the Borrego Water District. This site is located approximately one-half mile south of the current district boundary. Primary access to the Rams' Hill site is provided by Yaqui Pass Road and Borrego Springs Road. Figure 1.1-1 is a vicinity map of the District and the area proposed for annexation.

3.2 Project Objective

The Di Giorgio Corporation has applied to LAFCO to annex the 3,200-acre Rams' Hill site to the Borrego Water District in order to provide the proposed Rams' Hill Country Club project with water and sewer service. A full description of the Rams' Hill Project, for which a Specific Plan has been submitted for approval to the San Diego County Planning Department, can be found in the Project Description of the Rams' Hill Country Club EIR (San Diego County Log #79-11-1).

The latent powers of the Borrego Water District were activated by the Local Agency Formation Commission in December 1979, at a public hearing.

The District does not currently own or operate any facilities for the provision of water or sewer service.

3.3 Need for the Project

The Ram's Hill project is a large scale development which includes 780 dwelling units, a hotel, a medical clinic, golf course and wastewater reclamation facility. Although it is possible to provide water service to the project by a variety of means including a private utility or a mutual water company, the Regional Water Quality Control Board requires that the ownership and operation of the waste water reclamation facility be by a public agency. Since a public agency is required to operate the reclamation facility, it was deemed appropriate by the developer to have the same agency provide water service. No public water or sewer agency currently has jurisdiction within the boundaries of the 3,200-acre site. The nearest public agency to the site is the Borrego Water District located approximately one-half mile north of the project. In 1974 the Director of the Local Agency Formation Commission recommended to the DiGiorgio Corporation that rather than form a

new public agency solely to serve the project, it would be preferable to annex the project to the Borrego Water District for both water and sewer service. (Schmidt, 1979).

3.4 Appropriateness of the Borrego Water District to Serve the Project

The Borrego Water District has all the legal authorities necessary to provide water and sewer service to the Rams' Hill development. The latent powers of the District were activated by LAFCO in December, 1979 for two purposes: to provide service to the Rams' Hill Project and to develop a groundwater management plan for the Borrego Valley basin. The condition placed upon the District by LAFCO in authorizing activation was that the voting structure of the District be changed from a landowner-voter district to include registered voters. The District has developed appropriate special legislation to remedy this situation and has submitted the legislation to the California State legislature where it should be acted upon later this year.

The District is in the preliminary stages of developing a groundwater management program. This program must be based upon an in-depth geohydrologic study of the basin and accompanied by an extensive collection of water well data. The District is currently seeking funds for the initial study and data gathering in cooperation with the County of San Diego, United States Geologic Survey (USGS), Department of Water Resources and others. The District is hopeful that funding will be arranged and the studies initiated later this year.

RECEIVED
MAR 31 1980
ENVIRONMENTAL
ANALYSIS DIVISION

NOTICE OF DRAFT
SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

Notice is hereby given that the San Diego Local Agency Formation Commission has caused to be prepared a Draft Supplemental Environmental Impact Report (EIR) to the Rams' Hill Country Club EIR for the following project:

> Proposed Annexation of Rams' Hill Country Club to Borrego Water District and Activation of District's Latent Sewer Power to Serve Rams' Hill: Approval by LAFCO of above actions. Rams' Hill Country Club consists of 3,200 acres, 780 dwelling units, a medical clinic, a hotel, a golf course and a wastewater treatment plant. Location is Borrego Springs Road, Borrego Valley in San Diego County, California.

The Draft Supplemental EIR, prepared in compliance with the California Environmental Quality Act, the State EIR Guidelines, and LAFCO's adopted EIR Procedures, is available for public review at the offices of the Local Agency Formation Commission, 1600 Pacific Highway, Room 452, San Diego, California 92101, telephone (714) 236-2015; and Borrego Springs County Branch Library, 652 Palm Canyon Drive, Borrego Springs. It serves as a supplemental document to the Rams'Hill Country Club EIR prepared by the County of San Diego Environmental Analysis Division, 9150 Chesapeake Drive, San Diego, California 92123.

Written comments on the adequacy of this Supplement must be received at LAFCO Staff offices by May 15, 1980.

A Final Supplemental EIR incorporating any comments and LAFCO's response to them will be prepared following this review process.

Ann Brickelmaier

ANN BRICKELMAIER
Environmental Administrator
Local Agency Formation Commission
County of San Diego

This notice was published in the San Diego Union and distributed on March 31, 1980, and will be published in the Borrego Sun on April 10, 1980.

PRC Toups Corporation

January 10, 1980

1927-014-0

Ms. Ann Brickelmaier
Local Agency Formation Commission
1600 Pacific Highway
San Diego, CA 92101

Dear Ann:

Based upon our discussion with you on January 7, 1980, we have prepared a preliminary outline of an addendum to the Rams' Hill Environmental Impact Report. This addendum is intended to satisfy LAFCO's concerns relative to the environmental review of the potential impacts of transferring water from the northern part of the Borrego Valley to the Rams' Hill property.

We have arranged to complete this work under contract to the DiGiorgio Development Corporation. Before we begin work on the project, we will discuss with you in more detail how we intend to treat each of the major issues in the outline.

Sincerely,

PRC TOUPS

Debra Hamilton Marsh
Environmental Analyst

DHM:kst

Enclosure

A Planning Research Company
2223 Avenida de la Playa, La Jolla, California 92037
Telephone (714) 454-9162

Rams' Hill Water Supply
Supplemental Report

I. Background and Purpose of Report

II. Geological Background

- A. Summary of existing information regarding two basin theory
- B. Additional information from consulting geologist

III. Definition of Rams' Hill water needs

- A. Projection of maximum demands
- B. Definition of on-site sources, capacity, etc.
- C. Options for satisfying future demands
- D. Initial institutional arrangements for supplying water

IV. Identification (to the extent feasible) of off-site wells which could be used to serve the project

- A. Ownership of each well
- B. Ownership of water rights
- C. Distance from Rams' Hill
- D. Distance to adjacent wells
- E. Additional information on nearby wells necessary to determine drawdown potential
- F. Pumping capacity of each well
- G. Water quality of each well

V. Alternative scenarios for Rams' Hill use of northern water

- A. Amount of water Rams' Hill would need in each scenario
- B. How much each well would have to supply (worst case)
- C. Potential for drawdown on adjacent wells from additional pumping
- D. Effect of each scenario on groundwater quality
- E. Institutional requirements for each scenario
  1. Legal constraints on purchase of water
  2. Transfer of water from one parcel to another
  3. Potential for adjudication

VI. Summary

FOCUSED
ENVIRONMENTAL IMPACT REPORT

BORREGO WATER DISTRICT
Latent Powers Authorization

San Diego County, California

Lead Agency

Local Agency Formation Commission
1600 Pacific Highway
San Diego, CA 92101

Applicant:

Borrego Water District
Attention: Skip Schmidt
Borrego Springs, CA 92004

prc

PRC Toups Corporation

2223 Avenida de la Playa La Jolla, California 92037
Telephone (714) 454-9162

A Planning Research Company

Revised: November, 1979

additional environmental review pursuant to the California Environmental Quality Act.

- The District covers an area of 43 square miles, approximately one-half of the private land in the Borrego Valley surrounded by Anza-Borrego State Park. Making water service by a public agency available in the area could have indirect effects on the environment by accommodating future development. However, development in Borrego Valley appears to be limited by factors other than availability of water service.

- Although the District intends to develop a groundwater management program as a result of this action, there appears to be no guarantee at this time that the District will be in a position to fund, develop and implement a comprehensive groundwater management plan for Borrego Valley.

- Although continued residential growth and agricultural development could degrade the quality of water in the aquifer, the proposed project would not directly affect water quality. Activation of the Borrego Water District could improve water quality through development of a groundwater management plan and construction of water treatment facilities.

- The project will not affect the functioning of other water service agencies. Annexation of other agencies is not necessary to the successful development of a groundwater management plan by the Borrego Water District.

- A potential beneficial environmental impact could result from project implementation through the development of a comprehensive water management plan for the basin. Such a plan could have the effect of protecting and enhancing correlative water rights through protection of the long term quantity and quality of groundwater in the basin. Development of such a program could also help preclude the possibility of expensive, lengthy adjudication of groundwater rights. However, authorization of latent powers does not guarantee that the District will be able to finance, develop and implement such a groundwater management plan.

- Future development of the Rams' Hill Country Club may require transfer of water from the north basin to the Rams' Hill property in the south basin of the Borrego Valley. Discussion of the legal and environmental issues relevant to future transfer of water from the northern part of the valley to the Rams' Hill property has been omitted from this EIR. These issues include identification of specific wells to be utilized, ownership and potential for adjudication of water rights, and potential impacts of drawdown on neighboring wells. These issues have not been addressed in this document because sufficient information is not available at the present time for adequate discussion. No wells have been specifically identified as sources of water for transfer and pump tests have not been conducted to determine the effect of drawdown on neighboring wells. LAFCO is the responsible agency for any related actions subsequent to activation of the district's latent powers. Specifically, the approval of the District's annexation of the

Rams' Hill property will be reviewed by LAFCO. Therefore, this information on water transfer will be included in the Rams' Hill EIR prior to LAFCO action on annexation of Rams' Hill to the Borrego Water District.

The alternatives to this project which have been analyzed in this EIR include "no project", alternative agencies, an expanded jurisdiction, and delayed timing. The no project alternative would continue the uncoordinated, unplanned use of groundwater by hundreds of users, although activation of the District will not necessarily correct this situation. The no project alternative would not necessarily halt development in the Borrego Valley, overdraft of the basin or water quality problems. Rather, this alternative could result in long-term damage to the resource. It does not appear desirable to create an additional public agency in the Borrego Valley to manage groundwater resources. None of the alternative agencies have authorities beyond those of the Borrego Water District which would enable them to better perform the functions of groundwater management. Expansion of the jurisdiction of the Borrego Water District may be a logical step at some future date and, in fact, is being discussed by the District, but this alternative is not necessary to fulfill the basic objectives of latent power authorization. Delaying the activation of the District would perpetuate the existing problems associated with lack of management.

79-11-1

Such demonstration must be based on a thorough independent study and may occur in the form of County approval of a Comprehensive Groundwater Management Plan for the Borrego Water District.

However, the ERB disagreed and felt this applicant should not be required to do the water study. The ERB did agree, however, that a comprehensive groundwater study needed to be done in the near future. Some discussion went on at the ERB meeting about property owners contributing to the cost of a groundwater study.

Respectfully submitted,

Kathy Leitola

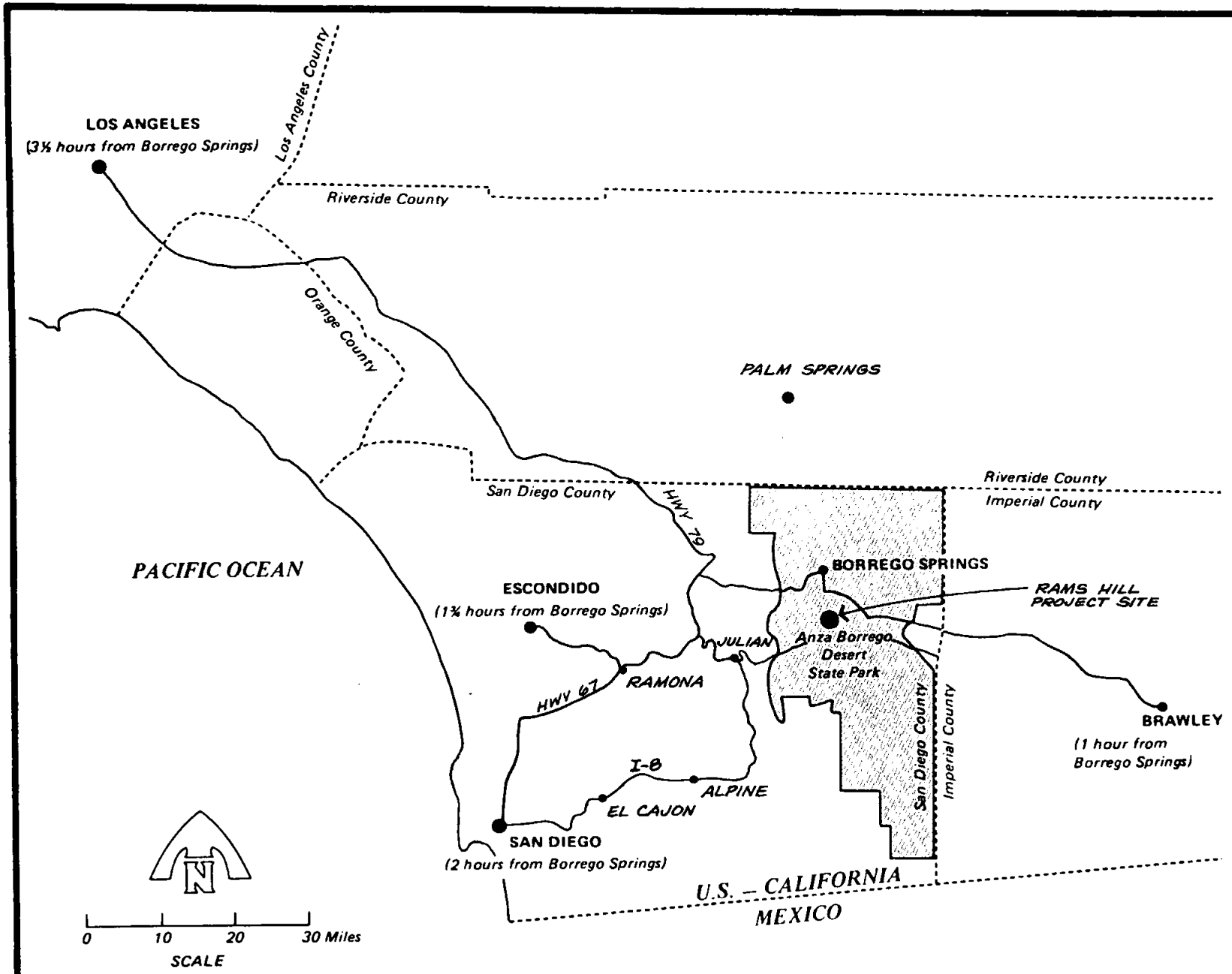
KATHLEEN A. LEITOLA, Secretary
Environmental Review Board

KAL:NW:sb

Enclosures:
A. Environmental Impact Report Discussion, Pages A-1 to A-12.
B. Letters of and Responses to Public and Other Agency Comment, Pages B-1 to B-43.
C. Applicant's Responses to Letters of Public Comment
D. EIR (excluding Draft EIR) for the Borrego Springs (Di Giorgio) General Plan Amendment
E. Planning and Land Use Comments regarding Authorization of Latent Powers EIR
F. Draft EIR, prepared by PRC Toups

Copies: Project Planning, Department of Planning & Land Use #0173
Project Planner, Steve Lister #0173
Anna Pecus, #A655
Di Giorgio Development Corp.
PRC Toups Corp.

RAMS HILL



regional vicinity map

FIGURE 3.1-1

4.0 ENVIRONMENTAL SETTING OVERVIEW

A full description of the environmental resources of the Borrego Valley, Borrego Water District and Rams' Hill Project site are contained in the EIR on the Rams' Hill Country Club Specific Plan (San Diego County EAD Log #79-11-1). Further information on the resources of the valley may be found in the Environmental Setting section of the Borrego Water District Latent Powers Authorization Focused EIR (PRC Toups, 1979) which is also incorporated herein by reference. This section does not contain an analysis of potential impacts.

The hydrogeology of the Borrego Valley will be briefly discussed in this section because of its immediate relevance to the focused issue of water service to Rams' Hill. A full discussion of the geohydrology of the Borrego Valley Groundwater Basin can be found in the Geohydrology Technical Appendix to the Borrego Water District Latent Powers EIR referenced above. That appendix also includes a large bibliography of other related references.

4.1 The Groundwater Basin

The Borrego Valley Groundwater Basin includes over 280 square miles of land. The general boundaries of the basin were defined by the California State Department of Water Resources (1968). Of the 280 square miles, approximately 195 square miles are steep, rocky slopes (Lough, 1974).

The mountainous areas are composed of rocks which do not hold water so that most precipitation onto them runs off into the valley. In the valley the most prominent landforms are large alluvial fans which have formed at the base of the surrounding mountains (Department of Water Resources, 1968). Although much of the water which runs off the mountains infiltrates into the gravelly soils or evaporates before reaching the valley floor, three identifiable creeks drain the surrounding mountains (U.S. Department of the Interior, 1968). Coyote Creek is the only perennial stream in the valley. It originates in the Santa Rosa and San Ysidro mountains and terminates, primarily during flood flows, in the Borrego Sink, the lowest point in the valley. Here the water infiltrates into the groundwater basin, evaporates into the air, or is evapotranspired by the vegetation of the sink. San Felipe Creek crosses the extreme southeastern corner of the valley. It originates in Grapevine Canyon which receives runoff from the San Ysidro Mountains. Borrego Palm Creek, dry for much of the year, originates in the San Ysidro Mountains and terminates in the Borrego Palms Resort area. Other ephemeral streams may appear during flash floods. Flash floods occur primarily because mountainous canyons above the Borrego Valley are subject to summer thunderstorms of brief duration and extreme intensity. Canyons leading out of the mountains are sparsely vegetated and very steep, with surfaces composed of low-porosity rock. These conditions combine to produce large quantities of runoff moving at extremely high velocities (County of San Diego, 1972).

Precipitation within the drainage area is the only source of additional water for the groundwater basin. Coyote Creek is the most continuous source of recharge, but flash floods are of great significance in supplying water to the basin (San Diego County, 1972). Average annual precipitation varies from less than four inches on the valley floor to at least 15 inches in the mountains to the west.

Landforms/Geology

This description of the geology of the valley is from Threet (1972) and Department of Water Resources (1968). The Borrego Valley is a structural bowl encircled by mountains. The Santa Rosa Mountains rise to over 6,000 feet on the north and northeast. The San Ysidro Mountains rise 5,000 feet along the west. The Yaqui Ridge, at an elevation between 3,500 and 4,000 feet, borders the valley to the south. The Borrego Mountain, an extension of Fonts Point, forms an imperfect ring on the east. The Borrego Valley is broad and flat, sloping gently to the southeast toward the Imperial Valley. The valley bowl is filled with thousands of feet of alluvium eroded from the surrounding mountains.

The Borrego Valley is a part of the Salton Trough, a spoon-shaped depression or down-dropped fault block, extending from the San Gorgonia Pass in the north to the Gulf of California in the south. The southern end of the trough is open to the gulf. The Borrego Valley itself has been subject to extensive faulting. This seismicity is reflected in the relief pattern of the valley. The area is bounded on the north and south by two major fault zones, the San Jacinto and Elsinore Faults, located approximately 11 and 15 miles to the northeast and southwest, respectively. In addition, numerous smaller faults lie within or near the valley. The eastern edge of the Borrego Water District is crossed by the Coyote Creek Fault, a part of the San Jacinto Fault Zone.

4.2 Hydrogeology

The Borrego Valley is filled with thousands of feet of alluvium which have been deposited over the last 20 million years in a number of distinctive formations. This discussion briefly describes the most important of these formations and their water bearing characteristics. For a more complete discussion, refer to the Geohydrology Technical Appendix to the Borrego Water District Latent Powers EIR, Threet (1972) and Department of Water Resources (1968).

The bottom of the Borrego groundwater basin is defined by an impermeable crystalline basement rock which extends to depths of many miles. This basement rock forms the surrounding mountains and hills and underlies all the water bearing deposits. Over the last 20 million years, at least ten distinctive sedimentary formations have been deposited on top of the crystalline basement rock. These formations are not uniform but exhibit varying characteristics across the valley. In general the principal water bearing formation in the valley is the thick, pleistocene-aged older alluvium. Where saturated, this widespread formation yields large quantities of water to wells. An evaluation of well logs in the basin reveals that the older alluvium is at least 500 to 600 feet deep. Geophysical measurements in the Christmas Circle area of the valley have indicated that the older alluvium in that area is approximately 4,000 feet deep (Webb, 1977). Calculations have been made which estimate the volume of water within the first 200 feet of the water table. Many wells in the valley, however, draw water from much deeper levels (Figure 4.2-1). Other deposits such as fan deposits and younger alluvium also yield water but usually not as much as does the older alluvium.

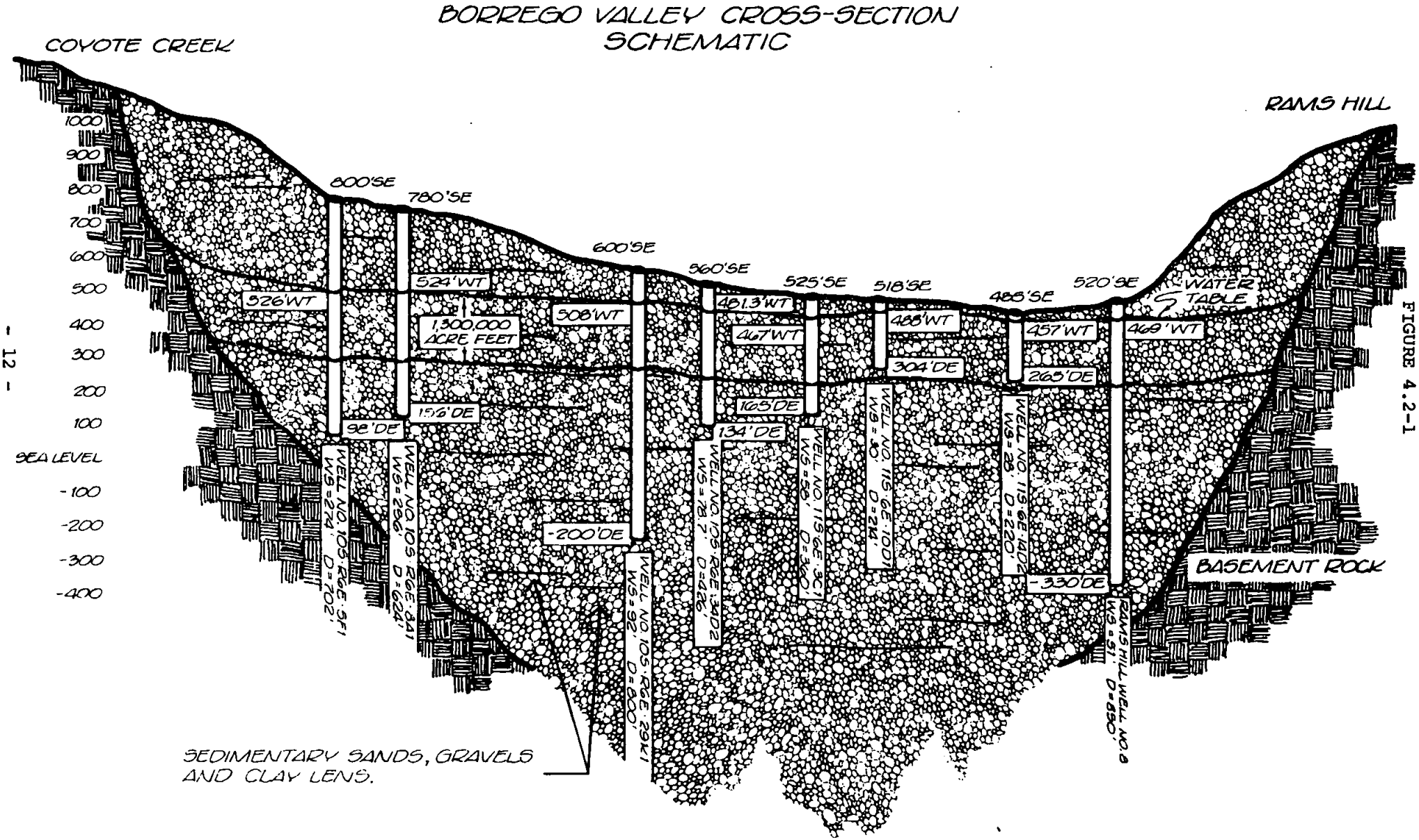

BORREGO VALLEY CROSS-SECTION
SCHEMATIC
COYOTE CREEK
RAMS HILL
1000
900
800
700
600
500
400
300
200
100
SEA LEVEL
-100
-200
-300
-400
600'SE
780'SE
600'SE
560'SE
525'SE
518'SE
486'SE
520'SE
526'WT
524'WT
508'WT
481.3'WT
467'WT
488'WT
457'WT
469'WT
WATER TABLE
1,300,000 ACRE FEET
304'DE
265'DE
165'DE
156'DE
98'DE
134'DE
-200'DE
-330'DE
WELL NO. 10S/5E-5F1
WS=274'
D=702'
WELL NO. 10S/6E-8A1
WS=256'
D=624'
WELL NO. 10S/6E-29K1
WS=92'
D=800'
WELL NO. 10S/6E-34D2
WS=78.7'
D=426'
WELL NO. 11S/6E-3C1
WS=58'
D=340'
WELL NO. 11S/6E-10D1
WS=30'
D=214'
WELL NO. 11S/6E-14D2
WS=28'
D=220'
RAMS HILL WELL NO. 8
WS=51'
D=850'
BASEMENT ROCK
SEDIMENTARY SANDS, GRAVELS
AND CLAY LENS.

FIGURE 4.2-1

The two formations which form the most effective barriers to water movement are the basement rock and the Palm Springs Formation. The Palm Springs Formation is significant in the central and southern portions of the valley. In areas in which folding has pushed this formation closer to the surface, the free flow of water within and between the water bearing strata may be inhibited. Examples of this may be found in scattered "dry wells" across the valley, particularly around the Casa del Zorro Resort and in the areas of the Sink and the Borrego Airport.

Of particular concern to this project, the Palm Springs Formation is signficant in the southern portion of the valley near the Casa del Zorro Resort where it forms the so-called "Desert Lodge Anticline". This anticline is believed to form a partial barrier to the free flow of water within the basin.

5.0 ENVIRONMENTAL ANALYSIS

The purpose of this section is to present the analysis of environmental factors which may affect, or be affected by, the proposed project. Each environmental factor will be analyzed separately in the following format:

- o **Existing Setting**

The environmental setting and existing conditions of the valley, the Borrego Water District and the Rams' Hill property will be discussed.

- o **Potential Impacts**

This section will analyze the environmental effects that would result from project implementation. This discussion will include long-term and short-term effects, on-site and off-site impacts, and direct and indirect effects. The significance of the identified impacts will be analyzed.

- o **Mitigation Measures**

A discussion of feasible measures to reduce adverse effects will be presented. This will include an analysis of the effectiveness of the mitigating measures, an identification of who is responsible for implementation, and the likelihood of implementation. This section will also analyze the effectiveness of the mitigating measures in reducing the environmental effects to an insignificant level.

Alternatives capable of reducing or eliminating any significant environmental effects will be discussed in a separate section following the Environmental Analysis.

5.1 Water Resources and Human Use

- o **Existing Setting**

The Borrego Valley groundwater basin is by far the most significant basin in eastern San Diego County. The amount of water in storage within the first 200 feet of the water table could support at least 2.6 million dwelling units along the coast for one year.

A groundwater management program which defines the net safe yield of the basin is in the early stage of development by the Borrego Water District. An approximation of this safe yield, however, has been made over the last 15 years in a series of twelve reports, including an estimate of the volume of water in storage, the rate of annual recharge and the rate of extraction. The U.S. Department of the Interior Bureau of Reclamation estimated in 1968 that 1.3 million acre feet of water are stored in the first 200 feet of the water table. Because the larger wells in the valley draw water from depths of up to 900 feet, it is clear that substantial water is also present below 200 feet. This amount has not been estimated. Most investigators agree that 11,000 acre feet is an accurate estimate of the long-term average annual recharge rate.

The amount of water which has been extracted from the groundwater basin underlying the Borrego Valley has fluctuated widely as economic activites in the Valley have changed. Historically, the two primary uses of groundwater have been agricultural production and domestic consumption. Agricultural uses have consumed as much as 54 times more water than homes. (See Table 5.1-1). Today, 69 percent of the total water extracted is used for agriculture with an additional 24 percent used for golf courses and landscaping. Only seven percent of the total water extracted is used for homes.

Table 5.1-1
Historical Water Use in Borrego Valley
1950-1978

	1950	1958	1962	1968	1972	1978
Domestic	170	225	265	475	530	600
Landscaping and Golf	190	790	1,725	1,720	2.270	2,050
Agriculture	11,435	22,455	13,830	7,260	5,320	5,705
	11,795	23,470	15,820	9,455	8,120	8,355

Source: Borrego Springs Water Company, Rancho Borrego Mutual Water Company, US Census, The Borrego Sun, personal interviews.

- **Potential Impacts**

As discussed in the Rams' Hill Specific Plan EIR and in the EIR for Authorization of Latent Powers for the Borrego Water District, the Borrego groundwater basin is currently in a state of minor overdraft. Should water consumption continue indefinitely at the same rate as today, and should the long-term annual recharge rate remain constant, then the first 200 feet of storage would last over 3,700 years. With ultimate development of the Rams' Hill project in 1995, it is projected that water consumption will be between 9,800 and 13,500 acre feet per year. Should consumption fall to 9,800 acre feet per year then the water supply would last indefinitely. At 13,500 acre feet of consumption per year, the water in the first 200 feet would last 520 years.

Annexation of Rams' Hill to the Borrego Water District would increase the water consumption within the District. Annexation is not, however, necessary for Rams' Hill approval. Therefore, annexation will not directly affect the volume of water consumed in the valley. Despite the minor overdraft, annexation of the site to the District will not significantly impact the quantity or quality of water available throughout the groundwater basin. Any potential localized impacts will be avoided through transfer of groundwater should it become necessary in the future. A full analysis of the potential impacts of such transfer is contained in Section 5.6 of this document.

- **Mitigating Measures**

The potential impacts of future human use of groundwater resources can best be mitigated by implementation of a groundwater management program. The Borrego Water District is the agency responsible for development and implementation of a management program for the basin.

5.2 Desert Lodge Anticline

- **Existing Setting**

The clay-cored Desert Lodge Anticline is an important geologic structure in the hydrogeology of the Rams' Hill site (Figure 5.1-1). This structure was identified by Threet in a 1972 study commissioned by the DiGiorgio Corporation to identify potential well sites to serve the project. This anticline is an upwarped flexure (or hump) in the underlying sedimentary strata. The significance of the structure is not precisely known. It has been hypothesized that the anticline could function as a subsurface clay dam restricting the flow of water from north to south within the basin and, in effect, creating two subunits. The water levels recorded by the Department of Water Resources (1968), however, indicate that the groundwater south of the anticline is in hydrologic continuity with groundwater in the central and northern parts of the basin. If the water is in hydrologic continuity then the anticline is probably not a dam between two water sources but a peninsula creating the appearance of two separate units. It is highly probable due to the continuity in water levels that subsurface water moves slowly both through the anticline (either along small fault lines or within the structure itself) and around the edges of the anticline.

For purposes of a worst case analysis, the volume of water in storage within the first 200 feet of the water table in the groundwater basin south of the Desert Lodge Anticline was estimated. The 200-foot depth was chosen to correspond to the calculations performed by the U.S. Department of the Interior, Bureau of Reclamation (1968) in calculating the volume of water in storage in the entire basin.

This southern subunit was defined by the basement rock on the south and the anticline itself on the north. The cross section of this portion of the basin on an aximuth line of 40 indicates a water surface of 7,500 feet. The water bearing area runs for at least 32,000 feet along the 130 aximuth line. Should the area water level be lowered by 200 feet, the width of water surface would be reduced by 2,500 feet. Accordingly, the water basin south of the Desert Lodge Anticline would contain a volume of 918,274 acre feet of material within the first 200 feet. If the specific yield averages ten percent, the volume of water available in storage is 91,800 acre feet.

- **Potential Impacts**

The Desert Lodge Anticline has attracted attention because of its potential impacts on water availability and service to Rams' Hill. These potential impacts could arise if, in fact, the structure restricts the flow of water into the southern portion of the valley. Should the recharge to this subunit be blocked entirely by

the anticline, then mining of the storage in this subunit could occur. To prevent damage to the subunit, it could therefore eventually become necessary to construct a water system network in which water would be extracted from areas north of the anticline and piped to Rams' Hill. In the Rams' Hill Country Club Specific Plan EIR (San Diego County Log #79-11-1) a worst case analysis of draw down and differential lowering of this southern subunit was performed in conformance with CEQA requirements. The conclusion of this analysis was that: (1) if the subunit south of the anticline receives no recharge of its own (for example from the Yaqui Ridge and San Felipe Creek areas); (2) if there is no movement either around or through the anticline; (3) if this Specific Plan is built out in five years and the second Specific Plan is built out fully by 1995; and (4) if the Rams' Hill project receives all of its water supply from the southern subunit (drawing exclusively on storage), then the first 200 feet of recoverable storage (91,800 acre feet) would supply the project for approximately 50 years.

As stated above, this is a worst case analysis based on very conservative and improbable set of circumstances. It is not known at this time what percentage of the total basin recharge flows into the southern valley. Assuming that ten percent of the total yearly valley recharge (about 1,100 acre feet) recharges the southern subunit by direct flow and by movement around and through the anticline, then the first 200 feet of storage in the southern subunit could support Rams' Hill for approximately 115 years, or substantially longer than the life-expectancy of the project.

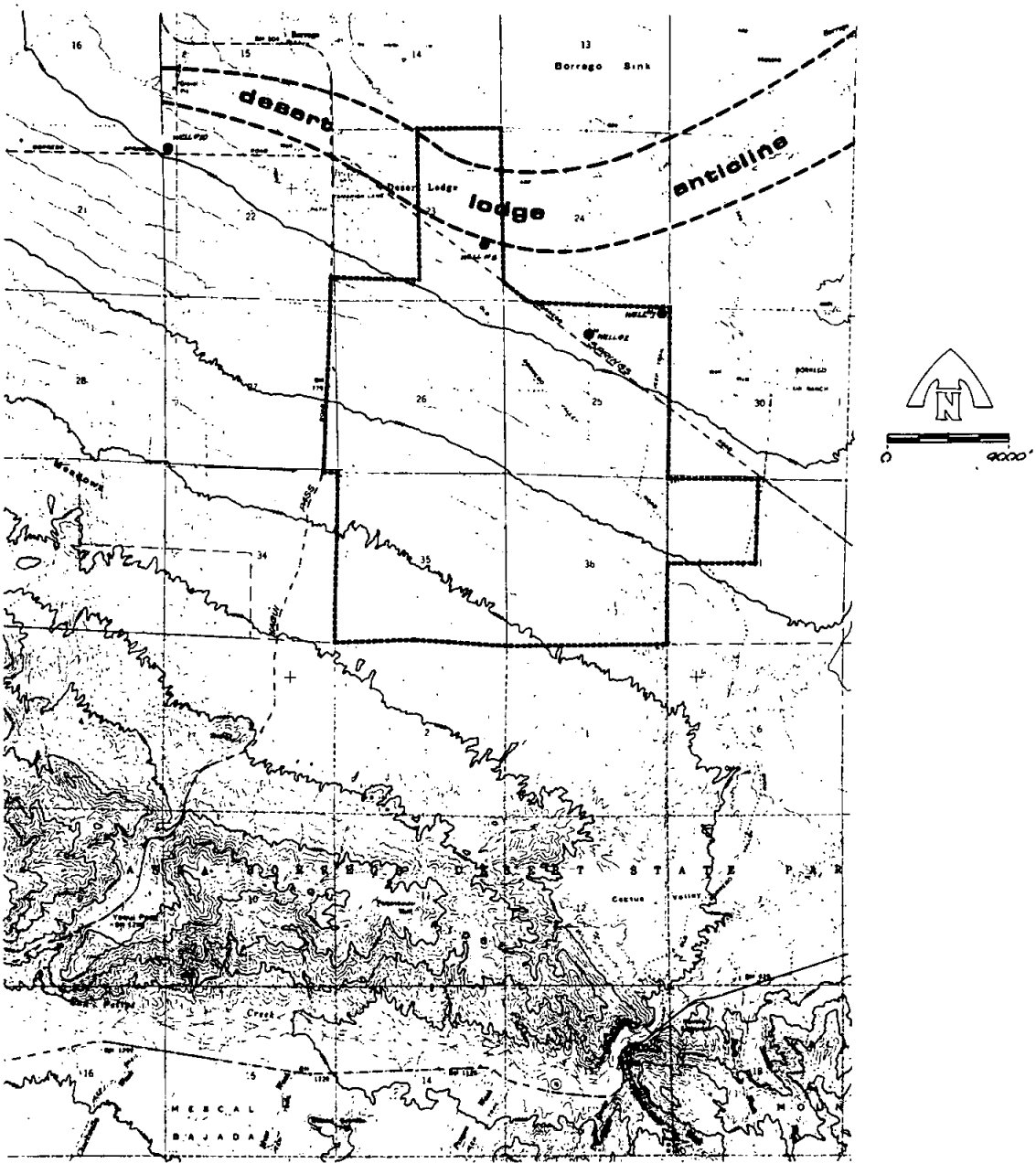
Should the project draw water only from the southern subunit of the basin under the worst case analysis then, as identified in the Rams' Hill EIR, the levels of the wells could drop, making it more difficult and costly to extract water; localized subsidence could possibly occur; and native vegatation could be damaged.

- o **Mitigating Measures**

The Rams' Hill EIR identified that the Borrego Water District has a full range of water service functions and authority to minimize potential impacts to the underground storage of the southern subunit should the worst case analysis described above come to pass. The EIR, therefore, recommended that the property be annexed to the District to fully mitigate any potential impacts.

The Borrego Water District has been granted its latent powers, in part, to become the groundwater management agency for the 280-square-mile Borrego Groundwater Basin. As part of a management program, the District has indicated interest in participating with the County of San Diego, U.S.G.S., and others in an in-depth study of the geohydrology of the basin. This study should refine recharge estimates and identify the portions of the basin which receive direct flow from important sources. For example, it is known that the most important source of recharge is Coyote Creek which directly drains into the northern valley. It should be clarified that because the basin functions as one geohydrologic unit, recharge received anywhere in the basin could eventually be extracted at any other point in the system. The potential impacts of any intra-basin transfer, should it become necessary at some future date, are analyzed in Section 5.5.

FIGURE 5.1-1



desert lodge anticline

PRC TOUPS CORPORATION

RAMS HILL

5.3 Rams' Hill Water Needs

o Existing Setting

The Rams' Hill property is now vacant. Existing water use is limited to that small amount consumed by native vegetation.

o Potential Impacts

The Rams' Hill Country Club project will require approximately 1,600 acre feet per year of water at full build out of the first Specific Plan phase (780 dwelling units) and 1,950 acre feet per year at ultimate project build out (1,562 dwelling units). This consumption translates to 521 million gallons per year at the completion of the first Specific Plan and 635 million gallons per year at the completion of the second Specific Plan.

The water demands for the project will vary seasonally throughout the year. Peak demand period will be summer when the irrigation requirements will be greatest. The lowest demand month will be December when full occupancy is expected but when irrigation demands are somewhat lower. The average daily volume of water required for the project at the completion of the first Specific Plan will be 1.43 million gallons per day.

In January 1980, the California State Department of Health Services established minimum standards for the design and construction of water distribution systems. These new standards establish the volume of water per minute which is required to be provided by a water system to a development based upon proposed uses. These standards include the volume of water needed to supply potable water as well as water for irrigation and fire protection. According to the Waterworks Standards (Title 17, California Administrative Code, Sections 7050 through 7081), the Rams' Hill Country Club Specific Plan will require 1,100 gallons per minute of supply.

o Mitigation

The Rams' Hill project was designed to minimize water consumption both by maximizing conservation features on site and by recycling water from the wastewater reclamation facility to irrigate the golf course.

To conserve water, a number of features have been designed into the Specific Plan. Drought-resistant plants will be used for landscaping wherever possible. Plans for the project include designing the single-family homes with desert landscaping and maintaining a natural buffer between the golf course fairways and the single-family lots. In addition, the following measures were recommended in the Rams' Hill EIR: the landscaping and golf course could be watered at night to help reduce evaporation losses; water flow restrictors could be included on all faucets; low flow basin toilets are now required by law in all new developments; water efficient dishwashers could be installed in all units; covenants restricting water consumptive plants and requiring that substantial landscaping be done with drought-resistant species could be placed on estate and single-famiy lots when final maps are approved; and drip irrigation should be used on shrubbery in all common areas.

The most important water conservation feature of the Rams' Hill project is the wastewater recycling plant which is proposed to be operated by the Borrego Water District. At maximum capacity during the first Specific Plan phase, 250,000 gallons per day of recycled water will be reclaimed for irrigating the golf course. At full project buildout with the second Specific Plan, 500,000 gallons per day of reclaimed water will be used on the golf course. For a full description of the treatment facility, requirements for disinfection of the water, and other pertinent information, refer to the Rams' Hill Country Club Specific Plan EIR, Section IV-P and the Liquid Waste Technical Appendix for the same document.

The DiGiorgio Development Corporation drilled and tested four wells in 1972 to serve Rams' Hill. Three of these wells are located on site and one is located one mile west of the property along Borrego Springs Road. All of these wells are located south of the Desert Lodge Anticline. (Refer to Figure 5.1-1, "Desert Lodge Anticline", for the location of these wells). The combined test capacity of these four wells is 2,890 gallons per minute and recommended initial pump installation capacity is 1,970 gallons per minute, or 1.5 times the volume required under the new Waterworks Standards for Phase I. At this operating rate, the existing four wells could produce 3,179 acre feet per year, or roughtly twice the estimated annual demand of the first Specific Plan phase.

Total annual water use for fire protection is negligible. However, occasional peak demands may be as high as 2,000 gallons per minute for up to three hours should a major fire erupt. This quantity of water will come from the wells and storage. While the wells will produce a portion of the water needed, the majority of the required water for a major fire would come from storage tanks which will be constructed as part of the water service system. During the first Specific Plan phase, two 375,000 gallon storage tanks will be constructed. A third 250,000 gallon tank is projected to be needed for the second Specific Plan phase. Planned storage capacity also meets the requirements of the Waterworks Standards (Title 17, California Administrative Code, Section 7050 -7081).

The ultimate fire flow requirements will be established by the Borrego Springs Fire Protection District. The sizing, capacity and location of fire hydrants will also conform to the requirements of the Fire District.

In summary, the water service system for the Rams' Hill Country Club development has been designed in draft form for the Borrego Water District by Linden R. Burzell, a registered civil engineer. This system has substantial capacity in excess of projected needs. The storage and pumping capacity have been designed to conform to California State Health Department standards. The water conservation program incorporated into the project will directly save 165 acre feet per year in recycled water during the first Specific Plan phase and 330 acre feet per year at full build out. Indirectly, an additional unestimated amount of water will be conserved through landscaping and low flow plumbing features, and incorporation of any of the additional aforementioned water conservation techniques into project design.

5.3 Draw-Down and Well Interference

o Existing Setting

Background

The following discussion is based primarily on information derived from Linsley's Hydrology for Engineers.

The drawdown in a well is the amount the water level is lowered during pumping. The amount of drawdown depends upon the rate of pumping. It is both theoretically and actually impossible to obtain water from a well at any constant rate with no drawdown. The water-bearing formation consists of a network of small passages leading to a well. Water will flow through the passages towards the well only if there is a lower water level or pressure gradient at the well.

The density and size of the network of passages determine the ease with which water can be extracted from a water-bearing formation. The more permeable the water-bearing formation is, or the larger the interconnected openings in the formation are, the less the drawdown at any given pumping rate will be. In some cases, particularly where the water-bearing formation is very open or permeable, the drawdown may be almost negligible for low pumping rates and it may be difficult to measure the drawdown unless accurate means are available for checking the water level.

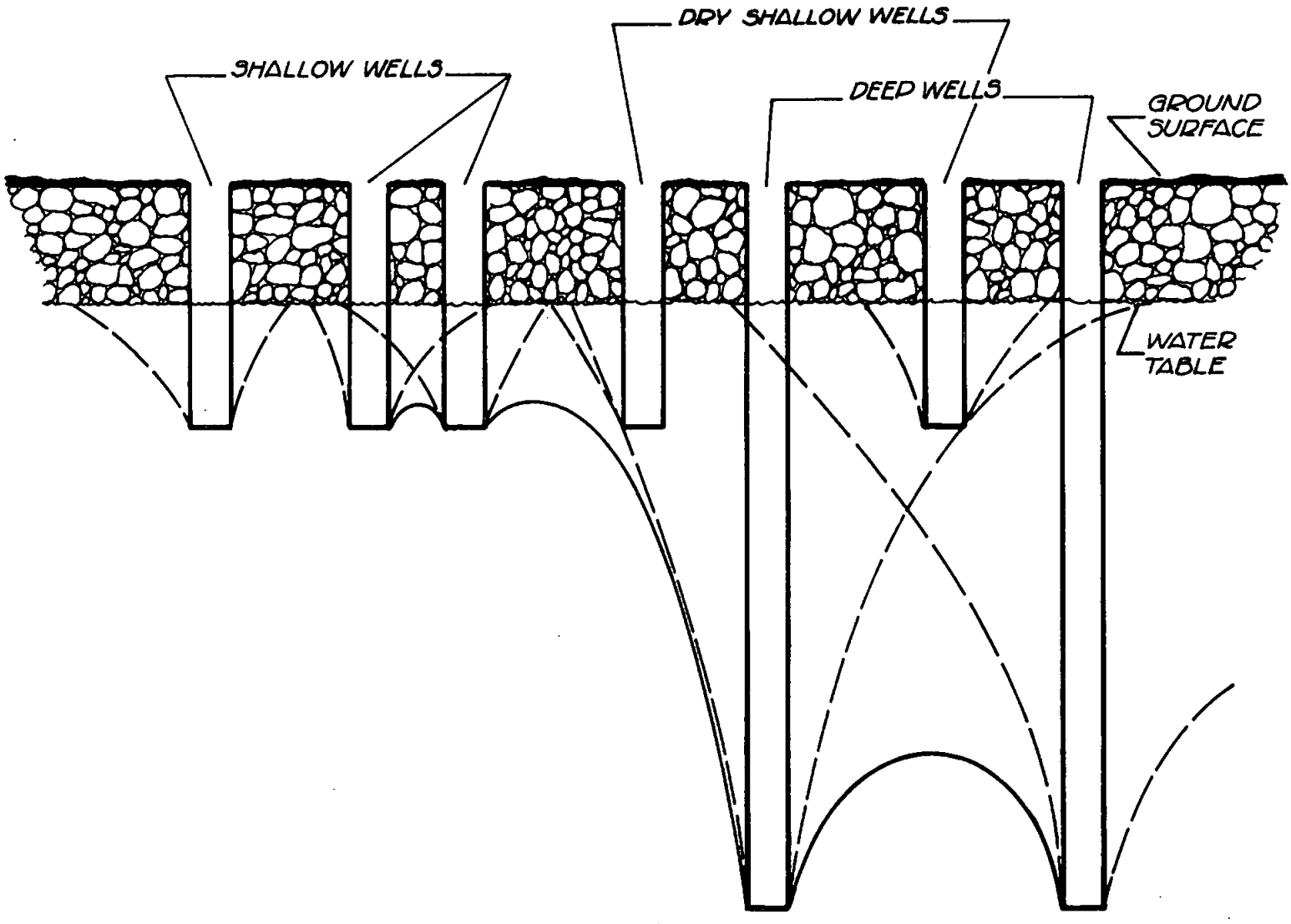
The drawdown produced at and around each pumping results in a "cone of depression" of water levels. The size of this cone depends upon the character of the water-bearing formation and upon the rate and duration of pumping. The distance from a pumping well to a point at which the drawdown in other similar wells is negligible is known as the radius of influence of the well.

If a number of wells producing from the same formation are spaced too closely, their cones will overlap and the wells are said to interfere. That is, the pumping of one well will lower the static (or non-pumping) water level in other nearby wells. This interference results in a decreased production from each well when the other wells are operating. Often, the combined pumping of four or five closely spaced wells in some areas will not furnish as much water as two or three wells spaced far enough apart to avoid excessive interference. Consequently, the most important mitigating measure to prevent interference is proper well spacing. (Figure 5.3-1)

Safe Yield

Although local drawdown at individual wells is a normal occurrence, if water is withdrawn from an aquifer at rates greater than those at which it is replenished, the water table will be lowered and pumping costs increased. "Safe yield" is the quantity of groundwater which can be withdrawn over a period of time without impairing the aquifer as a water source, causing contamination, or creating economic problems from severely increased pumping costs. Unfortunately, safe yield cannot be accurately or easily measured because of the many factors, including variations in annual precipitation and surface runoff, character of the aquifer and imperfections in the available data which makes it necessary to estimate some important parts of the equation.

FIGURE 5.3-1



INTERFERENCE BETWEEN WELLS

The determination of safe yield, overdraft and temporary surplus figures involves the collection of data over a long period of time, as well as expensive geological and hydrological surveys. Besides the significant fluctuations that occur during wet and dry cycles, data are often obsolete by the time they are analyzed in connection with changes in water use. The amount of water that may be safely extracted from a groundwater basin is not a fixed quantity, but may vary within rather wide limits as man's activities increase or decrease the supply to and disposal from the groundwater body. These activities include, among other things, artificial recharge, regulation of stream flow by surface storage, vegetal cover changes, extension of sewage systems, paving of stream channels and sealing of the ground surface by the spread of urbanization (California Governor's Commission, 1978). The safe yield of the Borrego Basin should be determined as accurately as possible within economic limits and the groundwater management program commenced. Since the safe yield will be increased over time with a good management program, it is appropriate that management be under the jurisdiction of a local agency which is responsive to valley residents and changing conditions.

In the Borrego Valley, differential drawdown is an historical phenomenon due to the concentration of agriculture in the northwest part of the valley. In some areas, heavy use of irrigation water caused localized drops in the water table of up to 35 feet. With the withdrawal of lands from water intensive crops and with increased sophistication in watering techniques, many of these areas have now been recharged naturally to their original levels.

- o **Potential Impacts**

The water supply for the Rams' Hill project will be extracted from the Borrego groundwater basin. The proposed plan of works includes four wells, three located on site and one located one mile west along Borrego Springs Road (Figure 5.2-1). These wells are all believed to be located south of the Desert Lodge Anticline. (See Section 5.2 for a discussion of the anticline.) When these four wells are operating, each will create a cone of depression. Should a significant degree of water mining occur in the southern subunit of the basin, the cones may increase in size depending upon the pumping rate and the permeability of the aquifer. Should these cones enlarge greatly, they could potentially interfere with other wells operating nearby.

The most important factor in preventing significant impacts from the four wells is proper spacing. In 1972, these four wells were spaced based on drilling experience throughout the valley. Valleywide records indicate that wells should be spaced 1,000 to 1,300 feet apart to prevent interference. All four wells are located no closer than 1,300 feet from the nearest operating well. For example, the nearest well serving Casa del Zorro is some 4,000 feet from Well #8, the closest Rams' Hill well. Well #10 is located approximately 4,000 feet from the nearest Rancho Borrego Mutual Water Company well.

Should it become beneficial for the District to serve Rams' Hill from wells located north of the Desert Lodge Anticline, the potential impacts should not change. Extraction of water from northern wells will have similar drawdown. Such wells must be properly spaced in relation to other nearby wells, so that the cone of depression will not interfere with nearby pumping.

- **Mitigating Measures**

The water management program for the Borrego Water District should suggest policies and standards for well spacing. All existing wells and future wells which are proposed to serve Rams' Hill should be properly sited in conformance with District or other regulations.

Should the water table in the southern valley be lowered by pumping and should the cones of depression of the four Rams' Hill wells increase in size and interfere with the operation of nearby wells, then it may become beneficial to transfer water to the project from wells located elsewhere in the valley. Such transfer would permit the southern valley to naturally recharge and should not impact the overall resources of the basin. The Borrego Water District has the full range of legal and jurisdictional authority to transfer water and fully mitigate any potential problems.

5.4 Water Quality

- **Existing Setting**

Background

In groundwater resource evaluation, the quality of groundwater is nearly as important as the quantity. The chemical, physical and bacterial characteristics of groundwater determine its usefulness for water supplies. The quality of groundwater supply is determined both by the mineral constituents of the aquifer and the chemical makeup of recharge water.

It is generally observed that the average chemical quality of groundwater is naturally much poorer in desert regions than in regions of normal precipitation. (The Borrego Valley is something of an exception to this generalization.) Several factors contribute to an increase in the dissolved solids, or salt, content of typical desert groundwater. First, salts contained in runoff are concentrated at the surface by high evaporation rates. Second, buried saline deposits that can be dissolved by groundwater are common in the near-surface deposits of desert regions. Third, the slow circulation of groundwater precludes the flushing of connate water. (Connate water is water which was trapped in sedimentary rock at the time it was deposited. It may have been derived from ocean or freshwater sources and is usually of very poor quality.) Also, fine dusts, composed in part of soluable salts, can be transported by winds and accumulate until they are washed into the soil by occasional rains (Davis and DeWeist, 1966).

Groundwater quality can also be affected by human activity. Nearly all water which percolates back into the ground after human use is of poorer quality than it was originally. This can be due to several factors. First, salts already present in the water may be concentrated by evaporation. Use of the water may actually add dissolved constituents. The most prevalent example of this in the Borrego Valley is the entry of fertilizer salts into the groundwater basin as the result of agricultural irrigation. Contamination of groundwater resources and increases in the dissolved solids content can also occur through leaching of water from poorly functioning septic systems. The effect of these water quality changes on the water supply would vary depending upon the proximity of wells to the sources of contamination and the methods used to prevent leachate from reaching the aquifer.

Because groundwater moves so slowly, mixing may take very long periods of time and quality may vary widely from one well to another. Because mixing is so slow and waters containing different salt contents are separated by clay lenses, the groundwater tends to stratify horizontally into zones of differing chemical composition. Recently, the Borrego Springs Water Company drilled a new well using a technique which draws water only from deep strata below 470 feet (most wells allow water to be pumped from more shallow levels). This well is located in an area where nitrates and total dissolved solids have been a problem in upper layers of the aquifer. Chemical tests show that water in this well is of extremely high quality, having very low nitrate and dissolved solids levels (Burzell, 1979).

The best way to manage groundwater pollution is to prevent it from occurring. Avoidance of over-irrigation, minimal use of fertilizer and pesticides, and strict controls on construction and maintenance of septic and sewer systems significantly benefit a groundwater basin.

Water Quality in the Borrego Valley

Thousands of chemical analyses have been made on water samples from the Borrego Valley. Data from the Department of Water Resources (1968) is summarized in Table 5.4-1 for 63 wells all over the Valley during the period 1951 to 1964. Data for the four wells south of Desert Lodge Anticline which are proposed to serve Rams' Hill are given in Table 5.4-2 (Burzell, 1972).

As Tables 5.4-1 and 5.4-2 illustrate, there are between 15 and 20 constituents which are evaluated in a full chemical analysis of water quality. The water quality of the Borrego is unusually good for a desert basin. Normally the only potential problems that are of concern in the basin are TDS and nitrates.

Total dissolved solids (TDS) in a water sample is an analysis of the dissolved minerals in solution. It does not include suspended sediments, colloids, or dissolved gases. Natural water ranges from less than 10 parts per million (ppm) of dissolved solids in rain and snow to more than 300,000 ppm for some brines. Water for most domestic and industrial uses should be less than 1,000 ppm, and water for most agricultural uses should be below 3,000 ppm. In the Borrego Valley, TDS ranges from 270 ppm to 2,800 ppm with an average of 913 ppm. This average is within the State Drinking Water Standard. The TDS levels of the four Rams' Hill wells range from 352 ppm to 560 ppm, considerably lower than the average valleywide, and lower than the levels of TDS in domestic water imported to metropolitan San Diego (San Diego County Water Authority, 1979).

Most natural nitrates in groundwater come from organic sources. Nitrates may be introduced by human activities such as industrial and agricultural processes. Common nitrate concentrations in water range from 0.1 to 0.3 ppm in rain water to as much as 600 ppm in groundwater from areas influenced by excessive applications of nitrate fertilizer. Nitrate concentrations in the Borrego Valley vary considerably. The Department of Water Resources data (1968) has a mean nitrate concentration of 47.1 ppm with a range between zero and 348 ppm. The nitrate levels in the four wells drilled to serve Rams' Hill vary from 0.42 to 1.5 ppm. The standard for nitrates in potable water is 45 ppm. In agricultural water, much higher levels of nitrates are permitted and are, in fact, desirable since the nitrates

provide natural fertilizer for the plants. Consequently, the high mean nitrate level in the Borrego Valley well water reflects the desirability of the nitrates for agricultural use since over 94 percent of the water used is consumed by crops, landscaping and natural vegetation. High quality domestic water can be easily obtained by proper well drilling and casing. (Refer to the EIR in Authorization of Latent Powers, PRC Toups, 1979).

The nitrate problem in the northern part of the Borrego Valley is probably a naturally occurring phenomenon which has been aggravated by the use of nitrate fertilizers. Early drilling records in the valley clearly indicate that there were naturally occurring pockets of high salinity and high nitrate water. A. F. Peterson, the geologist retained by DiGiorgio to conduct their initial drilling program, encountered some water high in nitrates and TDS in the early 1950's.

Table 5.4-1

Borrego Valley Water Quality Data

Constituent	Range (ppm)	Mean (ppm)	Drinking Water[d] Standard (ppm)
Calcium	10 - 264	130.3	---
Magnesium	0.6 - 178	12.7	---
Sodium	7.4 - 511	147.8	---
Potassium	2.5 - 23	8.6	---
Bicarbonate	7.0 - 348	142.5	---
Carbonate	0 - 10	0.4	---
Sulfate	6 - 1600	372.4	250-500-600[a]
Chloride	31 - 558	129.9	250-500-600[a]
Fluoride	0 - 9.8	0.7	1.4-2.4[b]
Nitrate	0 - 348	47.1	45.0
Boron	0 - 1.0	0.2	---
TDS	270 - 2800	913.3	500-1000-1500[a]
Hardness as $CaCO_3$	26 - 1180	390.5	---
Iron	.08 - 30	2.7[c]	0.3
Silica	26 - 91	28.0	---

This data is from DWR (1968) and represents a total of 119 test dates from 63 wells located throughout the Borrego Valley. This data was collected between 1951 and 1965.

a - Constituent concentrations ranging to the upper contaminant level are acceptable if it is neither reasonable nor feasible to provide more suitable water.

b - Depends upon air temperature.

c - One well had very high iron values, 30 and 29 ppm. Data from all other wells tested ranged from 0.08 to 0.20 ppm.

d - Safe Drinking Water Act, Public Law 93523, administered in California by the State Health Department.

Table 5.4-2

Southern Borrego Valley Groundwater
Chemical Analysis
(ppm)

Constituent		Well #1	Well #2	Well #8	Well #10
Calcium	Ca	10.0	8.0	6.0	24
Magnesium	Mg	6.1	5.8	0	1.2
Sodium	Na	186	106	115	90
Potassium	K	3.8	3.6	2.8	5.0
Hydroxide	OH	0	0	0	0
Carbonate	CO_3	0	0	0	0
Bicarbonate	HCO_3	112	134	183	98
Sulfate	SO_4	197	60	49	105
Chloride	CI	100	80	52	52
Nitrate	No_3	2.2	6.7	4.0	1.9
Fluoride	F	0.80	1.0	1.1	0.78
Silica	SiO_2	18	12	19	28
Iron	Fe	0.84	2.1	0.09	.48
Manganese	Mn	0	0	0	0
Ortho Phosphate	PO_4	0	0.43	0.17	0.65
Nitrate	N	0.5	1.5	0.89	0.42
Total Alkalinity	$CaCO_3$	92	110	150	80
Total Hardness	$CaCO_3$	50	44	15	65
Dissolved Solids	TDS	560	400	364	352
Conductivity		900	575	550	530
pH		8.3	8.0	8.3	8.3
Date of Sample		6-6-72	7-10-72	10-10-72	9-26-72

Source: Burzell, L. R. "Water Supply for the Southern Borrego Valley Projects." Unpublished report submitted to the DiGiorgio Corporation, 1972.

o **Potential Impacts**

As discussed above, the activity which has most significantly impacted water quality in the Borrego Valley is the application of large quantities of nitrate fertilizer in the northern agricultural areas. This impact is probably an incremental increase over naturally occurring levels. Other human uses, including sewage disposal, may have also incrementally increased TDS levels, although inadequate data exists with which to measure any impact.

Potential Impacts to the Southern Valley

The Rams' Hill project is not expected to impact water quality of the southern subunit. The analyses performed on the four Rams' Hill wells indicate levels of TDS to be in the range of 350 to 600 milligrams per liter (mg/l) with relatively low hardness. Assuming that the mineral quality of the potable water supply would be about 500 mg/l TDS, and because on-site regeneration of water softeners will be prohibited for proper functioning of the waste water treatment facility, the increase of TDS in the sewage and the 250,000 gallons per day of reclaimed water can be limited to between 250 and 300 mg/l for a total TDS level of 750-800 mg/l. The TDS in applied well water would be even lower. This level of increase is not significant. The recycled water would still have TDS levels which are below the potable water standards.

The Health Department and the Regional Water Quality Control Board allow irrigation of golf courses using reclaimed effluent which has been processed by secondary treatment facilities. This effluent would not impact groundwater quality or the potable water supply because very little of it would ever percolate as deep as the groundwater table. Over two-thirds of this reclaimed water would be lost through evapotranspiration; the remaining one-third would filter very slowly through the substrata, perhaps returning to the surface through capillary action. Because of the volume of water used for irrigation, the stable inorganic substances (salts) would be flushed down below the root zone where they would be deposited. The quality of the soil or the groundwater, therefore, should not be impacted. (O'Leary, 1979)

Percolation beds with sufficient capacity to dispose of the entire output of the wastewater treatment plant on a continuous, long-term basis also would be provided for effluent disposal. These beds are designed in conformance with the State Health Department, Title 22, regulations as a planned backup method to ensure safe, reliable disposal of effluent in the event of reclamation plant failure. The beds would also be used as the primary disposal method during periods of low flows when wastewater would not be recycled for use on the golf course. These percolation beds would be four to six acres in size. They have been adequately separated from existing project related water well sites, and are to be located on the north side of the Desert Lodge Anticline, so that the discharge would percolate toward the saline Borrego Sink, rather than into the southern basin from which the potable water would be drawn.

As with potable water supply for Rams' Hill, the water supply for the adjacent La Casa del Zorro resort will not be impacted by the wastewater reclamation facility. Potable water service to La Casa del Zorro is provided by Rancho Borrego Mutual Water Company. This company owns two wells, one of which is located at the

intersection of Yaqui Pass Road and Borrego Springs Road, and one of which is located just south of the resort. Distance from the percolation basins to the wells is 2,750 feet and 2,300 feet, respectively. Both wells draw water from the southern basin.

The disposal of effluent in the percolation beds should not impact the quality of groundwater under the Borrego Sink and may in fact improve it. The existing water under the Sink is highly alkaline and has high levels of nitrates (Department of Water Resources, 1968). The effluent would have a significantly lower level of TDS than this existing groundwater. The overall level of TDS may, therefore, incrementally improve as groundwater is diluted by the addition of what little effluent actually percolates to the water table.

Potential Impacts to Northern Valley

Over the long term, it could become necessary or advantageous to use water extracted from wells north of the Desert Lodge Anticline to serve Rams' Hill. Use of water from the central and northern valley on Rams' Hill should not impact the water quality of the southern subunit. Should the water quality of the northern or central wells be significantly lower than the four Rams' Hill wells, the quality of the recycled and irrigation water would be incrementally lower. However, as discussed above, very little of the recycled water would ever percolate as deep as the water table.

The use of water from a northern or central well should not impact the water quality of the northern or central valley. The extraction process does not change the water quality of the well itself since extraction is not an evaporative process or one in which salts are concentrated. It is possible that the quality of any given well could change over time because of changes in the strata or pockets being tapped. There are a number of cases of such changes occurring in the Borrego Valley. Seismic activity could trigger such changes. A severe earthquake could disrupt the aquifer so that wells might draw from pockets containing high or low chemical concentrations which were not tapped before. Sometimes water quality changes when the pressure gradient changes, drawing water into the well from a pocket which was not previously being tapped.

Experience from the Borrego Springs Water Company illustrates that groundwater quality is highly site specific. The problem of poor water quality in a given well can be solved by proper well construction. For example, in the late 1940's, DiGiorgio Corporation drilled a well which was later used by the Borrego Springs Water Company. This well was constructed for irrigation purposes by the rotary method, gravel packed and perforated in order to produce all available water regardless of mineral quality. This well subsequently experienced a water quality change in which nitrates became elevated. When funds became available, the Water Company drilled a new well some 50 to 60 feet west of the original well using a design which prevented entry of water from near the surface of the groundwater into the well. This new, properly constructed well is pumping 150 percent as much water as the old well. Nitrates and TDS are extremely low (NO_3 = 3 ppm; TDS = 300 ppm). Consequently, extraction of water from the original well, even low quality water, did not detrimentally impact the quality of the groundwater, even in the immediate vicinity of the well.

- **Mitigating Measures**

The water quality of the groundwater basin should not be impacted over either the short or long term by the Rams' Hill Project. Potential impacts have been mitigated by project design including the location of the percolation beds, well spacing, recycling of water and the high quality of the wells drilled to serve the project. No water quality impacts are projected as a result of any groundwater transfer which could occur.

5.6 Groundwater Transfer

- **Existing Setting**

The Borrego groundwater basin is currently in a state of minor overdraft. With the addition of the Rams' Hill project, the overdraft could incrementally increase by 1600 acre feet per year in 1985 should the rate of agricultural use remain constant. It is projected however that agricultural use will decline and that by 1995 the basin could be below the net safe yield level. Refer to the Latent Powers Authorization EIR (PRC Toups, 1979) for a full discussion.

Issues and questions regarding intra-basin groundwater transfer have been raised by staff and citizens in regard to the Rams' Hill project because of the possibility that in the future it may become necessary or beneficial to extract water from the central or northern portion of the Borrego groundwater basin to serve the project. After annexation of Rams' Hill to the Borrego Water District, such transfer could occur at the discretion of the Board of Directors of the District because of the District's broad geographical jurisdiction. Such "intra-basin" transfer could occur for a wide variety of reasons. For example, the water levels in the four wells proposed to serve the project could begin to drop, making it economically more feasible to extract water at a lesser cost from other wells in the valley. Mining of the resources of the southern subunit could potentially damage the resource, and could require transfer of the water to the project from other areas in the valley to prevent such damage. As another example, the water quality of the four wells drilled for Rams' Hill could change for unforeseen reasons necessitating a different water supply. Finally, transfer could become possible as the District extends service to areas north of the project at which time system costs could be decreased by utilizing other wells.

In this analysis of "intra-basin" transfer, no specific wells located north of the project have been identified to potentially serve Rams' Hill. At the present time, no such northern wells have been proposed by the District or the developer to serve the project. The location of any future wells would be at the discretion of the District as the service agency. Consequently, any targeting of existing wells or future well sites would be entirely speculative. Should transfer occur in the future, site specific impacts for both the wells and the transfer project would be reviewed in compliance with CEQA. Therefore, this analysis will explore the possible problems of transfer in a general context.

All water service agencies which operate in California and elsewhere extract water from one location to serve users in other locations. Such transfers are accommodated in law by a heirarchy of rights to water use provided for in various federal, state and local statutes as in common law. An extreme example is provided by the

transfer of water from the Colorado River and Northern California for use in Southern California communities. The only alternative to such isolated extraction, transfer and widespread use would be individually operated wells on each lot and parcel in America. Consequently, some form of water transfer occurs in providing service to virtually all communities.

Water Service in the Borrego Valley

In the Borrego Valley, groundwater transfer occurs throughout the valley in the provision of domestic water service. The use of small mutual water companies in isolated areas of the valley such as the Deep Well subdivisions and the Fletcher Air Ranch minimize transfer by extracting water at one or two locations for use nearby. The water rights of each user in the mutual company are held in common. By contrast, the Borrego Springs Water Company is a private utility which serves 782 users in a broad arc of 6,200 acres along the western side of the valley. The Water Company owns most of the water rights in the service area, not the landowners. At the extreme, customers of the Water Company are located up to two miles away from the nearest of the Company's three operating wells necessitating a "transfer" of the water from one location to another, within the water basin. The concept of a public service agency is somewhat different from that of a private utility. In the first place, a public agency rarely "owns" water rights. The agency provides service by acquiring the right to procure water from a small well site and enhances the right through use. The agency manages the water rights available to those within the district to maximize the beneficial use of the water for everyone by providing service. In most cases, the agency will provide water to users who have no separate "rights" to the water, and who would be unable to extract water themselves, just as is the case with the Borrego Springs Water Company. When the agency also serves in a "managing" capacity in the basin, transfer of water is usually accompanied by a variety of benefits including minimizing overdraft and drops in the water table. For further information on groundwater management, refer to the EIR on the Authorization of Latent Powers for the Borrego Water District (PRC Toups, 1979) and the Final Report of the Governor's Commission to Review Water Rights (1978).

o **Potential Impacts**

Advantages and Disadvantages of Transfer

Although the Borrego Valley is entirely within the hydrologic unit of the Borrego groundwater basin, the aquifer itself has different characteristics throughout the valley. The strata differ in terms of porosity and specific yield. The quantity and quality of water which can be obtained from wells differ throughout the valley. Some portions of the valley yield water with high TDS and nitrate levels (from existing wells), while other areas yield exceptionally high quality water. As illustrated by the 1968 Department of Water Resources report, there are a variety of locations in the valley where water cannot be obtained at all by overlying landowners either because of shallow bedrock or upwarped clay structures. A primary advantge of groundwater transfer within water districts is economics. Water is extracted from wells located where overall costs are lowest and transferred to other locations where water quality is poor or water is not readily available at all. Another advantage is to trade water so that lower quality water is used for lower priority uses such as agriculture, while higher quality water is

reserved for domestic consumption. The transfer of water can be a useful tool in a groundwater management program in order to allow certain areas of the aquifer to lie dormant and recharge naturally while less used areas are utilized.

Groundwater transfer may be a useful tool in the future management program of the District to insure that the southern subunit is not damaged through overpumping by either the Rams' Hill project or by other uses such as the Rancho Borrego Mutual Water Company. Ultimately it may be beneficial to supply water to the project by wells located in less used portions of the aquifer or in areas in which direct recharge is greater.

The "intra-basin" transfer of water for Rams' Hill should not be accompanied by water quality problems in any part of the aquifer (see Section 5.4). Such transfer would not impact the overall availability of water within the basin since the valley functions as one aquifer. (For information on safe yield and basin-wide availability, see the LAFCO EIR on Borrego Water District Latent Power Authorization referred to above and the EIR on the Rams' Hill Specific Plan.)

Potential Legal Action Resulting From Moving Water From One Place in the Valley to Another

The concept of movement of water from one place in the Borrego Valley for use on lands lying in a different place in Borrego Valley is not a new one. As discussed above, intra-basin transfer of groundwater has occurred for many years as a result of the actions of the Borrego Springs Water Company in drilling wells and transporting water for residenital uses along the western edge of the valley. This intra-basin transfer has resulted in minimal water rights litigation.

To date, there has not been a judicial determination of all the various water rights in the Borrego Valley. Historically, however, some minor litigation has arisen between specific property owners concerning their water rights versus another's use.

With respect to the ownership of "water rights" in the Borrego Valley, it is certainly the contention of many landowners that they own "correlative water rights". In simple terms, a correlative water right allows each owner of land overlying percolating waters an "equal" right to the reasonable beneficial use of the water supply. An owner of such a water right is entitled to seek judicial determination of that water right in the court, whether or not that right is being interfered with or adversely affected by the actions of another.

It is also likely that some property owners in the Borrego Valley claim riparian water rights arising out of either or both the surface and underground flow of water into or out of the Borrego Valley. Again, mechanisms exist both in the courts and by statute for a determination of such water rights.

If groundwater extraction anywhere in the Borrego Valley interferes with the reasonable beneficial use of water on another's lands, or adversely affects the water table, the potential exists that an affected property owner might seek a judicial determination of that property owner's water rights and request the injunctive relief of the courts to stop an interference with those rights. Where, however, no injury to a property owner's groundwater can be proven as a result of

the extraction, and even the exportation, of groundwater by another property owner (for example, exportation for use outside of the groundwater basin), an action for injunctive relief will not arise.

In other groundwater basins in California where overdrafting has become a serious problem, it is not uncommon to find a history of protracted litigation in the courts. Unfortunately for basin-wide water planning purposes, judicial actions are not always able to deal with the total water rights of an area due to the limitation placed on the courts by dealing only with the parties that choose, or are forced, to participate in the litigation. This often has resulted in more than one court becoming involved in an assessment of water rights in a given area, often after conditions have materially changed.

This type of litigation, however, may be changed in the future if the recommendations of the Governor's Commission on California Water Rights (see Assemblyman Kapiloff's AB 442) are enacted. One of the main goals of these recommendations would be to reduce the likelihood of court litigation in favor of the resolution of water rights claims by local agencies. Another goal is that water rights litigation, where unavoidable, be simplified.

The potential for litigation over intra-basin transfer of water to the Rams' Hill project cannot be determined at this time. However, given the stated goal of the Borrego Water District to commence the investigation and studies that would ultimately lead to the development of a groundwater management plan for the Borrego Valley, and further given the fact that the Borrego Water District is the local agency with best capability of transferring water from one location to another in the valley in a manner that would not adversely affect the beneficial users of this groundwater, the potential for such litigation seems remote.

- o **Mitigation**

  Legal Mechanisms Available to the District for Acquiring Water or Water Rights

The Borrego Water District has a full range of rights and powers in connection with the acquisition and distribution of water. First of all, the Borrego Water District does not have to acquire a "water right" in order to serve water. California water districts are fully capable of acquiring and serving water to their customers without actually acquiring an ownership interest in a "water right". Acquiring water for service can be accomplished by means of a number of mechanisms available to the California Water District. The District can enter into contracts such as agreements to purchase, lease or license to use water. The District can receive a gift or bequest of the right to use and serve water and the District, by statute, is dedicated "all water and water rights belonging to the state within the district" (California Water Code Section 35602). The District may also acquire water outside of the District's boundaries by purchase for use within the district.

Thus, in the event that the Borrego Water District were to determine that it is beneficial to serve water from the northern portion of the Borrego Valley to the Rams' Hill Project, it could contract for the use of water with the owner of a water right in that area and proceed to serve that water to its customer. This type of arrangement is routinely accomplished by California Water Districts throughout California (California Water Code Sections 35400 et seq.; 35600).

Assuming that the Borrego Water District could establish the need to acquire a "water right", the District has the power to purchase the water right outright or acquire such a right through condemnation (California Water Code Section 35600). Additionally, the District has the power to perform all acts "necessary and proper" in connection with the acquisition of water or water rights (California Water Code Section 35400).

- o Groundwater Management

Should groundwater transfer from the northern and central valley occur as a result of this project or other users in the southern valley, the potential could exist for drawdown impacts to neighboring wells and/or the northern aquifer. However, as discussed in Section 5.4, these potential impacts can be mitigated within the legal and jurisdictional authority of the District. The District's groundwater management program should develop standards for safe-yield and monitor valleywide ground water levels and water quality. Therefore, implementation of this plan, as well as use of the District's other water service powers should mitigate any potential impacts.

6.0 ALTERNATIVES

The following alternatives to the proposed project are the most feasible and provide the broadest range for discussion of the environmental issues:

6.1 No Project
6.2 Mutual Water Company
6.3 Borrego Springs Water Company
6.4 Other Private Utility
6.5 Private Wells
6.6 Other Public Agency

6.1 No Project Alternative

o Description

The "no project" alternative would prevent the applicant from annexing to the Borrego Water District in order to obtain water and sewer service for the Rams' Hill project. Under this alternative either another water service agency would need to be formed and activated to serve Rams' Hill, or the boundaries of another agency would need to be expanded to include the site. Potential alternative agencies are discussed in Sections 6.2 through 6.5.

o Potential Impacts

The "no project" alternative would not prevent the Rams' Hill Country Club development from obtaining water and sewer service. Rather, it would result in a different type of agency or agencies either public or a combination of public and private, being formed to provide services. The environmental impacts of the alternative agency would depend upon the type of agency formed and the geographical jurisdiction of the agency. At one extreme, should the agency have a broad geographical jurisdiction, there would probably be no greater environmental impacts from such an agency than from the Borrego Water District. In other words, there would be a potential for intra-basin transfer (see Section 5.5), and a potential for localized lowering of the water table. At the other extreme, should the agency have a limited jurisdiction, there would be a greater potential for localized impacts to the groundwater basin. The potential impact to basin-wide groundwater availability would not change regardless of what agency provided water service.

The primary impact from denying the annexation request would be the possible detrimental ramifications for the groundwater management program being developed by the Borrego Water District. Groundwater management is an expensive, long-term program. It requires an extensive outlay of initial funds to generate basic geologic and hydrologic information on the basin, and to synthesize existing data from well logs and prior studies. The Rams' Hill project will provide funds for such a study through taxes and/or standby charges and user fees. The Borrego Water District has indicated a strong interest in participating with the U.S.G.S., Department of Water Resources, County of San Diego and others in developing a basic groundwater study of the basin. Based upon this or other studies, the District would develop a management plan. The cost of such a study and method of financing are still being explored by the agencies.

Rams' Hill will provide a mechanism for supplying on-going funds for the groundwater management program through such measures as service charges and standby fees. Rams' Hill will necessitate the hiring of a full-time District staff which can carry on a wide range of water service functions. By broadening the geographical jurisdiction of the District rather than creating another separate agency, annexation will expedite implementation of policies and programs designed for the basin management plan. However, the formation of a separate service agency for Rams' Hill would not preclude a somewhat more complex joint powers "arrangement" for water management, nor would it completely prevent the District from financing such a program. It would simply make each task much more difficult and financially more burdensome for the existing residents and landowners in the District.

6.2 Mutual Water Company Alternative

o Description

This alternative would be to deny annexation of the Rams' Hill site to the Borrego Water District and, as an alternative, form a mutual water company to provide water service to the Rams' Hill project. This agency would probably not be able to provide sewer service and a second public agency would need to be formed.

o Potential Impacts

A mutual water company does not offer the flexibility in financing and legal authority in the provision of service to the project as does the Borrego Water District. The Rams' Hill Country Club project will require both water and sewer service. Normally, a mutual water company is formed solely for the provision of water. While there is no specific prohibition against a mutual water company engaging in sewage treatment, the necessary government authorization might prove to be more difficult to obtain for a private company since the Regional Water Quality Control Board is hesitant to grant permits to private agencies for sewer service. Since the mutual would probably not be able to get permits to operate the waste water treatment facility, it would not only be necessary to create two separate agencies to serve Rams' Hill, but it would also complicate the use of the recycled water to irrigate the golf course.

The mutual water company would presumably encompass only the 3,200-acre Rams' Hill site. Should this be the case, and should it be necessary or beneficial for the proper management of groundwater basin-wide to provide water to the project from wells located north of the Desert Lodge Anticline, the mutual water company would either need to be expanded to include additional well sites or enter into contract with another agency or private party for such water. Such expansion or contracting would not be precluded under law. However, it is highly possible that the expansion would be extremely difficult to accomplish and would entail delay thereby increasing the potential for damage and for localized or basin-wide impacts.

The use of a mutual water company would not change the volume of water required to serve the Rams' Hill project and would not change potential impacts to basin-wide water quantity and quality.

As discussed in the EIR on Latent Power Authorization for the Borrego Water District (PRC Toups, 1979) the existence of another small private water service agency would not preclude groundwater management, although it would create an additional complexity, requiring contract agreements between the District and the mutual company.

6.3 Borrego Springs Water Company Alternative

o Description

This alternative would be to annex the Rams' Hill site to the Borrego Springs Water Company service area and to have the private utility provide water to the project. This agency would probably not be able to provide sewer service and another agency would need to be formed for this purpose.

o Potential Impacts

The Borrego Springs Water Company is a private, investor-owned utility which serves 782 residents in a 6,200-acre span across the western slopes of the valley.

The Borrego Springs Water Company is currently experiencing financial problems due to increases in electrical rates. The Company is undercapitalized. Significant improvements are needed in the distribution system. In 1977, the Company received a small loan from the Public Utilities Commission to make necessary improvements. In 1977, the Water Company also was granted a rate increase by the PUC. Depsite these measures, the Company is still in need of financial assistance and a higher rate structure. Preliminary negotiations are underway for annexation of the Company to the Borrego Water District. It does not appear to be logical to have the service area of the private utility enlarged to serve the Rams' Hill project if the utility is planning to be annexed to the District.

Because of the continuing financial problems of the Borrego Springs Water Company and the extremely low rate structure, it may not be economically feasible or cost effective for the investors to annex the Rams' Hill project. Because of the distance of Rams' Hill from the company's current service area, annexation might require two separate service systems, thus increasing the costs to be borne by the investors of the Company. On the other hand, should advantageous negotiations between the developer and the Company take place, the Borrego Springs Water Company could substantially benefit from such an annexation making the entire Company more viable.

There are essentially no differences in the environmental impacts of providing service to the project by the Water Company rather than by the Borrego Water District. The impacts to the groundwater resource in terms of quantity of water extracted would be the same. The company does not have enough capacity to serve Rams' Hill with the three existing Water Company wells, so the four wells drilled by the developer to serve the project would probably be utilized. Consequently, geographical impacts to the resurce would be the same. Should intra-basin transfer become desirable or necessary in the long term, the basin-wide system of the Company would allow such transfer.

Similar to a mutual water company, private water companies do not usually engage in as wide a range of services as a public agency. While there is no specific prohibition against a private utility engaging in sewage treatment, the Regional Water Quality Control Board is hesitant to grant permits to private utilities. Should the Borrego Springs Water Company be unable to obtain the necessary permits, then a separate public agency would need to be formed to provide sewage treatment. This, again, could create barriers to the effective use of recycled waters for irrigation.

6.4 Formation of a New Private Utility Alternative

o Description

This alternative would entail forming a new investor-owned utility encompassing the 3,200-acre Rams' Hill site.

o Potential Impacts

The impacts would be the same as those described under the mutual water company alternative, Section 6.2.

6.5 Private Wells Alternative

o Description

This alternative would entail providing water service to Rams' Hill by privately owned and operated wells.

o Potential Impacts

This alternative is infeasible since California law requires that water service to lots by more than one individual be provided by either a mutual water company, a public utility or a public agency (California Water Code Section 7001; California Health and Safety Code Sections 4010-4036).

6.6 Other Public Agencies Alternative

o Description

This alternative discusses other public agencies which could also be capable of providing water and sewer service to Rams' Hill.

o Potential Impacts

Within San Diego County there presently exist five alternative forms of districts which could provide water and sewer service to Rams' Hill. The municipal water district, the county water district, the public utility district and the community service district are all public agencies whose functions and legal powers for water and sewer service are similar to those of a California Water District. The essential differences between each of these agencies stem from the method of formation and the manner of election of the governing body.

The environmental impact which would result from the selection of any of these alternative agencies to serve Rams' Hill would depend upon the jurisdiction of the agency. Because of the broad geographical extent of the Borrego Water District, it is highly unlikely that an agency formed to serve Rams' Hill would have jurisdiction beyond the 3,200-acre site. Consequently, should groundwater transfer become beneficial to the overall management of the basin resource the agency would need to acquire water from sources beyond its boundaries. If this is accomplished by an agreement with another producer to provide water then the impacts would be the same as those described for the Borrego Water District. Should the agency be unable to acquire water from an area outside of its jurisdiction then there is a potential for impacts to the southern subunit and to the overall management of the groundwater resource.

It does not seem necessary or desirable to create an additional public agency in the Borrego Valley. None of the alternative agencies have authorities beyond those of the Borrego Water District which would enable them to better perform the functions of the project. Furthermore, such an additional agency would complicate the implementation of the groundwater management program being developed by the Borrego Water District. A joint powers agreement would probably become necessary between such an agency and the Borrego Water District for groundwater management. According to the report, Groundwater Rights in California (p. 40), "a serious management problem confronting existing distircts is that districts often do not have jurisdiction of a manageable portion of a groundwater basin" (Schneider, 1977). The use of joint powers, agreements to implement management programs could encounter a series of problems the most important of which is that a joint powers authority cannot issue bonds for water supply and other related facilities. The groundwater management program or potential transfer facilities would both require substantial funding.

The LAFCO EIR on Latent Powers Authorization for the Borrego Water District extensively analyzed the advantages and disadvantages of alternative service agencies in the Borrego Valley. The community service district was a particular focus of investigation and analysis. The conclusion of the LAFCO Commission in December, 1979 was that for the present, there was no alternative agency which was better or more capable for providing water and sewer service and groundwater management in the valley than the Borrego Water District.

7.0 SUMMARIES

7.1 Summary of Impacts and Mitigations

The proposed project would annex the 3,200-acre Rams' Hill property to the Borrego Water District for the provision of water and sewer service. This project will not have any significant impacts over and above those impacts of the Rams' Hill development itself, which have been fully analyzed in the Rams' Hill Country Club EIR. This project will, however, implement an important mitigating measure for the Rams' Hill development by providing a single public agency for water and sewer service with jurisdiction to potentially facilitate groundwater transfer. The beneficial impacts of such transfer would be to protect the groundwater resources of the southern portion of the valley from damage by overpumping, and to maintain the overall balance of the basin. Such transfer would not impact groundwater quality. As specific information pinpointing potential well sites in the northern and central valley is not available at this time, future impacts to existing northern wells cannot be determined. However, any such impacts are expected to be mitigated by the District's groundwater management plan. Despite the existing minor overdraft of the basin, the transfer of water will not affect the overall quantity and quality of water available for consumption within the valley.

There is an overriding benefit in that the proposed project is a first step in extending the Borrego Water District boundaries so that eventually this District will overlay the entire groundwater basin and hence be able to accomplish long sought basin-wide management.

7.2 Effects Which Cannot Be Avoided

No unavoidable environmental effects of the project were identified.

7.3 Significant Irreversible Impacts

The annexation of the Rams' Hill property to the Borrego Water District will not have any direct, irreversible effects on environmental resources. The impacts of the Rams' Hill project itself, including the impacts of water and sewer service activities, have been fully analyzed in the Rams' Hill Country Club Specific Plan EIR.

7.4 Growth Inducing Impacts

This project, by itself, will have no growth inducing impacts. The growth impacts of the Rams' Hill project are disucssed in the EIR for that project which has been incorporated herein by reference.

7.5 Long-Term Versus Short-Term Impacts

The annexation of the Rams' Hill Country Club site to the Borrego Water District will have both short-term and long-term impacts on the resources of the Borrego Valley. In the short term (five years) the District will acquire, operate and maintain the water and sewer service systems for the Rams' Hill Country Club. It is projected that this would entail operation of the four wells which have been drilled by the developer for this project. It is possible that over the long term this

operation could result in a lowered water table for the southern portion of the valley. As the groundwater management agency with broad geographical jurisdiction, the Borrego Water District has the full range of legal authority to mitigate this problem by transferring groundwater to the project from wells located north of the Desert Lodge Anticline. Such transfer would safeguard the basin resources by preventing localized drops in the water table and allowing the more heavily used areas of the aquifer to recharge and recover naturally.

Over both the short- and long-terms, the annexation and subsequent operation of water and sewer systems will generate funds for the development and implementation of the groundwater management plan. The annexation will also broaden the jurisdiction of the district, thereby facilitating the implementation of programs and policies for water use.

8.0 SOURCES

8.1 Agencies and Organizations Consulted

o Public Agencies and Organizations

Borrego Water District
- Linden Burzell
- Skip Schmidt
- Fritz Stradling

Local Agency Formation Commission
- Ann Brickelmaier
- Laurie McKinley
- Bernard Rhinerson

County of San Diego
- Paul Bruce

o Private Organizaitons Consulted

DiGiorgio Development Corporation
- George J. Kuhrts, III
- Greg McGuire

8.2 Staff and Consultants

This report was preapred for PRC Toups by Nancy Laswell, Project Manager and Senior Environmental Planner.

o Consultants

Linden Burzell, registered civil engineer
Dennis O'Leary, Lowry and Associates
Steven S. Wall, Luce, Forward, Hamilton & Scripps

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RAMS' HILL
COUNTRY CLUB

ENVIRONMENTAL IMPACT REPORT
Technical Appendix
Volume I

January 15, 1979

Prepared For:

DIGIORGIO DEVELOPMENT CORPORATION

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DEPT. OF PLANNING & LAND USE

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1. Woodward-Clyde Consultants, "Additional Studies 3000 Acre Borrego Development, San Diego County, California," August 2, 1977.

2. Woodward-Gizienski and Associates. "Preliminary Engineering Geological and Soil Investigation for the Proposed 3000 Acre Borrego Development, San Diego County, California," July, 1973.

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Woodward-Clyde Consultants

August 2, 1977
Project No. 73-214

Di Giorgia Development Corporation
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Borrego Springs, California 92004

Attention: Mr. Bud Kuhrts

ADDITIONAL STUDIES
3,000 ACRE BORREGO DEVELOPMENT
SAN DIEGO COUNTY, CALIFORNIA

In accordance with the request of Mr. Jerry Simon of Toups Corporation, and our signed proposal dated May 17, 1977, we have reviewed available information in regard to soil conditions at the subject site in order to provide preliminary opinions for planning purposes regarding the general surface erodibility, relative slope stability and estimated earthwork shrinkage. The 3,000 acre development is located south and east of the intersection of Borrego Springs Road and Yaqui Pass Road, in the Borrego area of San Diego County, California.

It is anticipated that finish grade surface materials will consist of the on-site sandy soils and that local grasses will be used for landscaping purposes. The general surface gradient is approximately 5 percent. It is our understanding that grading will be confined to shallow depths (less than 10 feet) and that slope heights will not exceed 20 feet. It is further anticipated that compaction of material will be in accordance with current standard practice and design criteria.

Our analyses have been based on a review of the existing data on the subject site, as well as a review of other jobs that have been done by Woodward-Clyde Consultants in the Borrego Valley area. Much of the data related to soil characteristics has been obtained from the "Preliminary Engineering Geological and Soil Investigation for the Proposed 3,000 Acre Borrego Development - San Diego County, California," which was issued on July 28, 1973.

The subject site is situated on the north-facing piedmont slope along the southern side of Borrego Valley. The southern boundary of the property is about 1-1/2 miles north of Yaqui Ridge, the west boundary is adjacent to Yaqui Pass Road, the northern extent is just south of the Borrego sink area, and the eastern limit is in the vicinity of the intersection of the access road to the old Borrego Air Ranch and Borrego Springs Road. The ground surface slopes gently to the northeast and is characterized by alluvial fans above about elevation 800 and a generally smooth alluvial surface below elevation 800. The existing slope through the area has an average value of 5 percent. Sand washes are present over the entire site.

Based on the results of grain size analyses performed on 11 samples of the typical on-site soils, the alluvial soils appear to be quite similar throughout the entire site. The average uniformity coefficient is about 16, the curvature coefficient is about 2.2, and the median (D_{50}) grain size varies between 0.3 and 1 millimeter. These data indicate that the soils at the site are generally well graded sands and exhibit little or no cohesion. Typical properties for soils of this type have been used in our analyses.

DISCUSSION AND CONCLUSIONS

Erosion Characteristics

Erosion is influenced by material type, grain size, gradient of topography, depth of flow, and fluid velocity. The predominant material type on site is composed of relatively clean fine to medium to coarse sands that have little or no cohesion. Clean sands such as those on site are susceptible to erosion and, even at relatively low velocities, some of the smaller sand grains are transported down slope. This process results in hydraulic sorting which tends to reach a equilibrium flow condition after some sediment transport has occured. In order to determine velocities at which erosion might occur, we have analyzed the general erodibility characteristics of the on-site materials using the tractive force method of design. This type of analysis calculates the bed shear stress due to the pull of a given weight of water moving

downslope. This value is then compared to a permissible unit tractive force, thus obtaining the velocity above which transport or erosion of material would begin. In addition, these velocities have been compared with the values recommended by the United States Bureau of Reclamination.

The results of our analyses indicate that erosion of the on-site sands will occur at velocities on the order of 1-3/4 feet per second. As an example, this velocity corresponds to a overland sheet flow having a flow depth of approximately 0.1 foot on a slope of about 2/3 percent. For these conditions, assuming no vegetation and a roughness coefficient of 0.02, it is anticipated that no erosion will occur. This value assumes no vegetation on the surface and is relatively conservative for a preliminary estimate.

The use of a grass cover will result in turbulance and a greater loss of energy which will tend to stabilize the soil surface and help retard erosion. Grass covered areas can generally withstand velocities of approximately 5 feet per second without significant erosion providing proper maintenance of the vegetation is provided. In this regard, it is recommended that if grass is used to provide higher permissible velocities, that a handbook similar to the "Handbook of Channel Design for Soil and Water Conservation, U.S. Soil Conservation Service," CSC-TP-61, March, 1947; revised June, 1954, be used.

We can make a more difinitive analysis and final provide design criteria for erosion control upon request.

Slope Stability

It is our understanding that grading will be confined to shallow depths and that slope heights will not exceed 20 feet. In this regard, preliminary slope stability analyses have been made to evaluate the effects of different slope inclinations. Based on the results of our studies, it is our opinion that 2 to 1 slopes will allow a suitable factor of safety against a deep-seated slope failure; however due to the nature of the sandy soils at the site, it is anticipated that surface erosion and sloughing will occur and that continuous maintenance will be required to maintain the cosmetic appearance of the slope. This

condition can be controlled by suitable landscaping and provisions for adequate surface drainage. No water should be allowed to pond above slopes or to flow over the top of slopes.

Shrinkage Estimates

It has been our experience that there is some shrinkage when near surface soils in a desert environment are excavated and re-compacted. The magnitude of shrinkage is dependent on the material type and the in-situ density. For our preliminary estimate of shrinkage we have utilized the soil classification data and sampler penetration resistance values from the previous study, as well as information on similar soils from nearby areas.

Based on our review of the available data, it appears the shrinkage values for the existing near surface soils may range 5 percent or less to over 20 percent. It is our opinion that the available data is not sufficient to provide a more accurate estimate and that a careful determination of in-situ densities as well as laboratory compaction values, will be necessary to make a closer approximation as to the actual range in shrinkage values. In order to compensate for probable variations in the estimation, we recommend that a balance area be provided in which final grades can be raised or lowered depending on actual shrinkage factors.

If you have any further questions, please call us.

WOODWARD-CLYDE CONSULTANTS

James E. Cavallin

James E. Cavallin, R.E. 17553

JEC/WC/lkm

(2) Di Giorgia Development Corporation
(2) Toups Corporation

PRELIMINARY ENGINEERING GEOLOGICAL AND SOIL INVESTIGATION FOR THE PROPOSED 3000 ACRE BORREGO DEVELOPMENT SAN DIEGO COUNTY, CALIFORNIA

for

Lawrence, Fogg, Smith & Associates
8580 La Mesa Boulevard
La Mesa, California 92041

by

WOODWARD-GIZIENSKI & ASSOCIATES
Consulting Soil and Foundation Engineers and Geologists

(An Affiliate of Woodward-Clyde Consultants)

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July 28, 1973
Project No. 73-214

Lawrence, Fogg, Smith & Associates
8580 La Mesa Boulevard
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In accordance with your request and our proposal dated May 30, 1973, which was approved by Di Giorgio Development Corporation on June 4, 1973, we have made a preliminary engineering geological and soil investigation for a proposed 3000-acre development located generally south and east of the intersection of Borrego Springs Road and Yaqui Pass Road in the Borrego area of San Diego County, California.

The accompanying report presents the results of the field investigation and the laboratory tests, as well as the conclusions and general recommendations pertaining to the site.

Charles J. Pinckney, EG 103

Stanley F. Gizienski, R.E. 10352

DWS/CJP/SFG/mb

(6)

SCOPE

This report describes a preliminary investigation of the geologic and soil conditions at a proposed 3000-acre development located in Secs. 25, 26, 35, and 36 and parts of Secs. 22, 23, and 27 in T.11.S., R.6.E., plus the N.W.1/4 of Sec. 31, in T.11.S., R.7.E. (SBB&M). The purpose of this investigation is to express our opinions in regard to the general subsurface soil and geological conditions as they relate to general site development.

It is our understanding that the proposed development will consist of multi-purpose structures as well as single family residences. It is also our understanding that grading will be minimal and will conform as much as possible to the topography.

FIELD INVESTIGATION

Twenty-four test borings were made with a 6-in. diameter truck-mounted power auger at the approximate locations shown on the Site Plan, Fig. 1. The drilling was done between May 25 and June 18, 1973, under the supervision of an engineering geologist from our company. Field logs were prepared by the geologist on the basis of an inspection of the samples secured and of the excavated material. The Logs of Test Borings shown on Figs. 2 through 17 are based on an inspection of the samples, on the laboratory test results, and on the field logs. The vertical position of each sample is shown on the Logs of Test Borings.

In addition to the test borings, 8 engineering seismograph traverses were made between May 27 and June 18, 1973, at the approximate locations shown on Fig. 1.

The test borings and seismograph traverses were visually located in the field with the aid of a 400 scale topographic map entitled "Plan of

3000 Acres, Borrego Springs," dated May , 1973, and prepared by Lawrence, Fogg, Smith & Associates. This preliminary plan shows the approximate location of proposed roads and of some multi-purpose structures.

LABORATORY TESTS

The soils encountered in the test borings were visually classified and evaluated with respect to strength, swelling and compressibility characteristics, dry density, and moisture content. These classifications were substantiated by moisture content, dry density and unconfined compression tests, grain size analyses and determination of plasticity characteristics of representative samples of the soils.

The results of the plasticity index, moisture content, dry density, and unconfined compression tests are shown with the penetration resistance of the sampler at the corresponding sample location on the Logs of Test Borings. The grain size distribution curves are indicated on Figs. 18 and 19. On Fig. 20 is shown a plot showing the range of gradation of the soils tested and reported on Figs. 18 and 19. Results of the swell test are shown on Fig. 21. As indicated on Fig. 20, the grain size curves show a remarkable consistency in the borings tested, regardless of sample depth. The average uniformity coefficient is about 16, the curvature coefficient is about 2.2, and the median (P_{50}) grain size varies between 0.3 and 1 mm. These data indicate that the soils at the site are generally very well graded and vary mainly with respect to their mean grain size.

SITE, SOIL AND GEOLOGIC CONDITIONS

Topography and Surface Features - The subject site is situated on the north facing Piedmont Slope along the southern side of Borrego Valley. The southern boundary of the property is about 1-1/2 miles north of Yaqui Ridge, the west

boundary is adjacent to Yaqui Pass Road, the northern extent is just south of the Borrego Sink area, and the eastern limit is in the vicinity of the intersection of the access road to the old Borrego Air Ranch and Borrego Springs Road. The ground surface elevations within the property have a gentle slope from a southwest high of 1140 ft to a northeast low of 460 ft (Plan Datum). The gentle sloping piedmont surface is characterized by alluvial fans above about Elevation 800 and a generally smooth alluvial surface below Elevation 800. Sand washes are present over the entire site.

The entire site has a fairly consistent vegetative cover consisting of sparse desert brush and numerous cacti of several varieties.

No structures are present on the site; however, two areas in the central part of the site were occupied by inhabited buildings in the past.

Description of Soil and Geologic Units - Our investigation indicates that the subsurface soils at the site are predominently alluvial materials. These Quaternery deposits consist of medium dense silty sands with gravel to the depths explored (maximum 29-1/2 ft). The eroded alluvial fans above Elevation 800 typically have a greater percentage of large cobbles. An older alluvial deposit consisting of dense to very dense silty sands, sandy silts, and silty clays was encountered at depths varying from 6 to 11 ft in the area north of Borrego Springs Road. Dense caliche zones resulting from cementation by calcium carbonate are present in erratic patterns at various depths over the entire site.

The maximum depth explore by seismic profiling was 170 ft. Correlation with the test borings indicates that alluvial material is present to this depth in the vicinity of the longer seismic traverses. The seismic traverse data will be transmitted in a subsequent letter. Interpretation of data from well logs on and adjacent to the site indicates that red

terrestrial clays and sands of the Pliocene Palm Spring Formation is present at depth in the area generally north of the 800 ft contour. No deep exploration has taken place in the southern portion of the site, but the regional geology suggests that formations present beneath the alluvial material would be limited to a thin cover of Pliocene equivalent sediments overlying crystalline basement rock consisting of schists and granitic rock.

REGIONAL SEISMICITY

In order to express a meaningful opinion as to the presence of geological hazards to the subject site, the available geological literature was reviewed and a reconnaissance of the areas was made by an engineering geologist from our firm.

The existing geological literature reviewed included the Department of Water Resources Bulletin No. 116-2 entitled "Crustal Strain and Fault Movement Investigation," the California Division of Mines and Geology "Provisional Fault Map of California," and "Preliminary Earthquake Epicenter Map of California, 1934-1971." The review indicates that the closest active faults along which earthquake epicenters of Richter Magnitude 4 or greater have been recorded are along the San Jacinto Fault zone and the Elsinore Fault zone which are located approximately 5 miles northeast and southwest, respectively. Further seismic information was obtained from publications entitled "Seismic Risk in San Diego," by McEuen and Pinckney of our firm and "Relationship between Seismicity and Geologic Structure in the Southern California Region," by Allen, St. Amond, Richter, and Nordquist. These publications included summaries of current available data concerning the Elsinore and San Jacinto Fault systems. These recent researches indicate that both of the above mentioned fault systems may be expected to generate earthquakes having a Richter Magnitude of 7.3 on a frequency of approximately once every 60 years. The maximum bedrock acceleration that may be generated

at the site as a result is 0.40 g.

ECONOMIC GEOLOGY

A review of "Mines and Mineral Resources of San Diego County, California, County Report 3," prepared by the California Division of Mines and Geology, indicates there are no commercial size deposits of minerals or aggregates on the property. To our knowledge, the Quaternary deposits present have not yielded commercial quantities of minerals or aggregate.

GROUND WATER

Ground water was encountered in Boring 4, which was located on the northern edge of the property adjacent to Borrego Sink, at a depth of 28 ft below the ground surface. No ground water was encountered in any of the rest of the test borings at the time the borings were made.

EARTHQUAKE HAZARDS

This section of the report addresses itself to the effects of having a Magnitude 7.3 (Richter Scale) earthquake within 5 miles of the site. This is accomplished in two steps, the first is an estimation of the ground motion characteristics at different locations at the site; and the second is an explanation of what the consequences of those ground motions are likely to be.

The ground motion characteristics are likely to vary substantially due to the extreme variation in depth of the soil deposits at the site. At the southern end of the site the depth to bedrock is on the order of 50 ft. The depth increases towards the north to a depth of approximately 1100 ft near the Borrego Sink. Three depths to bedrock were considered in estimating the effect of soil amplification on assumed bedrock ground motions. The estimated fundamental periods of the soil deposits for these three depths are presented in Table I for the condition of no earthquake

and a M 7.3 earthquake in the epicentral region.

Table I - Fundamental Periods of Soil Deposits at the site for Various Thicknesses.

Estimated depth to bedrock feet	Fundamental Period	
	No Earthquake Sec.	For M 7.3 Sec.
50	0.2	0.4
580	0.9	1.8
1100	1.7	2.5

The large change in fundamental period due to the earthquake is due to softening of the soil as it undergoes large strains. In general, most of the effects of soil amplification, on ground response, may be expected to occur at the fundamental period, and to a lesser extent at lower periods which correspond to higher natural modes of vibration.

The bedrock ground motion corresponding to a M 7.3 earthquake in the epicentral region was estimated by continuing the following elements:

(1) 0.4 g peak bedrock acceleration.

(2) Ground motion response spectra and amplification factors (Newmark & Hall, 1969).

(3) Judgement, based on soil amplification theory and the 1940 El Centro earthquake.

Response spectra are shown in Figs. 22 through 24 for the bedrock and three soil depths previously mentioned. A more detailed study would probably modify these spectra so that they would be less in some places and greater in others. Nonetheless we are of the opinion that they are good first approximation of ground motions which would occur at the site during the design earthquake.

The consequences of being in the epicentral region of a M 7.3 earthquake can be quite severe. Such an event releases almost twenty times as much seismic energy as the San Fernando earthquake of 1971.

The Borrego Mountain earthquake of 1968 had its epicenter about ten miles south of the site. Although the subject site was not studied in detail, at that time, reports on the general area were of considerable interest.

The general effect of intense shaking on soil deposits is to produce a wide variety of phenomena which include slope failures, fissures, soil compaction or settlement, and liquifaction. The soil at the site generally consists of medium dense, well graded medium to fine sands with about 10% fine grained material (Silt+Clay). There is chemical cementation in addition to the small amount of fines which gives the insitu deposits a cemented character in many areas. The cemented character in some cases is lost when the soil is wetted.

The steepest slopes on the site are on the order of 10 to 1 (10 horizontal to 1 vertical) and do not exceed about 3 to 1 even in the hills above the site. These flat slopes, in desert areas are probably not susceptible to large sliding or flow type movements, although in the steeper areas some cracking and minor slumping may well occur.

Liquifaction is not likely at the site due to the dryness and apparent high relative density of the soils.

Compaction and settlement could be a problem at the site during the design earthquake. Observations after the Borrego Mountain earthquake indicated that irrigated fields settled as much as 6 in. relative to surrounding dry areas. In one such case, near Ocotillo wells, the grain size distribution of the soil seems to be very similar, although slightly finer

than the soil at the subject site. Apparently the natural cohesiveness was broken down by wetting so that densification and settlements occurred when the ground was shaken by the earthquake. This is a factor that was beyond the scope of this study but should be considered in future studies. It would be our opinion at this time it would not be a major problem that cannot be solved.

FOUNDATION EVALUATION

The soils at the site are relatively good foundation materials and should present no major difficulties in design and construction. Some recompaction of loose soils near the surface will be required.

For preliminary planning purposes it may be assumed that light to moderately heavy structures may be supported on spread footings founded in undisturbed natural soil or properly compacted engineered fill. For preliminary planning purposes, subject to more detailed studies at specific sites, we would recommend that one to two-story residential structures may be founded on spread footings extending at least one foot below rough undisturbed grade or compacted fill surface. Allowable soil pressures at that depth for footings a minimum of one foot wide should not exceed 1500 psf.

Our experience indicates that even heavy structures may be supported on spread footings. Each specific building site would have to be evaluated before such a decision is made. In some cases recompaction to construct a mat of dense soil beneath spread footings may be necessary.

Grading at the site should be done under properly prepared specifications and inspection by a qualified soil engineer. This is especially important considering the high seismic risk in the area.

When properly compacted, the sandy desert soils at the site should provide an excellent subgrade for roads and parking areas.

CONCLUSIONS

(1) The 3000-acre site is underlain by predominently alluvial deposits of medium dense to dense sands with gravel, sandy silts and silty clays from 50 to about 1100 ft deep.

(2) Seismic activity in this area is a possibility since the active San Jacinto and Elsinore faults are located approximately 5 miles to the northeast and southwest, respectively.

(3) Studies indicate that an earthquake having a Richter Magnitude of 7.3 could occur once every 60 years on either of these faults. Resulting maximum bedrocks acceleration could be about 0.40 g.

(4) The studies indicate that commercial size deposits of minerals an aggregates are not present on the property.

(5) Groundwater was encountered in one boring at the northern edge of the property at a depth of 28 ft.

(6) Ground shaking at the site as a result of earthquakes will vary substantially because of the variation in depth to bedrock.

(7) Liquifaction at the site by ground shaking is not expected due to the dryness and apparent fairly high density of the soil.

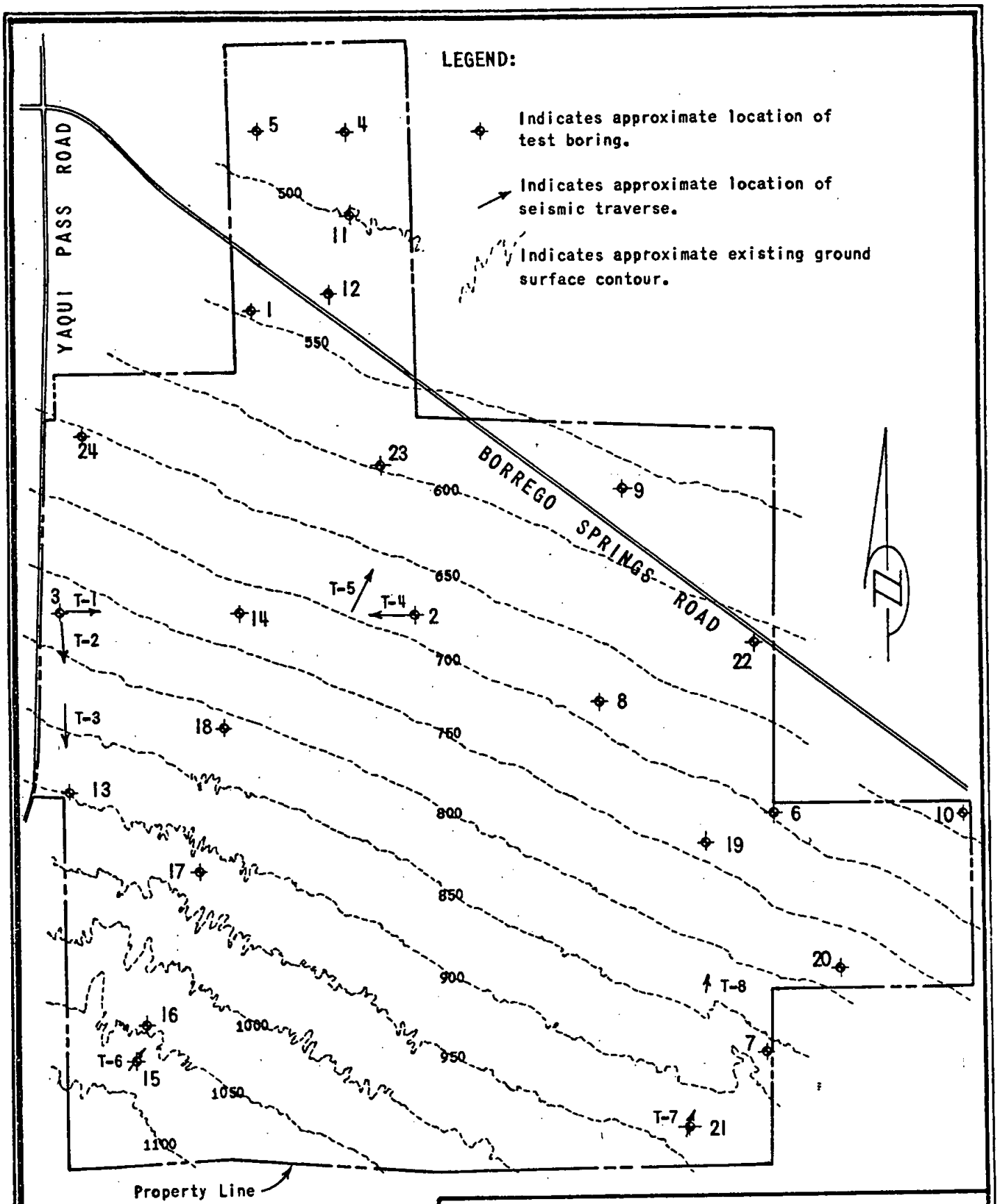
(8) Because of the relatively moderate topography landsliding due to earthquakes is not expected.

(9) Compaction and settlement during a severe earthquake may occur especially in areas of wetting by irrigation. More studies are required to evaluate this for specific structures.

(10) Light to moderately heavy structures may be supported on spread footings founded in undisturbed competent soil or in properly compacted fill.

LIMITATIONS

The conclusions made in this report are based on the assumption that the soil and geological conditions do not deviate appreciably from those disclosed by the test borings, seismic traverses, and surface examination. In our opinion the information should at this time provide the planning engineers with the necessary input as to soil, geologic and seismic considerations in preliminary planning. Detailed planning and design of specific structures should be preceded by detailed soil and geologic examinations with recommendations for soil treatment and foundation design.



SITE PLAN

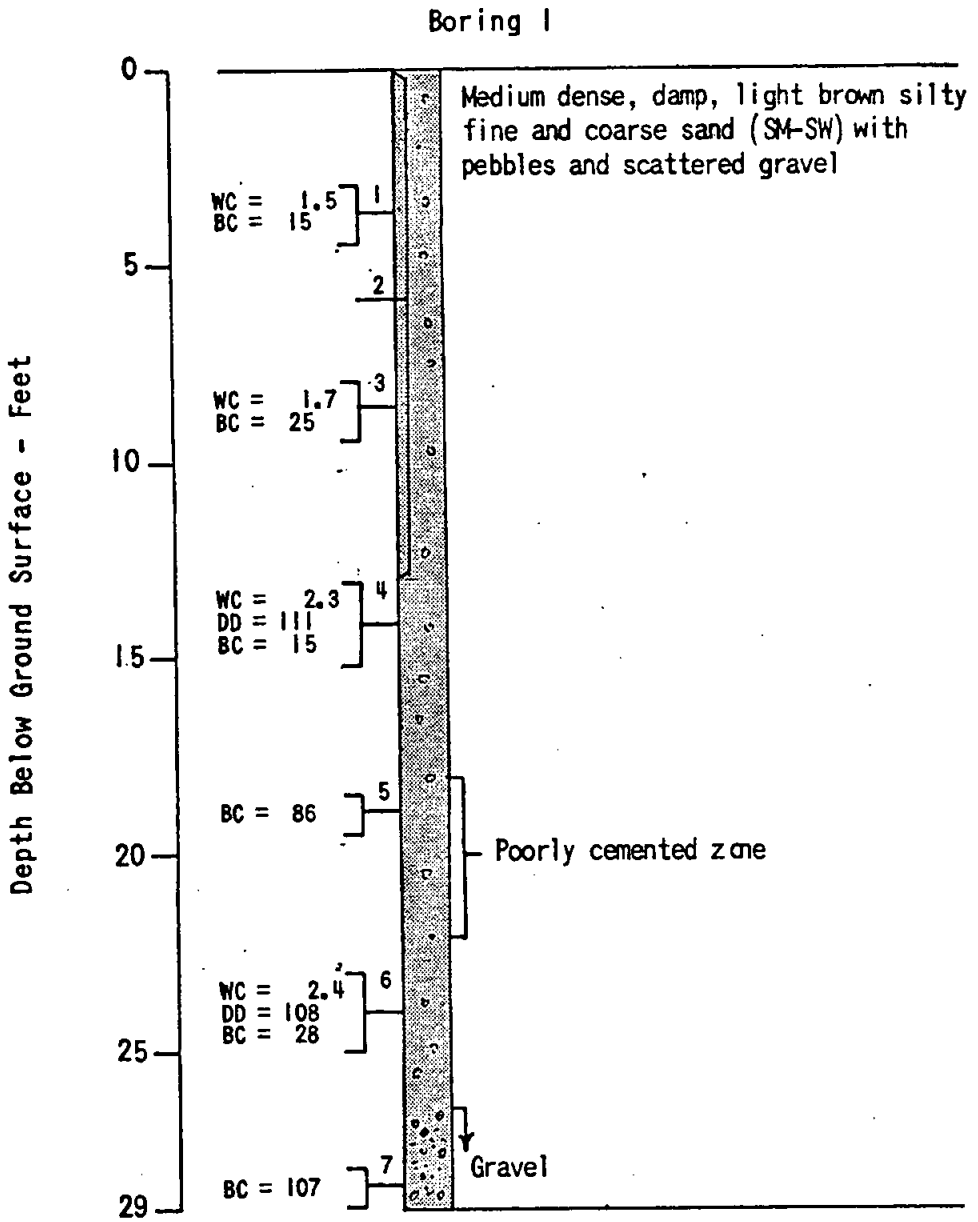
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES

CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS

SAN DIEGO, CALIFORNIA

DR. BY: ALS	APPROX. SCALE: 1"=2000'	PROJ. NO: 73-214
CK'D BY:	DATE: 7-27-73	FIGURE NO: 1



For Legend, see Fig. 12

LOG OF TEST BORING 1

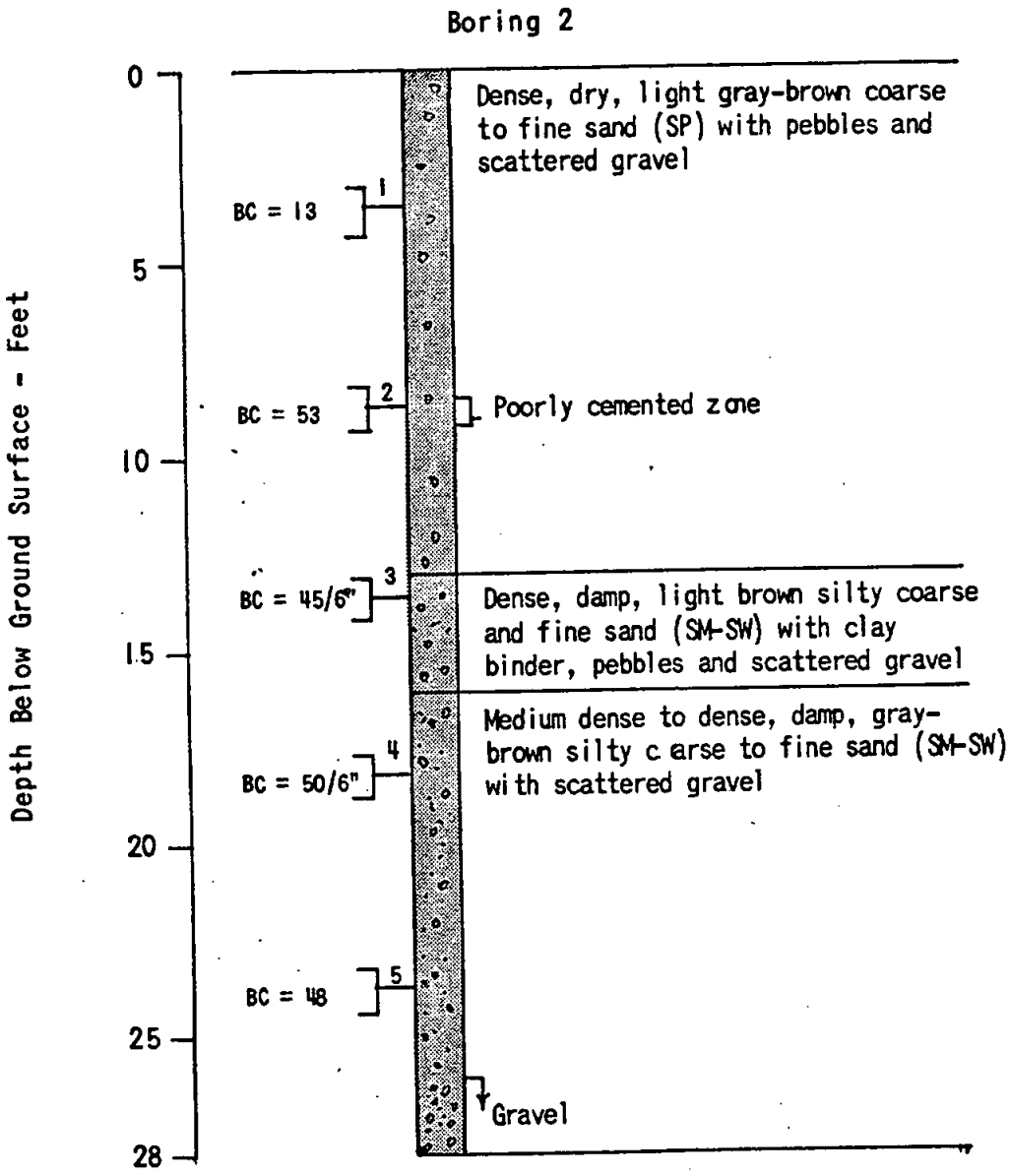
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES

CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS

SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY: aD	DATE: 7/27/73	FIGURE NO: 2



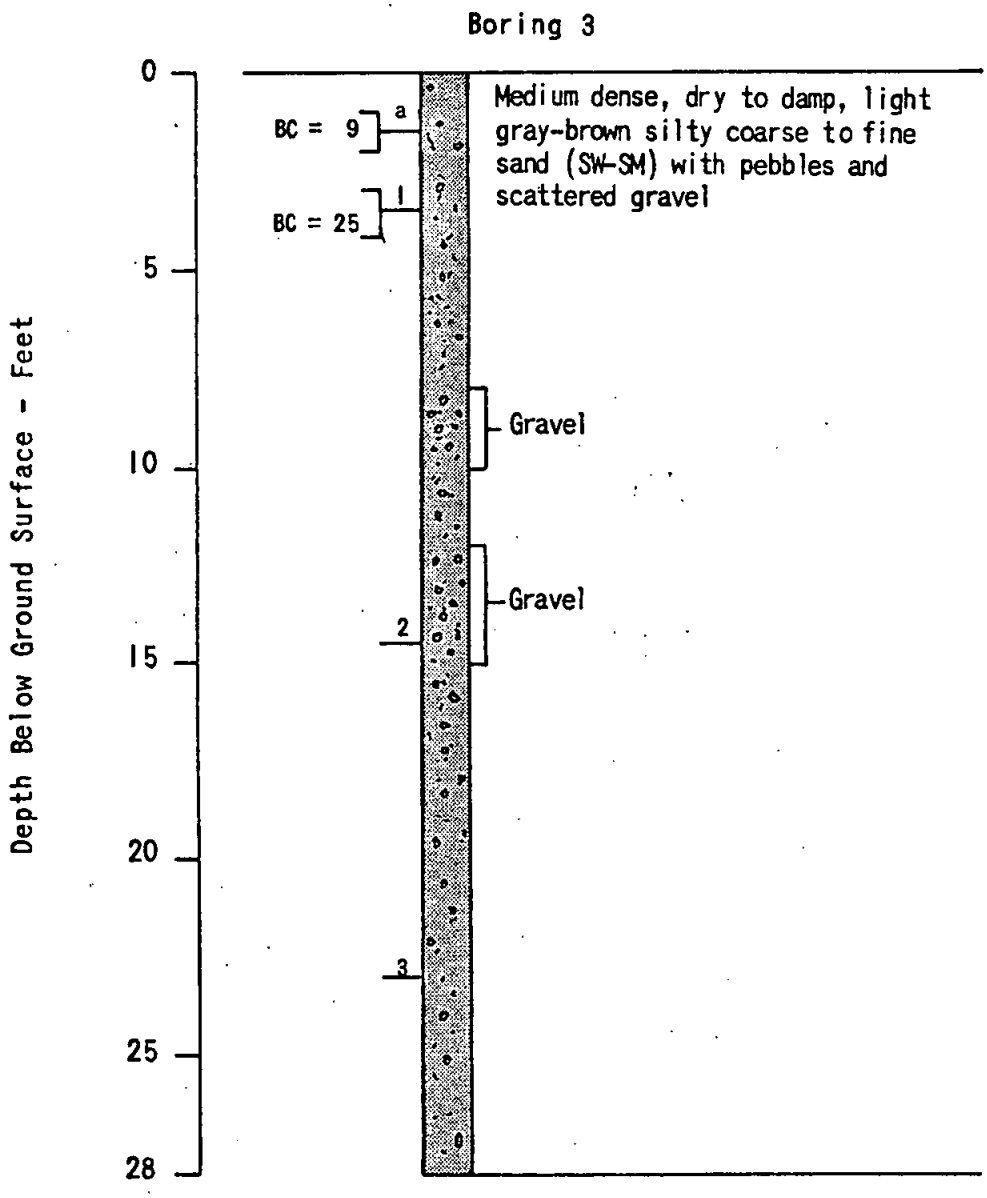
For Legend, see Fig. 12

LOG OF TEST BORING 2

3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY: a.D	DATE: 7/27/73	FIGURE NO: 3



For Legend, see Fig. 12

LOG OF TEST BORING 3

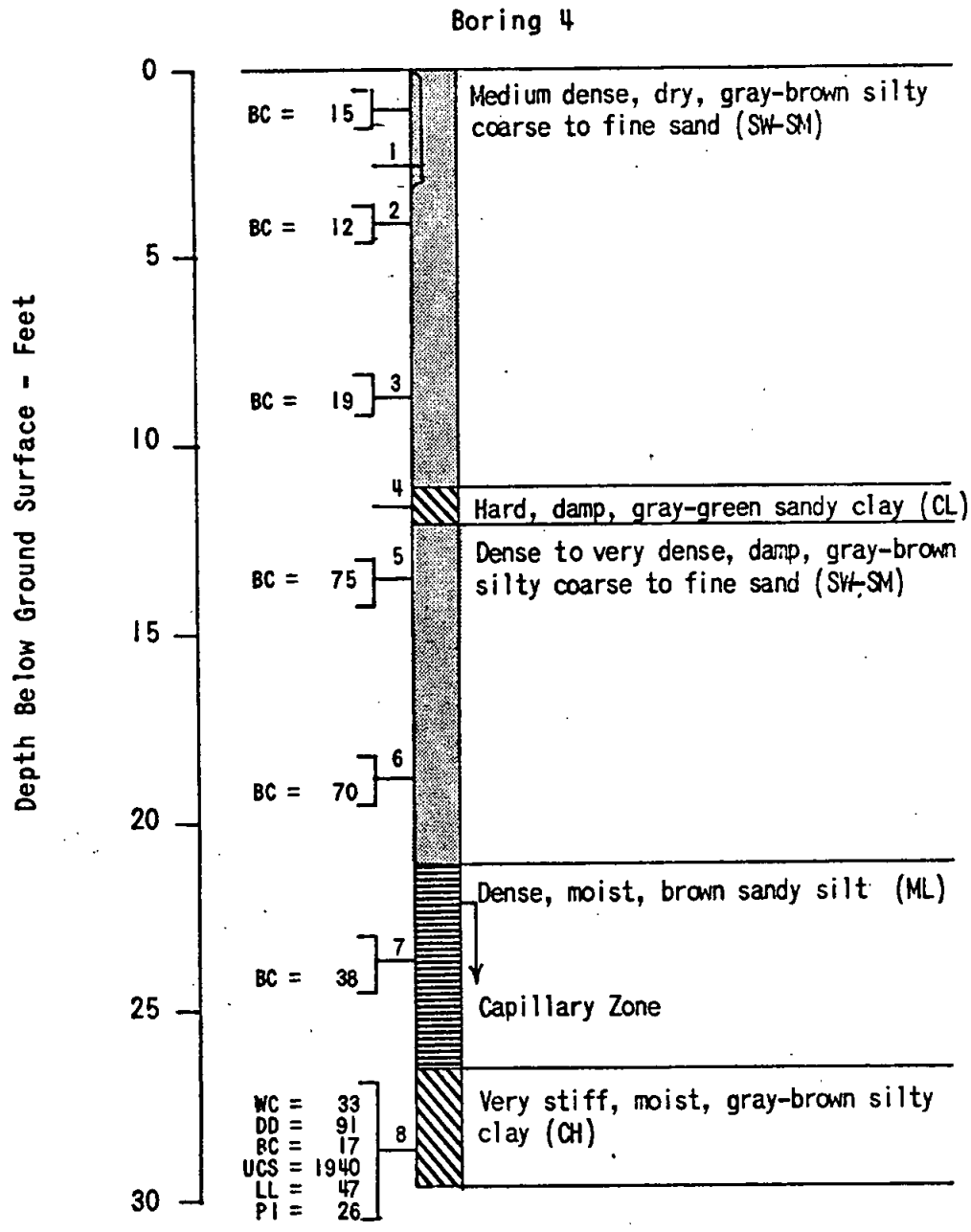
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES

CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS

SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY: a2	DATE: 7/27/73	FIGURE NO: 4



For Legend, see Fig. 12

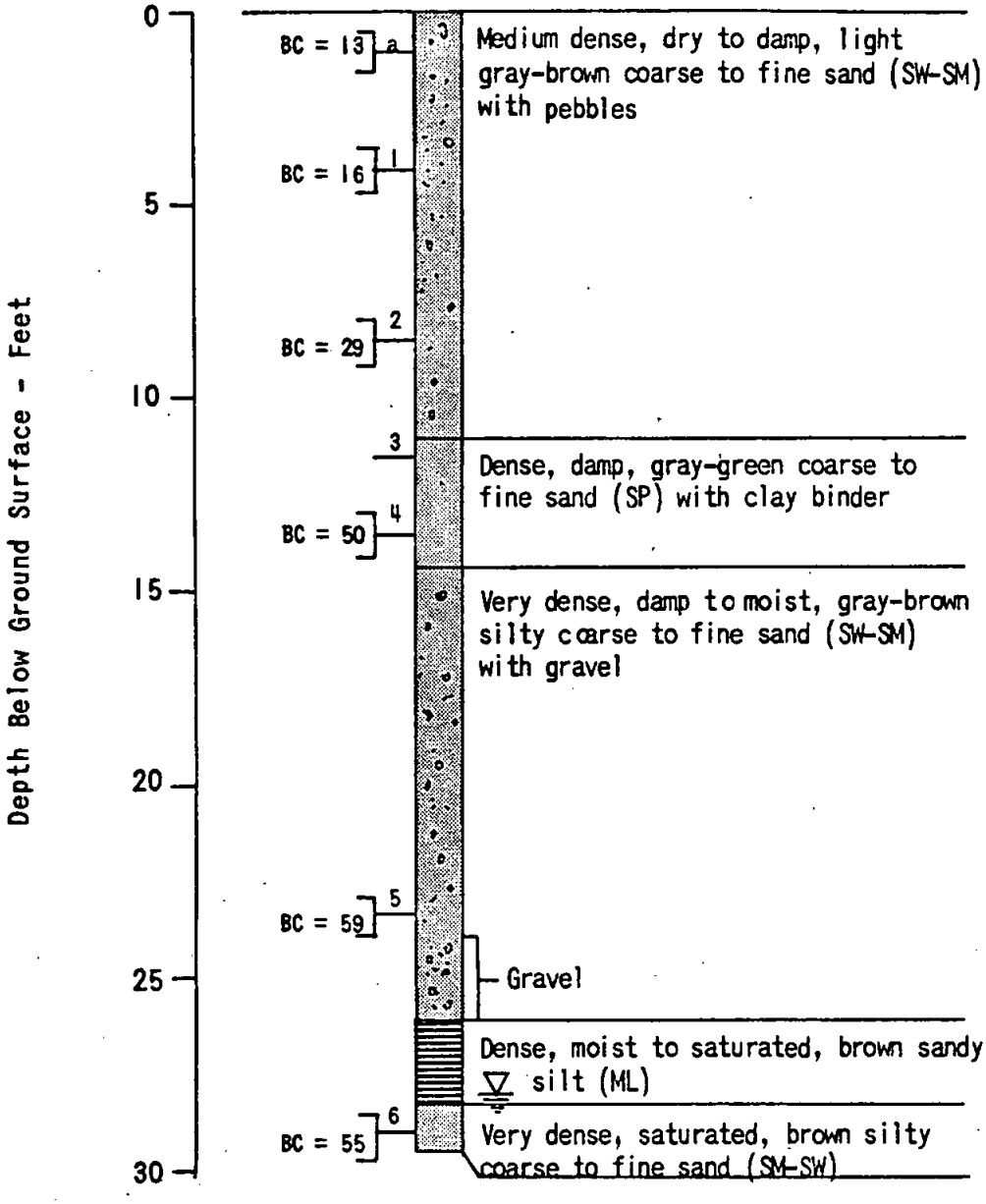
LOG OF TEST BORING 4

3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY: ad	DATE: 7/27/73	FIGURE NO: 5

Boring 5



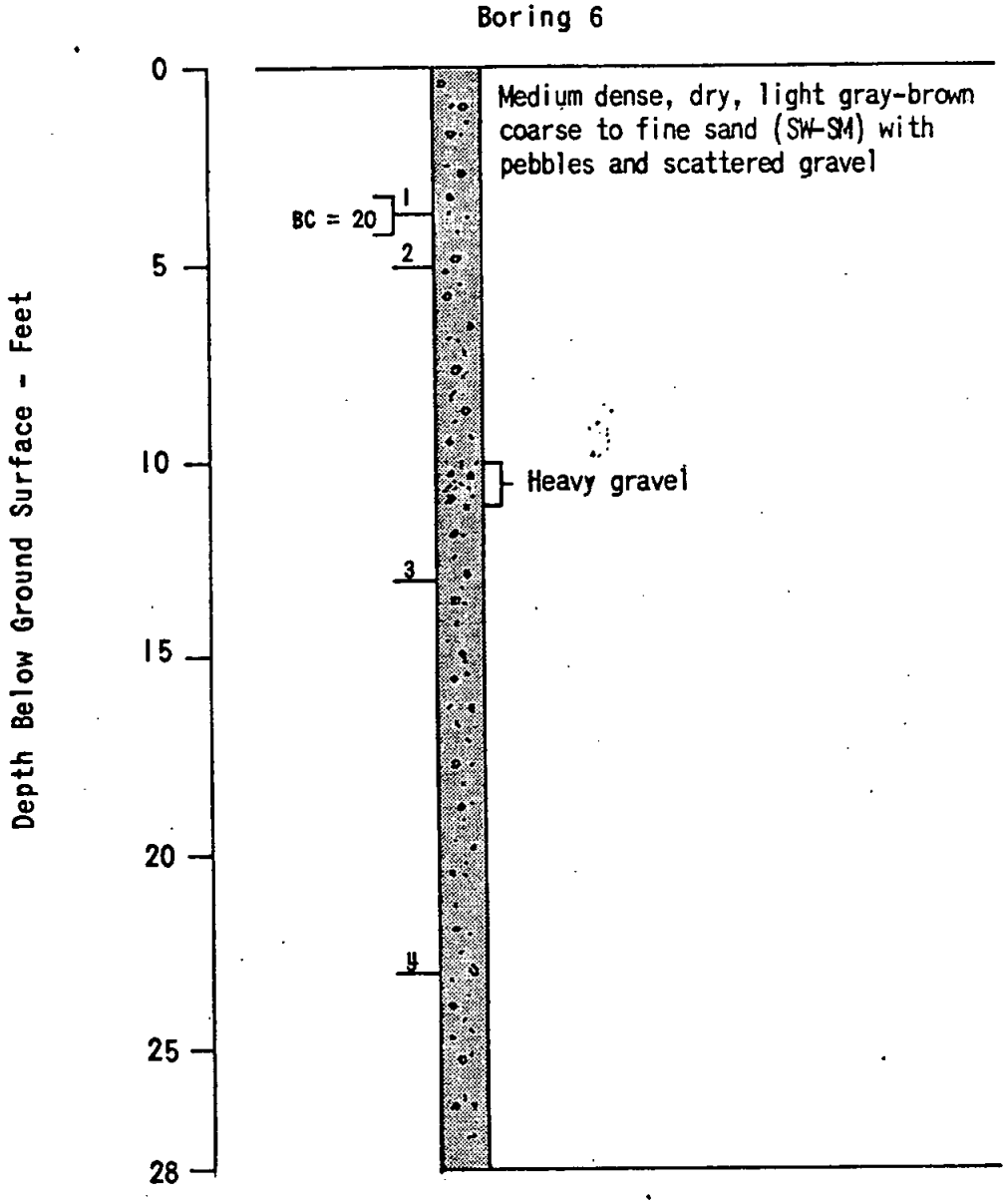
For Legend, see Fig. 12

LOG OF TEST BORING 5

3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY: ad	DATE: 7/27/73	FIGURE NO: 6

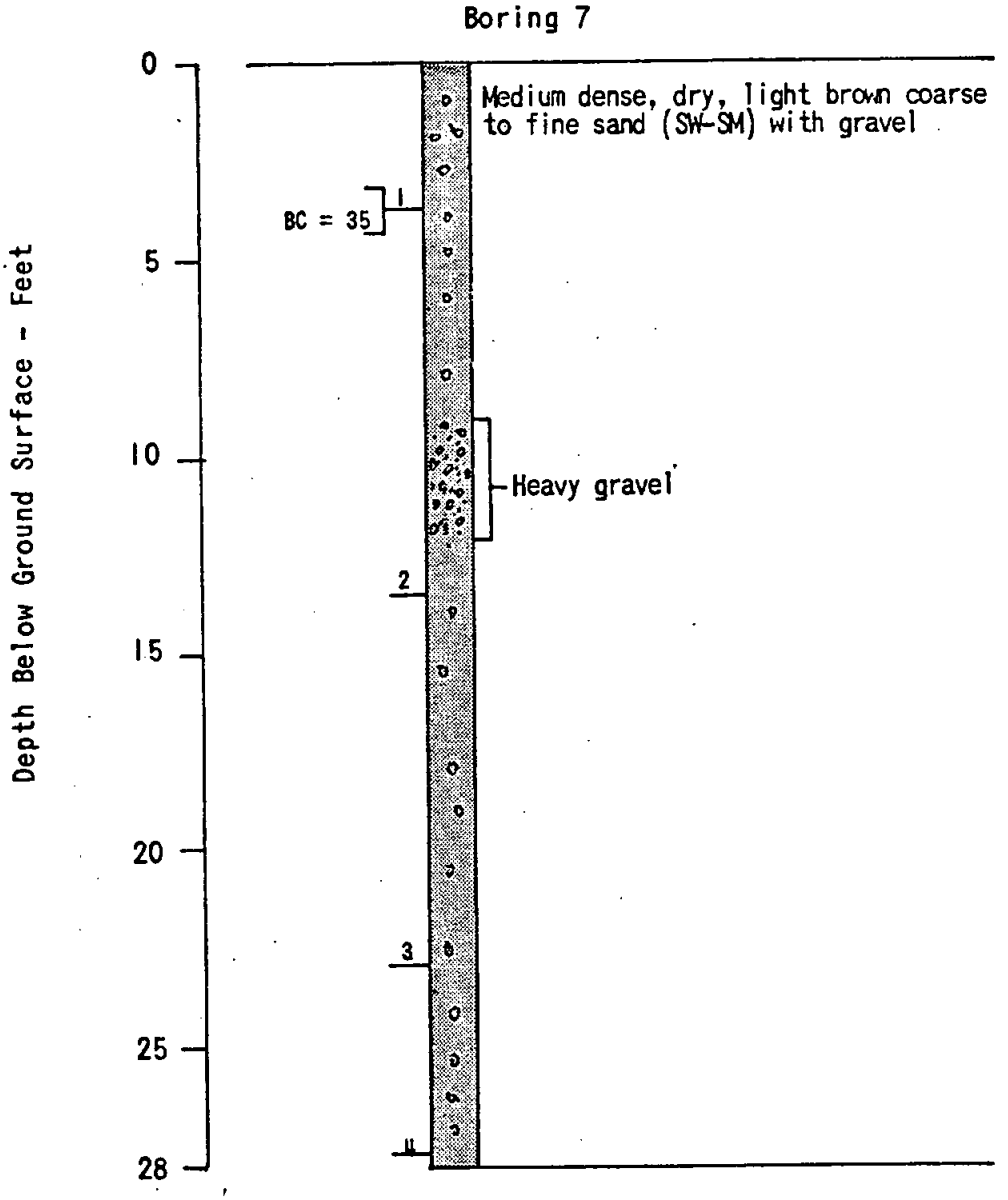


For Legend, see Fig. 12

LOG OF TEST BORING 6
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY: ad	DATE: 7/27/73	FIGURE NO: 7

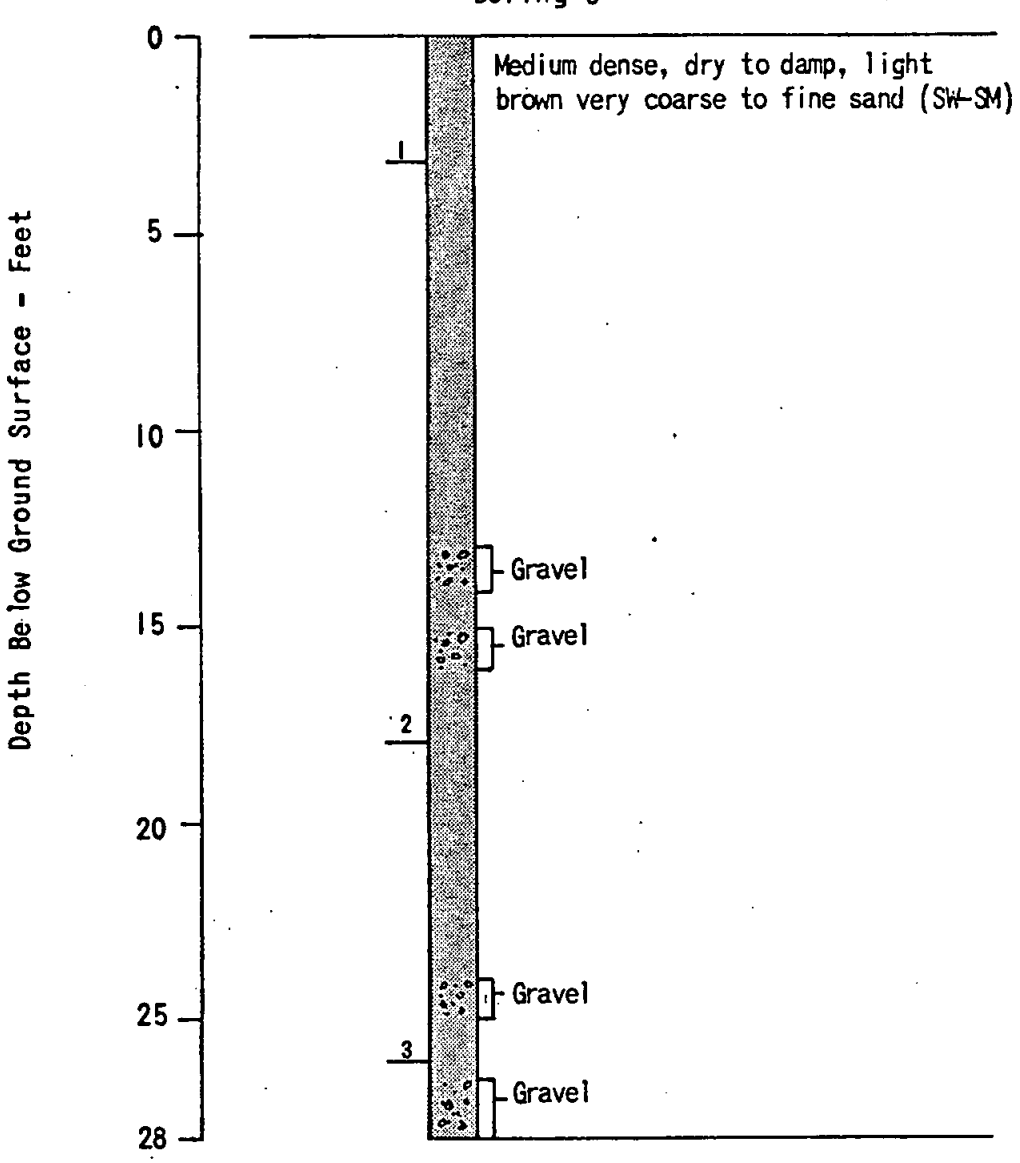


For Legend, see Fig. 12

LOG OF TEST BORING 7
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY:	DATE: 7/27/73	FIGURE NO: 8



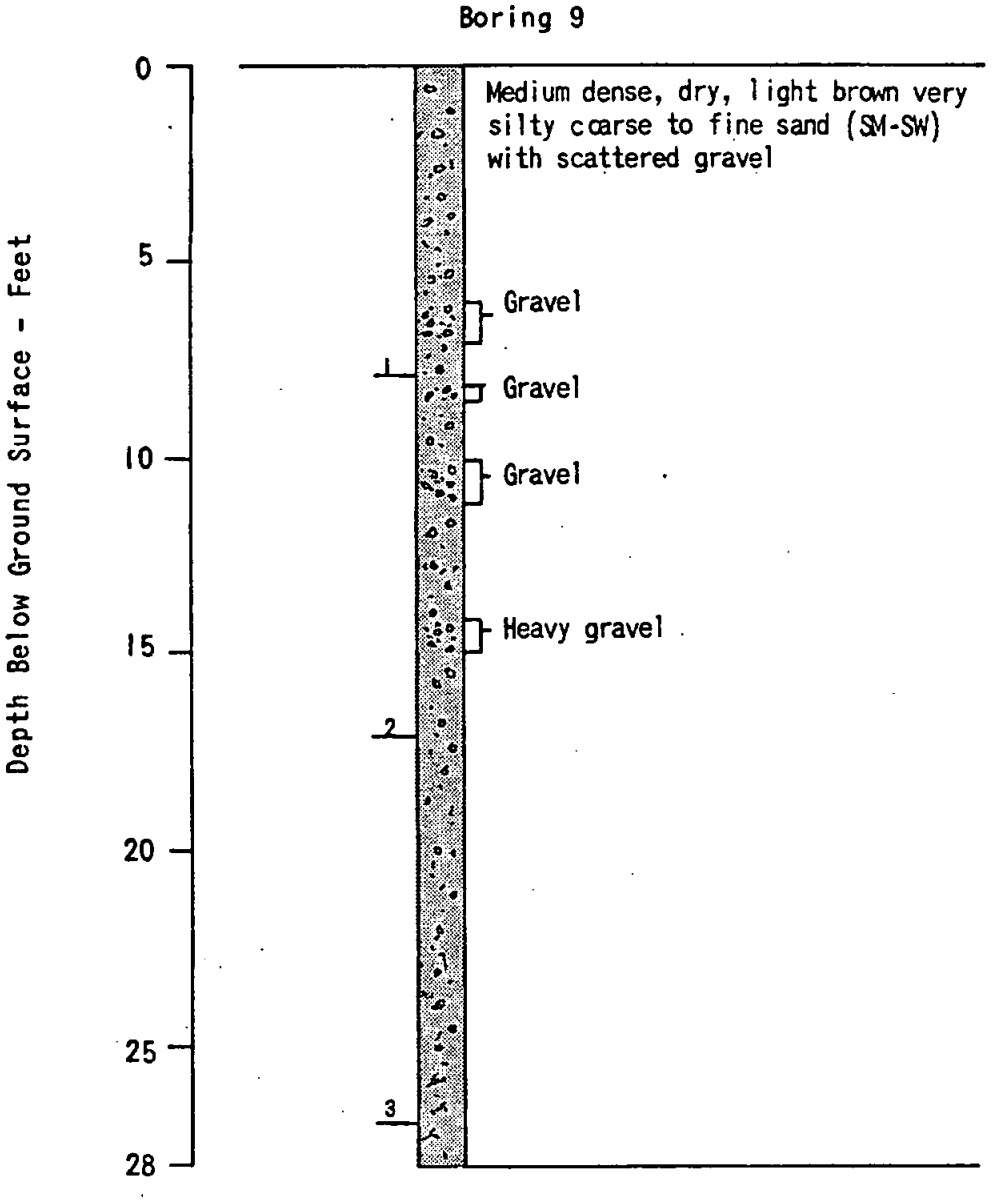
For Legend, see Fig. 12

LOG OF TEST BORING 8

3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY: aP	DATE: 7/27/73	FIGURE NO: 9

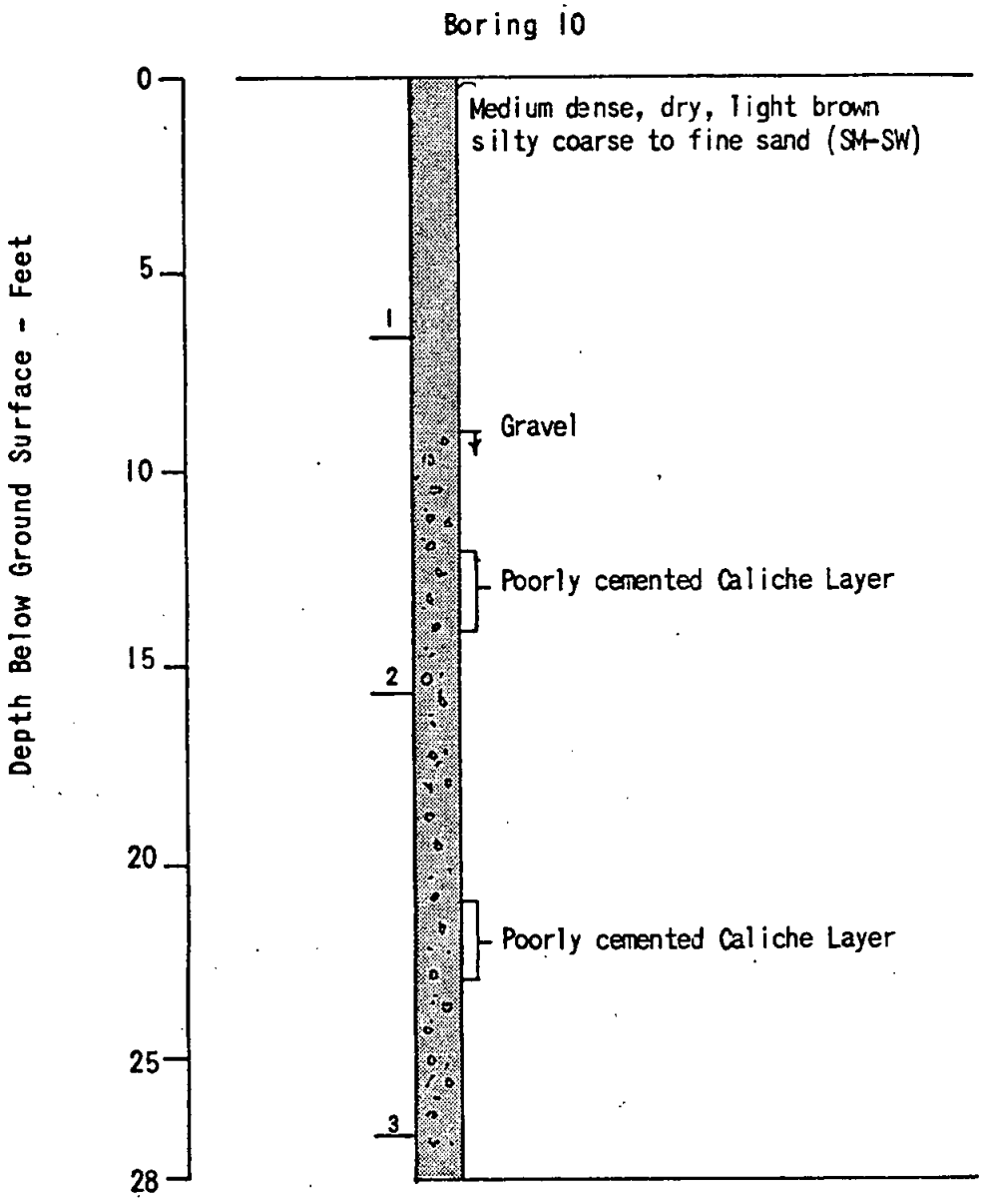


For Legend, see Fig. 12

LOG OF TEST BORING 9
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY:	DATE: 7/27/73	FIGURE NO: 10



For Legend, see Fig. 12

LOG OF TEST BORING 10

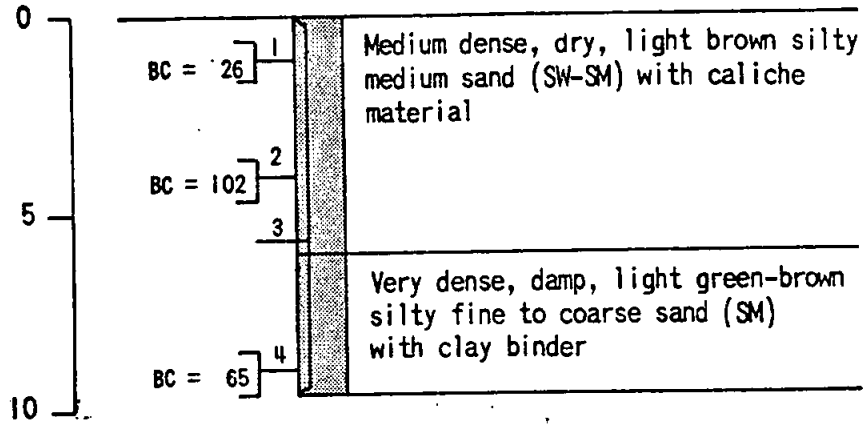
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY:	DATE: 7/27/73	FIGURE NO: 11

Depth Below Ground Surface - Feet

Boring 11



LEGEND

WC = Water Content in precent of dry weight.

DD = Dry Density in pcf.

BC = Number of blows by 140-lb. hammer falling 30 inches to drive sampler 12 inches.
Sampler Data: ID = 2.0", OD = 2.5"

UCS = Unconfined Compressive Strenght in psf.

LL = Liquid Limit

PI = Plasticity Index.

▽ = Water Level at time of drilling.

(SM) = Group classification symbol in accordance with the Unified Soil Classification System.

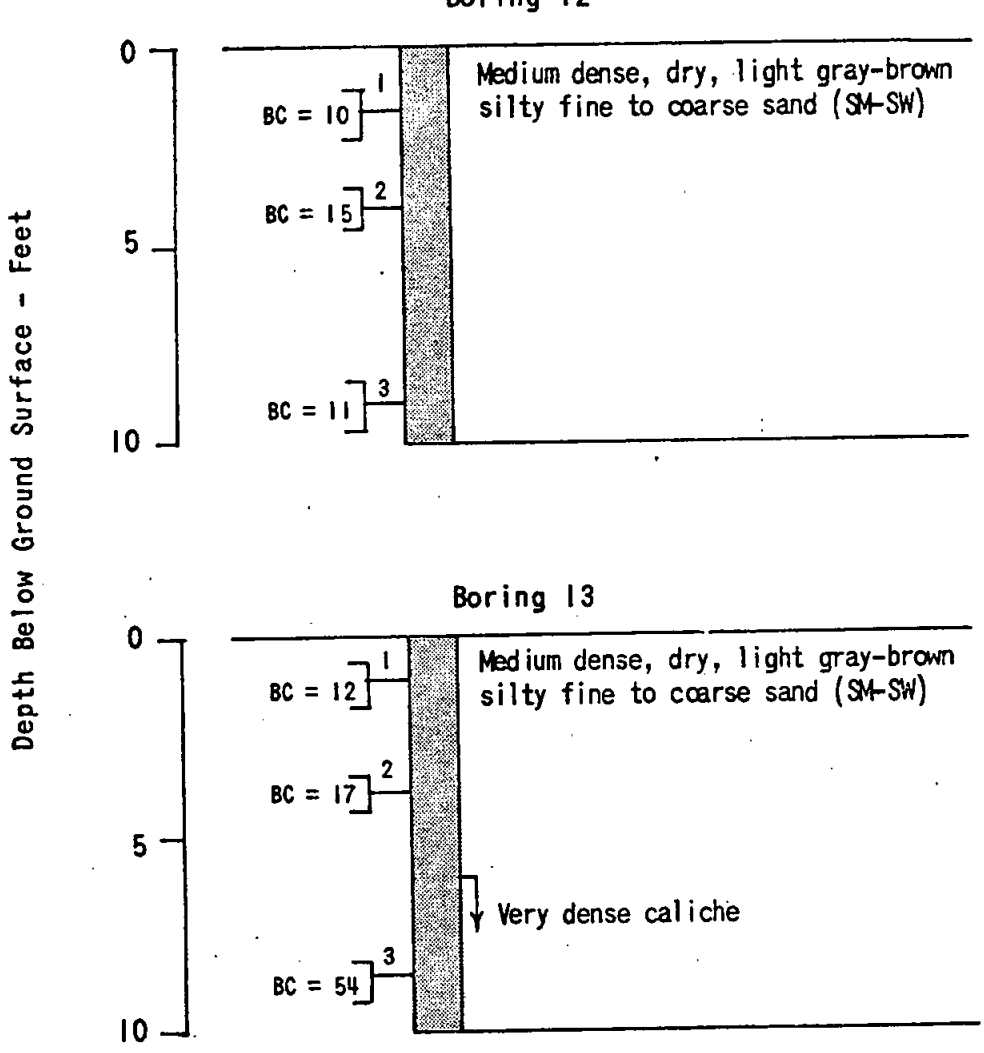
1 = Sample Number

LOG OF TEST BORING 11

3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY:	DATE: 7/27/73	FIGURE NO: 12



For Legend, see Fig. 12

LOGS OF TEST BORINGS 12 & 13

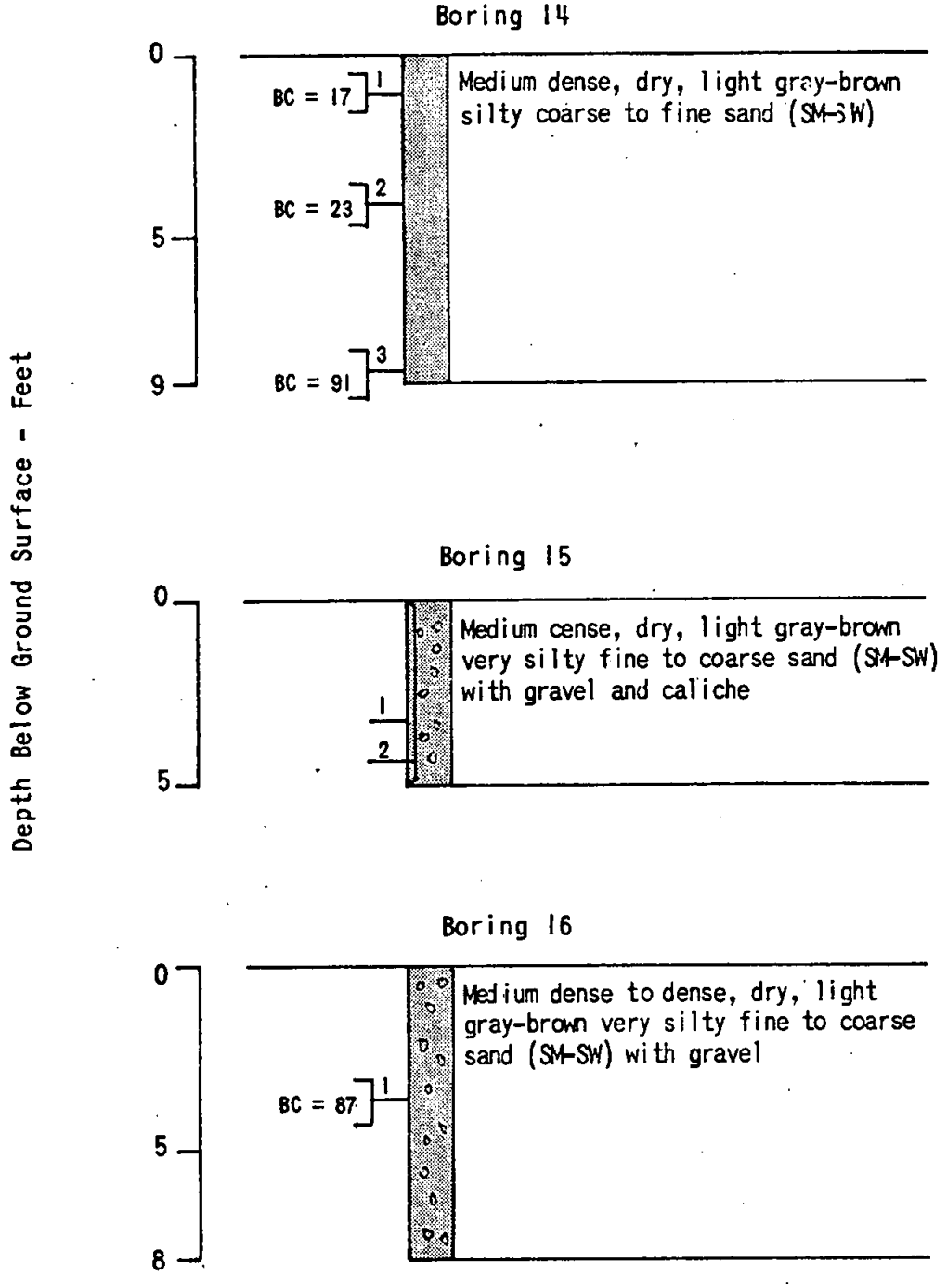
3000 ACRE BORREGO DEVELOPMENT

WOODWARD – GIZIENSKI & ASSOCIATES

CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS

SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY:	DATE: 7/27/73	FIGURE NO: 13



For Legend, See Fig. 12

LOGS OF TEST BORINGS 14, 15 & 16

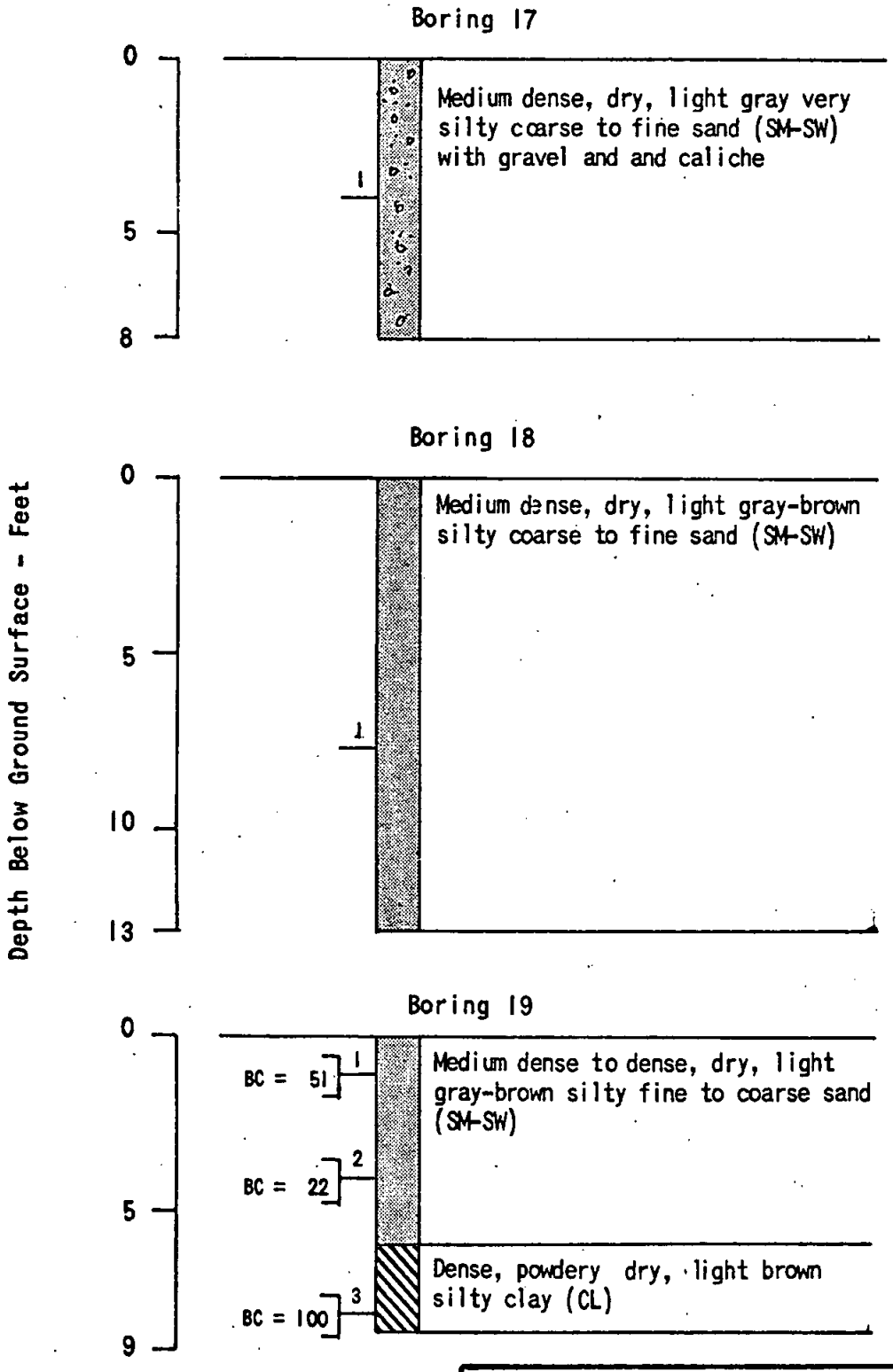
3000 ACRE BORREGO DEVELOPMENT

WOODWARD – GIZIENSKI & ASSOCIATES

CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS

SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY:	DATE: 7/27/73	FIGURE NO: 14

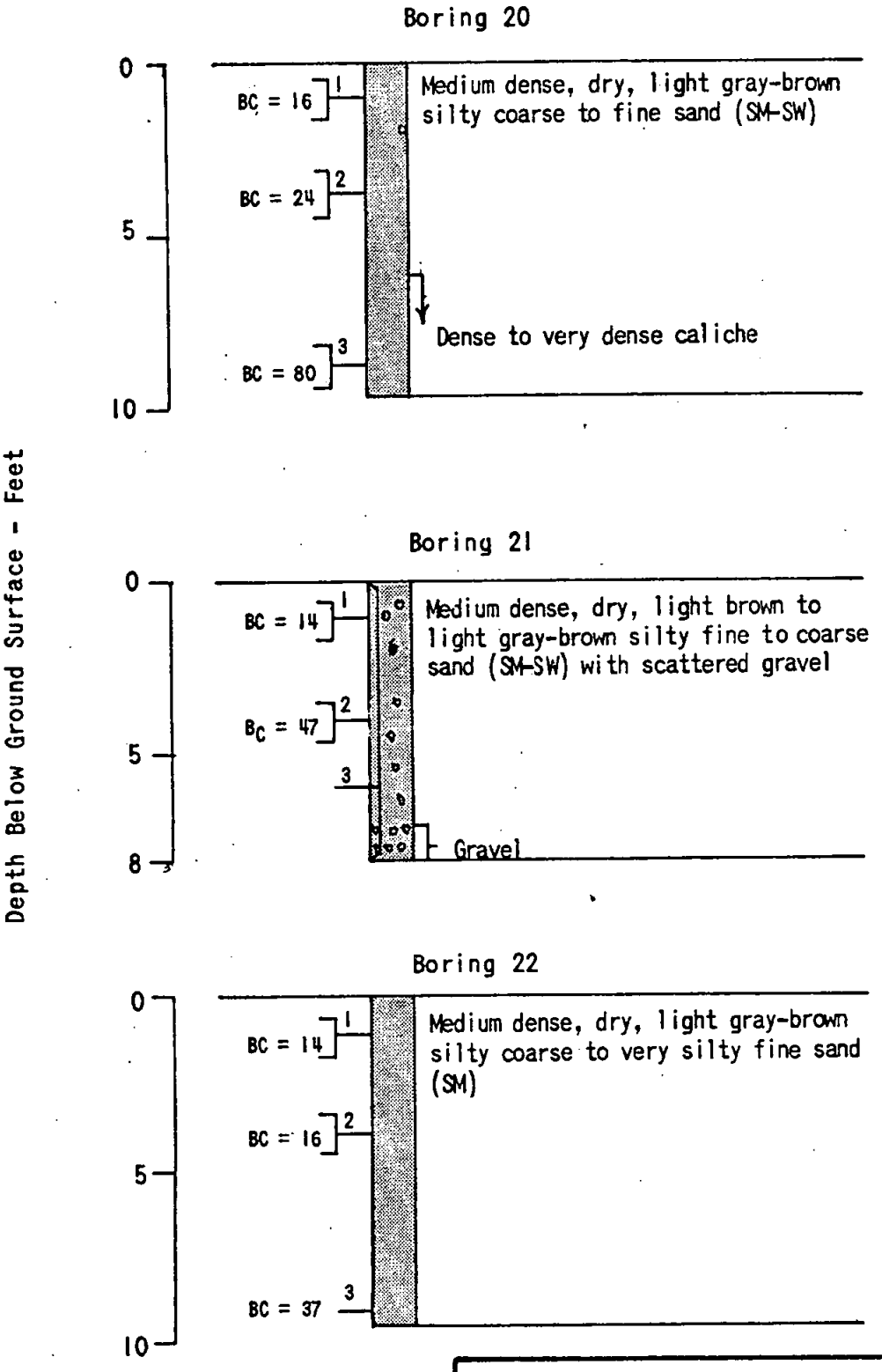


For Legend, see Fig. 12

LOGS OF TEST BORINGS 17, 18 & 19
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY: ad	DATE: 7/27/73	FIGURE NO: 15



For Legend, see Fig. 12

LOGS OF TEST BORINGS 20,21 & 22

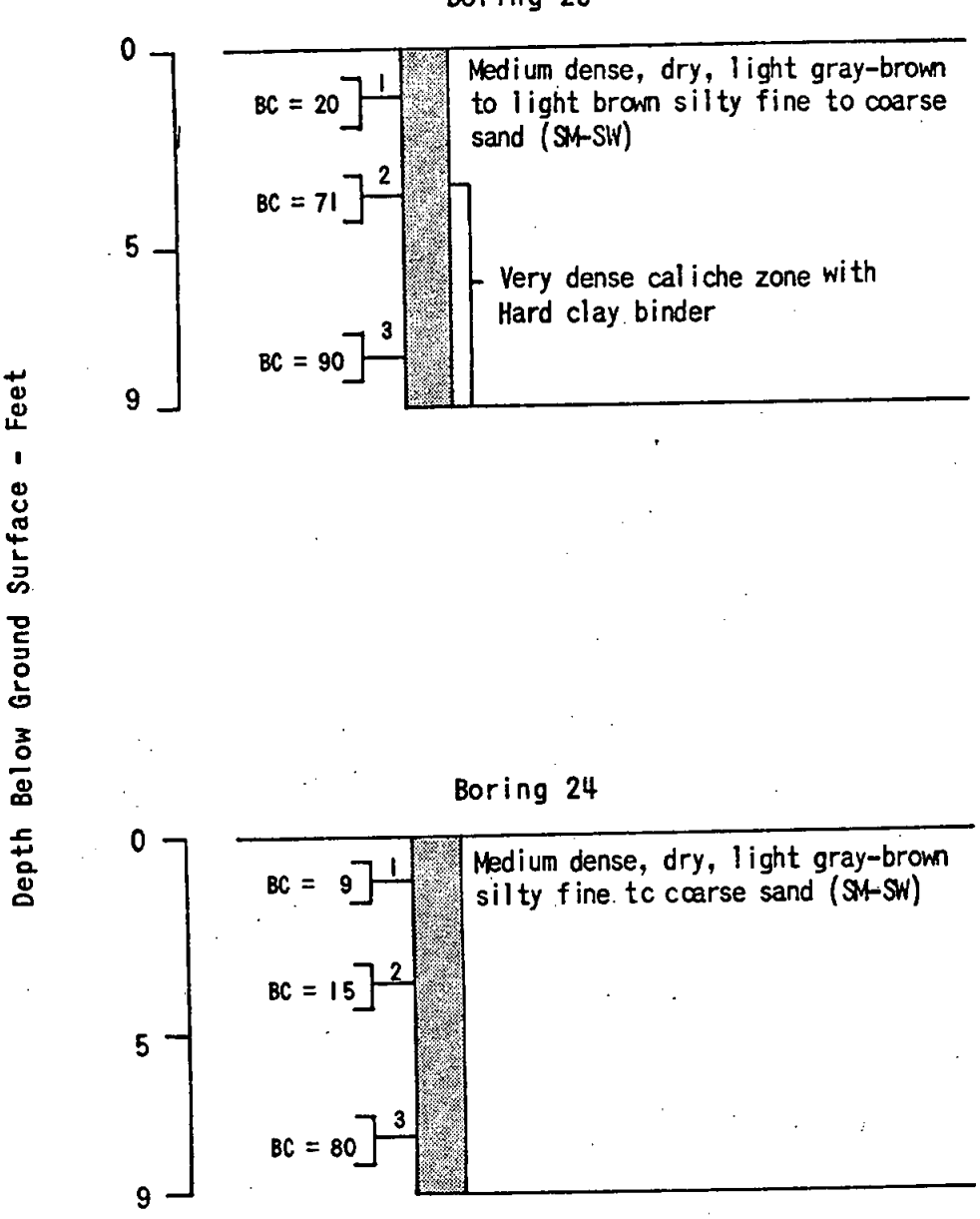
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES

CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS

SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY:	DATE: 7/27/73	FIGURE NO: 16



For Legend, see Fig. 12

LOGS OF TEST BORINGS 23 & 24

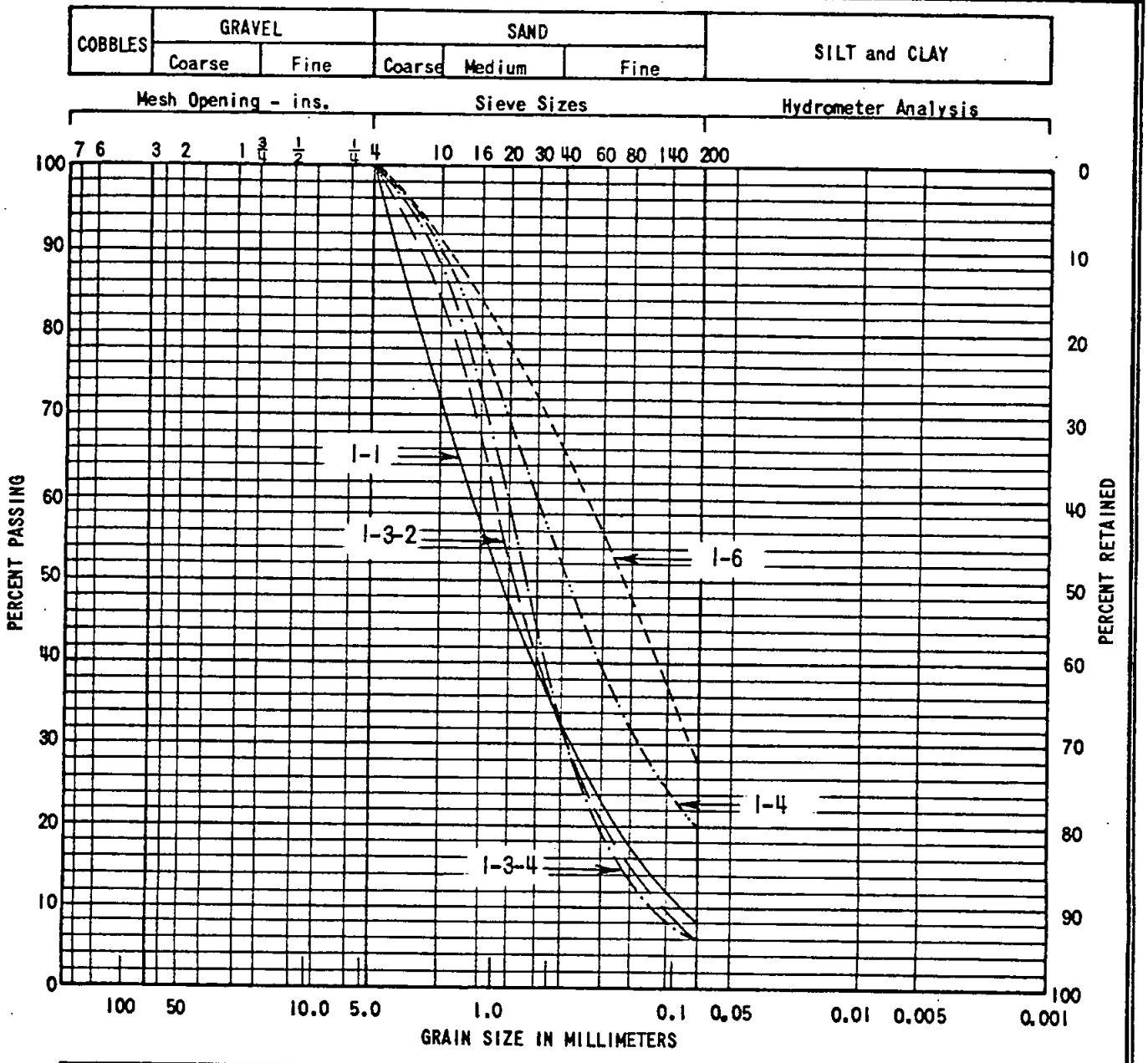
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES

CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS

SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: 1" = 5'	PROJ. NO: 73-214
CK'D BY: RD	DATE: 7/27/73	FIGURE NO: 17



SAMPLE	CLASSIFICATION AND SYMBOL	*LL	*PI
1 - 1	Well graded to silty sand (SW-SM)	- -	- -
1 - 3 - 2	Well graded to silty sand (SW-SM)	- -	- -
1 - 3 - 4	Well graded to silty sand (SW-SM)	- -	- -
1 - 4	Silty sand (SM)	- -	- -
1 - 6	Silty sand (SM)	- -	- -

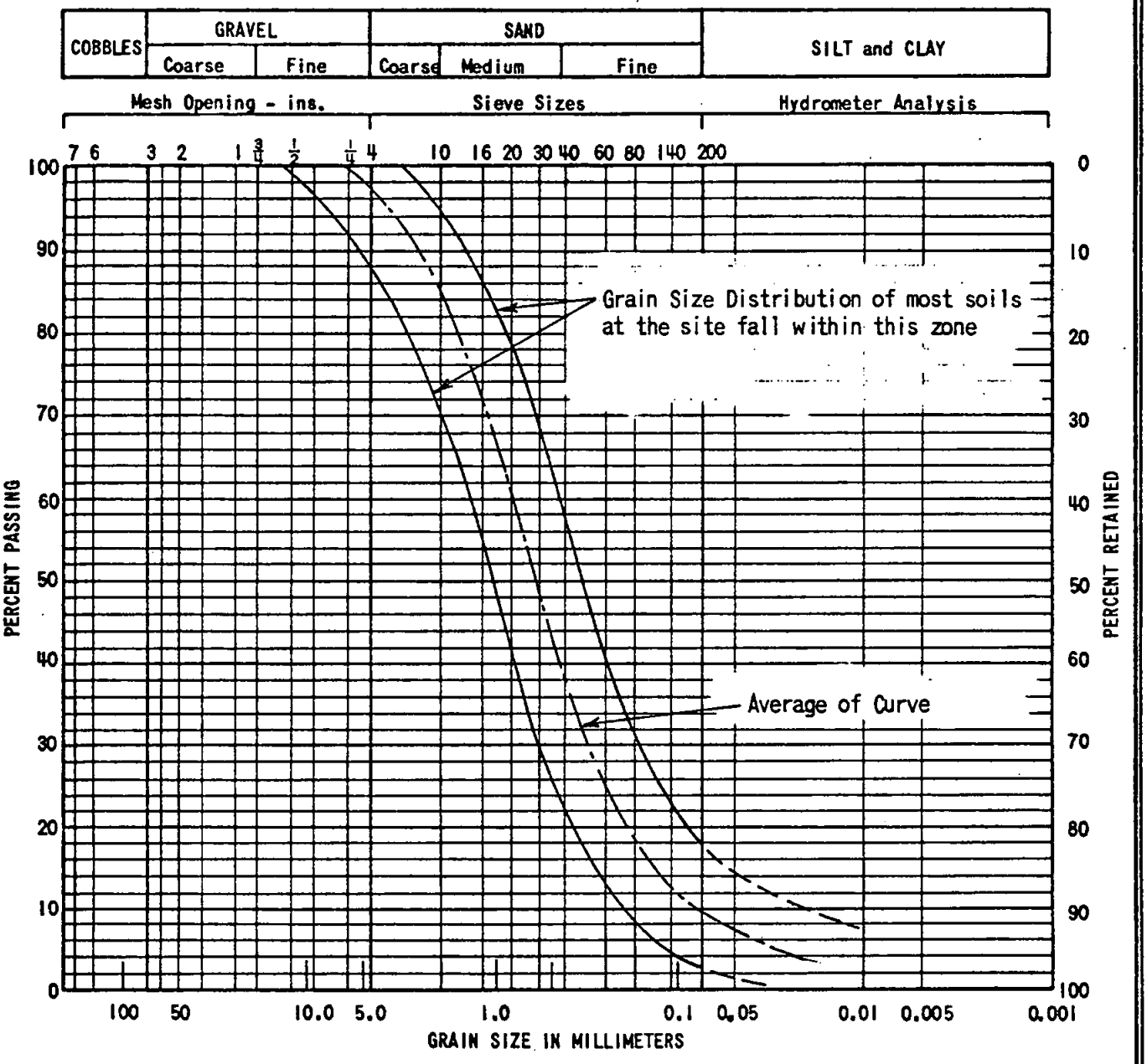
*LL = Liquid Limit
*PI = Plasticity Index

GRAIN SIZE DISTRIBUTION CURVES

3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: ALS	APPROX. SCALE: - - -	PROJ. NO: 73-214
CK'D BY:	DATE: 7-27-73	FIGURE NO: 18



SAMPLE	CLASSIFICATION AND SYMBOL	*LL	*PI
	Approximate Average Curve at Site		
	$Cu = \frac{.8}{.05} = 16\pm$		
	$D_{50} = .3$ to $1mm\pm$		
	$Cc = \frac{(.3)^2}{.8 \times .05} = \frac{.09}{.04} = 2.25$		
	$\therefore$ Soil is (SW-SM)		

*LL = Liquid Limit
*PI = Plasticity Index

GRAIN SIZE DISTRIBUTION CURVES

3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: ALS	APPROX. SCALE: - - -	PROJ. NO: 73-214
CK'D BY: ab	DATE: 7-30-73	FIGURE NO: 20

RESULTS OF LOADED SWELL TESTS

Sample Number	Initial			Final			Pressure	Expansion
	Dry Density	Water Content	Saturation	Dry Density	Water Content	Saturation		
	pcf	%	%	pcf	%	%	psf	% of Initial Height
19 - 3	104	4	5	101	22	89	160	3.3

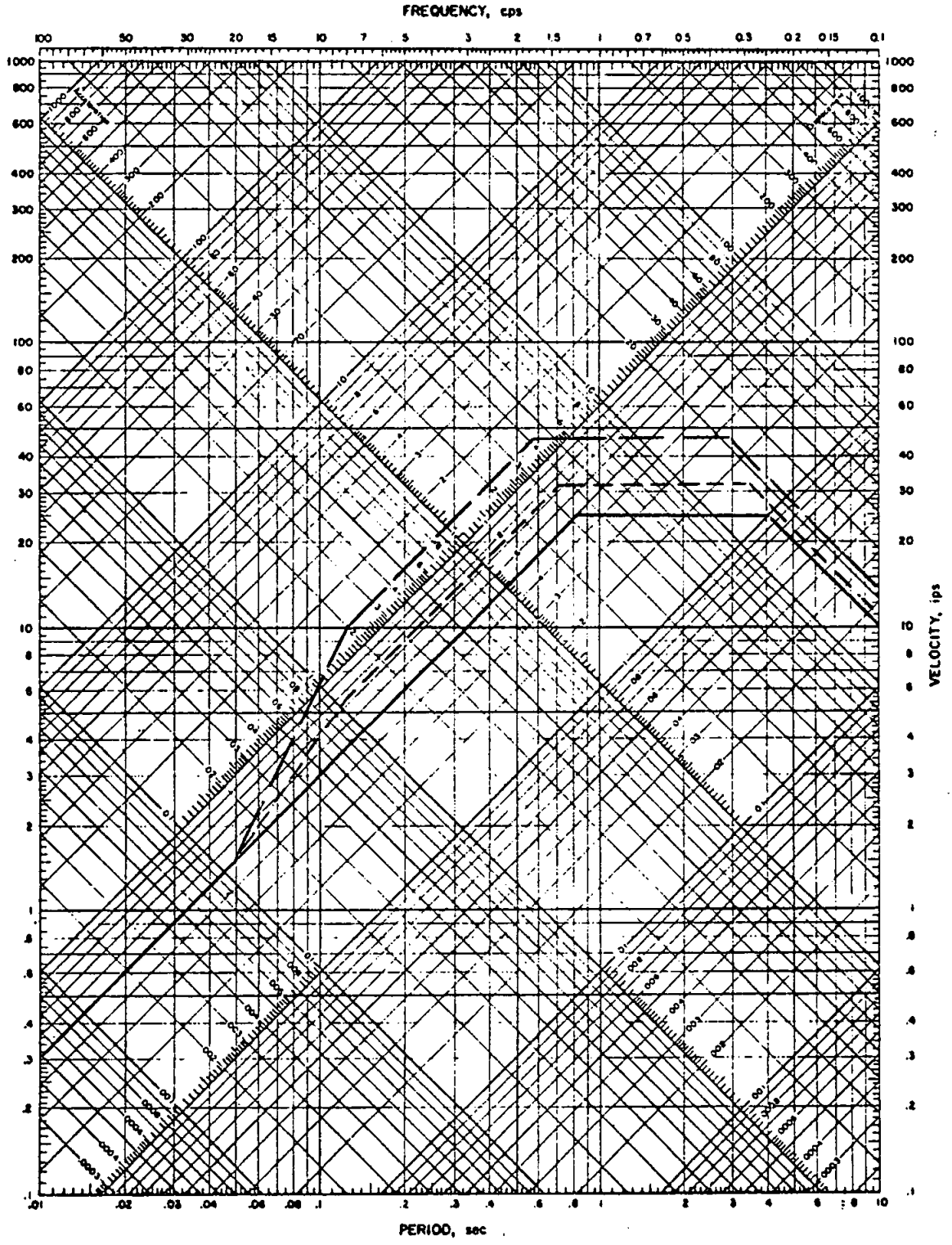
Diameter of Samples: 1.94 inches
Height of Samples: .629 inches

RESULTS OF LOADED SWELL TESTS

3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES
CONSULTING SOIL AND FOUNDATION ENGINEERS AND GEOLOGISTS
SAN DIEGO, CALIFORNIA

DR. BY: GS	APPROX. SCALE: - - - -	PROJ. NO: 73-214
CK'D BY: a.D	DATE: 7/27/73	FIGURE NO: 21



LEGEND:

——— ——— 5% Structural Damping.

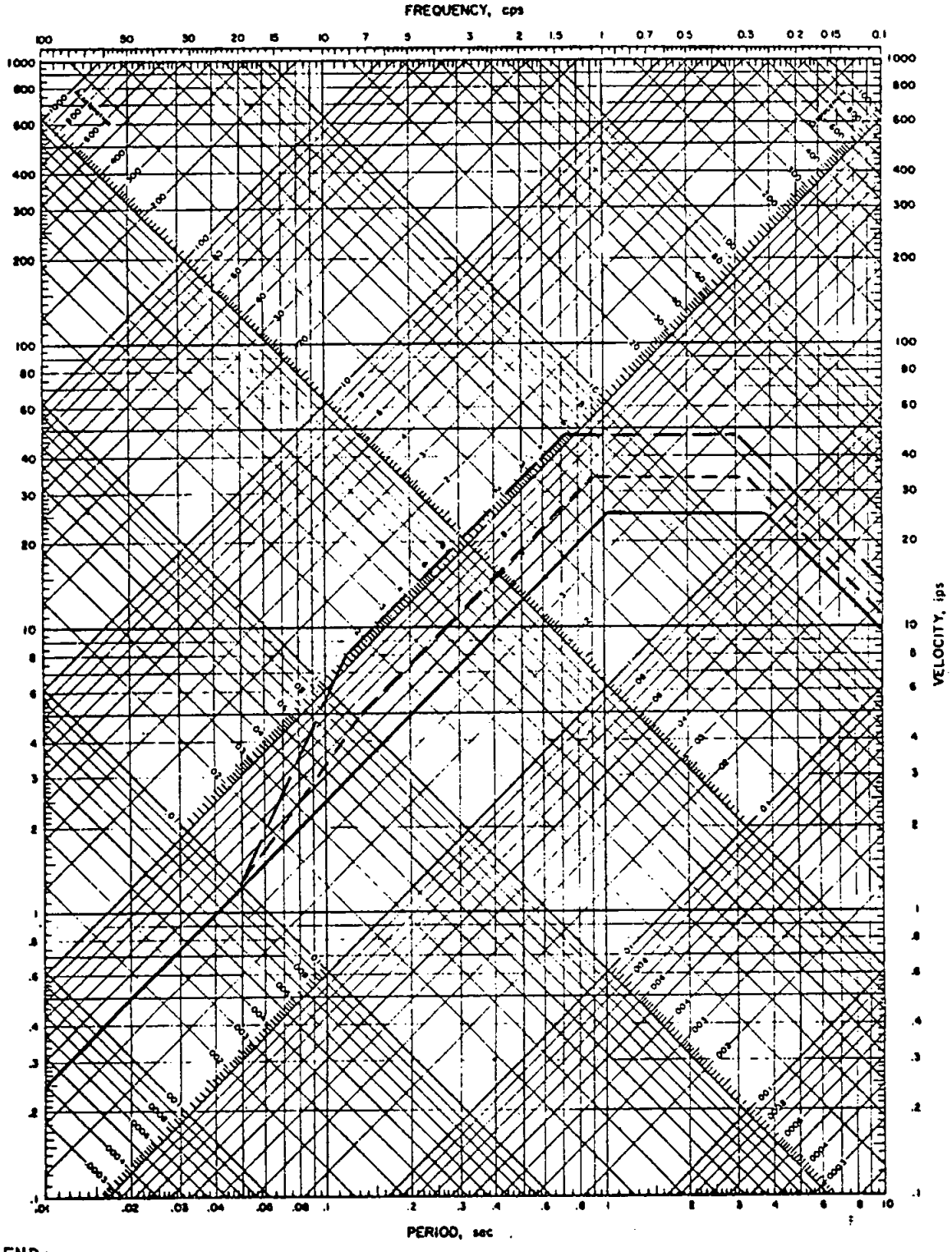
— — — — — 10% Structural Damping.

——————— Ground Motion (see text)

APPROXIMATE RESPONSE SPECTRA
CENTRAL AREA OF SITE
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES

Job No: 73-214 Figure No: 22



LEGEND:

——— 5% Structural Damping.

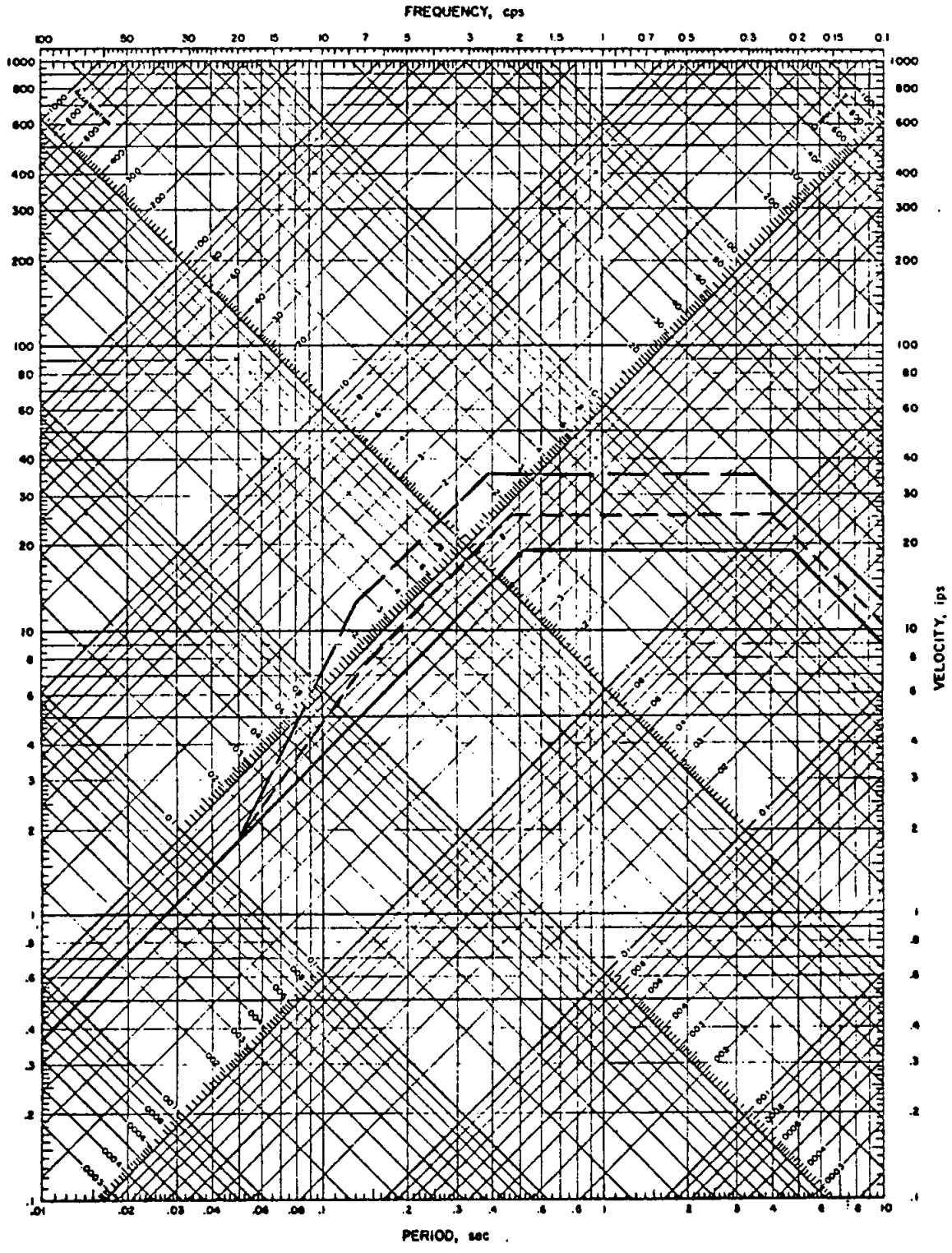
– – – – 10% Structural Damping.

———— Ground Motion (see text)

APPROXIMATE RESPONSE SPECTRA
NORTHERN END OF SITE
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES

Job No: 73-214 Figure No: 23



LEGEND:

— — — 5% Structural Damping.

– – – – – 10% Structural Damping.

——— Ground Motion (see text)

APPROXIMATE RESPONSE SPECTRA
SOUTHERN END OF SITE
3000 ACRE BORREGO DEVELOPMENT

WOODWARD - GIZIENSKI & ASSOCIATES

Job No: 73-214 Figure No: 24

A P P E N D I X B

BIOLOGY

Report of a Biological Survey

of the Di Giorgio Development Corporation's

Borrego Springs Development

Prepared for

Toups Corporation

Prepared by

Pacific Southwest Biological Services

8 August 1977

A biological survey of the South Slope Borrego Springs project was made during late Spring, 1977 by R. Mitchel Beauchamp, botanist and Stephen J. Montgomery, zoologist.

The botanical portion of the survey was made from 3 to 5 May. All of the vegetation associations on the property were examined, with a total of about 25% of the property closely surveyed. Voucher material of unusual or infrequently occurring plants was taken for closer examination in the laboratory. The lateness of the season did not allow an adequate sampling of the annual flora. Only fragments were available for many of the annual species which were identified. Two line intercepts of 200 feet each were made to demonstrate vegetation associations and diversity (Figure 1).

The zoological portion of the survey was conducted according to the following schedule and conditions:

3 May - 1800 to 2000; wind strong and steady, sky cloudless; air temperature 65°F.

4 May - 0000 to 0100; no wind; sky cloudless; moon full; air temperature 57°F.

- 0545 to 0930; wind light; sky cloudless; air temperature 61-69°F

- 1030 to 1430; wind light; sky cloudless; air temperature about 75-87°F.

- 2130 to 2300; wind strong and steady; cloudless; air temperature about 65°F.

5 May - 0000 to 0030; no wind; sky cloudless; air temperature 54°F

- 0600 to 0800; no wind; sky cloudless; air temperature 58-65°F.

15 May - 0530 to 1030; wind light; sky cloudless; air temperature 65-75°F.

Approximately 20% of the property was observed during vehicular and on foot surveys. The remainder was observed from various vantage points on the property and judged to be similar to those areas actually covered. The homogeneity and openness of the desert terrain and vegetation makes long-distance observation of habitats more possible here than in many other environments. Binoculars aided in the identification of animals encountered and scats, tracks, burrows and nests were investigated (Murie 1954) during all survey periods. On the night of 4 May the paved roads of the Borrego Springs area were driven between 2130 and 2300 hours. All live animals found on the roads were identified and released.

Forty Sherman live-traps were set on each of the nights of 3 and 4 May in the different major habitats occurring on the property (Figure 2). Traps were spaced about 10 paces apart, baited by 1830 hours with rolled oats and commercial bird seed, and checked the following morning by 0830 hours. All captured animals were identified and released at their point of capture.

The lists of animal species expected on the property but not observed during the survey were obtained primarily from Mr. Ray Patton, Park Naturalist, Anza-Borrego Desert State Park, and the A-BDSP Area Bird Checklist (1977).

Scientific nomenclature for this survey report is from the following sources: Stebbins (1966) for amphibians and reptiles, the latter group being identified to subspecies whenever possible from field identification or distribution maps; Bond (1977) and Jones et al. (1975) for mammals; A.O.U. (1957 and 1973) for birds; Munz (1974) or more recent treatments for the flora; and Thorne (1976) for vegetation.

HABITAT QUALITY

The three major wildlife habitat types existing on the property are (Figure 2):

1. An open, Mesquite-dominated vegetation type in the northern alkaline sink portion of the property where the ground is very flat and sandy. Much open space exists between the Mesquites with varying densities of shrubs tending generally to be very sparse.
2. An open, sandy, shrub-and-Ocotillo-dominated vegetation which extends from the northern part of the property south. The slope of the habitat varies from nearly flat to gently sloping. Ocotillo and numerous shrubs and cacti inhabit this area. The ground cover is uniform and more dense than in the alkaline area.
3. A topographically diverse area, exhibiting alternating rocky ridges and sandy washes which occupies the southern, especially southwestern portion of the property. This is a much more diverse habitat than the other two areas mentioned above, except for the absence of Mesquite trees. Ocotillo, agave and numerous shrubs and cacti occur in this area. The ground cover is sparse on the ridges and dense in the wash areas.

All portions of the property provide high quality habitat for the desert-adapted and migratory species utilizing the area. The highest bird species diversity and densities occur in the Mesquite area, clearly as a result of the additional height dimension provided by those plants. The dense nature of these large shrubs is important for numerous sparrows and warblers migrating along the eastern slope of the mountains, as well as for various resident birds, mammals and reptiles. Bird species diversity can be expected however to diminish during the non-migratory seasons. Reptile diversity appeared relatively low in the Mesquite area, possibly due to the paucity of shrubs. Mammal diversity, however, appears relatively high here but is still lower than in the southern portions of the property.

The more southerly portions of the property are inhabited by numerous lizards, snakes, mammals and birds. Bird species diversity and density are relatively low here, whereas mammal diversity likely equals and reptile diveristy exceeds that found in the Mesquite area. This large area is quite honogeneous, especially the central portion, in vegetation community structure, providing soft soil and some rocks for rodent burrowing and containing extensive and variable types of cover for animals in all classes.

The southern-most part of the property, with its ridge and wash aspect, is perhaps the most interesting biological area on the property. Small mammals and reptiles abound in this area, and some larger mammals apparently use the washes as corridors as they move from the hills to the south to the flats below. Bird species diversity and density in this area probably equal that of the central portion of the property, both areas being of a lower degree than the Mesquite area.

The entire South Slope area, of which the property forms a large part, is largely undisturbed and serves as unbroken habitat for many plants and animals. The southern edge of the property abuts the Anza-Borrego Desert State Park boundary and thus serves as an extension of the Park's ecosystem at the present time.

ZOOLOGY

Amphibians and Reptiles

Diurnal survey on and in the vicinity of the property revealed five species of reptiles while nocturnal survey efforts resulted in the discovery of six species. One amphibian was observed during the nocturnal road survey. All species observed are common to San Diego County in the habitats existing on the property. A more long-term survey should disclose the presence of about 15 other reptiles on the property or in the general vicinity (Table 1).

The single amphibian, the Western Toad, was found on a paved road in association with irrigation canals along Borrego Valley Road. The extreme dryness of the proposed development site severely limits the number of amphibians possibly inhabiting the area; however, a second species, the Red-spotted Toad, could occur on the property.

The Great Basin Whiptail commonly occurs near shrubs throughout the property, on both sandy and rocky substrates, and often seeks the refuge of burrows if pursued persistently. The Desert Iguana and Zebra-tailed Lizards are both common in dry washes throughout the property. The former tends to prefer a sandy substrate and seeks refuge in rodent burrows upon the slightest provocation. The latter requires some firmness of ground and open areas in order to run effectively. Both species tend to remain near shrubs for protective cover. The Desert Side-blotched Lizard commonly occurs at the edge of washes beneath rocks and shrubs. The Southern Desert Horned Lizard was found basking among rocks at the edge of a small wash. It frequently occurs near ant hills, the source of its preferred food. Two Desert Glossy Snakes were found within the property boundaries along the Borrego Springs Road during the 4 May night survey. This species should occur thoroughout the property, possibly less in the rocky southern portion than in other areas. Four additional snake species encountered during the night road survey in the valley area, including the Colorado Desert Shovel-nosed Snake, Sonora Gopher Snake, Common Kingsnake, and Colorado Desert Sidewinder, also should inhabit the property.

All reptiles, except the Rattlesnakes (which are mostly beneficial), are wholly

beneficial to humans because they consume large quantities of arthropods (insects, spiders, etc.) and rodents. The Common Kingsnake even takes small Rattlesnakes on occasion. Future inhabitants should be educated to these facts and not needlessly kill these animals when found near dwellings. A limited buffer zone of cleared ground around dwellings would help reduce unexpected encounters between snakes and people. As evident from the descriptions of lizard habitats, reptiles require subtle and varying mixtures of sand, rocks and shrubs. Habitat for reptiles should, therefore, be maintained by clearing vegetation and rocks as little as possible during development activities, as well as following occupation of the area.

The Western Toad, and possibly the Red-spotted Toad, may increase in numbers around future dwellings due to the increased availability of water. These animals serve a similar function to reptiles by feeding on various arthropods and should never be killed. The more water made available to them, the more they will breed in the area.

Birds

Thirty-three species of birds were observed on the property. Nineteen of these are permanent residents and nest in the area. The remaining 14 are either summer residents or were simply visiting during their northward migration. Several unobserved species, both residents and visitors, would be expected to utilize the property and would be observed during a more extended and seasonally repeated survey (R. Patton, pers. com., Table 2).

A strong correlation has been shown between the diversity of vegetation heights and the number of bird species in a plant community (cf. MacArthur 1972). The Mesquite community, which also includes shrubs and a limited number of herbs, provides this extra vegetative diversity, and a higher diversity (and density) of bird species here is expected. This area is important in providing an abundance of cover for nest sites for many resident species, and cover, insects and seeds for both resident and visiting species. All species of warblers, as well as numerous other types of birds, were seen exclusively in this woodland area. Eliminating Mesquite shrubs on the property would,

therefore, reduce habitat for migrants and resident species, and likely diminish overall densities in this area. In contrast, future landscaping and associated increased water availability around dwellings would provide suitable habitat for some species. Species displaced by the destruction of Mesquite groves on the property would temporarily move into suitable adjacent habitats. However, since bird territories are only compressible to a certain degree, local densities would eventually be lowered by such habitat elimination. Minimal road construction in this area should not greatly reduce bird populations.

The number of bird species observed in the two non-Mesquite habitats was relatively low and fairly equal in both areas. Several species observed in the Mesquite area also were found in the other habitats, but in lower abundance. Among these were the Verdin, House Finch, Mourning and White-winged Doves, and the Loggerhead Shrike. The most conspicuous species in these areas during the survey were the Black-throated Sparrow, Verdin, and Common Raven. The Ocotillo and Agave, being the tallest and, therefore adding height diversity to the community, are very important as perches for most birds in the area.

The only raptors observed on the property (besides Ravens and Shrikes) were the American Kestrel and Great Horned Owl. Several additional species are known to hunt and/or nest in the area. The fully protected Golden Eagle hunts in the area and the Cooper's Hawk is known to nest in the Borrego Sink area. The Burrowing Owl probably nests on the property periodically. These birds prey on arthropods, reptiles and rodents. Development activities and greater numbers of people will reduce the useful habitat and food sources for some of these species, thus forcing them into adjacent areas and possibly reducing their densities. In contrast, if tall trees are planted by residents, some species, such as Barn and Great Horned Owls, may increase in numbers in the area.

All observed and expected bird species are either neutral or beneficial to man, consuming large quantities of invertebrates, rodents and reptiles. Populations of commonly hunted species such as Quail and Doves will be best maintained by leaving as

much of the property as possible in its natural state.

Mammals

Ten, and possibly 11 species of mammals were detected on the property from trapping, and indirect and direct observation. Numerous other species inhabit the area and would be found during a more extensive survey and trapping program (R. Patton, pers. comm., Table 3). These species are all common to San Diego County in habitats existing on the property.

Trap success (percent of set traps occupied at morning check) for the two nights varied according to habitat type (Table 4), ranging from 70% in Mesquite and Creosote areas to 53% in ridge and wash areas. Average trap success for two nights in all areas combined was 64%.

Due to the variable nature of rodent trapping results and the short trapping period in this survey, definite population levels cannot be described. The number of resident rodent species is probably similar in all areas of the property. The rocky nature of the southwestern section may permit the addition of species preferring that substrate, while the Mesquite area may compensate by permitting species preferring more sandy soils. Kangaroo Rats and Pocket Mice commonly burrow at the base of Creosote Bushes and other shrubs. The Desert Kangaroo Rat, however, which was trapped only in the Mesquite area, appears to prefer open sand for large colonial burrow construction. Many researchers consider this species to be one of the most specialized of the Kangaroo Rats (Congdon 1974), being strictly limited to deep sand (commonly sand dune) soils. These colonies readily collapse under the pressure of a person walking over them and are severely damaged by the weight of any type of motor vehicle. Development in the Mesquite area could thus reduce local habitat for this species considerably.

The Desert Woodrat constructs stick nests in Mesquite shrubs in the northern section; in Agave and cacti and isolated boulders in most other areas, and in ridges bordering washes in the southwestern section. The White-tailed Antelope Squirrel also occurs in these ridges, as well as in some flatter sandy areas to the north. A single

Round-tailed Ground Squirrel was sighted along a dirt road in the northern section of the property. The Black-tailed Jack and Desert Cottontail occur commonly in all parts of the property, both apparently exhibiting higher densities in the southern part of the property. Botta's Pocket Gopher mounds were abundant in washes over most of the property, being less common in Mesquite than in other areas.

Abundant tracks and scats in most large washes on the property, and in the southern section in particular, indicate good populations of Coyotes inhabiting the area. Two groups of Coyotes were heard in the vicinity of the Mesquite on two separate nights; they appeared to be approaching from the southern part of the property. The major washes run north-south and probably serve as channels for Coyotes and other predators moving from rocky southern denning areas to hunt on and beyond the property. Although none were observed, some Coyotes may have dens in the rocky, southern portions of the property itself. What appeared to be Kit Fox tracks were also seen on the property. This species has been sighted in ravines in the Yaqui Pass area to the south and may den on the property. Bobcats may use the property for hunting, but it is unlikely that they den on the site due to the absence of water. The Badger may also occur, but no signs of it were seen during the survey. The relative scarcity and secretive habits of the Badger, Kit Fox, and Bobcat make detection difficult on such a large acreage.

The range of the Desert Bighorn (Ovis canadensis), a rare and fully-protected species, approaches the property in the Yaqui and Pinyon Ridge areas. However these animals would not be expected on the property itself (R. Patton, pers. comm.). No signs of the Sheep were seen on the property.

Although not commonly found far from canyons and water, the Ringtail may occasionally use the northern parts of the property.

Bats were heard on the property in the evenings but were not identified. The more common speices found in the State Park include the Big Brown Bat, Western Pipestrel, and Mexican or other Freetail Bat. These and others feed over parts of the property but, due to the scarcity of water, would not commonly roost there.

The many small mammals on the property support populations of carnivores in the

area. Replacement of native vegetation with domestic plants and dwelling and road construction will reduce these populations and possibly force some predators to search elsewhere for food. Development will obviously directly affect many animals through actual burying or den and burrow destruction during construction periods. Obstruction of traditional pathways of movement and the mere presence of human activity will divert most larger species away from the area of development. The overall amount of suitable habitat for these animals will thus be reduced.

Endangered/Threatened, Rare or Blue List Animal Species

No observed animal species are considered rare, endangered or threatened by state or federal agencies. Both the Ringtial and Golden Eagle, possible and confirmed visitors to the property, respectively, are fully protected by California state law. Three observed species of birds currently listed on the Blue List (Arbib 1976) utilize the property, including the American Kestrel, Loggerhead Shrike and Yellow Warbler. The latter species only occurs on the property in groups during migration. Additional Blue List species include the Prairie Falcon, Cooper's Hawk, and Burrowing Owl. The first two species undoubtedly utilize the property for hunting and/or nesting, whereas the third may nest and forage on the property.

BOTANY

Vegetation - Creosote Bush Scrub

The predominate plant cover of the property, ca. 70%, is Creosote Bush Scrub, With dominant species being Larrea, Ambrosia, and Opuntia echinocarpa (Figure 2). The Scrub is best developed in the central portion of the property where the alluvial fan is relatively unfeatured. Toward the upper portions, the arroyos and ridges bring about a different vegetation, while at the lower portion, the alkaline nature of the soil brings in many salt-tolerant species. The Larrea on the property is generally 0.8 to 1.4 meters tall, with shrubs occurring 3 to 5 meters apart. Diversity of the Scrub is relatively high with minor but widespread occurrences of Cassia, Stephanomeria, Hymenoclea, Coldenia and Datura. Sixty-one percent of the observed plant

taxa occurred in the Scrub habitat (Table 5).

Alkali Sink Scrub

The lower sink area on the property has an alkaline-associated vegetation with a predominance of Haplopappus (percent cover = 6.83) and Atriplex (6.04), with lower densities of Oligomeris (0.4) and Cleomella (2.21). The area is generally open, with vegetative cover accounting for only 16% of the surface along a 200 foot line intercept.

Mesquite Woodland

Associated with the alkaline vegetation is a conspicuous woodland of Prosopis which reaches to 4 meters high and individual shrubs being 12 meters wide. No other associates of this otherwise-Desert Microphyll Woodland occur however. This area of Mesquite Woodland and Alkali Sink Scrub amounts to only 3% of the total acreage but is a very conspicuous element due to its height diversity and location.

Desert Wash

At the opposite, southern end of the property is the much more diverse region of arroyos and ridges, representing about 16% of the property acreage. This topographic diversity has resulted in a more varied vegetative cover. In the wash areas occur Hyptis (5.16), Justicia (4.86) and Agave (2.94) with a total vegetative cover of 32% along the 200 foot line intercept.

Semi-succulent Scrub

On the adjacent ridges occur such plants as Fouquieria (1.19), Ambrosia (2.53), Opuntia ramosissima (4.05), Larrea (2.50), Ferocactus (1.14) and Opuntia bigelovii (1.00). Only 15% of the observed plant taxa (Table 5) occurred in the wash areas while 56% were found on the upper, more stable ridge areas.

Flora - Relative Diversity

The observed flora for the property (Table 5) amounts to 62 native and 2 non-native taxa. The previous survey on the property recorded 42 particular and 9 general taxa from the site during September (Solan & Witham 1973). A survey in a more favorable

season (April 1976) in Mason Valley (Beauchamp & Phelan 1976) revealed 169 native and 11 non-native taxa. A more recent survey on a desert alluvial fan in eastern Imperial County with habitat similar to the surveyed property showed a total flora of 114 taxa (Westermeier & Beauchamp 1977). Based upon these figures, the observed flora represents about 65% of the total flora of the South Slope site.

Distribution

All taxa observed were previously known from the vicinity (Higgins 1949) and are typical of this portion of the western Colorado Desert.

Rare or Endemic Plant Taxa

None of the restricted endemic plant species of the Borrego Valley area were encountered during the survey. These include Astragalus magdalenae var. peirsonii, Astragalus lentiginosus var. borreganus, Cryptantha ganderi, Galium angustifolium ssp. borregoense, and Salvia eremostachya. Also the sensitive plant species (Powell 1974) Ayenia compacta, Eriogonum deserticola, and Malperia tenuis were sought but not found.

However Lyrocarpa coulteri var. palmeri was found in a single locality in the southwestern portion of the property. It is listed by CNPS (Powell 1974) as 1- - . It is of limited occurrence in San Diego Desert areas but not rare or endangered at present.

EXPECTED BIOLOGICAL IMPACTS

1. The elimination of habitat directly through construction of roads, dwellings and recreational facilities is an important consideration for all animals in the area. Some animals will be killed directly through burrow destruction. Others will be eliminated by reduction of suitable habitat.

2. Disturbance of the area surrounding future dwellings and recreational facilities by normal human activities are particularly important in the case of raptors, larger mammals and snakes. The mere presence of humans in an area may eliminate its use by several birds of prey and larger predatory mammals. Disturbances include such common

activities as increased use of the area by off-road vehicles, hunting and/or needless killing of non-game animals (particularly beneficial snakes) and excessive predation by household pets running loose in the area.

3. The probable increased access to presently undisturbed areas by non-resident off-road vehicle enthusiasts and hunters, as a result of new roads on the property, will lead to further degredation of the local desert eocsystem.

4. Numbers of some wildlife species may increase in areas of human habitation, due to greater availability of surface water for landscaping and other activities. Among those species possibly responding to such new resources are the Barn Owl, Great Horned Owl, House Finch, Western Toad, Southern Pocket Gopher and Desert Cottontail.

5. Continued disturbance and reduction of the Borrego area desert ecosystem by development projects such as this will ultimately and definitely reduce wildlife populations in the area. Immediate effects of this project will become more apparent following its completion; impacts on long-term ecosystem stability will be less easily assessed but may be significant.

6. Increased traffic on major access roads as well as streets in the project will increase the mortality of desert mammals and especially reptiles and amphibians.

7. Land form manipulation for dwelling site preparation will disrupt plant cover, producing a potential for wind erosion of the sandy soil.

8. Increased irrigation associated with golf course and landscaping needs will mean the introduction and increase of non-native, weedy plant species into the area.

9. Redirection of wash channels for flood control will mean deterioration of vegetation in the altered washes due to modified hydrologic characteristics.

RECOMMENDATIONS TO REDUCE BIOLOGICAL IMPACTS

The following procedures will help minimize the impacts of future development on biological features of the area.

1. Restrict development activities to as small an area as possible. Clustering of dwellings and other facilities would meet this end, as would minimal road construction.

2. The southern portion of the property should be left undisturbed.

3. Mesquite plants should not be cut and the sink area should be left undisturbed.

4. Agave, cacti and ocotillo should not be cut in all other areas of the property.

5. Road construction in non-residential areas should be strongly restricted.

6. Residents of the area should be educated to the fact that the desert is a very fragile resource, and minimal human disturbance may severely disrupt the natural state for long periods of time. Disturbances to vegetation, soil and associated wildlife should, therefore, be discouraged.

7. Domestic pets and the use of off-road vehicles and firearms should be restricted or prohibited on the property. People should understand that most species of animals in the area, including a great majority of snakes, are entirely beneficial to humans and should not be killed. Cleared buffer zones around dwellings would help minimize unexpected encounters between people and reptiles.

8. Native and drought tolerant plants should be used in landscaping.

9. An effort should be made to salvage specimen-plants of cacti, agave and ocotillo in the developed areas for use in landscaping the same areas later.

10. Pedestrian-access interpretive features should be developed along the periphery of the open space area, adjacent to developed areas.

11. All open space allocations of the project should be natural, undisturbed acreage rather than desert vegetation intertwined with equestrian or vehicular paths and golf course links.

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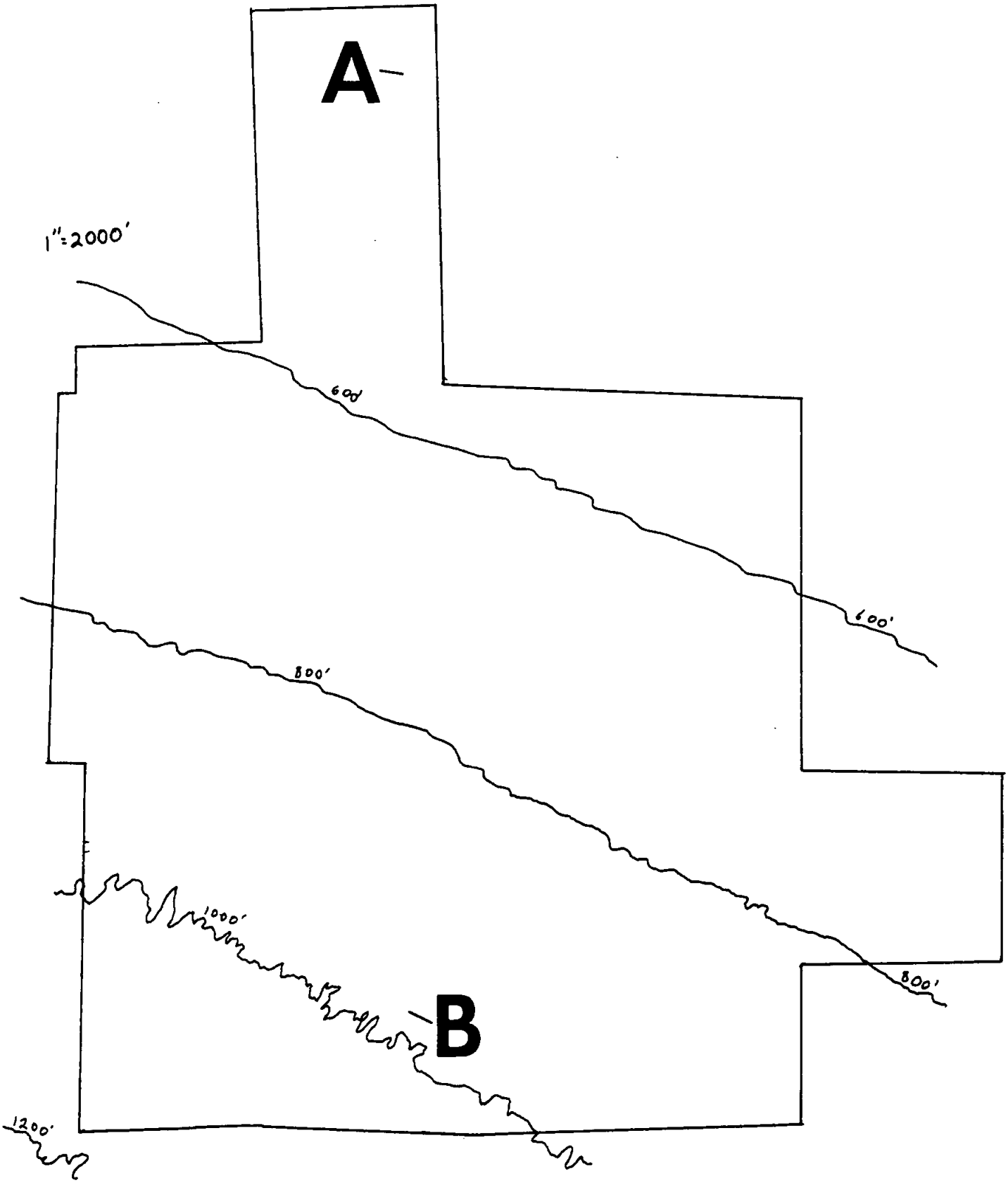
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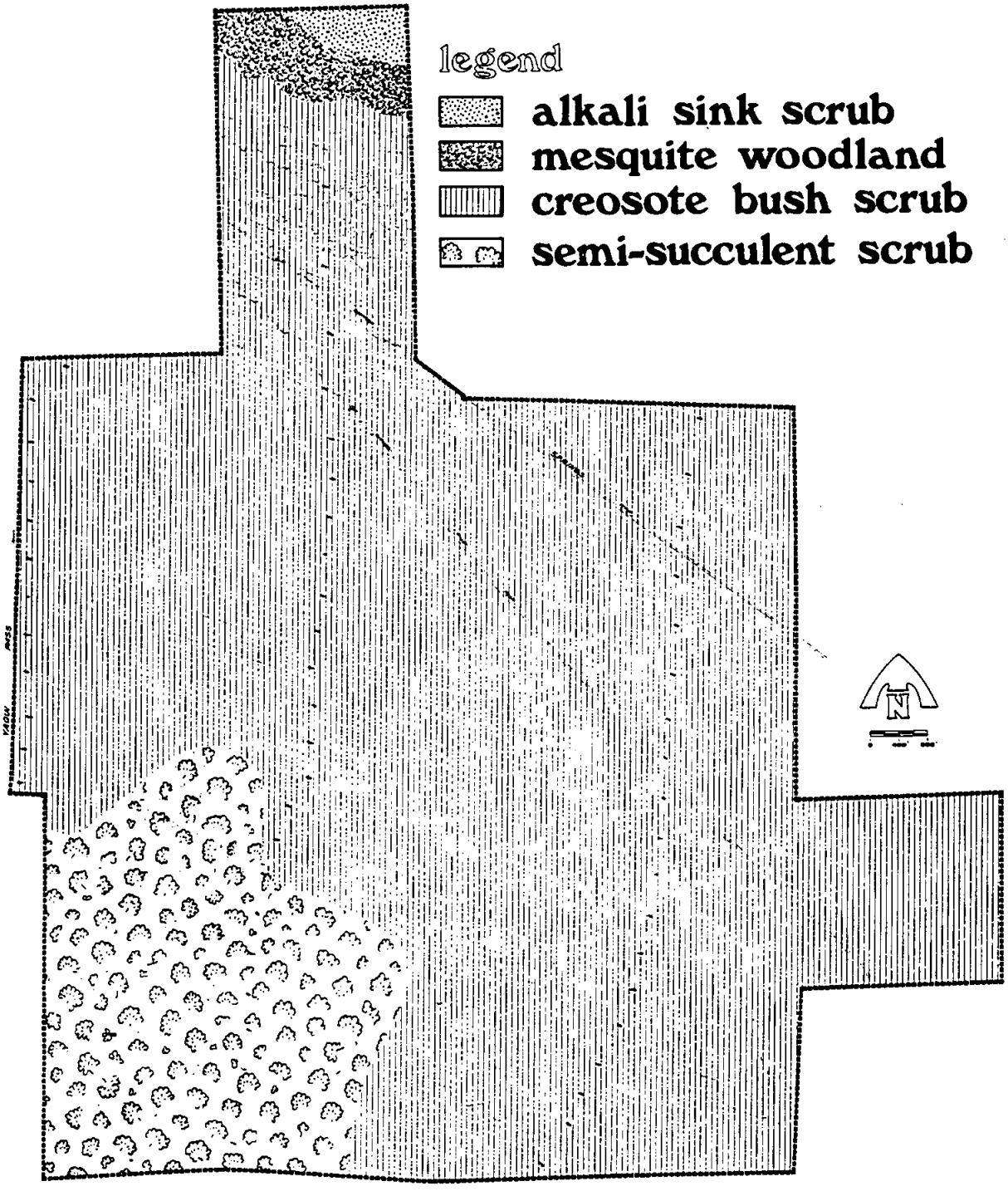
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Figure 1. Vegetation Analysis Line Intercept Locations





vegetation map

PRC TOUPS CORPORATION

RAMS HILL

Table 1. Amphibians and Reptiles Observed and Expected on or near the South Slope Borrego Springs Project.

Observed

Common Name	Scientific Name	Where Observed*
California Toad	Bufo boreas halophilus	R
Desert Iguana	Dipsosaurus dorsalis dorsalis	P
Zebra-tailed Lizard	Callisaurus draconoides	P
Desert Size-blotched Lizard	Uta stansburiana stejnegeri	P
Southern Desert Horned Lizard	Phrynosoma platyrhinos	P
Great Basin Whiptail	Cnemidophorous tigris tigris	P
Desert Glossy Snake	Arizona elegans eburnata	P
Sonora Gopher Snake	Pituophis melanoleucus affinis	R
Common Kingsnake	Lampropeltis getulus	R
Colorado Desert Shovel-nosed Snake	Chionactis occipitalis annulata	R
Colorado Desert Sidewinder	Crotalus cerastes laterorepens	R

*Where Observed- P=on the property, R=during nocturnal survey of Borrego roads

Expected

Red-spotted Toad	Bufo punctatus
Desert Banded Gecko	Coleonyx variegatus variegatus
Collard Lizard	Crotaphytus collaris
Leopard Lizard	Crotaphytus wislizenii
Desert Night Lizard	Xantusia vigilis
Long-tailed Brush Lizard	Urosaurus graciosus
Flat-tailed Horned Lizard (possible)	Phrynosoma m'calli
Coastal Rosy Boa	Lichanura trivirgata roseofusca
Western Leaf-nosed Snake	Phyllorhynchus decurtatus perkinsi
Red Racer	Masticophis flagellum piceus

Table 1. Amphibians and Reptiles on or near the South Slope Borrego Springs Project (continued)

Expected (continued)

Desert Patch-nosed Snake	*Salvadora hexalepis hexalepis*
Western Long-nosed Snake	*Rhinocheilus lecontei lecontei*
Desert Black-headed Snake (possible)	*Tantilla planiceps transmontana*
Desert Night Snake	*Hypsiglena torquata deserticola*
Southwestern Speckled Rattlesnake	*Crotalus mitchelli pyrrhus*
Red Diamond Rattlesnake	*Crotalus ruber ruber*

Table 2. Birds Observed and Commonly Expected on or immediately adjacent to the South Slope Borrego Springs Project.

Observed

Common Name	Scientific Name	Number Observed	Status
American Kestrel	Falco sparverius	2	N,R
Gambel's Quail	Lophortyx gambellii	25	N,R
White-winged Dove	Zenaida asiatica	6	N,R
Mourning Dove	Zenaida macroura	10	N,R
Roadrunner	Geococcyx californianus	6	N,R
Great Horned Owl	Bubo virginianus	1	R
Poorwill	Phalaenoptilus nuttallii	2	N,R
Lesser Nighthawk	Chordeilies acutipennis	3	N,Sp,Su,F
Costa's Hummingbird	Calypte costae	8	N,Sp,W
Anna's Hummingbird	Calypte anna	3	N,R
Western Kingbird	Tyrannus verticaulis	1	N,Sp,Su,F
Ash-throated Flycatcher	Myiarchus cinerascens	2	N,R
Empidonax Flycatcher (Western)	Empidonax difficilis	4	Sp
Cliff Swallow	Petrochelidon pyrrhonata	5	Sp,Su,W
Common Raven	Corvus corax	5	N,R
Verdin	Auriparus flaviceps	9	N,R
Common Bushtit	Psaltriparus minimus	11	N,R
Cactus Wren	Campylorhynchus brunneicapillum	1	N,R
Mockingbird	Mimus polyglottos	3	N,R
Black-tailed Gnatcatcher	Poliotila melanura	10	N,R
Phainopepla	Phainopepla nitens	6	N,R
Loggerhead Shrike	Lanius ludovicianus	3	N,R
Warbling Vireo	Vireo gilvus	8	Sp,F
Orange-crowned Warbler	Vermivora celata	4	Sp,F,W

Table 2. Birds Observed and Commonly Expected on or Immediately adjacent to the South Slope Borrego Springs Project (continued).

Observed (continued)

Yellow Warbler	Dendroica petechia	15	N,Sp
Black-throated Gray Warbler	Dendroica nigrescens	6	Sp
Townsend's Warbler	Dendroica townsendi	11	Sp
MacGillivray's Warbler	Oporornis tolmiei	1	Sp,F
Wilson's Warbler	Wilsonia pusilla	15	N,Sp
Western Tanager	Piranga ludoviciana	6	Sp,Su,F
Black-headed Grosbeak	Pheucticus melanocephalus	8	Sp,Su
House Finch	Carpodacus mexicanus	10	N,R
Black-throated Sparrow	Amphispiza bilineata	10	N,R

Total Numbers Observed: Species=33, Individuals=220

Expected

Turkey Vulture	Cathartes aura	R
Sharp-shinned Hawk	Accipiter striatus	Sp,F,W
Cooper's Hawk	Accipiter cooperi	N,R
Red-tailed Hawk	Buteo jamaicensis	N,R
Golden Eagle	Aquila chrysaetos	R
Prairie Falcon	Falco mexicanus	R
Ground Dove	Columbina passerina	N,R
Barn Owl	Tyto alba	N,R
Burrowing Owl	Speotyto cunicularia	N,R
Long-eared Owl	Asio otus	N,R
White-throated Swift	Aeronautes saxatilis	N,R
Common Flicker	Colaptes auratus	N,R
Ladder-backed Woodpecker	Dendrocopos scalaris	N,R
Say's Phoebe	Sayornia saya	N,R

Table 2. Birds Observed and Commonly Expected on or immediately adjacent to the South Slope Borrego Springs Project (continued)

Expected (continued)

Bewick's Wren	Thryomanes bewickii	N,R
Canyon Wren	Catherpes mexicanus	N,R
Rock Wren	Salpinctes absoletus	N,R
Le Conte's Thrasher	Toxostoma lecontei	N,R
Crissal Thrasher	Toxostoma dorsale	N,Sp,Su,W
Western Bluebird	Sialia mexicana	Sp,F,W
Ruby-crowned Kinglet	Regulus calendula	R
Cedar Waxwing	Bombycilla cedrorum	Sp,F,W
Western Meadowlark	Sturnella neglecta	Sp,F,W
Scott's Oriole	Icterus parisorum	N,Sp,Su,F,W
Lesser Goldfinch	Spinus psaltria	N,R
Lark Sparrow	Chondestes grammacus	N,R
Sage Sparrow	Amphispiza belli	F,W
White-crowned Sparrow	Zonotrichia leucophrys	Sp,F,W

*Status- R=year-round Resident; N=definitely or possibly Nests on property; Sp=Spring resident; Su=Summer resident, F=Fall resident; W=Winter resident.

Table 3. Mammals Detected and Expected on the South Slope Borrego Springs Project.

Observed

Common Name	Scientific Name	Means of Detection*
Desert Cottontail	Sylvilagus audubonii arizonae	O
Black-tailed Jack	Lepus californicus deserticola	O
White-tailed Antelope Squirrel	Ammospermophilus leucurus leucurus	O
Round-tailed Ground Squirrel	Spermophilus tereticaudus tereticaudus	O
Botta's Pocket Gopher	Thomomys bottae boregoensis	B
Desert Pocket Mouse	Perognathus penicillatus angustirostris	Tr
Merriam's Kangaroo Rat	Dipodomys merriami arenivagus	Tr
Desert Kangaroo Rat	Dipodomys deserti deserti	Tr
Desert Woodrat	Neotoma lepida lepida	Tr
Coyote	Canis latrans	T,S,H
Kit Fox (uncertain)	Vulpes macrotis arsipus	T

Expected

#Western Pipestrel	Pipistrellus hesperus hesperus
#Big Brown Bat	Eptesicus fuscus pallidus
#Mexican Freetail Bat (uncertain)	Tadarida brasiliensis
#Pocketed Free-tailed Bat(uncertain)	Tadarida femorosacca
Little Pocket Mouse (possible)	Perognathus longimembris bangi
Long-tailed Pocket Mouse	Perognathus formosus mesembrinus
Spiny Pocket Mouse	Perognathus spinatus rufescens
Canyon Mouse (possible)	Peromyscus crinitus stephensi
Cactus Mouse	Peromyscus eremicus eremicus
Deer Mouse	Peromyscus maniculatus gambelii
Southern Grasshopper Mouse	Onychomys torridus
Ringtail	Bassariscus astutus octavius

Table 3. Mammals Detected and Expected on the South Slope Borrego Springs Project (continued)

Expected (continued)

Badger	Taxidea taxus
Bobcat	Felix rufus

*Means of Detection- B=Burrow; H=Heard; O=Observed; S=Scat; T=Track; Tr=Trapped.

= Commonly observed species in the Anza-Borrego Desert State Park.

Table 4. Small Mammal Trapping Results on the South Slope Borrego Springs Project.

Habitat Type	Total Traps Set	Total Animals Captured	Trap Success (%)	Organisms * D. merr	D. deser	P. penil	N. lep
Alkaline Sink-Mesquite Woodland	40	28	70	24	1	2	1
Creosote Bush Scrub	10	7	70	7	0	0	0
Ridges and Washes	30	16	53	8	0	4	4
Totals	80	51	$\bar{x}$ = 64	39	1	6	5

*-cf. Table for complete scientific names

Table 5. Annotated Floral Checklist of the Borrego Springs project site.
Legend: B-Cresoste Bush Scrub, R-Exposed Ridges in Succulent Stem Scrub, S-Alkaline Sink with Desert Microphyll Woodland, W-Bajada Washes in Succulent Stem Scrub, +-cited by Witham/Chamlee, *-non-native taxon.

Acacia greggii Gray var. arizonica Isely. +,S Cat's-claw

Agave deserti Engelm. +, R, W Maguey

Ambrosia dumosa (Gray) Payne. +, B, R Burro-weed

Aristida adscensionis L. B, R Six-weeks Three-awn

Asclepias subulata Dcne. in A. DC. W Rush Milkweed

Atriplex polycarpa (Torr.) S. Wats. +, S

Bebbia juncea (Benth.)Greene. B, W Sweet Shrub

Camissonia boothii (Dougl. in Hook.)Raven ssp. condensata (Munz)Raven. +,R Evening-Primrose

Camissonia cardiophylla (Torr.)Raven ssp. cardiophylla B Heart-leaf Evening-Primrose

Cassia armata S. Wats. B, S, W Senna

Chaenactis carphoclinia Gray var. attenuata (Gray)Jones. R Pincushion Flower

Cleomella obtusifolia Torr. & Frem. +,S Stinkweed

Coldenia palmeri Gray. B

Cryptantha angustifolia (Torr.)Greene. B, R, S

Cucurbita palmata S. Wats. B

Dalea mollissima (Rydb.)Munz. B, R

Dalea schottii Torr. B, R Indigo Bush

Dalea spinosa Gray. +,W Smoke Tree

Datura discolor Bernh. B Jimson Weed

Ditaxis neomexicana (Muell.-Arg.)Heller. B, R

Echinocereus engelmannii (Parry)Lem. var. engelmannii +,R Hedgehog Cactus

Encelia farinosa Gray ex Torr. +, B, R, S Brittle-Bush

Eriogonum deflexum Torr. ssp. deflexum R

Eriogonum inflatum Torr. & Frem. var. deflatum Jtn. +,B, R Desert Trumpet

Euphorbia eriantha Benth. B Desert Poinsettia

Euphorbia polycarpa Benth. var. hirtella Boiss. B, R, W Fairy-Mats

Table 5: Annotated Floral Checklist (continued)

Euphorbia setiloba Engelm. B

Fagonia laevis Standl. +,R

Ferocactus acanthodes (Lem.)Britton & Rose var. acanthodes +, B, R, S Desert Barrel Cactus

Fouquieria splendens Engelm. +, B, R Ocotillo

Haplopappus acradenius (Greene)Blake ssp. eremophilus (Greene)Hall. S

Hilaria rigida (Thurb.)Benth. ex Scribn. B, S, W Galleta Grass

Hymenoclea salsola T.& G. var. salsola +, B, W Cheese Bush

Hyptis emoryi Torr. +, W Desert Lavendar

Justicia californica (Benth)B.Gibson +, W Chuparosa

Krameria grayi Rose & Painter. +, B, R, S

Langloisia matthewsii (Gray)Greene. +, B, R Desert Calico

Larrea tridentata (Sesse & Moc. ex DC.)Cov. +, B, S Creosote Bush

Lepidium lasiocarpum Nutt. S Pepper-grass

Lycium fremontii Gray. S Box-Thorn

Lyrocarpa coulteri Hook. & Harv. var. palmeri (Wats.)Roll. B, R

Mammillaria dioica K. Bdg. +, R Fish-hook Cactus

Mirabilis tenuiloba S. Wats. B, R Four-O'Clock

Oligomeris linifolia (Vahl)Macbr. +, S

Opuntia basilaris Engelm. & Bigel. var. basilaris +, B, R Beaver-tail Cactus

Opuntia bigelovii Engelm. var. bigelovii +, B, R Teddy Bear Cholla

Opuntia echinocarpa Engelm. & Bigel. var. echinocarpa +, B, R, S Silver Cholla

Opuntia ramosissima Engelm. +, B, R, S Pencil Cholla

Palafoxia arida Turner & Morris var. arida B, R, S, W Spanish Needle

Perityle emoryi Torr. in Emory. R

Phoradendron californicum Nutt. S Mistletoe

Physalis crassifolia Benth. var. crassifolia R Ground-Cherry

Plantago insularis Eastw. var. fastigiata (Morris)Jeps. +, B Plantain

Table 5. Annotated Floral Checklist (continued)

Porophyllum gracile Benth. R Odora

Prosopis glandulosa Torr. var. *torreyana* (Benson)M.C.Jtn. +, S Mesquite

Psathyrotes ramosissima (Torr.)Gray. B, S

**Schismus barbatus* (L.)Thell. B, R, S

Salvia columbariae Benth. +, B, R Chia

Salvia vaseyi (Porter)Parish. R, W

Simmondsia chinensis (Link)C.K.Schneid. +, B, R Jojoba

**Sisymbrium altissimum* L. S Tumble-Mustard

Stephanomeria pauciflora (Torr.)A. Nels. B

Suaeda torreyana S. Wats. var. *ramosissima* (Standl.)Munz. S Seep-Weed

Trixis californica Kell. +. R



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R. MITCHEL BEAUCHAMP
Principal Consultant

23 May, 1979

Ms. Nancy Laswell
PRC TOUPS CORPORATION
2223 Avenida de la Playa
La Jolla, Ca. 92037

Dear Ms. Laswell;

The following points are in response to your request for comments on various aspects of the Ram's Hill Project;

1. Archaeological site protection with salvaged xerophytes. The use of native plants, particularly spiny cacti and succulents, to serve as a pedestrian barrier to archaeological sites is a fine concept at first look. Presumably the plants would be salvaged from development sites rather than from areas planned as natural preserves. Also, these transplanted plants would not be irrigated.

The major drawback I see to this concept is the density of mature plants which could be naturally sustained in such a situation. The natural density of desert plants appears to be determined mostly by available moisture. Placing mature ocotillo, agaves and cacti in abnormally high densities may serve as a barrier initially, or for three or four years, but I would think they would eventually die out. Irrigation of these barriers would probably sustain the high density but the high possibility of rot or too rapid growth of the plants is also present.

I would think that an interpretive approach to the site, rather than a pristine preservation view would serve more purposesin the long run.

2. The impact of increased percolation on Mesquite Woodland habitat. Recharge of the adjacent aquifer area with treated sewage water does not appear to impact the surface aspects of the woodland habitat. The roots of these trees are probably very deep and already within the water table. The increased nutrients brought into the root zone would increase the biomass of the trees yearly but to what extent would depend on the amount and kinds of nutrients in the recharge.

The fluctuating nature of the recharge, i.e. three months of flow in the summer and nine months of use on golf courses (an allegedly acceptable use of valuable water in desert situations) would be attenuated by the underground flow and would probably not be reflected in

a change from the normal, annual growth cycle.

Increased water about the percolation site would bring in increased weed growth, particularly halophytic species, but I believe this problem has been anticipated in the management plant for the sewage treatment facility.

Regards,

R. Mitchel Beauchamp

A P P E N D I X C

ARCHAEOLOGY

RESULTS OF AN ARCHAEOLOGICAL FIELD INVESTIGATION NEAR BORREGO SPRINGS, CALIFORNIA

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Figure 1 - Vicinity Map 3A

Figure 2 - Route Map 20A

Attachment - Recorded Sites

Abstract

On June 1, 2 and 3 and August 24, 25 and 26, 1977, an archaeological survey was conducted on 3,000 acres in Borrego Springs. This work amounted to a re-study of the property since it had been originally surveyed in 1973 by San Diego State University. The results were essentially the same; however, this more recent work identified one new site. The following report describes the work and findings.

I. INTRODUCTION

The Borrego Springs Archaeological Study has been conducted in an area about which there is little knowledge. A previous survey of the subject property was performed in 1973. For the purposes of this report, the discussion will concentrate on the archaeological record contained within the 1,500 acres to be developed, although the project setting and general description sections will cover the full 3,000 acres.

A. Project Setting

The Rams' Hill planned resort community is contained within a 3,000-acre irregularly shaped parcel. The long axis is oriented in a north/south direction (see Figure 1). This property is located southeast of the community of Borrego Springs in eastern San Diego County. A more exact description is as follows: Portions of Section 23, 25, 26, 27, 35 and 36 Township 11 South, Range 6 East and a Portion of Section 31, Township 11 South, Range 7 East, San Bernardino Base and Meridian.

The property is intersected by Borrego Valley Road on the north and is bounded on the west by Yaqui Pass Road. Old Borrego Springs Valley Road traverses the property diagonally in an east/west direction. This road has been abandoned for many years and is used primarily by off-road vehicles (Figure 1).

The land use on surrounding properties is a combination of natural open space and low density residential settlement. One resort-

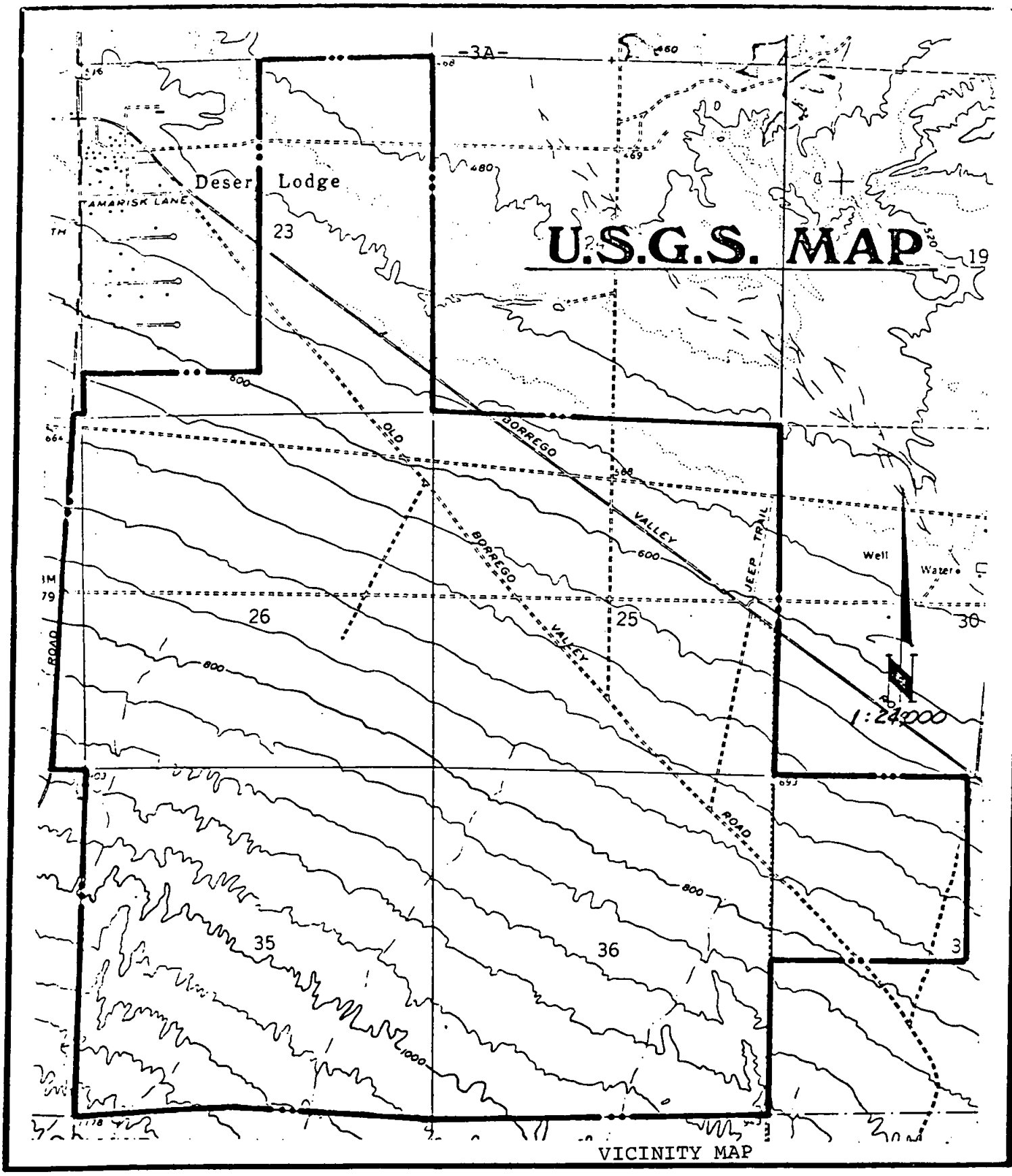
motel complex is located near the northern extension of the property. In general, the pattern represents one of minimal use.

B. Environmental Setting

The Rams' Hill planned resort community is set within a desert environment. The subject property is part of a north facing Piedmont slope which extends into the Borrego Sink, a former lake bottom. It is characterized by gently sloping alluvial fans in areas above the 800 foot elevation and a relatively smooth alluvial surface below 800 feet.

The soils are all derived from alluvium. Fans located at higher elevations are severely dissected and consist of a wide range of materials from clay loam to gravelly cobbly loam. The lower elevation soils are fine grained and gravelly loams. All of the areas are subject to severe erosion, which has an effect on the presence of archaeological sites.

The biological habitat on the subject property consists of a creosote bush scrub plant community. The following plants are the dominant ones found in this community: creosote bush, ocotillo, cholla cactus, annual forbs and mesquite bush. The following animals are associated with this community: coyote, desert woodrat, blacktail jackrabbit, gambel's quail, roadrunner, rock wren, desert iguana, zebra tailed lizard, desert horned lizard, western leaf-nosed snake, shovel-nosed snake and sidewinder.



VICINITY MAP

rams hill

The environmental conditions existing on this property are ideal to support a seasonally based aboriginal population Indeed, when the Borrego Sink was full, it should have had the capabilities of supporting a sizable human population.

II. BACKGROUND

A. Cultural History

Four cultural complexes or horizons have been identified in the Anza Borrego Desert area: the Pre-projectile, the Paleo-Indian, the Early Archaic and the Late Archaic Horizons. There are problems in the desert region which make definite time placements difficult. These are generally related to topographic and climatic conditions. These same conditions also make site reservation rare. The two principal sources of damage to archaeological sites in the Borrego area are: a) natural erosion by wind and water; b) vandalism by relic collectors and off-road vehicles. Each factor weighs heavily against total site preservation.

Little archaeological work has been published or completed about the Borrego Springs area, although reports are available for the immediately surrounding areas. The archaeological record from the drainage of the San Luis Rey River has been fairly well documented by True, McCown and Meighan (True 1956, 1957, 1958; McCown 1955; Meighan 1954). Desert regions east of Borrego have been studies by Treganza (1942, 1945) and others. Wallace (Wallace 1958) conducted a survey on the Anza portion, while

Meighan conducted surveys on the Borrego portion (Meighan 1959) of the Anza Borrego desert. Other work has been done in the Borrego Sink area, although no published work is yet available.

Pre-projectile

Questions regarding the length of time man has occupied the desert have long gone unanswered. Most of the archaeological materials that have been found from this period include teshoa flakes, choppers, scraper planes and ovate bifaces. Rogers used the term "Malpaid" (Rogers 1939) to describe this early pre-projectile period. He later revised his description of this complex in 1950 and called it Early San Dieguito I. Evidence of early occupation in the desert was obtained by Childers (1974) with his discovery of the Yuha Man. Subsequent dating placed the existance of Yuha Man at between 21,500 to 32,000 B.P. Such dates are of questionable accuracy and are still being examined.

Wilke (1974:78) estimates that pre-projectile peoples in the New World would have pursued a life style based upon unspecialized hunting and gathering. Groups would have consisted of a few related families, travelling within a limited area for seasonal resources.

Paleo-Indian (San Dieguito)

Rogers divided the San Dieguito complex into three chronological phases: the San Dieguito I, II and III. The San Dieguito I is

usually identified by desert pavement, desert trails, cobble ridges, trail shrines and sleeping circles (Rogers 1966). Desert pavement can be defined as: "residual features resulting from surface degradation or large expanses of mildly inclined alluvial materials" (Rogers 1966:39).

Malcolm Rogers indicated that sleeping circles were temporary shelters used only a few nights at a time. The terrain on which the circles are distributed (gravel terraces which are covered by desert pavement) tends to indicate that the land was used during a time when water was more available than at the present time or in the recent past. Begole (1973) defined three types of circles: a) rimless, b) rock outlined, and c) tiered, rock outlined. The time frame is placed as San Dieguito I.

Nearly all the prehistoric sites found on the subject property contain sleeping circles. Most of them have some flakes or artifacts nearby, but not in the circles. At Site 2, which covers a large area, artifacts generally are concentrated in a small ravine.

What needs to be considered is whether the sleeping circles are all from the Paleo-Indian Horizon, or whether they represent usage by later peoples. The fact that Site 2 has artifacts associated with the Late Archaic Horizon in an area which contains sleeping circles tends to indicate that the terrain was suitable for habitation by later people.

There are many instances of sleeping circles, however, the occurrence of Late Archaic artifacts is localized to a small area.

Sleeping circles are thought to have been bases composed of temporary brush shelters used only a few nights at a time. They seldom have artifacts associated with them. The circles are often found on mesas and rocky terraces. They were made in three basic shapes: a) rimless; b) rock outlined; c) tiered, rock outlined (Begole 1973:31-55, Rogers 1939). The nature and distribution of sleeping circles depends upon the types of terrain and whether they were used for habitation or for defense. Approximately 90 percent of the clearings recorded are circular. The other ten percent are oval, with the exception of an occassional rectangular one. Circles often occur in groups ranging up to nine in number. Rogers speculated that such clearings were made by nomadic peoples with each single family constructing an individual clearing. These clearings were quite numerous and Robers felt that they reflected a small nomadic population building many shelters over a period of thousands of years (Rogers 1966:45).

During the period of the San Dieguito I, most of the artifacts, circles, cairn structures and trails were created while much of the alluvial surface was more soil-like. Many of the trails, circles and cairns are so entrenched within the desert surface that it is often very difficult to clearly distinguish them

from the pavement. Many are of such an indefinite state that it is difficult to determine whether they resulted from erosion or from man-made causes. The pattern of distribution suggests that they were made during a time when water was more readily available than at the present time (Rogers 1939). Warren and True have placed this period around 9000 AD (1961:261,271). The San Dieguito is considered to be part of a more widespread tradition, including the Lake Mohave Complex and the Great Basin Complexes. These complexes are often associated with now dried or extinct lake beds and a generalized artifact assemblage (Warren and True 1961:271).

Sleeping circles seemed to have gone "out of style" during the San Dieguito II phase. Rogers defines this as a time of tool specialization and settlement shifts (Rogers 1939). Settlements moved from gravel terraces to now extinct Pleistocene lake beds. The San Dieguito III continued these trends with further tool specialization and locational changes which were probably due to environmental shifts.

A trend toward pressure flakes and away from percussion flaking; an increased use of chalcedony; and more specialized tool types all characterized the shifts made from San Dieguito I to San Dieguito II and from San Dieguito II to San Dieguito III (1939: 27-27). Other than typological changes, no real stratigraphic differences have been noted for the three phases.

Early Archaic

The next complex recorded for the desert area is referred to as the Early Archaic, the Desert Tradition or the Pinto Basin Culture (Norbeck and Jennings 1955). During this period the deserts became drier and inter-montane regions wetter. This caused a population shift during the Archaic which resulted in people exploiting more coastal resources.

The Pinto Basin Complex is evident around 4000 BP, following the Desert Tradition. This tradition emphasized seed gathering and limited hunting exploitation. The archaeological record consists of baskets, flat milling equipment and milling stones. Norbeck defined this desert tradition as being limited to bands of 20 to 30 people, who wandered seasonally to exploit resources in limited and defined territories. This period was marked by increased rainfall, lower temperatures and higher population concentrations. Good examples of such sites were found at Indian Hill, in the southern section of Anza Borrego Park by Wallace in 1958 (Wallace 1959:59).

Sites recorded for the Pinto or Amargosa period are hard to define. Dates from Truckhaven Man were recorded at 3890 - 2500 years B.P. (Childers 1974). Sites from this period are limited. It is suggested that hunting and gathering activities took place more in the mountain regions than in the desert regions due to better and more abundant vegetation (Weide 1974:81). A factor

which reduces the probability of site preservation is Lake Cahuilla, where the increased fluctuations of the water level greatly influenced the location and types of settlements.

Sites of the Pinto Basin Period are characterized by limited archaeological remains, since seed gathering does not require large tool kits. Site remains often contain fire-cracked rock and flakes without diagnostic projectile points. These remains are difficult to assign to a cultural period. Often such sites are inter-mixed with the cultural remains of people who came into the area at a later time. This further increases the difficulty of determining proper time sequence and cultural affinity.

Rogers (1950) shifted his terminology from Pinto-Gypsum to Amargosa II, while other authors have retained the Pinto point terminology which is dated from approximately 5000 to 2000 AD (Warren and Crabtree 1973). Around 2000 AD, the Amargosa points began being made in larger quantities (Wallace 1962, Rogers 1929: 16). The problem here is that unlike the Great Basin chronology for Amargosa points, knowledge of the Amargosa in the Southern California deserts is extremely spotty. Little is really known about the environmental adaptations or hunting skills developed by the Amargosa for occupying the desert region. Time sequences for this area are therefore not as complete as they are for the Great Basin areas.

Late Archaic

The Late Archaic Horizon is distinguished from the Early Archaic Horizon by changes in tool typology. This is reflected particularly in arrowpoint changes. One type of Late Archaic arrowpoint, the Rose Springs point, is dated around 500 AD for the Western Great Basin. Some time after that, it is thought that a ceramic tradition was established along the Colorado River (Rogers 1945:169). The people who established this ceramic tradition were referred to as the Yumans. Even the term "Yuman" has caused some confusion, with some authors substituting the term "Patayan" for this cultural phase (Schroeder 1957, Colton 1945).

Rogers (1945) felt that the Yuman I were confined to the Lower Colorado River area and that the Yuman II moved into the Salton Sink with the rise of the Lake Cahuilla stands. Such sites here are dated at 1050-1450 AD (Rogers 1945:190-191). Accurate dating, however, is obscured by the rise and fall of the Lake Cahuilla sea stands. Each change in water level altered the archaeological remains in the area. Weide (1974:84) suggests that two things occurred with the final decline of the lake: a) a population shift from the Salton basins to the Colorado River valley and mountain regions to the west; and b) an expansion of agriculture into the Colorado Desert away from the river made possible through improved irrigation practices.

Post-lake Cahuilla is referred to as Yuman III by Rogers (1945). These sites are generally seasonal campsites associated with mesquite dunes and springs. Yuman sites dating around 900 to 1000 BP have been recorded for Scissors Crossings, Vallecito, Mason Valley and Coyote Canyon. These sites are thought to have been gathering camps of either the Dieguito or the Kamia.

It is with the Late Archaic peoples that cultural identification becomes very difficult, if not impossible for the desert regions. Much confusion exists over whether the area was occupied by the Southern Diegueno, by the Kamia or by the Desert and Mountain Cahuilla. The remaining section will deal with such issues.

Much of the confusion regarding tribal affinities resulted from Kroeber's work on California Indians published in 1925. The following three dialects were recorded for the desert area after 1769.

a) Southern or Desert Diegueno: Speakers of this dialect are thought to have occupied the southern half of the Anza Borrego Park, south of the San Felipe drainage.

b) Desert Cahuilla: Desert Cahuilla speakers lived at the southwest edge of the Santa Rosa Mountains and at Travertine Point.

c) Mountain Cahuilla: Speakers of this dialect lived in the Anza Borrego Desert Park, above San Felipe.

Many researchers believe that a fourth dialect, the Kamia, existed between the Colorado River and San Diego County (Gifford 1931:1). Confusion exists over which group occupied each region. This is caused by the desert terrain and by ecological adaptions by each group.

Gifford defined the Kamia region as being within the New and Alamo River regions. These people were a semi-sedentary, agricultural people (Gifford 1931). Spier defined the Diegueno territory as one occupied by hunting and gathering peoples (Spier 1923:297). The desert regions were seen by both to be areas of heavy interaction and trade routes. Although the Kamia are considered agriculturalists by Gifford, clear cultural identity for desert groups are not certain. Some archaeologists feel that the Kamia were part of the Southern Diegueno peoples who moved into Imperial Valley and became agriculturalists in the 1800's. Some consider the Kamia as "Desert Dieguenos", who drifted back and forth between gathering and agricultural life styles. Still others believe that the two groups were distinct except in the desert regions where inter-mixing took place (Gifford 1931, Hedges 1971, Lindsay 1973, Spier 1923). Although it has been shown that linguistically the Kamia dialect is distinct from the Diegueno dialect, no such distinction is possible in the archaeological record. Further, since the ecological constraints that were placed on each of the three cultures; Diegueno, Kamia and Cahuilla, limit the type of exploitation that was possible, it is extremely difficult to deter-

mine the exact cultural affinity of the archaeological remains. Unless some type of oral tradition is available, many Late Archaic sites in the desert could contain elements of all three cultural groups.

Surveys conducted by both Wallace and Meighan (1958-1959) indicated that there are over 173 sites in the Anza Borrego area, which date before 1000 AD. Areas of highest concentrations include San Felipe Creek, Grapevine Canyon, Coyote Creek and Indian Hills.

Because of the confusion that exists over which Archaic peoples inhabited the desert campsites, a short summary of each group will be given in order to better understand their ecological adaptions.

The Diegueno tradition consisted of local village groups who used seasonal transhumant patterns. Plant staples included mesquite bean, agave, palm and cactus fruit in desert regions; and acorns, sage and seeds in the mountain areas. Tool types included the mortar, pestle and milling stones. Basketry and pottery were developed. Pictographs are recorded for the Diegueno, particularly in the Indian Hills area. Known Diegueno villages include San Felipe, La Posta, La Laguna, Manzanita, Vallecitos, Carrizo, Jacumba, Cuyapaipe, Agua Caliente, Hapaha Flat, Scissors Crossings and Grapevine Canyon. Other Diequeno areas include Yaqui Wells, Mountain Springs, Pinyon Mountain, Dos Cabezas and Mason Valley.

Cahuilla society was divided into patrilocal lineages and into two exogamous moieties, the Wildcat Moiety and the Coyote Moiety. They were further divided into the Mountain Cahuilla, who occupied areas north and northwest of Borrego Park, and the Desert Cahuilla, who occupied the extreme northeast end of the park, near Travertine Point and southern Santa Rosa Mountain. Known Cahuilla campsites existed at Rockhouse Canyon, Horse Canyon (both belonging to the Wildcat Moiety) and in Coyote Canyon (Coyote Moiety).

The Kamia are considered to be a group of Yuman speakers who were localized in the area of the New and Alamo Rivers, and maintained close contact with the Colorado tribes to the east and the Southern Diegueno to the west (Weide 1974:34). Kamia economy involved a combination of agriculture, hunting, gathering and trade. Socio-political organization was on three levels; chief, patrilineal exogamous lineages and the extended family. The basic economic level was that of the extended family.

There are several interesting differences between the Diegueno and the Kamia in the archaeological record. Both groups used the mano and metate. The Kamia, however, used the mano in a forward/backward motion, while the Diegueno used more of a circular motion. Gifford reported that lithic tools used by the Kamia were primarily made using stone-on-stone percussion flaking, not pressure flaking (Gifford 1931:28). Kamia ceramics are assigned to the Lower Colorado Buff Ware or Tizon Brown Ware

classifications, as are Southern Diegueno ceramics (Dobyns and Euler 1958). The Kamias used cottonwood mortars. The Southern Diegueno utilized bedrock mortars and stone pestles. This difference is caused mostly by the types of grinding surfaces available to both groups. Bedrock mortars are far more common in the mountain regions, than in the desert areas. Both the Diegueno and Kamia points have been assigned to the Cottonwood triangular or Desert Side notched types.

To restress the problem of determining cultural affinities, both the Southern Diegueno and the Kamia, as well as the Desert Cahuilla, had complex material cultural assemblages, but as with all archaeological sites, the bulk of such resources has not been preserved. Thus, the researcher is left only with fragmented records often containing no clear determination of cultural origin.

B. Record Searches

Background research into recorded archaeological sites was conducted at both the San Diego Museum of Man and San Diego State University Department of Anthropology. Only the University indicated any known sites in the project vicinity. The University records, however, show only site numbers and no descriptions (Attachments A and B). The sites are SDi-4598, SDi-4599, SDi-4600, SDi-4601, SDi-4602. In addition to the sites noted above in the University records, Ezell's report (1973) shows one other site on the property, Cal:E:15:6. (see Attachment).

C. Previous Work on the Property

In October of 1973, an archaeological assessment of the Borrego Springs property was conducted by Dr. Paul Ezell of San Diego State University. This study revealed the presence of four sites on the property and one nearby. All of them were subsequently recorded at the University. These sites are described as being "sites of aboriginal activity including camp sites, sleeping circles, and trails" (Ezell 1973:2). Each of these sites generally corresponds to those noted in the record search. However, since no site descriptions were given for the recorded sites, a brief summary of the sites will be presented here.

Cal:E:15:1 - This site consists of clusters of quartz flakes, chipping waste and several cleared areas of desert pavement.

Cal:E:15:2 - This site is located in a wash and consists of pottery sherds and stone tools.

Cal:E:15:3 - This site consists of two cleared circles and two stone tools.

Cal:E:15:4 - This site consists of sleeping circles, cleared areas of pavement and a trail in association with potsherds and lithic artifacts.

Cal:E:15:5 - This site is made up of a wide scatter of ceramics.

Cal:E:15:6 - This site consists of a scattering of 20 potsherds.

Cal:E:15:7 - This site is a remnant of a recent cabin.

Cal:E:15:8 - This site is off the property and is a large concentration of potsherds and lithic flakes.

Sites Cal;E:15:2, 4, 5 and i are considered to represent Cahuilla - Kumeyaay occupation area. Cal :E:15:1 and 3 are considered San Dieguito.

III. ARCHAEOLOGICAL SURVEY, METHODOLOGY AND FINDINGS

A. Methodology

The archaeological survey was divided into two phases. Phase I, conducted on June 1, 2 and 3, consisted of studying that portion of the 3,000 acres to be directly impacted by construction, the western 1,500 acres. A crew of six archaeologists, under the direction of Stanley R. Berryman, walked a series of north/south and east/west intersecting transects, beginning at the northwest corner. In this manner, the western 1,500 acres were covered. Two sites were located in this phase.

Phase II was conducted August 24, 25 and 26. During this phase, an archaeological field survey was conducted on the approximately 1,500 acres of the subject property which are to be designated as open space. A crew of four archaeologists, under the direction of H. Keith Polan, walked a series of north/south transects over the 1,500 acres in the same manner as the western 1,500 acres had been surveyed. In this phase three of the four recorded sites, and two new sites were located. It was found that at least one of the recorded sites was misplaced on the U.S.G.S. Map, perhaps because of a relatively recent change in the topography of the area. This possibility, however, was neither considered nor tested during the course of the survey.

Since this area is to be open space, coverage was concentrated in the foothill area in the southern one-quarter of the property, although the entire area was covered by this survey (see Figure 2).

A total of 240 man hours were expended during the course of these two phases. Because so little emperical data is available on the Borrego area, the property was fully surveyed. Due to the open terrain and sparse vegetation, less time was spent per acre on this project than is usual. An average of 12.5 acres were covered per hour by each surveyor.

B. Survey Results

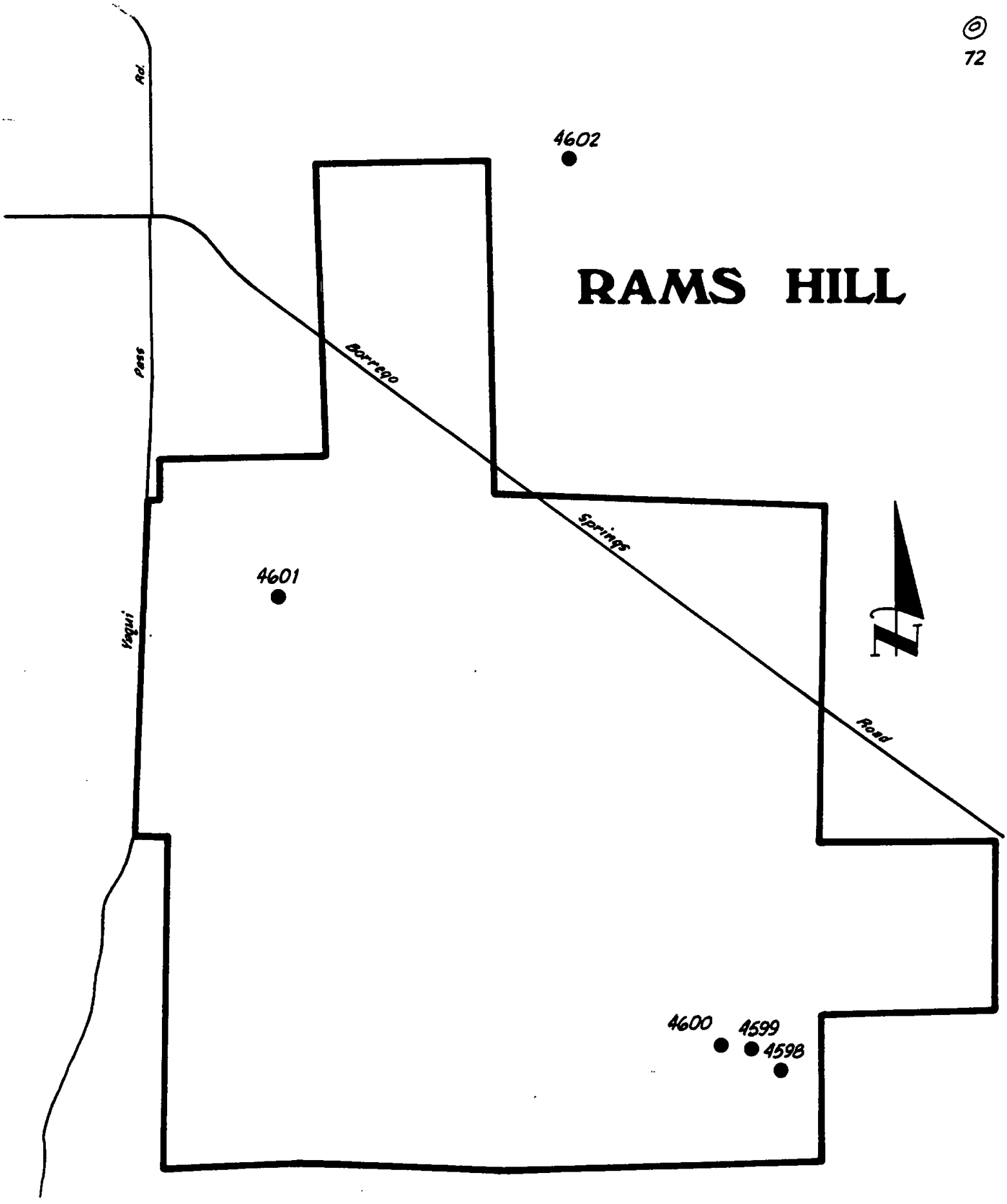
A total of seven archaeological sites were located by the survey. Two of these are in the area designated as the development area, and five are in the area to be left as open space.

Site 1 (Cal:E:15:7)

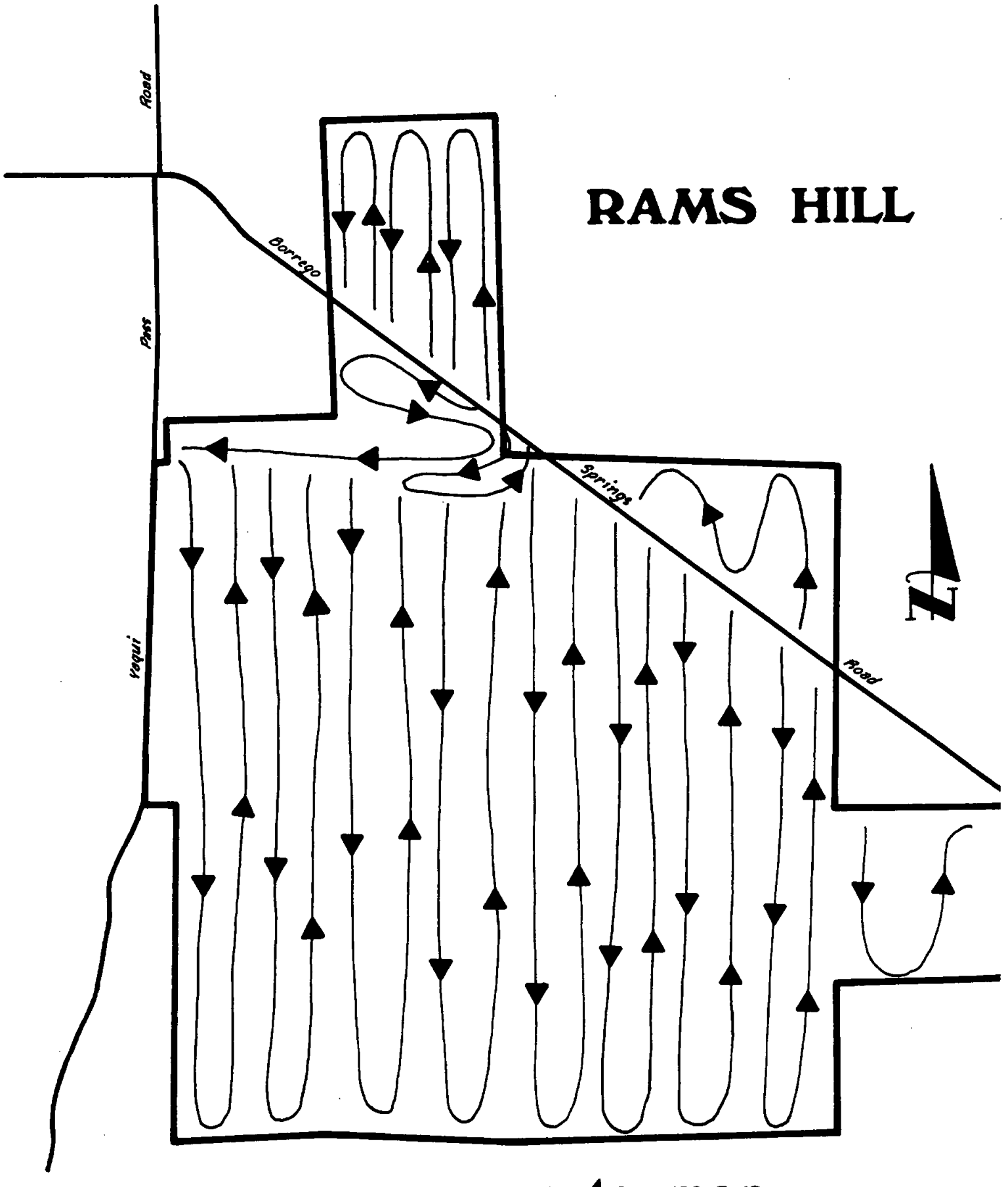
This site consists of a very recent stone chimney. Very few other artifacts are present. The fireplace is made of local, native stone and reinforced with spring steel. This site is not archaeologically significant.

Site 2 (Cal:E:15:4)

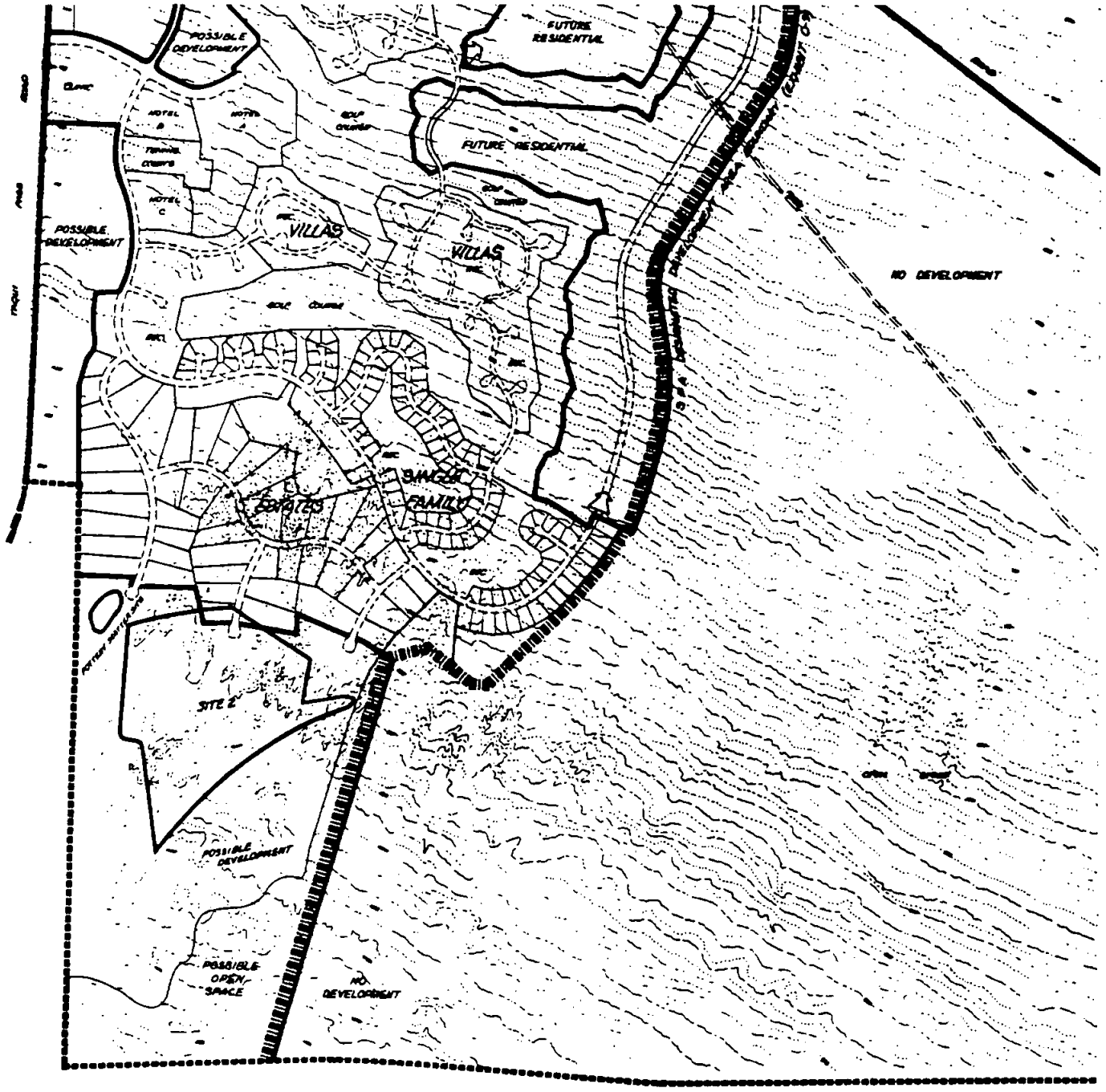
This site is much larger than was indicated in Ezell's report (Ezell 1973). It consists of approximately 75 unlined "sleeping circles", trails, a light but concentrated pottery scatter, one blade fragment, chipping waste and two metates. The circles



archeological site map



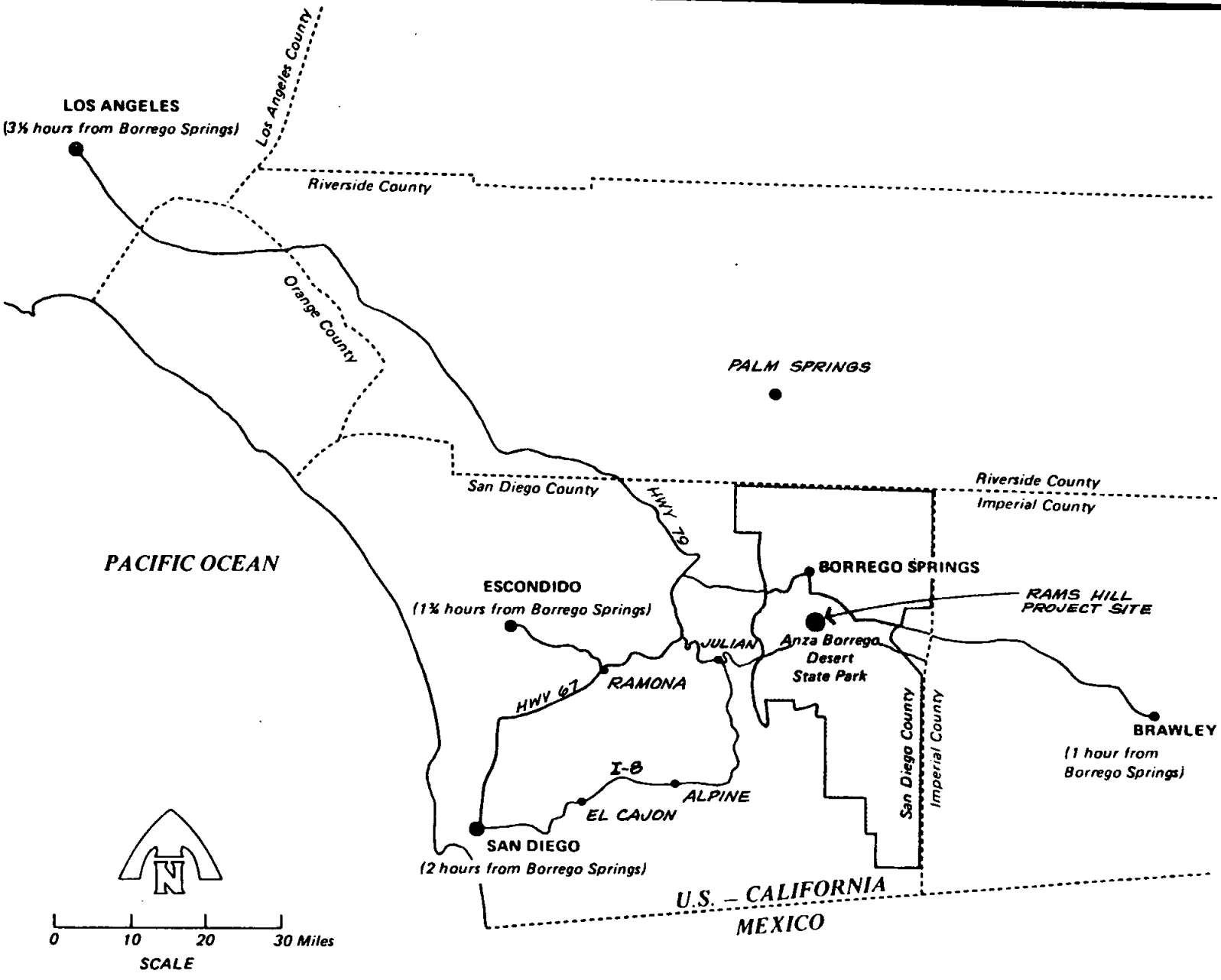
survey route map



archeology site 2

RAMS HILL

RAMS HILL



regional vicinity map

are generally not associated with the artifacts, but are interconnected by the numerous trails. These trails continue off the property and probably extend into the foothills. Site 2 is located in the southwest corner of the subject property. Most of the features that make up the site are contained within the area shown as "not a part". Because the site is spread out over the many dissected areas of the alluvial fan, it could be separated into numerous smaller sites. This would be cumbersome, however, and the trails do show an interrelationship. The area covered is nearly 2,100 feet north/south by 3,000 feet east/west. It is irregular in outline and follows the alluvial ridges.

Site 3 (Cal:E:15:1)

This site consists of stone flakes and two sleeping circles, one of which is stone lined. The site is situated along the top of a low-lying north/south trending ridge in the extreme southeast corner of the subject property.

Site 4 (Cal:E:15:2)

This site is situated in a wash area and has, therefore, been susceptible to extensive damage from erosion. Although Ezell noted pottery and tools when he found the site (Ezell 1973:3), all that was found during the present study were several very large potsherds of Tizon Brown Ware.

Site 5 (Cal:E:15:3)

This site is located atop a low-lying ridge, much smaller than the one upon which Site 3 is located. The site consists of two unlined sleeping circles, three stone-lined circles, four flakes (one utilized) and one core fragment. This kidney-shaped site is roughly 50 feet in length and 20 feet in width. It conforms with the shape of the ridge top.

Site 6

This is an isolated,unlined sleeping circle. It is located on a small berm near the southern boundary of the subject property (see Figure 4).

Site 7

This small site consists of a stone-lined circle, approximately .7 meters in diameter, situated atop a small hill near Old Borrego Valley Road. The circle is the right size for a fire hearth, but no evidence of fire could be found.

It should be noted here that sites Cal:E:15:5 and 6 were relocated. These sites, which were near the sink, may have been removed or buried by the recent floods.

C. Discussion

As was indicated in the cultural history section, little work of an archaeological nature has been carried out in the Borrego Springs area. For this reason, no specific research objectives

were delineated for this project and is, therefore, descriptive in nature. This does not, however, eliminate the possibility of comparing the sites with the cultural background. No direct evidence is available to assign these sleeping circles to a definite cultural horizon, although there is also no evidence to refute Roger's assumption that they are part of the Paleo-Indian Horizon.

To adequately assess the significance of the resources, it is necessary to consider the various aspects inherent in them. The information which could be gained through thoroughly researching these sites is one of the most important aspects. As was indicated above, not a great deal is known about Borrego Springs archaeology. Even the work cited by Rogers and Begole is somewhat speculative when it comes to the cultural affiliation of the sleeping circle. Very specific research problems need to be drafted and carried out in the most detailed and painstaking manner. As has been shown by Davis (1963), desert pavement sites hold a wealth of data which is not readily visible on the surface. The fact that there are a number of sites with circles on this property and one site which contains a large number of circles with trails is unique.

These sites are rare and unique. The attrition rate of desert sites through off-road vehicle activity and vandalism has made a cluster

of circles with a network of trails a rare occurrence. Therefore, if they are looked at as a part of our cultural heritage, Sites 2, 3, 4, 5 and 6 must be considered significant. A site as large and complex as Site 2 is not only significant, but also rare. Since so many desert archaeological resources have been lost, Site 2 could be considered analogous to a rare and endangered animal or plant.

D. Impacts by the Proposed Action

Implementation of the Rams' Hill planned resort community result in the loss of Site 1 and a small part of Site 2 (see Figure 4). This loss would come about through construction activities of the project.

Indirect impacts might occur on those portions of Site 2 not to be built upon. Sites 3, 4, 5, 6 and 7 may be indirectly impacted by implementation of the Rams' Hill planned resort community.

E. Mitigating Measures

Site 1 - Since this site had been recorded previously and this study has not located any artifacts other than modern garbage, no mitigating measures are recommended.

Site 2 - Preserving this resource is the best way to mitigate impacts to it. This can be achieved by providing a buffer zone between the new construction and the resource. A natural buffer

of native Cholla cactus and Ocotillo bush about six feet wide would be sufficient. Access to the site should be limited. Another means of protection would be to place the site under the protection of a homeowners association placing carefully laid out gravel trails and interpretive signs near the features. This would create an open air museum.

We feel that if construction on this resource is kept to a minimum and if the site is preserved and protected, it would be a highly beneficial impact of the project.

In the areas where construction would encroach onto the site, salvage of the data must take place. Salvage of the part of the data inherent in this part of the site must include the following:

1) Preparation of a comprehensive, problem oriented research design

2) Preparation of a base map locating each "sleeping circle"

3) Mapping and collecting of all surface artifa ts

4) Test excavation of 35-50 percent of the effected site area - methodology must be specified in the research design

5) Cataloguing and analysis of all artifacts

6) Conducting the pertinent special studies: C 14, palentological, lithic, ethnobotanical

7) Reporting the findings of this research to the County of San Diego according to American Antiquity standards

Salvage is not presented here as a means to mitigate impacts upon the resources adequately. It merely would be a method to retrieve some data prior to the loss of the resource. Preservation is considered the best mitigating tool.

Sites 3, 4, 5, 6 and 7 - All of these sites are in the area to be left in open space. It is recommended that indirect impacts could be kept to a minimum by limiting off-road vehicle access to the property. This can be achieved by closing off Old Borrego Valley Road.

IV. SOURCES

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B. Persons and Institutions Contacted

Grace Johnson	San Diego Museum of Man
Bette Jo Garrett	San Diego State University
Richard Gadler	County of San Diego

C. Personnel

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Keith Polan	Lead Field Archaeologist
Judy Berryman	Archaeologist, Culture History
Michael Frishberg	Archaeologist
Morgan Fox	Archaeologist
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May 8, 1979

RE: DEIR's letter responses on the archaeology of Ram's Hill Project, Borrego Springs.

Dear Nancy:

Pursuant to your request I have attempted to answer the pertinate questions on the archaeology sites at the Ram's Hill project. These responses will be numbered in accordance with those on the County of San Diego's letter of March 27, 1979.

17. Most of the archaeological sites located in proximity to the Borrego Sink are related in some manner. The fact that there is a site of potential National Register caliber in the vicinity of the Ram's Hill increases the importance the resources located on the subject property. It does it by widening the resource or study base. It also is not uncommon for sites of lesser significance to be included into a National Register District with a site of National Register Quality.

As to the potential that the project would degrade the status of of the adjacent proposed district, it seems highly unlikely that this would occur. The project because it does not directly impact the area should not decrease the value of the district. However, indirect impacts from possible increased useage of the area by the project's residents could cause a degredation of the district. Therefore safeguards against this will need to be undertaken. The most practicable of these would be to fence the project area adjacent to the proposed district.

18. I am currently conducting new record searches at the appropriate institutions. These will be forwarded as soon as they are available.

19. Attached to this letter is a route map. Each line represents a hypothetical mid-point which was used by a crew of six persons for the study transects. No areas were left unstudied.

20. No sketch maps are availble of each sleeping circle. It is my opinion that the mapping and photography of each site can be best accomplished as part of a comprehensive mitigating action. I have included, however, photographs which show portions of Site 3.

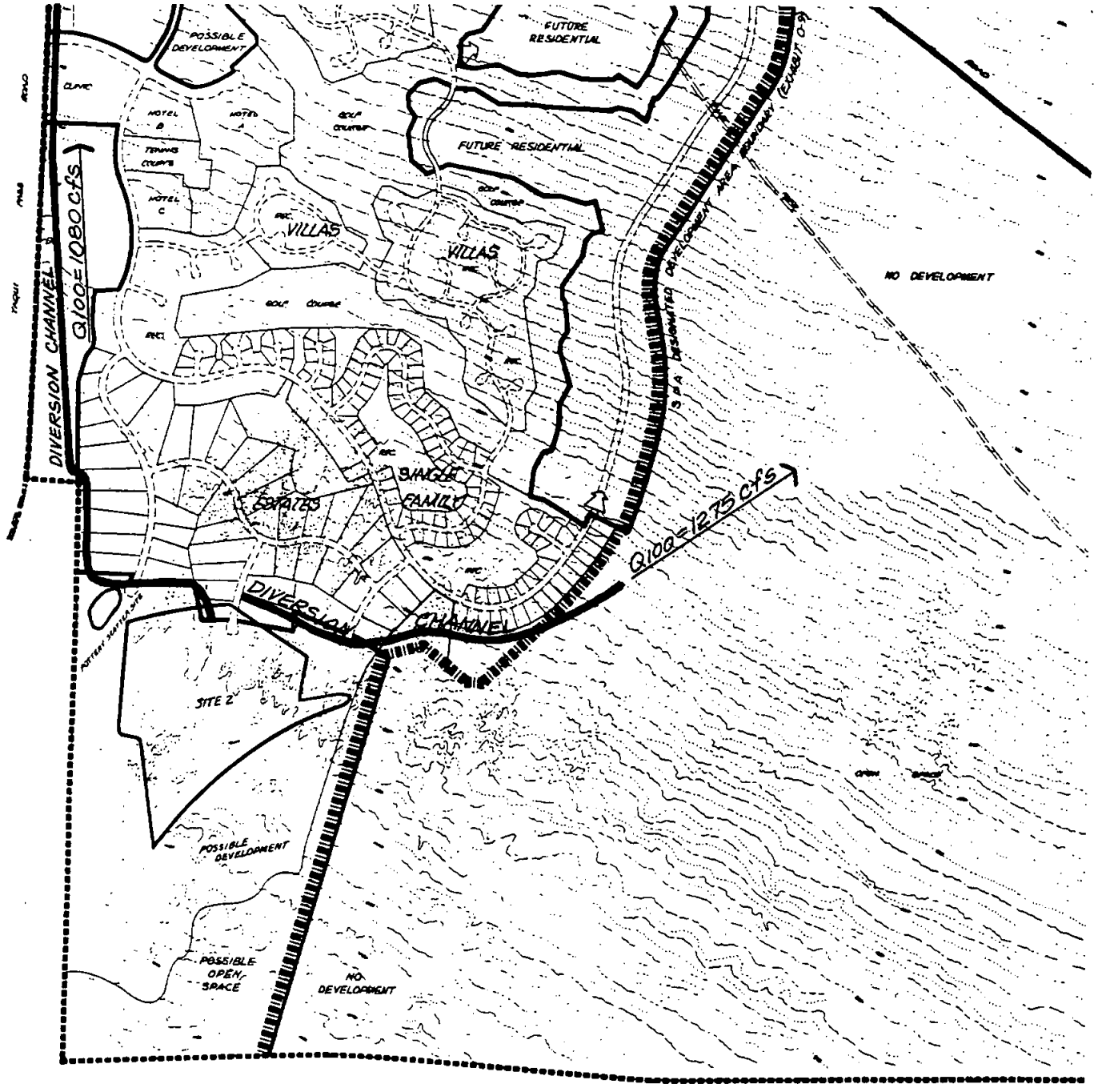
21. I am unable to answer this question because I lack the proper familiarity with the overall project phasing. I do believe that when construction begins the site in question should protected from any intrusions. I have had a number of informal discussions with botanists who indicate that a natural plant barrier might

work to protect the resources. They have stated that the individual characteristics of each plant used in the buffer would have to be considered.

I hope that I have answered the questions satisfactorily. If you need additional information please contact me.

Yours Very Truly:

Stanley R. Berryman
Consulting Archaeologist



archeology site 2

RAMS HILL

DEPARTMENT OF ANTHROPOLOGY
CULTURAL RESOURCE MANAGEMENT CENTER
COLLEGE OF ARTS & LETTERS
SAN DIEGO STATE UNIVERSITY
SAN DIEGO, CA 92182
(714) 286-6300

ARCHAEOLOGICAL SITE FILES RECORD SEARCH REPORT

Source of Request- ACT

Date of Request- May 1, 1979

Date Request Received- May 7, 1979

Project Identification- Ram's Hill

( ) The San Diego State University files show no recorded site for the Project area.

(XX) The files show site locations in the vicinity/on the project area. Site forms are included.

Record check by- [signature] Date- May 9, 1979

Signed- L. L. Loud

ARCHAEOLOGICAL SITE SURVEY RECORD

1. Site SDi-72 2. Map Borrego AMS 1944 3. County San Diego

4. Twp. ____ Range ____; ____ ¼ of ____ ¼ of Sec. ____

5. Location G.C. 6646/1122. At NE end of Borrego Sink

6. On contour elevation 450'

7. Previous designations for site ____

8. Owner ____ 9. Address ____

10. Previous owners, dates ____

11. Present tenant No tenant

12. Attitude toward excavation ____

13. Description of site A surface pottery site

14. Area ____ 15. Depth surface 16. Height ____

17. Vegetation ____ 18. Nearest water ____

19. Soil of site ____ 20. Surrounding soil type ____

21. Previous excavation none

22. Cultivation none 23. Erosion slight

24. Buildings, roads, etc. none

25. Possibility of destruction slight

26. House pits not noted

27. Other features none noted

28. Burials none noted

29. Artifacts Desert ware potsherds only

30. Remarks In terms of the Roger's system of dating, this site is Yuma 2 ?

31. Published references ____

32. Accession No. ____ 33. Sketch map ____

34. Date 1930's & 1940's 35. Recorded by A.E. Treganza 36. Photos ____

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

ARCHEOLOGICAL SITE SURVEY RECORD

SITE No. SDI-4598

1. Previous Site Designation Cal:B:15:1 2. Temporary Field No. 1 Cupples
3. USGS Quad Borrego Sink 7½' X 15' ____ Year 1959
4. UTM Coordinates 11/565622/3670480
5. Twp. 11S Range 6E ; NE ¼ of Se ¼ of Sec. 36
6. Location 100 meters west of pole line. West edge (near top) of ridge
7. Contour 880' 8. Owner & Address DiGorgio Corp.
9. Prehistoric X Ethnographic ____ Historic ____ 10. Site Description
Rock circle, possibly historic
11. Area 15 x 10 meters, 150 square meters. 12. Depth of Midden Not reported
13. Site Vegetation Chaparral (?) Surrounding Vegetation Same
14. Location & Proximity of Water Not reported
15. Site Soil Desert pavement Surrounding Soil Desert pavement
16. Previous Excavation None
17. Site Disturbance Not much erosion due to desert pavement
18. Destruction Possibility Possible, but not toolikely
19. Features Rock circle, cleared areas in desert pavement (Circle 2 m x 2 m round)
20. Burials None reported
21. Artifacts Rocks of varying sizes (2nd trip: quartz flakes, 1 roughly flaked object of coarse material.
22. Faunal Remains None reported
23. Comments Not much excavation potential
24. Accession No. - 25. Sketch Map Yes by ____ where Baksh
26. Date Recorded 9-29-73 27. Recorded By Baksh
28. Photo Roll No. None Frame No. ____ Film Type(s) ____ Taken By ____

DPR 422 (Rev. 9/76)

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
ARCHEOLOGICAL SITE SURVEY RECORD

SITE No. SDI-4599

1. Previous Site Designation Cal:B:15:2 2. Temporary Field No. 2 Cupples
3. USGS Quad Borrego Sink 7½' x 15' Year 1959
4. UTM Coordinates 11/565546/3670556
5. Twp. 11S Range 6E ; NE ¼ of SE ¼ of Sec. 36
6. Location Below Site #1 (SDI-4598). Heaviest concentration 30 meters west of Site #1. (Site #1 approx. 100 meters west of pole line on ridge
7. Contour 840' 8. Owner & Address DiGorgio Corp.
9. Prehistoric X Ethnographic ___ Historic ___ 10. Site Description
Scattered pottery
11. Area 30 x 30 meters, 900 square meters. 12. Depth of Midden Not reported
13. Site Vegetation Chaparral, ocotillo Surrounding Vegetation Same
14. Location & Proximity of Water Not reported
15. Site Soil Sandy, gravels Surrounding Soil Sandy, gravels
16. Previous Excavation None reported
17. Site Disturbance Possible if flash flood
18. Destruction Possibility Little at present
19. Features None
20. Burials None
21. Artifacts A few rim sherds and other pieces (2nd trip - 1 core-tool and more sher
22. Faunal Remains None reported
23. Comments Not a rich site
24. Accession No. - 25. Sketch Map None by ___ where ___
26. Date Recorded 9-29-73 27. Recorded By Baksh
28. Photo Roll No. None Frame No. ___ Film Type(s) ___ Taken By ___

DPR 422 (Rev. 9/76)

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
ARCHEOLOGICAL SITE SURVEY RECORD

SITE No. SDI-4600

1. Previous Site Designation Cal:B:15:3 2. Temporary Field No. Cupples 3, Kaldenberg 1
3. USGS Quad Borrego Sink 7½' X 15' ____ Year 1959
4. UTM Coordinates 11/465320/3670580
5. Twp. 11S Range 6E ; NW ¼ of SE ¼ of Sec. 36
6. Location Top of ridge 1/4 mile west of pole line. East of flood plain, west of wash
7. Contour 900' 8. Owner & Address DiGorgio Corp.
9. Prehistoric X Ethnographic ____ Historic ____ 10. Site Description
11. Area 200 x 25 feet – ____ square meters. 12. Depth of Midden Surface
13. Site Vegetation Desert Surrounding Vegetation Desert
14. Location & Proximity of Water Wash on east, flood plain on west
15. Site Soil Erosional Surrounding Soil Erosional
16. Previous Excavation None
17. Site Disturbance Erosional surface
18. Destruction Possibility Not reported
19. Features 3 sleeping circles, 2 possible hearths
20. Burials None
21. Artifacts 1 quartz tool (slug?) collected (2nd trip)
22. Faunal Remains None reported
23. Comments No excavation potential
24. Accession No. – 25. Sketch Map Yes by Kaldenberg
26. Date Recorded 9-29-73 27. Recorded By Russ Kaldenberg
28. Photo Roll No. None Frame No. ____ Film Type(s) ____ Taken By ____

DPR 422 (Rev. 9/76)

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

ARCHEOLOGICAL SITE SURVEY RECORD

SITE No. SDI-4601

1. Previous Site Designation Cal:B:15:7 2. Temporary Field No. -
3. USGS Quad Borrego Sink 7½' X 15' ____ Year 1959
4. UTM Coordinates 11/563218/3672844
5. Twp. 11S Range 6E ; SE ¼ of NW ¼ of Sec. 26
6. Location 1/2 mile west of Old Borrego Valley Road, 150 yds. east of pole line
7. Contour 680' 8. Owner & Address DiGorgio Corporation
9. Prehistoric ____ Ethnographic ____ Historic X 10. Site Description Old house site
11. Area 1/4 acre x ____ meters, ____ square meters. 12. Depth of Midden Surface
13. Site Vegetation Ocotillo, creosote bush Surrounding Vegetation Same
14. Location & Proximity of Water ?
15. Site Soil Sand Surrounding Soil Sand
16. Previous Excavation None
17. Site Disturbance Slight erosion
18. Destruction Possibility Not reported
19. Features Chimney, rock ring (old well?), fence posts
20. Burials None
21. Artifacts Yes, Not described
22. Faunal Remains Not reported
23. Comments
24. Accession No. - 25. Sketch Map None by ____ where ____
26. Date Recorded 10-5-73 27. Recorded By Tim Gross
28. Photo Roll No. None Frame No. ____ Film Type(s) ____ Taken By ____

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State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

ARCHEOLOGICAL SITE SURVEY RECORD

SITE No. SDI-4602

1. Previous Site Designation Cal:B:15:8 2. Temporary Field No. Sand Dune Site
3. USGS Quad Borrego Sink 7½' X 15' ____ Year 1959
4. UTM Coordinates 11/565356/3674498
5. Twp. 11S Range 6E ; SW (?) ¼ of SW ¼ of Sec. 24
6. Location In sand dunes surrounding Borrego Sink on southern edge of sink
7. Contour 470' 8. Owner & Address DiGorgio?
9. Prehistoric X Ethnographic ____ Historic ____ 10. Site Description
Concentration of ceramics and flakes
11. Area ? x ? meters, ____ square meters. 12. Depth of Midden Surface
13. Site Vegetation Mesquite Surrounding Vegetation Same
14. Location & Proximity of Water Not reported
15. Site Soil Sand Surrounding Soil Sand
16. Previous Excavation Not reported
17. Site Disturbance Wind erosion of sand
18. Destruction Possibility Not reported
19. Features None
20. Burials Not reported
21. Artifacts Ceramics and flakes
22. Faunal Remains Not reported
23. Comments
24. Accession No. - 25. Sketch Map None by ____ where ____
26. Date Recorded Undated 27. Recorded By Tim Gross
28. Photo Roll No. None Frame No. ____ Film Type(s) ____ Taken By ____

DPR 422 (Rev. 9/76)

SAN DIEGO MUSEUM OF MAN

1350 El Prado, Balboa Park, San Diego, California 92101, Telephone (714) 239-2001

REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: Archaeological Consulting & Technology - Stanley R. Pope

Date of Request: 1 May 1979 7 May 1979 (postmark) (X)Letter ( )Telephone ( ) In Person

Date Request Received: 8 May 1979 (X)Map Received (X)Map Returned

Name of Project: [illegible]

( ) The Museum of Man files show no recorded sites for the project area.

(X) The Museum of Man files show the following sites ( )within (X)in the vicinity of the project area.

Site No. [illegible] Culture(s): Cuyamaca

Description: [illegible] is a general site number for all of Barrego Valley, [illegible] camp sites; cobble hearths; cremations; sherds.

Recorded by: [illegible]

Site No. [illegible] Culture(s): Late Prehistoric

Description: Camp site; hearth; stacked rock circle; hammerstones; cores; flakes/debitage; scrapers; metates; manos; sherds; shell; milling slabs; retouched tools.

Recorded by: [illegible]

Site No. _____ Culture(s): _____

Description:

Recorded by: _____

Site No. _____ Culture(s): _____

Description:

Recorded by: _____

Site No. _____ Culture(s): _____

Description:

Recorded by: _____

Site No. _____ Culture(s): _____

Description:

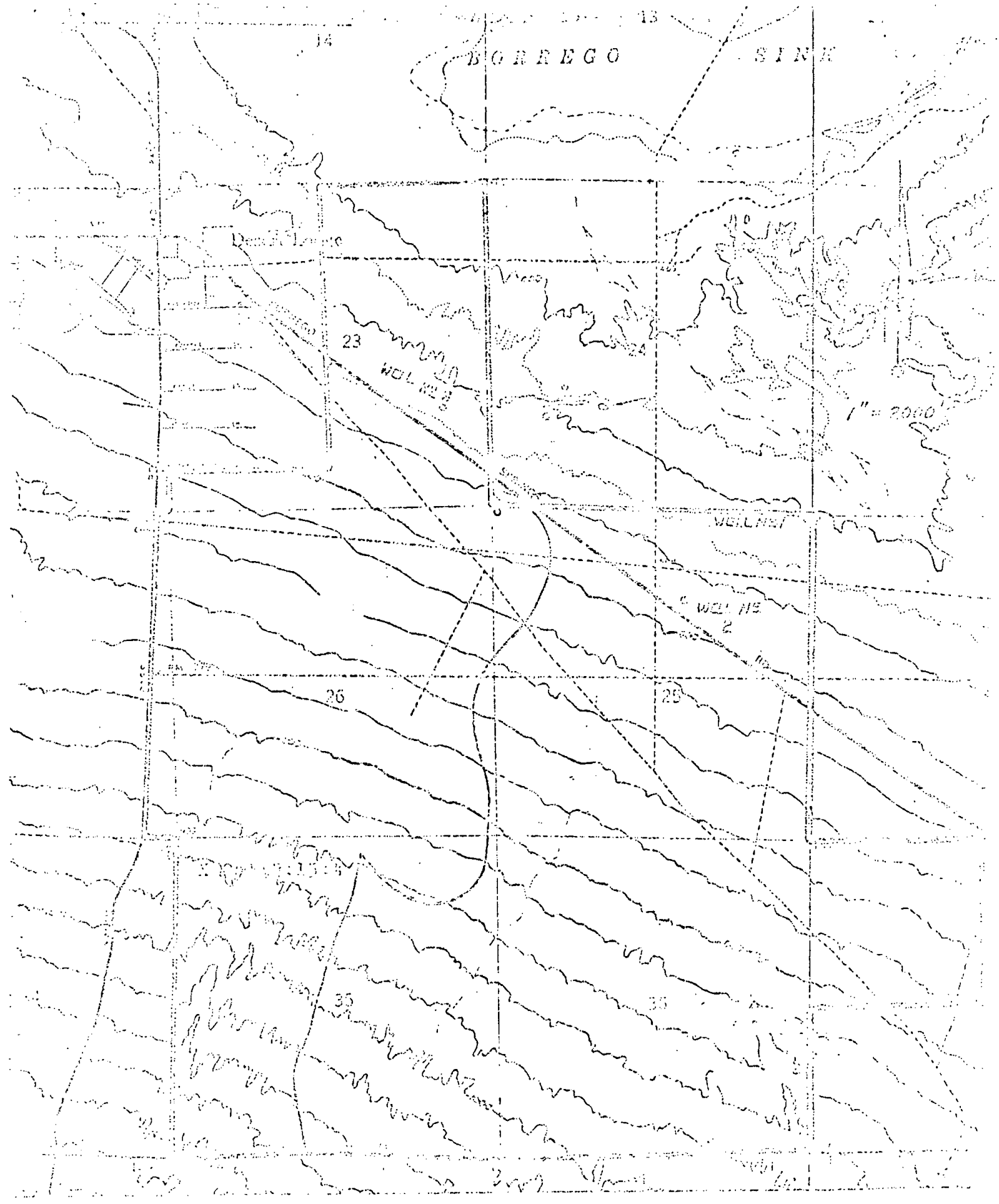
Recorded by: _____

Please note: The project area may contain archaeological resources in addition to those noted above. This report is made from San Diego Museum of Man files only and may not include data pertaining to localities other than those covered in previous Museum of Man surveys or gathered by other institutions or by individuals.

Record check by: [illegible]

Date: 7 May 1979

Signed: [signature]


BORREGO
SINK
14
13
23
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35
36
WELLS
1" = 2000'

A P P E N D I X D

AIR QUALITY

AIR QUALITY IMPACTS OF

THE PROPOSED RAMS' HILL PROJECT

BORREGO SPRINGS, CALIFORNIA

Prepared for:

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507 The Mall
P.O. Box A
Borrego Springs, California
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Prepared by:

PRC TOUPS CORPORATION
223 Avenida de la Playa, Suite 267
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Nancy Laswell

NANCY LASWELL
Air Quality Specialist

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AIR QUALITY IMPACTS OF THE PROPOSED RAMS' HILL PROJECT BORREGO SPRINGS, CALIFORNIA

A. EXISTING SETTING

1. Topography

The Rams' Hill Country Club property is located in the Borrego Valley, 40 miles south of Palm Springs, 60 miles northeast of San Diego and 25 miles west of the Salton Sea. (Figure 1). The valley is surrounded by mountains on all sides except the southeast. The Santa Rosa Mountains, with extensive elevations above the 6,000 foot level, rim the valley on the north and east. The San Ysidro Mountain Range, at approximately 5,000 feet, is the nearest chain of mountains on the western side. The Vallecito Mountains, with elevations generally between 3,000 and 4,000 feet, bound the valley on the south. The Borrego Valley is broad and flat, sloping gently to the southeast toward the Imperial Valley. The elevation near Christmas Circle in Borrego Springs is approximately 600 feet. (Figure 2).

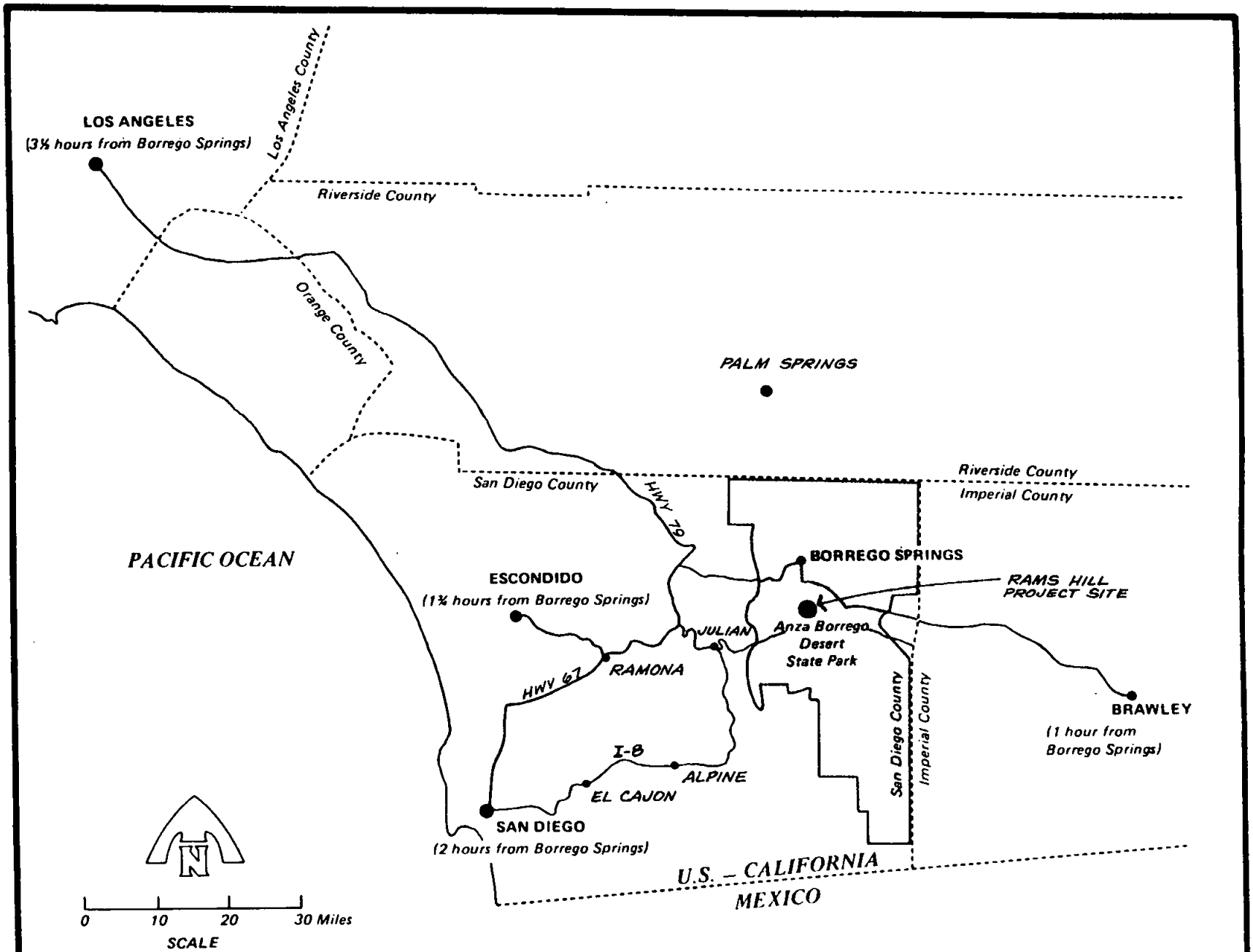
The Rams' Hill project is located on the south slope of the Borrego Valley adjacent to the Casa del Zorro Resort, approximately five to six miles southeast of Christmas Circle. The property lies on a north facing alluvial fan surface, which extends north from the Yaqui Ridge to the Borrego Sink. Elevations on the property range from 480 feet to 1,180 feet. Figure 3 is a topographic map of the site.

2. Meteorology

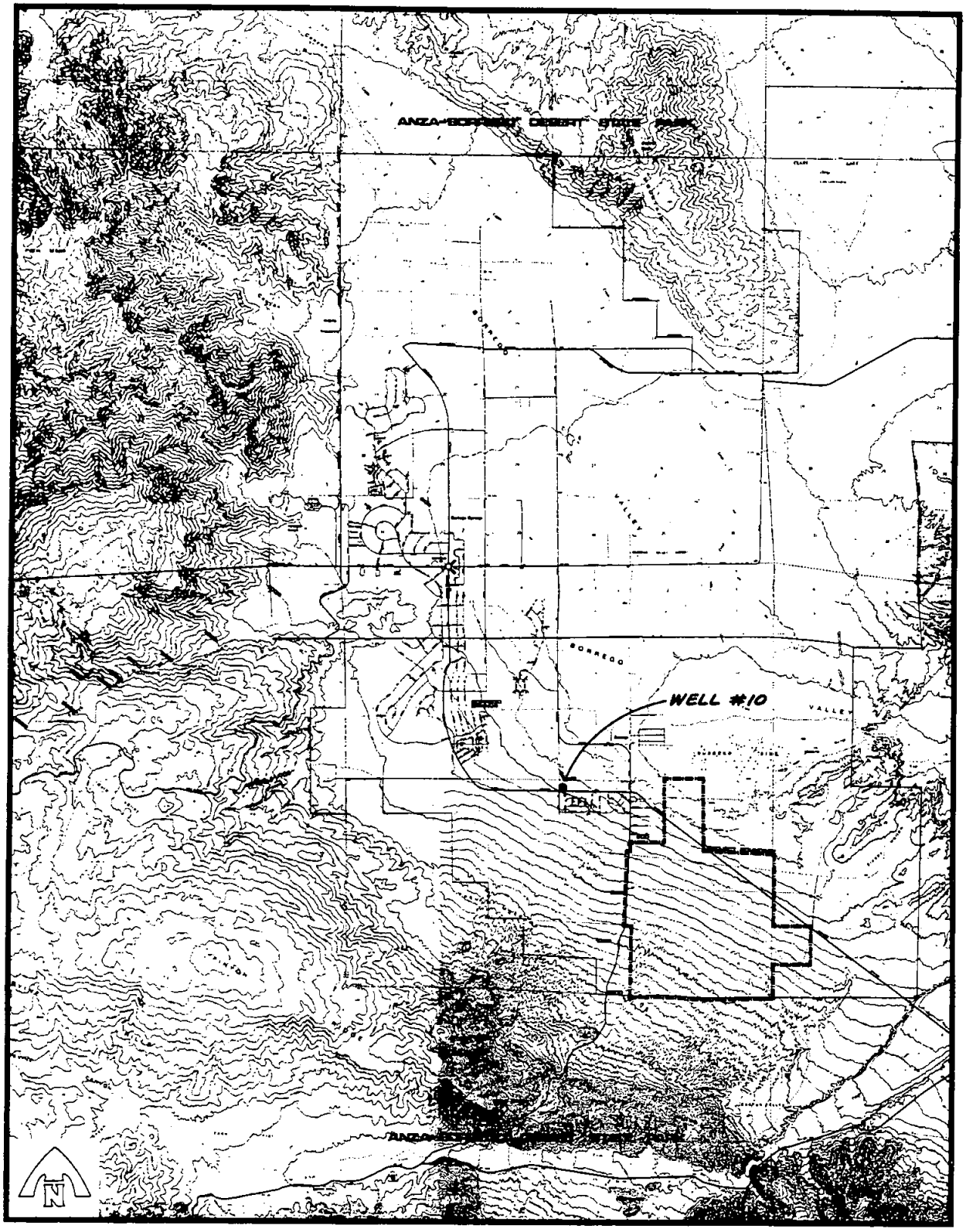
Only those aspects of meteorology, such as wind speeds and mixing depths, which are directly related to air pollution are discussed here. General climatic data is included in the section on climate.

Virtually no monitoring of air quality has been done in the Borrego Valley. Basic climatological data on wind speeds and direction, mixing depths and cloudiness are scant. The following information, therefore, is the "probable" behavior of atmospheric parameters, based on data derived from other desert areas and "best guess" approximations of local peculiarities.

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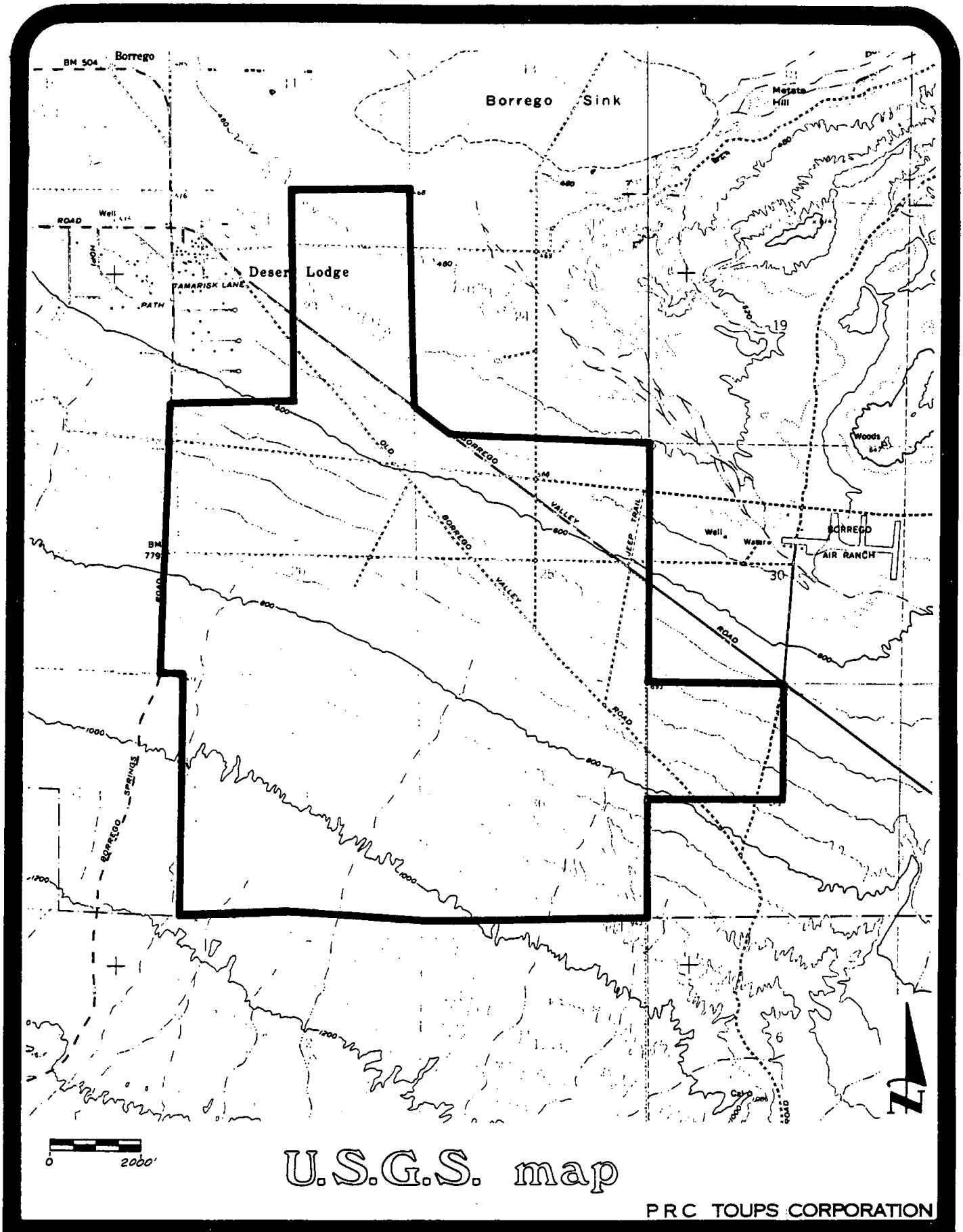
regional vicinity map



project location in valley

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U.S.G.S. map

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The Borrego Valley is in the rainshadow of the peninsular range, and is part of the Colorado Desert province. Unlike the coastal areas of San Diego County, the Borrego Valley does not manifest the annual or daily land-sea breeze cycle. General flow in the valley in summer is dependent on the position and strength of the daily permanent desert low pressure system. Summer air flow has a strong southerly component, resulting from the steep pressure gradient and the desert low trough. In winter, the flow shifts and winds evidence more of a northerly component from the prevailing basin and area high pressure systems (1)

Winds are generally quiet during the mornings, increasing in intensity and variability during the afternoons. A late night drainage flow, conditioned by topographical variables, persists at night, when the cold air drains downslope into the basins and valleys. During the day, the sun heats the eastern face of the mountains and a strong upslope movement develops. In the valley, localized thermal currents develop due to intense surface heating.

No direct measurements of mixing depths have been made in the Borrego Valley. It is anticipated that the maximum daily mixing depth averages between 10,000 and 12,000 feet, the approximate altitude at which the converging marine and desert air masses stabilize (2). During the day, vertical mixing should be very good because of strong thermal updrafts and the deep mixing layer. Depending upon the effectiveness of the flushing action by large scale currents, pollution dispersion should be fairly effective. It is probable that during early winter mornings, cold air settling in low lying areas and night time radiation create a strong surface-based inversion. After sunrise, the ground is rapidly heated and the surface inversion disappears.

3. Present Zoning and Land Use

For a complete description of the land use proposed for the project and the changes in zoning which will be required, refer to the Land Use Section in the EIR. The 3,124 acre Rams' Hill property is designated on the County General Plan as a Specific Plan area with an overall density of one dwelling unit per two acres. The General Plan designates the following

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(1) Personal communication with Hal Brown, Chief Meteorologist, San Diego County APCD, July 1975

(2) Ibid.

general uses for this property: PRD units; single family residences; two-acre estates; golf course; medical clinic; hotel; resort support facilities, including a mixture of recreational and commercial uses.

In this Specific Plan, 2,158 acres of the total 3,124-acre property would be "developed", including 1,562 acres which would be dedicated as natural, undeveloped open space. Implementation of the Specific Plan would result in the construction of 780 dwelling units, part of the hotel, medical clinic, golf course, tennis courts and a mixture of commercial facilities. The Specific Plan Area is currently zoned LC (limited control) which allows one dwelling unit per 2.5 gross acres or any use with a Special Use Permit. Proposed zoning is discussed under Land Use.

4. Existing Air quality

As no monitoring of air quality has been done in the Borrego Valley, the following is a "best guess" description of local conditions.

Air quality in the Borrego Valley should be exceptionally good. While no area in the continental United States is believed to be free of pollution episodes, the Borrego Valley, in its sheltered position from transported pollutants and with the low volume of local emissions, should be relatively pure. Although a meteorological potential exists for early morning build-up of carbon monoxide because of surface-based inversions, CO emissions are extremely low. CO levels are not ever expected to exceed standards. Oxidant levels, likewise, should be very low because of the limited sources and deep mixing depth. The pollutant of most concern in the Borrego Valley is particulates. High volumes of dust do not occur naturally in the desert. Human activities, such as farming and off-highway vehicles, however, can generate extensive dust plumes. It may be expected that during high activity periods, Federal particulate standards are frequently exceeded.

Transport of oxidant and its precursors into the Borrego Valley from the coastal metropolitan areas does not appear to be significant. Oxidant form the San Diego Air Basin is trapped by the marine inversion on the coastal side of the peninsular mountain range. Where the marine and desert air masses converge, the oxidant apparently becomes stratified into thin

layers and injected into the upper level westerly winds (3). The pollutants do not seem to concentrate on the eastern face of the mountains because of the well-developed upslope winds during the day. It is anticipated that localized instantaneous oxidant values in the Borrego Valley could exceed federal standards of 0.08 parts per million ozone when the elevated laminae of pollutants are mixed downward to the ground by convection. Hourly oxidant levels, however, are not expected to exceed standard. The Borrego Valley is not in the direct path of air flow from the South Coast Air Basin. Pollution from Los Angeles normally flows through the San Gorgonio Pass, down the Coachella Valley and from there south. Under the infrequent "Santa Ana" condition when air flow shifts to north-south, strong winds flowing down the San Jacinto trough could bring pollutants from Los Angeles down both sides of the San Jacinto Mountains, transporting oxidant into the Borrego Valley.

5. Existing Emissions

Information on pollutant emissions has not been gathered in the Borrego Valley. No monitoring of oxident, carbon monoxide or nitrogen oxides has ever been done. The Southeast Desert Basin did some limited monitoring of particulates in the vicinity of Ocotillo Wells (Burro Bend) to assess the impact of off-road vehicles, but a full Emissions Inventory has never been done. The Borrego Valley is on the border between the San Diego Air Basin and the Southeast Desert Air Basin. While it shares climatic characteristics with the rest of the Lower Colorado Desert province, the valley forms a semi-independent air basin. The Borrego Valley was originally designated as part of the Southeast Desert Air Basin to be jointly administered with the San Diego Air Basin. Because of difficulties with planning, the valley was subsequently transferred to the San Diego Air Basin (SDAB) in 1977. The Emissions Inventories of 1972 and 1974 of SDAB do not include Borrego Valley emissions.

(3) Global Weather Consultants, A Preliminary Study of the Air Pollutants Over the California Desert, Report submitted to Bureau of Land Management, December, 1977.

B. EMISSIONS

1. Mobile Emissions

In order to assess the impact of the proposed development on the Borrego Valley, a preliminary assessment of present day mobile emissions and projected emissions has been made based upon the Traffic Analysis (Technical Appendix). To facilitate this, the Traffic Analysis identified the vehicle miles traveled (VMT) and trips associated with (1) permanent and seasonal Borrego residents, (2) the Anza Borrego Desert State Park, (3) off-road vehicles used in the park and (4) the Rams' Hill project, including secondary growth and associated activity.

Because the Borrego Valley attracts many visitors from outside the basin, all of the emissions associated with project oriented VMT and trips will not be emitted in the Borrego Valley air space. The valley has limited support services available, so valley residents make long-distance trips to the coastal metropolitan areas for major shopping, medical care, entertainment and other purposes. The Anza Borrego Desert State Park attracts primarily long-distance tourist trips. These park visitors, in turn, make short intra-valley trips to restaurants and shops while touring the park. For this study, it has been assumed that all of the park visitors make trips originating in the San Diego Air Basin. The emissions associated with highway travel have, therefore, been divided into emissions within: (1) the Borrego Valley; (2) the mountain crest area, over 3,000 feet elevation; and (3) the San Diego Air Basin. Figure 4 is a schematic map of the three air spaces. For this purpose the following assumptions were made in consultation with the San Diego Air Pollution Control District; (4)

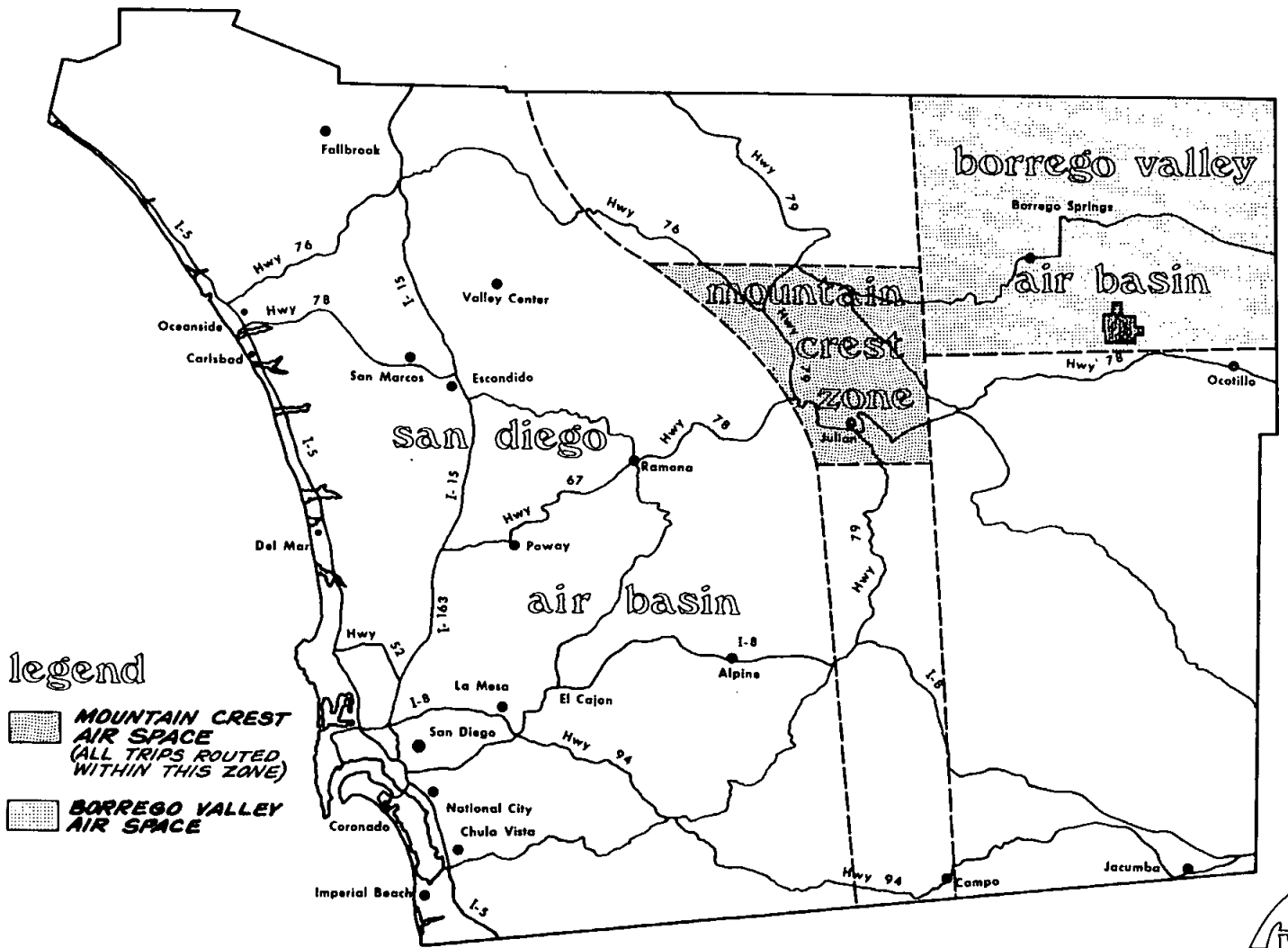
- The Borrego Valley is defined by the crests of the three mountain chains on the north, west and south. (Figure 2).
- The average trip length in the valley is eight miles for local trips and 65 miles for long-distance trips.

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(4) Personal communication with Michael Alberson, Environmental Management Specialist, and Michael Sloop, Research Analyst, San Diego County APCD.

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general scheme of air spaces used for air quality analysis

- Of the 65 mile long-distance trip, 38 miles is travelled within the impact area of the San Diego Air Basin; 18 miles is travelled in the mountain area above the SDAB impact zone; and nine miles is travelled in the Borrego Valley. Each off-road vehicle operating within the Borrego area makes one trip per day with an average length of 150 miles.

- This trip length is based on estimates made by Bud Getty, Chief Ranger of the Anza Borrego Desert State Park. The number of trips is based on statistics gathered by rangers patrolling each portion of the Park.

The volume of traffic in the Borrego Valley evidences a strong seasonality reflecting the wide variation in seasonal weather patterns. The valley is cool and pleasant during the peak season winter months, and exceptionally hot with temperatures well over 100 degrees during the off-season summer months. Traffic fluctuations are accented by the resort nature of activity in the Valley. The Borrego Valley is an enclave of the Anza Borrego Desert State Park, several hours' drive from the metropolitan areas of San Diego and Los Angeles. Over one-third of the homes in Borrego Springs are seasonally occupied "second homes". The results of these factors are wide variations in seasonal traffic volumes. These variations are characterized by very high volumes during the months between November and April, with peaks occurring on Saturdays, Sundays and holidays; and very low volumes during the months between May and October, with lowest volumes occurring on non-holiday weekdays. Therefore, the air quality emission calculations are separated into peak and off-peak season days.

The following four tables summarize the VMT and trips by each source (project, park, residents, ORV's) in each air basin by season for 1978 with projections to 1985.

TABLE 3

1985
VMT AND TRIPS BY SOURCE
WEEKDAY PEAK SEASON

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*			
VMT	96,422	21,420	45,220
TRIPS	11,904		1,190
Anza Borrego Desert State Park			
VMT	162,700	117,144	247,304
TRIPS	19,524		6,508
Off-Road Vehicles**			
VMT	162,150		
TRIPS	1,081		
Rams' Hill Project***			
VMT	6,565	19,242	40,622
TRIPS	10,687		1,069

TABLE 4

1985
VMT AND TRIPS BY SOURCE
WEEKDAY OFF-PEAK SEASON

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*			
VMT	58,814	13,068	27,588
TRIPS	7,261		726
Anza Borrego Desert State Park			
VMT	52,075	45,479	79,154
TRIPS	6,249		2,083
Off-Road Vehicles**			
VMT	47,750		
TRIPS	305		
Rams' Hill Project***			
VMT	52,804	11,736	24,776
TRIPS	6,519		

* Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management (See Growth Inducement)

** ORV is estimated for weekend day

*** Rams' Hill Project includes residents, hotel guests, secondary growth and associated activity. (See Growth Inducement)

2. Emission Calculations

Based upon the VMT and TRIPS projected in Tables 1 through 4, emissions were calculated for reactive hydrocarbons, carbon monoxide and nitrogen oxides for 1978 and 1985. The vehicle emission factors used in the calculations are the most recent EPA factors used by the San Diego Air Pollution Control District (Table 5). The "Composite of all Vehicles" table was chosen as representative of Borrego Valley highway traffic. In Borrego, the percentage of heavy duty gasoline and diesel trucks is estimated by Caltrans to be one percent. The Composite Table assumed the percentage to be three percent. Being a resort area, however, Borrego traffic has a much higher percentage of large recreational vehicles, light duty trucks and campers than average. The estimated percentage of recreational vehicles is not readily available. Table 6 contains the formulas used to calculate emissions from on-highway vehicles.

TABLE 5

VEHICLE EMISSION FACTORS TYPE: COMPOSITE OF ALL VEHICLES

Emission Factor Type	Base and Projection Years 1975	1980	1985
Hydrocarbons Exhaust @ 35 mph (g/mi.)	3.03	1.52	0.76
Trip-Related (B/trip)	18.10	13.58	9.03
Carbon Monoxide Exhaust @ 35 mph (g/mi.)	29.52	16.84	9.95
Trip Related (g/trip)	82.89	68.26	51.96
Nitrogen Oxides Exhaust @ 35 mph (g/mi.)	3.74	2.91	2.19
Trip-Related (g/trip)	4.21	2.49	1.43

TABLE 6

Emissions Formulae

1978 - Composite of all vehicles on highway

RHC = (VMT)*(3.03 grams/mile $.88^{\neq}$ + $\frac{\text{TRIPS}(18.10 \text{ grams/trip})}{2}$ + $\frac{\text{TRIPS}(18.10 \text{ grams/trip}).88^{\neq}}{2}$ $\frac{1.1023 \times 10^{-6} \text{grams}}{\text{Ton}}$ = Tons/Day

CO = VMT(29.52 grams/mile) + TRIPS(82.89 grams/trip)

$\frac{1.1023 \times 10^{-6} \text{grams}}{\text{Ton}}$ = Tons/Day

NO_x = VMT(3.74 grams/mile) + TRIPS(4.21 grams/trip)

$\frac{1.1023 \times 10^{-6} \text{grams}}{\text{Ton}}$ = Tons/Day

1985 - Composite of all vehicles on highway

RHC = VMT(0.76 grams/mile).$88^{\neq}$ + $\frac{\text{TRIPS}(9.03 \text{ grams/trip})}{2}$ + $\frac{\text{TRIPS}(9.03 \text{ grams/trip}).88^{\neq}}{2}$ $\frac{1.1023 \times 10^{-6} \text{grams}}{\text{Ton}}$ = Tons/Day

CO = VMT (9.95 grams/mile + TRIPS (51.96 grams/trip)

$\frac{1.1023 \times 10^{-6} \text{grams}}{\text{Ton}}$ = Tons/Day

No_x + VMT(2.19 grams/mile + TRIPS (1.43 grams/trip)

$\frac{1.1023 \times 10^{-6} \text{grams}}{\text{Tons}}$ = Tons/Day

* Vehicle miles travelled

$\neq$ Reactivity factor

3. Additional Emissions Not Included in the Air Quality Analysis

Five potential sources of air pollutants are listed below. Because of lack of data on use, and lack of suitable emission factors, no attempt has been made to qualify emissions from these sources. They are presented here to acquaint the reader with the fullest possible picture of air quality in the Borrego Valley.

1. Agriculture is a limited activity in the northern portions of the valley. This activity is a source of pollution due to motor vehicle emissions from farm vehicles including heavy machinery; particulates from plowing and associated activities which disturb the soil; and emissions from transportation of products to market.

2. The Borrego County Airport is another pollutant source. It has one runway of 5,000 feet. The airport has a capacity to handle 330,000 trips per year. Present volume of air traffic is 38,000 flights per year, including touch-and-goes. One commercial airline, Sun Aire Lines, serves Borrego Springs on a regular schedule. (5)

3. The Borrego Assembly manufactures electronic circuit boards. The primary energy source at the plant is electricity, which is generated in the San Diego Air Basin. It is the only industrial plant in the valley.

4. Liquified natural gas is used at the Road Runner Mobile Home Park. This source of energy and pollutants is not used anywhere else in the valley.

5. Propane and butane users are scattered throughout the valley.

4. Off-Road Vehicles

The Anza Borrego Desert State Park is a favorite attraction for off-road vehicle enthusiasts from coastal metropolitan San Diego and Los Angeles. The terrain in the park varies from flat sand washes to rugged, boulder-stream mountains. Certain areas within the park receive much heavier ORV use than others because of terrain desirability. Park rangers keep logs of the number of ORV's used in each area each day. The most heavily used areas in the Borrego Valley are Blow Sand

(5) Personal communication with A. C. Waldman, Borrego County Airport, August 1978

and Fonts Point Wash (Figure 2). Some areas, such as Coyote Mountain, are rarely ridden because of the difficult terrain. Emissions from the Ocotillo Wells State Off-Road Vehicle Recreation Area and from sections of the Anza Borrego State Park not located within the Borrego Study Area have not been included in this analysis.

Off-roading is a weekend sport. Virtually no ORV's are spotted in the park during the week. Over the 1978 peak season, an average of 865 ORV's were used each weekend within the Borrego Valley. Over the Easter weekend, (Good Friday through Easter Sunday) 1,300 ORV's were used. Both the peak weekend and Easter figures are low because of the extensive rains which minimized park visitorship over this traditionally heavy vacation period. (6)

Calculations for the number of off-road vehicles in use in the Borrego Valley are based on ranger logs of ORV's for the years 1977-78. Rangers patrol and report on assigned sections within the park. The ORV usage figures include only those ORV's used within the study area. Based on information provided by Bud Getty, Chief Ranger at the State Park, each ORV is assumed to travel 150 miles each weekend day in the park. (7).

Calculating emissions from ORV's is complicated due to the lack of accepted emission factors. A motorcycle industry (MI) representative, recommends that a factor of 24 grams/mile be used to calculate reactive hydrocarbon emissions for most ORV's. This factor assumes that approximately 90 percent of the bikes are not street legal. (8) The San Diego Air Pollution Control District has developed emission factors for street motorcycles for the years 1975 and 1985. APCD factors for motorcycles apply only to street legal emission-regulated even mix of two-stroke and four-stroke engine motorcycles. Four-stroke motorcycles are significantly cleaner than the two-stroke models. Street legal bikes are significantly cleaner than unregulated off-road models. It is recognized that neither the motorcycle industry nor the APCD emission factor is entirely appropriate. Therefore, the study has included both factors in the calculation for both 1978 and 1985 ORV emissions in the Borrego Valley. For this study, the motorcycle industry's RHC factor is probably a better approximation of emissions from ORV's operating in the state park in 1975. Since a proportion of ORV's are street

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(6) Visitor records and Ranger Logs of Anza Borrego Desert State Park, 1977 to 1978

(7) Personal communication with Bud Getty, August, 1978

(8) Personal communication with Dennis David, Kawasaki Motorcycle Corporation, April, 1978

legal, (enduro), and will become regulationed by EPA by 1985, the APCD 1975 RHC factor could provide a better approximation of RHC emissions in 1985. The 1985 APCD street legal motorcycle emission factor appears unreasonably low for off-road vehicle emissions and has not been used. All ORV emissions are discussed in a range between the two values, calculated using the MI (motorcycle industry) and 1975 APCD factors.

The following formulas have been used to calculate ORV reactive hydrocarbon emissions:

1978 and 1985 emissions

(1) Using the Motorcycle Industry Emissions Factor:

VMT (24 grams/mile) .88 = RHC

(2) Using the APCD 1975 Emissions Factor:

VMT (9.64 grams/mile) .88 = RHC

For carbon monoxide and nitrogen oxides the only available emission factors are those developed by EPA, and used by APCD, for street legal motorcycles. Therefore, the 1975 factor has been used for both 1975 and 1985 emissions. The factor will under-estimate emissions for 1978 because of the large number of two-stroke and unregulated motorcycles operating off-road. The factors may be appropriate for emissions from the mix of ORV's in use in 1985. The calculations should be considered as "ball-park" figures.

1978 and 1985 emissions of CO:
VMT (33.96 grams/mile) = CO

1978 and 1985 NOX emissions:
VMT (5.14 grams/mile) = NOX

5. Emissions from Energy Production

For a full explanation of energy requirements and supply, refer to the Energy section of the EIR and Technical Appendix F.

Electricity would be a primary source of energy used by the Rams' Hill project. Electricity would be used for supplementary space and water heating, space cooling, illumination, cooking and miscellaneous appliances. Electricity would also be used for capital facility needs, such as water supply and the waste water treatment plant. Total electrical consumption for the project is estimated to be 14,826,542 KwH per year including 13,033,700 KwH for domestic use, 330,295 KwH for

the waste water treatment facility, and 1,462,547 KwH for water supply. (9)

Electric service for the project would be provided by the San Diego Gas and Electric Company, which operates one substation in Borrego Springs. The utility utilizes an intertied transmission system so electricity to Borrego Springs can come from numerous generating stations located in the San Diego coastal metropolitan areas using a multitude of fuels. All emissions related to the production of electricity for the project would, therefore, impact the San Diego Air Basin, rather than Borrego Springs.

Assuming that electricity would be produced at a coastal power plant using fuel oil with a sulfur content of .34 percent, as recommended by the San Diego Air Pollution Control District April 1978 (10), production of electricity to supply the project would result in the following emissions:

Total Suspended Particulates	= 3,374.3	lbs/year
Sulfur Dioxide	= 180	lbs/year
Carbon Monoxide	= 1,687	lbs/year
Nitrogen Oxide	=12,047	lbs/year

The production of electricity for Rams' Hill would incrementally impact the levels of particulates, SO_x, and NO_x, and CO in the San Diego Air Basin. The impact would be significantly mitigated by the implementation of the domestic solar energy systems (See the Energy Section). Solar energy would reduce total air quality impacts by approximately one-third, by reducing the total demand for electricity from 21,207,448 KwH per year to 14,826,542 KwH per year.

6. Particulates

No attempt has been made to quantify particulate levels or particulate emissions from the project. The project would increase human activity in the valley, thereby, incrementally increasing the localized particulate levels. A full monitoring program would be required to provide increased detail on impacts.

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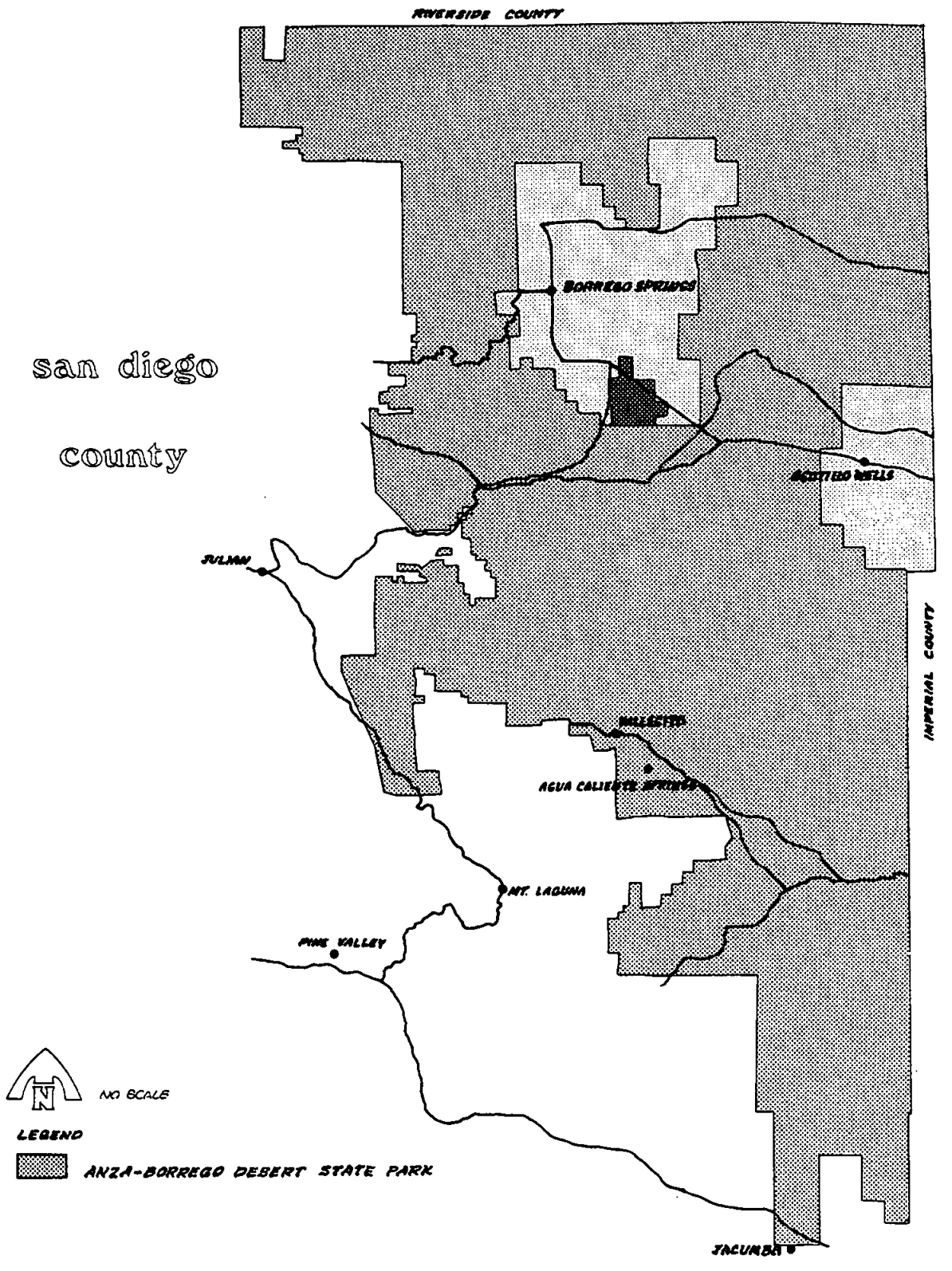
(9) Technical Appendix on Energy
(10) Recommended air quality calculation formulas, Ray Weeks, San Diego APCD

C. POTENTIAL IMPACTS

Implementation of the Rams' Hill project would stimulate increased motor vehicle travel in (a) the Borrego Valley, (b) the San Diego Air Basin and (c) the mountain crest area. As with any development, Rams' Hill would increase the level of emissions above that which would exist without the project. This analysis of potential impacts will separate impacts by air space and by pollutant. The analysis will first examine potential impacts on the Borrego Valley, then on the San Diego Air Basin and finally on the mountain crest area. The impact analysis will use 1978 as the Base Year for emissions in the Borrego Valley and 1985 as the year for full project implementation. Emission calculations are summarized in Tables 7 through 20.

1. Potential Impacts on the Borrego Valley

The most important air quality issue relates to the impact of Rams' Hill on the "pristine" air space in the Borrego Valley and the Anza Borrego Desert State Park. The State Air Resources Board, San Diego Air Pollution Control District and various special interest groups have all voiced concern that this project, within the context of the isolated, sparsely populated valley, would degrade the quality of the desert basin. Because of the relatively pure air quality today and the low level of project emissions, it is not expected that this project would cause violations of Federal Air Quality Standards. These concerns are significant however, due to the potential designation of the State Park as a Class "A" area. The Federal Clean Air Act of 1977 made provisions for three classes of air quality areas: Class I - pristine areas, in which no significant deterioration is allowed; Class II - areas which are above standard today and may deteriorate to the level of Federal Standards; Class III - areas which currently do not meet Federal Standards and which may not deteriorate further. The Clean Air Act made provisions to designate national parks and wilderness areas as Class I areas. No state parks, however, are included in the program. Following the Federal example, the State of California Air Resources Board is studying a program to designate Class "A" areas (synonymous with the Federal class I area) in California. The Anza Borrego Desert State Park is currently proposed as a pristine Class "A" area, in order to protect the nature and purpose of the park. Therefore, in anticipation of such a designation, the State Air Resources Board Conservation Division has indicated concern regarding the potential impact of the Rams' Hill project on the Anza Borrego Desert State Park.



anza-borrego desert state park

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Should the Anza Borrego State Park be designated as a Class "A" pristine area, the air quality would not be allowed to deteriorate "significantly". To evaluate and monitor the air quality, the Air Resources Board would need to develop an approvable model for the park, based on emissions. This project would be complicated because the park is located in more than one air shed. Emissions in the Borrego Valley, for example, will potentially impact less than one-half of the park area (Figure 6). The Federal Clean Air Act allows for a small increment of deterioration in Class I areas. The State Air Resources Board would probably recommend such an increment for Class "A" areas. This increment would be established by the agency with jurisdiction, based upon emissions for the base year 1975. The State Air Resources Board has identified its concern that development in Borrego between 1975 and the completion year of the model might absorb the entire potential increment of deterioration. A representative of the State Air Resources Board stated that this would have the undesirable effect of imposing a permanent future moratorium on the Borrego Valley. (11)

Because of the concerns identified by the State Air Resources Board, a major purpose of the air quality analysis was to identify and quantify all possible sources in the valley, and to assess to the greatest extent feasible the impacts of Rams' Hill on the air space. As explained above, it was only possible to quantify mobile source emissions including on and off-road vehicles. Although off-road vehicles are a major emissions source in the valley, considerable uncertainty surrounds exact predictions of emissions. Reasonable parameters, however, have been established by using best case (APCD) and worst case (motorcycle industry) emission factors. For this study, the Borrego Valley Air Basin has been defined by the mountain crests on the north, west and south (Figures 2 and 4).

In establishing an "existing setting" (Base Year 1978) for mobile emissions in the Borrego Valley, three major sources were identified as explained above: (1) Borrego residents; (2) visitors destined for Anza Borrego Desert State Park; and (3) off-road vehicle enthusiasts (ORV's) operating in the Anza Borrego Desert State Park. The total volume of pollutants, and the volume of pollutants contributed by each source to the valley basin, vary by day of the week and by season. Pollution from off-road vehicles is significant only on the weekends. Similarly, weekend highway traffic

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(1) Personal communication with Caroline Stromberg of the California State Air Resources Board, July 1978.

emissions are approximately 20 percent higher than weekday volumes. Peak season Park visitorship is almost three times higher than off peak season. Total emissions, therefore, evidence a dramatic peak on weekends during the peak season.

Figure 7 illustrates the variation in vehicle miles traveled in the valley by season and day of the week.

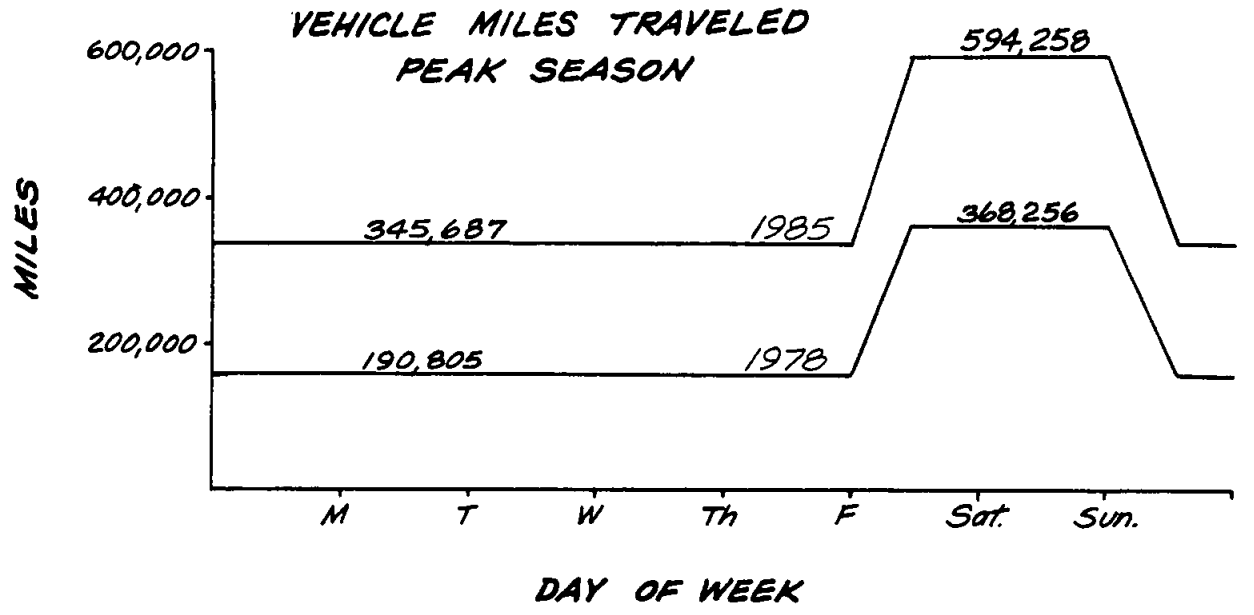
a. Reactive Hydrocarbon (RHC) Emissions

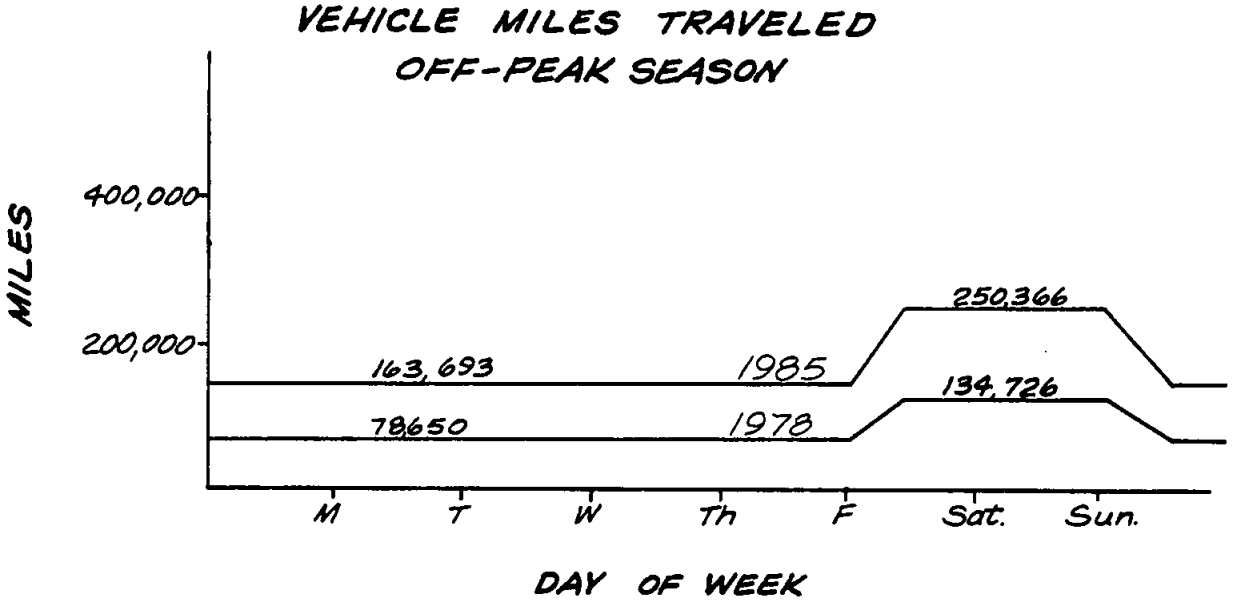
The number of vehicle miles traveled within the valley is directly proportional to the volume of RHC emitted into the Borrego Valley air space. Tables 7 through 11 summarize the RHC calculations. In 1978, during a peak season week, between 10.43 and 14.09 tons of RHC were emitted. This is primarily a result of the high volume of tourist and off-road vehicle traffic. During the 1978 off peak season week, when few tourists or ORV enthusiasts visited the valley, less than one-third of the peak season volume of pollutants, or between 3.60 and 4.71 tons of RHC, was emitted.

It is interesting to compare the contribution of each source group to the total volume of RHC emitted. Figure 8 is a histogram which illustrates the proportional contribution by source. Of the approximately ten to fourteen tons of RHC emitted during a peak season week from activity by residents, park visitors and off-road vehicle enthusiasts, only 2.36 tons, or between 7 and 13 percent, resulted from activities by permanent and seasonal Borrego residents. RHC emissions from park visitors were twice as great as from residents; emissions from off-road vehicles were up to three times as great.

The influence of the State Park upon the emissions level in the Borrego Valley becomes more apparent when comparing the total volume of RHC emitted during an off peak season week with volume during the peak season week. During the 1978 off peak season, between 3.69 and 4.71 tons of RHC, or less than one-third of the peak season RHC volume, were emitted into the air space. Of this, Park visitors accounted for 1.6 tons per week; park visitors' emissions were 13 percent greater than the 1.41 tons per week of RHC emissions from residents. Off-road vehicle activity generated between .69 and 1.7 tons per week during the off season.

Total activity in the Park, including both on-highway and off-road, generated between 77 and 83 percent of total RHC emissions during the 1978 peak season, and between 61 and 70 percent during the off peak season. Examining only on-highway emissions, the Park contributed up to twice the volume





weekly distribution of
vehicle miles traveled

RAMS HILL

of pollutants to the Borrego Valley air space as did valley residents.

Figure 8 clearly illustrate that activity in the Anza Borrego Desert State Park has a significant impact on the air quality of the Borrego Valley. In June 1977, the California State Department of Parks and Recreation was granted a negative declaration by the San Diego County Board of Supervisors for the construction of a Visitor Center for the Anza Borrego Desert State Park. This center will be located at the west end of Palm Canyon Drive, two miles west of the town center of Borrego Springs. The lot will have parking for 70 vehicles. The center, which will provide desert interpretive displays for visitors, is anticipated to increase visitorship to the Borrego Valley by 25 percent each year, mostly during the peak visitor season. This increased visitorship will lead potentially to higher ORV usage. The visitor center was determined to have no significant impact on air quality or traffic in the Borrego Valley. (12)

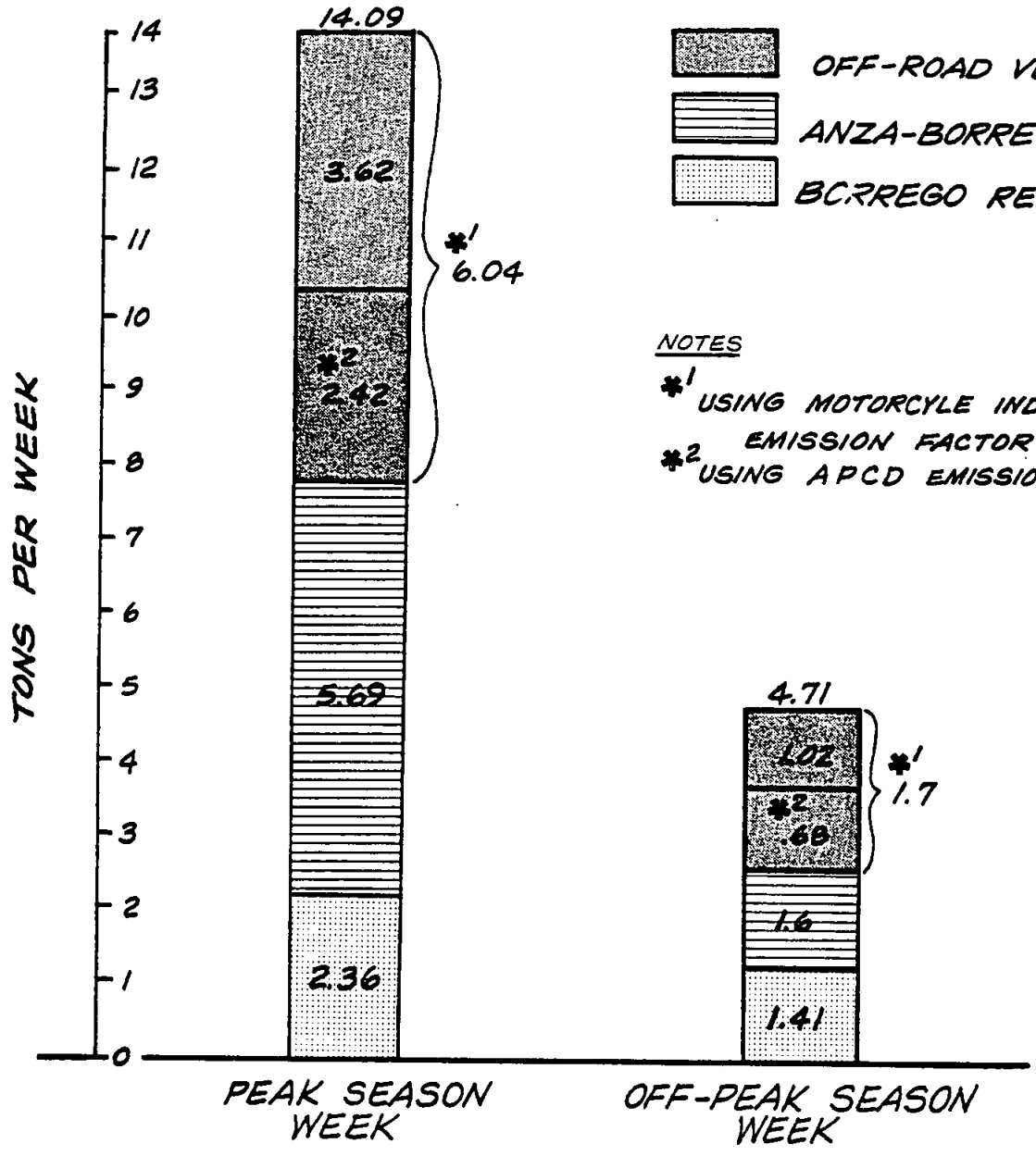
As with any development, the Rams' Hill project would increase the level of emissions within the Borrego Valley air space over that level which would exist without the project. Because of the increasing regulation of motor vehicles, however, total emissions in the Borrego Valley would be slightly lower in 1985 than in 1978, even with the full implementation of Rams' Hill and the anticipated increase in State Park visitorship. The proportionate contribution of each source would, of course, change substantially with the addition of the project.

Figure 9 compares the volume of RHC pollutants emitted by source in 1978 and 1985 for a peak and off-peak season week. Considering only the contribution from on-highway vehicles, emissions for a peak season week would decline from 8.36 tons per week in 1978 to 4.76 tons per week in 1985 with Rams' Hill; or to 3.56 tons per week in 1985 without Rams' Hill. Likewise, for an off-peak season week, emissions would decline from 3 tons per week in 1978 to 2.27 tons per week in 1985 with Rams' Hill; or to 1.53 tons per week in 1985 without Rams' Hill.

Because regulations for ORV's are neither as stringent nor as effectively enforced as those for automobiles, ORV's will continue to be the single most significant RHC emissions source in the Borrego Valley during the peak season in 1985, contributing between 39 and 61 percent of total emissions, depending upon the factor used.

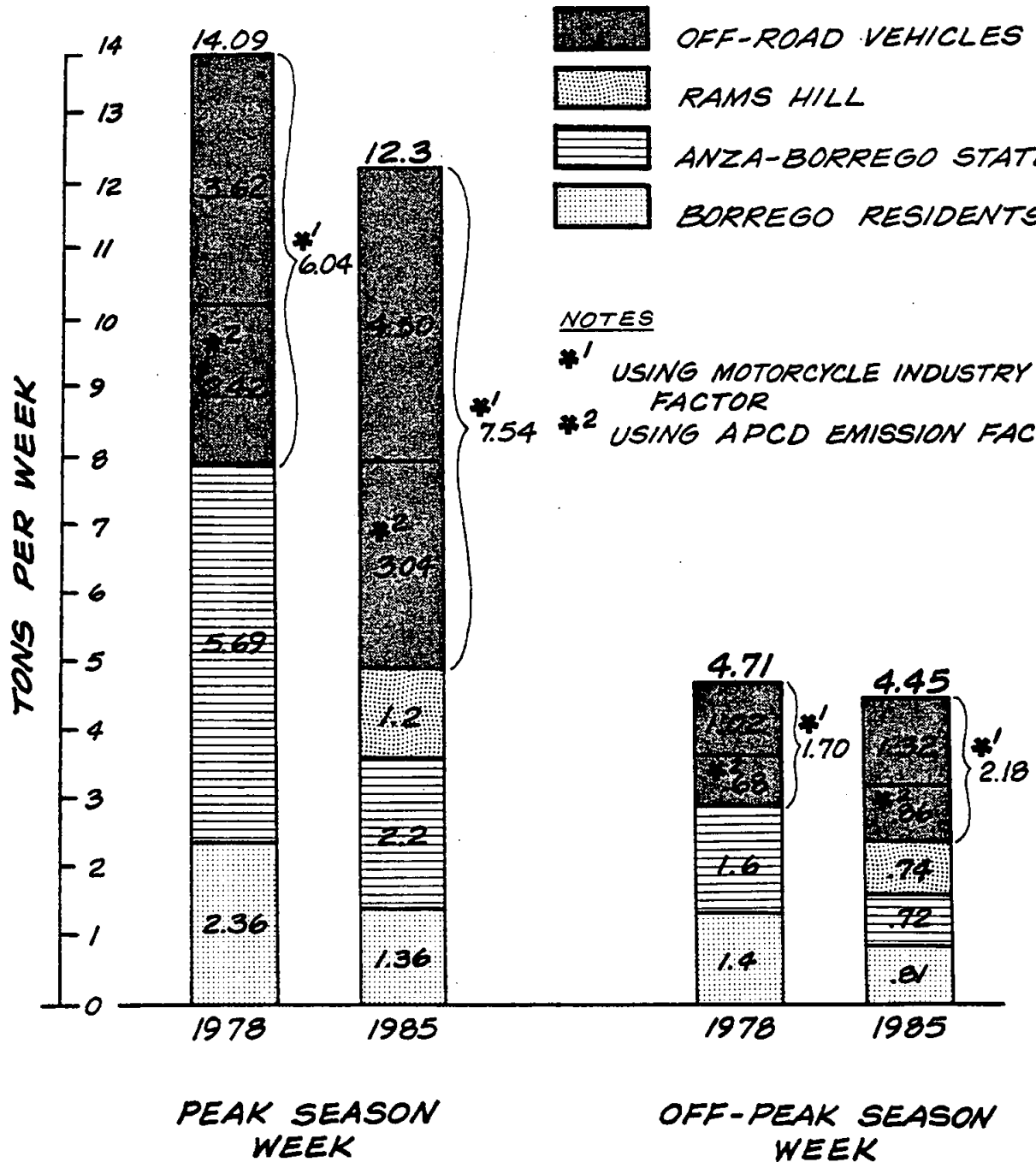
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(12) County of San Diego, Environmental Analysis Division, EIR Log #77-5-5, June 30, 1977



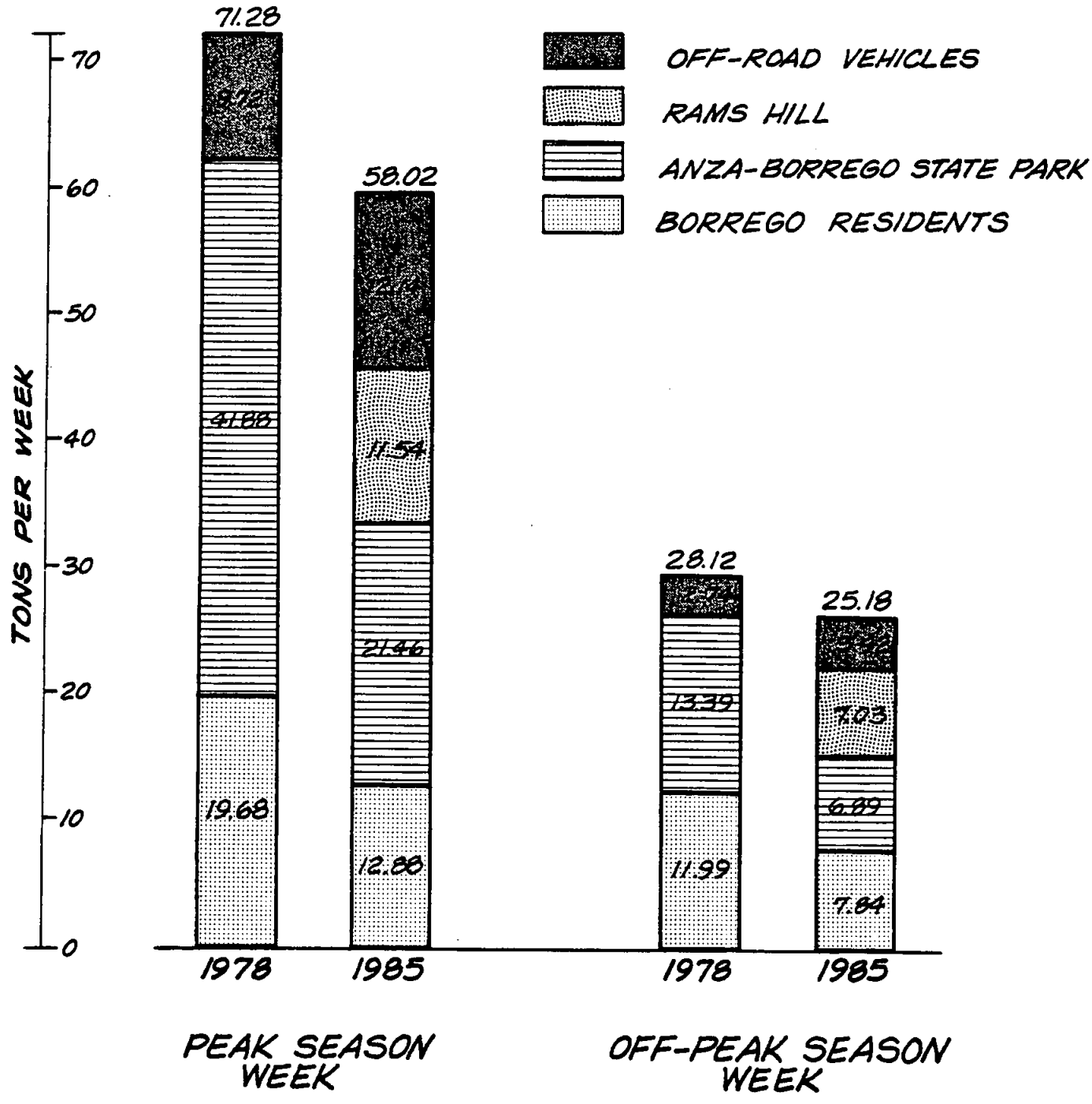
1978 REACTIVE HYDROCARBON EMISSIONS
PEAK AND OFF-PEAK SEASON WEEK
COMPARISON BY SOURCE

RAMS HILL



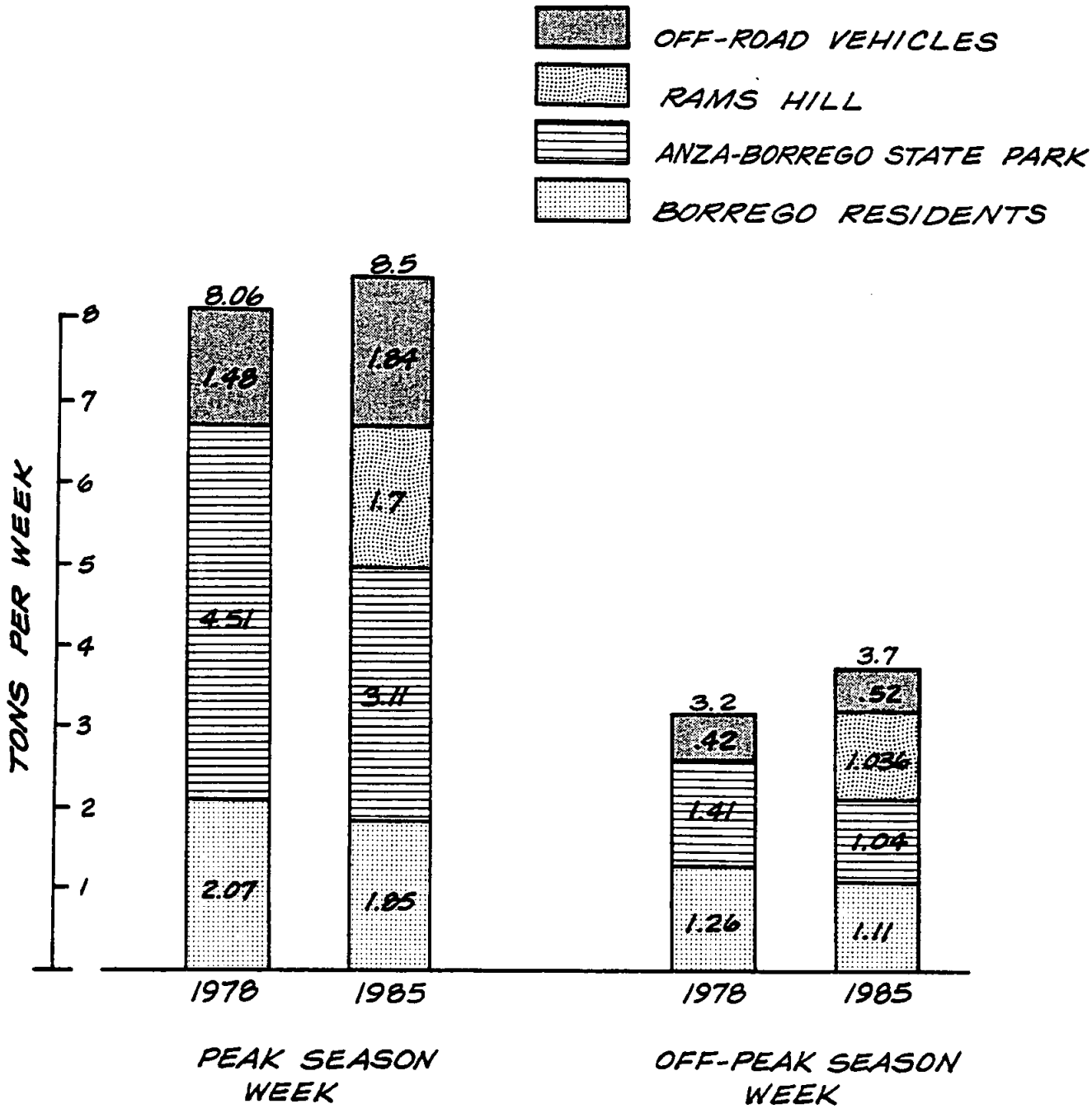
REACTIVE HYDROCARBONS EMISSIONS
COMPARISON BY SOURCE
PEAK AND OFF-PEAK SEASON WEEK
1978 vs. 1985

RAMS HILL



CARBON MONOXIDE
COMPARISON OF EMISSIONS BY SOURCE
PEAK AND OFF-PEAK SEASON WEEK
1978 vs. 1985

RAMS HILL



NITROGEN OXIDES
COMPARISON OF EMISSIONS BY SOURCE
PEAK AND OFF-PEAK SEASON WEEK
1978 vs. 1985

RAMS HILL

projected to increase five percent from 8.06 to 8.5 tons per week. Emissions from residents will decline 11 percent to 1.85 tons; emissions from park visitors will decline by 31 percent to 3.11 tons per week. Emissions from ORV's will increase by 25 percent to 1.84 tons each week. Rams' Hill activity would generate 1.7 tons of NOX per week. This would increase total weekly emissions by 25 percent. Without the project, NOX emissions would decline by 15 percent from 1978 to 1985 from 8.06 to 6.8 tons per week.

During the 1978 off-peak season, 3.09 tons per week of NOX were emitted. This included 1.26 tons from residents; 1.41 tons from park visitors; and .42 tons by ORV's. The 1978 off-peak season NOX emissions were 62 percent less than the peal season emissions. In 1985, NOX emissions during the off-peak season will increase slightly from 3.09 to 3.7 tons per week. This includes 1.11 tons from residents; 1.04 tons from park visitors; 1.04 from Rams' Hill activity and .52 tons from off-road activity. The Rams' Hill project would increase 1985 NOX emissions by 40 percent from 2.66 tons per week to 3.7 tons per week. Without the project, emissions of NOX from 1978 to 1985 would decline by 14 percent.

In conclusion, it has been proposed that the Anza Borrego Desert State Park be designated a Class A "pristine" air quality area. The implementation of the Rams' Hill project would not affect this designation nor would it absorb any potential increment of deterioration allowed by the State Air Resources Board. The absolute levels of RHC and CO emissions in the Borrego Valley are projected to decline between 1978 and 1985 despite full implementation of Rams' Hill and the 25 percent increase in visitorship to Anza Borrego Desert State Park. In short there will be no significant adverse impact to air quality. The single most significant emission source in the valley is off-road vehicle activity. Should the State Air Resources Board, at some future date, become concerned about air quality in the Anza Borrego Desert State Park, it is suggested that restrictions be placed on off-road activity within the Park. These restrictions would have the additional benefit of decreasing particulate pollution, preserving archaeological sites, and protecting the desert ecosystem and biological habitat, all of which are being severely impacted by increasing ORV activity.

2. Potential Impacts on the San Diego Air Basin

The Rams' Hill project would impact the San Diego Air Basin by increasing the number of long distance trips destined for the Borrego Valley and by increasing the level of power plant emissions to supply energy to the project. This

analysis assumes, as a "worst case", that trips destined for Rams' Hill would not otherwise go to Borrego and that the electricity generated for use at Rams' Hill would not otherwise be used by the same people in homes elsewhere in the San Diego Air Basin.

Referring to Tables 7 through 12, trips to Rams' Hill would incrementally increase RHC emissions in the San Diego Air Basin in 1985. During the 1985 peak season, 0.04 tons of RHC would be emitted each day in the San Diego Air Basin by long distance trips to Rams' Hill. During the off-peak season, 0.024 tons of RHC per day would be generated.

Referring to Tables 13 through 16, Rams' Hill trips would incrementally increase CO emissions in 1985 in the San Diego Air Basin. During the peak season 0.51 tons of CO per day would be emitted by Rams' Hill residents and visitors, during the off-peak season 0.31 tons per day would be emitted.

Referring to Tables 17 through 20, Rams' Hill would incrementally increase NOX emissions from long distance travel to Borrego. During the peak season NOX emissions would increase by 0.10 tons per day; during the off-peak season emissions would increase by 0.06 tons per day.

In addition, the project would be provided with electricity which would be generated in the San Diego Air Basin. This generation would increase power plant emissions of total suspended particulates by 3,374.3 lbs per year; sulfur dioxide emissions by 180 lbs. per year; carbon monoxide emissions by 1,686.7 lbs. per year; and nitrogen oxides emissions by 12,047 lbs. per year.

While the implementation of Rams' Hill would incrementally increase the levels of RHC and NOX emissions in the San Diego Air Basin, this impact would be minimized because of the seasonal nature of traffic destined for the project. Peak visitor season in the valley is from November to April, when air quality in the San Diego Air Basin is relatively good and standards are not exceeded frequently. The peak levels of emissions would be relatively less serious, therefore, than if they were to occur during the smog season. By contrast, the level of carbon monoxide emissions generated by the project would be greater during the winter months when the potential for CO buildup is greatest in the San Diego Air Basin.

3. Potential Impacts on Mountain Crest Area

The Rams' Hill project would not significantly impact air quality in the mountain crest. Rams' Hill would incrementally increase the levels of RHC, CO and NOX due to increased

vehicle travel destined for Borrego Springs. RHC emissions in the mountain area would increase by 0.014 tons per day during the peak season and by 0.009 tons per day during the off-peak season. CO emissions would increase by 0.21 tons per day during the peak season and by 0.13 tons per day during the off-peak season. NOX emissions would increase by 0.05 tons per day during the peak season and by 0.03 tons per day during the off-peak season.

D. MITIGATING MEASURES

The Borrego Valley is currently a pristine air basin. All efforts to protect air quality and preserve the natural beauty of the valley and the Anza Borrego State Park should be encouraged.

The State Air Resources Board and San Diego County Air Pollution Control District should establish a full monitoring program to assess the current air quality in the Borrego Valley. The State and local APCD should also develop an emissions inventory, and impose restrictions on all stationary sources to the greatest extent feasible.

Because Rams' Hill would not significantly impact air quality in the Borrego Valley, no mitigating measures are deemed necessary. The project design, however, incorporates an internal bicycle trail system and an internal and regional riding and hiking trail system. All of these would tend to reduce motor vehicle emissions and thereby enhance air quality in the valley. All measures to increase the utilization of these facilities and alternative modes of transportation should be encouraged.

The number and frequency of air flights to the Borrego Valley would probably increase by 1985 capturing an increasing portion of potential long-distance trips, thereby reducing VMT and TRIP-related emissions. The increased level of service would be implemented by Sun Aire Lines.

The level of service of the Rural Lifeline Transit System to Borrego Springs could be increased. This system, which will be implemented from San Diego to Borrego Springs in January 1979, should capture approximately one percent of the long-distance commute trips at current projected levels of service.

According to the foregoing analysis, the single most significant emissions source in the Borrego Valley is off-road vehicles. Should the State Air Resources Board and Anza Borrego Desert State Park become concerned about air quality

Table 7

Reactive Hydrocarbons

1978

Peak Season Weekday

Tons per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents *	.32	.04	.10
Anza Borrego Desert State Park	.69	.28	.67
Weekday Total	1.01 (without ORV's)	.32	.77

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

Table 8

Reactive Hydrocarbons

1978

Off Peak Season Weekday

Emissions By Source And Air Basin

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	.190	.024	.059
Anza Borrego Desert State Park	.216	.088	.217
Weekday Total	.406 (Without ORV's)	.112	.276

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

Table 9

Reactive Hydrocarbons

1985

Peak Season Weekday

Emissions By Source And Air Basin

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	.183	.016	.045
Anza Borrego Desert State Park	.300	.086	.240
Rams' Hill**	.164	.014	.040
Weekday Total	.647 (Without ORV's)	.116	.325

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

**Rams' Hill Project includes residents, Hotel guests, secondary growth and associated activity. (See Growth Inducement).

Table 10

Reactive Hydrocarbons

1985

Off Peak Season Weekday

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	.110	.010	.027
Anza Borrego Desert State Park	.097	.028	.078
Rams' Hill**	.100	.009	.024
Weekday Total	.307 (Without ORV's)	.047	.129

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

**Rams' Hill Project includes residents, Hotel guests, secondary growth and associated activity. (See Growth Inducement).

Table 11

Off-Road Vehicle Emissions

Peak Season Weekend Day

1978 and 1985

Tons Per Day

Factor	1978	1985
Motorcycle Industry	3.02	3.77
POCD Factor	1.21	1.52

Table 12

Off-Road Vehicle Emissions

Off Peak Season Weekend Day

1978 and 1985

Tons Per Day

Factor	1978	1985
Motorcycle Industry	0.852	1.09
APCD	0.34	0.43

Table 13

Carbon Monoxide

1978

Peak Season Weekday

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	2.66	.44	.99
Anza Borrego Desert State Park	5.66	3.05	6.91
Off-Road Vehicles**	4.86		
Total	13.18	3.49	7.90

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

**ORV calculations are for a weekend day.

Table 14

Carbon Monoxide

1978

Off Peak Season Weekday

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	1.62	.27	.61
Anza Borrego Desert State Park	1.81	.98	2.21
Off-Road Vehicles**	1.37		
TOTAL	4.80	1.25	2.82

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management (see Growth Inducement).

**ORV calculations are for a weekend day.

Table 15

Carbon Monoxide

1985

Peak Season Weekday

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	1.74	.23	.56
Anza Borrego Desert State Park	2.90	1.28	3.09
Off-Road Vehicles***	6.07		
Rams' Hill**	1.56	.21	.51
Total	12.27	1.72	4.16

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management (see Growth Inducement).

**Rams' Hill Project includes residents, hotel guests, secondary growth and associated activity. (See Growth Inducement).

***1975 Factor, ORV calculations are for a weekend day.

Table 16

Carbon Monoxide

1985

Off Peak Season Weekday

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	1.06	.14	.34
Anza Borrego Desert State Park	.93	.41	.99
Off-Road Vehicles***	1.71		
Rams' Hill**	.95	.13	.31
Total	4.65	.68	1.64

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

**Rams' Hill Project includes residents, hotel guests, secondary growth and associated activity. (See Growth Inducement).

***1975 factor, ORV calculations are for a weekend day.

Table 17

Nitrogen Oxides

1978

Peak Season Weekday

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	.28	.06	.12
Anza Borrego Desert State Park	.61	.39	.84
Off-Road Vehicles**	.74		
Total	1.63	.45	.96

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

**ORV calculations are for a weekend day.

Table 18

Nitrogen Oxides

1978

Off Peak Season Weekday

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	.17	.03	.07
Anza Borrego Desert State Park	.19	.12	.27
Off-Road Vehicles**	.21		
Total	.57	.15	.34

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

**ORV calculations are for a weekend day.

Table 19

Nitrogen Oxides

1985

Peak Season Weekday

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	.25	.05	.11
Anza Borrego Desert State Park	.42	.28	.61
Off-Road Vehicles***	.92		
Rams' Hill**	.23	.05	.10
Total	1.82	.38	.82

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

**Rams' Hill Project includes residents, hotel guests, secondary growth and associated activity. (See Growth Inducement).

***1975 factor, ORV calculations are for a weekend day.

Table 20

Nitrogen Oxides

1985

Off Peak Season Weekday

Tons Per Day

Source	Borrego Valley	Mountain Crest	San Diego Air Basin
Borrego Residents*	.15	.03	.07
Anza Borrego Desert State Park	.14	.09	.19
Off-Road Vehicles***	.26		
Rams' Hill**	.14	.03	.06
Total	.69	.15	.32

*Borrego residents include both seasonal and permanent residents as projected by the County Regional Growth Management. (See Growth Inducement).

**Rams' Hill Project includes residents, hotel guests, secondary growth and associated activity. (See Growth Inducement).

***ORV calculations are for a weekend day.

A P P E N D I X E

NOISE

HIGHWAY NOISE ANALYSIS WORKSHEET — On-site noise without project

Wyle Laboratories Job No. _____

Route 1978

Map Sheet _____

Ref.	Segment	Lanes/ Median	A.D.T.	Average Hourly Flow		% Truck	L_{eq}, dB		L_{dn} at 50 ft	% Grade	Roadway			Sideline		Dist. to L_{dn} = 65 dB (feet)	Notes
				Day	Night		Day	Night			E	L	D	Lt	Rt		
1	Yaqui Pass Rd at entrance	2/0	1498	75	12	1%	60	-		5%			X				
2		2/0	560	28	5	1%	-	-		2%		X					

Prepared By:

L_{dn} Worksheet.

HI[illegible]AY NOISE ANALYSIS WORKSHEET

Wyle Laboratories Job No. _____

Route Phase I c letio[illegible]

Map Sheet _____

Ref.	Segment	Lanes/ Median	A.D.T.	Average Hourly Flow		% Truck	L_{eq}, dB		L_{dn} at 50 ft	% Grade	Roadway			Sideline		Dist. to L_{dn} = 65 dB (feet)	Notes
				Day	Night		Day	Night			E	L	D	Lt	Rt		
1	Yaqui Pass Rd at entrance	4/12*	6288	364	91	1%	57	51	55	5			X			N/A	depressed 5 feet
2	Borrego Springs Rd south of Yaqui Pass	4/12*	1030	60	15	1%	50	50	50	2						N/A	
3	SC 460	2/0	236	14	3	1%	50	50	50	0						N/A	
4	Internal circulation leep	2/0	3900	226	56	0	54	50	52	0						N/A	

*incremental adjustment made for median

Prepared By

L_{dn} Worksheet.

HIGHWAY NOISE ANALYSIS WORKSHEET

Wyle Laboratories Job No. _____

Route Phase II completion

Map Sheet _____

Ref.	Segment	Lanes/ Median	A.D.T.	Average Hourly Flow		% Truck	L_{eq}, dB		L_{dn} at 50 ft	% Grade	Roadway			Sideline		Dist. to L_{dn} = 65 dB (feet)	Notes
				Day	Night		Day	Night			E	L	D	Lt	Rt		
1	Yaqui Pass Rd. at entrance	4/12*	10450	606	151	1%	58.5	53	56.5	5			X			N/A	depressed 5 feet
2	Borrego Springs Rd south of Yaqui Pass	4/12*	1270	73	18	1%	50	50	50	2						N/A	
3	SC 460	4/0	475	28	7	1%	50	50	50	0						N/A	
4	Internal circulation loop	2/0	7800	452	112	0	57	51	55	0						N/A	

* incremental adjustment made for median

Prepared By

L_{dn} Worksheet.

HIGHWAY NOISE ANALYSIS WORKSHEET

Wyle Laboratories Job No. _____ On-site noise with project

Route 1995

Map Sheet _____

Ref.	Segment	Lanes/ Median	A.D.T.	Average Hourly Flow		% Truck	L_{eq}, dB		L_{dn} at 50 ft	% Grade	Roadway			Sideline		Dist. to L_{dn} = 65 dB (feet)	Notes
				Day	Night		Day	Night			E	L	D	Lt	Rt		
1	Yaqui Pass Rd at entrance	4/12*	12500	725	180	1%	59	53	57	5			X			N/A	depressed 5 feet
2	Borrego Springs Rd South of Yaqui Pass Rd	4/12*	1600	93	23	1%	50	50	50	2		X				N/A	
3	SC 460	4/0	500	29	7	1%	550	50	50	0		X				N/A	
4	Internal circulation leep	2/0	7800	390	65	0	55	52	53	0		X				N/A	

* incremental adjustment made for median

These traffic numbers represent a preliminary traffic assignment for 1995. San Diego County has not forecasted 1995 traffic levels for Borrego. This assignment includes a factor for increased traffic levels relative to the Anza Borrego Desert State Park and a factor for increased building on individual lots in the valley. The assignment does not include the second Specific Plan for Rams' Hill or the Specific Plan development for Borrego Country Club

Prepared By

L_{dn} Worksheet.

Noise Study - Rams' Hill Project
Data Sheet
May 23, 1979

Mic location (1) 50 feet west of Yaqui Pass Road, 0.3 miles south of intersection of Yaqui Pass Road and Borrego Springs Road

Measure Time 1200 - 1230 ½ hour

Traffic Count 5B 11111 111 NB 111 11 in ½ hour 22 CPH

Noise (Ln)	Max	0.1	1	10	50	90	00	Min	2	5	20	Leq	Cal CK
	69	67	61	51	34	29	28	28	59	55	45	48	96

Comments: Slight to moderate to gusty breeze from south, faint drone of distant jet occasional biting fly.

Reduce all noise levels by 2 dB(A) as corrective factor for calebration

Rams' Hill Information

1. Present Traffic

March, 1978	Yaqui Pass	1,498 ADT
	Borrego Springs	560 ADT

2. Projected Traffic

1985, with Rams' Hill	Yaqui Pass	4,493 ADT
	Borrego Springs	795-1,269 ADT
without Rams' Hill	Yaqui Pass	2,127 ADT
	Borrego Springs	795 ADT
1995, with Rams' Hill	Yaqui Pass	12,500 ADT
	Borrego Springs	1,600 ADT
within Rams' Hill 100% between 9 & 3 p.m.		7,800 ADT

3. Assumptions

20% of DT occurs at peak hour; 9-10 a.m., 2-3 p.m.
50% of DT in remaining ten hours of day
10% of DT during night hours

4. 1985 with Rams' Hill - AQUI ADT 2,127

9-10 a.m., 1/25; 2-3 p.m., 425, for remaining hours of day
105 per hour for night, 18 cph

Environmental Noise Measurement
Rams' Hill

May 12, 1979

Mic Location (1) one mile east of intersection of Borrego Springs Road & 53, on Borrego Springs. Mic 50 feet north and westbound lane

Traffic Count On 1111 for 30 minutes 10 per hour

Measurement Time start 1918 stop 1948 duration 30 minutes

Noise Level Ln

Max	0.1	1	10	50	90	94	Min	2	5	20	Q
78	69	56	42	27	26	26	25	51	45	35	47

May 12, 1979

Mic Location (1)

Traffic Count On 1 for 30 minutes 2 per hour

Measurement Time start 1948 stop 2018 duration 30 minutes

Noise Level Ln

Max	0.1	1	10	50	90	99	Min	2	5	20	Q
75	44	39	39	30	28	26	26	38	36	33	37

May 12, 1979

Mic Location (2)

Traffic Count On None for 60 minutes

Measurement Time start 2135 stop 2235 duration 60 minutes

Noise Level Ln

Max	0.1	1	10	50	90	99	Min	2	5	20	Q	
96	48	43	32	28	26	26	26	40	34	30	54	Wind

May 13, 1979

Mic Location (2)

Traffic Count On None for 60 minutes

Measurement Time start 2345 stop 0045 duration 60 minutes

Noise Level Ln

Max	0.1	1	10	50	90	9	Min	2	5	20	Q	
91	51	40	31	28	26	25	25	42	36	29	49	Wind

May 13, 1979

Mic Location (2)

Traffic Count On

Measurement Time start 0045 stop 0145 duration 60 minutes

Noise Level Ln

Max	0.1	1	10	50	90	99	Min	2	5	20	Q
44	40	35	30	27	26	25	25	34	32	28	28

May 13, 1979

Mic Location (2)

Traffic Count On

Measurement Time start 0145 stop 0345 duration 2 hours

Noise Level Ln

Max	0.1	1	10	50	90	99	Min	2	5	20	Q
48	45	39	29	26	26	25	25	37	32	28	29

Noise Calculation Models

$$\text{Noise Level} = 10 \text{ Log } \frac{\text{Average Traffic Count}}{\text{Measured Traffic Count}} \text{ dB}$$

$$\text{and Leq corr} = 10 \text{ Log } \frac{\text{AHT}}{\text{MAHT}} \text{ dB}$$

$$\text{CNEL} = 10 \text{ Log } \frac{1}{24}$$

D - hourly Leq between 0700 and 1900
E - hourly Leq between 1900 and 2200
N - hourly Leq between 2200 and 0700

Noise Changes

$$\text{Ln} = 10 \text{ Log}_{10} \frac{T_2}{T_1} + 10 \text{ Log}_{10} \frac{U_2}{V_1}$$

T_1, V_1 Traffic flow & speed initially

T_2, V_2 Projected traffic flow & speed

$$\text{Weekly CNEL} = 10 \text{ Log } \frac{1}{7}$$

CNEL Calculation - Rams' Hill

1995

1. Additional assumptions

   (a) a PT one mile from Yaqui Pass & Borrego Springs Road. Noise contribution from Yaqui, 43 dB(A); from Borrego 35 dB(A)

   (b) Ambient noise due to machinery in development - 35 dB(A)

   (c) 7,800 ADT between 9 and 3 p.m., no traffic otherwise. 1,300 AHT @ 15 mph

2. Hourly Ln due to 1,300 AHT (using Yaqui Pass Road data as basis)

   Ln = 48 + Ln where

$$Ln = 10 \text{ Log}_{10} \frac{T_2}{T_1} + 10 \text{ Log } \frac{V_2}{V_1}$$

   Ln = 48 + 13 = 61 dB(A)

3. Noise reduction with distance

   = 5,000 feet

$$Ln = 15(2) + \left(\frac{4,000}{1,000}\right) + \left(\frac{3,000}{1,000}\right) \qquad 39 \text{ dB(A)}$$

NOISE IMPACT ANALYSIS
OF A PLANNED RESORT COMMUNITY
BY THE DIGIORGIO CORPORATION

November 21, 1973

Prepared by:

WESTEC SERVICES, INC.
1520 State Street
San Diego, California 92101

SECTION III

NOISE IMPACTS

GENERAL

The noise impact analysis included a site inspection and measurement of existing ambient noise levels in the area of the development. These data and the projected traffic levels on the major road systems near the project were then used to predict the noise impacts.

EXISTING ACOUSTIC ENVIRONMENT

Site Survey

The purpose of the ambient sound survey was to establish a representative acoustic baseline against which the noise impact of the project could be evaluated. The measurement of the existing noise environment permits a determination of how much (or how little) impact the proposed development would have on the surrounding area.

The measuring equipment used consisted of a General Radio 1556-B Sound Level Meter (SLM) which meets the requirements listed in American National Standards Institute (ANSI) Standard S1.4-1971, "Sound-Level Meters." The SLM was calibrated with a General Radio Type 1562-A Sound-Level Calibrator and fitted with a windscreen. The measurements were taken approximately 4 feet above the ground to avoid ground reflection influences.

Measurements were made on October 22, 1973 between the hours of 1132 and 1557 using the A-weighting network and slow response of the SLM. The slow response was utilized rather than the fast response to obtain a smooth average over the measurement period. Readings were observed every 30 seconds on the SLM and recorded on a log sheet. Noise due to animals, birds, insects, and wind blowing through vegetation was almost non-existent because of the desolate nature of the property. Intrusions of man-made noise from aircraft and motor vehicles predominated, but were infrequent. An observation was made every 30 seconds for a continuous 15-minute period. Those 15-minute data acquisitions were made at eleven locations throughout the site as shown on Figure 3-1. The measurement sites were chosen on the basis of Phase I development plans, traffic corridors, and accessibility. For sites contiguous with either Borrego Springs Road or Yaqui Pass Road measurements were made 50 feet from the centerline of the roadway.

Ambient Noise Environment

The results of the site acoustic survey are shown in the following table:

Noise Measurement Data - DiGiorgio Project Site

Measurement Station (a)	No. of Events - dB(A) 40	40-45	46-50	51-55	56-60	60	Avg. (Leq)
1	21	2	2	0	0	5	55.6
2	30	0	0	0	0	0	40.0
3	30	0	0	0	0	0	40.0
4	29	0	1	0	0	0	44.2
5	29	0	0	1	0	0	46.1
6	26	0	0	0	0	4	54.5
7	26	3	1	0	0	0	44.8
8	26	3	1	0	0	0	44.8
9	21	5	4	0	0	0	47.1
10	28	1	1	0	0	0	44.4
11	24	1	1	0	0	4	54.7

(a) Refer to Figure 3-1

As indicated each location was sampled at 30 discrete intervals, 30 seconds apart. Of the 330 samples taken only 25 (or 7.6%) exceeded 45 dB(A) and only 14 (or 4.2%) exceeded 50dB(A). About two-thirds of the noise intrusion events were caused by motor vehicles whereas the remaining one-third were associated with aircraft flyovers (primarily from Borrego Valley Airport). Although night measurements were not taken it is estimated that nighttime sound levels would be within 5 dB(A) of the recorded measurements due to lack of vegetation on the site and the limited traffic on Borrego Springs and Yaqui Pass Roads. In general, as indicated by the data in Table 3-1, the site is very quiet due to the lack of man-associated activity in the area.

NOISE IMPACT

The noise impacts of the project will be predominately localized in nature. Traffic generated by this project will affect other areas of the Borrego Valley, but the impact is more properly addressed when considering other specific areas or projects and in the context of the total traffic flow on a particular roadway. Three sources of noise are considered in the impact analysis:

- Construction Noise
- Aircraft Overflights
- Traffic noise

Criteria for assessing noise impacts and external noise exposure standards for new construction sites have been established by the U.S. Department of Housing and Urban Development.[6] Moreover, the County of San Diego is presently considering a draft noise ordinance which is likely to be enacted by the time this project commences.[7]

Construction Noise

Periodically during the construction phase of the project construction noise will occur. This noise factor will be most evident during the operation of earthmoving and grading equipment and will be considerably reduced during other phases of construction. The construction function is predominately a daytime activity and no associated noise impacts are expected outside normal working hours. The County Noise Control Ordinance, if adopted as written, would prohibit noise levels in excess of 70 dB(A) for more than eight (8) hours during any twenty-four (24) hour period when measured at a distance of 100 feet from the equipment. As the project progresses certain temporary annoyances to existing residents and residential areas to the north of the site will result from the construction process.

Aircraft Overflights

Aircraft overflight noise will occur occasionally as a result of operations at Borrego Valley Airport. The airport is approximately 3 miles north of the northern boundary of the project site. Almost all air operations are light aircraft (one or two engine). This noise factor will be in the category of a temporary annoyance and is not expected to create any unacceptable noise conditions within the project. The project is not in the direct take-off or approach path of the airport.

Traffic

Traffic will be the primary source of noise within and near the proposed DiGiorgio project. Existing traffic levels in the project area on the two primary arteries considered in the traffic study, Borrego Springs Road and Yaqui Pass Road, are as follows:

	ADT
Borrego Springs Road	180 (3-15-71)
Yaqui Pass Road	960 (3-15-73)

By 1980-1 (Completion of Phase I) maximum traffic on these roads is expected to increase to:

	1981 ADT (max.)
Borrego Springs Road	1500
Yaqui Pass Road	7540 (at entrance to project)

Upon completion of the project and including 2,000 external trips generated by the commercial facilities, traffic will increase to:

	1990 ADT (max.)
Borrego Springs Road	5700
Yaqui Pass Road	12,200 (at entrance to project)

Since the internal project design is not complete, no traffic assignments were made by the traffic consultant and the noise impacts in these areas can only be generalized.

HUD criteria were used to compute traffic noise zones. Three zones are considered: Normally Unacceptable (exceeds 65 dB(A) 8 hours or more per 24 hours), Normally Acceptable (does not exceed 65 dB(A) 8 hours or more per 24 hours), and Clearly Acceptable (does not exceed 45 dB(A) more than 30 minutes per 24 hours). The traffic rates shown above were adjusted for an average traffic speed of 50 mph. Based on the total traffic volume, 5% of the traffic is assumed to be heavy trucks (multi-axle). The effective adjusted peak hour traffic volumes for the two roadways are:

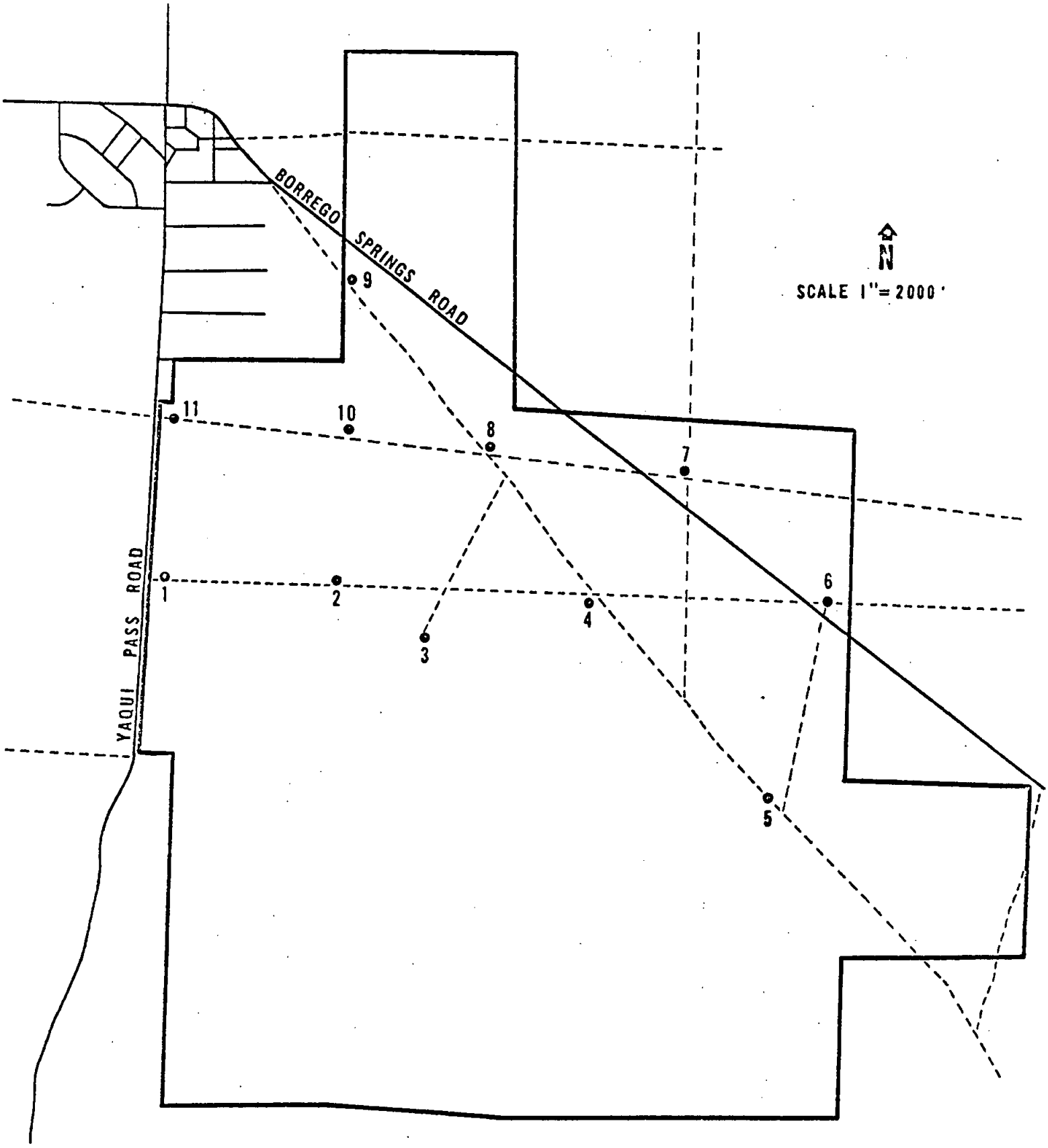


Figure 3-1 Ambient Noise Measurement Locations

Location	Year	Adjusted Peak Hour Traffic (Vehicles/hour) Autos	Trucks
Borrego Springs Road	1981	100	5
	1990	380	18
Yaqui Pass Road	1981	501	24
	1990	811	38

Using these traffic rates, the effective distances from the center of the roadway to the noise boundaries were determined in accordance with HUD criteria:

Location	Year	Distance to Noise Zone (Ft.) Normally Unacceptable	Normally Acceptable	Clearly Acceptable
Borrego Springs Road	1981	<10 ft.	14 ft.	165 ft.
	1990	<10 ft.	80 ft.	770 ft.
Yaqui Pass Road	1981	10 ft.	110 ft.	1000 ft.
	1990	17 ft.	170 ft.	>1000 ft.

Thus, the distances from the roadway center to the Normally Acceptable noise zone vary from 14 ft. on Borrego Springs Road in 1981, to 170 ft. on Yaqui Pass Road (near the commercial area) in 1990.

The Phase I preliminary design plan provides for adequate greenbelt and park area separation of all residential areas from the roadways examined in this analysis and consequently none of the Phase I residential areas will be in the Normally Unacceptable Noise Zone. The Phase II residential area is planned to a lesser degree at this juncture and in particular the area designated as Residential .4 D.U./acre will require setback areas along Yaqui Pass Road and the major interior streets.

The County of San Diego Noise Control Ordinance proposes the following noise level limits:

Zone	Time	Sound Level (A-Weighting) Decibels
R-1 Residential	7 a.m. to 7 p.m.	50
	7 p.m. to 10 p.m.	45
	10 p.m. to 7 a.m.	40

Noise levels exceeding these figures by 5 dB or more on a continous basis would be subject to corrective action in terms of noise source quieting. The detailed design of the project should take cognizance of these requirements if and when the County's Noise Control Ordinance is enacted.

Adverse Noise Impacts

There are no predicted major adverse noise impacts associated with this project so long as adequate setbacks (as described in the preceding section) are maintained between residential areas and Borrego Valley and Yaqui Pass Roads as well as the major interior roadways. In addition to these setbacks, landscaping and other sound buffers such as block walls can be utilized where necessary to assure maintenance of noise standards. The project design appears to be evolving in a manner which will assure that adverse impacts are avoided.

There will be temporary noise annoyances over the construction period due to construction vehicles and activity. Aircraft overflights may also occasionally cause a noise annoyance to the project's residents.

Measures to Mitigate Adverse Noise Impacts

The following measures to mitigate adverse noise impacts caused by this project are available:

(1) Construction Noise:

(a) Limit construction operations to weekdays between the hours of 7 a.m. and 7 p.m.

(b) Maintain construction equipment noise abatement devices in accordance with existing ordinances.

(2) Traffic Noise:

(a) Maintain greenbelt and park area buffer zones between major roadways and residential areas as is presently planned and as discussed under Impacts.

(b) Limit speeds on internal project streets to 35 mph.

(c) Prohibit the use of off-road vehicles within the project boundaries.

(d) Utilize landscaping and other sound alternating barriers in areas which are susceptible to traffic noise.

(3) Other Noise Factors:

(a) By Convenant, Code and Restriction prohibit other loud or disturbing noises within the project boundaries.

RAMS' HILL
COUNTRY CLUB

ENVIRONMENTAL IMPACT REPORT
Technical Appendix
Volume II

January 15, 1979

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A P P E N D I X F

ENERGY

THE EFFECT OF SOLAR ENERGY ON ELECTRICAL ENERGY DEMANDS AT BORREGO SPRINGS

BY

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CHAPTER I - SUMMARY AND CONCLUSIONS

This report presents the methodology and the findings of a study conducted to evaluate the technical and economic feasibility of solar energy untilization by a major residential and hotel complex located near Borrego Springs, California. Three basin energy systems are considered in this evaluation: solar water heating systems, combined solar water and space heating systems, and solar air conditioning systems. Characteristics including capital costs and collector requirements are presented for each of these systems.

Climate data for Borrego Springs is analyzed to determine monthly variations in available solar radiation. The average and monthly variations in hot water, space heating and air conditioning electrical energy requirements is calculated for each dwelling category of the proposed development. Dwelling categories include hotel rooms and villas, hotel common areas, private townhouses and private detached houses. Each of these differs in average enclosed areas. Electrical energy savings resulting from solar water heating and the combined solar water heating and space heating systems are presented on monthly and annual basis for each category dwelling. Solar air conditioning savings are not evaluated because of the lack of adequate capital cost data and their undemonstrated capability.

A major factor in the electrical power demands for the proposed development is the seasonal use of the facilities. Borrego Springs has a desert climate and maximum utilization is projected to occur in the winter

months. Average projected occupancy of the hotel and private residences vary between 100% in December to 35% in July. Occupancy variations are considered in calculating both the annual electric power savings for individual swelling categories and in the monthly and annual power requirements for the entire project.

Two factors are important when considering the effect of solar energy systems on the electrical energy utilization of a project. These factors are 1) the reductions in the total annual energy consumption and 2) the reduction in the peak monthly usage. It was found that installation of solar hot water systems in all dwellings planned would reduce the total annual electrical energy consumption by 18% and the peak monthly demand by 9%. The peak monthly demands which are due to air condition during the peak summer months are little affected by solar water heaters. The use of solar energy for water and space heating reduces the total annual electrical energy consumption by 33% and the peak monthly demand by 9%. The combined system does not produce any additional reduction in the peak monthly demand than the water heating system because the peak monthly occurs in the summer when space heating is not utilized.

Both the solar water heating and the combined solar water and space heating systems are cost-effective. The initial capital investments for the solar energy system can be recovered in 5 to 9 years assuring 8% interest.

Based on the aforementioned considerations water and space heating systems are recommended for this development. In addition, solar heating of swimming pools is technically viable and economically advantageous in most warm climate areas of California. No considerations were given to solar heating of pools in view of its recognized viability.

CHAPTER II - SOLAR ENERGY SYSTEMS

There are four main end uses of a residential solar energy system: heating water for domestic purposes, heating a swimming pool, heating the home (space heating), and heating and cooling. There are various combinations of these systems where certain component parts of one system could be effectively used by all. For example, a space heating/ hot water system could be used for swimming pool heating when the space heating load decreases in late spring, summer and early fall.

A. BACKUP REQUIREMENTS

The status of the current technology dictates that solar energy systems have conventional backup units for water and space heating. Backup capabilities for pool heating depends on the wishes of the individual owner. The majority of solar energy systems are not designed to handle all the anticipated demand for cost-effective reasons. For example, if a solar system is designed to provide 100 percent of the load during the winter when long periods of cloud cover might occur, it would be necessary to provide massive heat storage systems. These expanded systems would only be required during one or two periods per year and their costs cannot be justified by fuel savings. The backup system is used during such episodes.

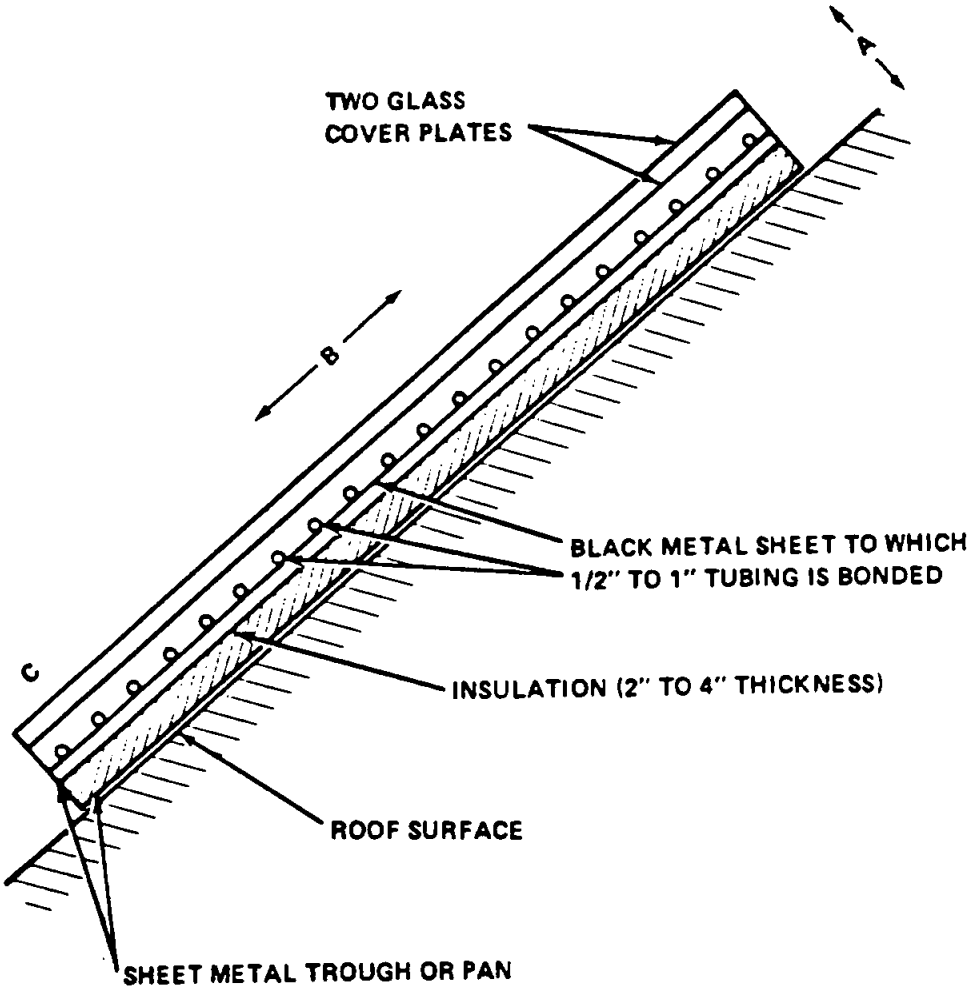
B. SYSTEM DESCRIPTIONS

All solar energy systems have three basic components: collectors, heat storage tanks and the delivery system. The delivery system refers to any one of many systems such as a conventional water heater, room heating units or cooling units. Schematic diagrams describing various systems have been obtained from various sources and are presented to familiarize the reader with the types of systems under consideration.

Figure II-1 is a schematic diagram of one typical solar collector which is suitable for residential applications. There are many new and innovative configurations currently under evaluation testing. Equipment selection should be based on an analysis which considers costs, dependability, aesthetics and performance.

Two types of space and water heating systems are illustrated in Figure II-2. The upper diagram describes a typical system utilizing a liquid for heat transfer while the lower diagram illustrates a typical air transfer system. The liquid systems have had wider application in the past and are used in this report for the cost analysis.

Figure II-3 illustrates a schematic diagram of one alternative system for residential heating and cooling with solar energy. There are various other systems which incorporate storage revisions based on changes in the crystal structures of salt solutions. As discussed in the following section, solar cooling systems are not considered in this report due to the lack of any dependable documentation evaluation studies.

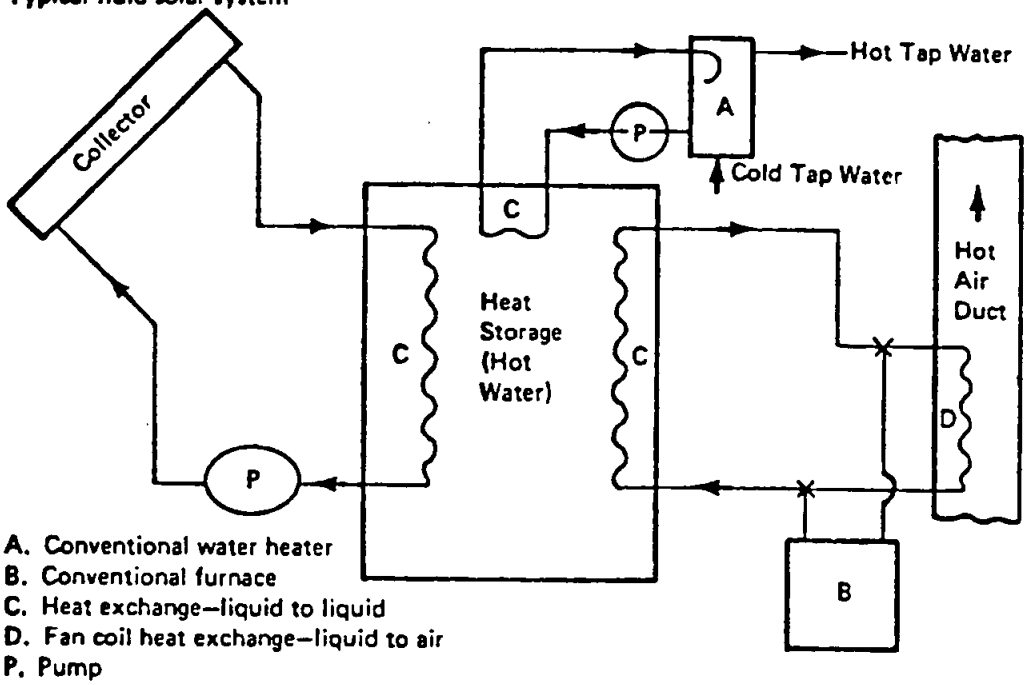


NOTES: ENDS OF TUBES MANIFOLDED TOGETHER
ONE TO THREE GLASS COVERS DEPENDING
ON CONDITIONS

DIMENSIONS: THICKNESS (A DIRECTION) 3 INCHES TO 6 INCHES
LENGTH (B DIRECTION) 4 FEET TO 20 FEET
WIDTH (C DIRECTION) 10 FEET TO 50 FEET
SLOPE DEPENDENT ON LOCATION AND ON
WINTER-SUMMER LOAD COMPARISON

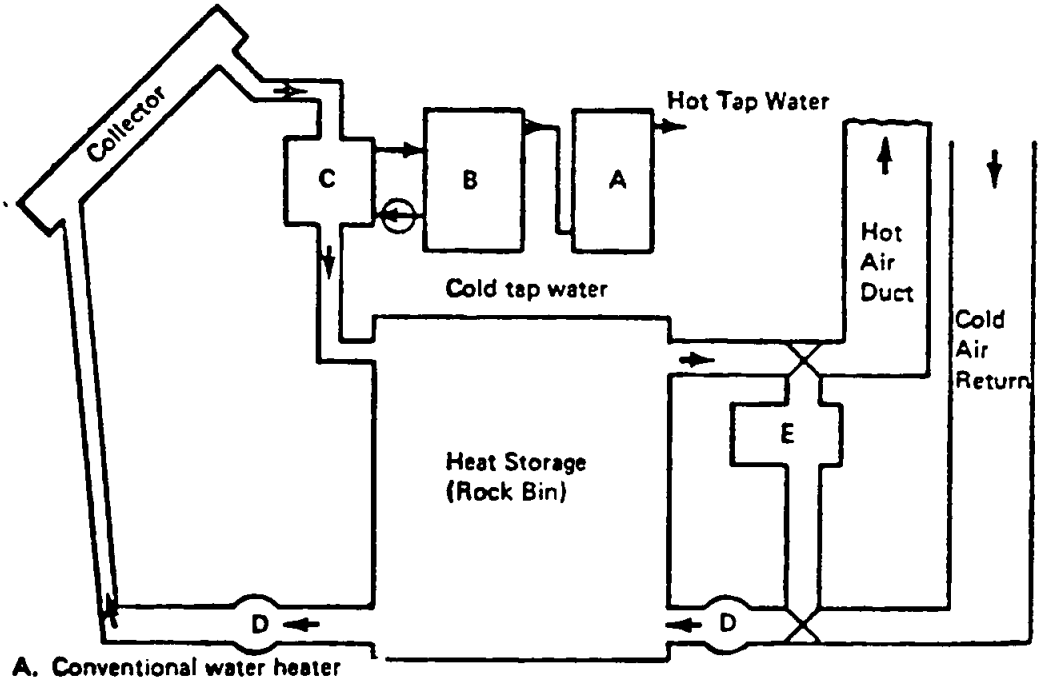
FIGURE II-1 SOLAR COLLECTOR FOR RESIDENTIAL HEATING AND COOLING
DIAGRAMATIC SKETCH OF ONE ALTERNATIVE
(elevation-section)

Typical fluid solar system



A. Conventional water heater
B. Conventional furnace
C. Heat exchange—liquid to liquid
D. Fan coil heat exchange—liquid to air
P. Pump

Typical air solar system



A. Conventional water heater
B. Solar hot water storage
C. Air to liquid heat exchange
D. Blower
E. Conventional furnace

FIGURE II-2 SOLAR SPACE HEATING AND RESIDENTIAL HOT WATER

C. STATUS OF SOLAR ENERGY SYSTEMS

The three residential solar applications, water heating, space heating, and space cooling differ substantially in status of development. Solar water heaters and space heating systems are commercially available. Solar water heaters were once common in Florida but then diminished by the availability of inexpensive natural gas. The technology of water heaters is well developed; further production engineering (particularly for collectors) and larger scale manufacturing would result in cost reductions and increased utilization.

Space heating technology is also developed but not to the degree of the water heating systems. Various combinations of collector types, heat storage techniques, heat transfer media and auxiliary energy supplies have been used. At the present time no one system appears to be superior. Therefore, for the purposes of this report, average cost and performance data for solar space heating systems is utilized.

Solar air conditioning systems, while technically feasible, have not been evaluated under field conditions for extended periods of time. The economic feasibility of such systems is unproven at the present time. In view of the status of solar cooling technology and the relatively low cost of electrical energy in the study area, solar air conditioning systems cannot be recommended and will not be considered further.

The technology of solar energy stations for production of power generation is in its infancy. It is impossible to recommend any considerations of electrical power generation until ongoing developmental studies are complete. It is doubtful that any of the current studies will result in availability of commercial solar electrical systems within the next 10 to 15 years.

The present status of solar utilization techniques are summarized in Table II-1.

D. CENTRAL VERSUS INDIVIDUAL SYSTEMS

In many applications there is a definite advantage in utilizing central solar collector and storage systems. The costs of solar energy systems are reduced by 10 to 20 percent by utilizing centralized systems. However, with a central system comes the necessity for metering the energy consumptions by individual users. In view of these and other considerations such as maintenance of commonly owned facilities, projected rates of development, large initial capital costs and low summer occupancy, a recommendation is not made for central versus individual systems. The economic feasibility evaluation, which is the prime objective of this report, is affected little by whether central or individual systems are employed.

TABLE II-1. PRESENT STATUS OF SOLAR UTILIZATION TECHNIQUES

Application	Status					
	Research	Development	Systems Test	Pilot Plant Demonstration	Prototype Plant	Commercial Readiness
Thermal Energy for Buildings						
Water heating	X	X	X	X	X	X
Building heating	X	X	X	X	X	X
Building cooling	X	X	X	X		
Combined system	X	X	X	X		
Renewable Clean Fuel Sources						
Combustion of organic matter	X	X	X	X	X	X
Bioconversion of organic materials to methane	X	X	X	X		
Pyrolysis of organic materials to gas, liquid, and solid fuels	X	X	X	X	X	X
Chemical reduction of organic materials to oil	X	X	X			
Electric Power Generation						
Thermal conversion	X	X	X			
Photovoltaic						
Residential/commercial	X	X				
Ground central station	X	X	X			
Space central station	X					
Wind energy conversion	X	X	X	X		
Ocean thermal difference	X	X	X			

X = indicates effort is underway but not necessarily complete.

CHAPTER III - SITE CONDITIONS AND DWELLING ENERGY REQUIREMENTS

The purpose of this chapter is to establish the climatic conditions which control both the available solar energy and the heating and cooling requirements at the proposed site. In addition, energy requirements for the proposed residential and commercial structures are developed on an individual unit basis. The energy requirements for individual dwellings have been documented to allow for future adjustments in total project requirements. Adjustments would be necessary if the actual development differs from the market projections presented in Section E of this Chapter.

A. Available Solar Energy

The development at Borrego Springs is an excellent site for utilization of solar energy. The generally clear skies allow the collection of large amounts of solar energy on a year-round basis. Temperatures during the winter are relatively mild, thus reducing the heating load and improving collector efficiency. Thermal storage is required mainly for providing heat at night and not for prolonged periods of cloud cover which occur frequently.

Available solar radiation is measured at several sites throughout the United States. Long term records have enabled the preparation of maps showing average solar radiation on a horizontal surface. A horizontal surface receives maximum radiation when the sun is low on the horizon. A collector tilted in the direction of the sun will optimize the amount

of radiation collected. Collectors should be tilted at an angle which will maximize solar energy collection at the time of year when energy requirements are greatest.

Collectors designed to provide space heat are tilted to receive the maximum amount of energy in the winter when the sun is low on the horizon, while collectors for air conditioning are at a low angle to work efficiently during the summer. For the purposes of this report, the collectors were assumed to be mounted at 30° from the horizontal (approximately equal to the latitude of the site) to provide reasonably efficient operation on a year-round basis. The estimated amount of solar radiation available at the site is shown in Table III-1.

B. Climate

Heating and cooling requirements for buildings vary considerably according to climate and building type. Heating requirements are often evaluated in terms of degree days. When the mean daily temperature [a] is below 65° F, each degree below 65° F corresponds to one degree-day. For example, a daily mean temperature of 55° F corresponds to 10 degree days. Monthly degree day totals are obtained by totaling daily degree units.

---

[a] Mean daily temperature is the average of the daily high and low values.

TABLE III-1. ESTIMATED AVAILABLE SOLAR RADIATION AT BORREGO SPRINGS

	Radiation on Horizontal Surface (BTU/FT^2 day)	Radiation on Surface at 30° from Horizontal (BTU/FT^2 day)
January	1014	1615
February	1364	1904
March	1751	2075
April	2027	2057
May	2286	2066
June	2396	2036
July	2396	2086
August	2212	2111
September	1990	2020
October	1475	1949
November	1106	1679
December	922	1536

Long-term averages of temperatures and degree days are published by the U.S. Government for many observation stations. These averages for the station at Borrego Desert Park are shown in Table III-2. These values are representative of what will occur at the site of the project.

C. Energy Demands for Heating, Cooling, and Appliances

Heating and cooling requirements vary considerably. For the purposes of this report, data from a Southern California Edison test house located in Blythe, California has been used. The test house was insulated with R-19 insulation in the roof and R-11 insulation in the walls. To maintain a wintertime temperature of 68° F, the energy requirement has been established at 1.572 KWH/yr-ft2. Air conditioning energy requirements were 5.598 KWH/yr-ft2 to maintain a temperature of 75° F. These annual totals were distributed according to the monthly climatological data at Borrego Desert Park to obtain monthly data. Monthly heating and cooling requirements per square foot of floor area are shown in Table III-3.

Hot water energy requirements were based on the use of 80 gallons per day per residence. The temperature rise was assumed to be 70° F.

Energy requirements for appliances include lighting at .098 KWH/month-ft2. Typical household appliances and their energy requirements are shown in Table III-4.

TABLE III-2. CLIMATOLOGICAL DATA FOR BORREGO DESERT PARK
AVERAGE TEMPERATURE AND DEGREE DAYS

Month	Average Temperature [a]	Heating Degree Days [b]
January	55.4	293
February	58.4	166
March	61.4	155
April	66.5	52
May	77.6	14
June	87.0	0
July	90.8	0
August	89.3	0
September	84.6	0
October	74.6	9
November	64.3	106
December	57.0	260
Total		1,055
Average	72.2	

[a] Average 1973-1976 Borrego Desert Park, degrees Fahrenheit.
[b] Average 1972-1977 Borrego Desert Park.

TABLE III-3. MONTHLY HEATING AND COOLING ENERGY DEMAND BORREGO SPRINGS AREA

	Heating Requirement KWH/ft^2	A/C Requirement KWH/ft^2
January	0.44	0
February	0.25	0
March	0.23	0
April	0.08	0
May	0.02	.27
June	0	1.24
July	0	1.63
August	0	1.47
September	0	0.99
October	0.01	0
November	0.16	0
December	0.38	0
Total	1.57	5.60

[a] Total annual heat required = 1.57 KWH/ft^2 from SCE at Blythe. Distributed monthly by ratio of monthly degree days/annual degree days.

[b] Total annual A/C load = %.6 KWH/ft^2 from SCE at Blthye. Distributed by mo load = $\frac{(\text{mo. temp} - 75^\circ)}{\Sigma(\text{mo. temp} - 7\text{th}^\circ)}$

TABLE III-4. ENERGY REQUIREMENTS FOR APPLIANCES

	KWH/yr
Cooking Range	1224
Clothes Dryer	960
Refrigerator	1830
Color TV	500
Furnace - AC Fan	394
Dishwasher	363
Clothes Washer	103
Iron	144
Coffeemaker	106
Miscellaneous	1200
Total	6824
Equals	569 KWH/month
Lights	2000 KWH/yr for 1695 ft^2 dwelling 1.18 KWH/yr-ft^2 = .098 KWH/mo-ft^2

D. Unit Energy Requirements for Proposed Structures

The proposed development includes hotel rooms, villas, houses, and a commons area. Monthly energy requirements for each type of building were estimated based on unit factors presented above. For villas and individual houses, the unit figures from the Edison test house were used for heating and cooling requirements. Energy requirements from Table III-4 were used for appliance requirements. Total monthly energy demands 2,200 square foot villas and 2,800 square foot individual houses are shown in Tables III-5 and III-6, respectively.

Heating and cooling energy requirements for hotel rooms and villas were reduced to account for lower heat loss and heat gain due to common wall construction. In these cases, 70 percent of the energy requirements for the Edison test house were used. Lighting requirements were assumed to be .098 KWH/month-ft^2 as used for the houses and townhouses, but other applicance loads were reduced by 50 percent. Monthly energy requirements for a 500 square foot hotel room and an 800 square foot villa are presented in Tables III-7 and III-8, respectively. Hot water energy requirements were the same as those used in homes to account for laundry and restaurant facilities at the hotel.

Energy requirements for 36,000 square feet of commons area are shown in Table III-9. Heating and cooling requirements for the Edison test house were used to compute total energy required. Appliance loads were assumed to consist of lighting only, and the unit requirement for houses was increased 50 percent to account for longer hours of operation and for lighted signs.

TABLE III-5. MONTHLY ENERGY DEMAND - (2200 square-foot Villas)

	Hot Water[a] (KWH)	Space Heater[b] (KWH)	A/C[c] (KWH)	Appliances (KWH)	Total (KWH)
January	409	968	0	785	2162
February	409	550	0	785	1744
March	409	506	0	785	1700
April	409	176	0	785	1370
May	409	44	594	785	1832
June	409	0	2728	785	3922
July	409	0	3526	785	4780
August	409	0	3234	785	4428
September	409	0	2178	785	3372
October	409	22	0	785	1216
November	409	352	0	785	1546
December	409	836	0	785	2030

[a] 80 gpd, Temperature rise 60° to 130°.
[b] Based on Southern California Edison Company data for Blythe. 1.572 KWH/yr-ft^2.
[c] Based on Southern California Edison Company data for Blythe. 5.598 KWH/yr-ft^2.

TABLE III-6. MONTHLY ENERGY DEMAND - (2800 ft^2 Individual Home)

	Hot Water (KWH)	Space Heater (KWH)	A/C (KWH)	Appliances (KWH)	Total (KWH)
January	409	1232	0	843	2484
February	409	700	0	843	1952
March	409	644	0	843	1896
April	409	224	0	843	1476
May	409	56	756	843	2064
June	409	0	3472	843	4724
July	409	0	4564	843	5816
August	409	0	4116	843	5368
September	409	0	2772	843	4024
October	409	28	0	843	1280
November	409	448	0	843	1700
December	409	1064	0	843	2316

TABLE III-7. MONTHLY ENERGY DEMAND - (500 ft^2 Hotel Room)

	Hot Water (KWH)	Space Heater[a] (KWH)	A/C[a] (KWH)	Appliances (KWH)	Total (KWH)
January	409	154	0	334	897
February	409	87	0	334	830
March	409	81	0	334	824
April	409	28	0	334	771
May	409	7	94	334	844
June	409	0	434	334	1177
July	409	0	570	334	1313
August	409	0	514	334	1257
September	409	0	346	334	1089
October	409	4	0	334	747
November	409	56	0	334	799
December	409	133	0	334	876

[a] 70 percent of "per ft2 load" for houses.
[b] Lighting @ .098 KWH/mo-ft^2; other appliances @ one-half house load.

TABLE III-8. MONTHLY ENERGY DEMAND - (800 ft^2 Hotel Villa)

	Hot Water (KWH)	Space Heater[a] (KWH)	A/C[a] (KWH)	Appliances (KWH)	Total (KWH)
January	409	247	0	363	1019
February	409	140	0	363	912
March	409	129	0	363	901
April	409	45	0	363	817
May	409	11	152	363	935
June	409	0	696	363	1468
July	409	0	914	363	1686
August	409	0	825	363	1597
September	409	0	555	363	1327
October	409	6	0	363	778
November	409	90	0	363	862
December	409	213	0	363	985

[a] 70 percent of "per ft^2 load" for houses.

[b] Lighting @ .098 KWH/mo-ft^2; other appliances @ one-half house load.

TABLE III-9. MONTHLY ENERGY REQUIREMENTS FOR THE ENCLOSED ($3600\ ft^2$ Common Area of the Hotel)

	Hot Water (KWH)	Space Heater[a] (KWH)	A/C[a] (KWH)	Appliances (KWH)	Total (KWH)
January		15,840	0	5,292	21,132
February		9,000	0	5,292	14,292
March		8,280	0	5,292	13,572
April		2,880	0	5,292	8,172
May		700	9,720	5,292	15,732
June		0	44,640	5,292	49,932
July		0	58,680	5,292	63,972
August		0	52,920	5,292	58,212
September		0	35,640	5,292	40,932
October		360	0	5,292	5,652
November		5,760	0	5,292	11,052
December		13,680	0	5,292	18,972

[a] Included in hotel room H.W.
[b] 1.5 x (home lighting/ft^2).

E. Proposed Schedule for Development

The cost evaluation of alternative energy systems is affected directly by the development schedule and the seasonal occupancy of both residential and commercial structures.

The assumed "net occupancy" variation with season is illustrated in Figure III-1. "Net occupancy" varies slightly from the occupancy of each dwelling category as projected by the market analysis due to the fact that some heating and cooling will occur in unoccupied dwellings. The occupancy has a significant effect on the monthly energy requirements. During the summer months when the average occupancy is 35 percent, it is assumed that unoccupied dwellings will increase the load to about 50 percent, i.e., net occupancy. If year-round occupancy of all dwellings occurs, the peak power demands which occur during July will increase almost two-fold over the projected demands.

The development is planned for construction in phases as shown in Table III-10. The energy requirements for each type of structure were used to determine total energy requirements for Phase I and for ultimate development as shown in Table III-11 and III-12, respectively. In both cases, the peak monthly demand occurs in July even though net occupancy is only 50 percent during the month. The large energy requirement in July is due to the large electrical requirement for air conditioning.

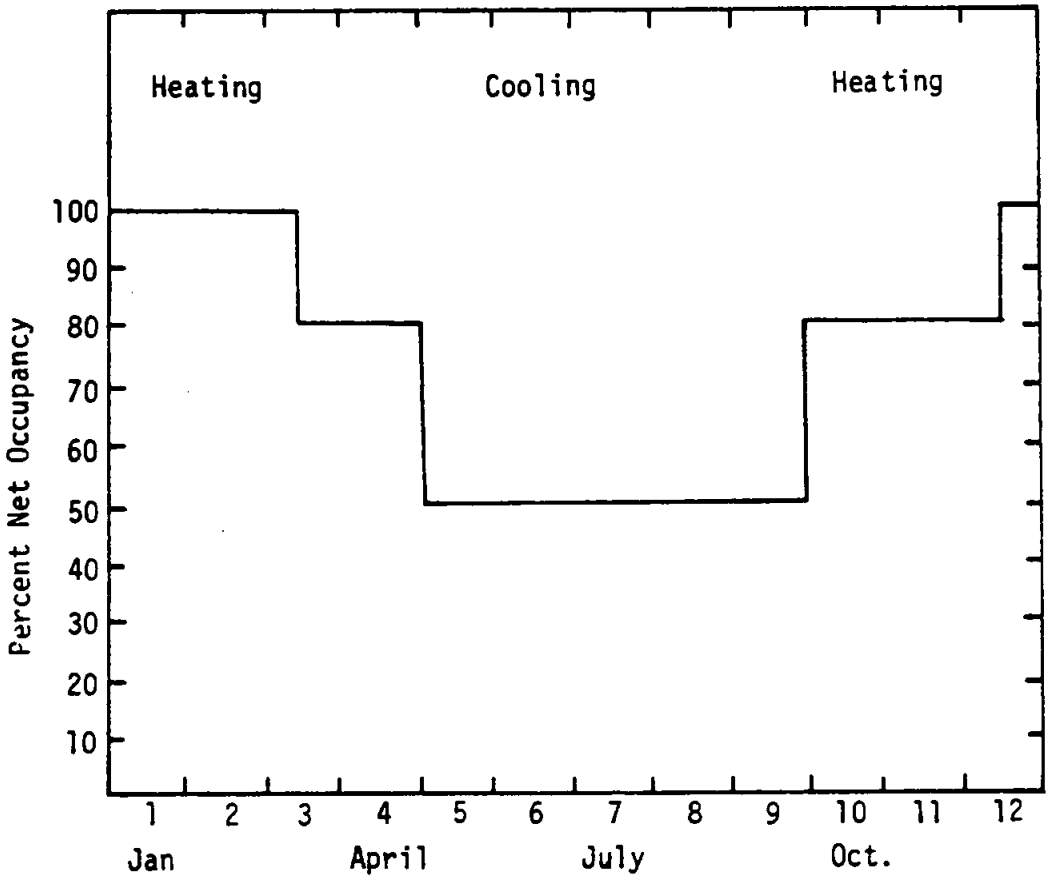


FIGURE III-1. PROJECTED SEASONAL VARIATION IN NET OCCUPANCY

TABLE III-10. PROPOSED SCHEDULE FOR DEVELOPMENT

Facilities	Phase I	Phase II	Total Ultimate Development
HOTEL & MEDICAL CLINIC			
Rooms	200	150	350
Villas	150	150	300
Common Areas [a]	36,000	--	36,000
PRIVATE RESIDENCES			
Villas	530	530	1,060
Detached Houses	250	250	500

[a] Square feet.

TABLE III-11 TOTAL ENERGY DEMANDS FOR PHASE I

Month	Hot Water (KWH)	Space Heater (KWH)	A/C (KWH)	Appliances (KWH)	Total (KWH)
January (100%)[a]	462,200	904,700	0	753,300	2,120,200
February (100%)	462,200	513,900	0	753,300	1,729,400
March (90%)	416,000	426,500	0	678,500	1,521,000
April (80%)	370,000	132,200	0	603,700	1,105,900
May (50%)	231,100	20,900	282,400	379,300	913,700
June (50%)	231,100	0	1,297,200	379,300	1,907,600
July (50%)	231,100	0	1,689,100	379,300	2,299,500
August (50%)	231,100	0	1,537,700	379,300	2,148,100
September (50%)	231,100	0	1,035,500	379,300	1,645,900
October (80%)	370,000	16,600	0	603,700	990,300
November (80%)	370,000	264,400	0	603,700	1,238,100
December (90%)	416,000	704,500	0	678,500	1,799,000
Total	4,021,900	2,983,700	5,841,900	6,571,200	19,418,700

[a] Occupancy factor.

TABLE III-12. TOTAL ENERGY DEMAND FOR ULTIMATE DEVELOPMENT

Month	Hot Water (KWH)	Space Heater (KWH)	A/C (KWH)	Appliances (KWH)	Total (KWH)
January (100%) [a]	781,200	1,725,800	0	1,380,100	3,887,100
February (100%)	781,200	980,400	0	1,380,100	3,141,700
March (90%)	703,100	812,800	0	1,242,600	2,758,500
April (80%)	625,000	251,600	0	1,105,100	1,981,700
May (50%)	390,600	39,600	534,300	692,700	1,657,200
June (50%)	390,600	0	2,454,000	692,700	3,537,300
July (50%)	390,600	0	3,194,000	692,700	4,277,300
August (50%)	390,600	0	2,909,200	692,700	3,992,500
September (50%)	390,600	0	1,959,200	692,700	3,042,500
October (80%)	625,000	31,600	0	1,105,100	1,761,700
November (80%)	625,000	503,200	0	1,105,100	2,233,300
December (90%)	703,100	1,342,700	0	1,242,600	3,288,400
Total	6,796,600	5,687,700	11,050,700	12,024,200	35,559,200

[a] Occupancy factor.

CHAPTER IV - REDUCTION IN ELECTRICAL ENERGY DEMANDS

In this chapter the effectiveness of solar energy in reducing energy requirements for Phase I and Phase II, the ultimate development, are analyzed.

Energy requirements are evaluated on both a monthly and annual basis. The monthly analysis enables identification of the peak monthly usages which determine the capacity requirements of the transmission facilities. The annual requirements are needed for the cost analysis and for evaluation of the environmental impact which is beyond the scope of this report.

A. Assumptions

Occupancy

One of the most critical parameters affecting the monthly and annual electrical requirements is the summer occupancy and utilization factors. The greatest power consumption is for air conditioning. The power requirements developed in the following section are based on the occupancy factors presented in Figure III-1.

Equipment Sizing Basis

In this analysis it was necessary to assume the basic capacity of the units which would be used to provide two levels of service: water heating and water heating plus space heating. Capacity of solar equipment is usually established at levels less than 100 percent of the peak requirements because of the high cost of providing equipment which is used for only a few days per year. It is generally more economical to provide between 50 and 80 percent of the peak requirements with solar equipment and to use conventional electrical heating systems for peaking and backup.

It was assumed that solar energy facilities would have sufficient capacity to provide 70 percent of the hot water demands in January. Such facilities would satisfy a greater portion of the summer demand.

Similarly it was assumed that the capacity of the space heating/water heating system is 70 percent of the January requirements. Energy requirements were based on climatic data for the month of January averaged over approximately 20 years. There will be colder periods during January or some other months when the assumed system will provide less than 70 percent of the total space heating and hot water requirements.

TABLE IV-4. REDUCTION IN ELECTRICAL ENERGY DEMAND WITH SOLAR HOT WATER AND SPACE HEAT - (ULTIMATE DEVELOPMENT)

Month	Total Energy Demand (KWH)	Total Hot Water and Space Heat Demand (KWH)	Hot Water and Space Heat Energy Demand Supplied by Solar (KWH)	Total Electrical Energy Demand with Solar Hot Water and Space Heat (KWH)
January	3,887,100	2,507,000	1,754,900	2,132,200
February	3,141,700	1,761,600	1,761,600	1,380,100
March	2,758,500	1,515,900	1,515,900	1,242,600
April	1,981,700	876,600	876,600	1,105,100
May	1,657,200	430,200	430,200	1,227,000
June	1,997,700	390,600	390,600	1,607,100
July	4,277,300	390,600	390,600	3,886,700
August	3,992,500	390,600	390,600	3,601,900
September	3,042,500	390,600	390,600	2,651,900
October	1,761,700	656,600	656,600	1,105,100
November	2,233,300	1,128,200	1,128,200	1,105,100
December	3,288,400	2,045,800	1,669,000	1,619,400
Total	34,019,600	12,484,300	11,355,400	22,664,200

TABLE IV-5. REDUCTIONS IN ANNUAL AND PEAK MONTHLY ELECTRICAL REQUIREMENTS ACHIEVED BY APPLICATION OF SOLAR SYSTEMS FOR WATER HEATING AND WATER HEATING PLUS SPACE HEATING

Description	Total Annual Electrical Energy Requirements			Peak Monthly Electrical Energy Requirements		
	Without Solar Energy	With Solar Energy	Percent Reduction	Without Solar Energy	With Solar Energy	Percent Reduction
Hot Water						
Phase I	19,418,700	15,758,700	19	2,299,500	2,068,400	10
Ultimate	34,019,600	27,834,200	18	4,277,300	3,886,700	9
Hot Water + Space						
Phase I	19,418,700	13,033,700	33	2,299,500	2,068,400	10
Ultimate	34,019,600	22,664,200	33	4,277,300	3,886,700	9

CHAPTER V - ECONOMIC ANALYSIS

The economic feasibility of solar energy is determined by the capital and maintenance costs of the equipment and the value of the electrical energy savings.

A. Cost of Solar Energy Systems

Component Costs

The major costs of systems for water heating and for water/space heating are for the collectors. In general, unit costs of collectors are reported in the range of $10 to $20 per square foot. Based on a review of the existing literature, a value of $14 per square foot appears representative of good quality, dependable collectors and is used in this analysis.

In addition, hot water storage tanks with a volume of 80 gallons and including a backup heater immersion are approxiamtely $200 each. Space heating storage requirements are determined by the area being heated. A value of $1.80 per square foot of living area is used in evaluating the costs of space heating storage tanks. Controls for the water heating system are estimated at $100 per unit for individual dwellings and $50 per unit for the hotel facilities.

Collector Area Requirements

The required solar collector areas needed to supply hot water and space heat were estimated in order to determine cost savings due to the use of solar energy. The collector arrays were sized to provide 70 percent of the January hot water requirements and 70 percent of the January space heating requirements as presented in the previous section.

To estimate collector sizes required, hourly solar radiation for a January day was estimated, and used to determine the output of a typical commercially produced solar collector. Given a daily solar incident radiation of 1615 BTU/day ft^2, it was estimated that the collectors could deliver 680 BTU/day ft^2 of thermal energy. Collectors areas required to satisfy energy requirements discussed in the previous section are shown in Table V-1. The total collector area required to supply 70 percent of the January requirements for Phase I and for ultimate development are shown in Table V-2.

System Costs

The total costs for solar energy systems providing water heating and water and space heating are presented in Table V-3. These costs are projected for summer of 1978 and should be increased depending on when construction occurs. The field of solar collectors is rapidly developing and it is possible that major technological breakthroughs will occur which could effect the costs of solar energy systems substantially.

TABLE V-1. REQUIRED SOLAR COLLECTOR AREA FOR 70 PERCENT JANUARY LOADS [a]

Building	Area Required for 70% of January Hot Water (sq ft collector)	Area Required for 70% of January Hot Water and Space Heat (sq ft collector)
2800 sq ft House	50	200
2200 sq ft Villa	50	175
800 sq ft Villa	50	80
500 sq ft Hotel Room	50	70
36,000 sq ft Commons	No Hot Water	1875

[a] Assumes 1615 BTU/day ft^2 incident radiation,
680 BTU/day ft^2 collected energy.

B. Reductions in Electrical Requirements

Water Heating

The reductions in electrical energy requirements achieved by incorporation of solar energy water heating systems into all individual dwellings and the hotel complex are presented in Tables IV-1 and IV-2 for Phase I and ultimate project development. The tabulated data indicates that the peak monthly electrical power consumption is decreased by almost 232,000 KWH for Phase I and by 391,000 KWH for ultimate development. The total annual electrical power requirements are decreased by approximately 3,660,000 KWH and 6,186,000 KWH for Phase I and ultimate development, respectively. The peak electrical demand which occurs during July is only slightly reduced by the solar water heating system since these peak requirements are primarily for air conditioning.

The data in Tables IV-1 and IV-2 indicate that the peak production of utilizable energy occurs during March. The energy production during the summer months is greater than the March production, but not all energy can be used since the projection exceeds the demand. The demand decreases during the warmer portions of the year due to seasonal usage of both the commercial and residential facilities. The solar energy water heating system provides all hot water heating between the months of March and October.

TABLE IV-1. REDUCTION IN ELECTRICAL ENERGY DEMAND WITH SOLAR HOT WATER - PHASE I [a]

Month	Total Energy Demand (KWH)	Total Hot Water Demand (KWH)	Hot Water Energy Demand Supplied by Solar (KWH)	Total Electrical Energy Demand with Solar Hot Water (KWH)
January	2,120,200	462,200	323,500	1,796,700
February	1,729,400	462,200	381,400	1,348,000
March	1,521,000	416,000	415,600	1,105,400
April	1,105,900	370,000	370,000	735,900
May	913,700	231,100	231,100	682,600
June	1,907,600	231,100	231,100	1,676,500
July	2,299,500[b]	231,100	231,100	2,068,400
August	2,148,100	231,100	231,100	1,917,000
September	1,645,900	231,100	231,100	1,414,800
October	990,300	370,000	370,000	620,300
November	1,238,100	370,000	336,300	901,800
December	1,799,000	416,000	307,700	1,491,300
Total	19,418,700	4,021,900	3,660,000	15,758,700

[a] Based on supply 70 percent of January hot water demand with Solar. Other months use:

$$(\text{Jan Solar Supply}) \times \frac{\text{Monthly Rad.}}{\text{January Rad.}} = \text{Monthly Water Supply}$$

[b] Peak Electrical Requirement

TABLE IV-2. REDUCTION IN ELECTRICAL ENERGY DEMAND WITH SOLAR HOT WATER - ULTIMATE DEVELOPMENT

Month	Total Energy Demand (KWH)	Total Hot Water Demand (KWH)	Hot Water Energy Demand Supplied by Solar (KWH)	Total Electrical Energy Demand with Solar Hot Water (KWH)
January	3,887,100	781,200	546,800	3,340,300
February	3,141,700	781,200	644,600	2,497,100
March	2,758,500	703,100	702,500	2,056,000
April	1,981,700	625,000	625,000	1,356,700
May	1,657,200	390,600	390,600	1,266,600
June	1,997,700	390,600	390,600	1,607,100
July	4,277,300 [a]	390,600	390,600	3,886,700 [a]
August	3,992,500	390,600	390,600	3,601,900
September	3,042,500	390,600	390,600	2,651,900
October	1,761,700	625,000	625,000	1,136,700
November	2,233,300	625,000	568,500	1,664,800
December	3,288,400	703,100	520,000	2,768,400
Total	34,019,600	6,796,600	6,185,400	27,834,200

[a] Peak electrical requirement.

Water and Space Heating

Tables IV-3 and IV-4 illustrate the monthly variations in total energy demands, water and space heating requirements and the amounts of energy provided by the solar energy systems for Phase I and ultimate development, respectively. In both Phase I and the ultimate development, the peak energy consumptions are reduced by amounts equal with the reductions achieved by the water heating system. The peak power consumption occurs during the summer when no heating requirements occur and when all water heating is by the either of the solar energy systems.

Use of solar energy for both water and space heating substantially reduces the annual electrical energy requirements. This reduction is approximately twice that achieved by the simple water heating system.

The reductions in both annual and peak monthly electrical requirements achieved by application of the two solar energy systems are summarized in Table IV-5.

TABLE IV-3. REDUCTION IN ELECTRICAL ENERGY DEMAND WITH SOLAR HOT WATER AND SPACE HEAT - (PHASE I)

Month	Total Energy Demand (KWH)	Total Hot Water and Space Heat Demand (KWH)	Hot Water and Space Heat Energy Demand Supplied by Solar (KWH)	Total Electrical Energy Demand with Solar Hot Water and Space Heat (KWH)
January	2,120,200	1,366,900	956,800	1,163,400
February	1,729,400	976,100	976,100	753,300
March	1,521,000	842,500	842,500	678,500
April	1,105,900	502,200	502,200	603,700
May	913,700	252,000	252,000	661,700
June	1,907,600	231,100	231,100	1,676,500
July	2,299,500	231,100	231,100	2,068,400
August	2,148,100	231,100	231,100	1,917,000
September	1,645,900	231,100	231,100	1,414,800
October	990,300	386,600	386,600	603,700
November	1,238,100	634,400	634,400	603,700
December	1,799,000	1,120,500	910,000	889,000
Total	19,418,700	7,005,600	6,385,000	13,033,700

TABLE V-2. COLLECTOR AREA REQUIRED FOR COMMUNITY
(square feet)

	Hot Water Only	Hot Water and Space Heat
Phase I	56,500	170,050
Ultimate	95,500	312,800

TABLE V-3 ESTIMATED COST OF SOLAR INSTALLATIONS - PER STRUCTURE

	Hot Water				Hot Water and Space Heat			
Building	Collectors ($)	Storage ($)	Controls ($)	Total ($)	Collectors ($)	Storage ($)	Controls ($)	Total ($)
Houses	700	200	100	1,000	2,800	560[a]	300	3,660
Villas	700	200	100	1,000	2,450	515[a]	300	3,265
Hotel Rooms	700	50	50	800	980	120	220	1,320
Hotel Villas	700	75	50	825	1,120	140	220	1,480
Commons (36,000 S.F.)	--	--	--	--	26,210	3,375	1,000	30.585

[a] Includes hot water storage @ $200/unit. Space heat storage $1.80 SF collector for individual dwellings.

Total present costs for incorporation of solar energy systems into all dwellings and hotel facilities are presented in Table V-4.

B. Cost Effectiveness

The cost analysis indicates that incorporation of either the water heating or the water/space heating solar energy systems can be justified solely on the basis of economics.

Water Heating

The water heating system reduces the electrical demand for each of the units under consideration by approximately 3,400 KWH/yr. Based on the existing cost of electrical power provided by San Diego Gas and Electric, the annual cost savings for this amount of energy is $187 per unit. Comparison of this savings with the capital costs of the systems (see Table V-5) indicates that the systems are cost-effective.

Water and Space Heating

The total annual electrical energy requirements, the annual cost savings achieved through incorporation of the solar energy system, and the capital costs of the initial installations are presented in Table V-5. Similarly, as with the water heating system, the annual savings justify installation of the solar energy systems.

TABLE V-4. ESTIMATED COST OF SOLAR INSTALLATIONS - TOTAL PROJECT

	Water Heating		Water/Space Heating	
Facilities	Phase I	Ultimate	Phase I	Ultimate
Houses	$ 250,000	$ 500,000	$ 915,000	$1,830,000
Villas	530,000	1,060,000	1,730,450	3,460,900
Hotel Rooms	160,000	160,000	264,000	264,000
Hotel Villas	123,750	123,750	222,000	222,000
Hotel Commons	---	---	30,580	30,580
TOTAL	$1,063,750	$1,843,750	$3,162,000	$5,807,500

TABLE V-5. ECONOMIC FEASIBILITY OF WATER AND SPACE HEATING - ELECTRICAL POWER AT $0.055/KWH AND 8% INTEREST

Dwelling Type	Heating and Hot Water Electrical Requirements Without Solar Energy (KWH)	Energy Provided By Solar System (KWH)	Savings in Electrical Energy Cost ($)	Capital Cost of Solar Energy System ($)
Townhouse	8,362	7,670	422	3,265
House	9,304	8,488	467	3,660
Hotel Rooms	4,063	3,618	200	1,320
Hotel Villas	4,473	3,948	217	1,480

The effects of electrical energy costs on the present and future economic feasibility of the solar energy systems are illustrated in Table V-6. The tabulated data indicate that as the cost of electrical power increases in the future the percent return on investment greatly increases.

TABLE V-6. PERCENT RETURN ON INVESTMENT FOR SOLAR WATER AND SPACE HEATING SYSTEMS

Electrical Energy Cost ($/KWH)	Villas		Houses		Hotel Rooms		Hotel Villas	
	Annual Savings ($)	% Return on Cap. (%)	Annual Savings ($)	% Return on Cap. (%)	Annual Savings ($)	% Return on Cap. (%)	Annual Savings ($)	% Return on Cap. (%)
0.040	307	7	340	7	145	9	158	9
0.045	345	8.5	382	8.5	163	11	178	11
0.050	384	10	424	10	181	12.5	197	12.5
0.055	422	11.5	467	11.5	200	14	217	14
0.060	460	13	510	13	217	15.5	237	15.5
0.065	500	14.5	552	14.5	235	17	257	17
0.070	537	15.5	594	15.5	253	18.5	276	18.5
0.075	575	17	637	17	271	20	296	20

A P P E N D I X G

TRAFFIC

TRAFFIC ANALYSIS ON THE PROPOSED RAMS' HILL PROJECT

BORREGO SPRINGS, CALIFORNIA

TECHNICAL APPENDIX

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TRAFFIC ANALYSIS

Introduction

This traffic analysis begins by describing the location of the project, the existing traffic conditions (in terms of major trip generators, existing roadways and other County circulation Sub-Elements) and conformance of the Rams' Hill Specific Plan to the County Circulation Element. Analysis is based on 1985 traffic projections without and with the Rams' Hill Specific Plan. In each case, total trips generated and total vehicle miles travelled (VMT) are determined, traffic assignments for Borrego Springs are established and traffic impacts on the 1985 Borrego Springs road network are discussed.

Location of Project

The Rams' Hill project site is located in the southern portion of Borrego Springs, as illustrated in Figure 1. It is bounded on the west by Yaqui Pass Road, and on the northeast by Borrego Springs Road (south of Yaqui Pass Road). Both are classified by the County Circulation Element as Major Roads with 102 feet of right-of-way and 82 feet of roadbed. SC460 does not currently exist, but is shown on the Circulation Element as providing east-west access between Yaqui Pass and Borrego Springs Roads south of their intersection (see Figure 2). SC460 is classified as a Collector Road with 84 feet of right-of-way and 48 feet of roadbed.

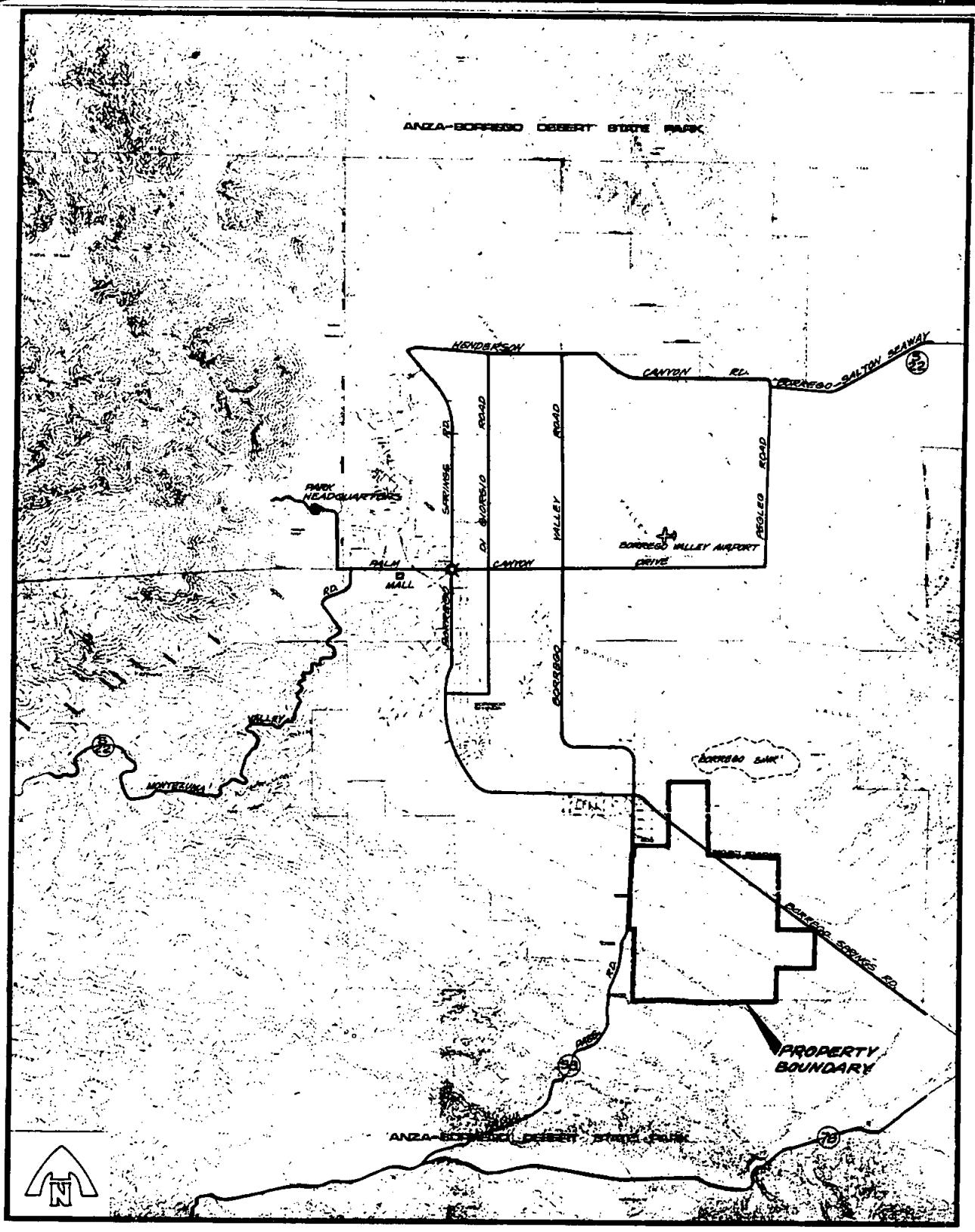
The major access to the Phase I development will be off Yaqui Pass Road, south of its intersection with Borrego Springs Road. There is also a road planned for emergency access leading south-west into the development from Borrego Springs Road south of the aforementioned intersection.

Existing Conditions

Trip Generators in Borrego Springs

The main trip generators in Borrego Springs today are: (a) the Anza Borrego Desert State Park areas, (b) the Mall (c) Christmas Circle and (d) the County airport.

The Anza-Borrego Desert State Park areas attract tourists from outside the valley who also make local trips during their visits. The various park areas completely surround the residential community in the valley and park-generated trips must necessarily be routed onto the local roads across the entire community.



1978 borrego springs road network and rams hill project site

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 1

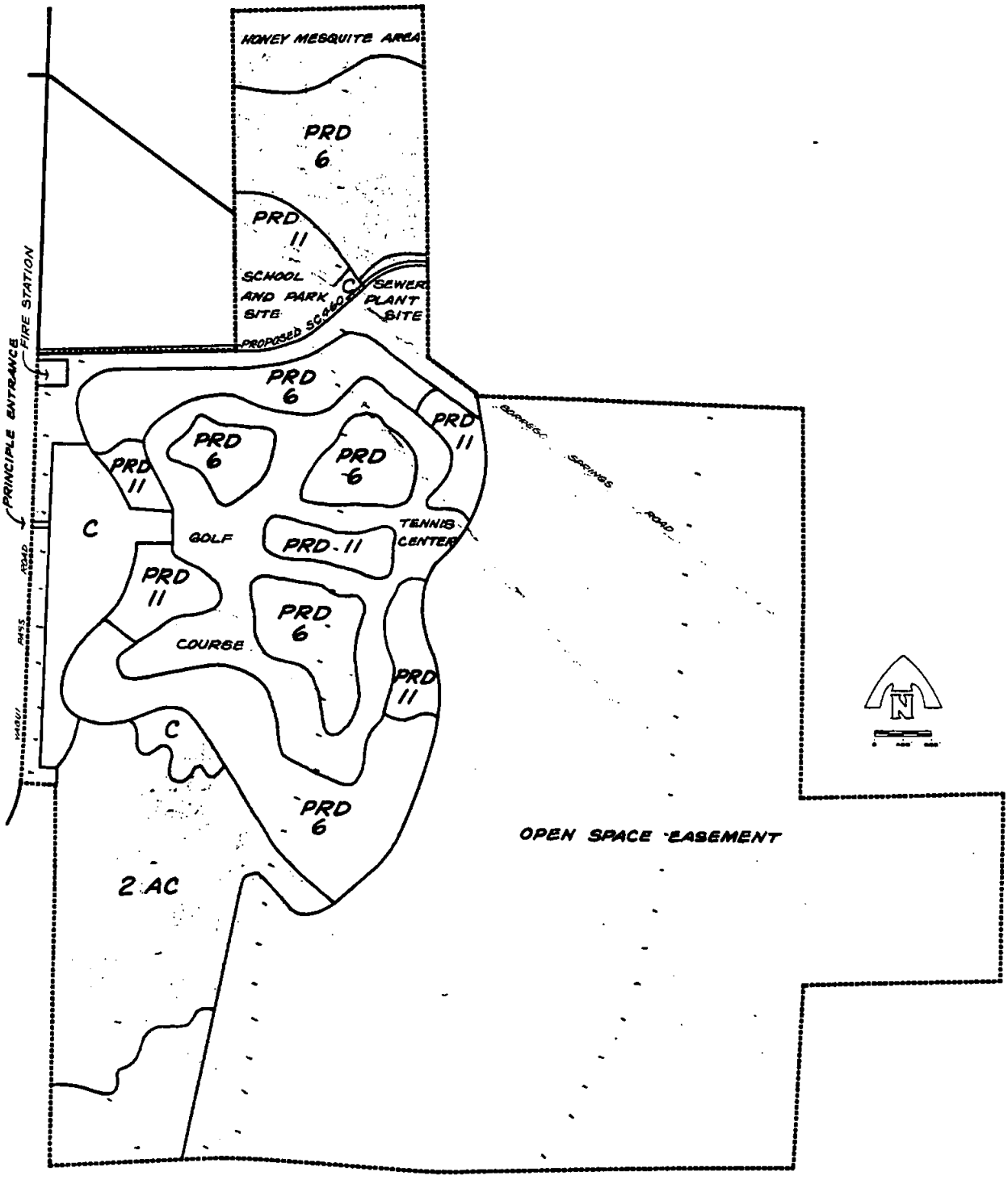


exhibit C-9 of san diego county general plan - amendment 76-02

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 2

The Mall and the small shops at Christmas Circle currently serve as the main Borrego Springs commercial trip generators. The several grocery, drug and clothing stores, banks, and real estate offices generate trips by residents as well as tourists.

The San Diego County Department of Transportation Airports Division operates a small airport in Borrego Springs, located north of Palm Canyon Road and east of Borrego Valley Road. Although there are no plans for a control tower in the near future, the County recently completed work on the 5,000 foot runway, and it is now capable of handling 300,000 planes per year. The recent runway renovation also enables the airport to provide service for small jets. Photoelectrically-controlled runway lighting has been installed making it possible for the airport to function effectively 24 hours a day. The airport is available for both private and commercial flights. Sun Aire Lines is presently running a commuter service into the airport. In 1977, the airport served 38,000 flights, 80 percent of which were for recreational, executive and business purposes. The remaining 20 percent were student cross country trips, group fly-ins and training flights.

Traffic Circulation in Borrego Springs

There are five sub-elements to the San Diego County General Plan Circulation Element: (1) roads, (2) transit, (3) bicycle, (4) riding and hiking and (5) scenic highways.

Roads

a. Setting

The County Circulation Element road system for the area is shown in Figure 3. Collector roads (designated SC), have a minimum of 84 feet of right-of-way and are four-lanes undivided. Major roads (designated SA), have a minimum of 102 feet of right-of-way, and are four-lanes divided.

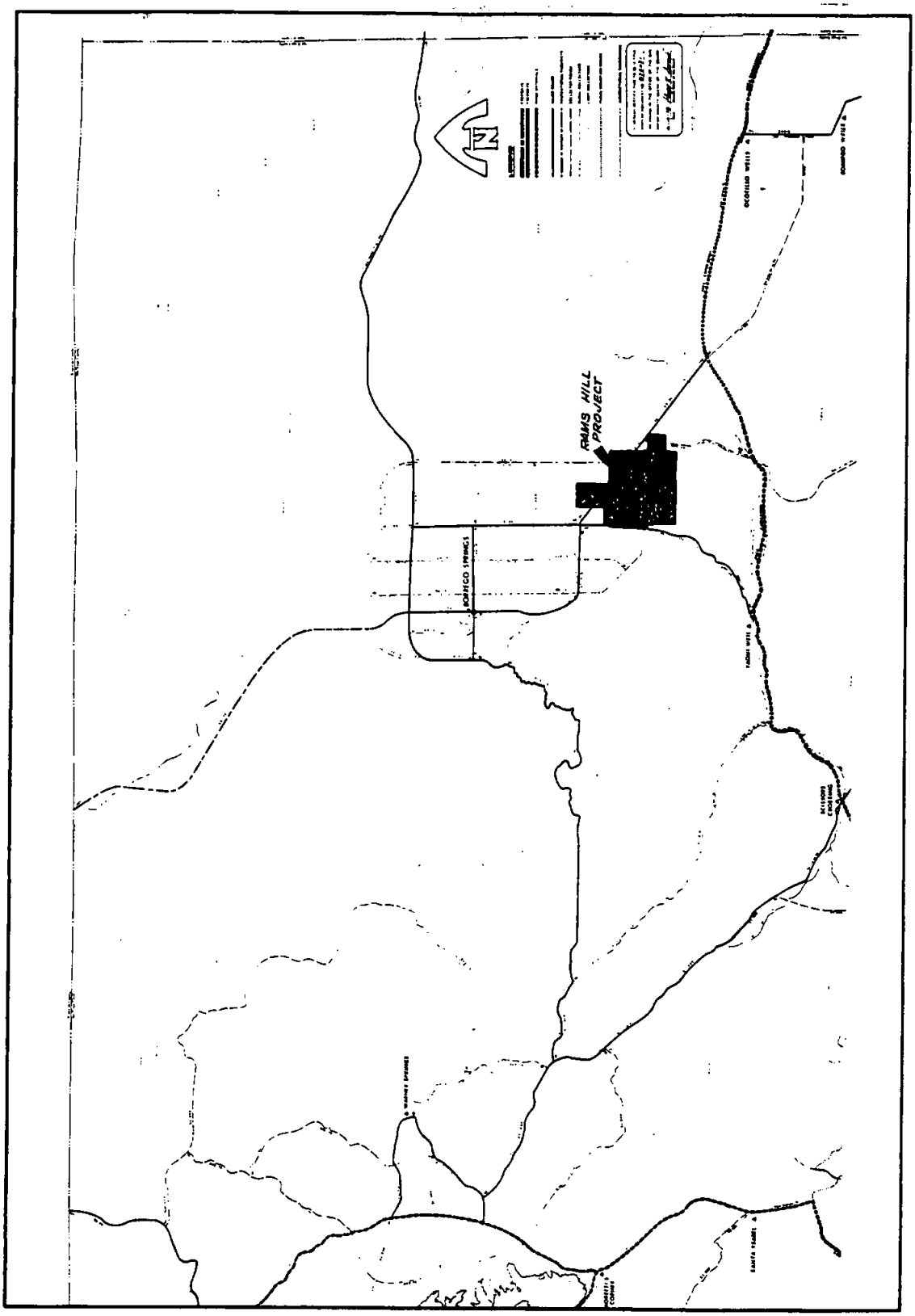
There are four main access routes into the Borrego Valley:

1. Montezuma Valley Road (S22) which serves traffic from points to the west, such as Lake Henshaw and Warner Springs.

2. Borrego Salton Seaway (S22), which serves traffic from points to the east, beyond the Santa Rosa Mountains.

3. Yaqui Pass Road (S3), which serves traffic from points to the south, such as Julian, Agua Caliente and the more densely populated areas of San Diego County.

4. Borrego Springs Road, which serves points to the southeast, such as Ocotillo Wells and El Centro.



san diego county circulation element, sheet no. 3

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 3

The roads in the Borrego Springs community which are most heavily travelled today are Palm Canyon, Borrego Springs and Borrego Valley Roads. Not only do they serve as routes for the State Park and through traffic in the valley, but they also provide access for local traffic to the major trip generators in the valley; the many State Park subareas, which surround the community, the Mall, Christmas Circle and the County airport. Rams' Hill traffic will rely heavily on these three roads to provide access to and from these generators.

The County FY 1979-80 Six-Year Capital Improvements Plan does not include any road improvements in the Borrego Valley.

Table 1 shows the 1978 peak season Borrego Springs trips generated and vehicle miles travelled (VMT).

TABLE 1
PEAK SEASON
1978
BORREGO SPRINGS
TRIPS GENERATED AND VEHICLE MILES TRAVELED (VMT)

TRIP GENERATOR	# TRIPS GENERATED	VMT BORREGO	VMT REGIONAL
Borrego Residents	7,488[a]	53,914[c]	48,685[e]
State Park	5,206[b] 10,412[d]	83,296[d]	338,390[f]

[a]936 DU x 8 trips/DU

[b]Average Sunday vehicle attendance during peak season 1977-78, as recorded by the Anza-Borrego Desert State Park was 1,693. However, attendance during the period January-March, 1978 dropped sharply due to the unusually heavy rains, and thus 1,693 is low; using November, December and April counts, the average two-way trips is actually 2,603. Total number of trips to and from the State Park is 2,603 x 2 = 5,206

[c]Number of trips x eight miles/trip

[d]Four additional eight-mile local trips assumed for each of the 2,603 visiting vehicles = 10,412 trips x 8 miles/trip = 83,296.

[e]Ten percent resident-generated trips will originate from and return to Borrego Springs and travel an average of 65 miles to from San Diego each one-way trip

[f]All State Park visitors will enter Borrego Springs from origins about 65 miles away

[g]61 percent peak assumed for Borrego residents; 32 percent peak assumed for State Park visits

b. Existing Traffic Conditions

The main access roads into the Valley, Montezuma Valley Road, and to a lesser degree, Yaqui Pass Road, experience some congestion during the peak season. Visitor traffic from the west and south bottleneck on the steep grades and winding paths of these narrow, two-lane rural roads. The passing of slower vehicles is severely restricted by the narrowness and curves of the roads. The existing daily traffic counts on these roads are 2,776 and 1,498, as shown in Figure 4. Approximately 20 percent of this 24-hour volume occurs during the peak hours, just before and just after noon. Caltrans and San Diego County DOT assume a capacity of 300-400 vehicles per hour for winding, mountain roads, such as Montezuma Valley and Yaqui Pass Roads. As illustrated in Table 2, congestion currently occurs during the AM and PM peak hours of the peak season day.

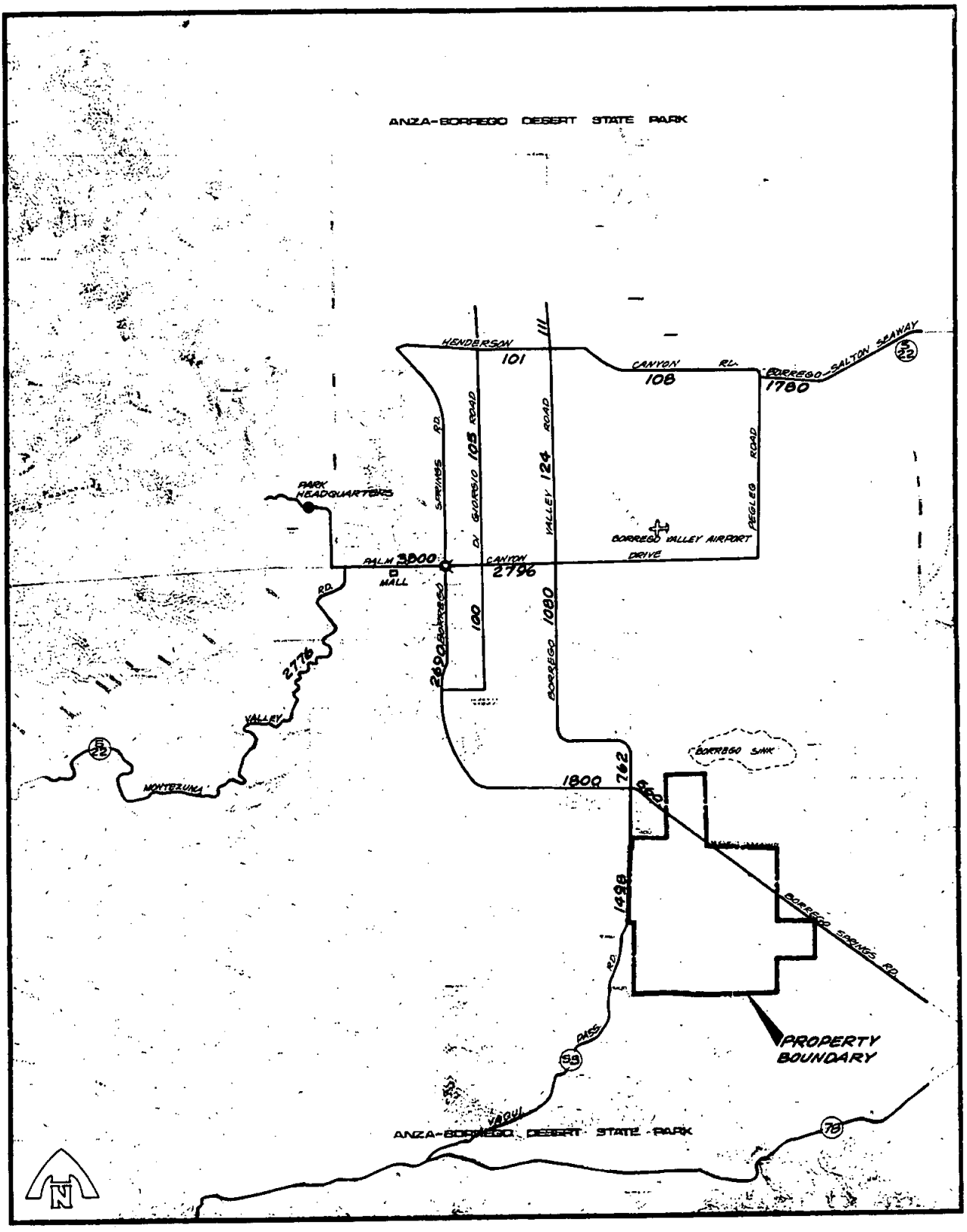
Table 2
Peak Season 1978
Borrego Springs
Main Access Roads
Traffic Profile

	24-Hour Traffic Count 3/30/78*	Trips/Hour AM Peak	Trips/Hour PM Peak	Remaining Daylight Trips Hour[1]	Night Trips Hour[2]
Montezuma Valley Road	2,776	470	480	139	23
Yaqui Pass Road	1,498	345	356	75	12

[1]50 percent of 24-hour count (i.e., non-peak hour trips) ÷ 10 hours of remaining daylight.

[2]10 percent of 24-hour count (i.e., night trips) ÷ 12 hours of night.

*Source: San Diego County Department of Transportation Master Traffic Census.



existing traffic counts - march 30, 1978

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 4

The three roads which serve the central Borrego Springs area, Palm Canyon, Borrego Springs and Borrego Valley Roads, carry the heaviest volumes of local traffic, with 3,800, 2,690 and 1,800 trips respectively. Because of the relatively small number of permanent residents in the Borrego Valley, and because of the dispersed location of the major Borrego trip attractors, there is no significant congestion problem on any of the local Borrego roads today, even during the peak periods of Park visitation.

Transit

There is no conventional transit system existing in Borrego Springs today. The San Diego County Board of Supervisors has, however, adopted a Rural Transit Plan that will, in early 1979, provide so-called "lifeline transit service" to residents in the unincorporated rural areas of the County.

Service to the Borrego Springs area is included in the plan (see Figure 5). Development of the Rams' Hill project will undoubtedly encourage the future expansion of such a transit plan to further serve the Borrego Springs area.

Bicycle

Although the County Bicycle Element contains a bicycle route along Highway 78 to the south of Borrego Springs and beyond Yaqui Ridge, there is no route which directly serves the local Borrego Valley community.

Riding and Hiking

The County Regional Riding and Hiking Trail Corridors Map, Figure 6 , shows a trail encircling the Borrego Springs community. Only a very small portion of this entirely undeveloped trail is included within the northern borders of the Specific Planning Area.

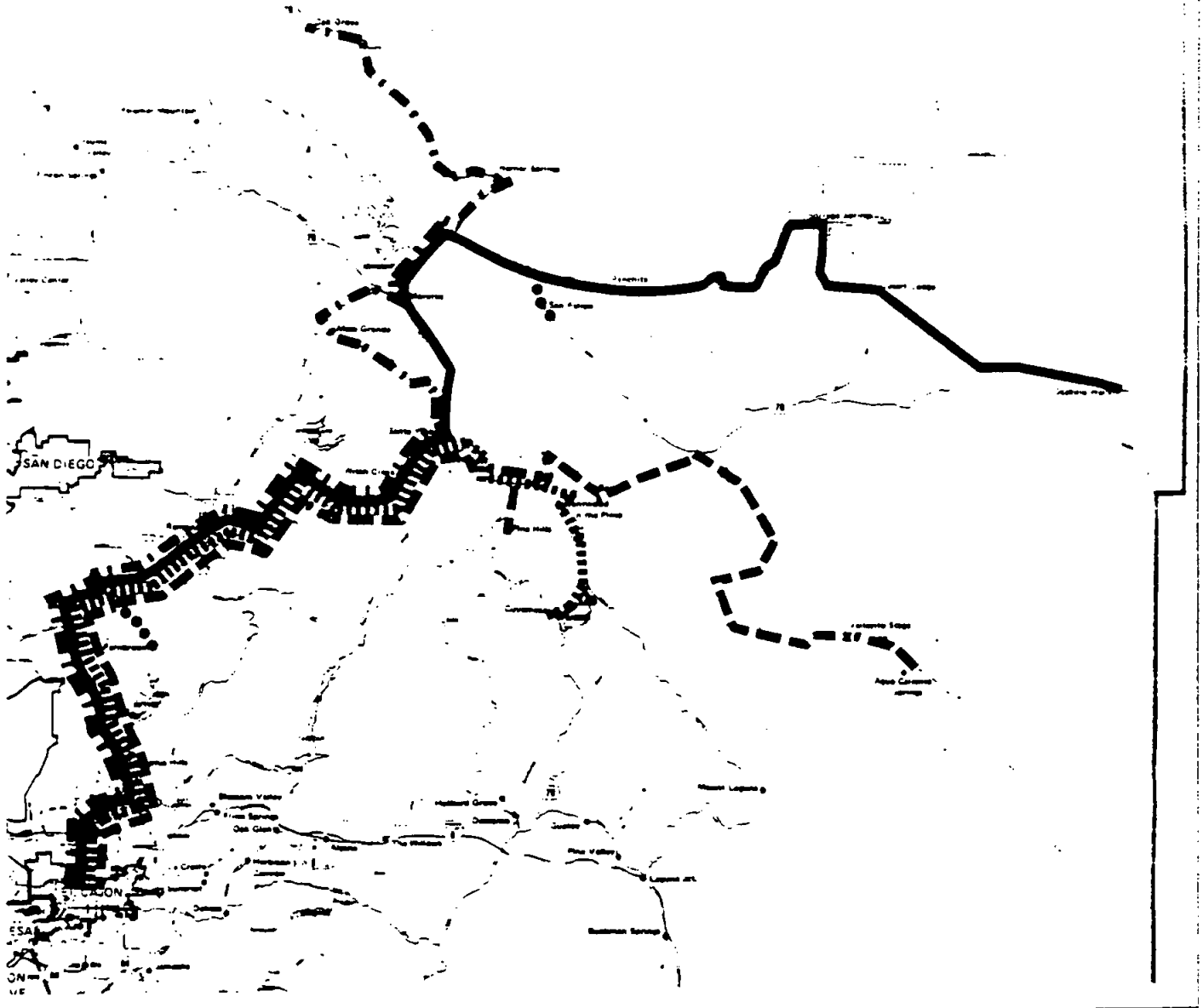
Scenic Highway

No scenic highways, existing or planned, fall within the boundaries of the SPA. As shown in Figure 7 , the nearest routes are the Borrego-Salton Seaway (Third Priority) located at the northern boundary of the Borrego Springs community; Montezuma Valley Road, (Third Priority) located west of Borrego Valley; and Highway 78 (an existing official route) located south of Borrego Springs beyond Yaqui Ridge.

NORTHEAST COUNTY BUS ROUTES

ALTERNATIVE E

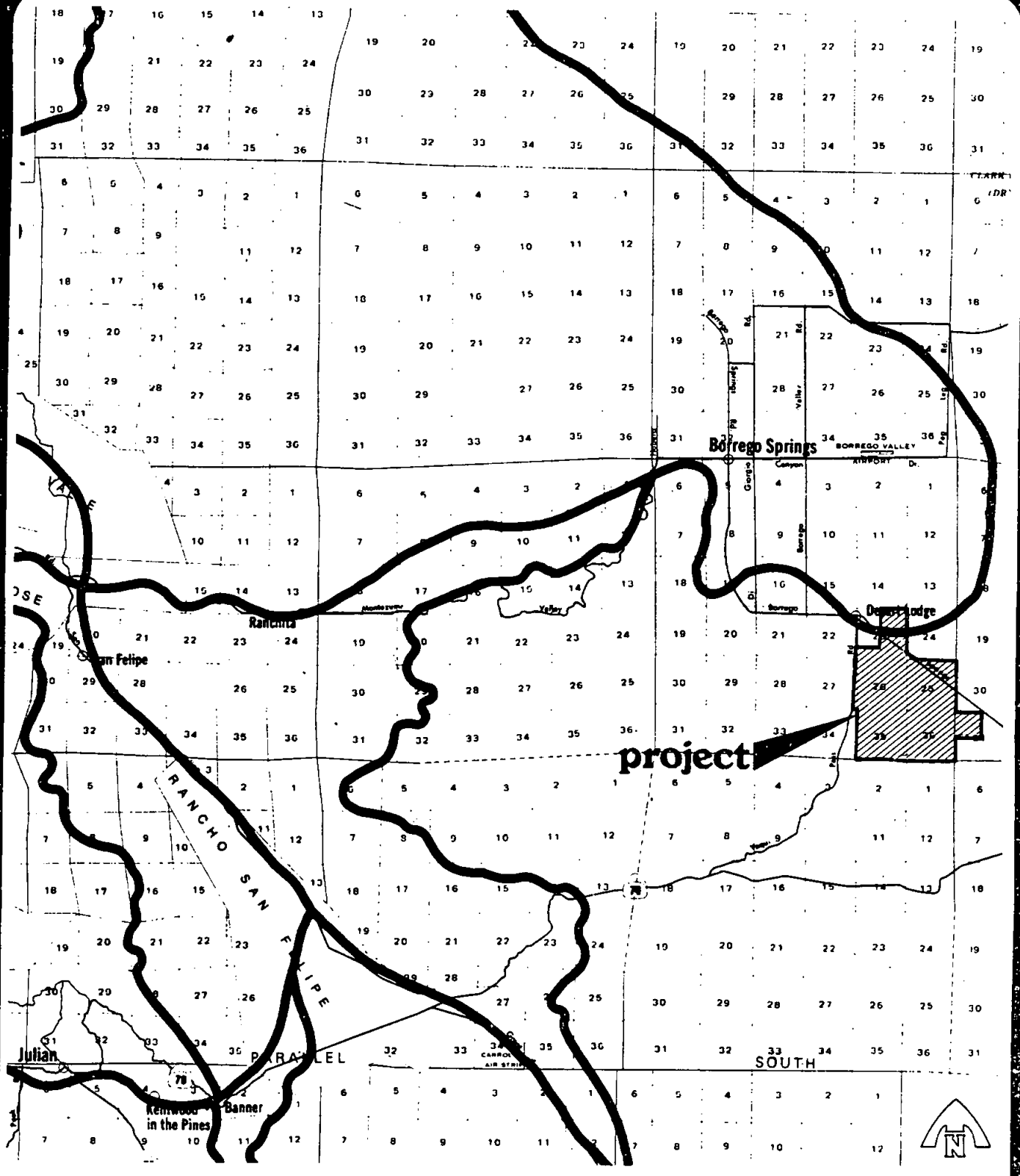
FIGURE 5



LEGEND

Route		Level of Service
E1		3 Days/Week
E2		2 Days/Week
E3		3 Days/Week
E4		2 Days/Week
Demand Responsive		1 Day/Week

County of San Diego
Department of Transportation



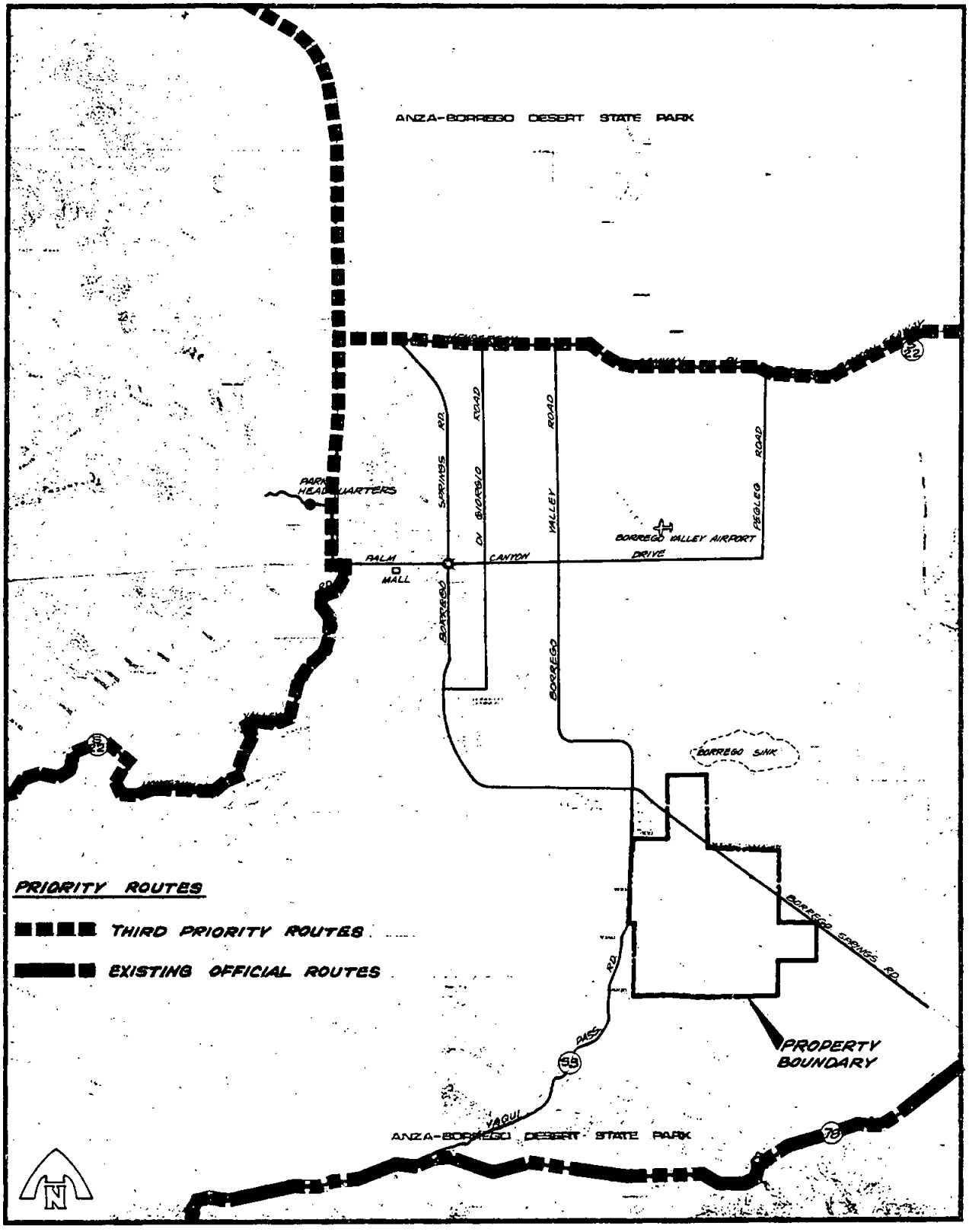
regional riding and hiking trails

INDICATES APPROXIMATE LOCATION OF PROPOSED 1/2 MILE WIDE TRAIL "CORRIDORS" WITHIN WHICH TRAILS WOULD BE LOCATED

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 6



san diego county scenic highways

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 7

Conformance of Project to San Diego County General Plan Circulation Element

Road Network

The County of San Diego Department of Transportation has indicated that the road network planned for Rams' Hill would be in conformance with the County General Plan Circulation Element, provided the following conditions are met:

- That the portion of Yaqui Pass Road, SF 1406, adjacent to the Rams' Hill project and designated as a Major Road on the Circulation Element, be dedicated and improved to a one-half width of 51 feet. The off-site portion of that road north to Borrego Valley Road presently has from 24-32 feet of paving. With additional traffic onto that road from Rams' Hill, that road will be widened to a minimum 40 feet of AC paving prior to the ultimate development of the project.

- That the portion of Borrego Springs Road, SA 190, within or adjacent to the Rams' Hill project, be dedicated and improved to a width of 51 or 102 feet, depending on the location of the road with respect to the boundary of the project.

- That the portion of SC 460 adjacent to Rams' Hill and designated as a Collector Road on the Circulation Element be dedicated and improved with Rams' Hill to a width of 84 feet.[1]

- That the portion of Old Borrego Valley Road, SC 500, within the Rams' Hill boundaries be offered for dedication to a width of 84 feet and recommended for rejection by the Board of Supervisors. No improvements are required by DOT.

Riding and Hiking Trails

The County of San Diego Department of Transportation has indicated that an easement width of 20 feet with an eight foot width tread will conform with the Regional Riding and Hiking Sub-element of the General Plan.

Other Sub-Elements

Although the other sub-elements of the County Circulation Element, i.e., Transit, Bicycle and Scenic Highways, are not specifically applicable to the Rams' Hill project, Rams' Hill will unquestionably serve as a stimulus to development and implementation of those County sub-elements.

---

[1] The location of SC 460 is agreed to be as shown in Figure 7.

1985 Traffic Analysis for Borrego Valley Without and With the Rams' Hill Project

In this section, the impacts on the road network of trips generated and distributed in Borrego Springs are analyzed for two alternative situations:

A. Without the Rams' Hill project
B. With the Rams' Hill project

Since the various park areas completely surround the residential community of Borrego Springs, the State Park traffic must necessarily be routed onto the local roads across the entire community. Future traffic generated by State Park visitors will thus be an integral part of the traffic analysis.

Borrego Springs is subject to wide variation in traffic volumes during the year, mainly due to its seasonal weather patterns; a cool, pleasant climate during the peak season winter months, and temperatures well over 100 degrees during off-season summer months. The highest volumes occur during the months between November and April, with peaks experienced on Saturdays, Sundays and holidays; the lowest volumes occur during the months between May and October, with the lowest volumes experienced on non-holiday weekdays.

These wide seasonal variations are of major concern in a traffic analysis of the area; the road system would be over-built for the off-season if only peak season traffic were to be considered, and yet it would cause severe congestion during the peak season if only off-season traffic were to be considered.

Analysis is therefore based on peak season, weekday traffic. It can then be assumed that peak season weekend traffic will be approximately ten to 20 percent more and that off-season weekday traffic will be 20 to 30 percent less than all traffic volumes presented in this analysis.

Although the County does not project recreational vehicle (RV) volumes, the increasing popularity of the Anza-Borrego Desert State Park for recreational puposes will undoubtedly result in growing numbers of RV's which enter and exit the Valley on Montezuma Valley and Yaqui Pass Roads and which will travel along the local Borrego Springs roads. Specific characteristics of RV's relative to ordinary automobiles should be noted: slower speeds, lower maneuverability, reduced visibility for other drivers. The congestion and safety hazards discussed in the following text should be considered in light of these characteristics.

Traffic impacts of both situations are discussed in terms of road capacities and intersection configurations. Impact analysis is based on service level criteria as developed by the National Highway Research Board. Table 3 describes these criteria. Many factors are considered when assigning a level of service, i.e. the number of driveway openings, the frequency and nature of turns and curves, roadway width and physical condition of the road, the number of vehicles using the road, etc. Therefore, roadway "1" could receive a high rating (A or B) with X number of trips, while roadway "2" would receive a lower rating (D, E or F) with the same number of trips.

Table 3

Levels of Service for Roads

Service Level	Description
A	Free flow of traffic possible with low volumes and low density. Speed is controlled by posted limits, driver desire and physical roadway conditions.
B	Stable traffic flow with speed being somewhat impacted by congestion; reasonable freedom to maneuver within lanes. This level of service is associated with service volumes used in the design of rural highways.
C	Stable flow but speed and maneuverability reduced by higher traffic volumes. Satisfactory operating speed usually obtainable; this level of service is suitable for urban design roads.
D	Approaching unstable flow with tolerable operating conditions being maintained but considerably affected by traffic volumes. Little freedom to maneuver and drivers' comfort and convenience is low.
E	Lower operating speeds than in Level D; traffic volumes at or near capacity. Unstable flow with frequent momentary stoppages.
F	Forced traffic flow; stoppages for both short and long periods may occur. Speeds reduced considerably due to congestion.

Source: Highway Capacity Manual, 1965. Highway Research Board Special Report #87; National Academy of Sciences; National Research Council.

A. Without the Rams' Hill Project

1. Total Trips Generated and Vehicle Miles Traveled (VMT)

The total trips generated by Borrego Springs residents and the State Park were projected for 1985 based on the following assumptions:

o 1488 DU in Borrego Springs in 1985

- o 8 one-way trips per dwelling unit per day
- o 25% increase in park attendance over 1978 levels
- o VMT in Borrego Springs calculated based on Number of Trips X 8 Miles/Trip
- o Four 8-mile local trips taken by each of the 3,254 Park-visiting vehicles
- o 10% of all resident-generated trips will originate from and return to Borrego Springs and travel an average of 65 miles to and from San Diego or El Centro each one-way trip
- o All State Park visitors will enter Borrego Springs from origins 65 miles away.

The 1985 peak season projections for total trips generated and vehicle miles traveled (VMT) in Borrego Springs without the Rams' Hill project are presented in Table 4.

TABLE 4

PEAK SEASON
1985
BORREGO SPRINGS

TOTAL TRIPS GENERATED AND VEHICLE MILES TRAVELED (VMT)
WITHOUT RAMS' HILL

TRIP GENERATOR	# TRIPS GENERATED	VMT BORREGO VALLEY	VMT REGIONAL
Borrego Residents	11,904	95,232	77,350
State Park	6,508[a] 13,015[b]	104,128	423,020

[a]Each of the 3,254 Park-visiting vehicles generates two trips (one entering, the other exiting Borrego)

[b]Each of the 3,254 Park-visiting vehicles makes four additional local trips within Borrego

2. 1985 Traffic Assignment of Borrego Springs Without the Rams' Hill Project.

Between 1978 and 1985, the total permanent and seasonal residential population of Borrego Springs, not including the Rams' Hill development, is projected by County Regional Growth Management to increase by 68 percent. See Table 5 .

TABLE 5
Projected Population Figures

MAXIMUM POPULATION	1977	1985 without Di Giorgio	1985 with Di Giorgio
permanent	1570	2320	2320
seasonal	650	1400	1400
Digiorgio			2007
Digiorgio Induced			655
TOTAL	2220	3720	6382

Projected Seasonal Population Distribution in 1985

	Permanent	Seasonal	Digiorgio	Digiorgio-Induced	TOTAL
JAN	2088	1260	2007	589	5946
FEB	2088	1260	2007	589	5946
MAR	2088	980	1632	589	5289
APR	2088	693	1078	589	4448
MAY	1624	490	833	458	3405
JUN	1624	490	833	458	3405
JUL	1624	420	650	458	3135
AUG	1624	420	650	458	3135
SEP	2088	420	650	589	3730
OCT	2088	980	1632	589	5289
NOV	2088	980	1632	589	5289
DEC	2088	1260	2007	589	5946

In 1978, 41 percent of all travellers on the road in Borrego Springs are residents. See Table 1 . By 1985, the actual traffic due to Borrego Springs residents is projected to increase by 27 percent (68 percent x 41 percent). Anza-Borrego State Park visitors currently comprise 59 percent of the vehicles on the road. See Table 1 . Park officials project a growth in attendance of 25 percent by 1985. This would mean an increase in traffic due to park attendance of 15 percent (25 percent x 59 percent). These increases would result in a total weighted growth in traffic of 42 percent (15 percent + 27 percent).

Since no capital improvements are budgeted for Borrego Springs roads through 1985, projected trips were distributed onto the existing road network.

Figure 8 shows the 1985 traffic assignment for Borrego Springs without Rams' Hill.

3. Traffic Impacts on 1985 Road Network

The 1985 Borrego Springs traffic assignment without Rams' Hill indicates minor congestion impacts only on the two access roads into the Valley, Montezuma Valley and Yaqui Pass Roads. Congestion will occur only during peak hours (shortly before and shortly after noon) in the peak season. While County DOT assumes the capacities of these roads as they exist today to be 300 to 400 vehicles per hour, the projected peak hour traffic exceeds those levels, as shown in Table 6 .

TABLE 6
1985 Borrego Springs
Main Access Roads
Traffic Profile

	24 Hour Protection	# trips[1] AM Peak	# trips[1] PM Peak	Remaining Daylight Traffic/Hour[2]	Night Traffic/Hour[3]
Montezuma Valley Rd	3941	788	788	197	33
Yaqui Pass Road	2127	425	425	106	18

[1] 20 percent of 24-hour count occurs in each peak hour

[2] 50 percent of 24-hour count (i.e., non-peak hour traffic) ÷ 10 hours of remaining daylight

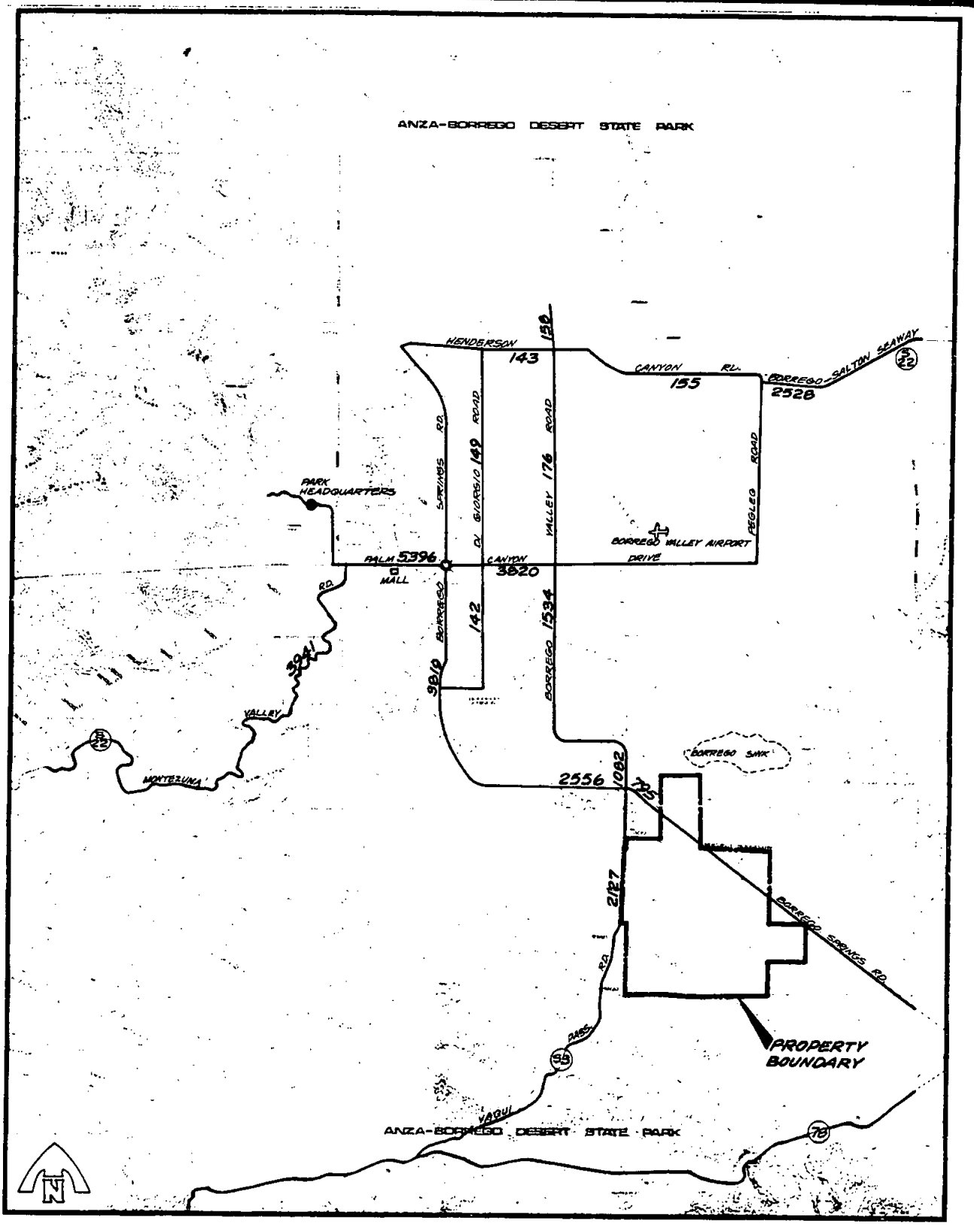
[3] 10 percent of 24-hour count (i.e., night traffic) ÷ 12 hours of night

All other Borrego Springs roads will continue to offer Level of Service "A".

B. 1985 Traffic Analysis for Borrego Springs with the Rams' Hill Project

Total Trips Generated by the Rams' Hill Project and Vehicle Miles Traveled (VMT)

The Rams' Hill project includes several commercial/recreational facilities which will generate considerable levels of traffic: 1 350-room resort hotel, a sizeable restaurant with banquet facilities, 13 tennis courts, a medical clinic and an 18-hole golf course.



1985 borrego springs traffic assignment
without rams hill

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 8

Table 7 shows the number of trips generated by each of the commercial/recreational facilities. Trip generation factors used are based on County of San Diego Board of Supervisors Policy J24, except where otherwise noted.

TABLE 7
Peak Season 1985
Trips Generated by Rams' Hill
Commercial/Recreational Facilities

Facility	Units	Trip Generation Factor[1]	# Trips Generated
Hotel	350 rooms	10 trips/room	3,500 trips
Restaurant	350 seats	5 trips/seat	1,750 trips
Tennis	13 courts	30 trips/court[2]	390 trips
Clinic	6,300 sq. ft.	580 trips/acre	84 trips
Golf course	150 acres	4 trips/acre	600 trips
Total			6,324 trips

[1]County of San Diego Board of Supervisors Policy J24

[2]Assumptions: (a) courts operational 6 a.m. - 12 p.m.; and
(b) 2 cars/court/hour

The table shows that the total number of daily trips attracted by the commercial/recreational facilities is 6,324.

Table 8 shows the origins of trips generated by these facilities. These figures were determined using a percentage breakdown by origin, obtained from Sanford Goodkin and Associates in August 1978.

TABLE 8
Peak Season 1985
Origins of Trips Generated by Rams' Hill
Commercial/Recreational Facilities

Facility	Total # Trips Generated	Rams' Hill Residents	Borrego Residents	Air Tourists	Auto Tourists
Hotel	3,500	0	0	350	3,150
Restaurant	1,750	525	525	88	612
Tennis	390	156	78	20	136
Clinic	84	17	8	8	51
Golf Course	600	240	120	30	210
TOTALS	6,324	938[a]	731	496	4,159

[a]Trips internal to project, i.e. 938 trips generated daily by these facilities will be carried by roads entirely within the project boundaries.
Source: Sanford Goodkin and Associates, August 1978.

As Table 8 indicates, Rams' Hill residents will contribute 938 out of 6,324 commercial/recreational trips, while the remaining 5,286 trips must enter and leave the project area at the Yaqui Pass Road access point.

The residential portion of the Specific Plan consists of 780 dwelling units. Table 9 shows the projected 1985 trips generated by Rams' Hill residents. Based on a trip generation factor of 8 trips per dwelling unit and subtracting the trips to and from the Rams' Hill commercial/recreational facilities, the total number of trips to and from areas outside the specific plan area is 5,302.

TABLE 9
Peak Season 1985
Trips Generated by Rams' Hill Residents

	#D.U.	Trips/D.U.	Trips Generated
Planned Residential Units	530	8	4,240
Estates	50	8	400
Single Family	200	8	1,600
Total trips Generated			6,240
Trips to and from Rams' Hill Commercial/Recreational Facilities			- 938
Trips to and from Areas Outside Rams' Hill Boundaries			5,302

The peak season 1985 projections for total trips generated and vehicle miles traveled (VMT) in Borrego Springs with the Rams' Hill project are presented in Table 10.

TABLE 10
PEAK SEASON
1985
BORREGO SPRINGS
TRIPS GENERATED AND VMT WITH RAMS' HILL

TRIP GENERATOR	# TRIPS GENERATED	VMT BORREGO VALLEY	VMT REGIONAL
Hotel	6,324	50,592[a]	41,106[c]
Rams' Hill	5,302	42,416[a]	34,450[c]
Rams' Hill-induced	1,885	15,080[a]	12,285[c]
Other Borrego Residents	11,904	95,232[a]	77,350[c]
State Park	6,508	104,128[b]	423,020[d]

NOTES

[a] Number of trips x 8 miles/trip

[b] Four 8-mile local trips assumed for each of the 3,254 visiting vehicles = 104,128

[c] 10% of all trips originate from and return to Borrego Springs; each one-way trip is 65 miles

[d] All State Park visitors will enter Borrego Springs from origins 65 miles away

2. 1985 Traffic Assignment for Borrego Springs With the Rams' Hill Project

The following assumptions were made about trip distribution in the project site vicinity:

- All trips will enter and exit the project site at the access road off Yaqui Pass Road.
- 75 percent of the trips generated by Borrego residents travelling to and from the project area are assumed to access from Borrego Springs Road north of its intersection with Yaqui Pass Road, while the remaining 25 percent access from Borrego Valley Road.
- 100 percent of all air tourist trips arriving and departing from the County airport are assumed to access from Borrego Valley Road.

- Fifty percent of all auto tourist trips are assumed to access to and from the project area by Borrego Springs Road north of its intersection with Yaqui Pass Road, 25 percent by Yaqui Pass Road (south of the project), 20 percent by Borrego Valley Road, and five percent by Borrego Springs Road south of its intersection with Yaqui Pass Road.

- The total number of trips generated daily by the Rams' Hill residents travelling to and from points outside the project boundaries is 5,302, as shown in Table 9. Fifty percent of these Rams' Hill resident trips are assumed to access to and from Borrego Springs Road, 25 percent are assumed to access to and from Yaqui Pass Road south of the entrance to Borrego Valley Road, and five percent are assumed to access to and from Borrego Springs Road south of its intersection with Yaqui Pass Road.

- Ten percent of all trips by Rams' Hill residents are to or from areas outside Borrego Valley.

Based on these assumptions, the following trip distributions were calculated for Yaqui Pass, Borrego Springs and Borrego Valley Roads:

YAQUI PASS ROAD

North of Project:

.75 (AUTO) + 1.00 (AIR) + 1.00 (BORREGO) + .75 (RAMS' HILL)
= .75 (4,159) + 1.00 (496) + 1.00 (731) + .75 (5,302)
= 3,199 + 496 + 731 + 3,977
= 8,323

South of Project:

.25 (AUTO) + .25 (RAMS' HILL)
= .25 (4,159) + .25 (5,302)
= 2,366

BORREGO SPRINGS ROAD

North of Yaqui Pass Road:

.50 (AUTO) + .75 (BORREGO) + .50 (RAMS' HILL)
= .50 (4,159) + .75 (731) + .50 (5,302)
= 2,080 + 548 + 2,651
= 5,279

South of Yaqui Pass Road:

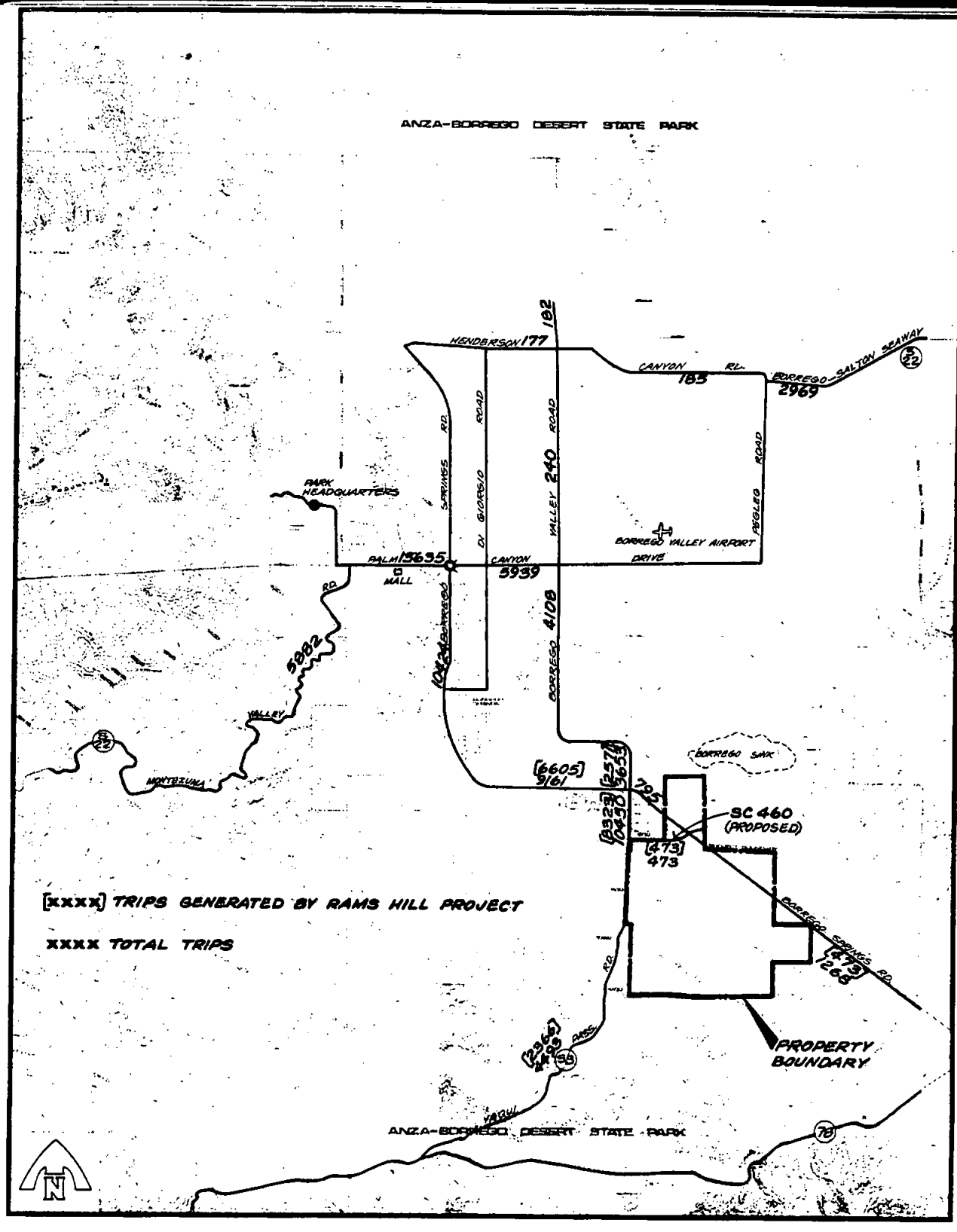
.05 (AUTO) + .05 (RAMS' HILL)
= .05 (4,159) + .05 (5,302)
= 208 + 265
= 473

BORREGO VALLEY ROAD

North of Yaqui Pass Road:

.20 (AUTO) + 1.00 (AIR) + .25 (BORREGO) + .20 (RAMS' HILL)
= .20 (4,159) + 1.00 (496) + .25 (731) + .20 (5,302)
= 832 + 496 + 183 + 1,060
= 2,571

Figure 9 shows the 1985 traffic assignment for Borrego Springs combined with Rams' Hill.



1985 borrego springs traffic assignment with rams hill

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 9

3. Traffic Impacts of the Rams' Hill Specific Plan on the 1985 Road Network

The impacts of the Rams' Hill development on roads in Borrego Springs and recommended mitigation measures are summarized in Table 6, and discussed in detail thereafter.

TABLE 11
Roads Impacted by Rams' Hill Project and Recommended Mitigation Measures

A. Project Vicinity
B. Other Borrego Roads
C. Access Roads to Borrego Valley

	Road	Impact	Mitigation
A.	Yaqui Pass Road (north of access road to project)	None when built to Major Road standard to conform to DOT and Circulation Element requirements.	None
	Borrego Springs Road	None	None
	Intersection of Yaqui Pass and Borrego Springs Roads	Peak season only: Significant congestion and safety hazards caused by turning movements	Traffic signal: normal operation during peak season flashing yellow during off-peak season
B.	Christmas Circle	Peak season only: Significant congestion and safety hazards caused by high volumes and driver confusion	Adequate directional signing and roadway striping; construction of roads to County standards (see below)
	Borrego Springs Road (south of Christmas Circle)	Peak season only: Significant congestion	Construction to County Major Road standards, widen to allow center left turn lane. Commercial and retail establishment curb cuts should be minimized

	Palm Canyon Road (west of Christmas Circle)	Peak season only: Significant congestion	Construction to County Major Road standards, widen to allow center left turn lane. Commercial and retail establishment curb cuts should be minimized
C.	Borrego-Salton Seaway	None	None
	Borrego Springs Road (south of SC 460)	None	None
	Montezuma Valley Road	Peak season only: Significant congestion	Construction to County Major Road standards or more turnouts; Lifeline transit service
	Yaqui Pass Road	Peak season only: Minor congestion	More turnouts

A. Roads in Project Vicinity

Although Borrego Springs and Yaqui Pass Roads are currently paved to only 24 feet, they are both classified as Major Roads on the County Circulation Element, with capacities of between 10,000 and 16,000 ADT. The projected peak season 10,450 ADT on Yaqui Pass Road north of the Rams' Hill access road will be more than adequately served by a road built to a paved width of 40 feet by the developer. Borrego Springs Road south of Yaqui Pass Road has more than enough capacity to handle the projected Rams' Hill and other Borrego traffic (795 ADT), even with its existing paved width.

There may be congestion at the intersection of Yaqui Pass and Borrego Springs Roads caused by the desire of most northbound trips on Yaqui Pass Road to make a left turn while southbound trips on Borrego Valley Road desire continuing on through the intersection to the project.

SC 460 located at the northernmost boundary of the project, will primarily serve those trips headed out of Rams' Hill toward the southeast (El Centro). With a projected 473 ADT, SC 460 built to County Collector Road standards will be more than adequate

County DOT On- and Off-Site Road Requirements and Projected Needs

According to the traffic assignment resulting from the detailed trip generation and distribution procedure, the County DOT on- and off-site road improvements exceed that which would be necessary to provide "A" Levels of Service:

- o SC 460
- o SF 1406 (Yaqui Pass Road) south of the access road to Rams' Hill
- o Borrego Springs Road, south of its intersection with Yaqui Pass Road

Table 12 shows the existing status of these roads, existing ADT, projected ADT, the necessary improvements to carry the projected ADT, the DOT requirements, the rated road capacity, and the excess capacity in ADT should the DOT improvements be implemented.

B. Other Borrego Roads

Two other local roads, Borrego Springs Road (south of Christmas Circle) and Palm Canyon Road (west of Christmas Circle) which are classified as Major Roads but currently exist as two-lane rural roads, can be expected to carry a substantial number of trips generated by the Anza-Borrego Desert State Park and the Rams' Hill commercial/recreational facilities. Table 13 shows the traffic profile for roads significantly impacted by Rams' Hill project. If built to full major road standards as planned by the County, both roads will offer "A" Levels of Service. It is unlikely, however, that these improvements would be made by 1985 since the FY 1979-80 Six-Year Capital Improvements Plan does not include any road improvements in the Borrego Valley. With approximately 2,000-3,000 trips during each of the peak hours, and at their present paved widths, these roads would offer "C" Levels of Service. As illustrated in Table 13, at times other than the few peak periods, the projected traffic levels fall far below the capacities of these two roads, even with the ~~peak~~ widths which exist today.

TABLE 12

Rams' Hill
County DOT On- and Off-Site Right-Of-Way Dedication and Improvement Requirements and Projected Needs

	Existing Status	Existing ADT	Projected ADT	Necessary Improvements to carry Projected ADT	DOT Requirements	Road Capacity	Excess Capacity ADT
SC 460 between Yaqui Pass and Borrego Springs Rd. through Rams' Hill	does not exist	--	500	36' paved	COLLECTOR RD: 84' ROW dedication 64' paved	10,000 ADT	9,500
SF 1406 Yaqui Pass Road North of access rd to Rams' Hill	2 lanes, 24-32 feet paved	1,498	10,500	Half width of: 51' ROW 40 feet paved width	MAJOR ROAD: Half width of: 51' ROW dedication 40' paved width	12,000 ADT	1,500 ADT
South of access rd to Rams' Hill	2 lanes 24-32 feet paved	1,498	4,500	Existing roadway adequate	MAJOR ROAD: Half width of 51' ROW dedication. No improvements req.	12,000 ADT	7,500 ADT
Borrego Springs Rd North of SC 460	2 lanes 24-32 feet paved	560	800	Existing Roadway Adequate	MAJOR ROAD: ROW 82' paved	10,000 ADT	9,200
South of SC 460	2 lanes 24-32 feet paved	560	1,300	Existing roadway adequate	MAJOR ROAD: 82' paved	10,000 ADT	8,700
SC 500 Old Borrego Valley Rd	does not exist	--	--	none	COLLECTOR RD: 84' ROW dedication. Recommended for rejection. No improvements required.	—	—

TABLE 13
Peak Season
1985 Rams' Hill Significantly Impacted Roads Traffic Profile

	24-Hour Traffic Protection*	# Trips[1] AM Peak	# Trips[1] PM Peak	Remaining Daylight Traffic/ Hour[2]	Night Traffic/ Hour[3]
Borrego Springs Rd (south Christmas Circle)	10,424	2,085	2,085	521	87
Palm Canyon Road (west Christmas Circle)	13,635	2,727	2,727	682	114

C. Access Roads to Borrego Valley

Table 14 shows that the peak hour traffic for both the existing Borrego Salton Seaway (S 22) and Borrego Springs Road (south of SC 460) is less than 600 trips/hour; they thus offer Service Level "A" capacities for the projected 1985 ADT of 2,969 and 1,268 respectively.

TABLE 14
1985 Borrego Springs Main Access Roads Traffic Profile

	24-Hour Traffic Protection*	# Trips[1] AM Peak	# Trips[1] PM Peak	Remaining Daylight Traffic/ Hour[2]	Night Traffic/ Hour[3]
Montezuma Valley Road	5,882	1,176	1,176	294	49
Yaqui Pass Road (south of project access road)	4,493	899	899	225	37
Borrego Salton Seaway	2,969	594	594	148	25
Borrego Springs Road	1,268	254	254	63	11

*See Figure 9

[1]20 percent of 24-hour count occurs in each peak hour

[2]50 percent of 24-hour count (i.e., non-peak hour traffic) ÷ 10 hours of remaining daylight.

[3]10 percent of 24-hour count (i.e., night traffic) ÷ 12 hours of night

When built to the planned County Major Road standards, Montezuma Valley and Yaqui Pass Roads will have the capacity to offer "A" Levels of Service at all times for the projected average daily traffic. Although it is highly unlikely that Montezuma Valley and Yaqui Pass Roads will be widened by the County to those standards before 1985, Montezuma Road will still offer "B" Level of Service and Yaqui Pass Road "A" Level of Service during all but a few peak hours of the peak season. At those peak hours, however, these two-lane rural roads will be expected to carry 1,176 and 899 trips, respectively. These projected peak traffic levels will result in severe congestion problems during those few hours since County DOT assumes the capacities of those roads as they exist today to be 300 and 400 vehicles per hour.

Mitigation

Mitigation beyond the on and off site road improvements will be necessary for the following impact areas:

- o Intersection of Yaqui Pass/Borrego Springs Roads
- o Christmas Circle
- o Palm Canyon Road
- o Borrego Springs Road (south of Christmas Circle)
- o Montezuma Valley Road
- o Yaqui Pass Road

Intersection of Yaqui Pass/Borrego Springs Roads

Left turn pockets and a traffic signal at the intersection of Yaqui Pass and Borrego Springs Roads, which would flash a yellow caution light in the off-season and which would operate normally in the peak season, would greatly increase the safety and capacity of that intersection, and thus mitigate any impact there to insignificance. A four-way stop will be sufficient even in the peak season until full buildout of the project.

Christmas Circle

Adequate signing and striping around this traffic circle should be implemented in order to facilitate orderly and safe traffic flow. Signs posted for vehicles approaching the circle from all directions should clearly indicate directions to major park and community attractions, while lane striping should clearly indicate travelled way and shoulders.

Palm Canyon Road and Borrego Springs Road (south of Christmas Circle to Yaqui Pass Road

Improvement to County Major Road standards would mitigate the projected Borrego Springs peak season traffic impacts on these roads to insignificance. Since it is unlikely that such substantial improvements will be made in the near future, efforts should be made by the County to widen the paved roadways where

necessary to create a center left turn lane or left turn pockets for entrance to and exit from residential developments and commercial/retail land uses. Furthermore, new developments and business establishments should be required to minimize the number of curbcuts onto the roadway.

Montezuma Valley and Yaqui Pass Roads

Improvement to County Major Road standards would mitigate projected Borrego Springs peak season traffic impacts on these main access roads to insignificance. This measure, however, is unlikely to be implemented due to financial and terrain constraints. More well-marked turnouts on these narrow sloping roads to allow for passing of slower vehicles would greatly increase traffic flow and safety.

Summary and Conclusions

The Rams' Hill commercial/recreational and residential development will generate nearly 13,500 out of 32,000 daily trips during the 1985 peak season, November through April, and nearly 9,500 out of 22,400 daily trips during the off-season, May through October.

The internal road network of the Rams' Hill project will more than adequately serve its residential population.

Although Rams' Hill residents will undoubtedly utilize the commercial/recreational facilities in the Rams' Hill development, most of the trips generated by those facilities will originate from outside the project boundaries.

Off-site circulation element improvements, including the improvement by the developer of Yaqui Pass Road (from the entrance of the project to the intersection with Borrego Springs Road) to 40 feet of paved travelled way and a traffic signal will mitigate to insignificance the significant traffic impact in the project vicinity caused by the Rams' Hill project.

At times other than peak season weekends and holidays, all traffic impacts of the Rams' Hill project on other Borrego Springs access and local roads will be insignificant. During the peak season (November - April) weekends and holidays, the high growth in Anza Borrego Desert State Park visitation expected by State Park officials, together with the Rams' Hill development, will result in significant traffic impacts on several existing Borrego Springs intersection, local roads, and access roads. The roadway capacity impacts can be mitigated to insignificance by improvement to full County Circulation Element requirements of Palm Canyon Road, Borrego Springs Road (south of Christmas Circle to Yaqui Pass Road), Montezuma Valley Road and Yaqui Pass Road. They can be partially mitigated by the provision of left turn lanes and pockets at entrances to and exits from residential developments and commercial/retail land uses which generate high trip volumes.

Further partial mitigation can be achieved by requiring new residential developments and business establishments to minimize the number of curbcuts onto the roadway. Partial mitigation measures for the access roads into the Valley include more frequent well-marked turnouts to allow for safe passing of slower vehicles. Finally, the encouragement of the County Lifeline Transit System would, to a limited extent, help to reduce the actual number of vehicular trips entering and leaving the Borrego Valley.

Reductions in the County DOT on- and off-site road improvements for SC 460, SF 1406 (Yaqui Pass Road) south of the access road to Rams' Hill and Borrego Springs Road south of its intersection with Yaqui Pass Road to be level of improvements described in Table 12 will not require any mitigation measures beyond those outlined above.

A P P E N D I X H

WATER

HYDROLOGY REPORT FOR APPENDIX TO DRAFT EIR

RAMS' HILL FIVE YEAR PLAN

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RAMS' HILL FIVE YEAR PLAN

HYDROLOGY REPORT FOR APPENDIX TO DRAFT EIR

Hydrogeological investigations of groundwater availability in Borrego Valley and projections of future availability of this resource

During the past 35 years, several extensive investigations have been made of the hydrogeologic conditions in the Borrego Valley.[1,6,10,12,14] Most investigators indicate that the long-term annual recharge to the Borrego Valley is in the range of 6,000 to 11,000 acre feet per year.[6,10a,14,15]

The aquifers underlying the Borrego Valley routinely produce from five to 60 gallons per minute per foot of drawdown depending upon location, depth, diameter and method of well construction.[5,6a,9] The occasional dry or poor producing wells recorded have resulted from drilling in locations where the underlying rock formation is at a higher elevation than the ground water elevation or in areas such as the clay cored anticline located near the Desert Lodge, which has a very low permeability.[13] As a result of over 30 years experience in constructing wells in Borrego Valley, it is now possible to readily identify well sites where production of 250 to 1,250 gpm capacity can be obtained using conventional rotary or cable tool drilling methods.[5,6a]

The United States Bureau of Reclamation reports that the Borrego Valley aquifers have a capacity of 1.3 million acre feet from the present ground water surface to a depth of 200 feet. It is

therefore possible to forecast reliably that there will be a negligible difference in the availability of water from wet years to dry years. (14)

Water consumption in the Borrego Valley has varied substantially in the last 30 years with changes in social and economic conditions. Peak water consumption occurred between 1955 and 1965 during the peak agricultural years. Within the last ten years water consumption has dropped to approximately one-third of these peak levels.

Table 1 indicates that total present water use by man in the Borrego Valley is 8300 acre feet per year. Less than six percent of this water is used for domestic purposes, including moderate landscaping around homes. The largest use, 69 percent of the total, is for agricultural crops. Another 25 percent is used for golf courses and intensive landscaping.

Table 1

Total Annual Water Consumption*
1950 - 1978

	1950	1958	1962	1968	1972	1978
Domestic	170	225	265	475	530	550
Landscaping and Golf	190	790	1,725	1,720	2,270	2,050
Agriculture	11,435	22,455	13,830	7,260	5,320	5,705
	11,795	23,470	15,820	9,455	8,120	8,305

* Threet (10a) and other researchers estimate riparian water use to be 3,000 acre feet per year.

Future levels of water use are difficult to forecast because of the potential variability in agricultural trends. Since 1958 the agricultural use of water has decreased 75 percent. With increasing use of drip irrigation and changing crop patterns, it appears realistic to assume that this decline will continue, even should the actual acreage under production increase moderately. In predicting future water use, two trends have been used. The first trend assumes that agriculture will continue to be viable, and that the actual acreage will expand. Under this trend, the volume of agricultural water use will be constant. The second trend assumes that agriculture will decline in the Valley. This trend assumes that increasing water costs will make citrus and alfalfa production in the Valley economically unprofitable. In fact, the Borrego Valley today cannot compete with citrus from the Central Valley or Florida because water costs are four times higher in Borrego than in other major citrus areas. Under this second trend, water use will decline substantially as lands are no longer farmed.

Table 2

Future Water Consumption Trends in Borrego Valley

	Present Use Ac Ft/Year	1985 Trend "A" Steady State Agriculture	1985 Trend "B" Declining Agriculture
Agricultural Use	5,700	5,700	3,700
Golf and Landscaping Use	2,050	2,050	2,050
Domestic Use	600	780	780
Riparian Use	3,000	3,000	3,000
Rams' Hill	-0-	1,600	1,600
	11,350	13,130	11,130

Table 2 summarized predicted water consumption in the Borrego Valley under Trends "A" and "B". Comparing the trends, should agricultural water use remain constant between 1978 and 1985, the development of Rams' Hill would create a minor water mining condition. The 1.3 million acre feet within the first 200 feet of the water table would last 620 years. After this more sophisticated pumping techniques would be needed to exploit the deeper water resources which extend at least an additional 700 feet. Under the more probable Trend "B", no groundwater mining would occur and the basin would remain in a steady state with recharge approximately equal to use.

Table 3

Rams' Hill Project
Estimated Water Use 1985

		Water Use Ac.Ft./Yr.
Hotel		
40 acres gross	350 rooms @ .1 AF/YR/RM	35.0
Clinic		
12 acres gross	inside use	5.0
Villas		
102 acres gross	530 units @ .3 AF/AC/YR	159.0
Golf Course		
120 acres gross	120 acres @ 6 AF/AC/YR less use of reclaimed water 165 AF	555.0
(Golf course water use includes evaporation from ponds. The rough would not be irrigated.)		
Single Family Homes (1/3 acre site, desert style landscaping)		
127 acres gross	200 units @ .75 AF/UNIT/YR	150.0
Estates (2 acre sites, desert style landscaping)		
124 acres gross	50 units x 2 AC @ 2.00 AF/AC/YR	200.0
General Landscaping		
120 acres	120 acres @ 4 AF/AC/YR	480.0
	TOTAL	1,584.0

Table 4

Rams' Hill Project
Estimated Water Use 1995 (15 Year Development Period)

		Water Use Ac.Ft./Yr.
Hotel		
40 acres gross	350 rooms @ .1 AF/YR/RM	35.0
Clinic		
12 acres gross	inside use	5.0
Villas		
102 acres gross Phase I 102 acres gross Phase II		
	Phase I 530 units @ .3 AF/UNIT/YR	159.0
	Phase II 530 units @ .3 AF/UNIT/YR	159.0
Golf Course		
120 acres gross	120 x 6.0 AF/AC/YR less reclamation of 330 AF	390.0
(Golf course water use includes evaporation from ponds. Roughs will not be irrigated.)		
Single Family Homes (1/3 acre sites, desert style landscaping)		
127 acres gross Phase I 127 acres gross Phase II		
	Phase I 200 units @ .75 AF/UNIT/YR	200.0
	Phase II 200 units @ .75 AF/UNIT/YR	200.0
General Landscaping		
120 acres	120 acres @ 4 AF/AC/YR	480.0
	TOTAL	1,928.0

The records of San Diego County Water Authority indicate that none of the developed area of San Diego County has a local water supply of this magnitude in comparison to its long range needs. Nearly all of the balance of the developed area in San Diego County must rely upon imported water for its existence. In the event future conditions change and an even higher rate of development should occur requiring the eventual importation of water to Borrego, there are many possibilities for acceptable solutions within the time frame available for action.

Typical of several possibilities is the transfer of some Colorado River water via Imperial County. Over 3.5 million acre feet of irrigation water is used each year in Imperial Valley for relatively low value truck crops. It is certainly within the realm of possibility for Borrego to obtain a small supplemental municipal supply from this source. Currently, the City of San Diego owns unused carrying capacity in the All American Canal which could be made available if such a project should be required. The 60 to 75 miles of possible future pipeline involved is not considered to be an unrealistic engineering solution. There are other possible water sources in Imperial Valley, such as the desalting of agricultural return irrigation water which is being discharged into the Salton Sea in quantities as high as one million acre feet per year.

As early as 1946, the Bechtel Corporation report for the Di-Giorgio Fruit Corporation recognized that frequent flash floods from Coyote Creek caused substantial discharge to Borrego Sink.[1] This portion of the natural runoff to the Borrego Valley is lost to evaporation in the sink because it crosses the north half of the Valley before it has time to infiltrate to the underground basins. The July, 1972 report by the County of San Diego [2] proposed a system of levees to minimize loss to Borrego Sink as a refinement of the Bechtel proposal. Flood water salvaged by levees and infiltration ponds proposed in the report would make more water available for recharge to the groundwater basin than presently exists.

Another alternative is the long studied high line route for State Project water that traverses the Warner Valley 20 miles west of Borrego [6] That project has never been forgotten by those who still hope to see the higher level reservoirs like Lake Henshaw used for regulation of imported water. Within the 300 years available for solving a potential shortage in Borrego, these possible solutions and perhaps even better ones yet to be devised, offer ample justification to predict that Borrego will be able to obtain a supplemental supply if it should need more water.

Chemical characteristics of water underlying the Borrego Valley

There have been thousands of chemical analyses made on water samples from Borrego Valley.(4,5,6f,9) Most samples indicate levels of Total Dissolved Solids in the range 350 - 1,000 milligrams per liter (mg/l) with relatively low hardness, i.e., less than 200 mg/l calculated as $CaCO_3$. There are isolated wells which produce water high in nitrates. When the nitrate concentration exceeds 45.0 mg/l, the water is not considered suitable for domestic use; however, it is ideally balanced for irrigation, primarily due to the fertilizer value of the nitrates. Most waters in Borrego contain natural low levels of fluoride, in the range of .5 to 1.0 mg/l--a level considered ideal for prevention of dental caries. In isolated locations, there have been wells which produce water containing fluorides at levels which are considered excessive and for which either special treatment or blending is necessary before it is used for domestic drinking water.(6f)

None of these problems occur with the water supply sampled in the vicinity of the Rams' Hill development.(5)

Differential lowering of the water table

It has been suggested that the Rams' Hill development may cause some accelerated local lowering of the water table relative to levels in other portions of the Borrego Valley. This possibility has been considered in some detail. For purposes of

this study, the most severe circumstances were assumed, i.e., that only very limited water movement was possible across the clay cored Desert Lodge anticline identified by Threet.[13] If the anticline should prove to be an effective barrier, there would be limited water movement southerly to wells underlying the project. As the water table is lowered by the Rams' Hill project operation, ground water would then tend to move easterly and westerly toward any depression that was created. A similar situation seems to have developed when the heavy irrigation of grapes in the 1950's caused a localized drop in the water table in the central part of the valley.

Calculations (Table 4) indicate that the area south of the anticline holds at least seven percent of the underground storage of the valley, or about 90,000 acre feet. If the worst condition occurred and the 1,600 acre feet per year demand on the Rams' Hill area was in fact drawing from only a 90,000 acre feet reservoir and the other 7,700 acre feet per year demand was drawing from the remaining 1,210,000 acre feet of underground storage, the depletion would result in a more rapid lowering of the ground water table under Rams' Hill. This could result in a lowering of the water table under Rams' Hill by 200 feet in 54 years, assuming none of the known recharge reached that area and ground water failed to move around the anticline at sufficient rate to equalize the water table.

Table 4

Calculations of the approximate quantity of water in the area south of the Desert Lodge anticline and available for water use in the Rams' Hill project area

The water bearing area south of the anticline is confined on the south by basement rock and the anticline on the north. The cross section of the basin on an asimuth line of 40 degrees indicates a width of water surface of 7,500 feet. This width of water surface will be reduced to about 5,000 feet if the water table is lowered 200 feet. The water bearing area runs for at least 32,000 feet along the 130 degree azimuth line. Accordingly, the basin which would be de-watered has a total volume of:

$$\text{Vol.} = 32{,}000 \text{ ft.} \times \left(\frac{7{,}500 + 5{,}000 \text{ ft.}}{2}\right) \times 200 \text{ ft.} \times \frac{\text{Ac. Ft.}}{43{,}560 \text{ ft.}^3} =$$

$$918{,}274 \text{ ac. ft.}$$

If the specific yield averages ten percent, the volume of water available is 91,800 acre feet.

Such circumstances are not likely to occur because it is anticipated that the Borrego Valley will utilize a valley-wide public water district to serve Rams' Hill and other service areas as needed. Under these circumstances, the ground water resources of the entire agency could be used to serve water where needed, thereby making it unnecessary to produce all of the water supply for Rams' Hill from aquifers underlying the project. The agency-wide concept of water service is widespread in all of California. Seldom does any one project rely only on ground water resources which underlie the project in question.(6)

By _____

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By _____

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September 5, 1978

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RAM'S HILL COUNTRY CLUB
WASTE WATER RECLAMATION
BORREGO VALLEY

Prepared for:

DIGIORGIO DEVELOPMENT CORPORATION

JULY 1978

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SUMMARY

On March 8, 1978 DiGiorgio Development Corporation authorized Lowry & Associates to proceed on updating of the 1973 study, Sewage Disposal and Waste Water Reclamation for DiGiorgio 3,000 Acres, Borrego Springs, San Diego County. The plan outlined in Ram's Hill Country Club Initial Plan Conformance Report (February 1978) by Toups Corporation of La Jolla was used as the basis of updating. In addition, new regulations, plans and policies on the part of water quality regulatory agencies were taken into account.

As described in the Initial Plan Conformance Report, the five-year program for Ram's Hill Country Club applies to 2,153 acres. Initial phase development will take place on 431 acres; a golf course occupying an additional 160 acres will be constructed; 1,562 acres will be dedicated to undeveloped open space. The balance of the 3,124 acre parcel, some 961 acres, is not included in initial phase planning.

A central feature of the plan is a resort hotel and a medical diagnostic center, to be developed in conjunction with an 18-hole golf course and tennis facility. The hotel complex would contain 350 rooms and the usual support functions including restaurants, conference rooms and boutiques.

Residential development would emphasize high-quality second home-development consistent with resort orientation. Three types of residential development are proposed: 530 villas in three planned residential developments, 200 single family detached units on lots of approximately one-third acre and 50 two-acre estates. It is proposed that public sewer service be provided to all development units except the two-acre estate single family residences. Estate parcels will be served by individual septic tanks and leaching facilities on each lot, installed in conformance with San Diego County Department of Public Health standards and Regional Water Quality Control Board requirements.

It is estimated that, at full development and full occupancy, Phase I units connected to the public sewer system will produce an average daily winter flow of 250,000 gallons per day. Corresponding summer sewage flows are estimated to amount to 50,000 gallons per day or less. At build-out of Phase II development, it is estimated that daily sewage flows will average 500,000 gallons during winter months and 100,000 gallons per day during summer months.

Sewage produced by Ram's Hill Country Club will be reclaimed as one source of irrigation water for the planned 18-hole golf course. After secondary treatment, the sewage effluent would be disinfected and pumped to an irrigation storage pond/decorative lake on the golf course. The golf course irrigation system will have more than enough demand to consume the highest volume of reclaimed water production in Phase I. However, in conformance with State Health Department Title 22 regulations, percolation beds would also be provided for effluent disposal. These beds would be located north of the Desert Lodge anticline and would have sufficient capacity to dispose of the entire output of the reclamation plant on a continuous long-term basis.

Because of the high cost of sampling and analysis required for waste water reclamation, it is contemplated that sewage effluent would be reclaimed for golf course irrigation only during those periods when the volume of reclaimed water available will be 100,000 gallons per day or more. Effluent volumes less than 100,000 gallons per day would be disposed of by discharge to the percolation beds.

Phase I reclaimed water treatment facilities would have a capacity of 250,000 gallons per day but would also have to function satisfactorily at summer flows of 50,000 gallons per day or less. The 1973 report recommended use of aerated oxidation ponds to accomplish this purpose. In recent years, the Regional Water Quality Control Board has become concerned about the tendency of oxidation ponds to concentrate mineral salts by evaporation, thereby causing violations of salinity limitations on waste treatment plant discharges. Therefore, the update study resulted in abandonment of aerated oxidation ponds as a treatment concept in favor of oxidation ditch treatment.

The oxidation ditch is a method of secondary sewage treatment that has been employed in Europe for the past quarter century but has only recently gained recognition in the United States. It utilizes a modified form of the activated sludge process, much like the extended aeration process described in the 1973 report. However, the oxidation ditch incorporates features which tend to make it more adaptable to the flow variation problem expected at Borrego.

While the Phase I plant would be constructed to treat an average daily flow of 250,000 gallons, its capacity may be reduced below that volume by adjusting the water surface elevation in the oxidation ditch. This feature will help assure better and more economical performance during low-flow months. Headworks, piping, channels and similar features of the plant would be sized to accommodate later expansion to a capacity of 500,000 gallons per day.

A waste water reclamation plant site north of Borrego Springs Road is recommended. Based upon the Woodward-Gizienski preliminary soil investigation, the most satisfactory location for percolation beds appears to be in that portion of the property near the westerly boundary and approximately 2000 feet north of the road. At that location, the beds would be adequately separated from potential water well sites and, moreover, would be north of the Desert Lodge anticline. The reclamation plant may be located adjacent to the percolation beds or at another location, such as at the site shown in the initial plan report or at a site adjacent to Borrego Springs Road. Costs estimated for this update are based upon a plant location as shown in the initial plan and percolation beds at the more westerly site just described (see Figure IV-2). Additional soil study will be necessary at the recommended location for measurement of permeability and final determination of percolation bed size.

The recommended sewage disposal/waste water reclamation system will meet anticipated waste discharge requirements of the Regional Water Quality Control Board and will comply with Title 22 standards of the State Health Department. Ground waters will be protected for pollution and other adverse quality impacts. Future sewage disposal needs have been considered and would be similarly accommodated. The

restudy and update made no revision to the recommendation of the original report that the Borrego Water District be selected as the public agency which would own and operate the public sewer system and waste water reclamation facility recommended in the report.

RECOMMENDATIONS

1. Public sewage disposal service be provided for the following portions of the development: hotel complex, including support functions; 530 villas; 200 single family detached homes; and fire station.

2. Sewage disposal on 50 estate lots be accomplished by individual subsurface facilities meeting San Diego County Department of Public Health standards and Regional Water Quality Control Board waste discharge requirements.

3. Sewage treatment/waste water reclamation facilities with an initial average daily flow capacity of 250,000 gallons per day be installed. Provision be made for later expansion to a capacity of 500,000 gallons per day.

4. Because of the Regional Water Quality Control Board's concern about salinity in oxidation pond effluents, the originally proposed aerated oxidation pond method of secondary treatment be dropped. In place of aerated oxidation ponds, the oxidation ditch method of activated sludge secondary treatment be employed.

5. Effluent flows of 100,000 gallons per day and above be reclaimed to supply a portion of the Ram's Hill Country Club Golf Course irrigation water.

6. Effluent flows of less than 100,000 gallons per day be disposed of by percolation into the ground. Percolation beds be located north of the Desert Lodge anticline and near the westerly property line, as shown in Figure IV-2. Additional soil testing of the proposed percolation pond location be performed as part of the design study for the reclamation system.

7. Percolation pond capacity of 250,000 gallons per day be provided in the initial installation to conform to Title 22 requirements of the State Health Department.

8. The reclamation plant be located north of Borrego Springs Road at any one of several sites:

   (a) As shown in the initial plan conformance report (see Figure IV.2);

   (b) adjacent to the proposed percolation pond site;

   (c) adjacent to Borrego Springs Road (required influent pumping station);

   (d) any other site compatible with land use patterns, which permits gravity flow to percolation ponds.

9. Use of on-site regenerated water softeners be prevented in the service area of the public sewer system.

10. The sewage disposal/waste water reclamation system be owned and operated by the Borrego Water District. The Local Agency Formation Commission be requested to authorize exercise of latent sewage collection, treatment and waste water reclamation powers by the District.

11. At the appropriate time, the DiGiorgio Development Corporation or the Borrego Water District submit a Report of Waste Discharge for the proposed disposal/reclamation program to the California Regional Water Quality Control Board, Colorado River Basin Region.

CHAPTER I

INTRODUCTION

In June 1973, Mr. George J. Kuhrts III, in behalf of DiGiorgio Development Corporation, authorized Lowry and Associates to study sewage disposal needs connected with development of a 3,000 acre parcel of land near Borrego Springs, San Diego County. Lowry was requested to submit a recommended plan of sewage treatment and waste water reclamation for inclusion in the overall engineering plan for the project.

The report Sewage Disposal and Waste Water Reclamation for DiGiorgio 3,000 Acres, Borrego Springs, San Diego County was submitted to the DiGiorgio Development Corporation in September 1973. Subsequently, the County of San Diego approved a General Plan amendment for the project with modifications from the original concept and with a number of conditions. Most significant among the modifications was reduction in project size to about one-half of that originally contemplated. DiGiorgio Development Corporation undertook preparation of a draft Specific Plan for that portion of the property it proposes to develop within the next five years.

On March 8, 1978, DiGiorgio Development Corporation authorized Lowry and Associates to proceed on an updating of the 1973 Sewage Disposal/Waste Water Reclamation Study, as part of the

specific planning effort. The restudy takes into account the change in project scope brought about by action of the County of San Diego and also considers regulatory changes that have taken place in the several years since the initial study was completed.

The plan outlined in Ram's Hill Country Club Initial Plan Conformance Report (February 1978) by Toups Corporation of La Jolla was used as the basis of this study. While emphasis is placed upon provision of facilities to meet Phase I sewage disposal/waste water reclamation needs, the study also considers total Phase I and Phase II needs and the most suitable means of accommodating Phase I installations with follow-on capacity for later growth.

STUDY OBJECTIVES

The objective of the study is to develop an economical and satisfactory plan of sewage disposal/waste water reclamation for the project, consistent with the requirements of regulatory agencies having jurisdiction over waste disposal in the Borrego Valley. Alternative methods of handling, disposing and reclaiming sewage wastes were studied in formulation of the previous plan; this study reconsiders alternatives. The concept of reclaiming and reusing as much treated waste water as feasible continues to be a prime goal. In addition, staged development of sewerage facilities, present or future opportunities for consolidation of such facilities, and organizational arrangements for management and operation of the needed sewerage facilities continue to be major considerations.

In the course of the original study, several conferences were held with Mr. Arthur Swajian, Executive Officer, Colorado River Basin Regional Water Quality Control Board, which yielded

valuable information on the regulatory program of that agency and on conditions in the basin. A meeting was held with Dr. J.B. Askew, Health Officer of the County of San Diego to ascertain his Department's views on public and private sewage disposal in the Borrego Valley. In addition, visits were made to the sites of each of the projects under study. The staff of the Regional Water Quality Control Board and the San Diego County Department of Public Health were again contacted during the course of the restudy.

LOCATION

The project is located in the southern portion of Borrego Valley. Borrego Valley and the community of Borrego Springs within the valley are located in the eastern desert area of San Diego County. The site is on Borrego Springs Road, approximately five miles southeast of Christmas Circle in Sections 23, 25, 26, 35 and 36, T10S, R6E. Most of the parcel lies south of the road, with a smaller northerly portion lying between the road and Borrego Sink. Figure I-1 illustrates project location and the Specific Plan area within the 3,000 acre parcel.

Hydrologically, Borrego Valley is located in the Colorado River Basin drainage area in California. However, surface drainage from the valley does not reach the Colorado River, but instead flows to the Borrego Sink where the usually small and infrequent amounts of surface runoff evaporate. The hydrogeology and water resources of Southern Borrego Valley have already been discussed in the reports by Threet and Burzell.[1][2]

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(1) Hydrogeology of Southern Borrego Valley, Threet, April 1972.

(2) Water Supply for Southern Borrego Valley, Burzell, November 1972.

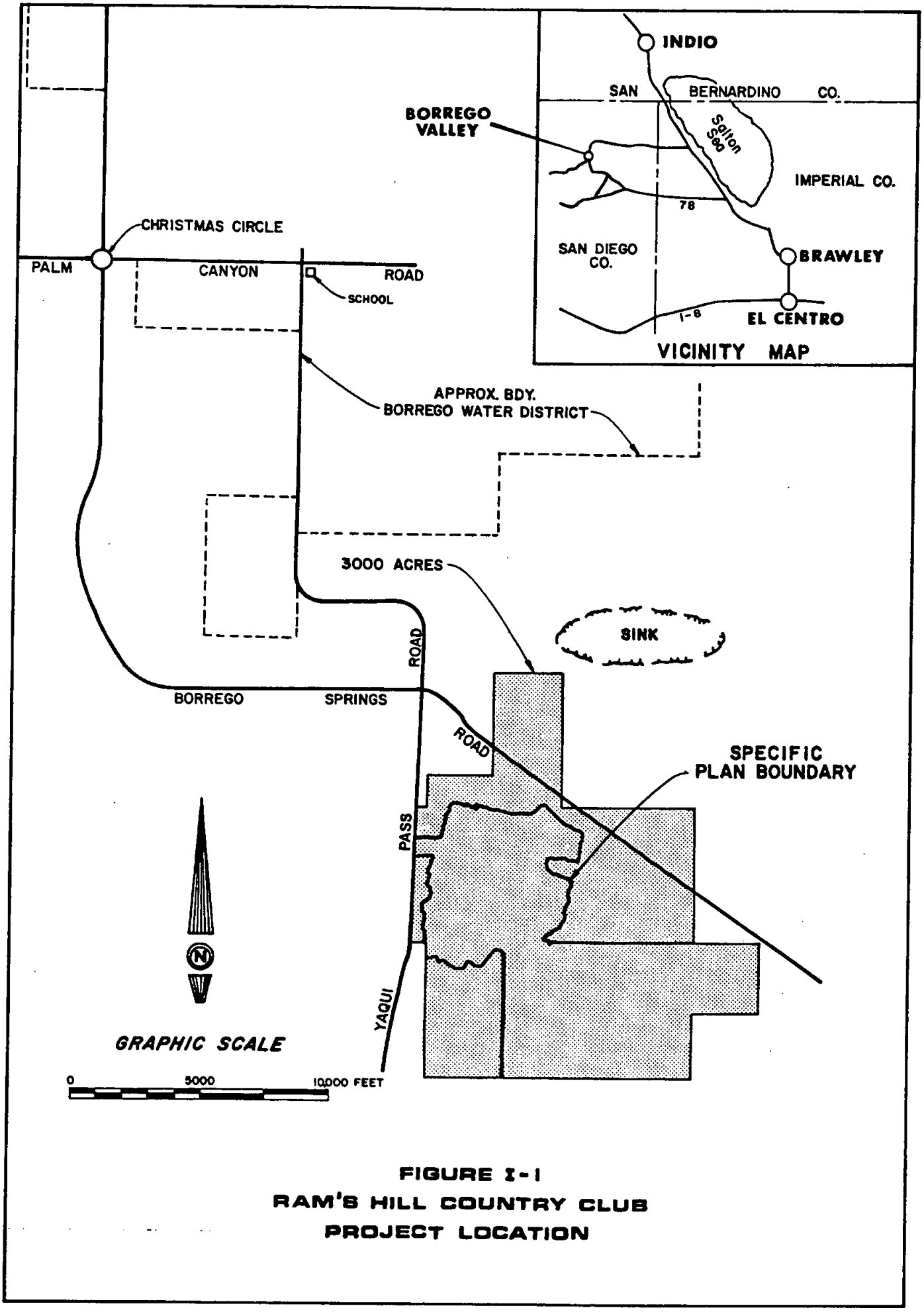


FIGURE I-1
RAM'S HILL COUNTRY CLUB
PROJECT LOCATION

CHAPTER II

WATER QUALITY CONTROL

Sewage disposal is closely regulated in the State of California. Waste disposal and waste water reclamation planning in the Borrego Valley area must be consistent with the plans and policies of the California Regional Water Quality Control Board, Colorado River Basin Region, on the State level and with the regulations of the San Diego County Department of Public Health on the local level. Waste discharge requirements must be obtained from the Regional Board for each discharge and for each waste water reclamation project before discharge is initiated. Discharge requirements specify the water quality levels to be maintained, depending upon physical conditions and circumstances at the point of discharge. If several methods of discharge or waste water utilization are employed at a single project, requirements must be secured for each point of discharge and these requirements may differ considerably from one and other. For example, strict bacterial limits may be set for one point of discharge, whereas another will have no limit at all on the concentration of bacteria in the effluent.

While the Water Quality Control Board does not prescribe details of treatment plant design or location, it does maintain surveillance upon a discharge after its initiation, through both reports from the discharger and inspection by the Board staff. The

Regional Board is authorized to take enforcement action in case of infraction of its waste discharge requirements and when nuisances result from a discharge. Enforcement can take the form of an administratively-issued cease and desist order or action in Superior Court under civil or criminal proceedings.

SUBSURFACE DISPOSAL POLICY

California Regional Water Quality Control Boards are also empowered to permit or prohibit disposal of sewage by septic tanks and subsurface leaching from area to area within their regions. The Colorado River Basin Regional Board has adopted guidelines for regulation of subsurface disposal of sewage to define the circumstances under which sewage discharge is allowable via individual or group subsurface leaching facilities. A complete copy of the current guidelines is included as Appendix A of this report.

The guidelines point out that waste discharge requirements will be adopted for subsurface discharge of sewage from developments which contain 31 to 50 family units. Minimum criteria relating to depth to ground water, surface slope, percolation test rates and compliance with local government agency standards are set forth in the guidelines.

Proposed subsurface discharges of sewage from more than 50 family units will be prohibited unless:

(a) Each unit is located on a lot which contains at least 20,000 square feet;

(b) the sewage disposal facilities are designed to accommodate future annexation to a community sewer system; and

(c) the developer demonstrates to the satisfaction of the Regional Executive Officer that the use of the subsurface sewage disposal facilities is the only feasible means of sewage disposal as compared to

community sewage either internally or via connection to an existing community sewerage system.

SAN DIEGO COUNTY PROGRAM

The San Diego County Department of Public Health assists and advises the Regional Board in preparation and adoption of waste discharge requirements for surface discharges, waste water reclamation and subsurface discharges. Where sewage disposal by means of septic tank and subsurface discharge is permissible, a permit for each septic tank must be obtained from the County Department of Public Health in addition to the waste discharge requirements of the Regional Board. County ordinances and procedures involve performance of soil percolation tests and installation of approved types and sizes of septic tanks and leaching facilities. In cases of 30 family units or less, the Regional Board guidelines defer to local authority and the San Diego County Department of Public Health is the sole regulatory agency.

WASTE DISCHARGE REQUIREMENTS

In order to obtain waste discharge requirements permitting institution of an effluent discharge and waste water reclamation program, DiGiorgio Development Corporation or the appropriate public agency must file a report on waste discharge with the Regional Water Quality Control Board. Waste discharge requirements adopted by the Regional Board will be designed to prevent such public health, water pollution and nuisance problems as the following:

(a) Danger of infectious disease to persons, either by coming into direct contact with the sewage or from insects supported by the waste discharge;

(b) an excessive adverse effect upon the quality of the receiving water into which the waste discharge is made; for example, an increase

in the mineral levels of receiving waters to a point where the normal uses of those waters are threatened; and

(c) nuisances from such sources as odors from the treatment plant, odors from the discharged effluent, or unsightliness created by the discharge in the discharge area.

To assure against such problems as those enumerated above, waste discharge requirements adopted by the Regional Board will specify levels of water quality which must be maintained in the plant effluent and in any waters affected by the plant discharge. Waste discharge requirements may also contain prohibitions and conditions stipulating the manner in which the discharge or waste water reclamation activity is to be carried on.

In 1977, the regional water quality control boards were required by court decision to prepare an environmental impact report for each set of waste discharge requirements adopted by a regional board. It has subsequently become the practice of the regional boards to request that the discharger submit a certified environmental impact report covering the primary and secondary impacts of the waste discharge or reclamation project. Waste discharge requirements will not be issued in the absence of an environmental impact report. The regional boards are willing to accept a certified environmental impact report for a total project area (in this case, the EIR for the total Rams' Hill Country Club development), as long as the report contains an evaluation of water quality impacts.

The Regional Board's Basin Plan[1] contains water quality objectives which must be followed by the Regional Board in establishing waste discharge and water reclamation requirements.

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(1) Water Quality Control Plan West Colorado River Basin (7A), State Water Resources Control Board, California Regional Water Quality Control Board, Colorado River Basin Region, April 1975.

Water quality objectives for the ground waters of the west Colorado River Basin (7a) are set forth as follows:

Tastes and Odors: Groundwaters shall not contain taste or odor-producing substances in concentrations that adversely affect beneficial uses.

Bacteria: In groundwaters designated for use as domestic or municipal supply (MUN) the concentration of coliform organisms over any 7-day period shall not exceed a median of 2.2/100 ml.

Chemical Constituents: Groundwaters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in California Administrative Code, Title 17, Chapter 5, Subchapter 1, Group 1, Article 4, Section 7019, Tables 4-1, 4-2 and 4-3.

Groundwaters designated for use as agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use.

The discharge of wastes shall not cause concentrations of Boron to exceed 0.50 mg/l in groundwaters designated AGR.

Radioactivity: Groundwaters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in California Administrative Code, Title 17, Chapter 5, Subchapter 1, Group 1, Article 4, Section 7019, listed above.

Specific Objectives for Borrego Subarea:

Constituents	Annual Average mg/l	90th % Value mg/l
Sulfate SO4	330	750
Chloride Cl	100	250
Nitrate NO3	20	100
Fluoride F	0.6	0.9
Boron B	.1	.35
TDS	840	1,750

ASSUMED WASTE DISCHARGE REQUIREMENTS

No waste discharge requirements are now in effect at the project site, since there has been no development on the parcel of land. In the absence of waste discharge requirements, the probable nature of waste discharge requirements to be considered by the Regional Board were discussed with Mr. Arthur A. Swajian, Executive Officer, and Mr. Garry Morris, Principal Engineer of the California Regional Water Quality Control Board, Colorado River Basin Region. Based upon those discussions, the Regional Board's water quality control plan and the State Health Department's Title 22 regulations, the following assumed waste discharge requirements were drafted. Purpose of the assumed waste discharge requirements is to permit formulation of logical recommendations for handling and use of wastes from the Country Club.

It is entirely possible that, after the Regional Board has taken official action upon waste discharge requirements for the project, adopted waste discharge requirements will be somewhat different from those set out below. Since the tentative requirements are based upon the current Basin Plan and Title 22 regulations, it is not expected that the official requirements will bring about any drastic changes to the recommended plans in this preliminary engineering report.

Expressed in general terms, the assumed waste discharge requirements are as follows:

Waste Water Reclamation:

(a) Reclaimed water used for golf course irrigation shall be subject to the following requirements:

- Effective secondary treatment, as evidenced by 5 Day 20°C biochemical oxygen demand and suspended solids concentrations not in excess of 30 mg/l.

- Reclaimed water shall be clear and free of odor.

- Total dissolved solids concentrations in reclaimed water shall not exceed an annual average value of 840 mg/l and a 90 percentile value of 1,750 mg/l.

- Adequate disinfection resulting in a median number of coliform organisms not in excess of 23/100 ml at some point in the treatment process, as determined from the bacteriological results of the last 7 days for which analyses have been completed.

- Conformance with the following prohibitions:

  1. Discharges of wastes or use of reclaimed water upon lands which have not been specifically described to the Regional Board and for which valid waste discharge/water reclamation requirements are not in force are prohibited.

  2. The discharge of waste water to the surface of the Borrego subarea is prohibited.

  3. Utilization of reclaimed waste water in such a manner that would result in ponding of waste water is prohibited. (This does not include storage of reclaimed waste water in ponds.)

  4. Bypassing or direct discharges of treated or untreated liquid or solid wastes are prohibited.

  5. The waste water reclamation and sludge disposal operations shall not cause odors or other nuisances beyond the limits of the treatment plant site.

  6. Disposing of sludge by methods or at locations other than those described in the report of waste discharge or in the findings of this order is prohibited.

  7. Discharges of wastes other than domestic sewage into the sewer system are prohibited.

  8. The processing and use of reclaimed water shall not cause the production of mosquitos and other potential vectors of disease or nuisance.

- Conformance with the provisions of Title 22 of the California Administrative Code.

(b) For use of effluent to irrigate landscaping in residential areas and parks or elsewhere where there is a very high probability of public contact, State Health Department procedures provide for case-by-case review of waste water reclamation proposals. It should be anticipated that such review will result in more stringent requirements than those outlined above for golf course irrigation. For example, a coliform bacteria limitation of 2.2 organisms per 100 ml would probably be established, as well as specific limitation on reclaimed water clarity. Methodology expected to be specified for compliance with these limitations will be discussed below, along with other considerations of the provisions of Title 22.

DISCHARGE TO PERCOLATION BASINS

For a discharge to percolation basins in which the effluent is absorbed into the ground within the limits of the treatment plant site or other similar area not accessible to the public, the sewage must be sufficiently stabilized and oxidized to prevent odors either from the treatment process or from the percolation ponds. Suspended solids of sewage origin should be removed to a degree which will insure against nuisances from the percolation basins or their rapid clogging and consequent overflow. It is not expected that any bacterial limit will be specified if the public is effectively excluded from the treatment and percolation area. Therefore, with adequate fencing, no disinfection should be necessary.

Percolation of well oxidized and clarified effluent from a biological secondary sewage treatment plant would conform to the requirements just discussed.

Mineral limitations for discharge to percolation basins will be based upon the water quality objectives already described. While

the Regional Board has established an 840/1,750 mg/l TDS objective, it is expected that adopted mineralization requirements will be based upon an allowable increment above the quality of the domestic water supply. In this instance, it may be anticipated that the incremental allowance will be limited to 300 mg/l total dissolved solids. This limit can be met and even bettered if on-site regenerated water softeners are not permitted in the community.

The waste discharge requirements would also contain the above-cited prohibitions against bypassing, odors, unsightliness, production of vectors and the following prohibitions for protection of ground water quality:

- The discharge shall not:

  1. Cause the presence of coliform or pathogenic organisms in waters pumped from the basin.
  2. Cause the occurrence of objectionable tastes and odors in waters pumped from the basin.
  3. Cause waters pumped from the basin to foam.
  4. Cause the presence of toxic materials in waters pumped from the basin.
  5. Cause the pH of waters pumped from the basin to fall below 6.0 arise above 9.0.
  6. Cause the Regional Board's objectives for the ground or surface waters of the Borrego subarea as established in the water quality control plan for the West Colorado River basin to be exceeded.
  7. Cause odors, septicity, mosquitos or other vectors, weed growth or other nuisance conditions.
  8. Cause a pollution, contamination or nuisance.

To further protect the quality of ground waters being pumped for domestic supply, it is good practice to observe a minimum horizontal separation limit between the percolation beds and operating domestic water supply wells. The Regional Board will take this separation into account when processing the request for waste discharge requirements. Moreover, the State Health Department and San Diego County Department of Public Health will pay particular attention to the proximity of percolation beds and domestic water supply wells in their evaluations of the water supply and sewage disposal systems for Ram's Hill Country Club.

After consultation with State Health Department engineers, a minimum horizontal separation of one-quarter mile between sewage effluent percolation beds and active domestic water supply wells was selected as an appropriate parameter for this study.

DISCHARGE TO BORREGO SINK

For a direct discharge to Borrego Sink, waste discharge requirements comparable to those for golf course irrigation may be anticipated. Bacteriological limits would be similar to protect persons who may come in contact with the effluent but the requirement of daily bacteriological sampling required under (a) and (b) above probably would not apply to this type of discharge because of the remoteness of the sink. Since ground waters underlying desert sinks are invariably saline, the Regional Board would set no mineralization requirements. However, because of loss of water, a direct discharge to a sink is regarded as a last-resort practice by the Regional Board and is actively discouraged for that reason.

TOXIC AND HAZARDOUS WASTES

The above assumed waste discharge requirements are based upon a strictly domestic sewage flow, containing no toxic ingredients such as might be added to the system by an industrial plant. In fact, it is quite likely that the waste discharge requirements established by the Regional Board will prohibit the handling and discharge of industrial wastes or RV holding tank contents through any part of the system.

TITLE 22 CALIFORNIA ADMINISTRATIVE CODE

Since preparation of the 1973 report, the California State Department of Health has revised its Waste Water Reclamation Criteria (California Administrative Code, Title 22, Division 4) by adding reliability requirements. These requirements specify particular treatment methodologies and the details of facilities needed to assure safe operation from the point of view of protecting the public health. Depending upon the type of use being made of the reclaimed water, the revised criteria could increase the complexity of reclaimed water processing.

Table II-1 has been prepared to summarize Title 22 treatment and quality requirements for the different types of reclaimed water use. The table presents public health standards both from the point of view of requirements for the categories of use and the uses that may be made with various qualities of reclaimed water.

Reliability provisions of Title 22 center about flexibility of design, provision of emergency storage, multiple treatment units, standby treatment units and equipment, alarms, standby power, and specialized chlorination functions. Generally, the regulations require one or more of the following reliability provisions:

TABLE II-1

TREATMENT METHODS AND DISINFECTION REQUIREMENTS FOR RECLAIMED WATER

TREATMENT COMPARED TO WATER USE

TITLE 22, CALIFORNIA ADMINISTRATION CODE SETS THE REQUIREMENTS FOR RECLAIMED WATER USE. SUMMARIZED EXCERPTS FROM THE CODE FOR HEALTH CONSIDERATIONS RELATING TO PATHOGENS ARE AS FOLLOWS:

Article 2 - Irrigation of Food Crops
- Spray Irrigation - 2.2/100 median, 23/100 once/30 days coagulated, clarified, filtered
- Surface Irrigation Orchards & Vineyards - 2.2/100 median -- oxidized
- primary, no coliform

Article 3 - Irrigation of Fodder, Filter, and Seed Crops
- Fodder, filter, seed crops - primary
- Pasture for milking animals - 23/100 median -- oxidized

Article 4 - Landscape Irrigation (Public Access)
- Golf courses, cemeteries, lawns, parks, playgrounds, freeways - 23/100 median -- oxidized

Article 5 - Recreational Impoundments
- Non restricted Recreational Imp. (swimming) - 2.2/100 median, 23/100 once/30 days - coagulated, clarified, filtered
- Restricted Recreational Imp. (fishing, boating) - 2.2/100 median -- oxidized
- Landscape Impoundment (no public contact) - 23/100 median -- oxidized

ANOTHER WAY TO LOOK AT THE REQUIREMENTS IS RELATE THE LEVEL OF TREATMENT TO WATER USE ALLOWED. THIS IS SHOWN IN THE FOLLOWING TABLE.

TREATMENT	WATER USE
TERTIARY Coagulated, settled, filtered 2 turbidity units coliform: 2.2/100 median 23/100 once/30 days	Spray irrigation of flood crops non-restricted recreational impoundments (allows swimming)
SECONDARY Oxidized High performance reliable disinfection coliform: 2.2/100 median	Surface irrigation of food crops restricted recreational impound-ments (allows boating and fishing)
SECONDARY Oxidized Average performance coliform: 23/100 median	Pasture for milking animals, landscape irrigation (for lawns, parks, playgrounds, golf courses)
PRIMARY 1/2 ml/l/hr. settleable solids	Orchard & Vineyard surface irrigation, fodder, fiber & seed crops

(a) Alarm and multiple treatment units capable of continued production with one unit out of operation;

(b) alarm and short-term retention or disposal facilities, and standby replacement equipment;

(c) alarm and long-term storage or disposal provisions;

(d) automatically actuated long-term storage or disposal provisions.

In the event of reclamation plant failure, short-term detention of untreated or partially treated waste water would be accomplished by means of a tank or pond with capacity to hold the full flow of waste during a 24-hour period. It is assumed that during this time the reclamation plant operator will be able to make repairs, using standby replacement equipment stored on the plant site. For example, the health department could designate certain pumps and motors as being critical to the reclamation process; replacement units would have to be available on the plant site and could be installed within the 24-hour period. After the plant is returned to operational condition, contents of the holding tank could then be bled back into the plant for treatment and reclamation along with the normal daily flow.

If the agency managing the reclamation plant does not care to maintain an inventory of standby spare parts and machinery, long-term emergency storage for raw or partially treated waste water may be selected for an alternative. Long-term detention facilities would have capacity to store the entire waste water flow produced during a 20 consecutive day period. It is assumed that during this time the plant operator will be able to procure needed repair parts from the manufacturer or other outside source or otherwise correct the problem causing inadequate treatment. Just as with short-term detention, stored wastes would have to be routed through the plant for treatment before use.

As an alternative to short-term and long-term storage, a back-up method of discharge not involving direct waste water reclamation

would meet the requirements of Title 22. Planned percolation into the ground would be an acceptable back-up method of discharge and would eliminate the need for the reliability provisions listed in (a) through (b) above. Percolation capacity would have to be great enough to match the design capacity of the waste water reclamation plant.

Reliability specifications applying to disinfection equipment used as part of reclaimed water processing facilities require duplication of the chlorination machinery. In addition, a high degree of automation is required: automatic devices for switching to full chlorine cylinders, automatic control of chlorine dosage, and automatic measuring and recording of chlorine dosage.

After determining a method of compliance with Title 22 requirements, the producer of reclaimed water must file an engineering report with the Regional Water Quality Control Board, describing the design of the proposed system. The report must contain a contingency plan which will assure that no untreated or inadequately treated waste water will be delivered to the use area.

Where reclaimed water is used for golf course irrigation, bacteriological samples must be collected for analysis on each day of reclaimed water use. Reclamation plant records must include analytical results, operational problems, plant and equipment breakdowns, diversions to emergency storage or disposal, and all corrective action taken.

An additional provision of Title 22 regulations relating to protection of ground water is the following:

> 60320. Ground Water Recharge. Reclaimed water used for ground water recharge of domestic water supply aquifers by surface spreading shall be at all times of a quality that fully protects public health. Such determination will be made by the

State Department of Health on an individual case basis, considering relevant factors such as effluent quality and quantity, spreading area operations, soil characteristics, hydrogeology, residence time, and distance to withdrawal.

Health Department policy has been to discourage recharge of municipal water supply aquifers with reclaimed sewage where the reclaimed sewage makes up a major fraction of the water recharging the basin. Because of its concern about the effects of trace amounts of stable organic chemicals upon human health, the Department has indicated that until additional information is obtained, new projects involving recharge of aquifers used or intended to be used as a source of water supply for domestic purposes will be limited to selected demonstration projects. Treatment and monitoring requirements will be stringent; in addition, reclaimed water must remain in the underground basin for a minimum time period of one year prior to withdrawal from a community water supply well.

Since the usable water supply aquifer underlying Ram's Hill Country Club lies to the south of the Desert Lodge anticline (Burzell), location selected for the percolation basins north of the anticline will conform to Section 60320.

CHAPTER III

SEWAGE DISPOSAL AND WASTE WATER RECLAMATION

SEWAGE DISPOSAL

Under California law, sewage must be disposed of without hazard to the public health, creation of water pollution or maintenance of a public nuisance. Discharge of sewage in conformance with the plans and policies of the State and local regulatory agencies, particularly the waste discharge requirements of the Regional Water Quality Control Board, will assure that these objectives are met. The assumed set of waste discharge requirements in Chapter II of this report are considered a reliable basis for preliminary engineering of facilities that will prove acceptable to both regulatory and operating agencies.

Sewage effluent may be disposed of or reclaimed for further use. In the former case, the effluent is discharged in such a manner that it is of no further use to the discharger or any party under contract to him. Any additional use made of the water is not planned in advance and is incidental to the discharge. Thus, any enhancement of the water resource that may occur is unintentional. Locally, a discharge to the Borrego Sink could be classified as disposal. Discharge of effluent for disposal is an acceptable practice, which can be accomplished in conformance with waste discharge requirements, i.e., without

creating the aforementioned public health hazards, water pollution, or nuisance.

As pointed out in the previous chapter, the Regional Board considers discharges without possibility of further use to be wasteful of water. Therefore, disposal to the Borrego Sink is considered a last-resort alternative and waste water reclamation is strongly encouraged.

WASTE WATER RECLAMATION

Waste water reclamation involves deliberate use of sewage effluent for beneficial purposes, thereby achieving two or more uses of every gallon of water passing through the cycle. Waste water reclamation is not a new concept to desert areas. Where water resource budgets are limited, the opportunity to put a given quantity of water to use more than one time is naturally accepted as not just proper but as mandatory.

Waste water reclamation takes a number of forms: direct reuse of effluent for irrigation of crops, golf courses, landscaping, parks, and similar areas; maintenance of decorative lakes and ponds; direct percolation into the ground by means of spreading basins for ground water recharge; delivery to industry for process supply or cooling water. As pointed out in Chapter II, standards and requirements that must be met vary for different types of reclaimed water uses. While it is technically possible to meet even the most stringent standards, the dollar and energy costs of producing reclaimed water can become excessive when such processes as coagulation/sedimentation, carbon absorption or desalting must be employed. Therefore, the objective of waste water reclamation at Ram's Hill Country Club should be to establish a program which is both satisfactory to the regulatory agencies and economical. Use of reclaimed water for golf course irrigation can satisfy both of these goals.

The Colorado River Basin Regional Water Quality Control Board strongly encourages reclamation of waste water within the Region. As a result, use of reclaimed waste water to replace potable water which would otherwise be consumed in irrigating golf courses has become fairly common in the desert. However, there is a lower limit of economic feasibility for such waste water reclamation practices as golf course irrigation, because of the stringency of waste discharge requirements, Title 22 provisions and the costly nature of daily bacteriological monitoring programs. The latter will cost at least $30 a day for collection and delivery of the sample from Borrego Springs to a commercial laboratory.

If a volume of about 300,000 gallons per day is being reclaimed for golf course irrigation, monitoring expenses increase reclaimed water cost by at least $30 per acre foot. Added to that amount is the cost of extra chlorination and any other treatment which may have to be performed. At small volumes of effluent output it is often much less expensive to use potable water exclusively for golf course irrigation and to help replenish ground water supplies by planned percolation of the effluent that would otherwise be used for golf course irrigation.

In his experience, Regional Board Executive Officer Swajian indicates that desert golf course irrigation begins to become economically feasible when an assured volume of about 100,000 gallons per day of reclaimed water is available. At that volume, the Regional Board would begin to insist that effluent water be put to some such beneficial use as irrigation.

CHAPTER IV

WASTE WATER RECLAMATION PLANNING FOR RAM'S HILL COUNTRY CLUB

PROJECT DESCRIPTION

As described in the Initial Plan Conformance Report[1], the five-year program for Ram's Hill Country Club applies to 2,153 acres. Initial phase development will take place on 431 acres; a golf course occupying an additional 160 acres will be constructed; 1,562 acres will be dedicated to undeveloped open space. The balance of the 3,124 acre parcel, some 961 acres, is not included in initial phase planning.

A central feature of the Plan is a resort hotel and a medical diagonostic center, developed in conjunction with an 18-hole golf course and tennis facility. The hotel complex would consist of a three-story hotel having 350 rooms and the usual support functions including restaurants, conference rooms and boutiques.

The Plan proposes development and operation of a diagnostic clinic as an adjunct to the hotel-resort operation. While the size of the clinic has not yet been determined, it will be

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(1) Toups Corporation, February 1978.

considered equivalent to a 25-bed hospital in estimating sewage flows for the purposes of this report.

Residential development would emphasize high-quality second home development consistent with resort orientation. Three types of residential development are proposed: 530 villas in three planned residential developments, 200 single family detached units on lots of approximately one-third acre and 50 two-acre estates.

While percolation tests have not yet been performed in the area set aside for two-acre estates, borings indicate that the upper layers of the soil are made up of medium dense, dry, light gray-brown silty coarse to fine sand. It will therefore be assumed that the estate development will conform to the subsurface discharge requirements of the Regional Board and standards for sewage disposal from individual homes of the San Diego County Department of Public Health. Based upon this assumption, the estate parcels will be omitted from planning for public sewerage facilities.

Table IV-1 is taken from the Initial Plan Conformance Report and presents a summation of the Specific Plan for land use at Ram's Hill Country Club. A total of 780 dwelling units and 350 hotel rooms/suites is shown. Public sewers would be provided for 730 dwelling units, 350 hotel rooms/suites, the diagnostic clinic and a fire station. Sewage production of the golf and tennis clubs and hotel restaurant will be included in the estimate for the hotel complex.

TABLE IV-1

RAM'S HILL COUNTRY CLUB
SPECIFIC PLAN LAND USE

LAND USE	ACRES SUB-AREA/TOTAL	PERCENT OF SITE	DWELLINGS SUB-AREA/TOTAL	DENSITY (GROSS)	HOTEL SUITES
Clinic	12	.5			
Hotel Complex	40	1.9			350
Area A	20				200
Area B	7				75
Area C	7				75
Tennis Courts	6				75
Villas (PRDs)	102	5.	530	5.2	
Villas (Area D)	17		88		
Villas (Area E)	36		190		
Villas (Area F)	49		252		
SF Detached (1/3 AC)	127	5.5	200	1.6	
Estates (2 AC)	124	5.5	50	.4	
Golf Course	160	7.5			
Undeveloped Open Space	1,562	73.			
Fire Station	3	.1			
Water Reclamation Facility	20	.9			
Public Roads	3	.1			
TOTAL (Specific Plan Area)	2,153	100%	780	.366	350
NOT A PART	971				
TOTAL OWNERSHIP	3,124				

NOTE: Areas designated "Not a Part" are subject to future detailed planning consistent with the requirements of General Plan Amendment 76-02 and Exhibit C-9 of that amendment identifying locations for development.

SEWAGE PRODUCTION AND CHARACTERISTICS

Table IV-2 presents a summary estimate of sewage production in those units connected to the public sewer at the end of the first five-year Specific Plan period. Total estimated sewage production is 224,000 gallons per day. Waste water treatment and reclamation facilities would therefore be sized to process an average daily flow of 250,000 gallons per day.

TABLE IV-2

ESTIMATE OF SEWAGE PRODUCTION (1)

	Number of Units	Factor	Sewage Flow GPD
Hotel Complex 350 Rooms and Suites		100 GPD/Room	35,000
Clinic	25 Beds	250 GPD/Bed	6,250
Villas	530 DU's	250 GPD/DU	132,500
Single Family Detached (1/3 Acre)	200 DU's	250 GPD/DU	50,000
Fire Station	1	250 GPD	250
Average Daily Sewage Flow, Total			224,000 (2)

(1) Applies only to area planned for service by public sewer. Excludes estate lots.

(2) Rounded out to 250,000 gallons per day. Waste water treatment and reclamation facilities would therefore be sized to process an average daily flow of 250,000 gallons per day.

It has been assumed that domestic sewage production will amount to 250 gallons per day per single family dwelling unit, a level generally accepted for residential sewage production among communities in the San Diego County area. Based upon a per capita domestic sewage production of 70 gallons per person per day, use of the 250 gallon per day per dwelling unit factor introduces a modest factor of safety into facilities design. Sewage

production factors selected for the hotel complex and the diagnostic clinic are standard factors in general use for such facilities.

Since Phase I encompasses development of approximately 50% of the project land area, it is logical to expect at this point that development of Phase II will increase sewage flow to 500,000 gallons per day.

Seasonal variations in the rate of occupancy are expected in the new development, much the same as typically occur in the community of Borrego Springs. During the winter, 100 percent occupancy is expected to prevail over a three or four month period. Summertime occupancy may drop as low as between 10 and 20 percent for four months, since many of the residences will be used as "second" homes. Thus, sewage flows may drop below 50,000 gallons per day during the desert summer, while achieving high flows of 250,000 gallons per day during the milder winter months.

Peak to average flow ratios will be about 2.75 to 1, bringing peak instantaneous flow rates of 687,000 gallons per day or 477 gallons per minute at completion and full occupancy of the first five-year plan. Summer peak flow rates would be reduced to approximately 123,000 gallons per day or 86 gallons per minute. Fall and spring sewage volumes will be intermediate values, rising and declining with arrival and departure of winter residents and visitors. It should be borne in mind that sewage flows will rise gradually over the five-year period and the volumes referred to will not be achieved until the five-year program is fully implemented.

It will be assumed that the five-day 20°C biochemical oxygen demand and the suspended solids concentration of the raw sewage will each average about 275 mg/l, both representative values for the San Diego County area. At full flow, average five-day

20°C biochemical oxygen demand and suspended solids loadings will each total approximately 550 pounds per day at full winter occupancy, dropping to approximately 110 pounds per day in summer.

It will also be assumed that the mineral quality of the potable water supply distributed will be about 500 mg/l total dissolved solids, although better quality water will probably result from blending of well waters from various locations on the property. Provided that on-site regeneration of water softeners is prohibited in any home connected to the public sewer, as well as in the hotel complex and diagnostic clinic, the increase of total dissolved solids in the sewage (and therefore the reclaimed water) can be limited to between 250 and 300 mg/l. Consequently, a reclaimed water salinity not in excess of 800 mg/l total dissolved solids can be predicted. Should control over on-site water softener regeneration not be exercised, reclaimed water salinity can be expected to increase to over 900 mg/l.

Table IV-3 presents a summary of significant sewage characteristics used in this report.

TABLE IV-3

SEWAGE CHARACTERISTICS

Sewage Production, Gallons Per Dwelling Unit Per Day	250
Peak to Average Flow Ratio	2.75 to 1
Winter/Summer Flow Ratio	5 to 1
Five-Day 20°C Biochemical Oxygen Demand, mg/l	300
Suspended Solids, mg/l	300
Total Dissolved Solids Increment, mg/l	250 to 300*

*Requires Regulation of On-Site Regeneration.

WASTE WATER PLANNING

At complete development and occupancy of the Ram's Hill Country Club five-year Specific Plan facilities, it is expected that sewage flow will total 250,000 gallons per day during those months of the year when population is at its highest. Whatever type of sewage treatment is used, sufficient capacity must be provided to meet this peak load, even though it may occur only periodically. Because of the short time span projected for buildout under the Specific Plan, it does not appear practical to consider phased installation of the initial waste water treatment/reclamation facilities. Moreover, phased installation may result in considerably higher cost when small increments of capacity are added within a relatively brief time frame.

On the other hand, the seasonal fluctuations of population typical of Borrego Valley call for care in planning of sewage treatment facilities. Staging of treatment units, although more costly, could help in alleviating treatment problems which might result from the wide variations in sewage flow between summer and winter months. Similarly, construction of a full size treatment facility with parallel treatment trains which may be placed in and out of service as flow fluctuates could also help alleviate treatment problems. The latter expedient is likely to be less costly than staging but more costly than construction of a single train treatment plant.

Considerable attention was devoted to the anticipated sewage flow variation problem in the 1973 Report. It was concluded that the oxidation pond method of sewage treatment could best be adapted to the flow variability anticpated at Borrego. After review of several approaches to oxidation pond design and operation, a combination aerated pond-faculatative pond method of treatment was recommended. Phase I facilities would consist of a 0.2 acre aerated pond and a 0.75 acre facultative pond,

giving three days of complete mix and 10.9 days of polishing. Cost of the 87,500 gallon per day capacity facility, including percolation beds, disinfection and effluent pumping was estimated at $292,500. Land requirement was set at 8.5 acres, with eventual expansion to an ultimate 20 acres.

During more recent contacts, members of the staff of the Regional Board have indicated their concern about operation of oxidation ponds in the desert areas. While ponds function quite well for sewage stabilization, high evaporation rates experienced during a large portion of the year concentrate mineral salts contained in the sewage, thereby increasing the salinity of plant effluent. There have been a number of instances in which this process has increased effluent salinity to levels above those acceptable to the Regional Board. Consequently, dischargers have been found in violation of mineral limitations contained in waste discharge requirements. Adoption of specific water quality objectives for ground waters within the region has apparently focused attention upon this problem.

The following example is presented to illustrate the Regional Board's concern about the possibility of using oxidation ponds to produce reclaimed water in the Borrego Valley. Peak summer evaporation rate at Borrego is 16.5 inches per month[2] amounting to 426,000 gallons in the 0.95 acre oxidation ponds. At design flow, approximately 525,000 gallons would enter the oxidation ponds during the same period. As a consequence of evaporation, the 99,000 gallons of effluent leaving the ponds during the 30 day period could have a salinity in excess of 4,500 mg/l TDS. Because of its poor quality, such effluent could not be reclaimed for such purposes as irrigation and would present a potential threat to ground water quality.

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(2) "Climatological Data for California" National Weather Service.

In recent years, the trend in designing sewage treatment facilities for desert communities has tended to be away from oxidation ponds. While the Regional Board will not dictate the design of the treatment facilities to be provided for Ram's Hill Country Club, the Board may enforce its waste discharge/waste water reclamation requirements through cease and desist orders, limiting new connections or taking action in court. Moreover, the Board staff has had many years of experience with operation of sewage facilities in the desert and are highly qualified to advise in this area. Under the circumstances, the concept of using oxidation ponds for treatment should be set aside in favor of a method less prone to bring about mineralization of sewage flows.

OXIDATION DITCH TREATMENT

The oxidation ditch is a method of secondary sewage treatment that has been employed in Europe for the past quarter century but has only recently gained recognition in the United States. It utilizes a modified form of the activated sludge process, much like the extended aeration process described in the 1973 report. However, the oxidation ditch incorporates features which tend to make it more adaptable to the flow variation problem expected at Borrego.

Figure IV-1 presents a schematic representation of the treatment process in an oxidation ditch type of plant. After comminution, metering and grit removal, the raw sewage is introduced into a treatment channel. As shown, the channel or oxidation ditch is normally an elongated oval or "race track" in plan view. Cross section of the ditch in smaller installations is usually trapezoidal but vertical sidewalls may also be used. Construction is of compacted earth with a poured concrete or gunite concrete liner. Depending upon the size of the plant, ditch widths may vary from less than 12 feet to more than 25 feet. Maximum depth is about 10 feet.

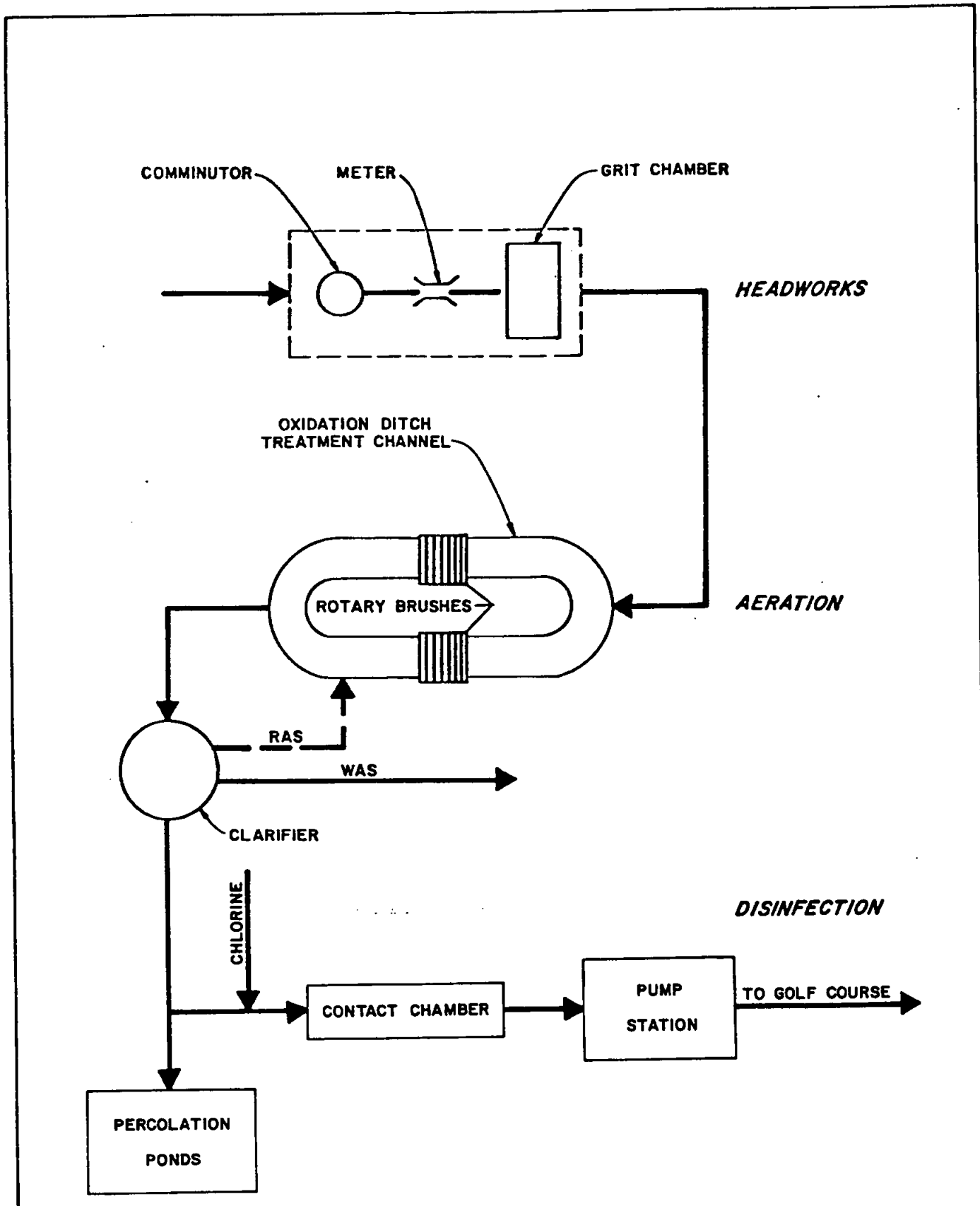


FIGURE IV-1
SECONDARY TREATMENT FACILITIES

After comminution, metering and grit removal, raw sewage is introduced into the treatment channel. The contents of the channel are constantly agitated and aerated by high-speed rotary mixers (brushes) so that an activated sludge culture is maintained in the sewage as it moves about the oval aeration ditch. After a minimum of 24 hours of treatment in the ditch, sewage flows to a clarifier, where gravity settling removes the flocculated sludge. Clear effluent from the clarifier next enters the disinfection unit while activated sludge is recycled to the oxidation ditch. Waste activated sludge may be taken directly from the clarifier for drying in solar beds, after which the sludge may be reclaimed for soil conditioner.

The relatively larger water/air interface of the oxidation ditch and its shallow depth permit mixing and aeration of sewage at about one-half the energy demand of more conventional systems. In addition, the water surface elevation within the ditch may be raised and lowered to accommodate treatment capacity to changing sewage loadings. The latter feature may be utilized to compensate for the low flow periods at Borrego, while at the same time effecting a further savings in energy. Table IV-4 presents design and operating characteristics of the oxidation ditch activated sludge process.

TABLE IV-4

DESIGN AND OPERATIONAL CHARACTERISTICS

Oxidation Ditch	
BOD(1) Removal, Percent	90 to 95
Suspended Solids Removal, Percent	90 to 95
BOD Loading, Pounds/1,000 cu. ft./day	9 to 15
Food to Organism Ratio, Pounds/Pound MLVSS	0.03 to 1
Oxygen Requirement, Pounds/Pound BOD	2.35
Minimum Detention, ADDWF, Hours	24
Energy Requirement, KWH/Pound DO	0.2 to 0.25
Final Clarifier	
Surface Loading, Gallons/sq.ft./day	600
Solids Loading, Maximum, Pounds/sq.ft./day	45
Detention, Hours	3

(1) 5-Day 20°C Biochemical Oxygen Demand

WASTE WATER RECLAMATION/EFFLUENT DISPOSAL

In keeping with the desert location of Ram's Hill Country Club, all sewage effluent produced by the community should be reclaimed for beneficial use to the maximum extent feasible. The treatment and disinfection facilities described above constitute an acceptable process train for certain types of waste water reclamation activities, including golf course irrigation. The 160 acre golf course contemplated for Ram's Hill will have an irrigation demand in excess of the effluent flow at the end of the five-year planning period. During normal years, the golf course will be able to accept the full output of reclaimed water on virtually a year-round schedule. Thus, golf course irrigation is a logical choice for reclamation of the waste water to be produced.

The waste water reclamation system would be set up to deliver disinfected reclaimed water meeting the bacteriological standards of Title 22 to the golf course via a pressure pipe line. The reclaimed water would enter one of the golf course ponds, where it would be commingled with potable water and stored for use. Samples of reclaimed water would be collected and analyzed daily for bacterial quality, in conformance with the provisions of Title 22.

It should be recognized that there will be periods of time and circumstances under which disposal is more logical than reclamation. The impracticality of reclaiming sewage before average daily flow reaches 100,000 gallons per day has already been explained. In addition, even at design flow, it is expected that summertime sewage flows will not exceed 100,000 gallons per day, making waste water reclamation impractical during periods of low occupancy. Furthermore, there may be periods during which equipment malfunctions result in an effluent that does not conform to reclamation standards, e.g., breakdown of the disinfection process because of a shortage of chlorine.

As an alternative to waste water reclamation, percolation ponds would be provided for disposal of effluent into the ground. To the extent possible, the percolation ponds should be located in or north of the Desert Lodge anticline to isolate the recharge operation from the potable water aquifer. At the same time, the soil in which the percolation beds are located must have sufficient permeability to permit the effluent to percolate into the ground at a fairly high rate.

Soil borings conducted on the site[3] indicate approximately five feet of medium dense, dry, light brown silty medium sand with caliche material overlying very dense light green-brown silty fine to coarse sand with clay binder at the waste water reclamation plant location. Presumably the soil column at the location of the waste water reclamation plant would have a limited percolation capacity and is not suitable for effluent disposal into the ground. However, a bore hole some 2,000 feet northwest of the plant site revealed a soil column of 12 feet of medium dense light gray-brown coarse to fine sand with pebbles overlying approximately three feet of dense gray-green coarse to fine sand with clay binder overlying sand and gravel. Subject to verification by actual percolation tests, the latter site is considered far more favorable as a location for percolation basins and, as shown on Figure IV-2, is tentatively selected as the percolation site.

Size and design loadings of percolation basins would be determined as a result of the aforementioned percolation tests, which would be performed as part of the detailed design study. In any event, the beds would be conservatively designed to accept an average daily flow of 250,000 gallons per day on a continuing basis, with provisions for load-and-rest cycles to assure reliability of operation.

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(3) Preliminary Engineering, Geological and Soil Investigation for the Proposed 3,000 Acre Borrego Development, Woodward-Gizienski and Associates, July 1973.

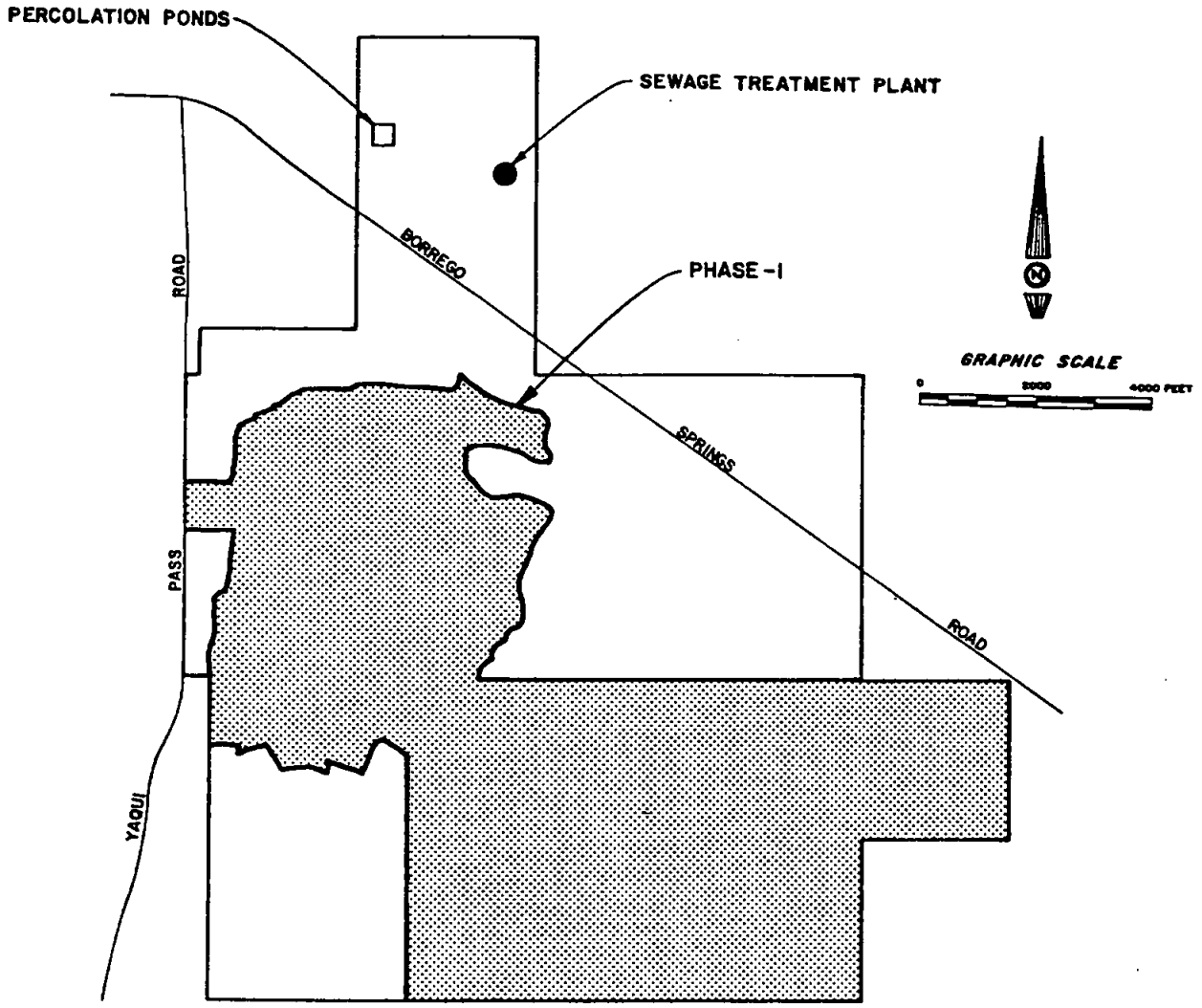


FIGURE IV-2
RAM'S HILL COUNTRY CLUB
INITIAL PLAN AREA

At the site shown on Figure IV-2, the percolation beds would be located more than one-quarter mile from the nearest well site intended for public water supply production. In addition, the infiltration area would be north of the Desert Lodge Anticline, which will afford the additional protection of a subsurface barrier.

The percolation beds would be well isolated and screened from public view. Moreover, the location is amenable to gravity flow from the waste water reclamation plant, an important consideration in meeting the Title 22 requirements. In the final analysis, it may be decided to place the waste water reclamation plant adjacent to the percolation beds in order to consolidate operations. Thus, three potential sites may be considered for the reclamation facility: (1) the location as shown on Figure V-2, (2) a location closer to Borrego Springs Road, economic advantages of which will be explained below, and (3) adjacent to the percolation bed site.

PLANT LOCATION

Topography of the Ram's Hill parcel is almost ideally suited for the installation of a sanitary sewer system. Virtually the entire area proposed for service by public sewer can be linked together in a single gravity sewer system with little or no pumping. (Estate lots are excluded from the area to be served by public sewer.) Depending upon the location selected for the sewage treatment plant, virtually all of the raw sewage may be conducted into the plant by gravity. Avoidance of pumping stations not only reduces construction and operating costs, but also increases the reliability of the system, reduces maintenance problems, makes the sewage easier to treat and reduces possible odor problems.

Figure IV-2 demonstrates the gravity service area possible by locating the plant near the extreme northerly boundary of the

property, north of Borrego Springs Road. The entire specific plan area can receive gravity service into the plant. Lots in the immediate vicinity of the treatment facility would have to be served through a small pumping system, since the main trunk sewer entering the plant would be quite shallow in the area to achieve gravity flow. As an alternative, the trunk could be buried to a normal depth of seven feet and a low head pumping station could be installed to lift the total flow into the plant.

As long as the reclamation plant is located at an elevation between 480 and 500 and is protected from runoff, its precise location within the northerly portion of the property will not cause significant differences in system characteristics. Land requirements for the treatment facilities will be considerably less than those of the previously recommended aerated oxidation ponds, in this case not more than five acres exclusive of percolation pond area. As discussed in the previous section, past soils studies on the property indicate that the soil column in the immediate vicinity of the reclamation plant site may not have the degree of permeability desired. For that reason, percolation beds are shown to be located approximately 2,000 feet to the west of the plant site, where borings have indicated the possibility of a more open soil. Relocation of the proposed reclamation site to a point adjacent to the proposed percolation bed site would achieve the benefit of consolidating operational components and would not have any adverse effect upon the system.

As the waste water reclamation plant is moved north on the property and away from the center of development, its construction costs will increase. A longer raw sewage influent trunk line must be constructed, as must a longer force main to convey reclaimed water back to the golf course. Similarly, the cost of extending underground electrical service and providing potable

water supply to the plant become greater. A longer all-weather access road to the plant site must be constructed at higher cost. These considerations may make it desirable to locate the plant closer to Borrego Springs Road, even though an influent pumping station may have to be installed.

The type of treatment system contemplated is odor free and, with the exception of the control building, all of the units have a ground level-profile. Noise production is very low. Therefore, the reclamation plant is capable of being a good neighbor to neighboring land uses, since it can be easily increased from view by landscaping and will not produce nuisances.

CHAPTER V

COST ESTIMATE

DESCRIPTION OF FACILITIES

A cost estimate was performed for an oxidation ditch type of sewage treatment/waste water reclamation facility for production of golf course irrigation water, with alternative disposal via percolation beds. The cost estimate provides for a Phase I waste water reclamation plant with 250,000 gallons per day average daily flow capacity, expandable to 500,000 gallons per day in a later stage. The facility may be described as follows.

Capacity

Design Flow - 250,000 gpd
Peak Flow - 750,000 gpd

Waste Water Strength

BOD[1] Concentration	-	300 mg/l
Suspended Solids Concentration	-	300 mg/l
BOD[1] Loading	-	630 lb/day
Suspended Solids Loading	-	630 lb/day

Headworks

Comminuter with Bypass Bar Screen
Metering Flume

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(1) 5-Day 20°C Biochemical Oxygen Demand

Oxidation Ditch

Volume

(250,000 gpd)(1 Day) = 250,000 gallons or 33,425 cu. ft.

Air Requirement

Nitrification will occur; provide 2.0 pounds of oxygen per pound of BOD per day.

1,260 pounds of oxygen per day

Size aerators for a capacity of 2.4 pounds of oxygen per pound of BOD per day = 1,500 pounds of oxygen per day.

Brush Size

Use two brushes - 42-inch diameter operating at 55 rpm with 10-inch immersion.

Length of Brush = 10.8 feet
Use two 12 feet by 42-inch Diameter Brushes
Brake Horsepower = 15 per brush

Channel Dimensions

Channel Width at Water Line	- 24 ft. 0 in.
Channel Width at Bottom	- 8 ft. 0 in.
Channel Depth	- 8 ft. 0 in.
Side Slopes	- 1 to 1
Volume of Channel/foot	- 128 cu. ft./foot
Channel Length	- 261 ft.
Straight Section Length	- 100 ft. 0 in.

Secondary Clarifier

Overflow Rate	- 600 gallons/sq. ft./day
Area	- 417 sq. ft.
Diameter	- 24 ft.
Detention Time	- 3.2 Hours

Disinfection

Disinfection Process - Chlorination
Provide one Hour Contact Time at Average Daily Flow
Volume of Contact Tank - 1,393 cu. ft.
Side Water Depth - 5 ft.
Area - 280 sq. ft.
Chlorine Usage at 10 mg/l Application Rate - 21 lb/day
Provide two 100 lb/day Chlorinators

Percolation Ponds

Based on U.S.S.C.S. soils maps for San Diego County, use a percolation rate of one foot per day. (Should be verified in field by percolation testing.)

Flow Volume - 0.77 Acre feet/day
Area Requirement - 0.77 Acres
Use 2 to 1 Safety Factor; Provide 1.54 Acres
Net Surface of Percolation Beds - 2 Acres (Tentative)

Reclaimed Water Pumping

Peak Flow - 0.75 MGD = 525 GPM
Use two 525 GPM Vertical Turbine Pumps

Sludge Production

MLVSS	- 2,000 mg/l
MLSS	- 2,500 mg/l
MCRT	- 25 Days
Pounds of MLSS	- 5,212 Pounds
Sludge Production	- 210 lb/day
Sludge Volume @ 5% Concentration	- 5,040gpd

Aerobic Digester

Provide 5-day Hydraulic Residence Time
Volume - 25,000 gallons or 3,400 cu. ft.
Use 10-ft. SWD x 21 ft. Diameter Aerobic Digester
Aerator - 3 HP Floating Aerator

Sludge Drying Bed

Provide 1.0 sq. ft. of Area/Capita/Day
Use two 60 ft. x 40 ft. Drying Beds

In addition to the cost of constructing the items described above, the estimated cost of the waste water reclamation facility must include the following items: extension of the raw sewage trunk sewer from Borrego Springs Road to the plant site, effluent gravity pipe to percolation beds, extension of electrical service to plant site, extension of potable water supply to plant site and construction of service road from Borrego Springs Road to plant site. These additional items will be accounted for in the cost estimate presented below.

Not included in the cost estimate are the following items: influent pump station, standby power and aerobic digester. The preliminary study of the topography of the project area indicates that flow may be brought into the plant by gravity, thereby eliminating the need for a raw sewage pumping station. Since effluent will automatically flow to the proposed percolation basins during any power outages, the need for standby power is not evident. (Reclaimed water pumps must have manual rather than automatic reset provisions to avoid pumping inadequately treated waste water to the golf course irrigation system after a power outage.) The aerobic digester would not be installed unless dewatering, odor or insect problems are encountered with the stabilized sludge as it comes from the oxidation ditch.

COST ESTIMATE

The following cost estimate is based on prevailing sewage treatment plant construction costs in Southern California in 1978, and uses an ENR Index level of 2,700. It contemplates construction of a complete sewage treatment/waste water reclamation plant, capable of producing effluent satisfactory for golf course irrigation or for percolation into the ground. Initial capacity is 250,000 gpd, average daily dry weather flow. The plant would be adapted for later expansion to a capacity of 500,000 gpd, average daily dry weather flow. Costs shown are for Phase I construction of a 250,000 gallon per day facility only.

COST ESTIMATE SUMMARY

Influent Sewer Borrego Springs Road to plant, 2,300 linear feet of 15-inch diameter gravity pipe	$ 69,000.00
Site Work Clear and grade, on-site paving, fencing	36,000.00
Maintenance and Chlorine Storage Building 2,500 sq. ft.	50,000.00
Headworks Excavation and backfill, concrete work, comminutor, flume	22,000.00
Oxidation Ditch Excavation and backfill, concrete work, two brush aerators	107,000.00
Secondary Clarifier Excavation and backfill, concrete work, equipment	34,600.00
Chlorination Facilities Excavation and backfill, concrete work, chlorinators, hoist, safety equipment	27,300.00
Return Sludge Pumping Station Lump sum	40,000.00
Solar Sludge Drying Beds Excavation and backfill, concrete, equipment	7,400.00
Percolation Ponds Two acres, excavation and backfill, concrete, equipment	25,000.00
Reclaimed Water Pumping Station Three pumps	15,000.00
Piping, Valves and Fittings	109,000.00
Electrical	73,000.00
Reclaimed Water Force Main Reclamation plant to golf course, 3,000 linear feet of 8-inch diameter pressure pipe	48,000.00
Effluent Outfall to Percolation Ponds 2,000 linear feet, 15-inch diameter gravity pipe	60,000.00
Electrical Service Connection 2,300 linear feet underground	15,000.00
Potable Water Service 2,300 feet extension; reduced pressure principle backflow prevention device	23,400.00
Service Road Borrego Springs Road to reclamation plant and percolation ponds - 5,300 linear feet	$ 47,100.00
SUBTOTAL	$ 808,800.00
CONTINGENCIES AT 15%	121,300.00
SUBTOTAL	$ 930,100.00
ENGINEERING, ADMINISTRATION, ETC. AT 15%	140,000.00
TOTAL ESTIMATED COST	$1,070,100.00

ESTIMATED POWER REQUIREMENTS

The estimated power requirements of the waste water reclamation plant functioning at its design capacity of 250,000 gpd is analyzed below. In the analysis, it is assumed that the comminutor, aeration brushes, secondary clarifier and return activated sludge pump function at full horsepower for 24 hours per day. Reclaimed water pumps are assumed to function at full horsepower for 8 hours per day, or one-third of the time. Miscellaneous small demands, such as for instrumentation and lighting, are omitted.

It should be borne in mind that the electrical energy demand will be proportional to the volume of sewage processed by the plant. Therefore, the analysis presented below will not be applicable to the early years of the project, when sewage flows through the system will be smaller. Nor will it apply to low flow periods, for example summer months, after the system reaches capacity, since the volumes of sewage being processed will be less than 250,000 gpd.

Comminutor	2 HP
Aeration Brushes	30 HP
Secondary Clarifier	1 HP
Return Sludge Pumps 175 gpm vs. 25' TDH; motor efficiency - 80%; pump efficiency - 70%	3 HP
Reclaimed Water Pumping 525 gpm vs. 193' TDH; motor efficiency - 80%; pump efficiency - 70%; pumping time - 8 hr/day	20 HP
TOTAL POWER REQUIREMENT:	56 HP

Power Consumption

(56 HP)(.746) = 1,000 KWH/day power usage

CHAPTER VI

PUBLIC AGENCY OPERATION OF FACILITIES

In their actions establishing requirements for individual waste discharges, the California Regional Water Quality Control Boards almost invariably stipulate that facilities serving multiple onwerships shall be owned and operated by a political subdivision of the State of California empowered to collect, treat, dispose of, and reclaim waste water. This action is taken to guaranty the State that it will have a single entity to deal with concerning that particular discharge. A Regional Board wishes to avoid having to deal with a multitude of property owners using a system in its day to day activity activity, such as surveillance. More important, if enforcement action must be undertaken, the Regional Board would prefer to move against a single public entity than to have to bring action against every resident of a community. In addition, regulatory agencies recognize local public agencies as the most effective vehicles of local sewerage planning and coordination essential for implementation of those plans.

The Ram's Hill Country Club sewage disposal/waste water reclamation system will undoubtedly have to be brought under the control of a public agency, in response to this long-standing State policy.

A broad variety of political subdivisions is empowered in the State of California to provide sewage collection treatment and disposal service. County government may do so through a County service area, a County sanitation district, a sewer maintenance district, or a resort improvement district. A city may provide sewerage service as well as the following local public districts: public utility district, community services district, municipal utility district, county water district, sanitary district, irrigation district, California water district, municipal water district and County water works district. Methods of governing, procedures, operation and authority may vary from one type of district to another.

A public district may finance improvements within its boundaries through issuance of general obligation bonds, revenue bonds or otherwise. It may also choose to require a developer to construct the works, then dedicate them to the district for onwership and operational responsibility. In either event, it should be expected that the public agency will be actively interested in planning, design and construction of the facilities, and will require construction to meet district standards.

In 1961, property owners in the Borrego Valley formed a California Water District covering an area of roughly 30 square miles. Known as the Borrego Water District, the District lies generally east of Borrego Springs Road and north of Borrego Sink (see Figure I-1). Functional over the past seventeen years, the District has its own board of directors, consisting of Borrego Valley landowners.

Division 13 of the California Water Code grants to California water districts a wide range of authority with respect to water supply for a variety of purposes. In addition, a California water district is empowered to operate and furnish facilities and services, within or without the district, for the collection,

treatment and disposal of sewage, waste and storm water. A district may issue either general obligation or revenue bonds to fund construction of sewage collection, treatment, disposal and reclamation works. Revenue may be acquired for operation of a district sewerage facilities by a tax on the land and by sewer service charges collected from parties making use of the sewage system.

Voting within a California water district is done on the basis of land ownership only. Each landowner is entitled to one vote for each one dollar of accessed valuation of his land. Thus, landowners retain control of the district until property valued at 50% or more of the assessed valuation has been sold to subdivision home purchasers.(1) Improvement districts may be formed within California water districts for the purpose of providing sewer service to specific areas of the district. Each improvement district is administered by the board of directors of the entire district and each improvement district must take financial responsibility for the facilities within that district and the cost of their operation. Bonds for an improvement district may be authorized by the board of directors, as long as there are no registered voters residing in the district and there is no major protest of landowners. Annexations may be made to and by a California water district, subject to review and approval by the local agency formation commission.

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(1) Requires the voting procedure within a district governed under the California Water District Law in which at least 50% of the assessable area is devoted to and developed for residential, industrial, or non-agricultural commercial use, or any combination thereof, to be changed by resolution of the board of directors from that of a landowner voting district to that of a resident voting district whenever at least 25% of the registered voters residing within the district, but at least a minimum of 25 voters, petition for such a change. Specifies procedures to implement such a change.

Financing of California water districts is regulated by the Office of the State Treasurer, District Securities Division, Mr. Ted Stievers, Executive Officer, 120 Montgomery Street, San Francisco, California 94104 (Telephone 415/557-1932).

It is understood that DiGiorgio Corporation is researching the feasibility and desirability of providing a sewerage service to one or more of the properties discussed in this report through the Borrego Water District. Lowry and Associates has had long experience in working on similar projects with California water districts, principally the Irvine Ranch Water District in Orange County. In that instance, the California water district has provided an excellent vehicle for immediate and long-term planning, funding, construction, management, and operation of water, sewage, and waste water reclamation facilities in a 67,850 acre district. Made up of agricultural, residential, commercial and industrial areas, the District is expected to serve a population approaching one-half million people by the year 2000. At the outset of its operation in 1961, the District served agricultural lands almost exclusively. Since that time, the new town of Irvine has rapidly emerged as an outstandingly well planned community. The ability of Irvine Ranch Water District to plan aggressively and progressively to meet its own responsibilities has proved an invaluable asset in overall community planning for Irvine.

Thus, Lowry and Associates would naturally consider the California water district already established at Borrego as the ideal public agency to acquire facilities which must be operated by a political subdivision and also to take responsibility for long-term sewerage planning for the community. We see no impediments from an engineering point of view, to the annexation of the Ram's Hill Country Club to the existing district, and the formation of an improvement district to own and operate sewerage facilities in that area.

Utilization of the Borrego Water District for sewage disposal would have the following advantages to the DiGiorgio Corporation:

(a) As a California water district, it assures the land developer a maximum period of control of planning which, because of the size of the district, may last beyond completion of the Ram's Hill Country Club final development.

(b) The district has no known financial obligations or administrative problems at the present time.

(c) The district will remain locally controlled even if, at some future time, residents assume control from landowners.

(d) Because of its size, the Borrego Water District is better suited to carry on community-wide, long-term sewerage planning than any other existing district in Borrego Valley.

APPENDIX A

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

GUIDELINES FOR SEWAGE DISPOSAL
FROM LAND DEVELOPMENTS

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

GUIDELINES FOR SEWAGE DISPOSAL
FROM LAND DEVELOPMENTS

I. REPORTING REQUIREMENTS

A. EXISTING SUBSURFACE DISCHARGES OF SEWAGE

1. Discharges subject to present waste discharge requirements.

These guidelines do not apply to existing subsurface discharges of sewage which are subject to present waste discharge requirements. Such discharges shall continue to be subject to waste discharge requirements and to the provisions of the Porter-Cologne Water Quality Control Act.

2. Discharges not subject to present waste discharge requirements.

Persons having control of an existing subsurface discharge of sewage which is not subject to present waste discharge requirements are required to file a report of waste discharge only:

a. When a report of waste discharge is requested by the Regional Board, or

b. Where a material change in discharge is proposed and the proposed discharge, after change, is such that a report of waste discharge is required under Part I.B. of these guidelines.

B. PROPOSED SUBSURFACE DISCHARGES OF SEWAGE:

Persons proposing a subsurface discharge of sewage, including persons proposing a material change in an existing subsurface discharge, and specifically including any person proposing to develop land for sale or lease for the purpose of human habitation where the development will involve subsurface discharge of sewage, shall file a report of waste discharge with the Regional Board unless:

1. The proposed discharge is to a community sewer system for which waste discharge requirements have been prescribed by the Regional Board; or

2. The proposed discharge is from not more than five family units; or

3. The proposed discharge is domestic waste from a commercial or industrial source and will not exceed 1,500 gpd[1] on any single day of the year.

II. TIME OF REPORTS AND FEE REQUIREMENTS

A. Where a report of waste discharge is required by these guidelines the report shall be filed:

1. Not later than 20 days after request therefor by the Regional Board, where an existing discharge is subject to the prescription of waste discharge requirements.

2. At least 60 days prior to the need for Regional Board clearance for the issuance of a building permit.

3. At least 90 days prior to commencement of a proposed discharge.

B. All reports of waste discharges required by these guidelines shall be accompanied by a filing fee in accordance with Subchapter 9, Chapter 3, Title 23, California Administrative Code.

III. SOILS REPORT AND MAPS

All reports of waste discharge required by these guidelines shall be accompanied by an appropriate soils report which satisfies the criteria in Section IV, and a copy of any tentative or final subdivision map required by the Subdivision Map Act, California Business and Professions Code Section 11500, et. seq.

IV. MINIMUM CRITERIA FOR SUBSURFACE DISCHARGE OF SEWAGE

The following criteria are ordinarily necessary for the protection of water quality and the prevention of nuisance in cases of subsurface discharges of sewage.

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(1) All commerical or industrial dischargers of industrial waste are required to file a report of waste discharge.

A. Depth of soil between ground surface and groundwater in the disposal area should not be less than 10 feet.

B. Depth of soil between the bottom of the disposal facilities and groundwater should not be less than 5 feet.

C. Ground slope in the disposal area should not be greater than 25 percent.

D. The percolation test rate in the disposal area should not be greater than 60 minutes per inch if the discharge is to a leachfield, and not greater than 30 minutes per inch if the discharge is through a seepage pit.

E. Compliance with all applicable requirements of local governmental agencies, including requirements on lot size and distance from wells, streams, drainage courses, reservoirs, adjoining properties or other points; and compliance with more stringent requirements which are specifically contained in these guidelines.

F. All subsurface discharges of domestic wastewater shall be via properly constructed and maintained septic tank, or other solids removal device approved by the appropriate local governmental agency.

V. WASTE DISCHARGE REQUIREMENTS AND PROHIBITIONS

A. Waste discharge requirements may be waived pursuant to Water Code Section 13269, for subsurface discharges of sewage in the following cases:

1. A proposed subsurface discharge of sewage where the discharge will comply with the minimum criteria contained in these guidelines, and:

   a. The discharge will be from not more than 30 family units; or

   b. The total discharge will not exceed 10,000 gpd on any single day of the year(2); or

   c. The discharge will be from family units each of which is situated on a lot at least 20,000 square feet in area exclusive of all easements.

---

(2) Includes sewage discharges from commercial and industrial establishments.

B. Waste discharge requirements will be adopted for subsurface discharge of sewage in the following cases:

1. For existing subsurface discharge of sewage not otherwise subject to waste discharge requirements, where a report of waste discharge is requested by the Regional Board.

2. For proposed subsurface discharges of sewage which do not fall within the provisions of Part V.A. of these guidelines.

3. For proposed subsurface discharges of sewage from 31 to 50 family units.

C. Waste discharge requirements which prohibit the individual subsurface discharge of sewage will ordinarily be adopted in the following cases:

1. For all subsurface discharges of sewage, existing or proposed, where the discharge causes or threatens to cause impairment of water quality or nuisance conditions.

2. For proposed subsurface discharges of sewage where the discharge will not comply with the minimum criteria contained in these guidelines.

3. For proposed subsurface discharges of sewage from more than 50 family units, unless:

   a. Each unit is located on a lot which contains at least 20,000 square feet; and

   b. The sewage disposal facilities are designed to accomodate future annexation to a community sewer system; and

   c. The developer demonstrates to the satisfaction of the Regional Executive Officer that the use of subsurface sewage disposal facilities is the only feasible means of sewage disposal as compared to community sewerage either internally or via connection to an existing community sewerage system. The demonstration requires submission of a report on environmental assessment of all pertinent factors, including an economic analysis of all viable alternatives for sewage disposal. The Regional Executive Officer's determination in this regards may include conditions and constraints which he considers necessary to protect against water pollution and/or nuisance and to protect against degradation of other environmental factors as may be recommended by others.

This prohibition shall not be circumvented by incremental development of any parcel of land which is contained as an assessment unit on the records of the County assessor as of the date of adoption of these guidelines.

VI. TIME SCHEDULES

Waste discharge requirements which prohibit an existing subsurface discharge of sewage shall contain an appropriate time schedule for elimination of the discharge.

VII. WAIVERS AS CONDITIONAL

All waivers of reports of waste discharge contained or implied in these guidelines, and all waivers of adoption of waste discharge requirements set forth in these guidelines are conditional, and such waivers may be terminated in whole or in part at any time by the Regional Board. Any subsurface discharger of sewage, existing or proposed, other than a discharge into a community sewer system, may, at the option of the Regional Board, be required to file a report of waste discharge, and waste discharge requirements may be adopted for any subsurface discharge of sewage.

VIII. MORE STRINGENT WASTE DISCHARGE REQUIREMENTS

These guidelines shall not be construed to prevent the Regional Board from adopting waste discharge requirements for the subsurface discharge of sewage which are more stringent than the minimum criteria set forth in these guidelines, where greater stringency is necessary to protect water quality or prevent nuisance.

IX. TECHNICAL AND MONITORING REPORTS

All subsurface dischargers of sewage may be required to provide technical and monitoring reports in accordance with Water Code Section 13267.

X. AREAS OF PROHIBITION

These guidelines do not apply to any area where the subsurface discharge of sewage is presently or may subsequently be prohibited by action of the Regional Board.

XI. Request for exception to any portion or portions of the above guidelines shall be made in writing to the Regional Executive Officer. The proponent's request shall include detailed explanation of the physical and economic factors, and such other information as deemed necessary in the opinion of the Regional Executive Officer for his determination. Such exception may be location-wide. Any person aggrieved by the determination of the Regional Executive Officer may appeal to the Regional Board.

APPENDIX J

SERVICE LETTERS

BOARD OF SUPERVIS
TOM HAMILTON
FIRST DISTRICT
LUCILLE V. MOORE
SECOND DISTRICT
ROGER HEDGECOCK
THIRD DISTRICT
JIM BATES
FOURTH DISTRICT
LEE TAYLOR
FIFTH DISTRICT

COUNTY OF SAN DIEGO

1600 PACIFIC HIGHWAY
SAN DIEGO, CALIFORNIA 92101

July 17, 1978

TO: Supervisor Lucille V. Moore, Chairwoman
Supervisor Tom Hamilton, Vice Chairman
Supervisor Roger Hedgecock
Supervisor Jim Bates
Supervisor Lee Taylor (A500)

FROM: David C. Nielsen, Director
Regional Growth Management (A215)

Subject: Board Referral on Rams Hill, Welk Park North and Windmill Farms

On July 5, 1978 your Board referred the above private development plans to my staff for comment. I have reviewed those plans and offer the following:

1. Rams Hill

This project is part of a 3,120 acre area in Borrego Springs to be subdivided over a 10 year period. Rams Hill proposes 780 units on 2,153 acres. The General Plan designates the area "SPA 0.5" and the proposed development is consistent with that plan.

The proposed Rams Hill PDP is consistent with the Regional Growth Management Plan (RGMP) since no application for a change to the general plan which would result in a higher density is proposed. It is the position of the RGMP that cumulative environmental analysis and a long range plan should be prepared for Borrego Springs prior to acceptance of any general plan amendments in this area.

2. Welk Park North

This project was discussed in the final Progress Report which was submitted to your Board in June, 1978. The entire Lawrence Welk ownership is designated "Estate Development Area". It has been my recommendation the existing private development plans be taken on a individual basis during the implementation phase of the plan to determine consistency. I can find no conflict in this case with the RGMP since it was anticipated that this portion of the Welk ownership would be developed in a similar manner as that to the south. It should also be noted that the Moosa Canyon Treatment Plant was constructed with full development of the Welk ownership in mind.

3. Windmill Farms

This subdivision has been scaled down considerably from a a previous design submitted to RGM, which was 218 dwelling units on 309 acres (0.79 du/ac). This project, which is 154 dwellings on 309 acres, is consistent with the density limitations of the Growth Management Plan. The subject area is designated Estate Development Area (1 du/2 acres) and the project proposes a density of less than 1 du/2 acres.

The density limitation of the plan is one of the factors to be considered when determining conformance. It is, however, the only criteria defineable at this time. Other criteria such as open space and provision of services will be set forth after the plan is adopted by your Board.

Gilbert A. West

for DAVID C. NIELSEN, Director
Regional Growth Management

DCN:TL:na

COUNTY OF SAN DIEGO

Department of Land Use & Environmental Regulation

Community Services Agency

JAMES J. GILSHIAN
DIRECTOR

3150 Chesapeake Drive (0173), San Diego, California 92123 Telephone (714) 565-6338 (Zenith 7-0888)

May 19, 1978

Thomas A. Weber
TOUPS Corporation
2223 Avenida de la Playa
La Jolla, California 92037

RECEIVED
JUN 7 1978
TOUPS CORPORATION

Dear Mr. Weber:

Rams Hill - Proposed Specific Plan

On May 16, 1978, you submitted preliminary plans for the proposed Specific Plan referenced above which proposes 780 dwelling units on 2153 acres at an overall density of 0.36 dwelling units per acre. The site is located southeasterly of the town center of Borrego Springs in the Borrego Valley.

Staff has analyzed the project pursuant to Board of Supervisors' Policy I-59, "Large Scale Project Review" and determined that it provisionally conforms to the County General Plan. We are reviewing your plans in accordance with Board Policy I-59 since the General Plan Amendment adopted on November 29, 1976 designates this property as "Specific Planning Area" (0.50). This Policy sets out procedures for review of projects and its focus is on public services and facilities and the logical progression of development. The Regional Growth Management Program is in progress at the present time and will eventually designate areas for development.

Several issues of concern were identified during the initial analysis. These will require clarification in subsequent submittals:

1. Riding and Hiking Trails.
The Regional Riding and Hiking Trail Corridors map shows one corridor crossing the site. The Department of Transportation should be consulted for required provisions.

2. Emergency Medical Services.
More information should be provided on nearest hospital facilities, capacities and capabilities, address, distance from site, etc. Also, discuss ambulance services, name of company(ies), location(s), response time(s).

3. Sewerage Facilities.
Documentation should be provided from the Regional Water Quality Control Board regarding discharge requirements for the proposed treatment plant.

4. Specific Plan Coverage.
The area of the plan south of Hotel "A" and east of Hotel "C" labeled "Not A Part" should be included in the Specific Plan.

5. Phasing.
A phasing plan should be included in the Specific Plan.

6. Major Buildings.
Discussion of the form and scale of the Hotel and Medical building should be provided, (i.e., number of stores, approximate height and floor area, etc).

7. Specific Plan Content.
References regarding the tax revenue benefits to the Borrego area as a result of this development should be deleted from the Plan text unless completely documented by a reasonable quantitive economic analysis.

8. Concept Plan.
Exhibit C-9, adopted as a part of GPA 76-02, will suffice as the long range concept plan for the portions of the property outside the first Specific Plan.

9. Secondary Access.
Another point of access should be provided with the first development phase of the Specific Plan.

10. Regional Growth Management.
The Borrego Valley area is a "Desert Special Study Area" according to the Preliminary Regional Growth Management Plan. The Plan would prohibit rezones to higher density in the Borrego area if adopted in its current form. A request has been made to the Regional Growth Management Staff for an interpretation of the prohibition as it relates to the Ram's Hill project.

11. Roads.
Include local road linking areas "E" and "F" in the Specific Plan.

If you wish to continue processing this project, you should prepare the materials required for "conforming projects", i.e., a draft Specific Plan and a draft Environmental Impact Report. These should be submitted with the formal application form and a check in the amount of $1,000.00 - as a deposit for processing the Specific Plan. The total cost of processing the Specific Plan will be based on actual staff time spent in this endeavor, starting with review of the formal filing.

Applications for the first Tentative Map, Rezone and Special Use Permits may be processed concurrently with the Specific Plan; however, separate fees and deposits will be necessary for each. The amounts of the filing fees and deposits will be based on the number of lots or the area contained in the first development phase.

The environmental analysis of the project is separate from the above noted review. For information on cost and format, you may contact the County's Environmental Analysis Division, telephone 565-5749.

Should you have any other questions at this time, please contact either Mr. Harry Trax (565-5397) or Mr. Mark LaBree (565-5406) of this office.

Yours very truly,

LAND USE AND ENVIRONMENTAL REGULATION
James J. Gilshian, Director

By Paul A. Manganelli
Paul A. Manganelli
Deputy Director

PAM:HAT:ML:we

COUNTY OF SAN DIEGO

R J MASSMAN
Director

DEPARTMENT OF TRANSPORTATION
COMMUNITY SERVICES AGENCY

Bldg 2, 5555 Overland Ave.
San Diego, California 92123
Telephone: (714) 565-5127

Offices of
County Engineer & Road Commissioner
County Surveyor
County Airports

September 5, 1978

Nancy K. Laswell
Toups Corporation
2223 Avenida De La Playa
La Jolla, Ca. 92037

Dear Ms. Laswell:

Subject: Rams Hill Country Club

This is in response to your request for information on road dedication and improvement requirements for the below listed Circulation Element roads through and/or adjacent to your project.

1. Yaqui Pass Road, SF 1406.

   This portion of said road adjacent to your project, designated as a Major Road on the Circulation Element, would be dedicated and improved to a one-half width of 51 feet with your project. The offsite portion of that road north to Borrego Valley Road presently has from 24-32 feet of paving. With the additional traffic onto that road from your development, we will require that road to be widened to a minimum 40 feet of AC paving prior to the ultimate development of the project.

2. Borrego Springs Road, SA 190.

   The portion of said road within or adjacent to your project, designated as a Major Road on the Circulation Element, would be dedicated and improved, with your project, to a width of 51 feet or 102 feet depending on the location of the road with respect to the boundary of the project.

3. SA 460.

   The portion of said road with your project designated as a collector road on the Circulation Element, would be dedicated and improved, with your project, to a width of 84 feet.

   Although not in the location shown on the Circulation Element, we would not oppose the location of SA 460 as shown on your plan.

4. SC 500, Old Borrego Valley Road.

   The portion of said road within your project would be offered for dedication to a width of 84 feet and recommended for rejection by the Board of Supervisors. Since you do not plan to use the road as a part of your development, no improvements would be required.

Should future traffic studies for the above roads indicate lower ultimate traffic volumes than normal for those types of road, the Department of Transportation will recommend a lesser standard of dedication and improvement. The lesser standard considered would be 40 feet of AC paving within a 60 foot right of way with the remaining right of way to the ultimate width plus slope rights recommended for rejection.

Regional Riding and Hiking Trail

The Regional Riding and Hiking Trail Corridors Map shows a corridor crossing Section 23 of your project. The 1/2 mile wide corridor, shown on the map, indicates approximate locations within which trails will be located. The exact location of trails for your project will be determined during the final map process. The trails will be developed as an integrated and meaningful facility located so as to avoid environmentally sensitive areas. The basic design standards for regional trails recommends an easement width of 20 feet with an 8 foot wide tread. These standards may be modified for local trails.

Also, because of the size of your project, its rural nature and the proposed large size lots, we feel that it would be desirable to provide a network of local trails within the project to interconnect with the regional trail system.

If you have any further questions, please do not hesitate to contact Mr. C. E. Moore at 565-5675.

Very truly yours,

W. E. BYERS
Deputy County Engineer

R. J. MASSMAN
Director of Transportation

RJM:CEM:m

COUNTY OF SAN DIEGO

DEPARTMENT OF TRANSPORTATION
COMMUNITY SERVICES AGENCY

Bldg 2 5555 Overland Ave
San Diego, California 9212
Telephone (714) 565-5[illegible]

February 3, 1978

RECEIVED
FEB 9 1978
TOUPS CORPORATION

Mr. William L. Moorhous
Toups Corporation
2223 Avenida de la Playa
La Jolla, CA 92037

Dear Mr. Moorhous:

SUBJECT: Advance Department of Transportation Position on Di Giorgio Resort Development

Your letter of January 30, 1978 asked us to confirm your understanding of three points discussed in our January 11, 1978 meeting. We agree that you have understood our position correctly. To make the points perfectly clear, here are some amplifying and clarifying remarks:

1. If you were to improve your interior roads to County Standards and offer them for dedication, we would have no reason to recommend to the Board of Supervisors that they reject the offer of dedication; unless you or your client specifically request that we do so. If, however, they are not improved to County Standards, you are correct; we would recommend the Board reject any offer of dedication. You also have the option of not even offering them for dedication, when you create a PRD.

The waiver that would be required for the sequential recording of final maps is of Section 81.402 (b) of the Subdivision Ordinance which states, "No final map shall be approved unless the street or streets providing primary access to the subdivision are dedicated to and maintained by a city, county, or state, and said street or streets meet County Standards of right-of-way width."

2. You are correct, if the streets remain private, we would have no objection to your use of desert paving materials and other site-oriented techniques.

3. Paragraph 3 in your letter is correct if the roads remain private.

If you have any further questions, please contact Mr. W. E. Byers, at 565-5166.

H. E. Sorlie
Assistant Director
of Transportation

R. J. MASSMAN
Director of Transportation

RJM:WEB:pag

SAN DIEGO GAS & ELECTRIC COMPANY
P. O. BOX 1831 SAN DIEGO, CALIFORNIA 92112
(714) 232-4252

FILE NO PLA 000

July 28, 1978

Toups Corporation
2223 Avenida De La Playa
La Jolla, California 92037

Attention: Nancy K. Laswell
Environmental Planner

Dear Ms. Laswell:

Reference is made to your letter of July 3, 1978, requesting information on San Diego Gas & Electric Company's ability to provide service to the proposed "Rams' Hill Country Club".

1. Existing capacity in Borrego Springs, at the Borrego Substation is 8.75 megawatts (MW).

2. There is presently one transmission line corridor serving Borrego Substation. This line runs adjacent to Borrego Springs Road.

3. We are unable to ascertain the number of Kwh used in Borrego Springs monthly.

4. There is no specific generating plant serving Borrego Springs. We utilize an intertied system, hence electricity to Borrego Springs can come from numerous generating stations, using a multitude of fuels.

5. Due to the proposed size of this development it is likely that an increase in substation capacity would be required and that a second transmission line be constructed to Borrego Substation for reliability reasons as specified in our planning criteria.

Circuit work on our distribution system would also likely be required.

It has been a pleasure assisting you in this project. Should you need additional information please do not hesitate to call.

Sincerely,

B J Williams

B. J. Williams
Land Planning Analyst

BJW:dr

Bruce

toups corporation

July 3, 1978

Bruce J. Williams
San Diego Gas and Electric Co.
P.O. Box 1831
San Diego, CA 92101

Re: 3000-acre desert-resort development in Borrego Springs

Dear Mr. Williams:

The Di Giorgio Corporation is proposing to develop a 3000-acre desert-resort community called "Rams' Hill Country Club" approximately 5 to 6 miles southeast of the community of Borrego Springs. A vicinity map is attached for your reference. Toups Corporation is the consultant for this project. Can you please supply the following information for inclusion in an Environmental Impact Report. The purpose of an EIR is to illustrate existing conditions and identify potential impacts.

1. The existing delivery capacity in Borrego Springs.

2. The number and location of transmission line corridors.

3. The number of kwh currently used in Borrego Springs broken down by month.

4. The location of the generating plants serving Borrego and the fuel mix at each plant.

Based on the following project description can you please inform us if sufficient capacity currently exists to serve this project. Would you also identify any plans San Diego Gas and Electric Co. has for increasing energy service to the area.

The Di Giorgio Corporation is proposing to build a desert-resort community identified as the Rams' Hill Country Club. It will consist of 780 dwelling units and a hotel complex of 350 suites. This is the development plan for the next five years. Ultimate development could be 1563 dwelling units and 700 hotel suites. A land use chart of the five year phase is attached for your reference. Additional uses in this first phase include a medical-diagnostic clinic with outpatient services, small retail shops in the hotel, lighted tennis courts and an 18-hole golf course. Water will be supplied from wells using electrical pumps. A sewage treatment plant using 1000 kwh/day will be constructed to serve this first phase.

toups corporation

Would you also send any information which San Diego Gas and Electric Co. has developed pertaining to lighting design and the preservation of dark skies.

Thank you for your assistance with this project. We are in the process of preparing the EIR and would appreciate a written response from you by July 12, 1978.

Sincerely,

TOUPS CORPORATION

Nancy K. Laswell

Nancy K. Laswell
Environmental Planner

NKL/cm

Borrego Springs
UNIFIED SCHOOL DISTRICT
P.O. BOX 235 • BORREGO SPRINGS, CALIFORNIA 92004 • TELEPHONE (714) 767-5335

August 1, 1978

DR. WILLARD M. CRONYN
President
DR. JOHN H. PRINCE
Vice President
MR. JIM REEDER
Clerk
MR. DEAN H. GILCHRIST
Member
MR. WES HARRIS
Member

DR. NORMAN C. GUITH
District Superintendent

Toups Corporation
2223 Avenida de La Playa
La Jolla, CA. 92037

Dear Ms. Laswell:

In response to your letter of July 11, 1978, I present the following information:

On page two you refer to the projected increase in enrollment by the school district,it is anticipated that a 2% increase in enrollment for the immediate future is more realistic than a 10% increase.

I find the other information to be most accurate.

Sincerely,

Norman C. Guith

Norman C. Guith, Ed. D.

RECEIVED
AUG 03 1978
TOUPS CORPORATION

toups corporation

July 11, 1978
1927-010-0

Dr. Norman Guith
Superintendent
Borrego Springs Unified School District
P.O. Box 235
Borrego Springs, CA 92004

Dear Dr. Guith:

This is in reference to the development of the 3000 acre Di Giorgio property located approximately 5-6 miles southeast of the Borrego Springs community. A vicinity map is included for your reference. You were contacted in February concerning available capacity in the school system to accomodate students from this development. Since that time, the schedule for development of Rams' Hill has changed. Toups Corporation is currently in the process of preparing the Environmental Impact Report on the project. This report will analyze expected impacts from this project including impacts on services. Could you please verify the following updated information.

The Rams' Hill project is designed as a desert-resort complex. The devlopment is anticipated to be primarily residential with auxillary hotel and recreational facilities. The initial phase of the project, to be completed in 5 years, will include 780 dwelling units and 350 hotel suites. Development of a medical clinic, golf course and small retail shops within the complex will begin within the first five years. Subsequent phases of the project will ultimately provide 1562 dwelling units over a span of 12-15 years.

Schools

The public schools serving the Borrego Springs community are currently functioning at approximately one-half of their design capacity as indicated by the following figures:

School	Grades Served	1977 Enrollment	Capacity
Borrego Springs Elementary 1315 Palm Canyon Drive	K-6	120	220
Borrego Springs High School 2281 Digueno Road	7-12	118	250

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The school district is attempting to diversify educational opportunities by offering vocational education and a limited number of courses through the Palomar Community College District.

The Borrego Valley has experienced an 8% growth rate per year since 1970. Based upon this growth, the school district has projected a 10% increase in enrollment for the immediate future.

The County Department of Education recently completed work which indicates that year round homes in areas such as Borrego Springs could generate the following numbers of students:

Generation Factors per Dwelling Unit

Grade level	Detached Units	Multiple Units
K-6	.3	.21
7-12	.4	.25
TOTAL	.7	.46

Second home development such as that anticipated at the Rams' Hill project, however,will generate considerably fewer students. There are no students attending schools in the Borrego School District from the De Anza Country Club development, a similar resort-second home development located in the northern portion of Borrego Springs. Therefore, in consultation with the school district it was agreed that the following generation factors appear more reasonable:

Generation Factors per Dwelling Unit

Grade Level	Detached Units	Multiple Units
K-6	.075	.0525
7-12	.1	.0625
TOTAL	.175	.1150

Based on these estimated generation factors, the first phase of the Rams' Hill project could generate 47 primary students and 58 secondary students. The ultimate development, to be completed within 10 to 12 years, could generate approximately 94 primary students and 116 secondary students.

In addition to the students who would be living in the Rams' Hill development, a small number of additional students could be expected as a result of the induced growth prompted by Rams' Hill. A member of the County Regional Growth Management team recently estimated that this project could provide 350 jobs. Should 175 additional new household be established, this induced growth could result in the following numbers

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of additional students: 52 primary students and 70 secondary students. These students would be gradually entering the school system over a five year period.

Therefore the total maximum number of students which could be expected to enter the school system as a result of the development of the first phase of Rams' Hill including induced growth includes 99 primary students and 128 secondary students.

While the school system currently has capacity to handle this influx of students, projected growth from other development in Borrego Springs may cause the school enrollment to exceed current available capacities. To accomodate this project, a 37 acre site has been set aside on the property for the building of new school facilities. The proposed project will increase the demand for educational services. This increase will occur gradually over the 12 to 15 year development period.

The project site is located 6 to 8 miles from the Borrego Springs Elementary and High schools. Bussing of students residing at Rams' Hill to these school facilities would be necessary. Upon construction of the new facilities on the assigned site, however, students residing on approximately one-half of the property could walk to schools.

Please verify the above generation factors and expected impacts. Do not hesitate to call if you have any questions. Thank you for your assistance.

Sincerely,

TOUPS CORPORATION

Nancy Laswell

Nancy Laswell
Environmental Planner

cc: Bud Huhrtz
Di Giorgio Corporation

NL/cm

Borrego Springs Fire Protection District

P.O. BOX 898
2324 STIRRUP ROAD
BORREGO SPRINGS, CALIFORNIA 92004
TELEPHONE (714) 767-5436

DISTRICT FIRE COMMISSION

SAMUEL FORTINER, CHAIRMAN
HARLAN R. MORTON, SECRETARY
ELSA L. CHAMBERS, MEMBER
VIRGINIA C. HARRIS, MEMBER
DAVID H. WEST, MEMBER

DISTRICT FIRE CHIEF
JACK HANSEN, SR.

September 7, 1978

Toups Corporation
2223 Avenida de la Playa
La Jolla, CA 92037

Ref: Development Update on Service for DiGiorgio South Slope Property in Borrego Springs 1927-010-0

My letter to you dated August 8, 1978

Gentlemen:

At this time we do not expect any cutback in service by the Borrego Springs Fire Protection District as a result of Proposition 13.

However, this will advise you that at July 1, 1979 we do anticipate a severe cutback in service.

Yours truly,

Jack Hansen

Jack Hansen, Sr.
District Fire Chief and
Deputy State Fire Marshal (390)

Borrego Springs Fire Protection District

P.O. BOX 898
2324 STIRRUP ROAD
BORREGO SPRINGS, CALIFORNIA 92004
TELEPHONE (714) 767-5436

DISTRICT FIRE COMMISSION

SAMUEL FORTINER, CHAIRMAN
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VIRGINIA C. HARRIS, MEMBER
DAVID H. WEST, MEMBER

DISTRICT FIRE CHIEF
JACK HANSEN, SR.

August 8, 1978

Toups Corporation
2223 Avenida de la Playa
La Jolla, CA 92037

Ref: Development Update on Service for Di Giorgio South Slope Property in Borrego Springs 1927-010-0

Gentlemen:

This will advise you that because of Proposition 13 the Borrego Springs Fire Protection District is in the process of realignment financially due to a large tax money loss.

The Department is not in a position at this time to render any update on service for your organization until some time in mid-September.

Unfortunately, because of a large loss in tax dollars, the Borrego Springs Fire Protection District may have to undergo a severe cutback.

If you desire to continue with your present report, I have no objection, but must again advise you that we could possibly have a severe cutback. We shall write to you again in September with the information you requested.

Yours truly,

Jack Hansen

Jack Hansen, Sr.
District Fire Chief and
Deputy State Fire Marshal (390

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AUG 09 1978
TOUPS ...

toups corporation

July 11, 1978
1927-010-0

Chief Jack Hansen
Borrego Springs Fire Protection District
P.O. Box 898
Borrego Springs, CA 92004

Re: Development Update on Service for Di Giorgio South Slope Property in Borrego Springs

Dear Chief Hansen:

This letter is in reference to the development of the 3000-acre Di Giorgio property known as Rams' Hill, located 5-6 miles southeast of the Borrego Springs community. A vicinity map is included for your reference. Toups Corporation is preparing an Environmental Impact Report on this project for the Di Giorgio Corporation. The purpose of an EIR is to illustrate and assess the existing conditions and the potential impacts of a proposed project. We contacted your office in November, 1977 concerning fire protection facilities and services for this project. Since that time the development schedule for Rams' Hill has changed substantially. Could you please assist us once again by verifying the following information in writing at your earliest convenience.

The Rams' Hill project is designed as a desert-resort complex. The development is anticipated to be primarily residential with auxillary hotel and recreational facilities. The initial phase of the project, to be completed in 5 years, will include 780 dwelling units and 350 hotel suites. Development of a medical clinic, a golf course and small retail shops within the complex will begin in the first five years. Subsequent phases of the project will ultimately provide 1562 dwelling units over a span of 12-15 years.

Existing Conditions

The 3000-acre Di Giorgio property lies within the jurisdiction of the Borrego Springs Fire Protection District. The Rams' Hill project would therefore receive fire protection from this district.

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The closest fire station to the site, and the one which currently serves structures in the project vicinity is located at 2324 Stirrup Road, approximately 6-6½ miles away. Response time to the site is estimated to be 6 to 8 minutes.

Nine full-time paid firefighters and approximately seven volunteer firefighters man the Stirrup Road station with shifts of five men each. It is anticipated that an additional 3 to 4 paid firefighters will be hired in the near future. All personnel are certified as Emergency Medical Technicians which rates their skills between that of advanced first aid and paramedic level. The staff is divided into three engine companies which man two 2000 gallon per minute pumpers and one 500 gpm pumper. To facilitiate rescue and emergency medical relief services, the District maintains two intensive care ambulances, a four-wheel drive ambulance, and a rescue equipment truck. When the General Plan was amended by the adoption of a specific planning area for the Di Giorgio property, a 2.5 acre parcel on site was designated for the provision of a future fire station. A Class 10 insurance rating will be given to all new structures on the property until a new fire station adjacent to or on the development is constructed. Implementation of a new station at Rams' Hill would require additional personnel for the District's staff and additional service vehicles for the engine companies, and rescue and ambulance teams.

The proposed project will significantly increase the demand for fire protection and emergency medical services within the District. A detailed assessment of the financial impact of such additional services on the service district is presently not available.

Please do not hesitate to call if you have any questions regarding the above, and also to add any pertinent comments regarding this information.

Very truly yours,

TOUPS CORPORATION

Nancy Laswell

Nancy Laswell
Environmental Planner

cc: Bud Kuhrtz
Di Giorgio Corporation

NL/ah

SAN DIEGO COUNTY SHERIFF'S DEPARTMENT

POST OFFICE BOX 2991
SAN DIEGO, CALIFORNIA 92112
(714) 236-2950

JOHN F. DUFFY, Sheriff

February 10, 1978

DONALD R. OLIVER, Undersheriff

Mr. William L. Moorhous, Project Planner
Toups Corporation
2223 Avenida de La Playa
La Jolla, California 92037

Dear Mr. Moorhous:

PROPOSED BORREGO SPRINGS PLANNED RESORT (2160 UNITS)

The following is submitted in response to your letter of November 22, 1977 requesting information relating to law enforcement coverage by the Sheriff's Department in the vicinity of Yaqui Pass Road and Borrego Spring Road.

1. The subject property falls within Sheriff's Master Beat 71 which is covered out of the Sheriff's Borrego Office Patrol Station located at 610 Palm Canyon Drive. Response time information for the subject property (for periods 7-1-77 to 9-30-77 and 10-1-77 to 12-31-77) reflect no priority call activity. Response time to the subject property for non-priority calls is approximately 15 minutes.

2. Normal patrol coverage in Master Beat 71 consists of one patrol unit on duty from 8:00 a.m. - 5:00 p.m. The resident deputy remains on a "call-out" status the remaining 15 hours per day.

3. There are currently no projected and/or budgeted increases in staff or equipment for the Borrego Station.

4. By itself, the projected increase in population of 1800 will significantly affect the Sheriff's level of service in the area, i.e. one additional

patrol deputy will be required. In addition, the combined effect on population of this and other developments in the vicinity over the next several years will undoubtedly require that additional patrol deputies and/or units be added. There is currently one patrol deputy per population of 1,650 within the Sheriff's jurisdiction in the subject area. The yearly cost for a one-man car on duty seven days a week, eight hours per day is $86,782.

Please call if you have any questions.

Sincerely,

JOHN F. DUFFY, SHERIFF

R. D. Shope

R. D. Shope, Administrative Assistant
Budget and Planning Division

RDS/dc

cc: F. P. Hill, Commander
Sheriff's Santee Station

July 11, 1978
1927-010-0

Mr. Richard Shope
San Diego County Sheriff's Dept.
Planning-Research Division
P.O. Box 2991
San Diego, CA 92112

Re: Update on Sheriff's Protection for Di Giorgio South Slope Property in Borrego Springs.

Dear Mr. Shope:

This is in reference to the development of the 3000 acre Di Giorgio property called Rams' Hill, located approximately 5 to 6 miles southeast of the community of Borrego Springs. In November 1977 Toups Corporation contacted the Sheriff's Department for information to be included in an Environmental Impact Report. Your timely informative response was very appreciated. However, since November, the schedule for development of this project has changed substantially. Could you please verify the following updated information and reaffirm the information included in our previous correspondence which is attached.

The project is located in portions of Sections 23, 25, 26, 27, 35 and 36 Township 11 South, Range 6 East and Portion of Section 31, Township 11 South, Range 7 East, San Bernardino Base and Meridian. The site is shown on the attached vicinity map.

The property consists of approximately 3000 acres, 1500± acres of which will be developed and the balance left in natural open space. The current plans call for a total of 1560 dwelling units and 600 hotel units to be constructed over a 10-12 year period. The following is given as a tentative phasing plan. Precise implementation of the project will depend on governmental approvals, market conditions, etc.

Development

	Hotel	Dwelling Units
First Phase (1-5 years)	350	780
Subsequent Phases (6-12 years)	250	782
TOTAL DEVELOPMENT	600	1562

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In addition to the residences and hotel, the Rams' Hill desert-resort complex will include golf courses, tennis courts, support commercial services and a diagnostic medical clinic.

It is difficult to accurately predict future population levels in Borrego Springs upon the completion of the Rams' Hill project because of the resort nature of the development. A member of the County Regional Growth Management team has estimated seasonal population levels in 1985 with and without this project (Attachment A). According to these projections the Rams' Hill project may increase the maximum winter population in Borrego Springs in 1985 from 3720 to 6380.

In our initial correspondence you provided Toups with information for an Environmental Impact Report. (Attachment B) Could you confirm or update the information you provided on:

1. Number of officers, Master Beat, and patrol units serving the Borrego Springs area
2. Location and address of the nearest substation
3. Emergency and non-emergency response times
4. Plans for expansion of police service facilities
5. Impacts upon the Sheriff's Department

If I can be of any assistance in providing additional information, please call me.

Sincerely,

TOUPS CORPORATION

Nancy Laswell

Nancy Laswell
Environmental Planner

NL/cm

Toups Corporation
planning
engineering
landscape architecture
environmental studies

July 11, 1978
1927-010-0

RECEIVED
JUL 17 1978
SOLID WASTE DIVISION

Donald G. Wiltse
Solid Waste Operations Manager
Dept. of Sanitation and Flood Control
County of San Diego
5555 Overland Ave.
San Diego, CA 92123

Re: Environmental Impact Report, Rams' Hill project, Borrego Springs

Dear Mr. Wiltse:

This is in reference to the development of the 3000 acre Di Giorgio property, called Rams' Hill, located approximately 5-6 miles southeast of the Borrego Springs community. A vicinity map is included for your reference. Toups Corporation is preparing an Environmental Impact Report on this project. The Department of Sanitation and Flood was contacted concerning impacts of this project on the sanitary landfill in Borrego in December 1977. Since then the first phase of the project has changed substantially. Toups Corporation is in the process of preparing an Environmental Impact Report for the revised Rams' Hill project. Could you please verify the following updated information as soon as possible.

The Rams' Hill project is designed as a desert-resort complex. The development is anticipated to be primarily residential with auxilliary hotel and recreational facilities. The initial phase of the project, to be completed in 5 years, will include 780 dwelling units and 350 hotel suites. Development of a medical clinic, golf course and small retail specialty shops within the complex will begin within this first five year phase. Subsequent phases of the project will ultimately provide 1562 dwelling units over a span of 12-15 years.

Based upon previous discussions with department staff and correspondence, the following is my understanding of solid waste disposal in the project vicinity.

Solid waste from the Di Giorgio development would be collected by private carrier and deposited at the sanitary landfill located at the end of Palm Canyon Drive, approximately 6 miles north of the project site, and east of the community of Borrego Springs. The landfill has a remaining

toups corporation

life expectancy at current population levels of approximately 20 years.

For planning purposes, the following generation figures may be used:

one dwelling unit	2.1 persons
one individual	1 ton of waste per year (5 pounds of waste per day)
Hotel complex	3 pounds of waste per room per day
Medical facility as planned	10 pounds per patient per day

The proposed Rams' Hill project could significantly impact the life expectancy of the Borrego landfill. In addition, it will contribute to the regional need for new disposal methods and sites on a gradual basis.

Please do not hesitate to contact me if you have any questions. Thank you for your assistance.

Sincerely,

TOUPS CORPORATION

Nancy Laswell

Nancy Laswell
Environmental Planner

cc: Bud Kuhrtz
Di Giorgio Corporation

NL/cm

7-26-78

Your letter fairly reflects our understanding of the solid waste generation and disposal factors in the Borrego Springs area.

If you need additional information, please contact the Solid Waste Division at 565-5703.

Eric Lewis

ERIC LEWIS
Solid Waste Supervisor

Environmental Impact Report

for

Rams Hill Specific Plan

SP 80-01

RAM'S HILL COUNTRY CLUB
LSP79-01
EAD Log #79-11-1

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San Diego County
DEPT. OF PLANNING & LAND USE

REPLACEMENT PAGE

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COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE October 18, 1979

(Revisions through February 6, 1980 included)

TO: Planning Commission

FROM: Environmental Review Board

SUBJECT: Environmental Impact Report for Ram's Hill Country Club, LSP79-01, EAD Log #79-11-1

The Environmental Review Board (ERB) has reviewed the enclosed Environmental Impact Report (EIR). Based on the discussion of the issues that follow, the ERB recommends that:

1. The EIR be certified as being complete and in compliance with the provisions of the California Environmental Quality Act (CEQA).

2. It be found that the project as proposed will have significant and not mitigable impacts on Solid Waste Disposal and Traffic Access into the Borrego Valley, potentially significant and not mitigable Radio Noise impacts, potentially significant and unresolved Air Quality impacts, unresolved Visual and Cumulative Impacts and significant but mitigable impacts on Valley Circulation; Archaeological and Biological Resources, Public Services, Grading, Flood Hazard, Sewage Disposal, Seismic Hazard and Dark Sky, and not significant Short Term Water Availability impacts.

3. The mitigation measures that appear in Enclosure "A," the EIR Discussion, be made conditions of project approval.

ERB DELIBERATIONS

On motion of members Evans/Weeks, it is recommended that the EIR be certified as being complete and in compliance with the provisions of CEQA.

Ayes:	6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes:	0 - None
Absent:	1 - Hurlburt

On motion of members Evans/Heiter, it is recommended with regard to the Major Issue of Water Availability, that it be found that this project by itself will not have a significant impact in the short-term (1995), however, long-term water availability for future development in the Valley is unknown at this time and a comprehensive groundwater study should be made although not necessarily by this applicant.

Ayes:	5 - Erickson, Escher, Evans, Heiter, Melbourn
Noes:	1 - Weeks
Absent:	1 - Hurlburt

On motion of members Weeks/Evans, it is recommended that the Major Issue of Seismic Hazard be found significant but mitigable.

Ayes:	6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes:	0 - None
Absent:	1 - Hurlburt

On motion of members Weeks/Evans, it is recommended that the Major Issue of Sewage Disposal be found significant but mitigable.

Ayes:	6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes:	0 - None
Absent:	1 - Hurlburt

On motion of members Evans/Weeks, it is recommended that the Major Issue of Public Services be found significant but mitigable.

Ayes:	6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes:	0 - None
Absent:	1 - Hurlburt

On motion of members Erickson/Weeks, it is recommended that the Major Issue of Solid Waste Disposal be found significant and not mitigable due to environmental impacts associated with establishing new disposal sites or transportation impacts of transporting materials to other sites.

Ayes:	6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes:	0 - None
Absent:	1 - Hurlburt

On motion of members Evans/Escher, it is recommended that the Major Issue of Dark Sky be found significant but mitigable.

Ayes:	5 - Erickson, Escher, Evans, Heiter, Melbourn
Noes:	1 - Weeks
Absent:	1 - Hurlburt

For the record Weeks voted No because he felt that additional light from any induced growth would not be mitigable.

On motion of members Evans/Melbourn, it is recommended that the Major Issue of Radio Noise be found potentially significant but not mitigable by this project or local government but would require FCC action.

Ayes:	6 - Erickson, Escher, Evans, Heiter, Melbourn, Weeks
Noes:	0 - None
Absent:	1 - Hurlburt

On motion of members Evans/Weeks, to recommend that the Major Issue of Cumulative Impacts be found significant and not mitigable failed to pass.

Ayes:	3 - Evans, Melbourn, Weeks
Noes:	3 - Erickson, Escher, Heiter
Absent:	1 - Hurlburt

In addition, the Environmental Review Board recommended that there has been no significant change in the conditions addressed in GPA76-02 with regard to Growth Induction, Energy and State Park Impacts and the previous environmental findings should go forward. See Background section.

The major issues which were addressed during the GAP process, Energy Consumption, Growth Induction, and State Park Impacts and have not substantially changed since the Environmental Review Board identified them as significant adverse impacts and the Planning Commission and Board of Supervisors found them to be not significant, were not readdressed during the ERB hearing.

EAD RECOMMENDATIONS TO THE ERB

The Environmental Analysis Division (EAD) has identified the following Major Issues, and our recommendations for findings of significance are as follows:

1. Water Resources: Significant but mitigable *
2. Air Quality: Significant and unresolved
3. Circulation: Valley Access: Significant and not mitigable
   Valley wide Circulation: Significant but mitigable
4. Visual Impact: Significant and only partially mitigable by conditions imposed at the implementing permit level
5. Biological Resources: Significant but mitigable
6. Archaeology: Significant but mitigable
7. Grading: Significant but mitigable
8. Solid Waste Disposal: Significant and not mitigable due to environmental impacts associated with establishing new disposal sites or transportation impacts of transporting material to other sites
9. Seismic Hazard: Significant but mitigable
10. Sewage Disposal: Significant but mitigable
11. Flood Hazard: Significant but mitigable
12. Public Services: Significant but mitigable
13. Dark Skies: Significant but mitigable
14. Radio Noise: Significant but mitigable
15. Cumulative Impacts: Potential exists for substantial adverse impacts
16. Growth Induction, Energy Impacts, State Park Impacts: No significant change in the conditions as presented in GPA76-02. Refer to the Background section for a summary of those findings.

*Staff felt strongly that this issue dealing with groundwater availability was significant and mitigable by a comprehensive groundwater study done by the applicant before the project was approved. As such, EAD recommended the following mitigation measure (deleted by the ERB):

> Prior to project approval by the Board of Supervisors, the applicant shall demonstrate to the satisfaction of the Environmental Analysis Coordinator that there exists an adequate longterm water supply for the proposed project which does not involve longterm groundwater mining. ...

Such demonstration must be based on a thorough independent study and may occur in the form of County approval of a Comprehensive Groundwater Management Plan for the Borrego Water District.

However, the ERB disagreed and felt this applicant should not be required to do the water study. The ERB did agree, however, that a comprehensive groundwater study needed to be done in the near future. Some discussion went on at the ERB meeting about property owners contributing to the cost of a groundwater study.

Respectfully submitted,

Kathy Lehtola

KATHLEEN A. LEHTOLA, Secretary
Environmental Review Board

KAL:NW:sb

Enclosures:
A. Environmental Impact Report Discussion, Pages A-1 to A-12.
B. Letters of and Responses to Public and Other Agency Comment, Pages B-1 to B-43.
C. Applicant's Responses to Letters of Public Comment
D. EIR (excluding Draft EIR) for the Borrego Springs (Di Giorgio) General Plan Amendment
E. Planning and Land Use Comments regarding Authorization of Latent Powers EIR
F. Supplemental Correspondence from APCD
G. Draft EIR, prepared by PRC TOUPS

Copies: Project Planning, Department of Planning & Land Use #0173
Project Planner, Steve Lister #0173
Anna Pecus, #A655
Di Giorgio Development Corp.
PRC Toups Corp.

ENVIRONMENTAL IMPACT REPORT DISCUSSION

PROJECT: RAM'S HILL COUNTRY CLUB, LSP 79-01, EAD LOG #79-11-1

PROJECT DESCRIPTION

The proposed project is a Specific Plan for a Large Scale Project on a 2,158 acre portion of a total 3,124 acre property.

The Specific Plan proposes a total of 780 dwelling units on 596 acres as 530 PRD units on 102 acres (6 du/acre), 200 single family units on 127 acres (3 du/acre), 50 estates on 124 acres (1 du/2 acres), a 350 unit three story hotel complex on 56 acres, a golf course on 160 acres, a wastewater treatment plant, fire station, and medical clinic. The Specific Plan also includes 966 acres of future development areas, and 1,562 acres of open space.

This Specific Plan proposes the following phasing over a 5 year period

	1-3 yrs	4-5 yrs	5 yr total
ESTATE LOTS	18	32	50
SINGLE FAMILY LOTS	99	101	200
CLUSTER HOMES	278	252	530
HOTEL RESORT	175	175	350
	Clinic		
	Golf Course		
	Waste water treatment plant		

PROJECT LOCATION

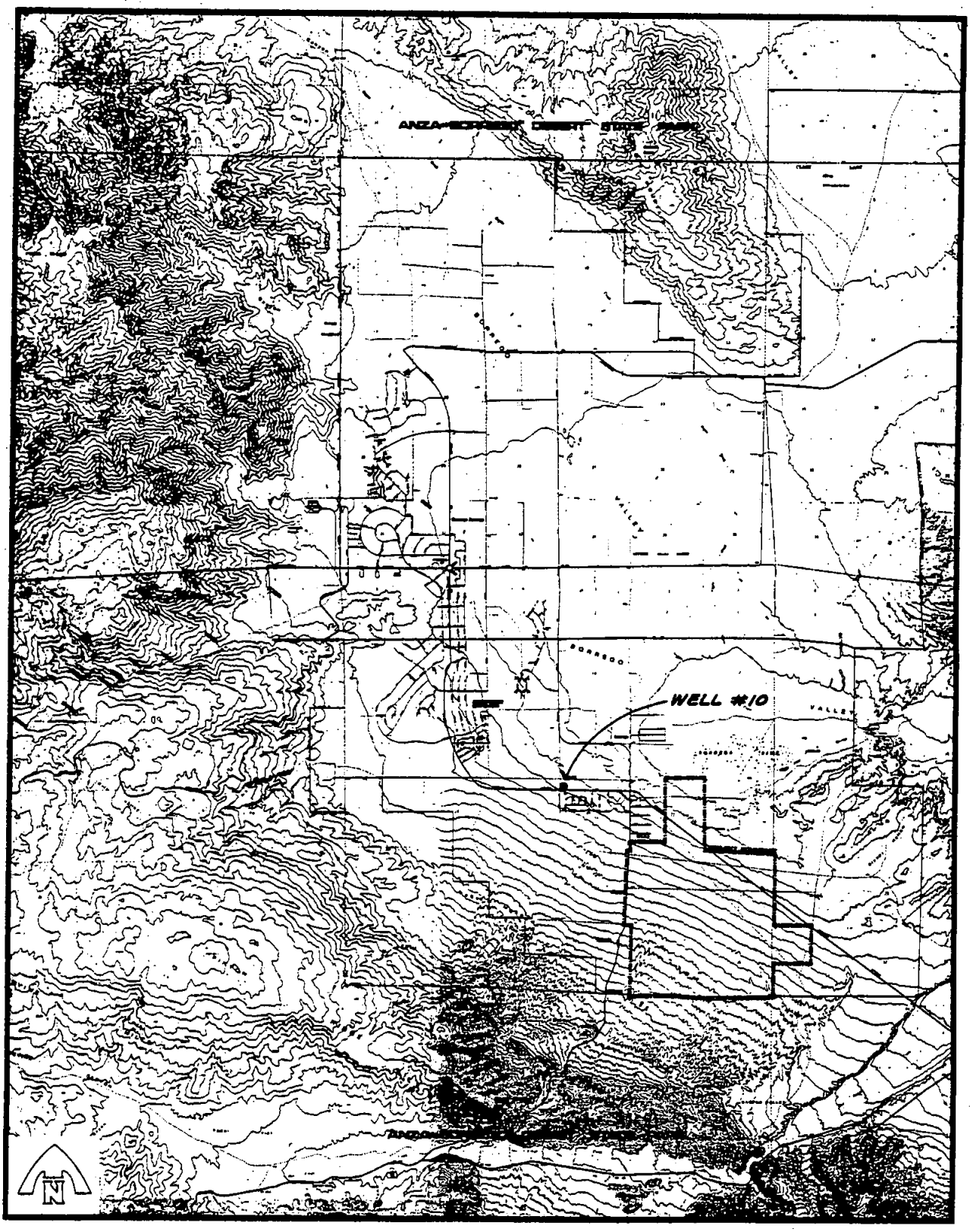
The project site is located on the south slope of the Borrego Valley, an unincorporated area east of the Peninsular Mountain Range in the Anza-Borrego desert of San Diego County. The project site is 65 miles northeast of metropolitan San Diego, 40 miles south of Palm Springs, and 25 miles west of the Salton Sea. The project location in the Borrego Valley is shown in Figure 1.

Primary access to the site is provided by Yaqui Pass Road, which traverses the western boundary of the site. Secondary access is provided by Borrego Springs Road through the northeast portion of the site.

LAND USE FACTORS AND SURROUNDING LAND USES

The project site has been designated as a Specific Planning Area, with an overall allowable density of one dwelling unit per two acres (SPA 0.5).

The project site and surrounding property is zoned "Limited Control" (S-87) as is the majority of Borrego Valley. Implementation of the project would require rezones on protions of the site from LC (S-87) to C-42, R-U-6, RR-0.5, R-S-3, S-80, and S-88. Full zoning will be established upon submittal of tentative maps, planned development and major use permit applications.



project location in valley

PRC TOUPS CORPORATION

RAMS HILL

FIGURE 1

BACKGROUND

The proposed project follows an earlier PDP application (PDP 74-03, EAD Log #74-11-2113) which was not processed to completion due to the need for an appropriate change in the Land Use Element of the County General Plan before the PDP could be properly processed. Accordingly, the project property was the subject of General Plan Amendment GPA 76-02 (EAD Log #75-GP-14) at which time 1,457 DUs were contemplated on 1,457 acres (1 du per acre), a portion of the entire 3,000+ acre ownership. In Board of Supervisors hearings (Dec. 16, 1976), the allowable number of DUs was decreased to 0.5 DU over the entire 3,000+ acre ownership, this is reflected in the present project proposal.

This EIR has been prepared to provide a higher level of resource information needed before effective mitigation measures could be formulated. The previous Draft-EIR (prepared for PDP 74-03) and subsequent GPA material are primarily regional in coverage, allowing assessment of community but not site specific impacts per se.

Eight Major Issues (Growth Induction, Energy, Circulation, State Park Impacts, Biology, Solid Waste Disposal, Water Supply, and Sewage Disposal) were addressed in the Borrego Springs General Plan Amendment EIR for GPA 76-02 heard by the Board of Supervisors in December, 1976. Of the eight issues, five have been reformulated and mitigation measures proposed, as appropriate, on the basis of new information made available in this EIR or information available due to availability of design specifics.

The three remaining Major Issues (Growth Induction, Energy, and State Park Impacts), not readdressed in this EIR are primarily regional in nature and are not highly dependent on the size of this proposed specific plan. We find no significant change in the conditions which would warrant changes in the previous environmental findings.

The three previously addressed issues are summarized from the General Plan Amendment as follows:

1. Growth Induction. Borrego Springs is unusual compared to other low population areas of the county in that there are a large number of undeveloped small parcels (3 acre or less) legal building sites (estimated at present to be approximately 3,500 lots) which could be built-out without need of any discretionary permit review. The concern centers on this growth potential as it might be affected by market stimulation following development of a project in the Borrego Springs area such as the proposed Specific Plan.

   Energy. Energy needs for development in the Borrego Springs area are seen as significantly high compared to other county areas due to two factors: 1) The relative remoteness of the project from other urbanized area, and 2) high summer temperatures, with a resultant higher energy need for transportation and space cooling needs.

   State Park Impacts. Due to the fragility of State Park resources (primarily archaeological and biological resources), there is a concern that major development in the Borrego Springs area will result in both primary impacts (those associated with project development and its habitation) and secondary impacts (those associated with increased unofficial or unauthorized usage of the Anza Borrego Desert State Park) that stem from a general increase in area population and increased popularity and use of park areas immediately adjacent to the proposed project.

Mitigation

Although each of these issues can be mitigated to some degree by project design, effective long term mitigation measures that would clearly reduce impacts to levels of insignificance are beyond the regulatory ablity of the implementing permits of the project (Major Use Permits and Subdivision permits.

Summary

1. The Environmental Impact Report was heard by the Environmental Review Board on October 9, 1975 and on a four to two vote the Environmental Review Board found that the project would have significant adverse impacts for four reasons.

A. Growth-inducing factor impact of improvements necessitated by the project,

B. Adverse energy impacts because of the remoteness of the site; landscaping; heating and cooling requirements,

C. The location of a semi-urbanized area in the middle of the desert, and

D. Circulation-would require expansion of the circulation system.

The ERB split three to three on biological impacts but held that they were not significant because similar species were protected by the surrounding park.

2. The Planning Department recommended denial of the General Plan Amendment for these reasons and for the fact that it still felt that the project should be considered as part of an overall plan for the valley.

On February 21, 1976, the Planning Commission rejected staff recommendations and by a six to one vote recommended approval of the General Plan Amendment of development of the total site.

MAJOR ISSUES:

1. Groundwater (See the Following Mitigation Measure)

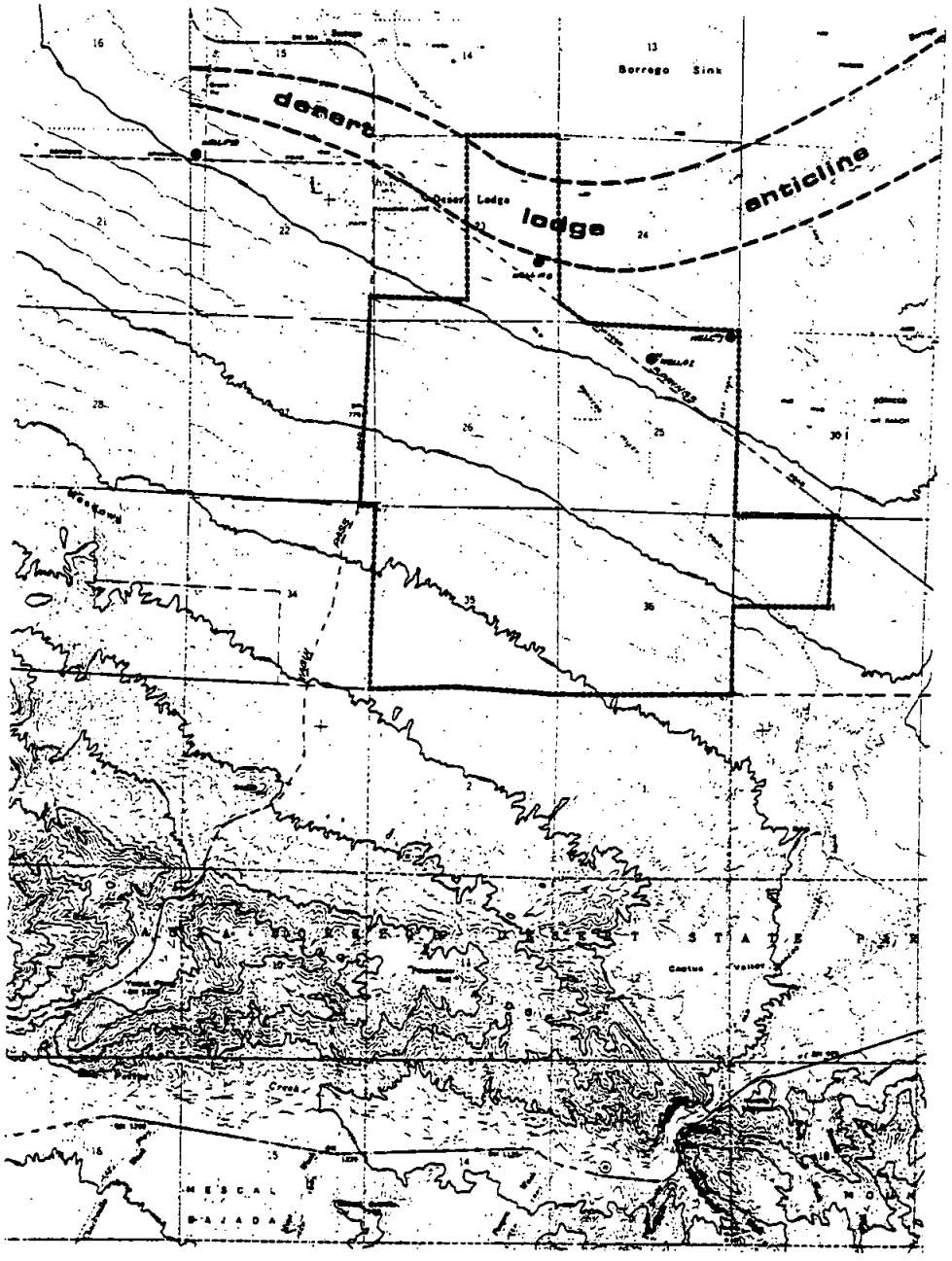
The total dependence of the Borrego Valley on groundwater underscores the need for assurance that longterm unmanaged groundwater mining and sewage disposal will not occur.

The draft EIR presents an evaluation of the past studies of groundwater resources in the Borrego Valley and concludes that any additional development (including the current Ram's Hill proposal) will result in groundwater mining unless agriculture is curtailed. Specifically, based upon current estimates the consumptive use of water in the Valley exceeds long-term groundwater recharge by approximately 300 acre feet/year.

The draft also concludes that under worst estimated conditions of recharge, groundwater could potentially be mined at a rate of 2,130 acre feet per year (Draft EIR, page 151). (Under higher recharge estimates, mining would not occur by 1985 development.) The potential exists that induced growth or development of the 2,500 already created lots, and/or development of the Borrego Country Club could create moderate groundwater mining throughout the Valley in the near future. Another scenario which limits groundwater extraction from the area under the project site south of the desert anticline, Fig. 2, under estimated worst case estimates, indicates that a 200 foot lowering of the water table under Ram's Hill within 45 years is possible. The potential exists here for localized subsidence or collapse of the underlying water bearing strata.

Additionally, water supply in the Valley is provided by six relatively small and uncoordinated private water companies. The opinion seems generally accepted that should this condition be allowed to continue with increased development in the Valley, the danger of unintentional overdraft exists. Since the proposed project is situated in the southern groundwater basin of Valley (and geographically isolated from existing water sources) it is necessary to establish a water supplying entity to accommodate the project. Consistent with this need, there exists a concurrent proposal to authorize the latent powers of the Borrego Water District and annex Ram's Hill to that agency as a source of water supply (Fig. 3). (See Enclosure E for Planning and Land Use Department comments regarding the Draft Authorization for Latent Powers and Annexation EIR.) There seems little doubt that the addition of one more supplier (Borrego Water District) would simply compound the problem of uncoordinated groundwater extraction unless some action is taken to tie together all consumptive use of water in the Valley. That action could be accommodated through approval of a Comprehensive Groundwater Management Plan for the entire Borrego Valley. In that context the draft EIR for the LAFCO application for authorization of latent powers for the District states that there appears to be no guarantee at this time that the District will be in a position to develop and implement a comprehensive groundwater management plan. Clearly, the total dependence of the Borrego Valley on groundwater underscores the need for assurance that groundwater mining will not occur.

Finally, it should be noted that water quality problems have occured in the north and central groundwater basins. As a result of continuing fertilization, nitrate salts have infiltrated to portions of the groundwater table resulting in nitrate levels in excess of potable water standards in those areas. Since the proposed project site is geologically isolated from the areas where such conditions have occured, it is important that adequate controls be exercised over the water reuse programs and areas subject to heavy fertilization such as the golf course.

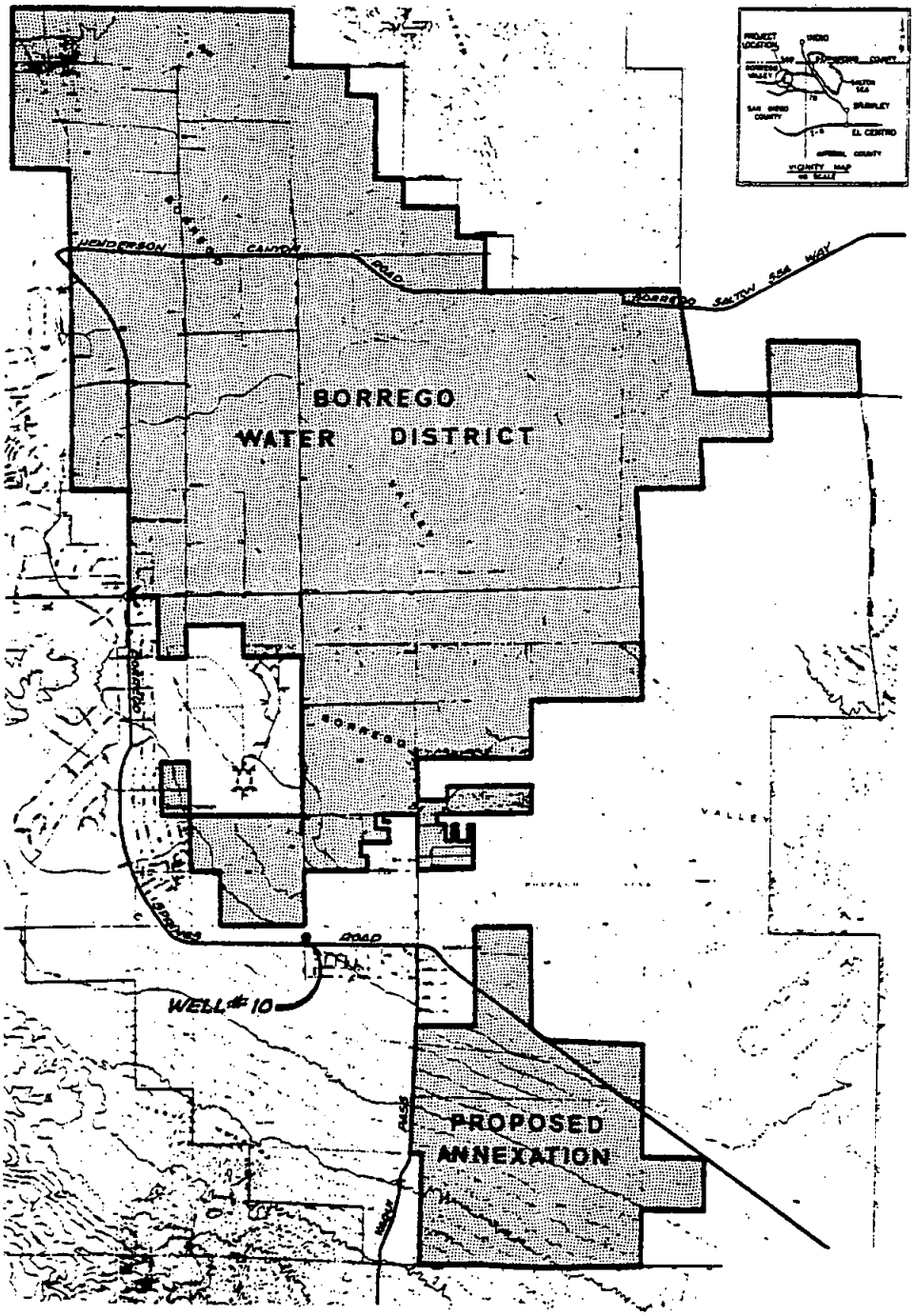


desert lodge anticline

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FIGURE 2



proposed annexation to
borrego water district

NO SCALE

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RAMS HILL

FIGURE 3

2. Air Quality (No Mitigation Measure Proposed)

Project implementation will increase emissions in the Southeast Desert Air Basin, a Basin currently proposed for designation as a Class I or pristine air basin. Adoption of a pristine designation would prohibit any increase in activity which would degrade the air quality below that quality which existed in 1977. A small increment of deterioration might be allowed by the Air Resources Board. Present air quality of the valley is expected to be exceptionally good due to current low emissions and its topographic isolation from the San Diego Air Basin. Air quality monitoring has not been conducted in the Borrego Valley and there is, therefore, no baseline against which to monitor the incremental degradation which might be allowed by the Clean Air Act if Class I designation is approved. The Draft Environmental Impact Report relies heavily on the attainment of 1985 automobile emissions standards to conclude that the project will not have a significant impact on the air quality of the Valley. The assumption that these 1985 emission standards will be met may be premature in view of the fact that some automobile manufactures are currently petitioning for relief from 1981 standards. The current energy shortage can only increase pressure to delay the attainment of these standards. Assuming, however, that 1985 automobile emission standards will be met, predicted automobile emissions from the project would increase 1985 NO_x emissions by 40 percent. Without the project, NO_x emissions would decline by 14 percent. The other predicted lower emissions from improved 1985 automobiles, may be negated largely (as in the case of carbon-monoxide) or partly (hydrocarbons) by development of the project. The Air Resources Board has expressed concern that development in the Valley between 1977 and the adoption of an emissions model might absorb the entire potential allowable increment of deterioration.

Additionally electrical power generation for the project will contribute to emissions in the San Diego Air Basin, which currently exceeds State and Federal Standards.

3. Circulation (See the Following Mitigation Measure)

According to the land use pattern contained in the site plan and trip generation factors, the Ram's Hill project will generate 13,500 trips per day from the 5 year plan, necessitating road expansions in the project site area. Additionally, high projected growth in Anza Borrego Desert State Park visitation, together with Ram's Hill development will result in significant traffic impacts on several existing Borrego Springs intersections, local and access roads during the peak seasons. Seasonal/weekend congestion which occurs now along access routes into the Valley will be aggravated. Figures 4 and 5 illustrate projected 1985 traffic assignments with and without the developments.

Mitigation Measure

As a condition of the Specific Plan and prior to approval of any Final Maps by the Board of Supervisors, the applicant shall:

A. Have reached an agreement to the satisfaction of the Director of the Department of Transportation to dedicate right-of-ways and make circulation element improvements as deemed necessary.

B. And if deemed necessary by the Director of DOT, shall place a cash deposit, amount to be determined by the Director of the Department of Transportation, in the Community Service Trust Fund for further improvement of Circulation Element roads in the area. This deposit is to mitigate significant

4. Visual Impacts (Partial Mitigation Proposed)

The project if implemented will alter visual quality of the desert panorama. The project which proposes to develop a substantial portion of a 1500 acre development area within a 3000 acre ownership with this Specific Plan includes plans for a golf course, 3 story hotel complex, condominiums and single family units. This development, due in large part to its size and the topography of the Valley will be visible from numerous vantage points throughout the Valley including the major scenic access road into the Valley.

Mitigation at the discretionary/implementing permit level with regard to development height, reflectiveness, color harmony with surroundings is not possible. Partial mitigation through a "desert sensitive" landscaping plan is presented under Major Issue 7: Grading.

5. Biological Resources (See the Following Mitigation Measure)

Implementation of this project will directly adversely effect desert biota within the project site and has the potential to adversely impact adjacent habitat.

The project site within the concept plan area exhibits three major undisturbed wildlife habitats and vegetative communities: Mesquite Woodland, bordering the offsite Borrego Sink; Creosote Bush Scrub, and Ridge and Wash areas, occupying the southwestern portion of the property. The area of development within this Specific Plan will impact only the Creosote Bush Scrub community directly. Impacts will result due to direct removal of native vegetation/loss of wildlife habitat, a potential 2,200 residents of the project site, alteration of water runoff rates, patterns and availability, introduction of exotic and/or weedy non-natives due to irrigation and landscaping. Offsite impacts are possible due to the above considerations as well as increased traffic on major access roads and increased access to offsite areas.

In addition, two species of birds of rare occurence, Crissal's Thrasher, known to occur in San Diego County only in the Borrego sink area, and Swainson's Hawk, a depleted species found primarily in the desert during migration will be impacted by the development.

A primary concern exists relative to indirect impacts to resources located southwest of the project, an area designated as "not a part" on the Specific Plan map. (See Project Alternatives at the end.)

Project Alternatives

Although the parcel designated as Not A Part, located southwest of the Specific Plan area, is not within the Specific Plan area, it is shown on conceptual plans for the property, and this parcel contains both biological and archaeological resources that are considered to be significant. Preservation of this area could be achieved if an equivalent portion of the area now described as open space were to be developed in lieu of the Not a Part area, with the streets now shown to be stubbed out at the Not-a-part boundary terminated in cul-de-sacs one-lot distance from the Not-a-part boundary; with the Not-a-part parcel to be then placed in open space.

Mitigation Measures

As a condition of the Specific Plan and prior to use and reliance on associated Major Use Permits and prior to subsequent Final Map approvals by the Board of Supervisors:

5-A: The applicant shall grant an open space easement to the County of San Diego over the area identified as Open Space on the submitted Specific Plan to the satisfaction of the Environmental Analysis Coordinator. This open space to be maintained under developer ownership until the total project is submitted to allow for a potential shift of development from the southwest portion of the concept plan site to other adjoining areas within that open space, if future environmental analysis of subsequent development plans indicates that such action is necessary to preserve the archaeological or biological resources of the southwest portion.

5-B: All implementing permits required to return to the Environmental Review Board.

5-C: As a condition of the Specific Plan, the applicant shall have a Spring biological survey (late March-April) conducted to determine the presence of rare and endangered plants and these survey results shall accompany all TM and other implementing permits.

6. Archaeology (See the Following Mitigation Measures)

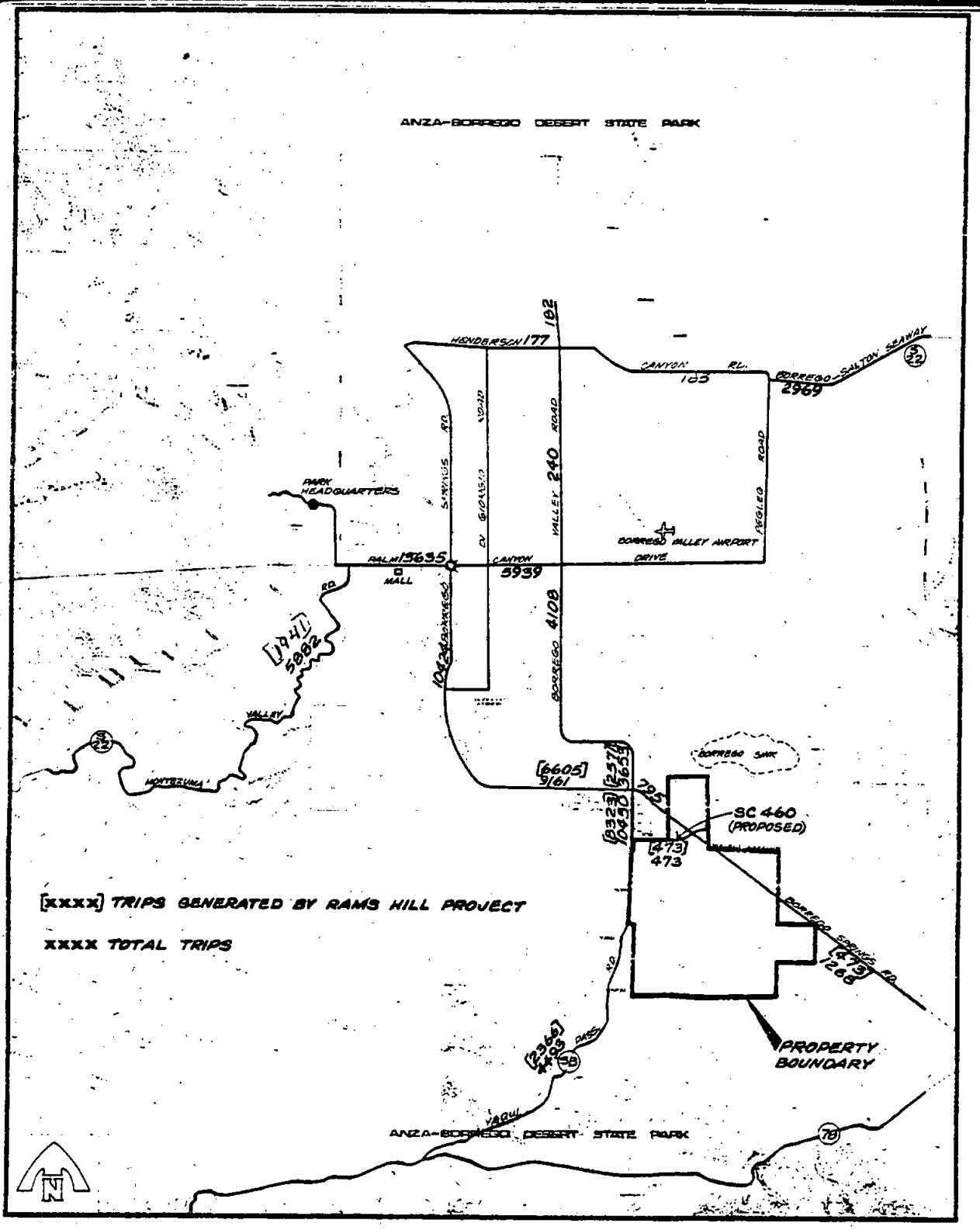
Implementation of this project will result in significant direct and indirect impacts to seven archaeological sites. The only direct impacts will be to an historic chimney (site 1) and a small portion of a sleeping circle complex (site 2). The balance of site 2 and sites 3,4,5,6,7 will be indirectly impacted by increased human traffic, relic collectors, and off-road vehicles.

A primary concern exists relative to indirect impacts to resources located southwest of the project, an area designated as "Not a part" on the Specific Plan map.

Site 2 comprise of a dense cluster of 75 "sleeping circles" (ref. M.J. Rogers, Ancient Hunters of the Far West, 1966, Copeley Press), trails, broken pots, flaking areas, and at least two metates. The site consists of a great many level areas atop gravel covered ridge remnants of ancient alluvial forms, which slope north toward Borrego Sink. The ancient trails link the circles which are probably the floor areas of houses or brush structures. Most theorists hypothesize these features to be at least 7000 years old. The site covers approximately 144 acres south of the proposed development. The rest of the sites lie in open space and will not be directly impacted by this project.

Mitigation Measures

Prior to use and reliance on associated Major Use Permits and prior to subsequent Final Map approval(s) by the Board of Supervisors, the applicant shall to the satisfaction of the Environmental Analysis Coordinator:

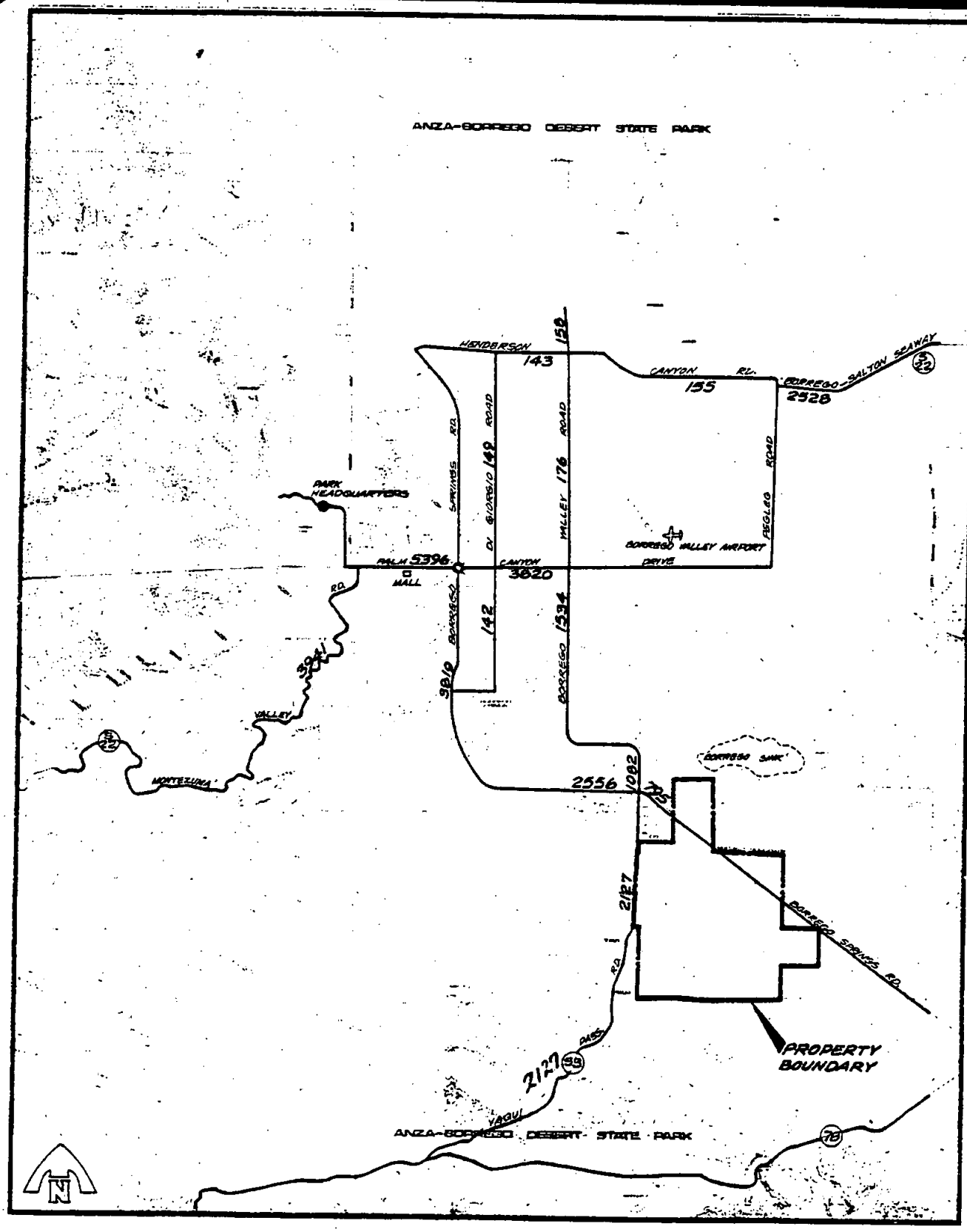


1985 borrego springs traffic assignment with rams hill

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FIGURE 4



1985 borrego springs traffic assignment
without rams hill

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FIGURE 5

6-A. Record sites 1-7 at the California Archaeological Site Survey at San Diego State University and submit the numbers to the Environmental Analysis Division.

6-B. A qualified archaeologist shall be retained who will personally conduct a micro-map operation of the entire surface of site 2, with accompanying photographic documentation of features. The goal will be to document the location and configuration of sleeping circles and associated features in relation to topography and drainage courses. Surface artifacts shall be plotted, recovered, analyzed, and described in a summary report. That report shall be submitted to the Environmental Analysis Division.

6-C. A qualified archaeologist shall be retained to prepare a research design orienting a salvage excavation and documentation of those features of site 2 to be impacted by project construction. That research design must be submitted for approval to the Environmental Analysis Division prior to commencing salvage operations.

6-D. A qualified archaeologist shall be retained to personally conduct the salvage operation, per the approved research design, analyze the recovered data, and submit a summary report to the Environmental Analysis Division.

6-E. Submit a copy of the tentative map with the precise locations of sites 3,4,5,6 and 7 plotted on the main open space area to the Environmental Analysis Division. This map must be accompanied by individual site maps illustrating the configuration of the sleeping circles and surface artifacts, as insurance against indirect resource destruction from future project residents.

Project Alternatives

Although the parcel designated as Not A Part, located southwest of the Specific Plan area, is not within the Specific Plan area, it is shown on conceptual plans for the property, and this parcel contains both biological and archaeological resources that are considered to be significant. Preservation of this area could be achieved if an equivalent portion of the area now described as open space were to be developed in lieu of the Not a Part area, with the streets now shown to be stubbed out at the Not-a-part boundary terminated in cul-de-sacs one-lot distance from the Not-a-part boundary; with the Not-a-part parcel to be then placed in open space.

7. Grading (See the Following Mitigation Measures)

Grading necessary for project implementation, an estimated 1,060,000 cubic yards, will result in substantial landform modification and removal of vegetative cover, exposing the fragile desert soil mantle to greatly accelerated erosion potential.

Mitigation Measures

As a condition of the Specific Plan to the satisfaction of the Directors of Planning and Land Use and the Department of Transportation and the Environmental Analysis Coordinator:

7-A: A "desert sensitive" landscaping plan for rehabilitation of graded and otherwise disturbed areas will be required. This plan shall include, to the maximum extent possible, utilization of non-irrigation dependent native vegetation.

7-B: Grading in the estate lots areas (2-5 acres) shall be limited to that necessary for road and pad construction.

8. Solid Waste Disposal (No Mitigation Measure Proposed)

The proposed project could significantly impact the life expectancy of the Borrego landfill and will contribute to the regional need for new disposal methods and sites.

The Borrego landfill has a estimated remaining life expectancy of twenty years based on current population levels. The landfill site is now receiving 18,000 tons of solid waste per year. This five year Specific Plan will contribute an additional 1172 tons per year based on 780 dwelling units and 350 hotel suites- Ultimate development over a span of 12-15 years will result in 1562 dwelling units and 600 hotel rooms significantly decreasing the life expectancy of this landfill site. Not included in the above impacts are an estimated 600 persons who would move to Borrego to work at the resort and any other secondary population growth induced by the project.

9. Seismic Hazard (See the Following Mitigation Measures)

The project site and entire Borrego Valley are exposed to high seismic risk. The San Jacinto Fault Zone and Elsinore Fault Zone are located approximately 11 and 15 miles to the northeast and southwest respectively. Additionally numerous smaller faults including the Coyote Creek fault occur within 3-10 miles of the project site. A seismic event without adequate compensating structural design of buildings could cause extensive structural damage and/or loss of life.

Mitigation Measure

As a condition of the Specific Plan:

On site geologic studies shall be conducted to ensure appropriate soil treatment, foundation and structural design to withstand maximum bedrock acceleration as identified in the July 28, 1973, Woodward Gigienski and Associates Study and any findings subsequest to this analysis to the satisfaction of the Director of Department of Transportation.

10. Sewage Disposal (See the Following Mitigation Measure)

Sewage disposal facilities are not now available to serve the project. Disposal via septic systems and a package treatment plant are proposed by the applicant. Irrigation use of the reclaimed effluent is proposed when the flow exceeds 100,000 gal. day. (This is estimated to occur 3-4 years into the development plan during peak season only.)

Mitigation Measures

As a condition of the Specific Plan and prior to approval of any Final Subdivision Maps by the Board of Supervisors:

10-A. The applicant shall demonstrate to the satisfaction of the Director of Planning and Land Use (via Regional Water Quality Control Board and County Health Department approval) that adequate, appropriate sewage disposal facilities are available to serve the project.

10-B. The site specific impacts of the waste water treatment plant will be subject to additional review via the preparation of an EIR supplement and addendum.

11. Flood Hazard (See the Following Mitigation Measure)

The project site, as is the entire Borrego Valley is subject to severe flash floods which without adequate mitigation could result in extensive property damage and potential loss of life.

Although the project site is not located at the mouth of a canyon, where flood hazard and flood concentrations are greatest, it is none the less located below Yaqui Ridge and subject to sheet flow flooding as evidenced by the alluvial formation on which it rests and numerous arroyos on the upper steeper southern most areas of the site.

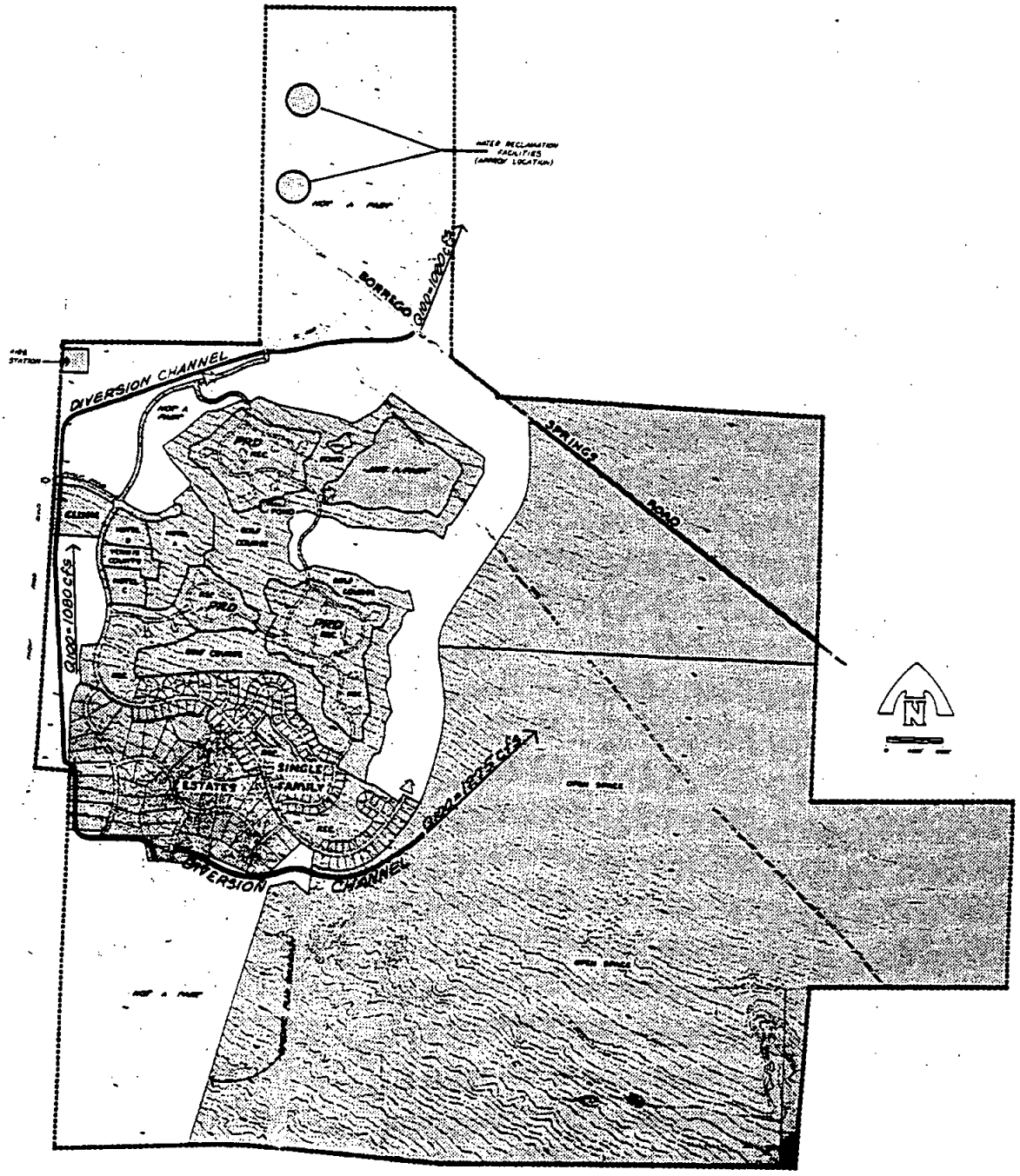
The applicant proposes to mitigate the potential flood hazard on site through the construction or two stabilized earth channels, of 100 yr. storm level capacity to direct flow around the perimeter of the project (See Figure 6). The two southern most estate lots would not be included in this protection device.

Final engineering has not been completed on the structure design but preliminary calculations indicate the need for 15 feet wide and five feet deep channels. Additional protection is proposed via a two foot high levee/wall of masonry block extending along the northern side of the east-west portion of the diversion channel. Flood protection will be provided for the sewage treatment plant and percolation basins as required by the Regional Water Quality Control Board.

As pointed out in the Draft Environmental Impact Report the flood control structures will minimize flooding hazard on site but due to the unpredictable intensity and location of storms, it is still possible that the development could sustain major flood damage.

Mitigation Measures

As a condition of the Specific Plan and prior to final approval of any implementing permits, the applicant shall design appropriate flood control measures to the satisfaction of the Director of Sanitation and Flood Control, and the Regional Water Quality Control Board.



flood protection map

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FIGURE 6

12. Public Services (See the Following Mitigation Measures)

A. Schools

Estimated generated figures indicate that Ram's Hill project could generate 47 primary and 58 secondary students. Ultimate (10-12 years) development could generate approximately 94 primary and 116 secondary students. Secondary induced growth from project related jobs could result in the additional generation of students. The draft EIR estimates a generation of 52 primary and 70 secondary students based on 350 project created jobs and 175 new households. The Borrego Springs Unified School District indicates that the school system currently has the capacity to handle this increase in students. However projected growth from other development may cause the school enrolled to exceed capacities.

B. Sheriff's Protection

The Sheriff's Department estimates that in order to serve Ram's Hill under full build-out conditions in 1985, two additional deputies would be required to maintain the present level of service.

C. Fire Protection

The proposed project will significantly increase the demand for fire protection within the Borrego Springs Fire Protection District.

Mitigation Measures

12 As a condition of the Specific Plan and prior to Board of Supervisor's approval of any Final Maps the applicant shall:

A Show evidence to the satisfaction of the Director of Planning and Land Use that school availability letters are available for the project.

B Show evidence to the satisfaction of the Director of Planning and Land Use that provision has been made for the developer's contribution of funds or equipment as deemed necessary by the Borrego Springs Fire Department to maintain adequate fire protection services for the District.

13. Dark Sky (See the Following Mitigation Measure)

Without mitigation, development of Ram's Hill could significantly impact the quality of the dark sky to the east of Mt. Palomar and Mt. Laguna Observatories. both the Mt. Palomar Observatory, operated by the California Institute of Technology, and the Mt. Laguna Observatory, operated by San Diego State University, are experiencing deteriorating viewing conditions due to the cumulative increase of background light produced primarily by high intensity out-door lighting sources of the streetlight dawn to dusk class of lighting fixtures. Ram's Hill is located 32 miles east of Mt. Palomar Observatory and 24 miles northeast of Mt. Laguna Observatory. The eastern sky is currently undisturbed by light sources and consequently a relatively small light source such as the proposed project could have potentially more severe impacts than development to the west.

Mitigation Measures

13-A As a condition of the Specific Plan, all street lighting shall be limited to the number required for safety purposes, and all lighting associated with commercial and recreational areas shall be of the high cut off luminaire design, with no projection of light above the horizontal and shall utilize high or low pressure sodium lamps.

14. Clark Lake Radio Observatory -Radio Noise

Possible operation of radio transmitters of substantial power by project residents could adversely affect Clark Lake Radio Observatory. As discussed in the Rodriquez Borrow Pit EIR (P77-64, EAD Log #77-5-4), Clark Lake Radio Observatory (CLRO) is a major state-of-the-art radio observatory and highly subject to interference by a wide variety of sources of radio frequence energy. The primary concern relative to this project is radio transmitters (rather than incidental radiation from automobiles, electrical appliances, etc.) operating on frequencies less than 140 Megahertz on the project site, and such transmitters will be more or less line of sight to CLRO with no intervening mountains or hills that can afford protection. After conversations with the Federal Communications Commission, three radio services would appear to be the primary concern: the Broadcast Radio Service, Amateur Radio Service, and the Citizens' Band Radio Service.

Investigation indicates that the County cannot directly or indirectly regulate authorized radio transmissions by stations such as Broadcast, Commercial, Military, Amateur, or Citizens Band or licensees operating under a valid FCC license, or subject to licensing requirements, for the purposes of preventing or controlling interference by such devices or persons. According to the Federal Communications Commission (FCC) such regulation by local or state governments is preempted by the Communications Act of 1934: 82 Stat 290; 47 U.S.C. 302, a position likewise taken in Schroeder v. Municipal Court of Los Cerritos, 73 Cal App 3rd. 841 (141 Cal Rptr 85). (The emphasis is on the intent of regulation and the FCC states that devices such as antennas can be regulated for aesthetic or safety purposes, Commercial and Broadcast facilities can be regulated as a business or commercial land use activity per se, although incidental interference from electrical motors, automobiles, appliances, etc. not subject to FCC licensing can be regulated via land use controls, such as was the case in the Rodriquez Borrow Pit application.)

In addition, it is noted that the FCC can establish any required controls, and at present the FCC has proposed the exact type of regulation required (creation of a radio quiet zone) in Proposed Rulemaking. SS Docket No. 78-352, following petition by the National Radio Astronomy Observatory (NRAO) at Green Bank, WV, and the Naval Research Laboratory (NRL), Sugar Grove, WV. on March 8, 1978. It is also noted that the general topic of interference (although primarily to home entertainment devices) has been the subject of considerable attention at the Congressional level (HR-11812 of 1978; S-864, HR-8496, and HB-8079 of 1977; and HR-7052 of 1976).

Lastly, although it is not implied that reliance can be placed on CC & Rs, it is expected that CC & Rs common to this type of development will occur as a standard practice of the developer. Such CC & Rs typically if not always include restrictions against outdoor antennas of the typed needed for effective transmitting with appreciable amounts of power (100 watts or more).

Mitigation Measure

Not required at local level, and required mitigation can be achieved by FCC action. It is also noted that imposition of a radio quiet zone by the FCC would, according to the FCC, affect all existing as well as future radio transmitting stations and licensees, thus resolving a concern that existing stations in operation prior to the FCC establishment of a radio quiet zone might be allowed to continue operation.

15. Cumulative Impacts (No Mitigation Measures Proposed)

Cumulative impacts as defined in the State EIR Guidelines refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects.

Also under Section 15082, Mandatory Findings of Significance, a project shall be found to have a significant effect on the environment if the project has possible environmental effects which are individually limited but cumulatively considerable. As used in the subsection, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

The draft EIR attempts to evaluate the cumulative impacts of 1995 development of two Specific Plan phases of Ram's Hill with a total of 1,562 du's, 600 hotel rooms, a medical clinic, complementary range of resort facilities and development of the Borrego County Club at 782 residential units and incidental growth. The conclusion is that the cumulative impacts of these projects would substantially change the character of the Valley by converting the present small community of 1,600 people into a large scale desert resort with a population exceeding 10,000. (Discussion can be found in the Draft-EIR pgs. 196 - 200.) Cumulative impacts so discussed would magnify impacts to all resources in the Valley. The most substantial impact identified being the impact on water supply. Potential development discussed above could create a more substantial groundwater mining condition than predicted on available information.

ENCLSOURE B-1

LETTERS OF AND RESPONSES TO PUBLIC AND OTHER AGENCY COMMENT

During the 45 day public review period that commenced on July 31, 1979 and ended on September 28, 1979 (a total of 59 calendar days), fourteen (14) letters of public and other agency comment were received. Staff responses appear in brackets ([ ]).

The State Clearinghouse 45 day review period commenced on September 4, 1979, and ended on October 20, 1979 (State Clearinghouse number (SCH) 79091206).

1. From A.E.J. Engel, Ph.D., D. Sc., Geologist, who limited his comments to water quantity and quality and made the following comments in summary:

Because future precipitation and agricultural activities remain unknowns, and there exists no other rational, obvious source of water available at acceptable costs, any decision based upon recharge of more than 6000 acre feet per year would appear dangerous if not irresponsible.

If we use the 6000 acre feet value and contemplate the projected population increase in the valley to some 10,000 people in 1995 (EIR, Rams' Hill) coupled with water needs imposed by attendant golf courses, agriculture, commercial operations, et al, the following sequence of events is likely:

1. Water mining will continue, perhaps increase appreciably, within the Borrego Reservoir throughout the next 10 to 15 years (EIR, BWD and EIR, Rams' Hill).

2. Concentrations of highly soluble salts, especially nitrates, TDS, and perhaps organic wastes, will increase rapidly and poison major segments of the water supply far beyond the recent poisoning documented in the Borrego Springs area.

3. Concentrations of dissolved salts in the water, which now may average ~500 to 900 ppm (EIR, Borrego Water District, page 24, 1979) may rise to levels in excess of the 1000 ppm regarded as a safe upper level for continous human consumption. Sodium content of the waters will increase. If so those most seriously affected by high sodium will be senior citizens who dominate the population of much of the Borrego Valley.

4. The future of Borrego Springs and any related community drawing upon the Borrego water supply will be severely jeopardized.

5. In view of concurrent demands for water in every community throughout Southern California, it is unreasonable to suggest that a satisfactory alternative or additional economic source of quality water will be found at costs possible to Borrego Springs.

6. The entire community of Borrego Springs and environs may expect dramatic dilution in equities of properties of the type currently existing along the Salton Sea.

7. In this scenario those land owners of presently undivided parcels throughout the Borrego Springs area would find their holdings essentially worthless except as desert scenery.

In the light of possible events such as those suggested above which are typical of almost every highly developed desert basin of the world, we reiterate that prior to any further decisions about expanding water use, and distribution, a study of the sort we have proposed above is imperative. These studies must necessarily predate all decisions regarding the possible additional use of water by Rams' Hill, and before any greatly expanded development is permitted within the Borrego Springs area itself.

Failure to make appropriate studies, by able scientists not on payrolls of either developers or the B.W.D. may spell disaster for the community Borrego Springs. [See Major Issue and Mitigation Measure #1]

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2. From the Department of Parks and Recreation, Anza-Borrego State Park addressing several possible longterm effects of the project on the State Park: The possible need for a second power transmission line across Park lands; the projected need for widening of the road system throughout the Valley; the impact on the Park if groundwater supplies are inadequate and an aqueduct for importing water is required.

   [See Major Issues #3 and #1. Impacts of the project on the State Park were previously addressed in GPA 76-02. We find no significant change in the conditions which would warrant changes in the previous environmental findings.]

3. From the Department of Fish and Game: stating that a more acceptable development would be the incorporation of the "Recommendations to Reduce Biological Impacts" Biology Appendix, pages 12-13, into the project design, and the need to control ORV use in unauthorized areas.
   [See Major Issue and Mitigation Measure #5]
4. From Conservation Call: discussing the projects growth inducing impacts and resulting water supply and air quality problems.
   [See Major Issue #1 and #2. Growth inducing impacts of the project were addressed in the previous General Plan Amendment GPA 76-02. We find no significant change in the conditions which would warrant changes in the previous environmental findings.]

5. From the Sierra Club: discussing their opposition to urbanization of the Valley based on the information presently available on resources and conditions. The concerns include: groundwater mining, availability, and the project impacts to water quality; high consumption of energy for space cooling and water pumping; urban level demand for public services; increased air flights into the Valley with noise and air quality impacts; increased traffic congestion coming into the Valley from the west; impacts of auto emissions on the air quality of the Valley (current proposed for class A).

   [See Major Issues #1, #2, #12, #3].

6. From LAFCO: stating that although the Draft-EIR assumes that the water district's latent powers will be authorized for both sewer and water service and that annexation of Ram's Hill to that district will occur (See Authorization of Latent Powers for the Borrego Water District EIR) both are independent actions and should not be assumed before the Commission has made its decisions. In addition LAFCO comments that a number of value judgements which lapse into project advocacy, appear in the Draft-EIR and such judgements have no place in an objective informational document.

[See Major Issue #1].

7. From Clark Lake Radio Observatory: Radio emissions from Ram's Hill could seriously disrupt the facilities' radio astronomical observations.

[See Major Issue #14].

8. From the Desert Protective Council: stating that the mitigation measures and alternatives do not alleviate the concerns expressed in past hearings and the DPC continues to question the adequacy of conclusions derived relative to the impacts on air, water, State Park, energy, traffic, archaeological resources and wildlife habitat.

[See Major Issue #1, #2, #3, #6, #5].

9. From Century 3: Stating that the environmental findings are not clear, the social and economic benefits are also vague, the EIR appears to be biased and the project should be delayed due to the following:

Rationale for Delayed Project

The EIR notes a number of facts and conditions which justify a delayed project.

1. The "success" of the project (changing the whole valley) depends on active government participation (p.187).
2. That participation (preparation of a community plan) is not in the forseeable future (p.187, p.34, p.17).
3. This project alone (whole valley does not change) has significant adverse environmental impacts (p.212).
4. This project alone (without induced growth) has no significant overriding social and economic benefit (p.192).

[See Major Issue #13.]

10. From the San Diego County Archaeological Society: addressing the significance and rarity of Site #2 and stating the preferred mitigation is preservation and due to the likelihood of indirect impacts the necessity of documenting all features and their relationship to each other.

[See Major Issue #6.]

11. From the Air Pollution Control District addressing the proposed Pristene Air Basin classification of the Borrego Valley and commenting on the methods used in the Draft EIR to ascertain this project's impact on the Valley air quality.

[See Major Issue #2].

12. From the Borrego Springs Community Association reaffirming their support of the project.

[No response necessary].

13. From the Borrego Springs Chamber of Commerce supporting the concepts and specifics of the project.

[No response necessary].

14. From the Health Services Agency requesting clarification of several issues as they relate to accessibility of health services to be provided by the Scripps Satellite Clinic.

[No response necessary.]

The following comments were received after the close of the State Clearinghouse review period on October 20, 1979 and are included without staff response.

15. On December 3, 1979, a letter was received from the Environmental Health Branch through the State Clearinghouse: commenting that increased irrigation will compound Borrego Valley's perennial eye gnat problem.

16. On December 3, 1979 from the Air Resources Board: commenting on the methodology utilized in emissions estimations, the need for additional mitigation measures to minimize the air quality impacts from this development, and the need for a discussion in the draft of the Prevention of Significant Deterioration provisions of the Clean Air Act.

7/30/79

temp. add c/o General delivery
A. ENGEL
Victor, Mt., 59875
tel. 406-642-6686

Ms. Nancy Whalen
C.D. Co. Environmental Analysis Division
San Diego Co., 92123

Dear Ms Whalen,

Please note the enclosed comments re Rams Hill EIR Frankly, I'm shocked that problems of water quality are large ignored in this EIR. Hence I have limited my comment to water

There is a lot of water in the world. The Ocean, inland seas etc. The amount to drink & use in agriculture is vanishingly small in most desert regions. In most, potable water is rare, if present

Lack of discussion of the Nitrate infiltration at Borrego can not be inadvertant. Lack of a frank study of salinity is very serious

The question is not ~~if~~ Borrego will destroy the quality of reservoir of ground water, merely when!

We have the whole, sad history of despoiled desert basins of the world that tell us their story. We desperately need a good restudy.

There are many other unaddressed questions & problems in the EIR. I dealt with water because of its importance to life.

In haste. Very sincerely
A Engel

P.O. Box 471
Borrego Springs, CA. 92004

August 29, 1979

To: Whom It May Concern

From: A.E.J. Engel, Geologist

Regarding: Rams' Hill EIR, Borrego Valley, California

The EIR on Rams' Hill is seriously deficient in many ways. Some of the more disturbing errors of omission relate to the quality of water, especially as water quality deteriorates under the impact of irrigation (with fertilizers) and the recirculation of resultant salt-laden waters.

In Borrego Springs the problem is exacerbated because:

(A) farms and golf courses lie astride the major aquifers,

(B) fertilizer containing nitrogen is used extensively thereon,

(C) resulting salts, especially the highly soluble salts such as nitrates, chlorides, et al, are leached through the porous sands and gravels into the water reservoirs.

(D) the resulting, more saline groundwater is recirculated during irrigation and domestic uses, carrying additional salts into the reservoirs.

(E) as mining of water proceeds the feedback continues and salinities increase, to the point where amounts of nitrate and total dissolved solids approach or exceed those considered safe for human consumption ($\approx$45 ppm nitrate and $\approx$1000 ppm TDS).

If we assume the underground reservoirs are crudely interconnected, a decade or more of watering, fertilizing, and salting of the underground reservoir (especially with overdraft) may render much of the underground water unfit for human consumption.

This is the classic desert basin cycle observed throughout the world.

In this context it should be noted that over 90 percent of the water used in the Borrego region is for agriculture, golf courses, and landscaping (EIR, Rams' Hill, p. 140 Table IV-0-1). Further, much of the water consumed by humans takes the form of sewage enriched in organic wastes, nitrogen and other salts.

Leaching of soluble salts and sewage downward into the water reservoirs is accentuated during heavy desert storms that drop from one to several inches of water on the salted substrate.

The resulting problems involving salinization of groundwater are serious in the light of recent experiences with water in Borrego Valley wells. For example, in 1975 concentrations of nitrate in one of the Borrego Springs water

Company wells at Borrego Springs rose "abruptly" from "safe" values to over 100 ppm which is considered unsafe for humans (EIR, Borrego Water District, and Notice to Customers, 1975-76). Accordingly, some water from this well was diluted with water from one or two less impacted wells, but finally usage of the poisoned well had to be abandoned (Public Notice to Customers).

At the time that water in this well became undrinkable, the Borrego Springs Water Company had only one or two viable wells for the entire community. An additional well on County Club Drive collapsed. The resultant heavy pumping of the one or two viable wells, through old pipes, for long distances, produced silt and sulfate laden waters in homes normally supplied by the collapsed well. These contaminated waters were not only unfit for human consumption, but also full of sediment and total dissolved solids. They clogged plumbing fixtures, washing machines, filters, and created a serious hazard over a period of some 7 months until a new well could be hastily drilled by the Borrego Springs Water Company. It is this water system with a few cosmetic touches from which the Rams' Hill Country Club Project proposes to supply most of its needs (EIR, Borrego Water District).

With increased growth within Borrego Springs proper and any annexation of Rams' Hill by a Borrego Water District, there exists the strong probability of continued and significant water mining. This is conceded in the Rams' Hill EIR (Table IV-O-4, page 145).

Under these conditions recycling of waters bearing highly soluble nitrates and other salts will cause continued increase in the salinity of the underground waters. With continued water mining, salt buildup could impact much of the north Borrego reservoir and create a serious hazard for the entire community including the Anza-Borrego Park System.

As is recognized (EIR, Rams' Hill, Table IV-O-4) the future of agriculture in the Borrego Valley is unpredictable, but at present more lands are being put into citrus groves. In addition, at least two, perhaps more golf courses are scheduled to evolve (Borrego Park and Rams' Hill). This means that for the next few years the total amount of water (with fertilizer) used for irrigation will equal, perhaps exceed recharge (unless there is a sudden climatic change).

Clear, specific recognition of the above cited situation and its inherent dangers should accompany any EIR on Rams' Hill, or in a major expansion of dwellings, golf courses and landscaping in the Borrego Springs Area.

The problem cannot and will not be solved by recourse to the tired old data used in the Rams' Hill EIR. Moreover, evaluation of these problems cannot be left to geologists and engineers employed by either the developers or the Borrego Springs Water Company. Proof of this is the suppression of the nitrate problems and any suggestions for corrections.

A possible clue to the potential hazards exists in the repeated claims by both the B.S.W. Co. and the Rams' Hill developers that "no more studies are needed."

Without a thorough, dispassionate study by the most qualified water scientists, geologists and chemists, these problems will be swept under the sands.

Need for the study is obvious if we consider the proposed increase in population to some 10,000 people with attendant commercial and golf course

activities in the region. (see pages 198-199, 203, 210 and 211, Rams' Hill, EIR) and subsequent discussions of water consumption and water mining.

The history of nitrate buildup to poisonous levels in at least one Borrego Springs Water Company well (since 1974?) is evidence of the extremely fragile nature of the reservoir and the potential for loss of large segments of the water reservoir for human consumption. It is also probable from the fragmentary well data and from projections into the future of the average precipitation over the last 40 years, that the postulated expansion of Borrego Springs per se to some 2500 to 4000 more dwellings, one to three more golf courses, and attendant agricultural and commercial activities could unduly stress and degrade the Borrego aquifers.

In the Rams' Hill EIR a water crisis of serious dimensions is conceded as a possibility (page 196) but this crisis is dismissed with the casual comment that "acquisition of a substitute future water supply should one become necessary, would be the responsibility of Public Agencies" (page 196). In other words, if our concerns have any basis in fact, we have no recourse other than to explain the catastrophe to "Public Agencies," who of course have the final responsibility of deciding whether a dangerous gamble on water quality can be justified without further study.

There is, moreover, no specific discussion in the Rams' Hill EIR of the almost impossible task and incredible cost of reclaiming nitrate and Na-rich waters or waters with excessive total dissolved solids as these may continue to develop.

The suggestions for alternate sources of water are ridiculous.

There is also no attempt to relate or reconcile the contradictory inference that (A) the north Borrego Valley water reservoir per se is relatively homogenous and interconnected and (B) the documented large variations in water level, salt content, and water quality from well to well within the northern reservoir (see EIR, BWD, Table 5.2-1, and DWR, 1968).

In view of the serious questions, especially the dangers of major pollution associated with probable water mining operations, and the suppression of the problems encountered to date, no major expansion of the Borrego Springs water system per se should be seriously considered, much less approved until far more definitive studies are undertaken.

The obvious source of such a study would be the highly qualified water scientists in the Water Resources Branch of the United States Geological Survey. Discussions with U.S.G.S. officials in the San Clemente office of the U.S. Geological Survey indicates they are capable and willing to undertake such a study. Current costs are on the order of $125,000 to $150,000. One-half of these costs would be borne by the Geological Survey and the other half to be obtained within the State, County, and Community. Obviously, problems as important as those in question involving the lives of thousands of people and investments of many millions justifies expenditure of some $75,000 to quantify and more clearly define the problems of water quality, water degradation, water mining as well as simply amounts of water.

Amount of Water

Discussions of (A) the amount of water in the Borrego reservoir and (B) recharge of the reservoir that appear in the Rams' Hill EIR are unacceptable. The problems are discussed with inadequate and poorly determined, old, data, and numbers. A careful restudy of the problem by competent scientists who do not have a vested interest in land development is imperative prior to any decision to utilize water from the Borrego Springs Water Company in the Rams' Hill Development.

Specifically, concepts of the size, and internal structure of the valley reservoir are simplistic at best. Geological studies during the last decade by geologists of the U.S. Geological Survey (U.S.G.S. Professional Paper, Borrego Mountain Earthquake, 1969) and our own studies in the Borrego Sink and adjacent mountains suggest that Borrego Valley is transected by at least four major faults and fold systems and numerous subordinate structural features. These produce steeply dipping zones of varying permeability which may not permit free movement of groundwater within adjoining reservoirs. The complex fault system coupled with the so-called "Desert Lodge anticline" as well as horsts and folded segments of the relatively impervious Palm Springs Formation, imply critical deviations from the concept of a dual, possibly quasi-contiguous reservoir (see also, page 153, EIR, Rams' Hill). The suggestion of a complex and fragmented reservoir appears substantiated by existing well data suggesting a related pattern of unequal water levels, uneven yields, and differing salinities of clusters of wells within the Borrego Sink (DWR, 1968; EIR, BWD, Table 5.2-1 and cross section page 11B).

Unfortunately, most wells, and over 85 percent of water consumed in Borrego Valley, are privately controlled (EIR, SWD, page 6), and it is difficult if not impossible for a private citizen to obtain adequate necessary information regarding water from these wells to resolve these problems.

The future of agriculture is a major unknown, as is future weather.

The suggested studies by the U.S. Geological Survey would unearth enough contemporary and historical data to permit refinements in estimates of the reservoir size, internal complexity, yields, water degradation, and salinities of most wells and a dispassionate analysis of the related plethora of data that now exists.

The present values of recharge ranging from 3300 acre feet (Lough, 1973) to the optimistically high values of some 11,000 or more acre feet (BLM and others, EIR, BWD, Table 2) surely can be refined. Estimates of recharge are, however, especially subject to errors due to our ignorance of precipitation over the next 50 to 100 years. If the data on precipitation from the last 40 years are extrapolated into the future, the value of some 6000 acre feet recharge per year suggested by Threet (BWD, EIR, Table 2) may not be unreasonably high. If the general decrease in average precipitation indicated for the last 3000 years continues - and this is suggested by some of the precipitation data between 1935 and 1975 - average recharge in the Borrego Basin in the next 50 years could be nearer Lough's figure of 3300 acre feet. Either value is far too low to prevent water mining.

Because future precipitation and agricultural activities remain unknowns, and there exists no other rational, obvious source of water available at acceptable costs, any decision based upon recharge of more than 6000 acre feet per year would appear dangerous if not irresponsible.

If we use the 6000 acre feet value and contemplate the projected population increase in the valley to some 10,000 people in 1995 (EIR, Rams' Hill) coupled with water needs imposed by attendant golf courses, agriculture, commercial operations, et al, the following sequence of events is likely:

1. Water mining will continue, perhaps increase appreciably, within the Borrego Reservoir throughout the next 10 to 15 years (EIR, BWD and EIR, Rams' Hill).

2. Concentrations of highly soluble salts, especially nitrates, TDS, and perhaps organic wastes, will increase rapidly and poison major segments of the water supply far beyond the recent poisoning documented in the Borrego Springs area.

3. Concentrations of dissolved salts in the water, which now may average ~500 to 900 ppm (EIR, Borrego Water District, page 24, 1979) may rise to levels in excess of the 1000 ppm regarded as a safe upper level for continous human consumption. Sodium content of the waters will increase. If so those most seriously affected by high sodium will be senior citizens who dominate the population of much of the Borrego Valley.

4. The future of Borrego Springs and any related community drawing upon the Borrego water supply will be severely jeopardized.

5. In view of concurrent demands for water in every community throughout Southern California, it is unreasonable to suggest that a satisfactory alternative or additional economic source of quality water will be found at costs possible to Borrego Springs.

6. The entire community of Borrego Springs and environs may expect dramatic dilution in equities of properties of the type currently existing along the Salton Sea.

7. In this scenario those land owners of presently undivided parcels throughout the Borrego Springs area would find their holdings essentially worthless except as desert scenery.

In the light of possible events such as those suggested above which are typical of almost every highly developed desert basin of the world, we reiterate that prior to any further decisions about expanding water use, and distribution, a study of the sort we have proposed above is imperative. These studies must necessarily predate all decisions regarding the possible additional use of water by Rams' Hill, and before any greatly expanded development is permitted within the Borrego Springs area itself.

Failure to make appropriate studies, by able scientists not on payrolls of either developers or the B.W.D. may spell disaster for the community Borrego Springs.

A.E.J. Engel

A.E.J. Engel, Ph D, D.Sc.
Earth and Environmental Sciences

B-10

STATE OF CALIFORNIA—THE RESOURCES AGENCY EDMUND G. BROWN JR., Governor

DEPARTMENT OF PARKS AND RECREATION
Anza-Borrego Desert State Park
Borrego Springs, California 92004
(714) 767-5311

419.1-622

August 13, 1979

Ms. Nancy Whelan
Environmental Analysis Division
County of San Diego
9150 Chesapeake Drive
San Diego, California 92123

Dear Ms. Whelan:

Thank you for the opportunity to review and comment on the Rams' Hill Country Club Environmental Impact Report.

Several possible long-term effects are of concern to Anza-Borrego Desert State Park.

On page 115 the possible need for a second power transmission line for the Borrego Valley is discussed. Any transmission line would, of course, have to pass over State Park System lands. One of the prime resources of this great desert park is the unimpaired vistas giving visitors scenes of vast areas without anything manmade. A transmission line marching across unspoiled terrain immediately brings everything to scale and lessens the enjoyment of the viewer. Beyond the aesthetics, there is an initial disruption of the plant and animal populations of the area during construction of the line. And there is a continuing disruption when periodic maintenance occurs.

A second transmission line would not be desirable from the park point-of-view. Using the existing poles and upgrading the service might be a viable alternative.

But the real answer is to quit the dependence on outside power sources. Surely, if solar power is ever to be successful the Borrego Valley has to be a prime candidate for a location. Sun is virtually omnipresent. A prototype solar energy system for Rams' Hill would not only be a conventional energy saver but also a park saver.

On page 133 widening of county roads is mentioned. Park lands would also be impacted by this proposal. Safe roads are important but if the purpose of road widening is only to save a little time then a great many other considerations should prevail. Wider roads mean more blasting for road cuts, more surface run-off causing more erosion, an increased mortality rate for animals attempting to cross the roads and a high visual impact from increasing cuts and fills along the roadway. All of these lessen the quality of the visitors experience to the park.

Page 150 deals with the possibility of the need for importation of water if the underground supplies within the Borrego Basin prove to be inadequate for future development. The specter of an aqueduct/canal/pipeline across the park is too gross to imagine. Growth should be limited to the existing water resources of the valley.

Page 151 also deals with the water table of the valley. The possibility of a levee and infiltration pond system for the mouth of Coyote Canyon is raised. Any such work contemplated should be done entirely on private lands in that area. The developer of Rams' Hill owns adequate land in the mouth of Coyote Canyon for this possible use. There are constant pressures for the park to open up its lands in Coyote Canyon, Henderson Canyon, Borrego Palm Canyon, Hellhole Canyon, Dry Canyon, and Tubb Canyon for flood control dikes, levees, siltration basins, etc. This project should not increase these pressures.

If I can clarify any of these points please don't hesitate to call on me.

Sincerely,

MAURICE H. GETTY
Manager
Anza-Borrego Area

MHG/jt

cc: Ronald C. McCullough

B-12

STATE OF CALIFORNIA—RESOURCES AGENCY EDMUND G. BROWN JR., Governor

DEPARTMENT OF FISH AND GAME
350 Golden Shore
Long Beach, CA 90802
(213) 590-5113

August 23, 1979

County of San Diego
Environmental Analysis Division
9150 Chesapeake Drive
San Diego, CA 92123

Gentlemen:

The Department of Fish and Game has reviewed the Environmental Impact Report for Ram's Hill Country Club describing the development of 2,158 acres in eastern San Diego County. We wish to submit the following comments for your consideration.

This development would be more acceptable from a natural resources point of view if the "Recommendations to Reduce Biological Impacts" on pages 12 and 13 of the Biology section, Technical Appendix, Volume I were incorporated into the project. Unquestionably, the greatest long term impact will be from off-road vehicles. The closure of Old Borrego Valley Road would be a positive measure to reduce ORV activity in the eastern portion of the property. This, plus any other steps that would control ORV use in unauthorized areas, should be carefully considered.

Thank you for the opportunity to comment on this proposed project. If you have any questions, please contact Dwayne C. Maxwell or Jack L. Spruill of our Environmental Services staff. The telephone number is (213) 590-5137.

Sincerely,

for

Fred A. Worthley Jr.
Regional Manager
Region 5

B-13

CONSERVATION CALL
3942 Hughes Court
San Diego, Ca. 92115

Telephone: (714) 583-8486

30 August 1979

79-11-1

Nancy Whalen
Environmental Analysis Division
County of San Diego
9150 Chesapeake Drive
San Diego, CA 92123

Dear Ms. Whalen:

We find the Environmental Impact Report for the Rams Hill Country Club project to be unsatisfactory. Despite its length, the findings do not reveal the basic faults of the project.

From the first, we have thought that it would be growth-inducing in an area where such growth is not desirable, with the problems and water supply and air pollution surely following. The wilderness atmosphere of Anza-Borrego Desert State Park would be adversely affected.

We ask that the Rams Hill Country Club project be disapproved.

Sincerely,
Roscoe A. Poland
Roscoe A. Poland, Director

AS WE SAVE THE NATURAL WORLD, WE ALSO SAVE OURSELVES

Sierra Club
San Diego Chapter
1549 El Prado, Balboa Park
San Diego, California 92101

To: Environmental Review Board

From: Desert Subcommittee

Subject: Ram's Hill Country Club

Although the item before you at the present time is Phase I of the Ram's Hill project, decisions being made now have much greater implications for the future of the Borrego Valley than the development of 596 acres might imply.

The Sierra Club has consistently been opposed to the urbanization of the valley based on the information presently available on resources and conditions there. The two developments approved in concept in recent years - Ram's Hill and Borrego Country Club - can change Borrego Springs from a town of 1200 to a city of close to 20,000. And these estimates do not take into full account the secondary growth these developments probably will generate.

Since the area in question is rural and in many places totally undeveloped by man, the opportunity to use foresight in the planning process exists. Unfortunately, you are being asked to make these important decisions without adequate data. The water question illustrates this point very well.

During the original DiGiorgio hearings all sorts of numbers and estimates were bandied about. Finally 25 years was settled upon. For the projected population it was said that there was enough groundwater for 25 years. Water mining was anticipated by 1986. Even if there is a sufficient quantity of water when it is pumped from elsewhere in the valley than the projects' locations, will the quality be adequate for human consumption? Some wells have apparently already been closed due to nitrate poisoning.

It is our position that no approvals such as Ram's Hill be given until the many questions surrounding the water situation are studied in detail by a US Geological Survey team. You owe it to present and future residents of the valley as well as to all county residents to determine the availability of and projected quality of the water supply. As stated in the EIR "... acquisition of a substitute future supply, should one become necessary, would be the responsibility of public agencies." At earlier hearings such substitutes as importation of water were deemed essentially impossible.

CPO has said that "The Borrego Valley is one of the least desirable locations in the region for new development from an energy standpoint." Estimates of the energy need for space cooling in Borrego Springs are enormously greater than in the metropolitan San Diego area. Furthermore, increased demand for water requires energy for pumping. The increased load as a result of anticipated growth might well require addition of another transmission line to the valley.

Another question is the impact this urbanization will have on many of the services government provides in theurban areas of the county. What about animal regulation, the assessor, building inspection, road maintenance stations, courts, library and social services? Will new branches, substations and offices be created to serve this remote urban area? Or will county personnel have to expend time and gasoline to drive out there? Or will the residents drive in? Certainly if they are living in an urban area they will expect urban level services.

The remoteness of the site will undoubtedly lead to many auto trips into and out of the valley. The EIR concerns itself mainly with traffic in the valley itself, and does not deal adequately with travel from the metropolitan areas of San Diego and Los Angeles. It seems unlikely that roads into the valley from the west could safely carry a large increase in traffic. And what about increased flights into and out of the valley for those frequenting their second home retreat? The noise and air pollution involved in increased air traffic has not been addressed.

The State Air Resources Board has proposed Class A status for Anza-Borrego Desert State Park. The Sierra Club feels that urbanization of the valley will have serious air quality implications for the region and for the park. The EIR concludes that Ram's Hill would not affect the Class A designation because "The decrease in VMT and trip-related emissions per vehicle from 1976 to 1985, because of more stringent controls on vehicle emissions, would more than outweigh the projected increase in automobile activity resulting from the project. It isour belief that reliance upon the implementation of these controls is not advisable. According to a recent newspaper article (San Diego Union, August 25, 1979) "The government gave automakers permission yesterday to exempt tens of thousands of cars from the tough 1981 emission standards and indicated more waivers may be coming."

We are concerned about the results the flood prevention measures proposed might have on surrounding properties. The San Diego County General Plan considers an extensive system of earth levees to be the best method of flood protection in this area, and in the past the Department of Sanitation and Flood Control has stated that the entire levee system proposed in the General Plan would be needed if part of the system is constructed in the valley. If a maze of levees and channels is necessary to protect life and property, what kinds of impacts will these have? What will the visual impacts on the park be and on the scenic highways in the vicinity of the project?

Many socioeconomic questions remain unanswered. Since much of the applicant's proposed justification for the plan is based on the claim that there is a downward trend in the Borrego Springs economy there should be trend data presented in the EIR to support or refute such a statement. Such data should also be available to prove the so-called socioeconomic benefits of the project are indeed adequate to over ride the considerable environmental impacts.

In summation it is apparent that there is a potential for the creation of many long term problems and costs for the county plus substantial environmetal damage. If San Diego were to receive extensive benefits in return, thisproject might be justified. Reflection on the following questions suggests that this does not seem to bethe case.

Will the proposed development help San Diego County to solve present problems

by increasing housing supply especially for moderate and lower income families?

by creating jobs close to present concentrations of unemployed or underemployed persons?

by encouraging mass transit?

by revitalizing downtown?

by reducing air pollution?

by cutting back on energy consumption?

It seems unwise to step into a situation without further study that may create problems when so many unsolved ones now present a challenge to governments in the San Diego region.

Sincerely,

Penny L. English

Penny L. English
Desert Sub-committee
Sierra Club, San Diego Chapter

B-47

(714) 236-2015 · san diego
Local agency formation commission
1600 pacific highway · san diego, ca. 92101

chairman
Tom Hamilton
County Board of Supervisors

executive officer
Michael J. Gotch

counsel
Donald L. Clark

members
Ralph W. Chapman
Otay Municipal Water District

Dr. Charles W. Hostler
Public Member

William J. Karn
Fallbrook Public Utility District

Dr. Lucy Killea
Councilwoman, City of San Diego

Gloria McClellan
Councilwoman, City of Vista

Lucille V. Moore
County Board of Supervisors

alternate members
Alex L. Adams
Padre Dam Municipal Water District

Dell Lake
Councilman, City of Lemon Grove

Stanley A. Mahr
San Marcos County Water District

Paul Eckert
County Board of Supervisors

September 24, 1979

TO: Kathleen A. Lehtola, Director
Environmental Analysis Division (0175)

FROM: Laurie J. McKinley, Acting Executive Officer
Local Agency Formation Commission (A216)

RE: Draft EIR - Rams Hill Country Club, LSP 79-01
Log #79-11-1

Thank you for the opportunity to review and comment on the Draft EIR for the Rams Hill project. As you know, LAFCO is currently circulating a Draft EIR for a related project, the request by the Borrego Water District for authorization of its latent powers to provide water service. LAFCO has also received a companion proposal, a request for annexation of the Rams Hill project site to the Borrego Water District.

Project plans envision operation of water and sewer services by the Borrego Water District, which has led to the proposal for authorization of the District's latent powers at this time. Our review of the Draft EIR has consequently focused on the water and sewer aspects of the project.

Throughout the narrative, the Draft EIR assumes that the District's latent powers will be authorized for both sewer and water service and that annexation of the project site to the District will occur. Both authorization of a special district's latent powers and approval of an annexation proposal are independent actions by LAFCO and should not be assumed before the Commission has made its decisions.

There are a number of possible alternatives for providing the public agency which the Colorado River Basin Regional Water Quality Control Board is expected to require to operate the project's sewage treatment plant and sewer

system. The Draft EIR technical appendix (Volume II, Chapter VI) mentions the various alternatives, but only the alternative of using the Borrego Water District is evaluated in any detail. For LAFCO's purposes as a responsible agency, the Final EIR should examine the alternatives for providing services in greater detail.

In general, the Draft appears to depend upon a number of value judgments and predispositions about what is the best means for providing services to the project and what is best for the Borrego Valley as a whole. As an example, the Draft states that the Borrego Springs community is "an isolated area with inadequate public and private facilities (Draft EIR, page 10)." In reviewing the related LAFCO proposals, we have heard from a number of residents, property owners, and business persons in Borrego Springs who express the belief that the level of services is adequate for their needs. The point I am making is that such judgments as the example cited lapse into project advocacy and have no place in an objective informational document.

Again thank you for the opportunity to comment. Please call me or Bernie Rhinerson of my staff if there are any questions concerning these comments.

Very truly yours,

Laurie J. McKinley

LAURIE J. MCKINLEY
Acting Executive Officer

LJM:rs

B-19

UNIVERSITY OF MARYLAND
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF PHYSICS AND ASTRONOMY

MAILING ADDRESS:
CLARK LAKE RADIO OBSERVATORY
P. O. BOX 128
BORREGO SPRING, CALIFORNIA 92004

Sept. 26, 1979

Environmental Review Board
Attn: Ms. Kathleen Lehtola, Secretary
Environmental Analysis Division
9150 Chesapeake Drive
San Diego, CA 92123

Ref: Ram's Hill Country Club
LSP 79-01
Log# 79-11-1

Dear Board Members:

At the Clark Lake Radio Observatory, Borrego Springs, CA, we are concerned about the possibility that radio emissions from the Ram's Hill area could seriously disrupt our program of radio astronomical observations. Although Ram's Hill is at least as distant from Clark Lake as most other parts of the Borrego Valley, we are not as well protected by the terrain in its direction. Coyote Mountain protects us from most of Borrego, but Ram's Hill is practically line-of-sight through a saddle in the hills.

Due to its distance, we do not believe that normal residential activities,(for example, the operation of automobiles, pumps, heaters, air conditioners, radio or TV receivers, etc.) in the Ram's Hill area will interfere with our work. However, radio transmitters in the frequency range that we observe -- 0 to 140 MHz -- could be disasterous. Therefore, we request that the ERB prohibit fixed radio transmission at the Ram's Hill development in the frequency range 0 to 140 MHz. Note that this would prohibit FM and TV transmitters. On the other hand, it would allow mobile transmitters, such as those in the Citizen's Band. Mobile transmitters may cause problems, but a prohibition of them would be unenforceable. It would also specifically allow Amateur Radio transmitters in the 2-meter VHF band. Such transmissions are above 140 MHz and should cause us no difficulty.

Thank you for your cooperation.

Sincerely Yours,

William C. Erickson, Director
Clark Lake Radio Observatory

cc; Dr. M.R. Kundu
Mr. H. Kriemelmeyer
Mr. G.J. Kuhrts III
Dr. M.J. Mahoney
Dr. W.M. Cronyn

B-20

THE DESERT PROTECTIVE COUNCIL INC.

A NON-PROFIT ORGANIZATION

To safeguard for wise and reverent use by this and succeeding generations those desert areas of unique scenic, scientific, historical, spiritual and recreational value and to educate by all appropriate means children and adults to a better understanding of the desert.

BOX 4294 • PALM SPRINGS • CALIFORNIA 92262

ADVISORY PANEL

LYMAN BENSON
Pomona College
CHARLES M. BOGERT
American Museum Nat. Hist.
SYLVIA BROADBENT
Archeologist
JOSEPH F. CARITHERS
National Park Service
THOMAS CLEMENTS
Univ. of Southern Calif.
WALTER P. COTTAM
University of Utah
EDWARD B. DANSON
Museum of Northern Ariz.
NEWTON B. DRURY
Conservationist
KAREN FOWLER
Living Desert Reserve
LYLE GASTON
Biochemist
C. EDWARD GRAVES
Photographer & Writer
CARL HUBBS
Scripps Inst. Oceanography
DON GREAME KELLEY
Editor & Author
DALE S. KING
Naturalist & Publisher
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Herpetologist
VASCO M. TANNER
Brigham Young University
RALPH E. WELLES
Conservationist & Author
FRITS W. WENT
Desert Research Institute
MAURINE WHIPPLE
Author
JAMES WHITEHEAD
Environmentalist

DATE: 10-11-79

REPLY TO:

3941 Clark
San Diego, Ca 92103

STATEMENT FOR RAMS' HILL EIR
LSP 79-01 Log 79-11-1

The DPC appreciates the opportunity to comment on the EIR for Rams' Hill, Borrego Valley.

In the interest of your reading time, this report will be brief. The items mentioned have been documented by previously submitted testimony and are on file with the County under DiGiorgio's Borrego Springs General Plan Amendment.

The EIR appears to be inadequate and incomplete, with conclusions that are questionable under existing County Planning and implementation programs as well as State and Federal regulations.

Though the volumne of material in the EIR is three times greater than that for Borrego Springs, the facts have not changed.

The development is premature and is not in conformity with the County or CPO programs for development.

It is in a remote area and will require additional energy for transportation to and from the project. The use of aircraft for this purpose was not factered into the air/energy program.

The increasing costs of energy and electricity are inadequately addresswd.

The water quantity question remains unresolved in spite of new graphs and quotations.

The water quality is not adequately covered.

Wastes from this project must be handled by generators of the waste and not by public funding.

Public services will not be supplied though the land and possible some facilities will be made available.

The possibility of power lines across state park lands has not received proper attention.

The possibility of flood devises and recreational facilities on park property have been suggested.

A dormant water district will be reactivated for the sole(?) purpose - "stated purpose" - of supplying water to Rams' Hill. The alternative is to deny water service to members of the dormant district. (See EIR for Authorization of Latent Powers for Borrego Water District, pg 41.)

Roads will have to be widened, in some instances jeopardizing the integrity of the State Park through which they cross.

The plan for archeological protection is inadequate, if not ridiculous. The watering of plants could accelerate growth of soft-fiber plants while dampening or melting artifacts.

The disposal of floodwaters in diversion channels terminating off-site is irresponsible and will place a burden on the public. There is no guarantee that the waters diverted to the Phase II site will remain on that site and not impact Borrego Springs Road and other properties downhill.

The air will be impacted by the project on both long and short term bases. The ARB proposal for Class A may be prejudiced. The report includes no comment from ARB. The assumptions relative to air circulation patterns are questionable. There are no studies that are authentic.

The impact of a lowered water table on surrounding property, expecially state park resources, has not been thoroughly explored.

The visual impacts of the project, the flood diversion channels, the buildings, the commercial area, will have an adverse effect on valley visitors though the project residents and visitors will have an in-turned view of golf courses, etc.

The problem of dark skies and clear skies is ignored; astronomers at Laguna Mt and Clark Lake will be effected.

Housing for low and moderate income families is not included on the site. Affordable housing is close to town and will require transportation for builders and employees.

The State Parks are being tagged for the location and management of off-road vehicle activity.

The public has been identified as the source of income for the operation of public services in the Valley including some located on Phase I property.

The cumulative effects of Phase I as well as Phse II and Borrego Country Club have been "crystal balled."

IN SUMMARY, the DPC finds that the Phase I of Rams' Hill retains all of the adverse impacts covered in previous testimony and has added the reactivation of the Borrego Water District to its list of impacts.

The EIR, for all of its wordiness and new covers, has not alleviated the problems; it has tried to explain the problems away with glossier charts and the antiquated data.

The DPC maintains that the project is premature, is prejudicial of orderly planning in a remote area sans public services, is in conflict with County and CPO Planning Goals and Growth Patterns, and will adversely effect taxpayers, visitors and residents. The greatest and most adverse impact will be on the Anza-Borrego Desert State Park which is an internationally recognized desert resource.

Respectfully submitted,

Mary Swedlius

Mary Swedlius, Secretary

cc: Air Resources Board
State Parks and Recreation
Water Resources Board

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THE DESERT PROTECTIVE COUNCIL, INC.

A NON-PROFIT ORGANIZATION

To safeguard for wise and reverent use by this and succeeding generations those desert areas of unique scenic, scientific, historical, spiritual and recreational value and to educate by all appropriate means children and adults to a better understanding of the desert.

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Brigham Young University
RALPH E. WELLES
Conservationist & Author
FRITS W. WENT
Desert Research Institute
MAURINE WHIPPLE
Author
JAMES WHITEHEAD
Environmentalist

DATE: August 27, 1979

REPLY TO:

3750 El Canto Dr
Spring Valley, Ca 92077

Statement for the ERB hearing, August 30, 1979 on LSP 79-01, Log # 79-11-1, Rams Hill.

The Desert Protective Council, Inc, was advised that the ERB hearing scheduled for August 30th has been postponed until September 13, 1979.

Detailed comments will be submitted at that time, though the official notice of 7-31-79 stated that comments will be received until November 19, 1979.

In reviewing the EIR for Rams' Hill, the DPC finds that mitigation measures and alternatives do not alleviate the concerns expressed in past hearings.

For the record, the DPC continues to question the adequacy of conclusions derived from the EIR relative impact on clean air, water, State park, energy, and traffic as well as archeological, habitat and land form alterations.

Please advise the Desert Protective Council of all changes of times and places of hearings as well as of future hearings. Please use the address listed above for rely.

Harriet Allen

Harriet Allen, President
714-469-5179

B-24

Citizen's Coordinate
Century 3
1549 El Prado
San Diego, CA 92101
Tel: 232-7196

September 6, 1979

To: Environmental Analysis Div.

Subject: Borrego DiGiorgio Development
Log #79-11-1

Environmental Impact Report Inadequate

This EIR fails to address clearly the purpose of the project which is to irreversibly change (p. 5, p. 212) the Borrego Valley from scattered seasonal residential use to a permanent year round major resort community with full urban services. The environmental impact of that irreversible change needs clear analysis and definite findings. Since the stated intent of the project is significant growth in the valley, the EIR should directly address the impacts of a "successful" project which will change the character of the entire Borrego Valley. The clear intent of CEQA is to have the EIR inform decision makers of the "worst case" environmental impacts. This EIR fails to clearly analyze the significant long term impacts which will result from major changes in the scale and kind of development in the Borrego Valley.

Environmental Findings Not Clear

Since the EIR is not clear whether the project is to change the whole valley or just to build the first phase of this particular large scale project, the environmental findings are vague. The Executive Summary on p.5 and p.6 sets the standard for vagueness on the important subject of groundwater. Included by inference in an opening sentence as one of four important adverse environmental impacts, we are told in the next sentence that the "project" should not impact groundwater. But then again it might if annexation fails. And even so the changing hydrologic characteristics have an impact on habitat that cannot be mitigated. Finally, if both projects were built out, that could cause a major groundwater mining condition.

With that kind of uncertain unclear finding the EIR is not useful in decision making. The EIR is inadequate.

Social and Economic Benefits Not Clear

The EIR seems to conclude that some adverse environmental impacts exist which need overriding social and economic benefits. These benefits are more vague than the environmental findings. The Borrego Valley is a "half-formed" (p.193) economic community and presumably will become viable (full-formed?) if doubled from 1500 to 3000 permanent people. That may not be true, however, since winter boom times with 2200 people residing and 8000 to 10,000 weekend peak populace (p.10) the valley still has limited and extremely expensive services (p.214). There is no credible analysis of what permanent population will provide a sound economic base for the urban services expected by residents and seasonal visitors.

Social benefits are also vague. They included increased and more diverse recreational opportunities. This is exceedingly difficult to accept since the desert experience is now readily available through State Park facilities and golf and tennis can be found

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Tel: 232-7196

throughout San Diego County. And then it is acknowledged that San Diego winters are not so severe and that many prospective residents will come from other U.S. cities. What real social benefit can be found in simply providing more isolated winter resort accomodations for non-residents?

EIR Biased

In addition to being vague the EIR is consistently biased in favor of the project. Most glaring is the failure to address cumulative environmental impacts (of all the fully intended induced growth) while accepting as factual social and economic benefits which are purely speculative. Another example is the discussion of land use patterns in the Borrego Valley. Existing development is described which is commonly recognized as leapfrog urban sprawl, that is isolated unrelated spots of urban development. In the Borrego Valley, however, this is known as "distinctly nodal" (p.33) and this new project is completely in character with that form of development and would integrate (p.38) with the existing pattern of nodal development. Such special pleading language to justify one more leapfrog patch of urban sprawl in Borrego Valley shows unacceptable bias in the EIR.

Rationale for Delayed Project

The EIR notes a number of facts and conditions which justify a delayed project.

1. The "success" of the project (changing the whole valley) depends on active government participation (p.187).
2. That participation (preparation of a community plan) is not in the forseeable future (p.187, p.34, p.17).
3. This project alone (whole valley does not change) has significant adverse environmental impacts (p.212).
4. This project alone (without induced growth) has no significant overriding social and economic benefit (p.192).

The lack of government participation to encourage this project or any other growth in Borrego Valley is well established. The County will experience a fiscal cost since "tax revenues (only) somewhat offset public expenditures" (p.194). There is the further attitude of private sector reluctance to provide mortgage money for second homes (p.188).

These facts in the EIR provide a substantial basis to find that this project will be one more false start of a true community in the Borrego Valley. This false start will have significant adverse environmental impact without overriding benefits.

Conclusions

1. The EIR is inadequate by reason of being vague with respect to project definition; cumulative impacts; specific environmental impact findings; social and economic findings; and project bias.
2. Adelayed project is justified since without a community plan and government support of public facilities this current project will cause significant adverse environmental impact without social and economic benefit.

San Diego County Archaeological Society, Inc

Environmental Impact Report Review Committee
2325 Loring Street San Diego, CA 92109

12 September 1979

To: Environmental Analysis Division
County of San Diego
9150 Chesapeake Drive
San Diego, CA 92123

Subject: Rams' Hill Country Club Environmental Impact Report
LSP 79-01 Log #79-11-1

Gentlemen:

On behalf of this committee, I have reviewed the archaeological portions of the subject report, prepared by PRC Toups Corporation.

In general, the field investigations and the proposed mitigation actions appear to be adequate for this project. One possible exception is in the ambiguity with which mitigating measures for the impacts on Site #2 (Cal:E:15:4) are proposed.

Site #2 is rightly characterized as significant and rare, and the preferred mitigating measures are rightly given as preservation and protection. Salvage measures are proposed for the small portion of the site which evidently cannot be preserved. The value of Site #2, to a greater degree than is true of most sites, lies in the whole and in the interrelationships between the parts (sleeping circles, trails, etc.) rather than in each individual part. Furthermore, indirect impacts on the preserved portions of the site as a result of adjacent residential use, despite protection measures, are very likely. Accordingly, it is imperative that all portions of the site, and not just those in the limited areas of encroachment, be thoroughly documented by nondestructive techniques. All portions should be mapped. All portions should also be fully recorded photographically.

Thank you for the opportunity to review this report.

Sincerely,

Don Laylander

cc: chm, SDCAS EIRRC
pres, SDCAS
ACT
file

B-27

Sierra Club
San Diego Chapter
1549 El Prado, Balboa Park
San Diego, California 92101

To: Environmental Review Board

From: Desert Sub-committee

Subject: Paul's Mill Country Club

Although the item before us at the present time is [illegible] probably, decision-making [illegible] the future of the Borrego Valley than the development of [illegible] might imply.

The Sierra Club has considerably been opposed to the urbanization of the Valley based on the information presently available to us. The two developments approved in concept in the county - Paul's Mill and Borrego Country Club - can change Borrego Springs from a town of 1000 to a city of close to 20,000. And these estimates do not take into full account the secondary growth these developments probably will generate.

Since the area in question is rural and in many places notably undeveloped by man, the opportunity to use Percolation in the planning process exists. Unfortunately, you are being asked to make these important decisions without adequate data. The water question illustrates this point very well. During the original Planning hearings all sorts of numbers and estimates were bandied about. Finally 25 years was settled upon. For the projected population it was said that there was enough groundwater for 25 years. Water Minder was unanticipated by them. Even if there is sufficient quantity of water that it is pump a from elsewhere in the valley, will the [illegible] be adequate for [illegible]. Some wells in the valley already [illegible] and others due to [illegible]. [illegible] [illegible] [illegible]

animal regulation, the assessor, building inspection, road maintenance stations, courts, library and social services? Will new branches, substations and offices be created to serve this remote urban area? Or will County personnel have to expend time and gasoline to drive out there? Or will the residents drive in? Certainly if they are living in an urban area, they will expect urban level services.

The remoteness of the site will undoubtedly lead to many auto trips into and out of the valley. The EIR concerns itself mainly with traffic in the valley itself, and does not deal adequately with travel from the metropolitan areas of San Diego and Los Angeles. It seems unlikely that roads into the valley from the West could safely carry a large increase in traffic. And what about increased flights into and out of the valley for those frequenting their second-home retreat? The noise and air pollution involved in increased air traffic has not been addressed.

The State Air Resources Board has proposed Class A status for Anza-Borrego State Park. The Club feels that urbanization of the valley will have serious air quality implications for the region and for the Park. Conclusions in the EIR are admittedly based only on "probable" behavior of atmospheric parameters and "approximations." Clearly more study is needed in this area also.

We are concerned about the results the flood prevention measures proposed might have on surrounding properties. The San Diego County General Plan considers an extensive system of earth levees to be the best method of flood protection in this area, and in the past the Department of Sanitation and Flood Control has stated that the entire levee system proposed in the General Plan would be needed if part of the system is constructed in the valley. If a maze of levees and channels is necessary to protect life and property, what kinds of impacts will these have? What will the visual impacts on the Park be and on the scenic highways in the vicinity of the project?

Many socioeconomic questions remain unanswered. Since much of the applicant's proposed justification for the plan is based on the claim that there is a downward trend in the Borrego Springs economy there should be trend data presented in the EIR to support or refute such a statement. Such data should also be available to prove the so-called socio-economic benefits of the project are indeed adequate to over-ride the considerable environmental impacts.

In summation, it is apparent that there is a potential for the creation of many long-term problems and costs for the County plus substantial environmental damage. If San Diego were to receive extensive benefits in return, this project might be justified. Reflection on the following questions suggests that this does not seem to be the case.

Will the proposed development help SD County to solve present problems

by increasing housing supply especially for moderate and lower income families?

by creating jobs close to present concentrations of unemployed or under-employed persons?

by encouraging mass transit?

B-29

by revitalizing downtown?

by reducing air pollution?

by cutting back on energy consumption?

It seems unwise to step into a situation without further study that may create problems when so many unsolved ones now presentta challenge to governments in the San Diego region.

Sincerely,

Desert Sub-committee
Sierra Club, San Diego Chapter

Enclosure B-30

HEALTH SYSTEMS AGENCY OF SAN DIEGO AND IMPERIAL COUNTIES

A PUBLIC REGIONAL HEAL PLANNIN BODY

October 22, 1979

Ms. Kathy Lehtola
Environmental Analysis Coordinator
County of San Diego
9150 Chesapeake Drive
San Diego, California 92123

Dear Ms. Lehtola:

Thank you for providing the HSA staff the opportunity to review the health component of the Environmental Impact Report for the Rams' Hill Country Club.

In reviewing the document, staff has identified the following issues that warrant clarification as they relate directly to the accessibility of health services within the Borrego Springs area.

1) Emergency Care: The provision of emergency medical care in the Borrego area has become a matter of immediate concern by the HSA. Present providers, i.e. Dr. Woolcott, the Fire Department, the Family Health Center and the Borrego State Park Rangers, frequently encounter situations in which efforts to transport emergency victims and gain access to medical care for those victims have been severely handicapped.

   Given the present circumstances, it would appear that the emergency facilities proposed by the applicant should be sufficient to accommodate all emergencies that occur on the Rams' Hill premises and when indicated provide for transport to the nearest appropriate hospital.

   With regards to emergencies occurring outside the Rams' Hill complex, the Scripps Satellite Clinic could serve as an invaluable link within the existing system through coordination of hours of operation with other emergency medical care providers in the area.

2) Coordination of Services: Whenever feasible, the HSA encourages coordination of services as a means of improving health services, eliminating duplication of effort and ultimately reducing health care costs. The Family Health Center, a satellite of the Clinica del Salubridad which operates in Borrego, has already expressed a desire to refer patients to the new clinic for stress testing and diagnostic services.

3) Patient Population: The Borrego area has a large agricultural

2831 CAMINO DEL RIO SOUTH, SUITE 204 / SAN DIEGO, CALIFORNIA 92108
714 / 297-4721

B-31

industry that employs migrant farm workers. At present, these individuals, predominantly low-income Medi-Cal and Medicare carriers, have access to medical care only from the Family Health Center of the Clinica del Salubridad three days per week or from Dr. Woolcott at the Scripps Clinic. The proposed satellite clinic could fill a tremendous gap in health care delivery by extending its services to include this low-income and indigent population who so desparately need it.

4) Hours of Operation: The Borrego Fire Department presently handles all emergency medical situations that arise within the city of Borrego. The Department operates two off-road ambulances to pick up patients in the isolated areas of the city with relatively few problems. However, precious time is lost in locating a medical facility that is open, or the local physician. Therefore the need to have the new clinic's hours and/or staffing flexible enough to meet a critical need is quite essential.

Because of the significance of all of the issues raised it is the opinion of the Staff that approval of the application be withheld until the Scripps Clinic has provided answers to the following questions:

1) What specific emergency services will be available and how does the applicant propose to provide and/or facilitate emergency medical care and transport?

2) Will the applicant provide emergency medical care for non-country club members or affiliates?

3) What arrangements will the applicant make to co-ordinate its emergency medical activities with those of other providers in the area?

4) How, if at all, does the applicant intend to share services available at the facility with other providers in the community in order to make those services more accessible to the Borrego community?

5) Will the facility provide non-emergency care to non-country club members or affiliates; if so will the applicant accept Medi-Cal and Medicare reimbursement?

6) When and under what circumstances would services be available to individuals who are unable to pay?

7) What are the anticipated hours of operation for the facility? Does this schedule take into account the operating hours of other providers in the community? Has the applicant contacted the other providers in the area in order to best co-ordinate the schedule?

Please direct any questions or comments to Daynese Williams in the HSA Planning Department.

Sincerely,

Daynese A. Williams

Daynese A. Williams
Health Planning Associate

cc: Rick Q. Danks
cc: Tom Edwards

DAW:kmf

Exhibit B-32

BORREGO SPRINGS COMMUNITY ASSOCIATION

POST OFFICE BOX 57
BORREGO SPRINGS, CALIFORNIA 92004
714/767-3114

April 18, 1979

Dept. of Land Use & Environmental Regulation
Community Services Agency
County of San Diego
9150 Chesapeake Drive
San Diego, CA 92123

Attention: Mr. Harry A. Trax, Senior Planner

Gentlemen:

Reference is made to your letter of March 28th concerning the Rams Hill Country Club Proposed Large Scale Project (LSP 79-01) and inviting our comments upon the impact of the Project upon this Association.

At this meeting on April 5th, the Board of Directors of this Association agreed that the subject Project would have a substantial and beneficial impact upon our members and the value of their properties. This was a reaffirmation to the Board of Supervisors of San Diego County.

Sincerely,

James L. Brainerd
President

B-33

Borrego Springs

CHAMBER OF COMMERCE
Box 66, Borrego Springs, Calif. 92004
(714) 767-5555

October 11, 1979

Mr. Harry Fox
San Diego County Planning Dept.
L.S.P. Sec.
9150 Chesapeake Drive
San Diego, Calif. 92123

Dear Mr. Fox:

The Board of Directors of the Borrego Springs Chamber of Commerce has passed a resolution supporting the concept and specifics of the Rams Hill Subdivision.

The Chamber feels that the Rams Hill project is a positive step in the orderly growth of the Borrego Springs desert, and that it would have a significant positive economic impact on the Borrego Springs community.

We can see little danger to the environment based on the concept now being processed. The proposed Rams Hill development will provide the community with a much stronger social and economic stability, unlike its past experiences.

Our organization of 200 members stands ready to give its full support to the Rams Hill project.

Sincerely,

William Snedecor
President

cc: San Diego County Board of Supervisors
Supervisor Eckert, 5th District

L



IN THE HEART OF THE ANZA-BORREGO DESERT STATE PARK

B-34

AIR POLLUTION CONTROL DISTRICT

COUNTY OF SAN DIEGO

R.J. Sommerville
Control Officer

9150 Chesapeake Drive
San Diego, Calif. 92123
(714) 565-5901 (MS 0176)

RECEIVED
OCT 17 1979
ENVIRONMENTAL ANALYSIS DIV.

October 17, 1979

Kathy Lehtola
Environmental Analysis Division
County Mail Station 0175

SUBJECT: RAMS' HILL COUNTRY CLUB, ENVIRONMENTAL IMPACT REPORT

The Air Pollution Control District has reviewed the above referenced Environmental Impact Report (EIR) and has the following comments with regards to the Air Quality Section of the EIR and the Air Quality Appendix.

The Environmental Impact Report includes a brief discussion of several important Air Quality related issues, namely:

- Lack of any air quality monitoring in Borrego Valley.
- Lack of an emissions inventory for the area.
- Air quality in the Borrego Valley should be exceptionally good.
- The Borrego Valley at the present time has a low level of local emissions.
- The California State Air Resources Board staff has proposed that the Anza Borrego Desert State Park be considered as a Class I Air Quality Area (a Federal classification pursuant to the Clean Air Act as amended August 1977).

While the EIR identifies these important air quality issues, the <u>significance</u> of these issues is not adequately discussed in the report.

To begin with, the first four issues identified above are the reasons why the Anza Borrego Desert State Park is designated as an unclassifiable air quality control region for the pollutants carbon monoxide (CO), nitrogen dioxide (NO_2), and particulates (TSP) pursuant to Section 107(d)(1)(E) of the Clean Air Act as amended in August 1977.

Additionally, this area has been designated as an attainment area for sulfur dioxide (SO_2). The entire San Diego air quality control region, of which this area is a part of, has been designated as a non-attainment area for ozone.

The Clean Air Act provides that any area that is unclassifiable or classified as an attainment area shall be subject to part C (relating to the prevention of significant deterioration of air quality). Such provision is contained in Section 161 of Part C, which states:

> "In accordance with the policy of section 101(b)(1), each applicable implementation plan shall contain emission limitations and such other measures as may be necessary, as determined under regulations promulgated under this part, to prevent significant deterioration of air quality in each region (or portion thereof) identified pursuant to section 107(d)(1) (D) or (E)."

The final issue identified above, correctly indicates that the Anza Borrego Desert State Park has been proposed for classification as a Class I area. However, the intent and purpose of this designation should be included in the EIR.

The purpose of part C of the Clean Air Act (as specified in Section 160) is:

> (1) to protect public health and welfare from any actual or potential adverse effect which in the Administrator's judgment may reasonably be anticipated to occur from air pollution or from exposures to pollutants in other media, which pollutants originate as emissions to the ambient air), notwithstanding attainment and maintenance of all national ambient air quality standards;
> (2) to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value;
> (3) to insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources;
> (4) to assure that emissions from any source in any State will not interfere with any portion of the applicable implementation plan to prevent significant deterioration of air quality for any other State; and
> (5) to assure that any decision to permit increased air pollution in any area to which this section applies is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decisionmaking process.

To reiterate, the most significant fact the EIR identifies is that the eastern portion of San Diego County, which Borrego Valley is a portion of, is assumed to have Clean Air because of the relatively low emissions in the area and the assumed lack of intra-basin transport of air pollution. The lack of air quality monitoring data makes it difficult if not impossible to determine what the current levels of pollution might be. Without this base line data, we cannot know if the area currently exceeds the National Ambient Air Quality (NAAQ) standards; if it is just barely meeting the NAAQ standards; or if it is well under the standards. Until said monitoring data is obtained, it is not possible to determine what constitutes a significant increase of emissions. It may be that <u>any</u> increase of emissions may be significant.

The entire San Diego Air Basin has been designated as a non-attainment area for ozone as previously identified. As such, San Diego was required to develop and implement a plan to reduce air pollution emissions to assure attainment of the applicable standards based on the adopted Series IVB population projections. The Series IVB population projections include the East County major statistical area (MSA) in which the project is located.

This area's 1980 population projection was for 11,000 persons. Currently the January 1979 SAN DIEGO COUNTY DATA BASE, POPULATION AND HOUSING ESTIMATES indicates a population of 11,600 for the entire east county MSA. The Series IVB population estimate for 1985 for the east county MSA is 12,700.

This means that the entire east county MSA can accommodate an additional 1,100 people by the year 1985 and still be consistent with the growth projections contained in the SIP.

The EIR indicates (on page 192) that the total projected 1985 population - both permanent and seasonal for the Borrego Valley area would be 6,382. Assuming no other growth occurred in the rest of the entire east county major statistical area, the increased population in the Borrego Valley area as a result of this project potentially represents a 42% increase above the 1985 Series IVB population estimate for the said planning area. Consequently, the project is inconsistent with the Series IVB population projections.

The draft EIR should inform the decision-makers and the public that the project is potentially inconsistent with the adopted strategy to attain and maintain the National Ambient Air Quality Standards as prescribed in the Clean Air Act. Failure to make reasonable further progress toward attaining the standards may (1) cause sanctions to be imposed, thereby jeopardizing state and federal funding for sewers and highways in the region, and (2) place prohibition on major new source construction.

In summary, the District would like to reiterate that our region's strategies to attain the NAAQS are based on projected emission trends which, in turn, are based on the adopted Series IVB population projections. The decision-makers have flexibility in planning for future growth, but additional growth must be offset by more stringent controls, that are legally enforceable, to account for the increased pollution.

Some additional comments on the Environmental Impact Report are as follows:

1. The EIR relies entirely on the improvement of automobile emissions to conclude that the emissions from Rams Hill plus the Borrego Desert State Park traffic will improve to such a degree that the emissions in the valley will be less than they are presently.

   The concerns that the District have about this conclusion is that the emissions presented in Table IV-J-2, page 91, appear to be incorrectly calculated and they do not account for emissions due to increased air traffic; increased gasoline sales, additional support services or cummulative emissions from other projects that may be implemented in the valley as a result of the implementation of the Rams Hill project.

   Table IV-J-2 on page 91 indicates 1978 and 1985 reactive hydrocarbon emissions for peak and off-peak seasons. A check of the method used to obtain this data indicates that 1975 emissions factors were used with 1978 vehicle data. This method is incorrect since it does not take into

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account the expected reduction of emissions due to the change in vehicle population when newer, less polluting cars are purchased.

An additional comment on the contents of Table IV-J-2 is that the data was calculated using the countywide average vehicle mix. This mix assumes approximately 0.6% heavy duty diesel trucks and approximately 3.0% heavy duty gasoline powered trucks. This assumption appears to be incorrect after a telecon with Chuck Green of Caltrans. Caltrans data indicates that approximately 17% of the traffic on County road S2 is truck traffic of which approximately 10% is heavy duty gasoline trucks and 6.0% heavy duty diesel. The percentage of trucks into the area would be expected to increase even more since all goods must be trucked into the project area and as the population increases, so would the demand for goods increase. The importance of this difference or increased percentage of trucks in the calculations is that most of the vehicle emission improvements is due to the improved emissions of light duty auto and trucks. Therefore, some of the improved emissions that the analysis includes in the calculations may not be realized.

It is the Districts position that Table IV-J-2 and the appropriate Tables in the appendix should be revised using an interpolated 1978 emission factor which includes an adjustment for a greater percentage of heavy duty diesel and gasoline trucks.

By using the adjusted interpolated 1978 emission factors, a more realistic comparison of the 1978 and 1985 emission can be made.

2. The eastern portion of the San Diego Air Basin has been designated as unclassifiable for the pollutants CO, NO_2 and TSP and an attainment area for SO_2. It is the intent of the Clean Air Act to prevent significant deterioration in such a designated area. Given this intent, the decision-makers should be provided with sufficient information to assist them with an analysis of <u>all</u> potential air quality impacts. Therefore, it is the Districts position Tables IV-J-2 thru 4 should include emissions from any potential source, such as, but not necessarily limited to, vehicles, aircraft, support services, gasoline transfer and commulative emissions from other projects that may be implemented as a result of this project. For purposes of comparing project impacts, these Tables should depict the 1985 emissions with and without the project.

   This would graphically illustrate any air quality impacts as a result of the implementation of the project.

3. As stated above the EIR does not quantitatively address the emissions due to an increase in air traffic. The statement is made in the EIR that the airport has been improved and is capable of handling up to 300,000 LTO's. Either this number is incorrect or the potential for a significant increase in air traffic in the Southeast Desert Air Basin exists. The emissions related to aircraft should be calculated and included in a comparison table of emission before and after implementation of the project.

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4. The draft environmental impact report does not discuss the District's exemption of Phase II vapor recovery requirements for gas stations in the eastern portion of the San Diego Air Basin. The reason that service stations are exempt from the District's Rules at the present time is because of the relatively low throughput at these facilities. However, if this project and other projects in the area are approved, then the cummulative effect may be that the volume of gasoline dispensed at these facilities, would necessitate the implementation of the District's Rules with regard to Phase II vapor recovery. This should be discussed in the EIR.

5. The growth induction impacts may be under estimated. This project may require additional support personnel that may live in the valley year-round. Such personnel would include, but not necessarily be limited to, gardners, maids, plumbers, painters, etc.

Until the above issues are addressed adequately, the appliciant's conclusion THAT FUTURE EMISSIONS WILL BE LESS THAN PRESENT EMISSIONS is without foundation.

Raymond L. Weeks

RAYMOND L. WEEKS
Environmental Management Specialist

RLW:cr

cc: Air Resources Board
Environmental Protection Agency

B-39

State of California

GOVERNOR'S OFFICE
OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814
(916) 445-0613

EDMUND G. BROWN JR.
GOVERNOR

November 28, 1979

Planning Director
San Diego County
9150 Chesapeake Drive
San Diego, CA 92123

SUBJECT: SCH# 79091206 - RAMS' HILL COUNTRY CLUB

Dear Planning Director:

The enclosed comments were prepared by Department of Health Services regarding your project. These comments were not included in the package you received dated October 20, 1979 certifying State review of your draft environmental document.

To ensure compliance with the intent of the California Environmental Quality Act you should attempt to incorporate these additional comments into the preparation of your final environmental document.

Sincerely,

Carla Ericson

for Stephen V. Williamson
State Clearinghouse

SVW/lla
Attachment
cc: Ken Fellows, DWR

15-70

State of California

Department of Health Services

Memorandum

To : Steve Williamson
State Clearinghouse
1400 10th Street, Room 121

Date : OCT 05 1979

Subject: SCH# 79091206
Rams Hill Country
Club EIR - Borrego
Valley

From : Environmental Health Branch

Development of large areas requiring irrigation will compound Borrego Valley's perennial eye gnat problem. Mitigation activities conducted by the Borrego Valley Mosquito Abatement District are barely sufficient at the present time and cannot cope with additional demands. The eye gnat problem (and the somewhat lesser mosquito problems) should be considered in the environmental impact report and appropriate mitigative measures should be discussed.

If you have any questions, please contact Theodore A. Smith at 8-631-7823 or 714-237-7823.

Kenneth Buell

Kenneth Buell, Chief

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STATE OF CALIFORNIA
AIR RESOURCES BOARD
1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812
(916)322-5350

EDMUND G. BROWN JR., Governor

November 26, 1979

Ms. Kathy Lehtola
Environmental Analysis Division
County of San Diego
9150 Chesapeake Drive
San Diego, CA 92123

Dear Ms. Lehtola:

In reviewing the draft environmental impact report (DEIR) for the Rams' Hill Country Club, we have found major inadequacies in the air quality analysis prepared by the PRC Toups Corporation. These inadequacies are outlined as follows:

1) Page 94 of the DEIR states: "As with any development, the Rams' Hill project would increase the level of emissions within the Borrego Valley air space over that level which would exist without the project. Because of the increasing regulation of motor vehicles, however, total emissions in the Borrego Valley are proposed to be slightly lower in 1985 than with full implementation of Rams' Hill and the anticipated increase in State Park visitorship than the total volume in 1978." The technical appendix, however, shows a projected VMT increase from 1978 to 1985 as high as 36% for the Borrego Valley and 47% for the Mountain Crest area. Also, in estimating the 1978 emissions, this DEIR used 1975 emissions factors. By using the 1975 base year, the total emission calculations for 1978 would be excessively high and, in turn, inaccurate. This DEIR needs to recalculate the 1978 emissions using 1978 emissions factors and then reassess and demonstrate the emissions associated with this project will not degrade further the existing air quality in Borrego Springs and Anza-Borrego Desert State Park.

2) Chapter 1, Section 21002 of the California Environmental Quality Act (CEQA) states: "The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and the procedures required by this division are intended to assist public

agencies in systematically identifying both the signficant effects of the proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects." In the air quality section of this DEIR there needs to be a detailed analysis of all feasible mitigation measures (including sight-specific mitigation measures which can be incorporated into the project's design), to minimize the air quality impacts from this development. This analysis appears necessary because of the substantial size and location of the project. Possible mitigation measures might include shuttle service, vanpooling, and a bicycle-pedestrian pathway system throughout the proposed project.

3) The assertions made in this DEIR that reduced emissions for 1985 from automobile controls will offset the increased emissions associated with this project, resulting in a nonsignificant air quality impact, is inaccurate. The Borrego Valley is currently designated nonattainment for ozone and requires substantial emissions reductions by 1987 to attain and maintain the ambient air quality standard for ozone. Thus, emissions associated with major development, if unmitigated, will hinder attainment of the standard; such development needs to be considered as having significant air quality impacts.

4) This DEIR needs to include a discussion of the Prevention of Significant Deterioration (PSD) provisions of the Clean Air Act because the Anza-Borrego Desert State Park is an ARB staff proposed area for reclassification from a current Class II to a Class I PSD area.

Part C of the Clean Air Act requires a PSD program for areas where national ambient air quality standards have not been exceeded. Federal regulations have been developed to guide the preparation of approvable state plans to meet the Part C requirements. These regulations, Code of Federal Regulations (CFR), Title 40, Part 51.24, can be found in the June 19, 1978 Federal Register, Vol. 43, No. 118. These regulations describe how general area growth and development may, through its contribution of emissions, constrain the granting of permits to major emitting sources. Specifically, Section 51.24(o)(3) states, "... upon request of the State, the owner or operator shall also provide information on: ... (ii) The air quality impacts and the nature and growth which has occurred since August 7, 1977 in the area the source or modification would affect."

5) The DEIR states that the emissions factors used in emission calculations were obtained from the San Diego County APCD. However, the October 17, 1979 letter from Raymond L. Weeks of the San Diego

County APCD states that the emissions factors are incorrect because of the miscalculated percentage of heavy-duty diesel trucks and heavy-duty gasoline-powered trucks in the composite emission factors. This DEIR also needs to include projected emissions with corrected emissions factors.

It is necessary that the above issues be addressed prior to final certification of the DEIR and a decision on the project. We would also like to be advised of any action taken on this project.

If you have questions or concerns, contact Richard DeCuir of my staff at (916)445-0960.

Sincerely,

William C. Lockett, Chief
Regional Programs Division

cc: H. Allen
P. Bobel, EPA
M. Swedelius, Desert Protective Council, Inc.
R. Weeks, San Diego County APCD

DiGiorgio
Development
Corporation

ENCLOSURE C

October 10, 1979

Kathy Lehtola, Director
Environmental Analysis Division
San Diego County
Department of Planning and Land Use
9150 Chesapeake Drive
San Diego, California

Attn: Nancy Whalen

Re: Responses to Public Comments on Rams Hill DEIR

Dear Ms. Lehtola:

We have reviewed the various letters of comment submitted by organizations and individuals on the Rams' Hill Draft Environmental Impact Report and have prepared the attached Responses. To assure a thorough discussion of the issues, a Response has been prepared for each letter, each letter having been assigned a number and each "comment" within each letter assigned a sub-number.

I have also requested that our various consultants be available to assist County Staff with any questions you have regarding our Responses or the Project in general. Please contact either Tom Weber, the project manager, or Nancy Laswell, the principal environmental consultant, regarding any additional input. Both are available through the PRC Toups (454-9162).

These Responses address a variety of technical issues raised in the public comments. I would like, however, to respond on two general issues that appear in several of the letters: first, that Di Giorgio Corporation has attempted to avoid an objective evaluation of this Project; and, second, that development in Borrego is inappropriate at this time.

Di Giorgio has been involved full-time in the planning and public review of this Project since 1973. During that six-year process, we have employed those consultants that we believe are the best available. The following list of top-rated consultants illustrates our dedication to thorough planning and the development of the best possible project:

Original Concept Plan	Simon Eisner and Associates (specialists in desert design)
Final Project Design	PRC Toups, La Jolla (specialists in environmental sensitive planning)
Preliminary Engineering	Lawrence, Fogg, Smith and Associates
Principal Environmental Coordinators	PRC Toups, Environmental Studies Group (Nancy K. Laswell, project manager)
Geology	Woodward Clyde and Associates
Traffic	Toups-Voorhees
Energy	PRC Toups, Orange and Phoenix
Water	Linden Burzell Dr. Richard Threet
Liquid Waste	Lowrey & Associates (Dennis O'Leary, project manager)
Biology	Pacific Southwest Biological Services (Mitchel Beauchamp)
Archaeology	Archaeology Consulting and Technologies (Stanley Berryman)
Socio-Economics	Sanford Goodkin Research Associates Economic Research Associates
Air Quality	WESTEC Services and PRC Toups
Noise	PRC Technical Applications San Diego Acoustics

As for the second issue, Di Giorgio believes that there are excellent reasons for this development at this time. We can understand and appreciate the concern of persons for the preservation of a "desert atmosphere" in the Valley. However, the Borrego community has had 30 years of marginal existence and economic difficulty. It does not have sufficient population or economic base for adequate public services or private businesses. Rams' Hill offers an environmentally sensitive project that can assist in providing that base. As shown by the presentation before the Board of Supervisors in 1976 and recent examples, the community is in strong support of this Project.

The Di Giorgio Corporation has been an active participant in the Borrego Valley community for over 30 years. The developments that Di Giorgio have constructed are uniformly a high-quality product. As a result of years of study and planning, Di Giorgio believes that Rams Hill is needed now in order to make the Borrego economy viable and provide needed resort and residential facilities.

Di Giorgio has also worked long and hard to finance the establishment of a Scripps Satellite Clinic at the site to bring advanced medical services to this part of the County. Rams Hill will provide the means to bring this clinic to the Valley.

An evaluation of the Rams Hill Project requires that recognition be given both to our six years of effort to openly and fairly plan and analyze this Project with the best experts available and to the

unique development we are proposing which is designed to be both environmentally sensitive and a benefit to the struggling community. Di Giorgio appreciates having an opportunity to respond to the public comments to the DEIR and we respectfully request that this letter and our Responses be made a part of the County's official record on the DEIR and the Specific Plan. Copies are enclosed for that purpose.

DI GIORGIO DEVELOPMENT CORPORATION

George J. Kuhrts III
Vice President

cc: Randy Hurlburt, Chairman,
Environmental Review Board
Steven Lister, Project Planner

DI GIORGIO DEVELOPMENT CORPORATION

Responses to Public Comment

Rams' Hill
Draft Environmental Impact Report

October 1979

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DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

1.0 CENTURY 3
LETTER DATED SEPTEMBER 6, 1979

COMMENT 1.1

"Environmental Impact Report Inadequate

"This EIR fails to address clearly the purpose of the project which is to irreversibly change (p. 5, p. 212) the Borrego Valley from scattered seasonal residential use to a permanent year round major resort community with full urban services. The environmental impact of that irreversible change needs clear analysis and definite findings. Since the stated intent of the project is significant growth in the valley, the EIR should directly address the impacts of a 'successful project' which will change the character of the entire Borrego Valley. The clear intent of CEQA is to have the EIR inform decision makers of the 'worst case' environmental impacts. This EIR fails to clearly analyze the significant long term impacts which will result from major changes in the scale and kind of development in the Borrego Valley."

RESPONSE TO COMMENT 1.1

The purpose of the Rams Hill Project is to create a resort residential complex in the Borrego Valley. The Project is clearly defined in paragraph no. 1 of the Introduction and in the 23 pages of Project Description. In addition to this Rams Hill Project other large scale projects are proposed for the Borrego Valley including both the second phase of Rams Hill and the Borrego Country Club project. The Rams Hill DEIR correctly assesses both the irreversible changes of this Project (this Specific Plan) and of these planned or proposed projects which may or may not occur. See the Cumulative Impact section of the DEIR, Section VI. B. The Cumulative Impact section includes valley-wide analysis of socioeconomic impacts, and impacts on biology, traffic, noise, air pollution, energy, dark skies, visual quality, public services, growth and water availability.

In providing information on the anticipated impacts of the Rams Hill Specific Plan the environmental consultant has consistently analyzed the "worst case" environmental impacts. Examples of worst case analyses are found in Sections IV.E.2., IV.F.2., IV.F.3., IV.G.2., IV.G.3., IV.J.2., IV.L.2., IV.L.3., IV.O.1., IV.O.2., IV.O.3., IV.P.3., IV.R.2., and IV.R.3.

The DEIR clearly and thoroughly analyzes the significant long term impacts that this and other planned or proposed projects may have which would result in "major changes in the . . . development in the Borrego Valley." The rate, character and type of growth which could be expected from implementation of this Specific Plan are analyzed in Section VI.A. of the DEIR. This growth includes growth directly resulting from the Project and induced secondary growth in the service sector. The impacts of this primary and secondary growth are also analyzed in each of the sections on public services and in the section on socioeconomic impacts. See Sections IV.B., Q., R., T. The second paragraph of page 195 in the section on Growth Inducing Impacts states: "The impact of both phases of Rams Hill on the valley would be to significantly and irreversibly change the character of the Borrego Valley from a small town to a major recreational resort area." More importantly, the DEIR states the reasons and ramifications of such a change. See Sections IV.O., IV.Q., and VI.A., B.

COMMENT 1.2

"Environmental Findings Not Clear

"Since the EIR is not clear whether the project is to change the whole valley or just to build the first phase of this particular large scale project, the environmental findings are vague."

RESPONSE TO COMMENT 1.2

The purpose of this DEIR is clearly spelled out to be an assessment of the environmental impacts of this Specific Plan. In conformance with CEQA, however, this DEIR must evaluate potential cumulative impacts of the ultimate build-out of the Rams Hill Project (which would require a second specific plan) and other planned or proposed projects in the vicinity. See CEQA §21100; CEQA Guidelines §15143. This has been done in the cumulative impacts Section VI.B.

COMMENT 1.3

"The Executive Summary on p.5 and p.6 sets the standard for vagueness on the important subject of groundwater. Included by inference in an opening sentence as one of four important adverse environmental impacts, we are told in the next sentence that the 'project' should not impact groundwater. But then again it might if annexation fails. And even so the changing hydrologic characteristics have an impact on habitat that cannot be mitigated. Finally, if both projects were built out, that could cause a major groundwater mining condition.

"With that kind of uncertain unclear finding the EIR is not useful in decision making. The EIR is inadequate."

RESPONSE TO COMMENT 1.3

The DEIR clearly defines the potential impacts to groundwater in the analysis contained in Section IV.O. and in the Technical Appendix on Water. In summary, the Rams Hill Country Club could consume a substantial portion of water directly underlying the Project. If not mitigated, this could cause localized groundwater mining accompanied by local subsidence. Annexation to a basinwide district would provide one alternative mitigation measure. The changing hydrologic conditions referred to in the executive summary relate to changing surface conditions and not to groundwater. This

is discussed in Section IV.G. of the DEIR. The cumulative impact, assuming that both phases of Rams Hill and the Borrego Country Club are built, would be to create a minor groundwater mining condition. This is discussed in Section IV.O., and in the Technical Appendix on Water.

COMMENT 1.4

"Social and Economic Benefits Not Clear

"The EIR seems to conclude that some adverse environmental impacts exist which need overriding social and economic benefits. These benefits are more vague than the environmental findings. The Borrego Valley is a 'half-formed' (p.193) economic community and presumably will become viable (full-formed?) if doubled from 1500 to 3000 permanent people. That may not be true, however, since winter boom times with 2200 people residing and 8000 to 10,000 weekend peak populace (p.10) the valley still has limited and extremely expensive services (p.214). There is no credible analysis of what permanent population will provide a sound economic base for the urban services expected by residents and seasonal visitors."

RESPONSE TO COMMENT 1.4

One of the overriding social and economic benefits of the Rams Hill Project will be to strengthen the local economy. The Valley economy is highly cyclical as discussed in the sections on socio-economic conditions and growth. See Sections IV.B., VI.A. Local businesses experience adequate activity during the winter season but close down partially or entirely during the summer months. The major impact of increased growth will be to increase the summer activity and thereby help stabilize business by reducing the heavy losses of the off-season months. The strong support of the local business community for the concept of the Rams Hill Project was dramatically shown in the testimony and appearances made by representatives of this group during the 1976 General Plan Amendment hearings concerning this Project.

Other overriding social and economic benefits include provision of a primary care medical facility sorely needed in the Valley, provision of a broader range of services and recreational facilities for visitors to the Park and Borrego Valley, and revenue benefits to the County.

COMMENT 1.5

"Social benefits are also vague. They included increased and more diverse recreational opportunities. This is exceedingly difficult to accept since the desert experience is now readily available through State Park facilities and golf and tennis can be found throughout San Diego County. And then it is acknowledged that San Diego winters ar not so severe and that many prospective residents will come from other U.S. cities. What real social benefit can be found in simply providing more isolated winter resort accomodations for non-residents?"

RESPONSE TO COMMENT 1.5

The provision of a range of recreational facilities and experiences in the desert is a goal of the San Diego County General Plan, Recreation Element. The Board of Supervisors, through their policies have acknowledged the desirability of demand for different types of desert experiences by differing groups of people. Recreational facilities throughout San Diego County are enjoyed by both residents of the County and non-resident visitors. The Rams Hill Project will conform to this pattern of tourism.

This Comment of Century 3 misses the point that the recreational facilities to be provided by Rams Hill are not available in the Park and not adequately available in the Valley to respond to existing demand.

COMMENT 1.6

"EIR Biased

"In addition to being vague the EIR is consistently biased in favor of the project. Most glaring is the failure to address

cumulative environmental impacts (of all the fully intended induced growth) while accepting as factual social and economic benefits which are purely speculative. Another example is the discussion of land use patterns in the Borrego Valley. Existing development is described which is commonly recognized as leapfrog urban sprawl, that is isolated unrelated spots of urban development. In the Borrego Valley, however, this is known as 'distinctly nodal' (p.33) and this new project is completely in character with that form of nodal development. Such special pleading language to justify one more leapfrog patch of urban sprawl in Borrego Valley shows unacceptable bias in the EIR."

RESPONSE TO COMMENT 1.6

Century 3's claim of "bias" is notably unsupported by any specific facts or citations to the DEIR. The documents supporting the DEIR were prepared by a highly qualified team of consultants with excellent individual reputations in their respective fields. The water study was prepared by Linden Burzell, general manager of the San Diego County Water Authority and Dr. Richard Threet, professor of geology at San Diego State University. The liquid waste study was prepared by Dennis O'Leary, recognized as the leader in waste water treatment facility planning in San Diego. The planning and land use material was prepared by PRC Toups, a nationwide multi-disciplinary engineering, research and design firm.

As previously shown, cumulative impacts are addressed at length in the DEIR. See Section VI.B. The Borrego Valley has a population of approximately 1600 people and a total of about 950 dwelling units. Even if all these residences are located in one cluster, the community could hardly be defined as "urban." The Valley does exhibit a pattern of clustered units focused on recreational facilities. This pattern has been defined as "nodal". The Rams Hill Project would conform to this clustered pattern. The concept of "urban sprawl" or "urban leapfrogging" is simply not applicable to the Borrego Valley.

COMMENT 1.7

"Rationale for Delayed Project

"The EIR notes a number of facts and conditions which justify a delayed project.

"1. The success of the project (changing the whole valley) depends on active government participation (p.187).

"2. That participation (preparation of a community plan) is not in the forseeable future (p.187, p.34, p.17).

"3. This project alone (whole valley does not change) has significant adverse environmental impacts (p.212).

"4. This project alone (without induced growth) has no significant overriding social and economic benefit (p.192).

"The lack of government participation to encourage this project or any other growth in Borrego Valley is well established. The County will experience a fiscal cost since 'tax revenues (only) somewhat offset public expenditures' (p.194). There is the further attitude of private sector reluctance to provide mortgage money for second homes (p.188).

"These facts in the EIR provide a substantial basis to find that this project will be one more false start of a true community in the Borrego Valley. This false start will have significant adverse environmental impact without overriding benefits."

RESPONSE TO COMMENT 1.7

The Applicant has expended several million dollars and seven years in the environmental assessment, study, processing, and public review of the Rams Hill Project to ensure that this will not be another "false start" in the Borrego Valley. On the other hand, Century 3 correctly recognizes that this Project alone will not change the whole Valley, and for such change to occur government would have to become directly involved.

Century 3 fails to note that the Rams Hill Project (and particularly this Specific Plan) does not require a change in the County's General Plan. The land uses have already been approved by

the Board of Supervisors in GPA 76-02. The Board of Supervisors has already considered the general valley environmental impacts of the proposed Project as part of GPA 76-02 and found them to be not significant. The Board also made findings of overriding social and economic benefits from the concept plan. Future growth and major project developments in the Valley, as with the Rams Hill Project, will require both environmental analysis and in-depth planning such as Rams Hill has already experienced.

Economic Research Associates is conducting an analysis of the Rams Hill Project on public revenues and expenditures. Their preliminary analysis indicates that Rams Hill will generate more tax revenues than will be expended on public services for the Project and additional services generated by induced growth. This is primarily due to the large degree of "self-containment" designed into the Project, for example the road, water and sewer systems. See for example DEIR Sections IV.O., P., Q.

The shortage of mortgage money in prior years in the Valley was largely a function of a stagnant local economy. With economic growth, such as the Rams Hill Project, this will become a diminishing problem.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

2.0 SIERRA CLUB, SAN DIEGO CHAPTER, LETTER UNDATED

COMMENT 2.1

"The Sierra Club has consistently been opposed to the urbanization of the valley based on the information presently available on resources and conditions there. The two developments approved in concept in recent years - Ram's Hill and Borrego Country Club - can change Borrego Springs from a town of 1200 to a city of close to 20,000. And these estimates do not take into full account the secondary growth these developments probably will generate."

RESPONSE TO COMMENT 2.1

The DEIR for this Specific Plan assumes a "worst case" position and finds that if Rams Hill is developed to its maximum potential (a second specific plan being required) and Borrego Country Club is fully developed and all related secondary growth occurs, then the existing community of about 1,600 people could expand to a moderate resort community of about 10,000 people. See Section VI.B. Based on research with the County's Regional Growth Management team, the Sierra Club's growth projections appear excessive. The cumulative growth projection contained in the DEIR address the issue of secondary growth in great detail. See Sections IV.O., Q., R., and VI.A of the DEIR.

COMMENT 2.2

"During the original DiGiorgio hearings all sorts of numbers and estimates were bandied about. Finally 25 years was settled upon. For the projected population it was said that there was enough groundwater for 25 years. Water mining was anticipated by 1986. Even if there is a sufficient quantity of water when it is pumped from elsewhere in the valley than the projects' locations, will the quality be adequate for human consumption? Some wells have apparently already been closed due to nitrate poisoning."

RESPONSE TO COMMENT 2.2

The Sierra Club is mistaken in its report of the results of the various public hearings on the Rams Hill Project conducted in 1976. For example, the study prepared by the County's geohydrologist concluded that the groundwater within the first 200 feet of the water table would last about 300 years if Rams Hill is approved. See DEIR Technical Appendixes Volume II.

Since the 1976 hearings four more substantial investigations of the groundwater resources in the Valley have been made. All seven studies of the resources made to date agree that there are about 1.3 million acre feet of water available in the first 200 feet of the groundwater table. This groundwater table extends to at least a depth of 900 feet. Current reasonable projections are that this known water supply will have a useful life expectancy of 342 years under worst case assumptions. Worst case consists of mining the known water table at a rate of 3,800 acre feet per year, which in turn assumes full development of Rams Hill (second specific plan required), full development of Borrego Country Club, substantial secondary growth induced by these projects, and continued agricultural consumption at non-reduced rates. See "Focused Environmental Impact Report, Borrego Water District, Latent Powers Authorization," San Diego County LAFCO, Section 5.1, a copy of which is attached.

The quality of water in the Borrego Valley is exceptionally good. This is discussed in Section IV.O. of the DEIR. One well, Borrego Springs Water Co., Well #4, in the Valley was shut down in 1976 and 1977 due to high nitrate concentration. This well was constructed in the 1940's as an irrigation well (rotary dug, gravel packed and perforated so as to pick up all available water regardless

of mineral quality). When funds became available, a new well was drilled some 50 or 60 feet to the west of Well #4 using a design which prevented entry of water from near the surface of the groundwater into the well. This new, properly constructed well is pumping 150% as much water as the old well. Nitrates, TDS and related dissolved mineral constituents in the new well are extremely low (NO_3 = 3; TDS = 300 ppm). The problem of high nitrate levels in potable drinking water can be solved in most instances through proper well construction.

COMMENT 2.3

"It is our position that no approvals such as Ram's Hill be given until the many questions surrounding the water situation are studied in detail by a US Geological Survey team. You owe it to present and future residents of the valley as well as to all county residents to determine the availability of and projected quality of the water supply. As stated in the EIR '. . . acquisition of a substitute future supply, should one become necessary, would be the responsibility of public agencies.' At earlier hearings such substitutes as importation of water were deemed essentially impossible."

RESPONSE TO COMMENT 2.3

There have been more than seven professional geohydrological studies made of the quantity and quality of water in the Borrego Valley groundwater basin. These studies agree on the volume of water in storage in the first 200 feet of the water table. One of the studies was conducted by the United States Bureau of Reclamation in 1968. The Applicant agrees that further studies of groundwater should be conducted to more fully understand the Borrego Valley basin. The most appropriate agency to conduct these studies would be a local agency, such as the Borrego Water District, which would design an on-going monitoring and study program. The Rams Hill Project would facilitate such a program through generation of revenues to the District.

It is not true, as stated by the Sierra Club, that prior hearings on the Rams Hill Project deemed the importation of water to the Borrego Valley "essentially impossible." According to the General Manager of the San Diego County Water Authority, 90% of the water being used today in San Diego County is imported. At least two recent studies have considered projects which would bring new water into the County through the Borrego area.

COMMENT 2.4

"CPO has said that 'The Borrego Valley is one of the least desirable locations in the region for new development from an energy standpoint.' Estimates of the energy need for space cooling in Borrego Springs are enormously greater than in the metropolitan San Diego area. Furthermore, increased demand for water requires energy for pumping. The increased load as a result of anticipated growth might well require the addition of another transmission line to the valley."

RESPONSE TO COMMENT 2.4

The Applicant cannot tell either the context or the relevancy of the alleged CPO statement. No citation is given. On its face, the quotation appears questionable given the high potential for development of alternative energy sources, especially solar power, in the Borrego Valley.

The DEIR fully discusses the energy requirements of the Project on pages 102-117. The impacts described by the Sierra Club are identified and quantified in Section IV.L.

COMMENT 2.5

"Another question is the impact this urbanization will have on many of the services government provides in the urban areas of the county. What about animal rgulation, the assessor, building inspection, road maintenance stations, courts, library and social services? Will new branches, substations and offices be created to serve this remote urban area? Or will county personnel have to expend time and gasoline to drive out there? Or will the residents drive in? Certainly if they are living in an urban area they will expect urban level services."

RESPONSE TO COMMENT 2.5

The key to answering the question of what impacts will occur to the government services described in this comment is found in the tax revenues to be generated by the Rams Hill Project. As previously indicated, Economic Research Associates' preliminary analyses indicate that Rams Hill will generate more tax revenues than will be expended in public services.

It cannot reasonably be anticipated that residents of Rams Hill will "expect [an] urban level [of public] services." This development is meant to be a recreational and resort complex that by its very location is removed from urban centers. Any increase in the services required of county personnel in areas such as animal regulation, assessment, building inspection, libraries, etc., will be mitigated by the increased tax revenues described above. Furthermore, many public services in the Valley are underutilized today because of a lack of a sufficient population base, making the per capita cost of public services high. With Rams Hill, this population base would be strengthened, and existing public services utilized more to their potential.

COMMENT 2.6

"The remoteness of the site will undoubtedly lead to many auto trips into and out of the valley. The EIR concerns itself mainly with traffic in the valley itself, and does not deal adequately with travel from the metropolitan areas of San Diego and Los Angeles. It seems unlikely that roads into the valley from the west could safely carry a large increase in traffic. And what about increased flights into and out of the valley for those frequenting their second home retreat? The noise and air pollution involved in increased air traffic has not been addressed."

RESPONSE TO COMMENT 2.6

The DEIR analyzes regional trips generated by the Project both in Sections IV.N., in the Air Quality Technical Appendix, and

in the Traffic Technical Appendix. The number and length of long distance trips are analyzed and the potential impacts on access roads into the valley from the west discussed. See Technical Appendices Vols. I & II.

COMMENT 2.7

"The State Air Resources Board has proposed Class A status for Anza-Borrego Desert State Park. The Sierra Club feels that urbanization of the valley wil have serious air quality implications for the region and for the park. The EIR concludes that Ram's Hill would not affect the Class A designation because 'The decrease in VMT and trip-related emissions per vehicle from 1978 to 1985, because of more stringent controls on vehicle emissions, would more than outweigh the projected increase in automobile activity resulting from the project. It is our belief that reliance upon the implementation of these controls is not advisable. According to a recent newspaper article (San Diego Union, August 25, 1979) 'The government gave automakers permission yesterday to exempt tens of thousands of cars from the tough 1981 emission standards and indicated more waivers may be coming'."

RESPONSE TO COMMENT 2.7

The emission factors used in the air quality section of the DEIR and in the Air Quality Technical Appendix were those provided by the San Diego County Air Pollution Control District, as approved by both the State Air Resources Board and the Environmental Protection Agency. These factors have been developed based on extensive research by local, state and federal governments, and are the best possible estimates of the volume of emissions from the local automobile fleet for projected years. The most significant air quality problem in the Borrego Valley is the result of emissions from off-road vehicles. These emissions constituted almost 40% of the total pollutant load during a 1978 peak season week. Emissions from ORV's were not assumed to decline by 1985.

It is possible that emissions standards for some automobiles may have been slipped by EPA. The strategy of EPA and the federal

government, however, continues to be reduction of primary source pollutants in vehicle emissions. The impact of the exemption of a class of automobiles from standards for one year on future emissions factors should be analyzed by the State ARB, EPA and the APCD.

The future impacts of Rams Hill on Valley air quality were projected based on the continuation of existing trends in automobile usage. Considering the increased costs of petroleum and the reduction in supplies, these projections seem unrealistic. It is far more likely that automobile use will be greatly reduced in future years. Such considerations would substantially reduce the pollutant load projected as the "worst case" for the Borrego Valley.

COMMENT 2.8

"We are concerned about the results the flood prevention measures proposed might have on surrounding properties. The San Diego County General Plan considers an extensive system of earth levees to be the best method of flood protection in this area, and in the past the Department of Sanitation and Flood Control has stated that the entire levee system proposed in the General Plan would be needed if part of the system is constructed in the valley. If a maze of levees and channels is necessary to protect life and property, what kinds of impacts will these have? What will the visual impacts on the park be and on the scenic highways in the vicinity of the project?"

RESPONSE TO COMMENT 2.9

The flood protection structure necessary to protect the Rams Hill Project is a diversion channel which is designed as a wide swale diverting local sheet flows around the Project. No levees will be necessary as a result of this Project. The system is described in the DEIR on page 68, and pictured on page 67.

Apparently, the Sierra Club has confused the location of the Rams Hill Project with the system of levees that has been contemplated for other portions of the Borrego Valley that, unlike Rams Hill, are subject to flash flooding out of canyon mouths.

The Rams Hill Project, because of its location on the South Slope of the Borrego Valley, has significantly less potential for flooding than these other areas. In fact, the Borrego Valley Flood Control District has no plans for levees to be built in the South Slope area.

COMMENT 2.10

"Many socioeconomic questions remain unanswered. Since much of the applicant's proposed justification for the plan is based on the claim that there is a downward trend in the Borrego Springs economy there should be trend data presented in the EIR to support or refute such a statement. Such data should also be available to prove the so-called socioeconomic benefits of the project are indeed adequate to over ride the considerable environmental impacts."

RESPONSE TO COMMENT 2.10

Contrary to the Sierra Club's statement, the Applicant has never claimed that "there is a downward trend in the Borrego Springs economy." Rather, the Applicant has stated that the economy has been cyclical, suffers from stagnation and is in need of economic incentives. This information, well known to Di Giorgio because of its 35 years of involvement in the local economy, is also well substantiated by input from local merchants and businessmen. Testimony to these facts by local Borrego citizens was offered and received into evidence during the 1976 hearings on Rams Hill, hearings in which the Sierra Club participated.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

3.0 CONSERVATION CALL LETTER OF AUGUST 30, 1979

COMMENT 3.1

"From the first, we have thought that it would be growth-inducing in an area where such growth is not desirable, with the problems and water supply and air pollution surely following. The wilderness atmosphere of Anza-Borrego Desert State Park would be adversely affected."

RESPONSE TO COMMENT 3.1

The growth inducing impacts of the Project are quantified in Section VI.A. and quantified in Section IV.O. and in the technical appendix on water in Volume II. Air pollution is analyzed and quantified in Section VI.J. and the Technical Appendix on Air Quality in Volume I.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

4.0 THE DESERT PROTECTION COUNCIL, COUNCIL, INC. LETTER AUGUST 27, 1979

COMMENT 4.1

"The Desert Protective Council, Inc., was advised that the ERB hearing scheduled for August 30th has been postponed until September 13, 1979.

"Detailed comments will be submitted at that time, though the official notice of 7-31-79 stated that comments will be received until November 10, 1979."

RESPONSE TO COMMENT 4.1

The Applicant finds it singularly unhelpful to receive a written comment to the effect that "oral comments will follow." A key part of the CEQA review is to obtain all comments at an early stage in order to provide the decision maker with as much information as possible and give all parties an opportunity to respond.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

5.0 THE CALIFORNIA DEPARTMENT OF FISH & GAME LETTER AUGUST 23, 1979.

RESPONSE TO COMMENTS 5.0

The Applicant believes that no response is necessary.

DI GIORGIO DEVELOPMENT CORPORATION'S
RESPONSES TO DRAFT EIR COMMENTS

6.0 THE CALIFORNIA DEPARTMENT OF PARKS AND RECREATION AUGUST 13, 1979.

COMMENT 6.1

"On page 115 the possible need for a second power transmission line for the Borrego Valley is discussed. Any transmission line would, of course, have to pass over State Park System lands. One of the prime resources of this great desert park is the unimpaired vistas giving visitors scenes of vast areas without anything manmade. A transmission line marching across unspoiled terrain immediately brings everything to scale and lessens the enjoyment of the viewer. Beyond the aesthetics, there is an initial disruption of the plant and animal populations of the area during construction of the line. And there is a continuing disruption when periodic maintenance occurs.

"A second transmission line would not be desirable from the park point-of-view. Using the existing poles and upgrading the service might be a viable alternative."

RESPONSE TO COMMENT 6.1

Whether or not a second transmission line into the Borrego Valley will ever be required is highly problematical. As this comment points out, there may be many ways to meet future power demands, such as system upgrading, that will not require a new transmission corridor. Furthermore, if new lines were placed in the same area as the existing corridor, many of the aesthetic impact concerns raised in this comment would not occur. For example, such a line would not be affecting "unspoiled terrain" and existing "vistas" would only be incrementally impacted.

Finally, the Comment fails to point out that the State Department of Parks and Recreation has officially taken the position that current state law prohibits the placement of new transmission lines in the Anza Borrego Desert State Park. During public hearings in 1977, Herbert Rhodes, then the Director, submitted a sworn Affidavit

to this effect. (See Affidavit of Herbert Rhodes dated July 5, 1977 filed in the public records of the State Energy Resources Conservation and Development Commission proceedings on the Sundesert Nuclear Plant, Notice of Intention Hearings, Docket No. 76-NOI-2.) This position is further confirmed in the letter and memorandum of Mr. Rhodes dated May 19, 1977 and July 12, 1977, respectively, copies of which are attached.

COMMENT 6.2

"But the real answer is to quit the dependence on outside power sources. Surely, if solar power is ever to be successful the Borrego Valley has to be a prime candidate for a location. Sun is virtually omnipresent. A prototype solar energy system for Rams Hill would not only be a conventional energy saver but also a park saver."

RESPONSE TO COMMENT 6.2

The Applicant agrees that the Borrego Valley is an ideal location for the application of solar technologies. In fact, the Rams Hill Project will utilize extensive solar water and space heating applications.

COMMENT 6.3

"On page 133 widening of county roads is mentioned. Park lands would also be impacted by this proposal. Safe roads are important but if the purpose of road widening is only to save a little time then a great many other considerations should prevail. Wider roads mean more blasting for road cuts, more surface runoff causing more erosion, an increased mortality rate for animals attempting to cross the roads and a high visual impact from increasing cuts and fills along the roadway. All of these lessen the quality of the visitors experience to the park."

RESPONSE TO COMMENT 6.3

Both Montezuma Valley Road and Yaqui Pass Road currently experience moderate congestion on weekends during the peak of the tourist season for Anza Borrego Desert State Park. The congestion is caused by slow moving campers and mobile homes driven by visitors

to the state park. During weekdays and off peak season weekends the two roads are relatively free flowing. By 1985, the park has projected that the number of park visitors will increase from 1,000,000 in 1979 to 1,500,000. These visitors will travel on the impacted roads primarily during peak season weekends, significantly increasing the level of congestion. The Rams Hill Project will incrementally add to the volume of traffic on these two major access roads. The County Circulation Element designates both Montezuma Valley Road and Yaqui Pass Road as major roads with 82 feet of paving on 102 feet of right of way. Today these roads are built to less than half of that standard. By 1985 it is projected that, for safety reasons, the level of improvements on the roads should be increased to accomodate traffic which is generated almost entirely by the State Park. Such improvements would be subject to review under CEQA.

The existing right of way for Yaqui Pass Road from Borrego Springs Road to Highway 78 is between 40 to 60 feet. The existing right of way over the most congested area of Montezuma Valley Road as it descends the grade into the Valley is 40 feet. Therefore, before any improvements could be made to expand the paved area of the roads, the County would need to acquire additional right of way from the State Park. The Park has the legal authority to deny any and all such requests but could agree to expansion should they feel that the safety conditions warrant such improvements. The County does not have the authority to condemn State Park lands for road improvements.

COMMENT 6.4

"Page 150 deals with the possibility of the need for importation of water if the underground supplies within the Borrego Basin prove to be inadequate for future development. The spector of an aqueduct/ canal/pipeline across the park is too gross to imagine. Growth should be limited to the existing water resources of the valley."

RESPONSE TO COMMENT 6.4

The purpose of an environmental impact report is to discuss not only the probable impacts of a proposed project, but also the worst case impacts of a proposal. As discussed in the DEIR in Section IV.0. the worst case impacts of implementation of all the proposed projects in the Valley, plus a continuation of the present rate of buildout in existing lots and buildout of potential secondary growth would be to create a minor groundwater mining situation in which the first 200 feet of the aquifer would be exhausted in about 350 years. The DEIR states that at such a time importation of water may be a possibility. Projects for pipelines to the Valley have been proposed in the past by agencies such as the Department of Water Resources. The right of way for such a pipeline would, however, have to be granted by the State Park. In summary, importation of water into the Valley is highly unlikely. The Valley has adequate water resources to support development of this phase of Rams Hill if the current trends in domestic and agricultural water use continue as expected.

COMMENT 6.5

"Page 151 also deals with the water table of the valley. The possibility of a levee and infiltration pond system for the mouth of Coyote Canyon is raised. Any such work contemplated should be done entirely on private lands in that area. The developer of Rams Hill owns adequate land in the mouth of Coyote Canyon for this possible use. There are constant pressures for the park to open up its lands in Coyote Canyon, Henderson Canyon, Borrego Palm Canyon, Hellhole Canyon, Dry Canyon, and Tubb Canyon for flood control dikes, levees,

siltration basins, etc. This project should not increase these pressures."

RESPONSE TO COMMENT 6.5

This Project will have no direct impact on the areas of the Valley mentioned in this Comment inasmuch as it will be located in a completely different part of the Valley. The DEIR correctly points out alternatives and future possibilities for flood control and basin recharge measures which would benefit the Borrego Valley as a whole.

State of California

Memorandum

Wall
Ellis
Kelley
Newman

76-NO1-2

The Resources Agency of California

ENERGY COMMISSION
FILED

JUL 19 1977

To : Honorable Huey Johnson, Secretary for Resources

Attention Mr. Frank Goodson
Project Coordinator

Date :

Subject: SCH 77042624, Sundesert Project

RECEIVED

JUL 1 1977

LMF

From : Department of Parks and Recreation

The California Department of Parks and Recreation has reviewed the Environmental Report (ER) forwarded by the Nuclear Regulatory Commission (NRC). It is our understanding this report will be used as a basis for the preparation of the Draft Environmental Impact Statement (DEIS) by NRC. Our concerns relating to this project are in three areas:

1. The protection of cultural resources at this plant site. The NRC has not consulted with the State Historic Preservation Officer (SHPO) on the eligibility of the site for the National Register of Historic Places (NR). This Department has reviewed the report described on page 2.6-3 prepared by the Imperial Valley College Museum, and awaits further information on the remains of General Patton's maneuvers, a statement of the Native American values of the prehistoric sites, and a request for determination of eligibility for the NR by the NRC. Figure 4.2-3, Work Schedule, indicates more land modifications are due soon.

2. Cultural resources on transmission corridors. We note that the Native American values of the archeological sites have not been addressed. The archeological information is insufficient to address meaningful comparison of the various alternatives or the assessment of the given alternatives as the most feasible in the prospective cultural resources preservation. We would also appreciate an assessment of the alternative route located between the two lanes of Interstate 8, as this route ascends the Sierra from the Yuha Basin (southern alternative). Finally, we suggest the NRC comply with 36 CRF Part 800 in its earliest stage of planning and prior to any decision concerning this undertaking.

3. Transmission routes through Anza-Borrego Desert State Park. (ABDSP) Figure 3.9-4, Proposed and Alternative routes, depicts the proposed route crossing ABDSP and the alternative avoiding ABDSP. The placement of transmission lines within this property is prohibited by California statute. ABDSP is a National Natural Landmark. Sufficient alternatives exist for the transmission routes outside ABDSP and Figure 3.9-1, Termination Points, Proposed Routes and Load Centers, indicates a study corridor from Deavers to Rainbow. The Temecula Canyon Preserve is State-owned property and has the same protection as ABDSP.

Please route request for detailed information or assistance to Mr. James P. Tryner, Chief, Resource Preservation and Interpretation Division, telephone number (916) 445-7067.

Herbert Rhodes
Director

G-3/315
JMDoyle

cc: Mr. Whitehead, (2)
Mr. Harrison
Mr. Eisenberg
Mr. Jim Rote, Agency Office

Mr. Loyd Forrest
California Energy Resources and
Development Commission
1111 Howe Avenue
Sacramento, CA

Dr. Mellon

STATE OF CALIFORNIA—THE RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 2390
SACRAMENTO 95811
(916) 445-2358

MAY 19 1977



Mr. Ed Hastey, State Director
U.S. Bureau of Land Management
2800 Cottage Way, Room E-2841
Sacramento, CA 95825

Dear Mr. Hastey:

Recently members of my staff attended the second meeting of the California Desert Area Conservation Area Advisory Committee in Barstow.

An examination of the maps displaying the routing of transmission lines from the proposed Sundesert Nuclear Power Plant indicates the lines will be routed through the southern portion of Anza-Borrego Desert State Park.

We believe state legislation prohibits the placing of lines within this park, and are opposed to the use of the park for this purpose.

Discussions between Mr. James Burns, Resource Agency, and Mr. Frank DeVore, San Diego Gas and Electric, indicated the utility does not plan on routing the lines through the park.

The planning maps should reflect this situation. The project reports and E.I.S. material should be clarified also.

Sincerely,

Herbert Rhodes
Director

cc: Mrs. Claire Dedrick, Resource Agency
Mr. J. Burns, Resource Agency
Mr. Loyd Forrest, Energy Commission, Howe Avenue, Sacramento, CA 95825
Mr. Frank DeVore, Vice President, San Diego Gas & Electric, P. O. Box 9211
San Diego, CA 92112

7.0 COMMENTS ON ENGEL LETTER

COMMENT 7.1

"The EIR on Rams' Hill is seriously deficient in many ways. Some of the more disturbing errors of omission relate to the quality of water, especially as water quality deteriorates under the impact of irrigation (with fertilizers) and the recirculation of resultant salt-laden waters.

"In Borrego Springs the problem is exacerbated because:

"(A) farms and golf courses lie astride the major aquifers,

"(B) fertilizer containing nitrogren is used extensively thereon,

"(C) resulting salts, especially the highly soluble salts such as nitrates, chlorides, et al., are leached through the porous sands and gravels into the water reservoirs,

"(D) the resulting, more saline groundwater is recirculated during irrigation and domestic uses, carrying additional salts into the reservoirs,

"(E) as mining of water proceeds the feedback continues and salinities increase, to the point where amounts of nitrate and total dissolved solids approach or exceed those considered safe for human consumption (45 ppm nitrate and 1000 ppm TDS).

"If we assume the underground reservoirs are crudely interconnected, a decade or more of watering, fertilizing, and salting of the underground reservoir (especially with overdraft) may render much of the underground water unfit for human consumption.

"This is the classic desert basin cycle observed throughout the world.

"In this context it should be noted that over 90 percent of the water used in the Borrego region is for agriculture, golf courses, and landscaping (EIR, Rams' Hill, p. 140 Table IV-O-1). Further, much of the water consumed by humans takes the form of sewage enriched in organic wastes, nitrogen and other salts."

RESPONSE TO COMMENT 7.1

The classic desert hydrologic cycle does not describe the hydrologic system of the Borrego Valley. Mr. Engel has defined the

feedback cycle of a closed water system in which all water not evaporated or transpired at the surface returns to the aquifer and in which no natural recharge of the basin occurs. If such a system actually was in operation, and there was no solution as Mr. Engel contends, then there would never be development throughout the inland desert climate zone anywhere in the world. Mr. Engel is correct in stating that farms and golf courses lie astride the major aquifers in the Borrego Valley. In fact, essentially all development in the valley has occurred on lands overlying the groundwater basin.

However, Mr. Engel is incorrect concerning the functioning of the feedback cycle. The Regional Water Quality Control Board for the Colorado District has studied desert groundwater basins extensively. Their research has concluded that water applied to the desert surface percolates only a short distance into the substrata. Most of the water is drawn back up toward the surface through capillary action, over time. The Regional Water Quality Control Board has concluded that only a small portion of the water not directly consumed at the surface ever reaches the water table. The salts in the discharged water are trapped in the substrata and do not re-enter the aquifer in a significant quantity. The studies conducted by the Regional Water Quality Control Board have included extensive monitoring of septic systems. Even under conditions of heavy water application such as occur with these systems, the capillary action prevents much water from re-entering the aquifer. All the biologic wastes in the sewage are purified in the first 30 feet of percolation. This is fully discussed in the DEIR in Section VI.P.

Mr. Engel contends that a decade or more of watering, fertilizing and salting of the underground reservoir (especially with overdraft) "may render much of the underground water unfit for human consumption." History and experience in the Borrego Valley does not support such a conclusion. Between 1950 and 1962 the volume of water pumped in the Valley was 2 1/2 times greater than that volume pumped today. Mining was occurring. Almost 97% of this water was used for agriculture and landscaping. Since then substantial water has continued to be used for irrigation. The groundwater basin has obviously not been rendered unfit for human consumption. Water quality in the new Borrego Springs Water Company Well No. 4 is of exceptionally high quality. Water quality is thoroughly discussed in the Rams Hill DEIR in Section IV.O. and in the Technical Appendix on Water, Volume II. The water quality in the Valley is further discussed in the DEIR on the activation of the Borrego Water District's latent powers, a copy of which is attached.

COMMENT 7.2

"Leaching of soluble salts and sewage downward into the water reservoirs is accentuated during heavy desert storms that drop from one to several inches of water on the salted substrate."

RESPONSE TO COMMENT 7.2

The average annual rainfall in the Borrego Valley is from 3.5 to 5.0 inches per year. This rainfall is highly sporadic, frequently occurring in explosive thundershowers which affect only a small portion of the Valley, or more often affecting the foothills and mountains. This is discussed in the DEIR in Section IV.I. The vast majority of recharge occurs from underground and surface channels leading out of the canyons from the west. This is discussed in Section IV.F. The volume of salts which reach the aquifer is very

low both because of the sporadic rainfall and because of the capillary action discussed previously. As also discussed previously, sewage does not percolate into the aquifer and does not contaminate water resources. The purpose and function of the Regional Water Quality Control Board is to prevent such occurrences. They do this by issuing permits after examining the safety of proposed septic systems. Before construction can occur on any lot in the Borrego Valley the Regional Water Quality Control Board must issue such a permit.

In fact the Regional Board is concerned with minimizing water consumption by recycling resources whenever possible. The Rams Hill project has been designed to minimize the volume of water pumped by recycling virtually all of waste water, or up to 100,000 gallons of water per day, for use on the golf course.

COMMENT 7.3

"The resulting problems involving salinization of groundwater are serious in the light of recent experiences with water in Borrego Valley wells. For example, in 1975 concentrations of nitrate in one of the Borrego Springs Water Company wells at Borrego Springs rose 'abruptly' from 'safe' values to over 100 ppm which is considered unsafe for humans (EIR, Borrego Water District, and Notice to Customers, 1975-76). Accordingly, some water from this well was diluted with water from one or two less impacted wells, but finally usage of the poisoned well had to be abandoned (Public Notice to Customers)."

RESPONSE TO COMMENT 7.3

The well to which Mr. Engel refers must be Borrego Springs Water Company Well No. 4 (formerly Di Giorgio Well No. 10). This well was constructed in the 1940's as an irrigation well. The well was drilled by the rotary method, gravel packed and perforated in order to produce all available water regardless of mineral quality. When funds became available, the Water Company drilled a

new well some 50 to 60 feet west of Well No. 4 using a design which prevented entry of water from near the surface of the groundwater into the well. This new, properly constructed well is pumping 150% as much water as the old well. Nitrates, TDS and related dissolved mineral constituents are extremely low (NO_3 = 3 ppms TDS = 300 ppm). Thus, the problem of nitrates affecting well water can be solved in most instances by proper well construction.

The nitrate problem in the Borrego Valley is probably a naturally occurring phenomenon rather than one created by human action. Early drilling records in the Valley clearly indicate that there were naturally occurring pockets of high salinity and high nitrate water. A. F. Peterson, the geologist retained by Di Giorgio to conduct their initial drilling program encountered water high in nitrates and TDS at Borrego Springs Water Company Well No. 4 when it was first drilled as an irrigation well in the early 1950's. To solve this problem, Peterson sealed off the first 280 feet of the well with blank casing -- the same solution which was successfully used at the new Water Company well.

COMMENT 7.4

"At the time that water in this well became undrinkable, the Borrego Springs Water Company had only one or two viable wells for the entire community. An additional well on County Club Drive collapsed. The resultant heavy pumping of the one or two viable wells, through old pipes, for long distances, produced silt and sulfate laden waters in homes normally supplied by the collapsed well. These contaminated waters were not only unfit for human consumption, but also full of sediment and total dissolved solids. They clogged plumbing fixtures, washing machines, filters, and created a serious hazard over a period of some 7 months until a new well could be hastily drilled by the Borrego Springs Water Company. It is this water system with a few cosmetic touches from which the Rams' Hill Country Club Project proposes to supply most of its needs (EIR, Borrego Water District)."

* * *

"The history of nitrate buildup to poisonous levels in at least one Borrego Springs Water Company well (since 1974?) is evidence of the extremely fragile nature of the reservoir and the potential for loss of large segments of the water reservoir for human consumption. It is also probable from the fragmentary well data and from projections into the future of the average precipitation over the last 40 years, that the postulated expansion of Borrego Springs per se to some 2500 to 4000 more dwellings, one to three more golf courses, and attendant agricultural and commercial activities could unduly stress and degrade the Borrego aquifers."

RESPONSE TO COMMENT 7.4

Mr. Engel comments on a Borrego Springs Water Company well on County Club Drive which collapsed. This was Company Well No. 2, a well which was poorly constructed on a low budget and which had served beyond its useful life. Here again, the Water Company drilled a replacement well on the same parcel of land approximately 100 feet away from the well that failed. The new well is of excellent quality. Well production, mineral quality and pumping conditions are considered excellent.

Mr. Engel is mistaken about the source of the water system that will supply the Rams Hill Project. He has alleged that water will be provided by the Borrego Springs Water Company. As fully discussed in the DEIR in Section IV.O., the water supply system for the Rams Hill Project will be fully self-contained, it will not utilize any facilities of the Borrego Springs Water Company. Water will be supplied by four wells, one of which is off-site. The water quality in all four wells is exceptionally high. All four wells were constructed utilizing modern, state of the art, techniques to ensure the continuing high quality of the water supply.

COMMENT 7.5

"With increased growth within Borrego Springs proper and any annexation of Rams Hill by a Borrego Water District, there exists the strong probability of continued and significant water mining. This is conceded in the Rams Hill EIR (Table IV-O-4, page 145)."

RESPONSE TO COMMENT 7.5

The volume of water currently and historically consumed in the Borrego Valley has been fully discussed in the Rams Hill DEIR Section IV.O., and in the Technical Appendix on Water in Volume II. Water mining is a function of recharge and consumption. The Valley had a history of water mining from 1950 to 1968, when the population was less than half of its current level. In the last 10 years with a doubling of the population, water consumption for domestic purposes still equals only 600 acre feet per year, or about 5% of the total water consumed in the Valley. The single most significant factor in water mining in the past, and for potential water mining in the future, is the extent of agricultural activity - not the extent of domestic development.

COMMENT 7.6

"Under these conditions recycling of waters bearing highly soluble nitrates and other salts will cause continued increase in the salinity of the underground waters. With continued water mining, salt buildup could impact much of the north Borrego reservoir and create a serious hazard for the entire community including the Anza-Borrego Park System."

RESPONSE TO COMMENT 7.6

The interplay of salt levels and water consumption is discussed above in Responses 7.1 to 7.3. An accurate description and an accurate discussion of these matters are contained in Sections IV.O. and IV.P. of the DEIR, in the Technical Appendices on Liquid Waste and Water, and in the Borrego Water District DEIR.

COMMENT 7.7

"As is recognized (EIR, Rams Hill, Table IV-O-4) the future of agriculture in the Borrego Valley is unpredictable, but at present more lands are being put into citrus groves. In addition, at least two, perhaps more golf courses are scheduled to evolve (Borrego Park and Rams Hill). This means that for the next few years the total amount of water (with fertilizer) used for irrigation will equal, perhaps exceed recharge (unless there is a sudden climatic change).

"Clear, specific recognition of the above cited situation and its inherent dangers should accompany any EIR on Rams Hill, or in a major expansion of dwellings, golf courses and landscaping in the Borrego Springs Area."

RESPONSE TO COMMENT 7.7

The DEIR acknowledges the potential growth in agricultural water consumption over present agricultural consumption and acknowledges the probable increase in water to be consumed in landscaping. See Technical Appendix on Water and Borrego Water District DEIR Section 5.1. It should be recognized, however, that the average annual volume of water consumed in the 1940's and 1950's in the Borrego Valley was 3-1/2 times greater than the average annual volume of water consumed in the Valley in recent years (the last decade). The volume of agricultural use has been as much as 4 times greater than the volume presently used for agricultural use. The potential "worst case" impacts of the development referred to by Mr. Engel have been fully discussed in the DEIR in Section IV.O. and in the Technical Appendix on Water. The future water trends are also discussed at length in the Borrego Water District DEIR Section 5.1, attached hereto.

COMMENT 7.8

"The problem cannot and will not be solved by recourse to the tired old data used in the Rams Hill EIR. Moreover, evaluation of these problems cannot be left to geologists and engineers employed by either the developers or the Borrego Springs Water Company.

Proof of this is the suppression of the nitrate problems and any suggestions for corrections."

RESPONSE TO COMMENT 7.8

The Technical Appendix on Water in the Rams Hill DEIR is the tenth major study of the Borrego Valley groundwater basin since 1945. As with all credible scientific investigations it drew on material developed painstakingly by other scientists and investigators. The consultants employed by the Applicant have outstanding qualifications in the field and credibility with governmental decision makers. Mr. Linden Burzell is the general manager of the San Diego County Water Authority and has specifically worked on problems of water quality and quantity in the Borrego Valley for 25 years. Mr. Dennis O'Leary is a foremost water quality engineer in San Diego County and was head of the Regional Water Quality Control Board. PRC Toups has an outstanding reputation in the environmental field for thorough, objective investigations.

COMMENT 7.9

"A possible clue to the potential hazards exists in the repeated claims by both the B.S.W. Co. and the Rams' Hill developers that 'no more studies are needed.'

"Without a thorough, dispassionate study by the most qualified water scientists, geologists and chemists, these problems will be swept under the sands.

"Need for the study is obvious if we consider the proposed increase in population to some 10,000 people with attendant commercial and golf course activities in the region. (see pages 198-199, 203, 210 and 211, Rams' Hill, EIR) and subsequent discussions of water consumption and water mining."

RESPONSE TO COMMENT 7.9

Neither the Borrego Springs Water Company, to our knowledge, nor the Applicant have taken the position that the Borrego Valley groundwater basin should not be studied further. However, the

volume of technical data on the basin reveals that ample information exists upon which to base a sound decision on the ability of the basin to support the level of development proposed at Rams Hill. Seven scientific studies basically agree that 1.3 million acres of water are stored in the first 200 feet of the groundwater table. That table extends at least 900 feet deep. All seven studies also conclude that the recharge rate is approximately 11,000 acre feet per year. This data reveals that the first 200 feet of the groundwater table can support development for between 350 and 1350 years. The Applicant believes that a groundwater management program based on ongoing monitoring and study should be developed by an approximate public agency such as the Borrego Water District. Details of existing water studies are discussed in Section IV.O., the Technical Appendix on water and in the DEIR on the Borrego Water District.

COMMENT 7.10

"In the Rams' Hill EIR a water crisis of serious dimensions is conceded as a possibility (page 196) but this crisis is dismissed with the casual comment that "acquisition of a substitute future water supply should one become necessary, would be the responsibility of Public Agencies" (page 196). In other words, if our concerns have any basis in fact, we have no recourse other than to explain the catastrophe to 'Public Agencies,' who of course have the final responsibility of deciding whether a dangerous gamble on water quality can be justified without further study."

* * *

"The suggestions for alternate sources of water are ridiculous."

RESPONSE TO COMMENT 7.10

•One of the goals of an EIR is to analyze the consequences and impacts of a project, and then suggest alternative ways that such consequences and impacts may be mitigated. Mr. Engel fails to note that the Rams Hill DEIR uses the most conservative - not the most probable - set of assumptions. Only when one assumes a

"worst case" scenerio and also assumes that no mitigation is undertaken do the cumulative effects of the potential development of Rams Hill have potential serious impacts. The function of public agencies is to protect the common good. In fact, the County Water Authority, a local public agency, is responsible for almost 90% of the water supply used in San Diego County.

COMMENT 7.11

"There is, moreover, no specific discussion in the Rams' Hill EIR of the almost impossible task and incredible cost of reclaiming nitrate and Na-rich waters or waters with excessive total dissolved solids as these may continue to develop."

RESPONSE TO COMMENT 7.11

The recent experience of the Borrego Springs Water Company in solving the problems of domestic water with high nitrate concentrations illustrates the relative ease with which the nitrate problem can be solved. Furthermore, almost 90% of the water consumed in the Valley is used for agriculture and landscaping. Nitrate rich water is put to excellent use on such areas. The presence of nitrates in the water in fact reduces the need for artifical application of fertilizers.

COMMENT 7.12

"There is also no attempt to relate or reconcile the contradictory inferrence that (A) the north Borrego Valley water reservoir per se is relatively homogenous and interconnected and (B) the documented large variations in water level, salt content, and water quality from well to well within the northern reservoir (see EIR, BWD, Table 5.2-1, and DWR, 1968)."

RESPONSE TO COMMENT 7.12

The study performed by the Department of Water Resources plotted the contour lines of the Borrego Valley groundwater basin. These contours are symetrical revealing natural underground flow of water through the entire crossection of the underlying formations.

This study, as well as the other 10 studies, have revealed that the basin is a bowl filled with alluvium which contains water. The alluvium is varying in depth throughout the Valley depending upon both the rate of deposition of the alluvium and the relative elevation of basement rock. These factors in no way contradict the statement that the basin is relatively homogeneous and inter-connected. The water which is contained in the basin, just like the alluvium, has been stratified into layers which have varying characteristics. When a well is drilled it transects these various layers. The differing water quality depends upon the layers of water from which the well is drawing. A well can be perforated to draw only certain layers of water which have desired characteristics. This is clearly revealed in the example of the new Borrego Springs Water Company Well No. 4 discussed in Comment 1.4 above.

COMMENT 7.13

"In view of the serious questions, especially the dangers of major pollution associated with probable water mining operations, and the suppression of the problems encountered to date, no major expansion of the Borrego Springs water system per se should be seriously considered, much less approved until far more definitive studies are undertaken.

"The obvious source of such a study would be the highly qualified water scientists in the Water Resources Branch of the United States Geological Survey. Discussions with U.S.G.S. officials in the San Clemente office of the U.S. Geological Survey indicates they are capable and willing to undertake such a study. Current costs are on the order of $125,000 to $150,000. One-half of these costs would be borne by the Geological Survey and the other half to be obtained within the State, County, and Community. Obviously, problems as important as those in question involving the lives of thousands of people and investments of many millions justifies expenditure of some $75,000 to quantify and more clearly define the problems of water quality, water degradation, water mining as well as simply amounts of water."

RESPONSE TO COMMENT 7.13

Mr. Engel again erroneously concludes that the Rams Hill Project would be served by the distribution and well system of the Borrego Springs Water Company. Rams Hill will have a self-contained domestic water system served by four wells recently drilled by the developer specifically for Rams Hill. A new distribution system will have to be constructed from these wells.

As identified in these Responses, the groundwater resources of the Borrego Valley have been substantially studied for over two decades. During the six-year review of the Rams Hill Project the groundwater resources were thoroughly evaluated by County staff and the applicant's consultants. These reports concluded that groundwater sufficiency was not a significant issue for this Project. That position was adopted by the County in approving GPA 76-02 which established the Rams Hill SPA and provided for 1600 units at the site.

The County General Plan, Land Use Element, adopted January 1979, reiterated this position in Policy 1.7. It states that development can occur to the level provided by the Land Use Element but that no plan amendment to further increase density will be allowed until community planning and resource studies, including water studies, are completed. The Di Giorgio Corporation proposal and position is consistent with the County's position.

The USGS has stated to representatives of Borrego Water District that it would be willing to update the 1968 water study published by DWR. However, the USGS has stated that no study design has been made, that manpower is currently overloaded, that the timing of any such study is uncertain and moreover, that such a study would

probably take a minimum of two to three years to complete. Most importantly, USGS has stated that such a study can best be conducted in conjunction with an appropriate local agency such as the Borrego Water District.

The objections voiced by Mr. Engel to the existing body of data on the Borrego groundwater basin would not be resolved simply by one more study by USGS. If such were the case, then the 1968 DWR study which was conducted by USGS scientists should have already resolved Mr. Engel's questions on water storage and recharge. The type and quantity of data which have been developed are more than sufficient for general planning decisions. More refined groundwater management issues will need to be resolved by refined analysis. Such analysis can best occur during an ongoing full-time study program conducted by geohydrologists and engineers dedicated to investigation of a single basin. Such an ongoing program will be implemented through a groundwater management program such as that proposed by the Borrego Water District.

COMMENT 7.14

"Amount of Water

"Discussions of (A) the amount of water in the Borrego reservoir and (B) recharge of the reservoir that appear in the Rams' Hill EIR are unacceptable. The problems are discussed with inadequate and poorly determined, old, data, and numbers. A careful restudy of the problem by competent scientists who do not have a vested interest in land development is imperative prior to any decision to utilize water from the Borrego Springs Water Company in the Rams' Hill Development."

RESPONSE TO COMMENT 7.14

Within the last ten years seven major studies of the Borrego Valley groundwater basin have been published. These studies are discussed in depth in the Technical Appendix to the Borrego Water

District DEIR. In fact, the Borrego Valley groundwater basin is the most extensively studied basin in San Diego County. The scientists who have conducted these seven studies are highly respected in their fields. For example, the amount of water in storage in the reservoir -- a calculation which Mr. Engel claims is unacceptable, and poorly determined -- was calculated by the same group of scientists at USGS whom Mr. Engel proposes should restudy and recalculate the basin. The consultants retained by the Applicant to study water in the Valley are leaders in water engineering and geology in San Diego County. Linden Burzell, who is General Manager of the San Diego County Water Authority, has 25 years of experience in water development in the Borrego Valley. Dr. Richard Threet is a professor of geology at San Diego State University. Neither professional has a "vested interest in land development" in Borrego.

As explained above, water from the Borrego Springs Water Company system will not be used to supply the Rams Hill Project. Rams Hill will be totally self-contained and will utilize four new wells drilled specifically for the project and a new distribution system.

COMMENT 7.15

"Specifically, concepts of the size, and internal structure of the valley reservoir are simplistic at best. Geological studies during the last decade by geologists of the U.S. Geological Survey (U.S.G.S. Professional Paper, Borrego Mountain Earthquake, 1969) and our own studies in the Borrego Sink and adjacent mountains suggest that Borrego Valley is transected by at least four major faults and fold systems and numerous subordinate structural features. These produce steeply dipping zones of varying permeability which may not permit free movement of groundwater within adjoining reservoirs. The complex fault system coupled with the so-called 'Desert Lodge anticline' as well as horsts and folded segments of the relatively impervious Palm Springs Formation, imply critical deviations from the concept of a dual, possibly quasi-contiguous reservoir (see also, page 153, EIR, Rams' Hill). The suggestion of a complex and

fragmented reservoir appears substantiated by existing well data suggesting a related pattern of unequal water levels, uneven yields, and differing salinities of clusters of wells within the Borrego Sink (DWR, 1968; EIR, BWD, Table 5.2-1 and cross section page 11B)."

RESPONSE TO COMMENT 7.15

In an area of substantial faulting activity, such as the Borrego Valley, it is reasonable to assume as Mr. Engel has stated that the subsurface geology is highly complex. There have been several wells drilled which have been essentially unproductive due to impermeable subsurface materials. With the large volume of well records available it is now improbable that new wells will encounter such difficulties if a qualified geologist is retained and if proper well drilling methods are employed. However, Mr. Engel incorrectly states that the pattern of well levels is either unequal or unrelated. The water level contours which were prepared as part of the 1968 DWR investigation are remarkably uniform throughout the valley suggesting a strong interrelationship of aquifers. These contours are based on measured well levels. In fact, the well levels on the south side of the Desert Lodge Anticline are in hydrologic continuity with those of the north suggesting water flow within or around the anticline itself. The gradual changes in water level across the valley relate to the bowl shape of the underlying bedrock, the resulting difference in depth of water-bearing alluvium, and the distance from major sources of recharge (such as Coyote Creek) and heavy agricultural use (such as the northern part of the Valley). The groundwater management study proposed as part of the latent power application of the Borrego Water District would include a renewed investigation of subsurface geology in order to provide a clearer understanding of subsurface water conditions.

The information referred to by Mr. Engel is discussed in Sections IV.C., IV.O. and the Technical Appendix on Water in the Rams Hill DEIR and throughout the DEIR on the Borrego Water District.

COMMENT 7.16

"Unfortunately, most wells, and over 85 percent of water consumed in Borrego Valley, are privately controlled (EIR, SWD, page 6), and it is difficult if not impossible for a private citizen to obtain adequate necessary information regarding water from these wells to resolve these problems."

RESPONSE TO COMMENT 7.16

The Di Giorgio Corporation was instrumental in initiating water development in the Borrego Valley and historically has produced by far the largest volume of water. Their records are the most extensive in the Valley. However, the consultants' reports have been based on all data obtainable from public as well as this, and other, private sources. Again, to resolve potential future problems it would be advantageous to encourage a groundwater management agency in the Valley. The Borrego Water District is by far the most logical choice for such an agency.

COMMENT 7.17

"The future of agriculture is a major unknown, as is future weather."

RESPONSE TO COMMENT 7.17

The future of agriculture is discussed in the DEIR, Section IV.D. and Section IV.O. Climatic trends are discussed in Section IV.I.

COMMENT 7.18

"The suggested studies by the U.S. Geological Survey would unearth enough contemporary and historical data to permit refinements in estimates of the reservoir size, internal complexity, yields, water degradation, and salinities of most wells and a dispassionate analysis of the related plethora of data that now exists.

"The present values of recharge ranging from 3300 acre feet (Lough, 1973) to the optimistically high values of some 11,000 or more acre feet (BLM and others, EIR, BWD, Table 2) surely can be refined. Estimates of recharge are, however, especially subject to errors due to our ignorance of precipitation over the next 50 to 100 years. If the data on precipitation from the last 40 years are extrapolated into the future, the value of some 6000 acre feet recharge per year suggested by Threet (BWD, EIR, Table 2) may not be unreasonably high. If the general decrease in average precipitation indicated for the last 3000 years continues - and this is suggested by some of the precipitation data between 1935 and 1975 - average recharge in the Borrego Basin in the next 50 years could be nearer Lough's figure of 3300 acre feet. Either value is far too low to prevent water mining."

RESPONSE TO COMMENT 7.18

Mr. Engel contradicts himself in his letter. Whereas earlier he refers to "inadequate and poorly determined, old data and numbers" he now refers to the "plethora of data that now exists". There have been seven major studies of the groundwater basin since 1968. Each study has drawn upon the material and expertise of former studies. The currently estimated recharge rate of 11,000 acre feet per year is, in fact, a refinement of earlier studies which proposed lower recharge rates. The preliminary finding in the draft Mr. Lough report of 3,300 acre feet per year was subsequently refined by Mr. Lough himself to 11,000 acre feet per year. The Threet report stated that the recharge rate during the drought period of 1935 to 1975 may have been as low as 6,000 acre feet per year. Based on known fluctuations in precipitation levels, however, Mr. Threet believes that it is realistic to assume that 11,000 acre feet per year is a

reasonable long term annual recharge rate and one that could safely be used for planning purposes.

The numerous reports on water in the Borrego Valley which analyze recharge rates, precipitation and mining are discussed in detail in the Technical Appendix to the DEIR on the Borrego Water District.

COMMENT 7.19

"Because future precipitation and agricultural activities remain unknowns, and there exists no other rational, obvious source of water available at acceptable costs, any decision based upon recharge of more than 6000 acre feet per year would appear dangerous if not irresponsible."

RESPONSE TO COMMENT 7.19

The data presented in both Section IV.O. of the DEIR on Rams Hill, the Technical Appendix on Water for Rams Hill, the DEIR on the Borrego Water District and the Technical Appendix to the Borrego Water District do not support Mr. Engel's conclusions regarding recharge. In fact, an annual recharge rate of only 6,000 acre feet per year is very conservative.

COMMENT 7.20

"If we use the 6000 acre feet value and contemplate the projected population increase in the valley to some 10,000 people in 1995 (EIR, Rams' Hill) coupled with water needs imposed by attendant golf course, agriculture, commercial operations, et al, the following sequence of events is likely:

"1. Water mining will continue, perhaps increase appreciably, within the Borrego Reservoir throughout the next 10 to 15 years (EIR, BWD and EIR, Rams' Hill).

"2. Concentrations of highly soluble salts, especially nitrates, TDS, and perhaps organic wastes, will increase rapidly and poison major segments of the water supply far beyond the recent poisoning documented in the Borrego Springs area.

"3. Concentrations of dissolved salts in the water, which now may average 500 to 900 ppm (EIR, Borrego Water District, page 24, 1979) may rise to levels in excess of the 1000

ppm regarded as a safe upper level for continuous human consumption. Sodium content of the waters will increase. If so those most seriously affected by high sodium will be senior citizens who dominate the population of much of the Borrego Valley.

"4. The future of Borrego Springs and any related community drawing upon the Borrego water supply will be severely jeopardized.

"5. In view of concurrent demands for water in every community throughout Southern California, it is unreasonable to suggest that a satisfactory alternative or additional economic source of quality water will be found at costs possible to Borrego Springs.

"6. The entire community of Borrego Springs and environs may expect dramatic dilution in equities of properties of the type currently existing along the Salton Sea.

"7. In this scenario those land owners of presently undivided parcels throughout the Borrego Springs area would find their holdings essentially worthless except as desert scenery."

RESPONSE TO COMMENT 7.20

The DEIR on Rams Hill discussed the potential impacts of cumulative growth in the Borrego Valley on the groundwater resources. This discussion can be found in Section IV.B. of the Rams Hill DEIR as well as Section 5.1. of the Borrego Water District DEIR. Each of Mr. Engel's seven conclusions have been dealt with in the individual comment responses above. In summary:

(1) The DEIR's on both Rams Hill and the Borrego Water District have stated that a minor long term water mining condition may occur in the Borrego Valley if present agricultural trends continue or if agricultural water consumption increases. The County Department of Agriculture has reported that continuation or expansion of current

agricultural activity levels is highly unlikely due to the economics of production in the Borrego area.

(2) The Borrego groundwater basin is not poisoned. Pockets of high nitrate and high TDS waters occur naturally throughout the aquifer as revealed by early well pumping and drilling data. The Regional Water Quality Control Board for the Colorado region has stated that contamination of groundwater from organic wastes is highly improbable with use of approved septic systems. The Rams Hill Project will not contaminate water. The bacteria in the sewage will be purified within the first 30 feet of percolation. In fact, most of the waste water will be treated for reuse on the golf course.

(3) Average water quality in the Borrego Valley is exceptionally good. The new well drilled by the Borrego Springs Water Company produces water with TDS levels as low as 300 ppm and nitrate levels under 5 pphm. The wells which will serve Rams Hill produce water with TDS levels in the range of 450 to 600 ppm. There are wells in the Valley which produce water with high concentrations of both TDS and nitrates. Through proper water management techniques these lower quality waters can be used for non-domestic purposes thereby conserving higher quality water for domestic use. Such water management techniques are widely used in groundwater basins throughout California.

(4) There is no evidence that the quantity or quality of water in the Borrego Springs area is jeopardized. Even under the worst case projections, there is ample water in the first 200 feet of the groundwater table to supply the Valley with water for about 350 years.

(5) The general manager of the San Diego County Water Authority has reported that two recent studies have proposed plans to import water to the coastal metropolitan areas via a pipeline through the Borrego Valley. While any such importation of water to the Valley as reported that two recent studies have proposed plans to import water to the coastal metropolitan areas via a pipeline through the Borrego Valley. While any such importation of water to the Valley is highly unlikely, for the reasons stated above, it is not unreasonable to assume that Borrego, like the rest of San Diego County will have alternative ways of supplementing its existing water supply in future years.

(6) The groundwater situation in the Salton Sea is totally unlike the situation in Borrego. Due to a lack of land use controls, lot speculation was rampant in the Salton Sea area in the 1950's and 1960's. Even at that time it was recognized that the Salton basin had insufficient supplies to serve the newly created lots. In fact, developers at the Salton Sea in 1960 proposed to appropriate water from the Borrego basin in order to serve Salton Sea lots. This proposal was defeated by citizens in Borrego largely through the agency of the Borrego Water District.

(7) Water is a critical resource in desert areas. However, Mr. Engel does not support his supposition that water quantity and quality in Borrego is threatened. The continuing viability of land prices in the Valley will be a function of their economic utility. Agricultural activity has expanded to its logical maximum according to the San Diego County Department of Agriculture. The future of the Valley most logically lies in second home-resort developments

which are less resource consumptive than either agriculture or urban and suburban development. Resort industry will provide a solid economic base for areas, such as Borrego Springs, that are removed from urban population centers.

The potential adverse impacts of cumulative growth in the Borrego Valley on the groundwater resources are discussed in Section IV.B. of the DEIR on Rams Hill and in Section 5.1 of the DEIR on the Borrego Valley. Each of Mr. Engel's seven conclusions have been dealt with in the above individual responses of the Applicant.

COUNTY OF SAN DIEGO

ENCLOSURE E

Environmental Analysis Division

Community Services Agency

9150 Chesapeake Road (MS 0175), San Diego, California 92123 . . . Telephone 565-5757

October 12th, 1979

Local Agency Formation Commission
1600 Pacific Highway
San Diego, California 92101

Attention: Bernie Rhinerson

Subject: AUTHORIZATION OF LATENT POWERS FOR THE BORREGO WATER DISTRICT
EAD Log Number 79-5-4

BACKGROUND

The Borrego Water District has applied to LAFCo for authorization to exercise its latent powers for water service. This District encompasses a forty three-square mile area east of Yaqui Pass Road and southwest of Borrego Springs Road in the south Borrego Valley area. It comprises approximately one-half of the private inholding on the Borrego Valley. Additionally, the District proposes to annex Ram's Hill, a development of seven hundred eighty units on two thousand one hundred fifty three acres (3.36 square miles). The General Plan designates the Ram's Hill area "SPA 0.5" and the proposed development is consistent with the plan. The remainder of the land within the District's boundary is designated multiple rural use by the General Plan, allowing minimum parcel sizes of 4, 8 and 20 acres depending upon slope of the terrain.

The County of San Diego has completed its review of the subject proposal. Based upon that review we have the following comments:

GROUNDWATER RESOURCES

We find that the Environmental Impact Report provides an accurate assessment of the groundwater resources in the Borrego Valley by identifying the following facts:

1.) Any additional development in the Borrego Valley (including Ram's Hill) will result in groundwater mining, unless agriculture is curtailed. This fact is illustrated on Page 3.

Present Consumptive Use:

Human Use	8300ac. ft./yr.
Native Vegetation	3000ac. ft./yr.
Total:	11300 acre foot/year

Mean Annual Recharge: 11,000 acre foot/year

Estimated Current Annual Deflict: 300 acre foot/year

2.) Presently, water supply within the Borrego Valley is provided by six relatively small and uncoordinated private water companies. The opinion seems generally accepted that should this condition be allowed to continue with increased development in the Valley, the danger of unintentional overdraft of the groundwater supply exists. There seems little doubt that the addition of one more supplier (Borrego Water District) would simply compound that problem unless the proposed authorization of latent powers for the District includes the authority (and responsibility) of coordinating the production and supply of water for all development in the Valley.

Because of the problems noted in the preceding discussion and because there appears to be no guarantee at this time that the District will be in a position to fund, develop and implement a comprehensive groundwater management plan for Borrego Valley, we feel that the draft EIR does not presently provide a sufficient range of potential mitigating measures for possible overdraft of the groundwater supply in the Valley. Therefore, please include and discuss the following additional mitigating measures:

1.) Limit development of the entire Borrego Valley through limiting the development capability of the County General Plan. (This would require concurrent action by the County of San Diego).

2.) Limit the authorization of latent powers for the Borrego Water District to the area included in the current Ram's Hill development proposal.

3.) Establish a limitation on per capita water use or on total district water use (this would require new State legislation).

4.) Redefine the boundary of the Borrego Water District to include all existing development in the Borrego Valley. This mitigating measure would require that the District coordinate all production and supply of water by the six private companies that are currently operating.

5.) Prepare a comprehensive groundwater management plan which identifies the safe yield of groundwater and coordinates all production and supply of water in the Borrego Valley to ensure that a condition of long-term overdraft does not occur.

6.) Demonstrate the administrative and financial capability to prepare and implement the comprehensive groundwater management plan addressed in item 5. (above) and provide a timetable for full implementation of the plan.

GROWTH INDUCEMENT

The basic premise of the EIR is that authorization of latent powers for the Borrego Water District would not encourage growth. With this assumption, the report focuses on the issues of water quantity and management. We believe that the latent powers authorization may induce growth and this possibility should be discussed in the EIR. The availability of water is the key to further growth in the Borrego Valley just as

it is in many locations. There is water in the Valley but it is not currently accessible on a large scale. It is contradictory to assume that an authorization that would enable the annexation of a project such as Ram's Hill would not also attract other projects of equivalent magnitude. In fact, it may be necessary for the District to encourage growth in order to generate sufficient revenues to carry out its plans.

Pursuant to this concern the EIR needs to supply the following missing elements:

1.) Discuss the above factors which may result in the project inducing additional growth.

2.) Provide an analysis in general terms of resultant impacts, including but not limited, to water and air quality, building, and sewage treatment.

AIR QUALITY (Reference page 12, last paragraph)

The text states, "Air quality in the Borrego Valley is exceptionally good. While no area....the California Air Resources Board has proposed that they be classified as a "Class A" or pristine air quality area."

Please augment this paragraph using the air quality section of the draft EIR for the Ram's Hill development proposal as a guide and indicate that Federal law prohibits degradation of air quality below the level experienced in 1975.

GENERAL COMMENTS

Additional general comments involving presentation in the draft EIR are provided in Attachment I.

Thank you for the opportunity to review this document. I hope that our comments have been helpful. If any additional questions arise on this matter, please contact Mr. R. Rodgers at (714) 565-5749.

Respectfully,

Russell L. Hurlburt

PAUL C. ZUCKER, Director
Department of Planning and Land Use

PCZ:RLR:cb

Attachment:

Draft cc: Hurlburt
Gray
Nielsen
Welsh
Zucker

ATTACHMENT I

General Comments

1. Reference figures following page 11 of the text.

   a. Please number the figures for easy reference.

   b. Please indicate the area covered by the soils map.

   c. Please indicate where the Borrego Valley cross section is taken.

   d. Please provide more complete labeling of these figures including scales if appropriate.

2. Reference Table 5.2-1 Page 24

   Are 1951-1965 water samples the most current data available? We note that the mean nitrate concentration exceeded to standards for potable water at the time that the data was compiled. Since additional nitrate "poisoning" has occurred since 1965 due to continued fertilization, it seems appropriate to update that information to the present time.

3. Reference Table 5.2-2 Page 25

   Please identify the report that was used as the source for data presented in this table. Also provide units for the concentrations presented, i.e., ppm, if applicable.

4. Reference page 10, paragraph 5.

   The text states: "This seismicity could have significant potential impacts on water quality, and will be described in more detail in that section." However, no further discussion of those impacts can be found in the EIR.

5. Reference Appendix A, page 10, first paragraph

   The text states: "The scope of this appendix was partially defined by a letter from IPO, which is included at the end of this report." However, there is no copy of the IPO letter in the draft EIR.

Attachment 4
of the entire
GPA package

COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE October 9, 1975

ENCLOSURE D

TO: Board of Sup
Planning Com

FROM: Environmental Review Board

SUBJECT: Environmental Impact Report for BORREGO SPRINGS (Di Giorgio) GENERAL PLAN AMENDMENT (GPA), A SUB-ITEM OF GPA75-03 [Log #75-GP-14]

The Environmental Review Board has reviewed the enclosed Environmental Impact Report (EIR). Based on the discussion of issues which follows, the Environmental Review Board (ERB) recommends that:

1. The EIR be certified as being complete and in compliance with the provisions of the California Environmental Quality Act,

2. It be found that the project as proposed will have a substantial adverse (significant) environmental impact;

3. The attached Mitigating Measures be made conditions of project approval.

ERB DELIBERATION

On motion of Mr. Schell, seconded by Mr. Manganelli, the enclosed Environmental Impact Report (EIR), consisting of Enclosures A through H, is approved by the Environmental Review Board (ERB) during this regular meeting of the ERB this 9th day of October, 1975, with all voting members being present.

AYES: 4
NOES: 2
ABSTENTIONS: None

Four reasons were given for the significant [substantial adverse] finding:

1. Growth-inducing factors; impacts of improvements necessitated by the project,

2. Adverse energy impacts because of the remoteness of the site, landscaping; heating and cooling requirements,

3. The location of a semi-urbanized area in the middle of the desert, and

4. Circulation -- would require expansion of the circulation system.

The ERB split 3/3 on the issue of biological impacts, with the following dissenting position by the 3 NO voting ERB members:

> Biological impacts will not be significant because of the protection of similar biological species by the 500,000+ acres of the Anza-Borrego Desert State Park.

DAVID C. NIELSEN, Secretary
Environmental Review Board

DCN:BKW:leb

Enclosures:
A. Environmental Impact Report Discussion, pages 3-14
B. Draft EIR prepared by the Office of Environmental Management (June, 1975) 36 pages
C. Letters of Public Comment 2 pages
D. Reference Sources, 1 page
E. Mitigating Measures, 1 page
F. Mitigation Recommendations, 1 page
G. Supplemental Information supplied by the applicant during the ERB meeting of October 9, 1975
H. Letter from the Department of Sanitation and Flood Control

cc: William Chatham (A652) project planner, I.P.O.
Michael Evans (A655), I.P.O.
Mr. Bud Kurtz of Di Giorgio Corporation, the applicant
Mr. D. Stutz, representative of the applicant
Mr. M. H. Getty, Anza-Borrego State Park
Ms. Janet Motley, Deputy California Attorney General
Conservation Committee, Audubon Society
Desert Protective Council
San Diego Chapter, Sierra Club
M. Niederman, LAFCO, MS #216

ENVIRONMENTAL IMPACT REPORT

DISCUSSION

PROJECT: BORREGO SPRINGS (Di Giorgio) GENERAL PLAN AMENDMENT (GPA), A SUB-ITEM OF GPA75-03 [Log #75-GP-14]

PROJECT DESCRIPTION

The proposed project is located about 5 miles (8 km) SE of the community of Borrego Springs (the nearest area of population concentration), and consists of 1,457 acres (590 hectares) in Sections 23, 25-27, and 35 of T11S, R6E, SBPM (Supv. Dist. V)

The proposed project is to amend 1,457 acres now designated as Agriculture in the Land Use Element of the County General Plan to new designations that will facilitate an urban development project (see p. 1 and 5 of the draft EIR). Present zoning (L-C) and Land Use classification would allow up to 585 D.U.s. The proposed amendment would allow 2,502 D.U.s.

Preliminary project plans indicate that the applicant intends to construct up to 1,457 D.U.s (a density of 1 D.U./acre). However, the environmental review of this project has been based on what could result if the proposed amendment is approved, and the discussion centers on potential and regional impacts.

Existing air quality and general noise conditions in the Borrego Valley are satisfactory at the present time. It is not anticipated that development (as discussed in the applicant's preliminary design plans) would result in deterioration to below standard conditions, but air quality could be affected dependent upon the extent and nature of secondary growth in the region.

MAJOR ISSUES

1. Growth Induction

The applicant has discussed project design intentions which would have a lower level of impacts than what the actual proposed amendment could induce. However, there is no way to assure that the preliminary design plans discussed would actually be implemented. The following discussion covers both the amendment proposal and the applicant's discussed intentions.

As discussed in the draft EIR, approval of 36 Tentative Maps or equivalent subdivision actions has resulted in the creation of 3,076 recorded lots (of the 3,577* approved lots) in the

* This value does not include any lots that have been created via Tentative Parcel Map (TPM) or other lot splitting action.

Borrego Valley. It is estimated that about 21% of the recorded lots are occupied, and there is a concern that approval of this amendment plus major development in the amendment area may induce a rapid development of the recorded or approved but presently unoccupied lots. This high potential for extremely rapid population growth can be reduced, even if the amendment is approved and amendment area development follows, by establishing a partial building moratorium by limiting the number of building permits issued in any one year.

a. Amendment proposal:

As discussed in the draft EIR (ref: pp. 21-22), this amendment could result in major population increases in the Borrego Valley. Project implementation to the proposed allowable densities plus development of existing approved lots (TM produced), due to secondary growth induction, could result in up to a 940% population increase in the Borrego Valley. In addition, even if provisions can be made to accommodate the population magnitudes, a greatly increased rate of growth could place excessive demands on all public services.

The average annual growth rate of the Borrego Valley has significantly increased over the 1960-1975 census periods:

Census Year	Permanent Population, Borrego Valley	Average Yearly Increase From Previous Census
1960*	780	-
1970*	828	0.6%
1975**	1174	8.36%

* Federal census
** County census

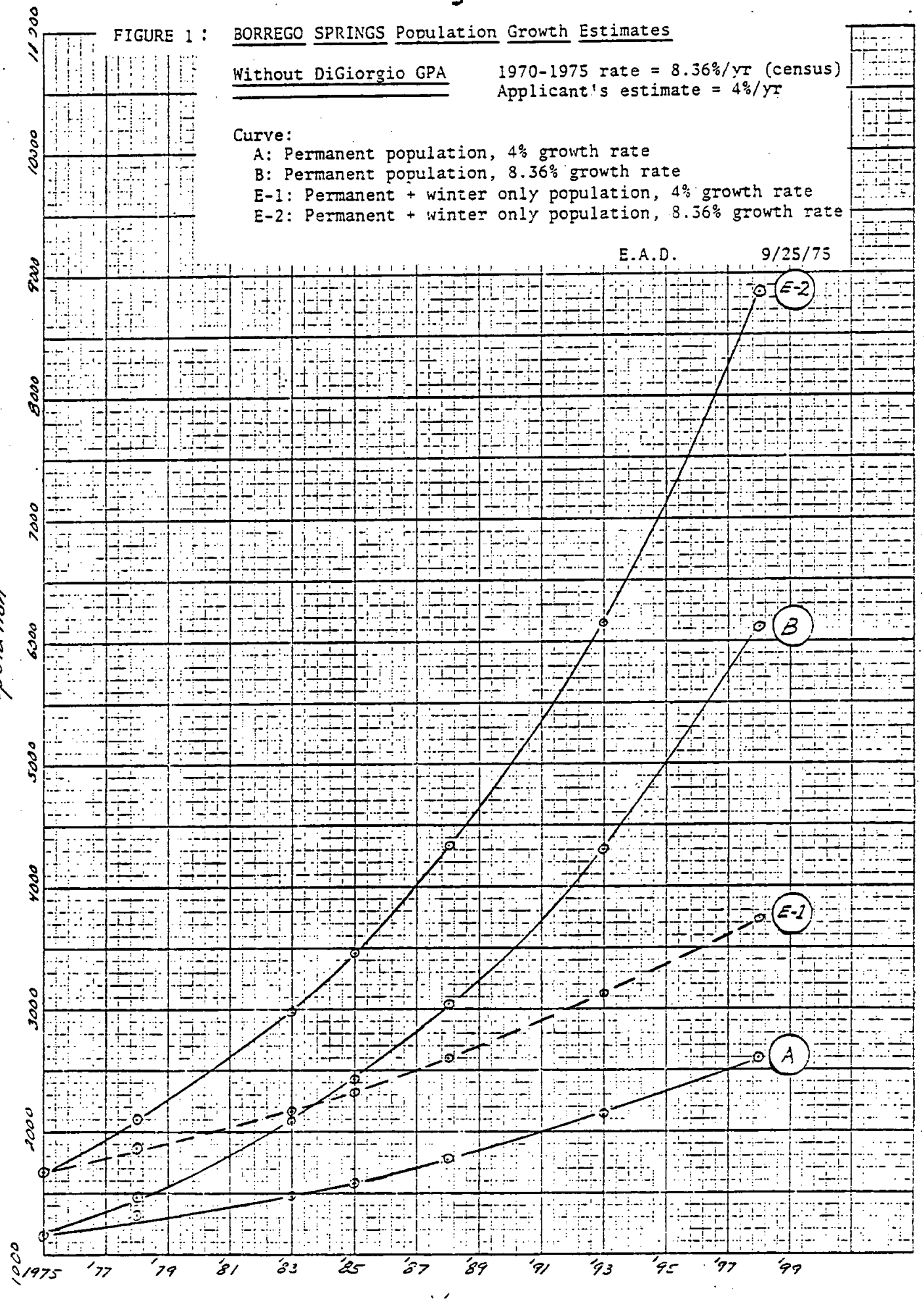
Although there is no way to ascertain if the present 8.36% growth rate will remain constant, there are no data to suggest that the 8.36% annual growth rate will decrease. See Figure 1 for future population estimates without amendment approval.

FIGURE 1: BORREGO SPRINGS Population Growth Estimates

Without DiGiorgio GPA

1970-1975 rate = 8.36%/yr (census)
Applicant's estimate = 4%/yr

Curve:
A: Permanent population, 4% growth rate
B: Permanent population, 8.36% growth rate
E-1: Permanent + winter only population, 4% growth rate
E-2: Permanent + winter only population, 8.36% growth rate



b. Preliminary project design

The applicant, however, has discussed (in preliminary design plans) a lower density of development than what could be actually allowed if the proposed amendment is approved (development of 1,457 D.U.s rather than 2,502 D.U.s); see Table 1 and Figure 2 for population estimates. Although the applicant would not be bound to the preliminary design plans discussed, the preliminary design would reduce the severity of the environmental impacts to varying degrees.

The applicant has also discussed an intent to significantly utilize native vegetation for landscaping, reclaim water from sewage effluent for irrigation when the total volume exceeds 100,000 gpd, and construct a golf course in the central area.

2. Energy

Development following project approval will have an adverse energy impact due to: 1) higher than average demands for space cooling during summer weather, and 2) its relative remoteness from: major medical facilities, entertainment centers, and commercial areas.

As discussed in the draft EIR, the Borrego Valley experiences summer temperatures considerably higher than most areas of San Diego County. The need for space cooling during a major portion of the year, plus relative energy needs for transportation will substantially increase regional requirements for petroleum derived energy. In addition, if a large amount of native vegetation is replaced by non-drought species, relative amounts of energy to pump water will be increased in direct proportion to the increased need for watering. Conservative estimates for increases in energy for water pumping for irrigation/watering of non-native vegetation on a per acre basis range up to 1500% over San Diego Metropolitan areas.

Estimates of the need for space cooling, compared to the metropolitan San Diego area, range from 277 to 1,945% higher for the warmest months of the year (see Table 2). The peak electric power demand during 1974 (summer) for the Borrego Valley was about 6000 kw (about 71% of the peak capacity of the Borrego Valley system).

Public transportation in the general area is lacking, although commercial air transport to the area exists. The nearest major medical facilities are in the Coachella Valley area, about 45-60 miles distant.

TABLE 1: Projected Population Estimates for Borrego Valley

	Population (a)			
	Without GPA approval		With approval (b)	
Year	4%*	8.36%**	4%*	8.36%**
1978	1875	2093	2261	2479
1983	2145	2967	4459	5281
1988	2317	3463	5402	6548
1988	2595	4331	6544	8509
1993	3114	6141	7853	12066
1998	3737	8707	9424	17109

(a) Total Population (Permanent + winter only residents), approximately 70.1% are permanents as of 1975.

(b) At a development rate of 150 D.U./year, to a maximum of 1,457 D.U. in the project area***

* 4% Growth rate (applicant's estimate)

** 8.36% Growth rate (based on 1970-1975 censuses)

*** The applicant's stated preliminary design plans -- the amendment per se could allow up to 2,502 D.U.s.

FIGURE 2:

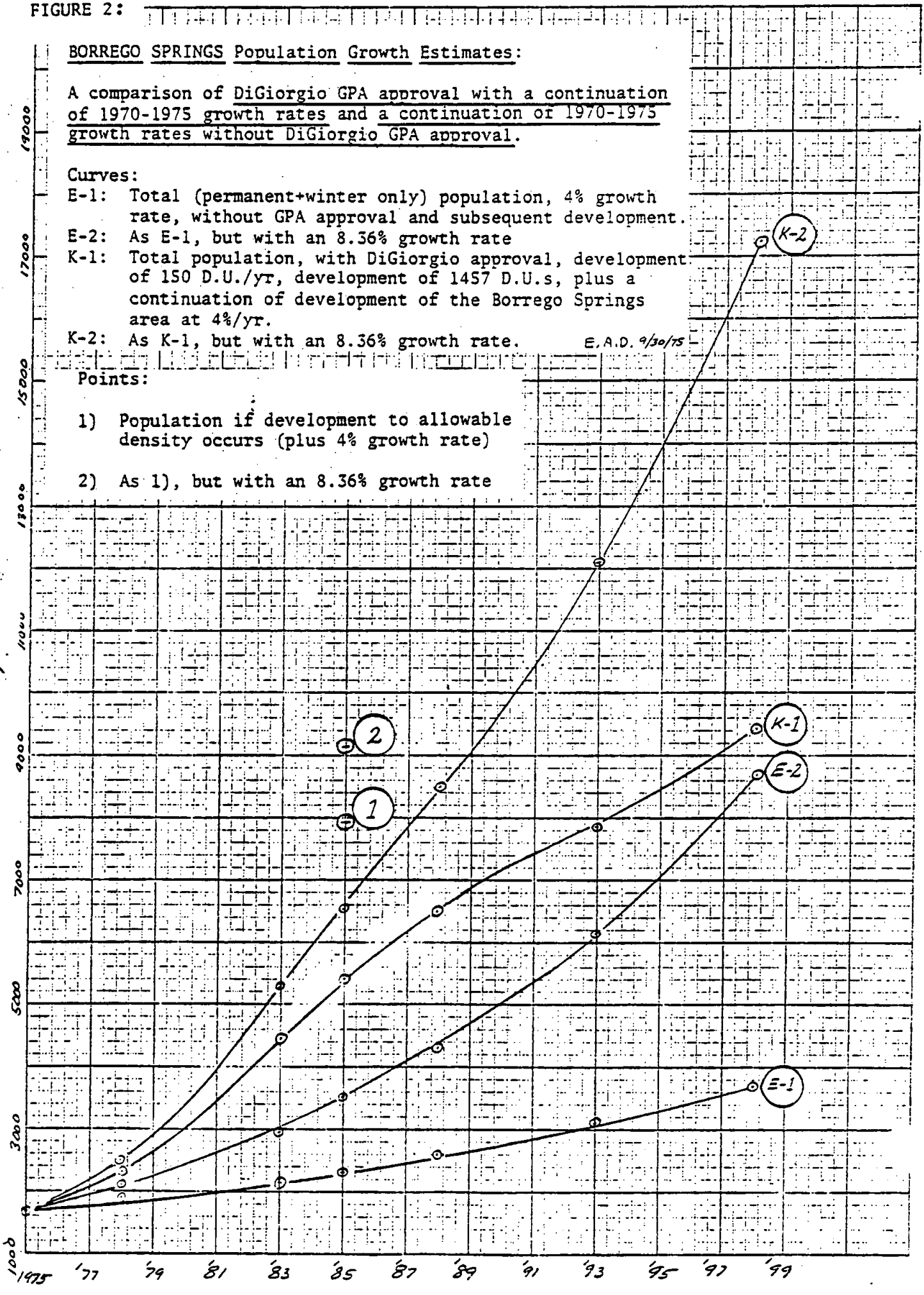

BORREGO SPRINGS Population Growth Estimates:
A comparison of DiGiorgio GPA approval with a continuation of 1970-1975 growth rates and a continuation or 1970-1975 growth rates without DiGiorgio GPA approval.
Curves:
E-1: Total (permanent+winter only) population, 4% growth rate, without GPA approval and subsequent development.
E-2: As E-1, but with an 8.36% growth rate
K-1: Total population, with DiGiorgio approval, development of 150 D.U./yr, development of 1457 D.U.s, plus a continuation of development of the Borrego Springs area at 4%/yr.
K-2: As K-1, but with an 8.36% growth rate.
E.A.D. 9/30/75
Points:
1) Population if development to allowable density occurs (plus 4% growth rate)
2) As 1), but with an 8.36% growth rate
Total Population
19000
17000
15000
13000
11000
9000
7000
5000
3000
1000
1975
'77
'79
'81
'83
'85
'87
'89
'91
'93
'95
'97
'99
K-2
K-1
E-2
E-1
2
1

TABLE 2: Various Comparative Energy Need Estimates for Space Cooling in Borrego Springs*

Air Conditioning Thermostat Settings**		% Higher for Borrego Springs*
San Diego Metro	Borrego Springs	
70	70	574
70	85	277
75	75	1945
75***	80	1539
75***	85	1134
75	90	728

* compared to the San Diego Metropolitan area, for the six warmest months of the year (May-Oct), based on Mean Maximum Temperatures (ref: Close, D.H. et al. [1970]), on a per D.U. basis.

** in degrees Fahrenheit

*** most realistic comparisons

The applicant has expressed the intention of minimizing the amount of non-native landscaping. If this is realized, the amount of energy to maintain landscaping will be significantly reduced.

The applicant, however, does not concur with staff analysis relative to the need for space cooling, and has provided an alternate evaluation of potential energy impacts (see Enclosure G).

3. Circulation

Full development of the proposed area will necessitate road expansions in the Borrego Valley. If secondary induced growth rates become major, the road system region wide will require modification and expansion.

4. State Park Impacts

An increase of human activity in the amendment area will increase the potential for adverse secondary impacts on biological and archaeological resources of the Anza Borrego Desert State Park. The fragility of desert biota has been discussed in the draft EIR and by the California Native Plant Society, et al. (letters of public comment). Although the amendment area and the Borrego Springs area in general are surrounded by the 500,000+ acre Anza Borrego State Park, activities along the borders of the park can impact on margin areas of the park. ORV usage has damaged some areas of the park, and control of ORV users has proven to be difficult.

Proper design of any given development can, however, minimize such impacts, especially if localized vegetation removal is minimized and ORV usage restricted in land adjacent to the park.

Potential usage of the State Park area by ORV users may be reduced if the recently State approved 10,000 acre ORV site (about 5 miles from the project site) is developed and utilized.

5. Biology

Development in the amendment area could adversely affect the biota on an estimated 6200 acres (including the amendment area) due to: a) the removal of native vegetation/loss of wildlife habitat, b) a change in water availability in the soil, c) an alteration of runoff rates and patterns, d) an increase in the level of human activities in the area, e) an

introduction of more roaming household pets in the general area; f) an increase of TDS and other contaminants levels in the soil/groundwater table.

Such impacts, however, can be greatly reduced by specific project designs. A design which would utilize native vegetation for landscaping plus reduce densities along margins of the 500,000+ acre Anza-Borrego Desert State Park could reduce impacts on both area biota and on the State Park.

6. Solid Waste Disposal

The solid waste disposal facility in the Borrego area was estimated in 1973 to have a useful life to 1983. The known population as of 1973 was 828 permanent residents (1970 census). The proposed preliminary project design plus an 8.56% growth rate in the non-amendment area (1970-1975 censuses) would increase the permanent population by a factor of 5.1 by 1988 (from 1174 to 6400 permanent individuals). The estimated build-out of the project would be sometime in mid 1988 (with 1457 total D.U.s proposed, and a 150 D.U./year construction rate proposed). As such, the present landfill will be filled well prior to the time of project completion.

The San Diego County Department of Sanitation and Flood Control has stated (see Enclosure II) that "... the present [solid waste disposal] operation is less than satisfactory in many respects ... [the] department is requesting funds for 1976-77 for the purpose of acquiring a new site ... [and] The planned new site would be large enough to serve the entire area, including an allowance for additional development, for a period of not less than twenty years."

7. Water Supply

Based on the Water Budget for Borrego Valley, C. F. Lough, County of San Diego (Nov., 1974, 28p.), long-term water supply problems may occur in the Borrego Valley dependent upon the extent and type of development.

a. The long-range growth potential of Borrego Valley is dependent upon water supply. The amount of groundwater available is finite. Its rate of depletion is dependent upon the rate and total amount of population growth.

b. In the short-range (25 years) there is adequate groundwater available for the proposed project from other Di Giorgio property areas if not the immediate site.

c. In the long-range, it may be necessary to prevent contamination of the groundwater by tertiary treatment of effluent or exportation of sewage.

If the water table is allowed to drop up to 200 feet, the projected population (see Table 1) for 1983 would mine-out available water in ground storage in approximately 450 years. If the ultimate population stabilizes at a projected level of 46,200 people (ref: Integrated Planning Organization), the estimated mine-out time would be about 350 years (see Table 3).

8. Sewage Disposal

The Borrego Valley is subject to a continuing degradation of soil and/or groundwater quality (see page 14 and 33-34 of the draft EIR) due to the closed system of water supply and subsequent water usage and return of used water to the soil and/or groundwater table.

The degree of potential groundwater contamination is dependent upon the depth of the groundwater table and type of soil. The groundwater table is estimated to be 90 to 500 feet deep, and overlain by rather pervious sand and alluvium that may have a higher potential for percolation than other areas.

The preliminary design of the applicant proposes to secondarily treat sewage from dwellings where the D.U. density is 1.0 or more/acre. A percolating public sewer system for the effluent will be used until the effluent volume reaches 100,000 gpd, whereupon the effluent would be used to water the planned golf course(s).

ALTERNATIVES

1. Denial of the amendment. This would reduce the maximum number of potential D.U.s and limit the types of land usage in the amendment area, but would not resolve the potential excessive rate of growth problem in the Borrego Valley.

2. Delay of amendment approval until a Community Plan can be developed. A Borrego Valley Community Plan could act to place controls on the potential maximum density and potential excessive rate of growth problems related to Borrego Valley. This alternative, however, would take at least 1 to 2 years to implement.

TABLE 3: Estimated Mine-Out Times For Selected Population Values*

Borrego Valley Population**	Mine-out time in years
8,509 (a)	453
12,066 (b)	443
17,109 (c)	429
25,000	408
46,200 (d)	350
100,000	203
156,200 (e)	50

Legend:

(a) estimated 1988 population with project approval, development per the applicant's stated preliminary proposal, and an annual growth rate of 8.36%, and no increase in the 1970-1975 average annual growth rate of 8.36%.

(b) as (a), but for 1993.

(c) as (a), but for 1998.

(d) I.P.O. estimate of ultimate Valley population.

(e) Allowable population under the existing General Plan.

*Based on the Water Budget for Borrego Valley report, C. F. Lough (1974) 28p.; estimates are based on allowing a 200-foot drop in the existing groundwater table.

**Total population (ref: Table 1)

3. Amendment approval with the following conditions (restricted to the amendment area):

   a. All sewage disposal in the amendment area over 1 D.U./acre will be via a complete sewage treatment system.

   b. Replacement of native vegetation in the amendment area with non-native, non-desert species will be limited. The amount of replacement of native vegetation should be equal to or less than the sum of the minimum required building pad areas.

   This alternative would reduce adverse impacts related to the amendment area, but would not resolve regional problems.

4. Amendment approval with the following conditions (which apply to the amendment area and the Borrego Valley):

   a. The conditions of alternative 3 (above) plus,

   b. A restricted or complete building moratorium in the Borrego Valley until:

      (1) modern complete sewage treatment can be provided for all homes on parcels of less than 1 acre,

      (2) a solid waste recovery facility can be constructed and is operative or until an adequate sanitary landfill for the present potential and proposed D.U.s in the Borrego Valley can be developed.

   c. The native vegetation replacement provision of Alternative 3b would apply to all development in the Borrego Valley.

   A restricted building moratorium could be based on the issuance of a limited number of building permits per year, accounting for the number of permits issued but not used during the previous year.

   This alternative would act to reduce the adverse impacts associated with the project and help reduce potential excessive growth rates in the Borrego Valley.

Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE C

PUBLIC COMMENTS

One letter from the public and four letters from public agencies were received during the public review period that ended on August 18, 1975:

1. From the California Native Plant Society: addressing the biological fragility of desert biota and discouraging development in desert areas (see Major Issues #4 and 5).

2. From the Comprehensive Planning Organization (two letters - the second letter an addition to the first): discussing groundwater problems (supply and possible degradation), flash flooding problems, and expressing opposition to development in this area (see Major Issues #7 and 8). The second letter proposes that a special land classification be designed to protect and preserve desert areas in the County (see Mitigation Recommendation #4).

3. From the County Department of Sanitation and Flood Control: stating that the land is "flood prone from sheet flow..," but not recommending any specific control measures.

4. From the County Division of Noise Control and Industrial Hygiene: discussing the terminology used in the draft regarding sewage treatment and stating that sewage should be fully treated via an "advanced" type of facility (see Major Issue #8).

Prior to this General Plan Amendment proposal, a PDP (Private Development Plan) was proposed by the same applicant and for the same area. During the public review period for the PDP (PDP74-03), six letters were received from the public. Although the PDP was withdrawn from active processing, the PDP and this proposed amendment are related. Thus, the six letters will be addressed in this report:

5. From the San Diego Chapter of the Sierra Club,

6. The Desert Protective Council,

7. Mr. Howard Allen,

8. B. B. Smith,

9. A. P. Graeber, and

10. Dr. and Mrs. H. G. Moehring

Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

All of the above six letters (#5-10) discussed the problem of water supply and groundwater contamination (see Major Issues #7 and 8). The first two letters also discussed general development problems in relation to the Borrego Valley (see Alternatives 1-4).

LAW OFFICES
MITCHELL, SCHMIDT, D'AMICO, McCABE & STUTZ
2170 FOURTH AVENUE
SAN DIEGO, CALIFORNIA 92101

AREA CODE 714
TELEPHONE 236-1133

JOHN A. MITCHELL
DONALD W. SCHMIDT
SEBASTIAN D'AMICO
JOHN J. McCABE, JR.
A. DAVID STUTZ

August 25, 1975

Mr. Brad Williams
Land Use Environmental Regulation
Environmental Analysis Division
915 Chesapeake Road
San Diego, California

Re: Borrego Springs

Dear Brad:

By way of confirmation of our telephone conversation on August 25, 1975 I respectfully request a copy, when available, of any supplimentary report prepared by yourself for the Environmental Review Board hearing on Thursday, August 28, 1975. I would also appreciate receiving copies of the citizen letters mentioned in your original report.

Kindly contact the undersigned or my secretary Sue, at 236-1133 when these documents are available and I will see that they are picked up at your office.

Sincerely,

A. DAVID STUTZ

ADS:sn

RECEIVED
AUG 26 1975
ENVIRONMENTAL ANALYSIS DIVISION

COMPREHENSIVE PLANNING ORGANIZATION OF THE SAN DIEGO REGION

SUITE 524
SECURITY PACIFIC PLAZA
1200 THIRD AVENUE
SAN DIEGO, CALIF. 92101
(714) 233-5211

July 31, 1975

Mr. Gerald Hermanson
County Planning Department
Mail Station A-30

Dear Mr. Hermanson:

The following comment is forwarded to you as an addition to our earlier response to your request for CPO staff input on the proposed Borrego Springs General Plan Amendment to be considered by the Planning Commission in September 1975.

In view of the fact that the Borrego Springs area, and other desert areas within the County, are uniquely different from the urbanized coastal plain and the mountain areas of San Diego; and because of the subtle balances required to sustain and perpetuate the interdependent ecosystems of the desert environment, it is recommended that the County adopt a new general plan land use classification specifically for the desert areas of the County. Such a classification should be supported by appropriate policies and ordinances that would result in the long-term preservation and protection of the desert for the enjoyment and benefit of all the people in San Diego County and the State.

Sincerely,

ARTHUR LETTER
Intergovernmental Relations
Coordinator

AL/sh

RECEIVED
AUG 08 1975
ENVIRONMENTAL ANALYSIS DIVISION

COMPREHENSIVE PLANNING ORGANIZATION OF THE SAN DIEGO REGION

SUITE 524
SECURITY PACIFIC PLAZA
1200 THIRD AVENUE
SAN DIEGO, CALIF. 92101
(714) 233-5211

July 15, 1975

Mr. Gerald M. Hermanson
Planning Department
County of San Diego
Mail Station A30

RECEIVED 16 JUL 75 15 57
RECEIVED 16 JUL 75 15 57

Dear Mr. Hermanson:

This letter is in response to your request for comments on the Borrego Springs General Plan Amendment. It should be emphasized that these are staff comments and have not been approved or reviewed by the CPO Board of Directors.

The following comments concern environmental impacts likely to result if the General Plan Amendment is approved and implemented.

1. The Borrego Springs area is dependent upon local ground water for meeting its water supply requirements. Because it is located in an arid desert climate, groundwater replenishment is a major factor. Continued withdrawal of groundwater to the extent needed to serve developments already approved plus the population which the General Plan Amendment would allow, could eventually result in depletion such that local water needs could not be safely met. In addition, the adopted Regional Open Space Plan and Program suggests a potential large agricultural preserve in the Borrego Valley north of Borrego Springs. A substantial portion of the area's groundwater supply will be needed to support this activity if fully developed. An alternative would be water importation. However this is a very costly public expense. A thorough analysis of the groundwater supply for the entire Borrego Springs area and the long term effects of increased land use densities upon it, is needed prior to the consideration of either extensive agricultural or residential proposals.

2. The Colorado River Basin Regional Water Quality Control Board, which has jurisdiction over water quality in the Borrego Springs area, recognizes that wastewater discharge increases the mineral content of groundwater. This can result in a health nuisance through bacteriological contamination and may cause odor problems.

The possible impact of sewage effluent on groundwater quality should be assessed to determine the type of treatment required and the economic feasibility of treatment facilities.

3. Flash floods are common to the Borrego area and present a hazard to life and property. There is no logically definable pattern by which to measure when or where a flash flood will occur. Flood protection tools such as channelization or diking may prove partially effective against flash flooding. Borrego Springs, however, is quite remote from the major urbanized western portion of the county and has a very low population base. Because of the high capital costs involved in the construction of flood protection facilities and the existence of many flood protection needs in the major urbanized areas, the Regional Water Resources Plan and Program, now under consideration for adoption by CPO member agencies, has recommended a low-priority (beyond 1985) for the construction of flood control facilities in the Borrego area. In July of 1972 the County of San Diego Department of Sanitation and Flood Control completed a "General Plan for Flood Control Improvements" in Borrego Valley. While this report covered the major floor area of the Valley it omitted many smaller areas due to budgetary limitations. It appears that the General Plan Amendment area may have been one of those omitted. The implications of flash floods in the project vicinity and the possible public costs, therefore, should be more closely analyzed prior to approval of any requested residential uses in the Amendment area.

4. Any decision to allow substantial residential development in the Borrego Valley at this time should be considered premature, as there are already approximately 3000 approved lots in Borrego, only about 10% of which are developed. The financial impact of development of this isolated area into a scattered suburban community should be examined fully. It would be appropriate to assure the establishment of a full service district (or a municipal incorporation) capable of providing services, including police protection.

5. If the General Plan Amendment is approved and subdivision proposals in the area are submitted, a determination as to whether they would constitute a land project as defined in Section 11550.5 of the State Business and Professions codes should be made. If a determination that the subdivision is a land project is made, a notice of intent should be sent to the State Clearinghouse and CPO

as required by AB 1301 and implemented in Sections 1000 through 1030 of the State Administrative Manual.

Thank you for the opportunity to comment on the Borrego Springs General Plan Amendment.

Sincerely,

ARTHUR LETTER
Intergovernmental Relations Coordinator

AL:j

1975
75-GP-4

COUNTY OF SAN DIEGO

RNBIIEXWORKSXADEWOX
Community Services Agency

Department of Sanitation & Flood Control

C. J. HOUSON
Director

County Operations Center, 5555 Overland Avenue, San Diego, California 92123 . . . . . Telephone: 565-5325

August 6, 1975

TO: Dept. of Land Use and Environmental Regulations (A-30)
Attention: Mr. Bill Chatham

FROM: Director of Sanitation and Flood Control (O-380)

SUBJECT: Borrego Springs General Plan Amendment

Mr. James Lewanski and Mr. Charles Smith of Lawrence, Fogg, Smith and Associates, and Mr. George Kuhrts III of DiGiorgio Corporation recently met with staff of this department regarding the subject land use changes and the Private Development Plan (PDP). Since the PDP is not now being considered, our letter of July 11, 1975 on the PDP should be disregarded.

While the subject General Plan Amendment involves land that is flood prone from sheet flow and flow in undefined channels, we have no objection to changing the land use from agricultural to residential. Future actions in the land development review process will assure that improvements will be properly protected from flood hazards.

B. V. ELKINS
Director (Acting)

By Joseph C Hall
For B. H. HOFFMASTER
Deputy Director

RLB:pg

Copy: Zone 5 Advisory Commission
✓Environmental Analysis Division, M.S. A-215
Lawrence, Fogg, Smith & Associates
DiGiorgio Corporation

RECEIVED
AUG 07 1975
ENVIRONMENTAL ANALYSIS DIVISION

COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE July 29, 1975

TO: David Neilsen
Director, Environmental Analysis Division

FROM: Norman E. Schell
Chief, Division of Noise Control & Industrial Hygiene

DRAFT ENVIRONMENTAL IMPACT REPORT ON BORREGO SPRINGS (DiGiorgio) PLAN

The Health Department Staff has reviewed the Draft Environmental Impact Report for Borrego Springs (DiGiorgio) General Plan Amendment (GPA), a part of GPA 75-03.

On page 24 under groundwater quality, the term "tertiary" treatment may be misleading because this could be interpreted to mean disinfection. This term also appears at the bottom of page 27. The word "advanced" should be substituted.

Norman E. Schell by G. L.

NORMAN E. SCHELL, Chief
Division of Noise Control
and Industrial Hygiene

RECEIVED
JUL 31 1975
ENVIRONMENTAL ANALYSIS DIVISION

SIERRA CLUB

FOUNDED IN 1892

SAN DIEGO CHAPTER

HOUSE OF HOSPITALITY
1549 EL PRADO, BALBOA PARK
SAN DIEGO, CALIFORNIA 92101

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ENVIRONMENTAL REVIEW BOARD

COMMENTS ON EIR, BORREGO SPRINGS PROJECT-DI GIORGIO

The San Diego Chapter, representing some 4500 members in San Diego and Imperial Counties is appreciative of the opportunity to comment on the EIR for the Borrego Springs Project proposed by the Di Giorgio Corporation, owners and the Di Giorgio Development Corporation promoters of the PRD.

The San Diego Chapter would not oppose the concept of the PRD as presented in the EIR but would have to take issue with some of the material within the EIR, itself. The S.C. would concur that sprawling 2½ and 40 acre parcels are expensive to develop and could be detrimental to the aethetics and economics of the area. The project has potential for a PRD that will be beneficial but the data and plans must be refined prior to submission to the decision-making process.

Starting with water which is basic to all life, there are some interrelated matters which appear to be inadequately addressed in the EIR. For example:

1. The geological structure of the underground water basin is not delineated in terms of future water quality and quantity.
2. The relationship of the proposed dams in the canyons on the perimeter of Borrego Valley is not discussed.
3. The cumulative effects of future developments on other sites, some of which are already authorized, is not considered (III-41)
4. No reuse or recycling of water will be considered until a later phase (III-69)
5. No indication is made of the sites of the water storage facilities nor the energy required to pump the water to these sites, nor their special mitigation measures if located in areas E and E1 on pages III-34.
6. Findings and alternatives on water quality are not fully coordinated in II & III on hydrology; contradictions appear in some sections related to drainage, water runoff and erosion (III,8,10,11 and IV, 2 & 4 and EIR Matrix 1.) nor project use of water would be less than agriculture (IV-8).

Sewage and drainage problems are lightly touched upon whereas the multiplicity of side-effects and long-term, cumulative impacts may create major changes in the Borrego area are omitted. Percolation of sewage effluent into the Borrego sink needs expanding & clarifying (III-13) Only "visual" inspection was used to determine that there would be no significant adverse effect due to septic systems (III-69) Recycling of waste water is put off until another phase (III-12) Mosquitos and other problems associated with the oxidation ponds are not mentioned directly. The problem of odors downwind is not

mentioned, nor is increased evaporation and additional water and chemical molecules in the air. It would appear that the oxidation ponds would be located near the Hoey mesquite area (III-12, III_69 and map on III-34) but no data is offered as to the precise location or effect of the ponds on this species.

No protection of wildlife from contact with the high hazard and toxic materials that may be in the sewage in the ponds is mentioned.

The EIR does not mention primary or secondary treatment; apparently the drains will "feed" directly into the ponds (III-68). Drainage from paved areas, rooftops, roads and compacted areas is treated in various ways that gloss over real facts: EIR Matrix 1, III-8,10,11 & IV-2,4. There is no proposal forbidding the washing down of paved areas, for example.

The long-lasting by products of solid waste dumps as well as toxic and hazardous substances found in solid waste disposal sites is not mentioned at all. Drainage of these materials into the water table is not mentioned. AfterPhase 1, what are plans? (III-70.)

Siltation and compaction are inadequately addressed, particularly the many facets of compaction related to water runoff vs water penentration with resultant effects on vegetation and subsequently on wildlife and air quality.

Erosion is partially covered under grading and construction, but its full dimension is not explored with its attendant siltation and dust problems.

Dust, both during construction and afterwards, especially as a result of travelon intra-project roads, is not adequately dealt with in relation to effects on plan or wildlife or effects of particulate matter in the air within the project or downwind.(III-28, IV-3).Page III-27 suggests 10,000 trips may be generated out of project, 10,ooo dust-makers in theproject but data not clear IV-5.

The EIR fails to mention energy alternatives and supplements in its section on utilities. It is irresponsible to disregard methods of augmenting the energy supply, such as solar and wind assists, deep cellar construction, sun angle and wind angle considerations in siting structures and landscpaing, insullation, double roofs, thick walls, covered walks, porticos, etc. as well as natural lighting and air cooling. Underground of utilities on site is commendable, but how about consideration of impact on the whole valley of the utility lines servicing the project? (III-70) No mention is made of providing intra-project trams or public vehicles - only cars, walking, horses or bikes. Add this item to Air in IV-6 as #5.

Aethetic aspects and visual impact of project on travelers must be addressed carefully, particularly in the specific plan stage. Roofs and all of their accoutriments and attachments should be dull-finished and blend with area to alleviate the impact of looking down upon them from the State Park and various roads and passes. This area is highly visible for miles.

Because the desert view belongs to all, solid blocks of walls, fences, landscaping and facilities (IV-4,6,7) should be used sparingly and only when no alternative is possible. A wall of tamarisks such as at Casa del Zorro should not be permitted to block the view from Yaqui Pass Road.

There were a few astonishing assumptions in the EIR, for example on III-Palm Springs and LaCosta (coastal community) were used to project Borrego Spings' future. Why not use a parallel desert development such as California City for comaprision instead of La Costa?

There seems to be no desire or need to consider cumulative impacts of projects. (III-41)

As D iGiorgio already owns most of Borrego's commercial area there is "no need to compete." Are we therefore supporting a type of desert monopoly by condoning this project? Taxpayers will be supporting the public sewer and water systems (EIR Matrix 1) What will be the financial and economic impact?

"The development of the project will not pose a risk to health or safety of residents of Borrego Springs, either now or in the future." IV-9. How can this be guaranteed or justified from above incomplete and inadequate data?

Many pages were used to extol the financial advantages of the project relative to the school system, but not one word or one penny was allocated to educating the residents of the project as to the benefits, usefulness, beauty and appreciation of desert wildlife and vegetation, views and wonders and enjoyment of the adjacent State Park lands

The S.C. would commend the owners and project promoters for their foresight in limiting use of ORVs within project. However, there seems to be no plan for "parking" these vehicles "outof sight" -- will driveways and curbstones and roads be lined with vehicle clutter?

The project will apparently appear as an oasis in the desert. Whether the following discussion should be addressed to water or vegetation is moot. Use of vegetation requiring as much water as is contemplated so that temperature and humidity change, must be considered as a major impact. Both animal and plant life have evolved their desert-like characteristics over long eons of time. Rapid changes in their envifonment could cause all manner of problems, whether for good or bad, only time will tell.

How much better it would be to keep the oasis area small, the temperature and humidity changes to a minimum, and retain the desert characteristics over the majority of the project. Use of plants indigenous to the area will be a water-saver (and plant-saver) in the long run. The introduction of exotic species may result in undesirable infestations and replacements, particularly thistles.

Planners are to be commended for their proposal to keep perimeter roads away from exterior lines, especially near the State Park. Roads

fences and such structures are barriers to wild life movements and migrations as well as physical hazards to indiviual creatures. Night lights, car lights, noises and movements disrupt nocturnal creatures that perform so many necessary tasks while we sleep. Residents along the perimeters should receive special instructions about their role in relation to wildlife as they may be in more intimate contact with it than those living the inward confines.

This is an impressive project, the owners and promoters have the interests of the community at heart. With some additional thinking and planning, a project that will be truly compatible with the desert could be developed, a project that is truly a desert experience in living and not a living-in-another-city experience in an ex-desert atmosphere.

The corporation is to be commended for its willingness to preserve archeological sites as open space and to provide other open space and low density areas to preserve the "open" feeling. (Incidentally, "sensitivity classification" have been removed from the Open Space Plan for San Diego County.)

submitted
Conservation Committee

THE DESERT PROTECTIVE COUNCIL INC.

A NON-PROFIT ORGANIZATION

To safeguard for wise and reverent use by this and succeeding generations those desert areas of unique scenic, scientific, historical, spiritual and recreational value and to educate by all appropriate means children and adults to a better understanding of the desert.

BOX 4294 • PALM SPRINGS • CALIFORNIA 92262

June 14, 1975

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STATEMENT ON EIR, BORREGO SPRINGS PROJECT
SAN DIEGO COUNTY, CALIFORNIA

The DiGiorgio Corporation is recognized for its leadership in the Borrego area in the fields of growth and development. The EIR indicates a project of a scope and nature not seen in the Valley previously, and as such, raises questions as well as favorable comments.

We concur that sprawling and unplanned development of 3000 acres would be catastrophic for Borrego (IV-8,2,4)

We concur that it takes money to attempt such a project (IV-8,3); we are concerned that justification for the project may be tied to the rather high occupancy figures developed in the document. Experts in the field of housing, revenue generation, taxation and budgeting would be better able to comment on such aspects of the EIR.

The DPC is known for its interest in protecting the integrity of the desert and it is to these matters that we address the following comments.

THE VIEW of the desert as one tops the crest at Yaqui Pass near the Bill Kenyon memorial marker (Kenyon was a DPC member) is most impressive and indescribably satisfying. As such, it deserves the most sensitive and discrete design. It would be the suggestion of DPC to require landscaping and buildings to be confined to one story or at most two; that structures, buildings, fences and windbreaks be located toprovide continuing views of the desert, without solid walls, plantings and structures. That, additionally, roofs and buildings be rendered in earth colors without shiny surfaces such as are found on air conditioners, etc. Roofs willreplace the desert floor in the viewshed, and must be carefully planned.
The view from the State Park should be protected as well as from the road. All utilities and service lines should be undergrounded, both inside the project and leading into it. Location of water storage facilitiess are not listed precisely in relation to areas E and E-1 on map III-34.

SOIL COMPACTION is a problem in many desert areas as it increases the rate of run off of water and slows the penentration of rainwater as well as domestic sprinklers. This

matter is not fully described, for it effects the rate of erosion as well ability of plants to "take hold."

DUST will be a problem, not only to people, but to plants and animals. Dust coats the leaves and stems of plants, effecting the transpiration and photsynthesis processes. This, in turn, effects the lives of animals dependent upon greens and leaves for moisture as well as noursihment. Some desert animals never drink open water. This matter does not seem to be thoroughly addressed in the EIR for there seems to be no recognition that the "desert standard" roads of gravel will likely continue to be a source of dust. Dust is not addressed in the air sections, either. If the roads are covered with a dust-retardent, then there may be chemical side effects on nearby vegetation as well as in runoff waters. If the roads are paved, then there will be other problems. Perhaps this section needs a little more work; certainly the visual attractiveness of gravel roads is far more appealing ina setting like this than paved roads!

ROADS should be set well back from the perimeter, especially adjacent to the state park boundary; the safety and well-being of the vegetation and wildlife is essential. They should be respected as the State Park area is the great panoramic backdrop for this project. With this idea, the DPC concurs and compliments the DiGorgio corpoation for its foresight on road design.

The DPC would encourage the Di Giorgio Corporation to publish the full list of persons sitting on the ARCHEOLOGICAL review board, though it concurs in the decision to keep confidential known sites and to offer protection through open space designations. (II-21, III-36.)

Though there is little WILDLIFE inhabiting the area, it appears that wildlife may travel through it. During periods of construction and later, it is recommended strongly that water sources be maintained and migration routes respected. Siltation (IV-5) and oxidation ponds, drainage ways (both planned and natural), culverts and swales will disorient wildlife and will alter their food sources. These animals lead a precarious existence at best, but they are and must remain a part of our total desert system. Fences and/or barriers should be built with wildlife in mind, especially alomg park boundaries.

An education program should be instituted immediately to assist the residents and visitors in understanding the importance and desirability of wildlife -- not from a "Bambi complex" point of view but from a scientific and eco-system understanding.

VEGETATION should be safe for animals and people (Oleanders present problems as do some other plants.) Vegetation should be compatible with the desert and should not be water-dependent. It should be planted far enough apart so individual plants do not have to compete for space and water, with the realization that many desert plants (like alpine plants) re-

many decades to reach maturity. Ground covers should be selected with great care so as to do the job without requiring large quanities of water for starting and maintaining.
Extreme care should be exercised to prevent exotic and noxious plants from entering Borrego Valley; an educational program should be established immediately.
The visual aspects of vegetation and landscaping should be considered. The oasis effect may be refreshing, but the humidity and temperature changes as well as increased moisture particles in the air must be weighed against the desire of residents and visitors to expecience "desert" conditions. To some people, it may be a matter of "life and breath," as well as beauty.

WATER QUALITY AND QUANTITY is of concern to the DPC as there is a vast area of desert outside of the DiGiorgio 3000 acres that depends on the Borrego Valley underground water supply. The San Felipe Wash from Borrego to the Salton Sea is dependent for much of its water from the Borrego area. The DPC realizes that water is a limited resource and as such must receive expert attention, both as to quality & quantity. With added evaporation in the DiGorgio area, the quantity and quality downstream may be altered....as then will the wildlife and flora below Borrego Valley.

The amount of ground water available to this project may be compromised by proposed dams in the upper canyons of the Valley - a scheme presently opposed by DPC for its cumulative effects on the total basin.

The QUALITY of the water running off from paved surfaces and drainage systems as well as percolating through the soils will make changes in the total quality (TDS) of water. The plans appear to call for oxidation ponds directly connected to the drainage systems. The pollutants contained could effect wildlife and care should, therefore, be taken to restrain wildlife from contact with these waters, both from the land and the air. This section of the project needs further delineation for public health and aesthtic concerns as well as wildlife.

UTILITIES and their distribution systems have caused extensive visual as well as ground scarring and disruption. The DPC has sought rational locations for utility lines to service public and private areas. Undergrounding is essential, and proper routing, both singly and in conjunction, is a must.

DPC regrets that no consideration has been given to use of solar and/or wind devises for supplemental energy sources nor to alternatives in building designs and materials. DPC considers this section inadequately addressed.

DPC does commend the project designers and promoters for protecting the Honey mesquite, but hopes that its survival will not be compromised by the oxidation ponds which seem to be located in same area.

WASTE DISPOSAL is of concern to DPC as the long-lasting effects of landfills and solid wastes and eventual percola-

tion of toxic materials into the ground water can alter desert life patterns. The EIR touches only briefly on the problem and it is felt that the future of waste disposal in Borrego Valley is inadequately addressed.

In the evaluation of alternatives (IV-7,8) it is inferred that agriculture uses more water than projects. Is there material available to substantial this claim?

Clarification of the use of drains, culverts, natural and planned systems is needed (EIR Matrix 1 and III-8,9,10,11 and IV -2,4)

The EIR does not consider the cumulative effects of this project along with others presently authorized and in the future in considering the total impact of demand for water (III-41) nor are there plans for recycling and reusing water prior to phase II. This is a great deficiency in the EIR and should be considered by the decision makers.

DPC appreciates the opportunity to comment and would like to be advised as to the date of all further actions relating to Borrego Springs.

Submitted for Executive Director by H. R. Allen

local contact, DPC, 3750 El Canto Drive, Spring Valley, 92077

3750 El Canto Drive
Spring Valley, Ca 92077
May 31, 1975

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To: San Diego County OEM
From: H.H. Allen
Subj: EIR for Borrego Springs
DiGiorgio Project

Though we do not oppose the project, we cannot speak in favor of it until certain questions are answered as there is a potential for problems of concern to taxpayers and adjacent landowners.

We are located within a couple of sections of the project as per attached area map.

Of deep concern is the availability of water of potable quality. Water demands will increase but there seems to be no plan to monitor the cumulative demands of projects both on an individual and corporation basis.

It is our understanding that agriculture in the Valley was phased out not long ago due to wind problems and increasing chemical content of the water rendering it unsuitable for use on some crops. Transportation and unionization were additional problems but not as critical as the first two.

It is further stated that there is sufficient water for about 65,00 people. Is this a guaranteed figure? Can we be guranteed potable water at today's level or will domestic water have to be treated prior to use.

We are concerned, secondly, about the air quality particularly the odors downwind from the oxidation ponds; we seem to be directly downwind from them.

There will be dust raised during construction, but how about later from the gravel roads inside the project.

The EIR does not discuss fully the socio-economic impacts of failure of this project under the Alternative section. To add a bit of humor to your day, please look at page IV-10, under F-1, paragraph 2, third line: an expended tax rate --- is this a typo or a Freudian slip?

Anyway, we would like to know why the project just west of the proposed PRD failed to prosper: was it water, or premature, or poor market analysis or lack of suckers? It has been almost static for the past couple of decades.

The success of DiGorgio's project and justification for enhanced school revenues and county services is based on a very high occupancy rate in the project area. Based on the experience

of realtors in this area, are the figures realistic?

Sufficiency of front-end funds are proclaimed, but what costs will we taxpayers have to assume if the project is a failure? Can this be used as a tax write-off for the benefit of the conglomerate at our expense? Is the County requiring completion bonds or some guarantee?

It was interesting to see the carrot and stick approach that the EIR suggests in relation to the school system in Borrego: promises of great revenues and new sites (what happens to the old?) while conversely threatening educational degredation if the project is not approved. Twelve pages are devoted to this exercise. Are any members of the DiGiorgio family or corporation on the school board and other districts that might benefit from the project? (Flood control, mosquito abatement, fire department, etc?)

What classification for revenue generation will be applied to dwelling units which are to be rented out? Is there a difference, tax-wise, between familes renting directly and a programmed rental service which is inferred under the project? Are different schedules required by county tax assessor, and by county Health Department?

On page III-71, the EIR mentions increases in County services for the Borrego area. If this project is the financial success that it is touted to be, and assures the readers that it will bring only economic gain to the community, why will there be an increase in welfare?

Why would services like flood control for the project be offered when purportedly there is no such problem in the project area?

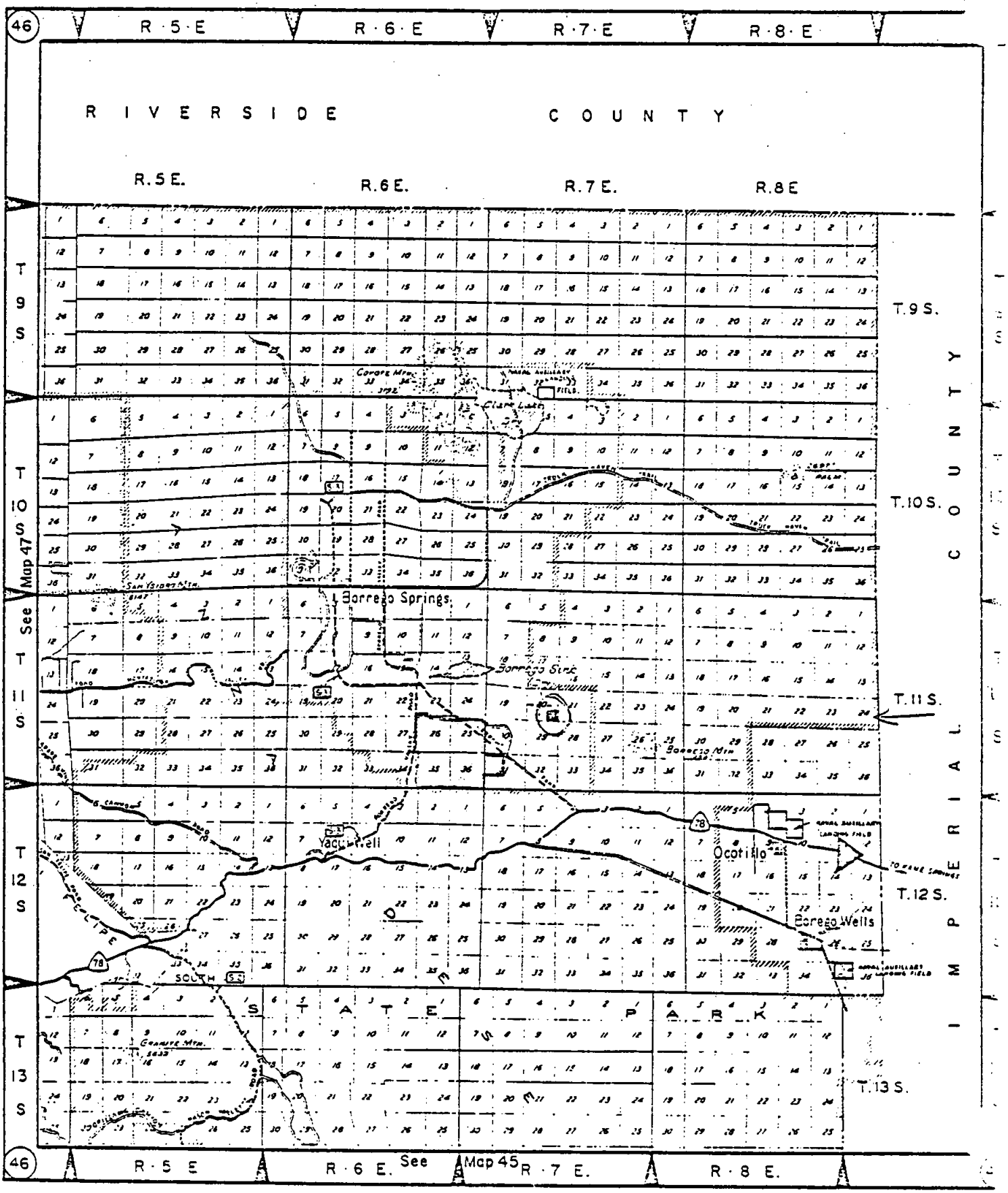
Nor would mosquito abatement be necessary as no mention of such problems is raised in the discussion on oxidation ponds and golf course water traps, etc.

It was assuring to read that the project would site the libraries and clinics and retail stores to face public access areas.

It is hoped that the project designers and decision-makers will keep in mind the vast and unrestricted and irreplaceable view that meets the eyes of travelers descending into the Valley, particularly from Yaqui Pass, and will keep wind breaks, sound barriers and buildings to a low profile with an open, see-the-view feeling that has been the right of the public to enjoy for the past hundreds of years - be they our prehisotic natives or European ancestors or our heirs.

Mr. DiDiorgio wants to do to his land what he wishes; so do we in our own small way. We want the clean water, pure air and vistas that were a part of our decision to purchase in Borrego. With a little more exploration of alternates, there could be conditions built into the project that would assure all of us a good future in Borrego.

SE 1/4 of E 1/4 Sec 20 11S- E



Borrego Springs, California
92004

June 9, 1975

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ENVIRONMENTAL REVIEW BOARD

San Diego County Environmental Review Board
Office of Environmental Management
1600 Pacific Highway, Room 260
San Diego, California 92101
(714) 236-3720

SUBJECT: Comments on BORREGO SPRINGS PROJECT (PDP 74-03, File #74-11-2113) EIR draft.

1. This EIR draft, under the heading "Groundwater", on p. IV-2 says: "there will be a very slow gradual increase in the ground water TDS as a result of ground water recharge from the percolation beds associated with the sewage treatment plant proposed for this development"..A number of other variables also exert influence upon these changes: salinity of the water supply, effluent salinity, volumn of ground water extraction, rates of ground water movement, basin geology and other water uses in the basin. To attempt to predict the precise effect of a given discharge upon ground water quality, without evaluation of each of these factors, would result in conclusions of doubtful reliability, to say the least...

2. Assuming that each of the proposed 3224 dwelling units would house 2.3-3.0 people, the population to be served would be between 8,000 and 10,000. In round numbers this would spell a million gallons of water used per day, on the basis that under more or less urban conditions at least 100 gallons per person per day are required.

3. If 1,000 gallons of water are taken from the groundwater daily and then returned with an increased load of dissolved solids, it is clear that -- even allowing for a four inch annual rainfall -- the ground water will be cycled and re-cycled into an impotable state of salinity (much like the Los Angeles basin has managed to cycle and re-cycle its atmospheric pollutants to yield an intolerable smoggy atmosphere).

4. A further threat to potability of the water has to do with the volumn of groundwater extraction. A daily extraction of one million gallons of water has the potential to tax groundwater levels to the point of salt-doming (i.e., underground replenishment may draw on highly saline pools and levels), further to increase the dissolved solids and non-potability of the water.

5. Thus from the consideration of water supply alone, the environmental impact of the proposed development puts at unreasonable hazard the existing Borrego Valley's, as well as its own proposed, water supplies.

Sincerely,

Beth Bennett Smith

Beth Bennett Smith
(Property owner, Rancho Borrego)
4421 Upland Street
La Mesa, Calif. 92041

Borrego Springs, California
92004

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Helena P. Scheuber
3866 Hoof Path
Borrego Springs
Ca. 92004

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San Diego County Environmental Review Board
Office of Environmental Management
1600 Pacific Highway, Room 260
San Diego, California 92101
(714) 236-3720

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5. Thus from the consideration of water supply alone, the environmental impact of the proposed development puts at unreasonable hazard the existing Borrego Valley's, as well as its own proposed, water supplies.

H. G. Moehring
Box 91

Janath E. Moehring

Dr. & Mrs. H. G. Moehring
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Borrego Springs, CA 92004

Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE D

REFERENCE SOURCES

In addition to those cited in the draft EIR,

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Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE E

MITIGATING MEASURES

1. Archaeology

   As part of any specific development plan proposal for the amendment area, a detailed archaeological survey should be conducted by a qualified archaeologist (ref: Attachment "C" of the San Diego County Procedures for Environmental Impact Review).

2. Sewage Disposal

   Specific development plans for the amendment area should include a proposal for a secondary treatment plant or an advanced sewage treatment plant that will avoid an increase in total dissolved solids (TDS) and other contaminants of the groundwater table or soil mantle. No sewage disposal via septic tank/leach lines should be allowed in the amendment area where the development density is greater than 1 D.U./acre.

3. Water Supply/Biology

   Any non-agriculture specific development plan for the amendment area should limit the amount of replacement of native vegetation by species of plants that require relatively large amounts of water.

4. Requirement for a Specific Plan

   Any development should be via the processing of a Specific Plan, thus insuring a maximum level of planning and environmental review (ref: letters of Public Comment #5 and 6).

Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE F

RECOMMENDATIONS WHICH CANNOT BE MADE CONDITIONS OF APPROVAL

1. The county should consider a delay of amendment approval and/or controls to prevent extensive building rates in the Borrego Valley until:

   a. a larger or expanded sanitary landfill is provided, or

   b. a solid waste recovery facility can be constructed for the Borrego Valley.

2. The county should consider planning restrictions for desert area subdivisions and equivalent development that will limit the amount of native vegetation to be replaced by non-native non-desert species to an area equal to the minimum required building pad area. Such restrictions should not apply to agriculture activities.

3. The county should develop a community plan for the Borrego Valley. This, however, would require at least 2 years to implement. In the interim, the county should consider developing growth controls for the existing recorded and approved but unoccupied lots. Such control could be in the form of a limited number of building permits to be issued in any one year and accounting for the number of issued but unused building permits at the end of a given year. Any developed community plan should include provisions for a growth phasing schedule for the entire Borrego Valley area.

4. The county should consider the creation of a new land use classification for desert areas, per the recommendation of the Comprehensive Planning Organization. The Land Use classification should reflect concerns over the generally biologically sensitive nature of desert areas. The general provisions of the Multiple Use Open Space classification is suggested as a basic guideline.

Borrego Springs (Di Giorgio)
GPA75-03 [Log #75-GP-14]

October 9, 1975

ENCLOSURE G

The following supplemental information was presented to the Environmental Review Board meeting of October 9, 1975.

The applicant, in providing information relative to potential energy impacts, disagreed with staff analysis of potential energy impacts, claiming that energy impacts will be less than those predicted by staff.

ENCLOSURE G

LAWRENCE • FOGG • SMITH AND ASSOCIATES

ELWOOD A. LAWRENCE F.A.S.C.E.
ROBERT K. FOGG F.A.S.C.E.
CHARLES A. SMITH F.A.S.C.E.

CONSULTING CIVIL ENGINEERS
8580 LA MESA BLVD., SUITE 102, LA MESA, CALIF. 92041
TELEPHONE 460-9000

October 9, 1975

To: Environmental Review Board
County of San Diego, California

From: Charles A. Smith, Civil Engineer
Consultant and Project Engineer for
DiGiorgio Borrego Springs Development
(General Plan Amendment GPA 75-03, Log 75-GP-14)

Subject: Response to Energy Statement page 7 of
Environmental Impact Report
(GPA 75-03, Log 75-GP-14)

Paragraph 2 of page 7 of the EIR states "estimates for increases in energy for water pumping range up to 1500% over San Diego Metropolitan Areas." We would like an explanation of how this 1500% figure was derived. We have developed the preliminary engineering study for the water supply to phase I of this proposed development. During compilation of water statistics we compared water consumption in desert areas to those in the metropolitan area of San Diego and found the average annual consumption in gallons per capita per day in the desert areas to be <u>at most</u> 3 times that in the San Diego metropolitan area. Since the energy required for pumping this water varies directly, as the demand, it is difficult to understand how the increases in energy for pumping water could exceed at most 300%. It should be further pointed out that during the hot summer months in the desert area, only 25% of the homes in the areas are occupied, thus further reducing this percentage figure during these periods.

With respect to space cooling figures referred to on page 7 of the E.I.R., figures were obtained from San Diego Gas and Electric Company regarding energy studies made for air conditioning a typical 3 bedroon home in various areas, including the metropolitan San Diego area and the Borrego Springs area.

These studies indicated the average need for space cooling in the Borrego area could be about 319% higher than the metropolitan area during the warmest months. However, this analysis was based on 1500 hours of operation per year of the air conditioner in Borrego Springs. There are 8760 hours in one year (365 days x 24 hours/day) $\frac{1500 \text{ hrs.}}{8760 \text{ hrs.}} = 0.1712 = 17\%$ of the year that the air conditioners are operating in the desert area. Further during hot summer months statistics show only 25% of residences in the desert area are occupied. Further referring: $0.1712 \times 0.25 = .0428 = 4.28\%$. Thus only 4.28% of the total hours in a year are air conditioned in the desert area consuming energy. Therefore the above mentioned 319% increase in energy should be reduced to: $319\% \times .0428 = .1365 = 13.65\%$. Thus there is only a 13.65% <u>total</u> energy increase

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in any one year period from space cooling. In addition, it should be emphasised that these figures are based upon a temperature in the home being 75° F. in both areas. Practically, in desert areas reducing the temperature inside to 75°F. would be quite cold compared to outside temperatures ranging from 100°-115°F. An 80°F. inside temperature would seem to be more typical, thus affecting a further energy reduction. Also the comparision was between fully insulated homes in both areas. Statistics show the majority of homes in metropolitan San Diego are not fully insulated. Thus the analysis shows further energy reduction is likely. Finally, no mention is of the fact that when weather is ideal in desert areas people congregate there and thus relieve the energy consumption on systems from whence they came (such as heating) and which energy consumption is generally not needed during the mild weather period in the desert areas.

ENCLOSURE II

COUNTY OF SAN DIEGO

COMMUNITY SERVICES AGENCY

Department of Sanitation & Flood Control

C. J. HOUSON
Director

County Operations Center, 5555 Overland Avenue, San Diego, California 92123 . . . . . Telephone: 565-5703

TO: Dave Nielsen, Acting Chief
Environmental Services Division

FROM: Director, Department of Sanitation & Flood Control 0380

SUBJECT: Expected Site Life - Borrego Landfill Disposal Site

This department has been asked to comment on future plans for solid waste disposal in the Borrego Springs area.

Please be advised that although the present site would be expected to serve until about 1983, the present operation is less than satisfactory in many respects. In order to provide more satisfactory service, this department is requesting funds for 1976-77 for the purpose of acquiring a new site.

The planned new site would be large enough to serve the entire area, including an allowance for additional development, for a period of not less than twenty years.

If you require additional information, please call Glenn Baker at 565-5703.

B. V. ELKINS
Acting Director

By _____
for J. S. Burke
Deputy

GGB:tea

RECEIVED
OCT 10 1975
ENVIRONMENTAL ANALYSIS DIVISION

REPLACEMENT PAGE

ENCLOSURE F

COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE January 30, 1980

TO: Kathy Lehtola (0175)
Environmental Analysis Division

FROM: Ray Weeks RLW
Environmental Management Specialist (0176)

SUBJECT: REVISED AIR QUALITY IMPACT SECTION FOR THE PROPOSED RAMS' HILL EIR

We have reviewed the revised air quality impact section and recommend the following corrections. In view of the time schedule, we recommend that this letter be attached to the air quality impact section and suffice for the needed revisions.

Section 5, Existing Emissions (Page 4), second paragraph, first sentence, reword to read as follows: "This study provides the basis for baseline data information on existing emissions for the Borrego Valley."

It should be noted that while the project related emissions may be helpful in establishing a baseline emission inventory for the Borrego Valley area, the emissions estimation for off-road and park visitorship should be re-examined. The off-road and park visitorship emissions may be significantly less than estimated in the report. This is because it was assumed that the activity in the park would continue to increase in the next five years as it has done in the previous five years. In view of rising gasoline costs and possible gas rationing in the future, the foregoing assumption appears incorrect. Another area of potential error exists when the low amount of estimated fuel usage is compared to the significantly large number of projected vehicle miles traveled. The amount of fuel usage does not support the estimated number of vehicle miles traveled for the Borrego Valley area.

An emissions inventory for the Valley should include an indepth analysis of off-road and park usage.

Section C-1 Potential Impacts on the Borrego Valley Page 18, second paragraph, fifth sentence. Reword as follows: ". . . Class I - Pristine Areas, an area where almost any increase in atmospheric pollution would be unacceptable; Class II would correspond to those areas in which moderate increases in atmospheric concentration would be acceptable, as provided in Part C of the Clean Air Act, but pollution over the level of the ambient air quality standards would not; Class III - Those areas which do not exceed the standards and in which new major industrial developments and/or population growth are encouraged. Air pollution emissions would be acceptable up to the level where the secondary ambient air quality standards would not be exceeded."

RW:mk

RAMS' HILL
COUNTRY CLUB

ENVIRONMENTAL IMPACT REPORT

January 15, 1979

Prepared For:

DIGIORGIO DEVELOPMENT CORPORATION

507 The Mall, P.O. Box A
Borrego Springs, CA 92004
714/767-5151

Prepared By:

PRC TOUPS CORPORATION

2223 Avenida de la Playa
La Jolla, CA 92037
714/454-9162

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I. INTRODUCTION

Rams' Hill Country Club is a Specific Plan for 2,158 acres of a 3,124 acre property on the south slope of the Borrego Valley. The Specific Plan proposes 530 PRD units, 200 single family homes, 50 estate lots, a golf course, a 350-room hotel, tennis courts, a medical clinic and sewage treatment plan on 596 acres; 1,562 acres will be dedicated as permanent undeveloped open space. The remaining 966 acres which are not included in this Specific Plan are covered by a concept plan for the property. This 966 acres will be formally planned in a second Specific Plan to be filed after five years. These Specific Plans would be implemented by a phased series of tentative maps, special use permits and grading permits.

A. Purpose

The following Environmental Impact Report (EIR) is prepared pursuant to the amended guidelines adopted by the San Diego County Board of Supervisors and in compliance with applicable sections of the California Public Resources Code and related Guidelines for implementation of the California Environmental Quality Act.

This report discusses both the immediate and long-term impacts resulting from the development and implementation of the Specific Plan on a 2,158 acre portion of a 3,124 acre property located on the south slope of the Borrego Valley in the unincorporated area of eastern San Diego County. The property is shown on the Regional Vicinity Map and Local Vicinity Map, Figure III-A-1 and Figure III-B-1. The site can be located in the Thomas Brothers Map Book on page 402, coordinates 5C, 5D, 6C and 6D.

This report will address the potential environmental impacts of a series of discretionary permits and applications which will ultimately be reviewed by the San Diego County Planning Commission and Board of Supervisors. This review will include the following permits and applications:

1. A large scale project application for a 2,158 acre portion of the total 3,124 acre property pursuant to the Board of Supervisors Policy I-59; the remaining 966 acres will be the subject of a subsequent large scale project application.

2. A Specific Plan encompassing 2,158 acres of the 3,124

acre property in detail, and a concept plan for the 966 remaining acres.

3. One rezone application which would change the existing LC (S-87) zoning as follows: 219 acres to C-42; 102 acres to R-V-6; 124 acres to R-R-5; 126 acres to R-S-3; 1577 acres to S-80; and 966 acres to S-88.

4. A major use permit application pursuant to Section 2425 of the County Zoning Ordinance for a 350-room resort hotel.

5. A major use permit application for the major impact services and utilities including the waste water treatment plant pursuant to Section 2805 of the County Zoning Ordinance.

6. A series of planned residential development permits for planned residential units and single-family areas pursuant to Section 2146 of the County Zoning Ordinance.

7. A major use permit for ambulance services for the medical clinic pursuant to Section 2845 of the County Zoning Ordinance.

8. A series of tentative subdivision maps and accompanying final maps allowing the cumulative creation of 780 individual home sites, a 350-room hotel complex, a medical clinic, commercial facilities, waste water treatment facilities, fire station, golf course and numerous open space/recreational lots.

9. A series of grading permits to allow the implementation of the tentative maps.

The purpose of this report is to present a broad overview, addressing issues and impacts concerning the entire development. It is intended that this report will consider, in detail, the large scale project application, Specific Plan Map and Text, Concept Plan Map, and any rezone applications that might be filed pursuant to plan implementation. This report is also intended to cover the tentative map, major use permits and grading permits for implementation of the first phase of the Specific Plan.

This EIR is also intended to cover the annexation of the 3124-acre property to the Borrego Water District, the formation of a 1562-acre Improvement District within the Borrego Water District, and the construction of facilities to provide sewer and water service to the project.

Impacts specific to the second phase tentative map, final map, grading plan and PRD Special Use Permit will be addressed by supplemental information to be filed with the second phase of development.

The Rams' Hill Country Club property is owned and is being developed by DiGiorgio Development Corporation, 507 The Mall, Borrego Springs, California 92004, phone (714) 767-5151.

B. Organization of this Report

The information in this EIR is separated into several topic areas:

II. The Executive Summary presents the major findings and conclusions of the report.

III. The Description of the Project is a full description of the Rams' Hill project within the context of the Borrego Valley community.

IV. The Environmental Analysis presents the full findings of the investigation as they pertain to individual areas such as biology or air quality.

V. The alternatives present a discussion of feasible alternatives and the impacts resulting from each.

VI. The Environmental Summaries present the issues which are significant environmentally, and include significant impacts, cumulative impacts, growth inducing impact, mitigating measures, significant unavoidable impacts and long term-short term impacts.

The heart of the report is contained in the individual chapters of the environmental analysis. Each of these chapters is divided as follows:

(1) Existing Setting - a discussion of the existing situation of the property or within the affected jurisdictions.

(2) Potential Impacts - a listing of those impacts, both beneficial and adverse which could be expected to occur if the project is implemented as proposed. The impacts will be categorized to the extent possible relative to the level of impact.

(3) Analysis of Significance - a discussion of the significant issues and those mitigating measures which are recommended to reduce the potential adverse impacts. This section will also include a discussion of those features of the project's design or implementation plan which would mitigate the potential environmental effects, and the extent to which the environmental effects are reduced to insignificant levels.

II. EXECUTIVE SUMMARY

The Rams' Hill Specific Plan would create a 3,124 acre residential-resort complex in the sparsely settled Borrego Valley. The variety of residential land uses include 530 planned residential units, 200 single family units on one-third acre lots, and 50 custom home estate units on two to five acre lots. The resort land uses include a 350-room hotel, a 18-hole golf course, 15 tennis courts, 12 swimming pools, and support commercial facilities including retail shops, restaurants and boutiques. A medical clinic affiliated with Scripps Clinic, La Jolla, would be constructed in association with the project. The Rams' Hill project would be a major node in the Borrego Valley attracting visitors from the coastal metropolitan areas and other states.

Because of its scale, the Rams' Hill project could initiate a major change in the character of the Borrego Valley community. Despite several false starts, the valley has not grown successfully to date. Rams' Hill would have beneficial impacts by assisting in the development of a viable economic community in Borrego Springs, by providing major medical services to the valley and state park area, and by increasing the diversity and number of recreational opportunities available in San Diego County. The project could induce some additional growth in the Borrego Valley which would have similar impacts.

The project would have four important adverse environmental impacts accompanying the development. First, with proper public agency management of water resources in the Valley, the project should not impact groundwater. Should the project not be annexed to a public agency, however, a condition of local groundwater mining could occur accompanied by localized subsidence of the southern basin. This would be fully mitigated by annexation to the Borrego Water District. The activated District would have the authority to become the groundwater management agency for the majority of the Valley. Second, the project could impact the biology and habitat of the desert by increasing human presence, and by changing the hydrologic characteristics on and off site. The impact on habitat cannot be fully mitigated. The impact on hydrology would be somewhat mitigated by project design and by the operation practices of the waste water treatment facility. Third, the project would temporarily overburden the public services in the valley. This would be fully mitigated once services are expanded to accommodate the extra growth. Fourth, the project could impact a significant rare archaeological resource. This would be mitigated by preservation and protection. The project could also have less

significant impacts by increasing the level of traffic on the roads and increasing energy consumption. The use of solar energy would substantially reduce domestic energy consumption. On site, the project would be subject to a significant flooding and seismic hazard. Flooding hazard would be substantially mitigated by protective structures and seismic hazard would be mitigated by proper construction. The project would require substantial grading. Rams' Hill would not have significant impacts on agriculture, geology, soils, air quality, climate, noise, dark skies, liquid waste or schools.

The project would include an urban level of services. The developer would construct a water distribution system and waste water treatment plant for the project. The project site is proposed to be annexed to the Borrego Water District which would operate and maintain the water and sewer systems. The fire station which could be required for this project could be constructed through establishment of a special assessment district.

The Rams' Hill project would include a medical clinic affiliated with Scripps Clinic in La Jolla. Since the valley and surrounding desert area do not have adequate emergency and primary medical facilities, this clinic would provide a much needed benefit for the entire community.

The Rams' Hill project would incrementally but not significantly impact the State Park. The number of people visiting the State Park should increase to over one million by the time the Rams' Hill Specific Plan is fully implemented. The level of impact to the park from Rams' Hill would, therefore, be insignificant compared with the high level of annual use.

A major concern of the County of San Diego today is rapid growth in areas which do not have an adequate level of public services available. Two large scale resort projects, Rams' Hill and the Borrego Country Club, are proposed in the Borrego Valley. The cumulative impacts of these projects on police and fire protection if they were built out would be substantial. Also, if both were built out, the projects could cause a major ground water mining condition. The level and rate of growth in the valley could change substantially if both projects were built, changing the valley into the major desert resort area in San Diego County.

In conclusion, development of the Rams' Hill Specific Plan would have some substantially adverse environmental impacts. The project, however, would beneficially impact the valley economy locally, and the San Diego County economy as a whole, provide needed medical services, and create a valley with recreational resources which would benefit San Diego County.

III. PROJECT DESCRIPTION

A. Location and Existing Conditions

Rams' Hill Country Club is a 3,124 acre property located in the Borrego Valley, an unincorporated area east of the Peninsular Mountain Range in the desert of San Diego County. The project site is 65 miles northeast of metropolitan San Diego, 40 miles south of Palm Springs and 25 miles west of the Salton Sea. Figure III-A-1 is a Regional Vicinity Map of the project.

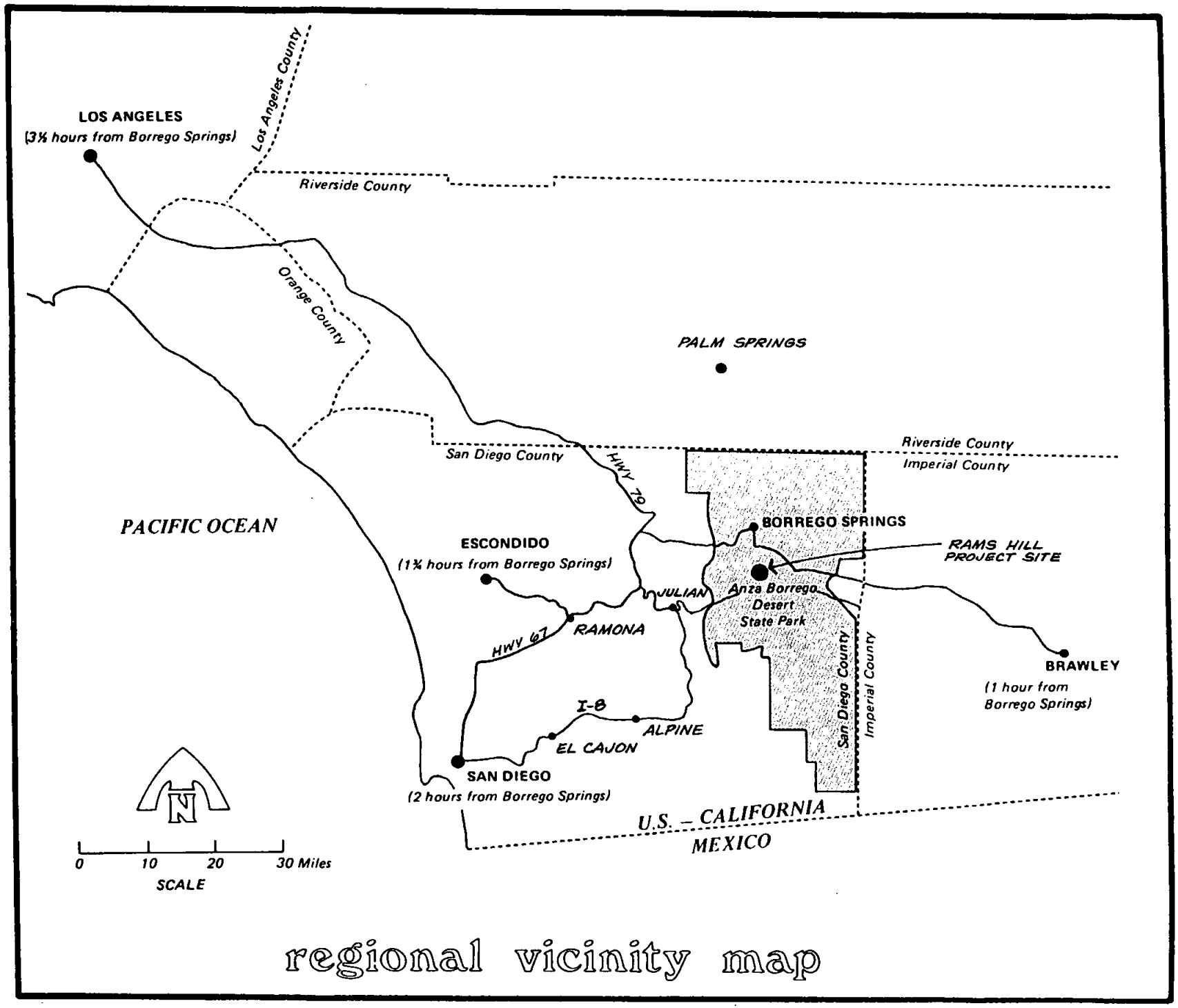
The Rams' Hill Country Club site has been designated on the San Diego County General Plan as a Specific Planning Area, with an overall density of one dwelling unit per two acres (SPA 0.5). In addition, at the time that designation was applied, the Board of Supervisors also adopted a general concept plan for the property referred to as Exhibit C-9. Board of Supervisors' Policy I-59, which governs development of large scale plans, requires the preparation of a Specific Plan for that portion of a total property proposed for development within a five year time frame, and the preparation of a concept plan for the remainder. The purpose of this EIR is to analyze in detail the potential environmental effects of the development proposed on 2,158 acres included in the first five year Specific Plan for the Rams' Hill property; and to analyze to the greatest extent feasible the effects of full development of the Concept Plan for the remaining 966 acres of the property.

B. Project Description

The Rams' Hill project would be located on the south slope of the Borrego Valley, immediately south of the Casa del Zorro Resort. The site is five to six miles southeast of the business district of the desert community of Borrego Springs and adjacent to the Anza Borrego Desert State Park. Primary access to the site is provided by Yaqui Pass Road, which runs along the western boundary of the property. Secondary access is provided by Borrego Springs Road, which traverses the northeast portion of the site. These two arterials, both two-lane, paved County highways, provide the principal southern access into the existing Borrego Springs community. Figure III-B-1 is a map of the project location in the Borrego Valley.

The project site is currently vacant. Over a small area, indications of previous agricultural use and the remains of a single structure are present. The property slopes gently upward from northeast to southwest, with elevations ranging from 475 feet near the Borrego Sink on the northern boundary, to 1,150 feet at the southwest corner adjacent to Anza Borrego Desert State Park. Figure III-B-2 is a slope analysis of the site. Eighty

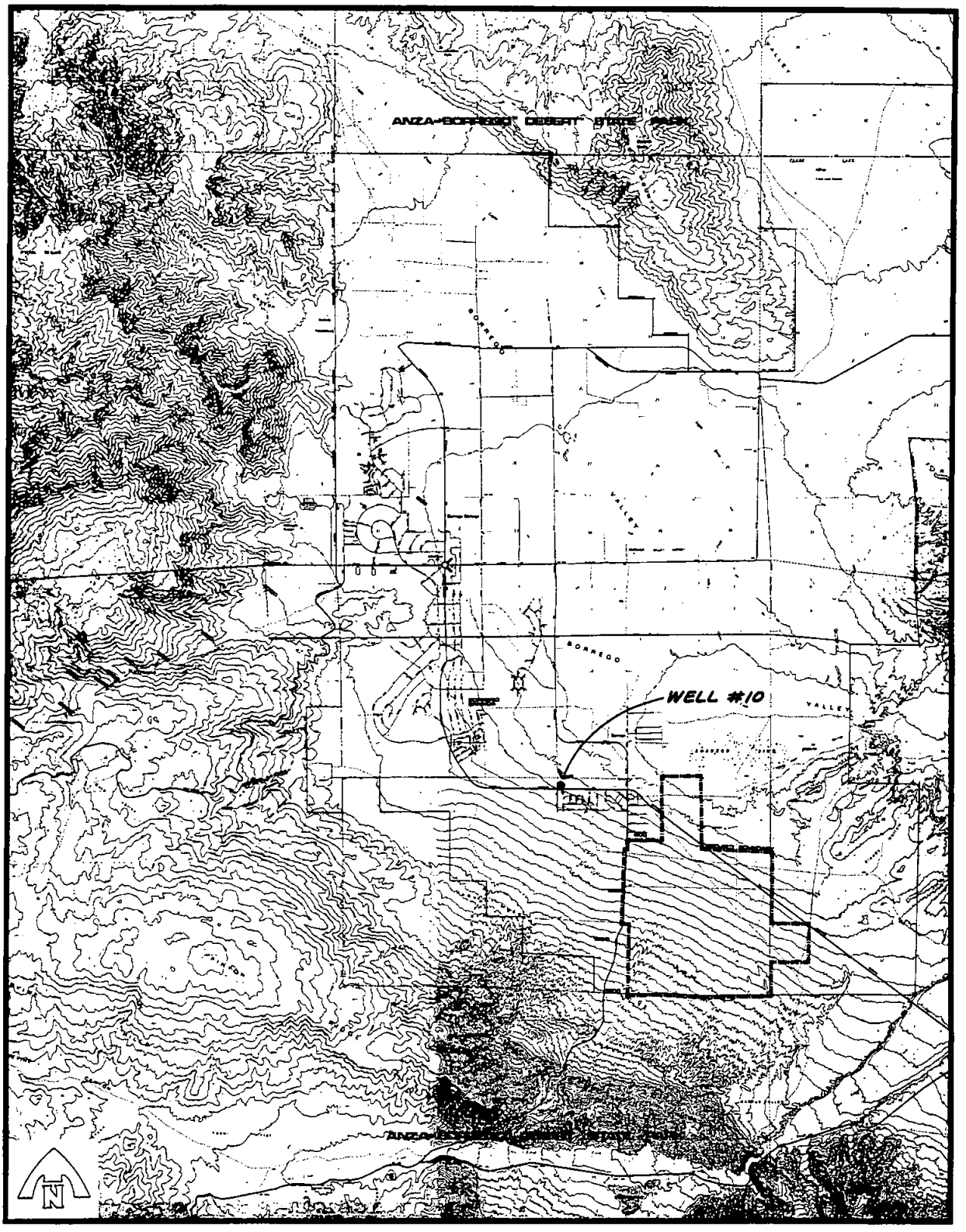
RAMS HILL



regional vicinity map

Figure III-B-1

PROJECT LOCATION IN VALLEY



project location in valley

PRC TOUPS CORPORATION

RAMS HILL

percent of the site is a smooth alluvial surface with a slope of zero to six percent. The remainder is a dissected alluvial fan having slopes of seven to 15 percent. These steeper areas are largely concentrated in the southwest quarter of the property outside the entire site. Figure III-B-3 is a spatial analysis of the site. Figure III-B-4 is a USGS map of the site.

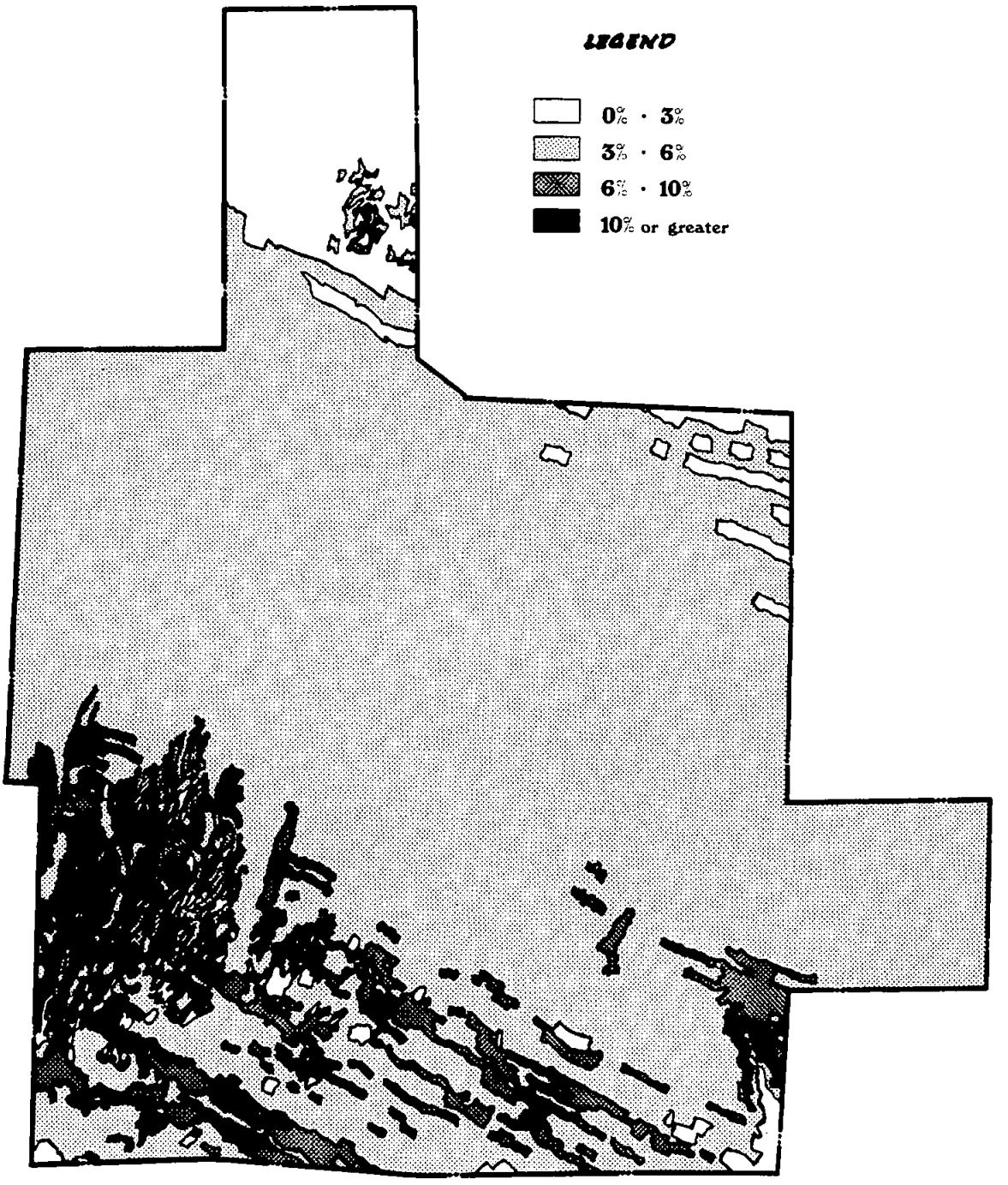
The Rams' Hill property is presently an open undisturbed habitat, a continuation of the ecosystem of the adjoining Desert State Park. The site contains three vegetative communities: A Mesquite Woodland bordering the Borrego Sink; a Ridgewash community covering the dissected southwest quarter; and a Creosote Bush Scrub community which is the dominant vegetation over the majority of the site. The site is easily viewed from all areas in the valley and is an integral part of the desert panorama.

The Borrego Valley, with the Borrego Springs community, is the major desert resort area of San Diego County. The valley is a 70 square mile, privately owned enclave in the Anza Borrego Desert State Park. The 1975 Special Census identified the permanent population of the valley as 1,174. The Integrated Planning Office estimated the population in 1978 to be 1,570. (1) Seasonal visitors during the winter months swell the valley population to approximately 2,220; on a peak weekend, the number of people in the valley, including permanent residents, visitors, campers and day tourists in the Anza Borrego State Park, can reach 8,000 to 10,000.

The factors affecting the development of the Borrego Valley, both historically and currently, differ substantially from those of other communities in San Diego County. The area is geographically isolated from the metropolitan area and has a very limited economic base. The area once supported extensive agriculture, but now functions primarily as a retirement and resort community. Unlike other communities in the region, the area is not tied into the imported water or sewer service structures of San Diego County. Development in the valley is served by ground water and private sewage systems. The Borrego Valley has a history of speculative land sales which have produced a substantial number of residential lots with minimal improvements. The prime factors limiting development on these lots appear to be lack of accessible resort facilities, scarcity of financing for individual construction and, more recently, the attitude of the County toward growth in outlying areas. For a complete discussion of growth characteristics, refer to the sections on growth inducement and socio-economic conditions. As a result of this history and current circumstances, the nucleus of the Borrego community exists in an isolated area with inadequate public and private services.

Figure III-B-2

SLOPE ANALYSIS



N

NO SCALE

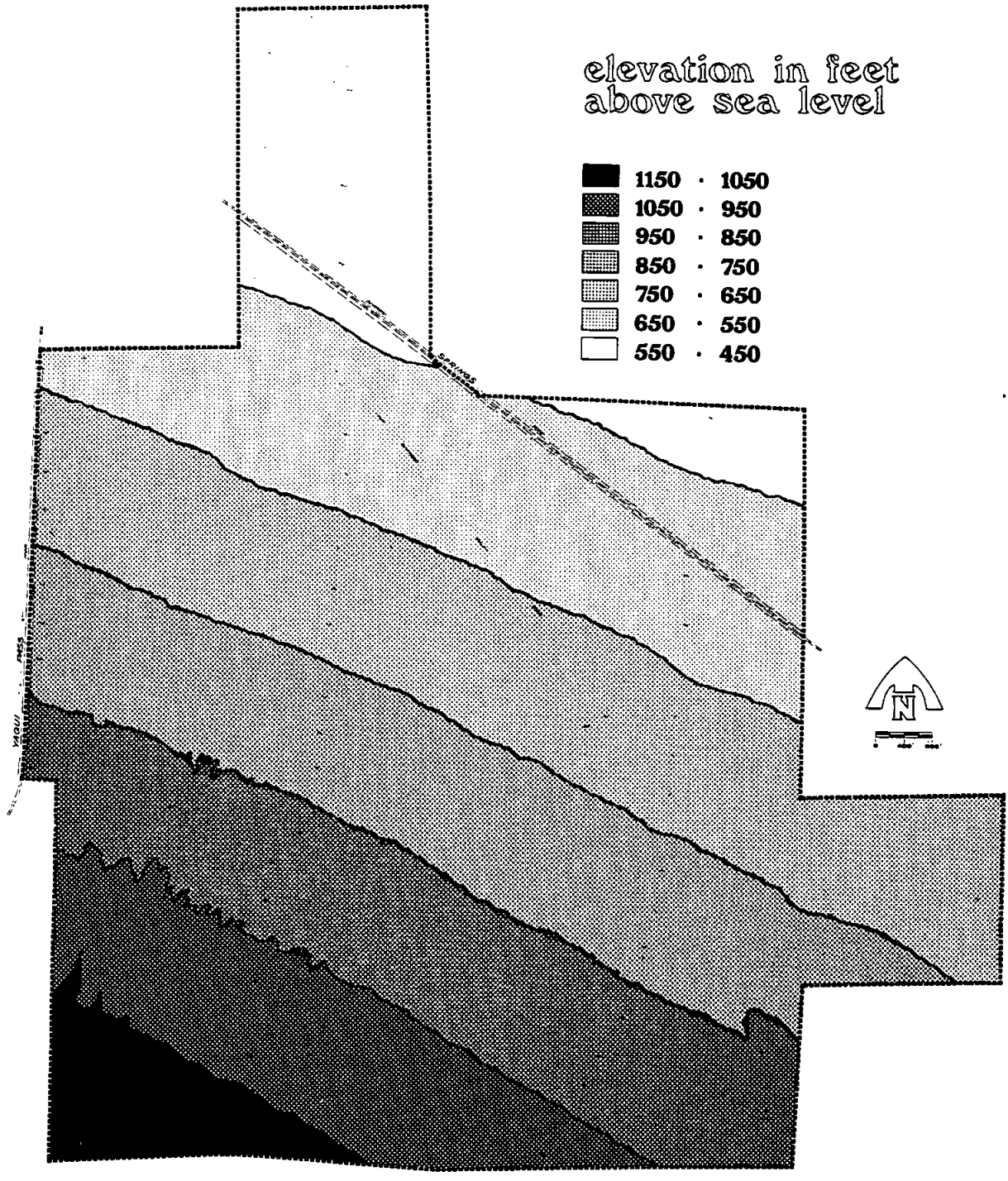
slope analysis

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RAMS HILL

Figure III-B-3

SPATIAL ANALYSIS



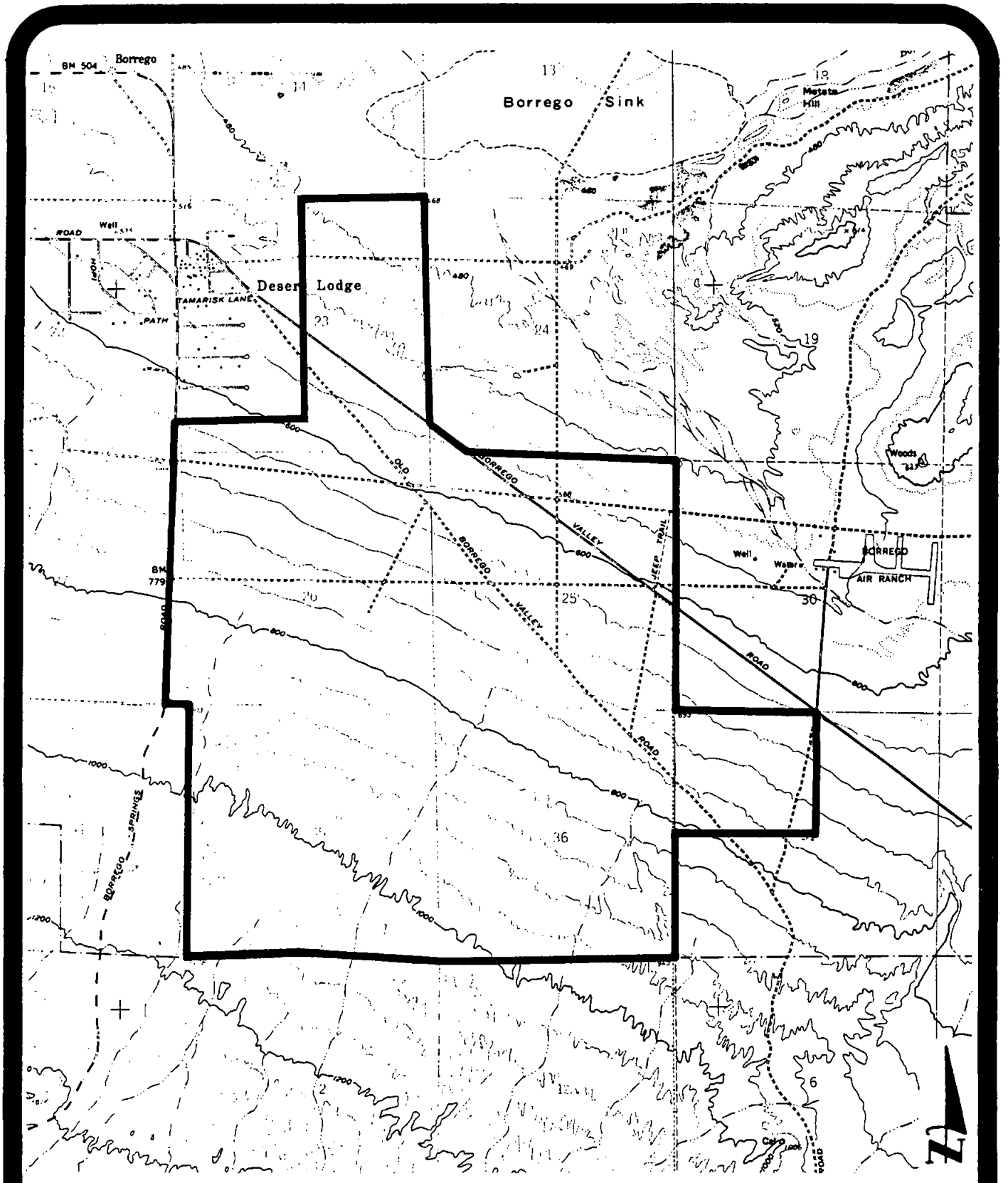
spatial analysis

PRC TOUPS CORPORATION

RAMS HILL

Figure III-B-4

USGS MAP OF SITE



U.S.G.S. map

PRC TOUPS CORPORATION

RAMS HILL

This would include a medical facility; tax funds for local parks, school services and the library; and a sufficient population base for adequate year-round commercial facilities. The project would provide its own water service and sewage disposal system, including a waste water reclamation plant. Residential development at Rams' Hill would emphasize second home development consistent with the resort orientation. The total project is designed for resort and vacation home uses rather than as a year-round retirement community. Economic studies for the project estimate that fewer than 30 percent of the residential units would be used by year-round occupants.(3) This 30 percent would double the number of current year-round inhabitants in the Borrego Valley and would substantially improve the viability of the summer economy.

D. Project History

In the early 1970's, the County of San Diego regulated large scale plans through a process for Private Development Plans. In 1974, the DiGiorgio Development Corporation submitted a Private Development Plan (PDP) to the County for the entire 3,124 acre property. The PDP proposed development of the total holding over an extended period at an overall density of one dwelling unit per acre. (This would have provided twice the density allowed under the current Specific Planning Area designation). Under these PDP procedures, it was determined that development would require a General Plan Amendment.

During the processing of the PDP/General Plan Amendment for the project, the County eliminated the PDP procedures for review of large scale projects. A Specific Planning process, defined by the Board of Supervisors Policy I-59, was developed subsequently to replace the previous PDP procedures. On November 29, 1976, after much consideration, the Board of Supervisors adopted General Plan Amendment 76-02 (GPA 76-02), which designated the Rams' Hill property as a Specific Planning Area (SPA) with an allowable maximum residential density of one dwelling unit per two acres (1,562 DU's total). Development was limited to approximately half of the site. The remaining area was to be designated as permanent open space when development took place on the site. Figure III-D-1 is a reproduction of Exhibit C-9 of GPA which is the Board-approved Concept Plan governing development on the Rams' Hill property. The General Plan Amendment further specified that the Specific Plan or Plans for the Borrego Springs Specific Planning Area 0.5 could allow for:

1) A range and mix of residential, commercial and medical uses and facilities which are consistent with accepted design principles as determined appropriate by the County and with provision of necessary public services and facilities; and

Figure III-D-1

EXHIBIT C-9

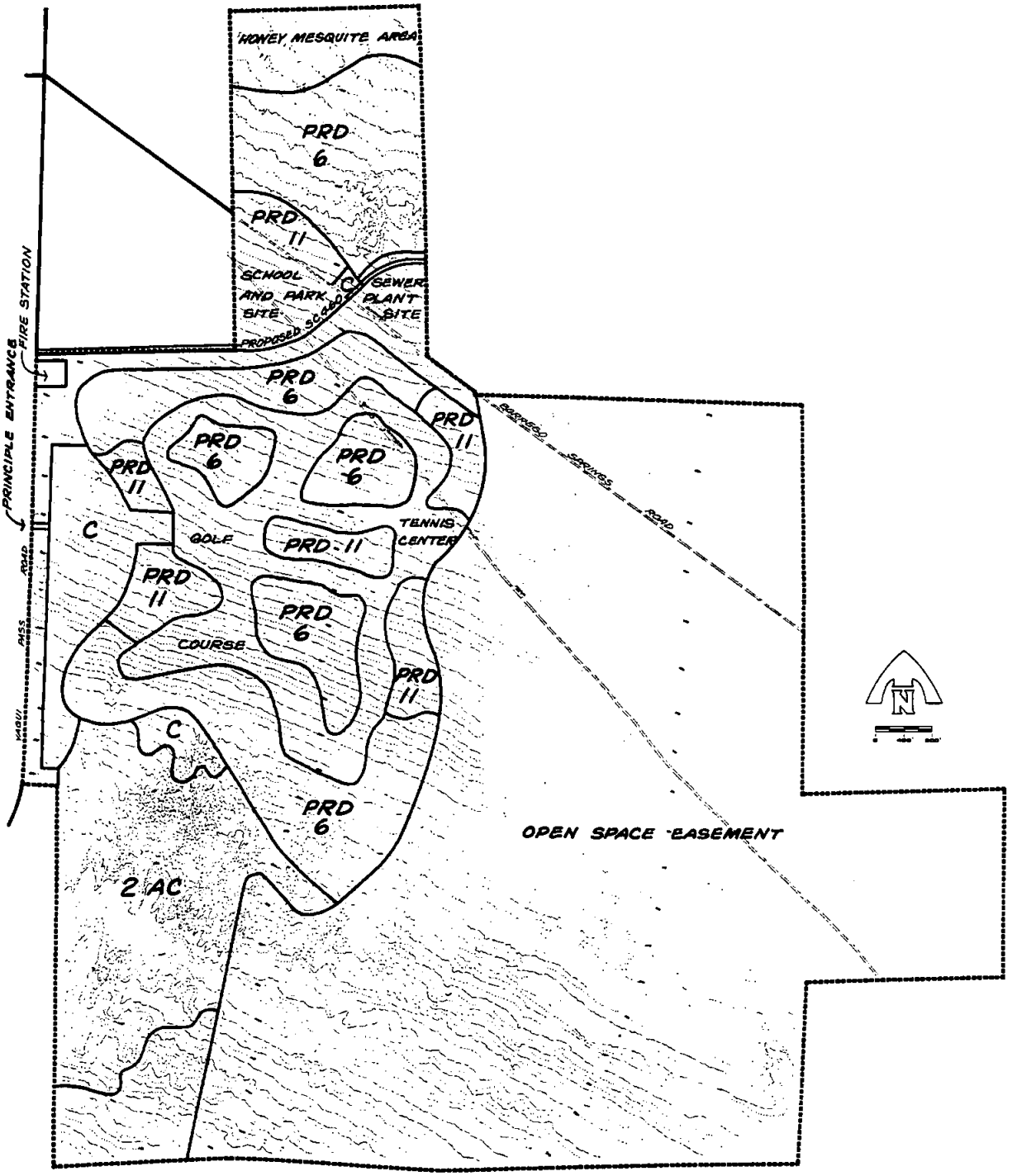


exhibit C-9 of san diego county general plan - amendment 76-02

PRC TOUPS CORPORATION

RAMS HILL

2) Other land uses as may be necessary or convenient for recreation and for the provision of commercial and other support services for the future residents of the Specific Planning Area and other properties.

The DiGiorgio Development Corporation, in accordance with the requirements and limitations of General Plan Amendment 76-02 and the further requirements of Board of Supervisors' Policy I-59 which governs "Large Scale Project Review", proposes to implement the Rams' Hill Country Club through a series of two Specific Plans. This is the EIR on the first Specific Plan.

The Board of Supervisors generally initiates each Specific Plan upon the submittal of an Initial Plan Conformance Report. The Board must approve the processing of a Specific Plan even for areas designated as requiring them. The Specific Plan must identify all development proposed on the site within a five year period and the means of implementing that development. Each Specific Plan in turn will be implemented through a phased series of tentative maps, special use permits, and zoning reclassifications. These discretionary actions are discussed in the Land Use section.

E. Regional Growth Management Plan

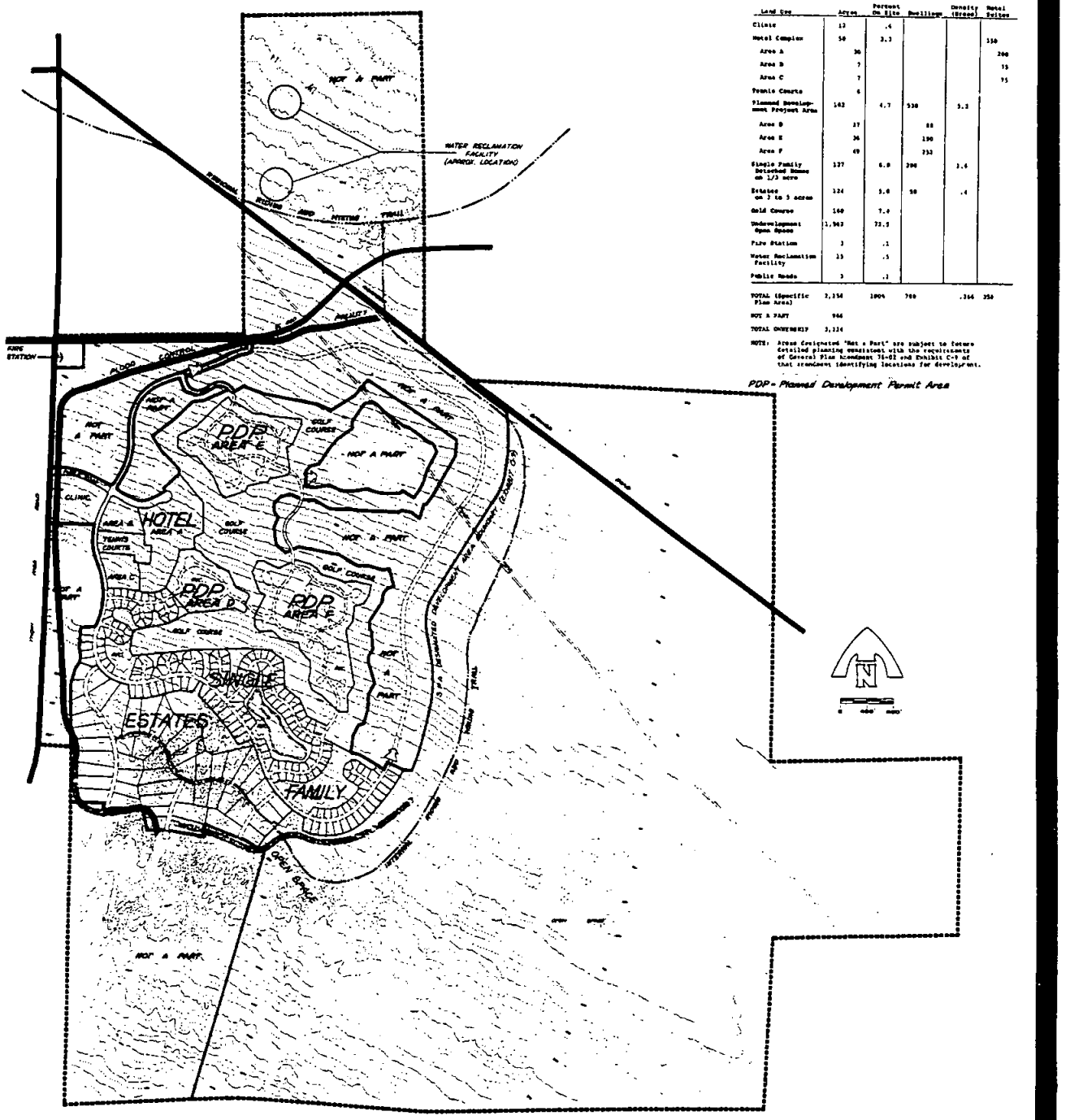
The Regional Growth Management Plan has designated the Borrego Valley as a "Special Study Area". Under this plan the County will accept no new applications for changes in the General Plan which would result in an overall increase in the potential number of dwelling units. No such applications will be accepted for properties in the valley until a cumulative environmental analysis and long-range plan are prepared for the area. The County at this time has no plans for the preparation of the necessary environmental analysis or community plan.

F. Specific Plan

The Rams' Hill Country Club is envisioned as a desert-resort complex. The development is anticipated to be primarily residential-resort with complementary hotel, commercial and recreational facilities. The initial phase of the project, planned through this Specific Plan, proposes 780 dwelling units and 350 hotel suites on 596 acres and 1,562 acres of natural undeveloped open space for a total of 2,158 acres. Central features of this plan are a medical diagnostic facility and a large hotel-resort complex, including a golf course, tennis complex and small retail shops. Figure III-F-1 is a map of the Specific Plan. Approximately 70 percent of the 2,158 acres included in this Specific Plan are to be retained as permanent natural open space, in conformance with Exhibit C-9 or GPA 76-02, the Concept Plan which governs land use for the project. A substantial portion of the remaining 596 acres of this Specific

Figure III-F-1

SPECIFIC PLAN MAP



Rams' Hill Country Club
Specific Plan Land Use

Land Use	Acres	Percent On Site	Dwellings	Density (Gross)	Hotel Suites
Clinic	12	.4			
Hotel Complex	58	3.3			350
Area A	36				200
Area B	7				75
Area C	7				75
Tennis Courts	6				
Planned Development Project Area	142	4.7	530	3.3	
Area D	37		88		
Area E	36		190		
Area F	69		252		
Single Family Detached Homes on 1/3 acre	127	6.0	390	3.6	
Estates on 3 to 5 acres	124	5.8	50	.4	
Gold Course	160	7.4			
Undeveloped Open Space	1,963	72.5			
Fire Station	3	.1			
Water Reclamation Facility	15	.5			
Public Roads	3	.1			
TOTAL (Specific Plan Area)	2,154	100%	760	.344	350
NOT A PART	966				
TOTAL OWNERSHIP	3,124				

NOTE: Areas Designated "Not a Part" are subject to future detailed planning consistent with the requirements of General Plan Amendment 76-02 and Exhibit C-9 of that amendment identifying locations for development.

PDP - Planned Development Permit Area

specific plan map

PRC TOUPS CORPORATION

RAMS HILL

Plan would include various other open space uses, including extensive common areas and an 18-hole golf course on 160 acres. A waste water treatment plant and water distribution system would be constructed by the developer for this Specific Plan. These facilities would be designed and sized to be expanded to fully accommodate the ultimate project development.

With full implementation and maximum theoretical occupancy of this Specific Plan, the population of Rams' Hill, including residents and resort visitors, is projected to be 2,229. The actual occupancy at the project would vary seasonally from approximately 90 percent occupancy of 2,007 people during mid-winter, to less than 30 percent occupancy of 650 people during the summer. Detailed information on population and phased growth is provided in the section on growth inducement.

A more precise, detailed project description is included in the Rams' Hill Country Club Specific Plan which is being submitted under separate cover.

G. Concept Plan

Each Specific Plan must detail the development proposed for a five-year phase, and address, in concept, development for the remaining portion of the property. Definitive plans have not yet been formulated by the developer for subsequent development beyond this five year program. Future development would be governed by Exhibit C-9, the Concept Plan for the project approved by the Board of Supervisors in GPA 76-02. This plan limits future development to approximately the western half of the site. Figure III-D-1 is Exhibit C-9, the concept map governing future development beyond this Specific Plan.

The Specific Plan develops the core of the project on 596 acres; future development would probably be an expansion outward from the area proposed for development under this Specific Plan. The total holding retains 966 acres within it, marked "Not a Part" of the current Specific Plan. This area provides for a logical expansion of the hotel, planned residential developments and some limited commercial uses. In addition to development in these areas, other possible areas of expansion would be along Yaqui Pass Road and to the east and north of the Specific Plan Area. Future residential development would probably be similar to that planned for the Specific Plan--PRD units, single-family detached homes, and large-lot estates.

The total holding capacity of the Specific Plan Area is 1,562 dwelling units. It is currently anticipated by the developer that the ultimate project would include the total allowable density of 1,562 residential units and a 600 room hotel-resort. The developer plans to implement the complete project over a 12 to 15 year period.

H. Description of Land Uses

The sections which follow detail information for this five year Specific Plan program only. Table III-H-1 is a summary of proposed land uses under this Specific Plan.

1. Hotel Complex

The resort hotel complex would occupy approximately 50 acres, or two percent, of the 2,158 Specific Plan acres. The central hotel facility, marked "Hotel A" on the Specific Plan Map, would be located on a 30 acre site to provide a spacious atmosphere consistent with the desert environment. The facility would consist of a three-story hotel having 200 rooms (in the five year program). The usual support functions, including restaurants, conference rooms and boutiques, would be contained in common areas within the hotel building. The hotel also would serve as a clubhouse for the golf course and tennis facility. The main hotel would include approximately 136,000 square feet. Each guest room would be approximately 500 square feet; common areas would include approximately 36,000 square feet. A six acre area immediately southwest of the main hotel facility would be reserved for the tennis courts, although they would occupy only a portion of the space. In addition to the central facilities, two smaller hotel areas, marked "Hotel Area B" and "Hotel Area C" on the Specific Plan Map, would be used for bungalow units. These two areas, totalling 14 acres, would provide for 150 rooms/suites, with 75 suites in each area. Each suite would contain approximately 800 square feet. The bungalows would be low profile clustered units located west of the main hotel facility next to the tennis courts. Two swimming pools would be constructed within the total 50 acre hotel facility.

2. Clinic

As an adjunct to the hotel-resort operation, the plan proposes the development and operation of a diagnostic medical clinic located on a 12-acre site west of the central hotel. The facility is currently intended to be a satellite of the Scripps Clinic and Research Facility and would provide much needed primary medical care for Borrego residents and the residents of Rams' Hill. The Borrego community presently has one doctor and a part-time clinic, staffed by a nurse practitioner. There are no acute or emergency facilities. Besides providing primary care, specialty clinics could be conducted on a regular basis using the staff of the Scripps Clinic Medical Group. An executive physical examination program would be developed at the facility. The building would be a single story, low profile structure containing approximately 6,300 square feet. For more information on medical facilities in the valley, refer to the section on socio-economic conditions.

TABLE III-H-1

Rams' Hill Country Club
Specific Plan Land Use

Land Use	Acres	Percent On Site	Dwellings	Density (Gross)	Hotel Suites
Clinic	12	.6			
Hotel Complex	50	2.3			350
Area A	30				200
Area B	7				75
Area C	7				75
Tennis Courts	6				
Planned Residential Units	102	4.7	530	5.2	
Area D	17		88		
Area E	36		190		
Area F	49		252		
Single Family Detached Homes on 1/3 acre	127	6.0	200	1.6	
Estates on 2 to 5 acres	124	5.8	50	.4	
Golf Course	160	7.4			
Undevelopment Open Space	1,562	72.5			
Fire Station	3	.1			
Water Reclamation Facility	15	.5			
Public Roads	3	.1			
TOTAL (Specific Plan Area)	2,158	100%	780	.366	350
NOT A PART	966				
TOTAL OWNERSHIP	3,124				

NOTE: Areas designated "Not a Part" are subject to future detailed planning consistent with the requirements of General Plan Amendment 76-02 and Exhibit C-9 of that amendment identifying locations for development.

3. Residential

The Rams' Hill project would include three types of residential units: PRD units, single family homes on one-third acre lots, and custom-built estate homes on two to five acre lots.

The heart of the residential development at Rams' Hill would be the planned residential development (PRD) areas to be sited within and along the golf course. Three PRD areas totalling 530 units would be constructed in this Specific Plan phase. These units are designed as low-profile homes with walled gardens, each containing 1,500 to 3,000 square feet. Each would be constructed in a space envelope sufficient for home and terraces. Three to five dwelling units would be clustered together. These clusters would then be grouped around landscaped cul-de-sacs with supplementary parking bays. Substantial open space would be provided between units and clusters, resulting in an overall density within the PRD areas of 5.2 dwelling units per acre. Each of the three planned residential areas would have separate recreational areas with swimming pools, tennis courts and the required common open space. The common areas would be landscaped to the extent practical with low-maintenance desert plants.

In addition to the 530 PRD units, Rams' Hill would include 200 single-family detached homes situated on one-third acre lots. The homes are envisioned as low-profile residences, containing between 2,200 and 3,000 square feet, constructed in harmony with the desert environment. The single-family home area would include commonly held and operated recreational facilities, such as tennis courts and swimming pools.

The third type of residential development at Rams' Hill would be 50 single-family homes on estate lots ranging between two and five acres in size. These homes would be custom built containing a minimum of 2,500 square feet. It is anticipated that the home and landscaping would encompass approximately one-half acre of each estate lot with the remainder of each lot left in natural vegetation. This would, in part, preserve the open desert panorama.

4. Open Space

Approximately 73 percent of the 2,158 acres would be retained in underdeveloped open space. This includes the entire eastern one-half of the property. General Plan Amendment 76-02, by which the Specific Planning Area designation was adopted, required that this 1,562 acres be preserved as open space and stipulated that this acreage be the total open space requirement for the project.

To maintain the open desert atmosphere, additional open space would be provided throughout the project. Where landscaping is used, it would be designed and planted to provide a compatible transition between the natural environment and the developed areas. Planting would emphasize desert and drought resistant species. In 1973, the DiGiorgio Development Corporation established a 200 acre nursery in the Borrego area to produce necessary low-water use trees for eventual transfer to this site. Additional open space would include the 160 acre golf course. This course would encircle the PRD areas. Roughs would be left in natural vegetation. Substantial open areas in the hotel complex, open space in the PRD areas and substantial natural areas in the large lot residential and estate developments would also be provided. Total open space, that area not covered by structures or paving and being primarily natural in appearance, has not been calculated but can be estimated at more than 90 percent of the site.

5. Public Facilities

The original scheme, approved as Exhibit C-9, identifies four primary public facilities: a local park site, an elementary school site, a fire station site and a waste water treatment facility.

In regard to the school site, the project is not expected to generate sufficient students to support an additional elementary school. In regard to the proposed local park site, the County Department of Parks and Recreation, Park Development Division has stated that the project would have ample on-site recreational facilities for residents. Therefore, they would recommend payment of fees rather than dedication of park land. That would enable the application of fees for more general local park use in the Borrego area. (4)

A three acre site is reserved for a future fire station. The fire district would provide facilities at this location as implementation of the project warrants these improvements. The waste water treatment facility site and the fire station site are included in the Specific Plan Area.

6. Waste Water Treatment Plant

North of Borrego Springs Road, a waste water reclamation facility utilizing an oxidation ditch method of secondary treatment would be constructed and paid for by the developer to serve the project. This plant would process liquid waste from the hotel, medical clinic, PRD units and single-family units. The 50 two to five acre lots would use private septic systems. The designed plant would be sited on a five acre parcel; an additional ten acre parcel has been dedicated for percolation beds. (Figure III-B-3) The sewage treatment plant would be dedicated to a public agency. This agency would operate it at no cost to the district through a special assessment district.

The oxidation ditch is a method of secondary sewage treatment which utilizes a modified form of the activated sludge process. While the plant would be constructed to treat an average daily flow of 250,000 gallons, its capacity could be reduced below that volume by adjusting the water surface elevation in the oxidation ditch. This design would assure better and more economical performance during low flow periods. Sewage produced at Rams' Hill would be reclaimed as one source of irrigation water for the planned 18-hole golf course. After secondary treatment, the sewage effluent would be disinfected and pumped to an irrigation storage pond on the golf course. The golf course irrigation system would have more than enough demand to consume the highest volume of reclaimed water produced. Percolation beds would be provided for disposal during low flow periods and for emergency backup. These beds would be located immediately south of the mesquite woodland and would have sufficient capacity to dispose of the entire output of the reclamation plant on a continuous long-term basis.

The treatment plant has been sized to accommodate maximum flows from the Specific Plan phase. The plant has been designed to be easily expanded to handle the flows projected for full project implementation, after both this Specific Plan and the subsequent Specific Plan are fully constructed.

The designated sewage treatment plant site includes approximately 15 acres including one five and one ten acre parcel. The plant itself would cover approximately one and a half acres of a five acre parcel close to Borrego Springs Road. The ten acre parcel, located closer to the Borrego Sink, has been designated for the percolation basins. The facility would be designed and constructed by the developer who would then dedicate the facility to a public agency. The waste water treatment facility would be owned and operated by the agency. The Local Agency Formation Commission is currently reviewing the application for the annexation of the Rams' Hill site to the Borrego Water District, a California Water District with the legal authority for sewage treatment and water supply. The system would meet anticipated waste discharge requirements of the Regional Water Quality Control Board and would comply with Title 22 standards of the State Health Department. For a full discussion of waste discharge, refer to Liquid Waste.

7. Water Supply

In addition to operating the waste water treatment facility, it is proposed that the Borrego Water District serve as the managing agency for provision of water. Although the Borrego Water District does not maintain a water distribution system or waste water disposal facility at the present time, it does have designated existing powers to do so. There are three existing wells

on the project site and one on a separate DiGiorgio property one mile to the west. These wells would be annexed to the water district for the supply of water to the project in the initial phase. Future water supply would be developed and managed by the District.

The water supply system would be constructed and paid for by the developers. Operational expenses would be born by residents and guests at Rams' Hill pursuant to the formation of a special assessment district.

8. Vehicular Circulation

Access to the Rams' Hill site is provided by two existing roads; Yaqui Pass Road and Borrego Springs Road. A third road, SC 460, which is not in existence at this time, is shown on the San Diego County Circulation Element, Sheet 3, as a collector road with an east-west alignment through the center of the property. Figure III-H-1 is the circulation element for the Borrego Valley. The developer is planning to locate SC 460 north of the Circulation Element location in conformance with its location on Exhibit C-9 of GPA 76-02. (Figure III-D-1) A fourth road, Old Borrego Valley Road, which is currently a dirt trail, is shown on the Circulation Element as a collector road with a north-south alignment across the eastern edge of the property.

The County of San Diego Department of Transportation has determined that the road network planned for Rams' Hill is in conformance with the County Circulation Element. The developer is currently in negotiations with DOT regarding the necessary improvements. As of a letter dated September 5, 1978, the Department of Transportation has recommended that the following on and off-site improvements will be necessary:

- That portion of Yaqui Pass Road, SF 1406, adjacent to the Rams' Hill project and designated as a Major Road on the Circulation Element, must be dedicated and improved to a one-half width of 51 feet. The off-site portion of that road north to Borrego Valley Road presently has from 24 to 32 feet of paving. With the additional traffic onto that road from Rams' Hill, that road would need to be widened to a minimum of 40 feet of AC paving prior to the ultimate development of the project.

- That portion of Borrego Springs Road, SA 190, within or adjacent to the Rams' Hill project, must be dedicated and improved to a width of 51 or 102 feet, depending on the location of the road with respect to the boundary of the project.

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- That portion of Borrego Springs Road, SA 190, within or adjacent to the Rams' Hill project, must be dedicated and improved to a width of 51 or 102 feet, depending on the location of the road with respect to the boundary of the project.

Figure III-H-1

SAN DIEGO COUNTY CIRCULATION ELEMENT
SHEET 3

RAMS HILL

P.R.C. TOUPS CORPORATION

san diego county circulation element, sheet no. 3

- That portion of SC 460 adjacent to Rams' Hill designated as a collector road on the Circulation Element must be dedicated and improved with Rams' Hill to a width of 84 feet. (1)

- That portion of Old Borrego Valley Road, SC 500, within the Rams' Hill boundaries should be offered for dedication to a width of 84 feet. DOT will recommend rejection by the Board of Supervisors. No improvements are required by DOT.

A regional riding and hiking trail will be dedicated in conformance with the County Regional Riding and Hiking Trail Element across the northern peninsula of the property. The Department of Transportation has determined that an easement width of 20 feet with an eight foot width tread will conform with the Regional Riding and Hiking Sub-element of the General Plan.

With the exception of the entrance road to the project, which is approximately 2,000 feet long, internal circulation for the project would be provided by private roads. The private roads, which would cover approximately three acres, are being used to maintain the integrity of the neighborhoods and to provide the type of security appropriate to a resort where residences are not occupied on a continuous basis. While internal roads would be private, most would be built to County standards, although total rights-of-way might not be as wide as on public roads. The use of cul-de-sacs, especially in the condominium areas, would be maximized to create a mini-neighborhood concept within the project site. The private roads would be constructed using desert paving materials and other site oriented techniques. Desert crossing dips, rather than underground conduits, would be constructed to carry storm waters. A secondary access would be constructed from the internal loop road to Borrego Springs Road. This road would be for egress and emergency vehicle use only to preserve the integrity of the internal security system.

9. Phasing

This Specific Plan would be implemented on a phased basis. Development is expected to gradually occur over the entire five year period, with the type and rate of residential development dependent upon market conditions and agency approvals. It is anticipated that approximately one-half of the residential units would be constructed in this first three years with the remaining one-half constructed in the last two years. Table III-H-2 summarizes the anticipated development schedule.

TABLE III-H-2

Proposed Schedule of Development

Land Use	1-3 Years	4-5 Years
Hotel rooms	175	175
PRD units	278	252
Single family	99	101
Estates	18	32

In addition to residences, development during the first three years would include construction of the golf course, tennis courts, the hotel complex and the clinic. Public facility infra-structure necessary to support development, including the waste water treatment plant and water distribution system, would also be constructed at the outset.

The development pattern in the Borrego area is a product of having many partially completed projects dispersed over the valley. These projects tended to be relatively small, single purpose projects without the long-term commitments required for development in the area. The Rams' Hill project has been planned with recognition of this history. It is to be a total community which would begin with a major hotel-resort complex and then expand into a range of residential uses. It would provide for planned growth over an extended period with adequate facilities and a diversity of uses. It is an alternative to the dispersed, unplanned, "adventure" development that has been the history of the Borrego area.

10. Continued Maintenance

The maintenance of the open space, landscaping, private streets, and recreational facilities would be done through private assessments. There would be homeowners' associations for the various PRD units. The landscaping of the single-family homes would be privately maintained. Fees would be established for meeting the requirements of each unit and the pro-rata costs of certain commonly held facilities or commonly used services, such as the basic circulation streets, the natural open space area and security services. The major public facilities, such as hotel, golf course and clinic, would be maintained by the owners or operators of those facilities.

11. Grading

The developer has stated that a purpose of the project design was to minimize grading to the extent possible. Over 80 percent of the property is under six percent slope. The intensive land uses, including the PRD units, hotel-resort complex and single-family homes would be located in the flat central portions of the property. The steeper areas have been designated as estate lots. Grading in the estate area would only be done for roads and pads. Individual homes would be custom built, thereby preserving major natural areas, and minimizing erosion potential.

Precise grading plans will be completed as final designs and tentative maps are prepared. Based on preliminary grading studies using "typical situations", it is estimated that grading for the streets, single-family homes, PRD units, hotel, clinic, flood control system, waste water facility and golf course would require 1,969,000 cubic feet of cut and fill, or approximately 3,300 cubic yards per developed acre. It is anticipated that minimal grading for streets and pads would occur on the estate lots.

Significant grading would be done only to create the golf course, including ponds, and to excavate the flood diversion channel around the perimeter of the development. For the ponds on the golf course, maximum cut and/or fill, which would occur in only two places, would be 30 feet. Contour grading would also be done for landscaping and sculpturing. Maximum slope gradient in conjunction with the maximum cut-fill in two areas would be one and a half to one for the drainage channel and for the large decorative golf course pond.

12. Public Service Contacts

In order to investigate what impact the Rams' Hill project would have on the affected public agencies, the following were contacted:

Mr. Richard Shope
San Diego County Sheriff's Department
Planning Research Division
P. O. Box 2991
San Diego, CA 92112

Chief Jack Hanson
Borrego Springs Fire Protection District
P. O. Box 898
Borrego Springs, CA 92004

Dr. Norman Guith
Superintendent, Borrego Springs Unified School District
P. O. Box 235
Borrego Springs, CA 92004

Mr. Bob Allen
Solid Waste Division
San Diego County Department of Sanitation and Flood Control
8995 Complex Drive
San Diego, CA 92112

Copies of the service letters and agency responses are included in the Technical Appendices.

IV. ENVIRONMENTAL ANALYSIS

A. LAND USE

1. Existing Setting

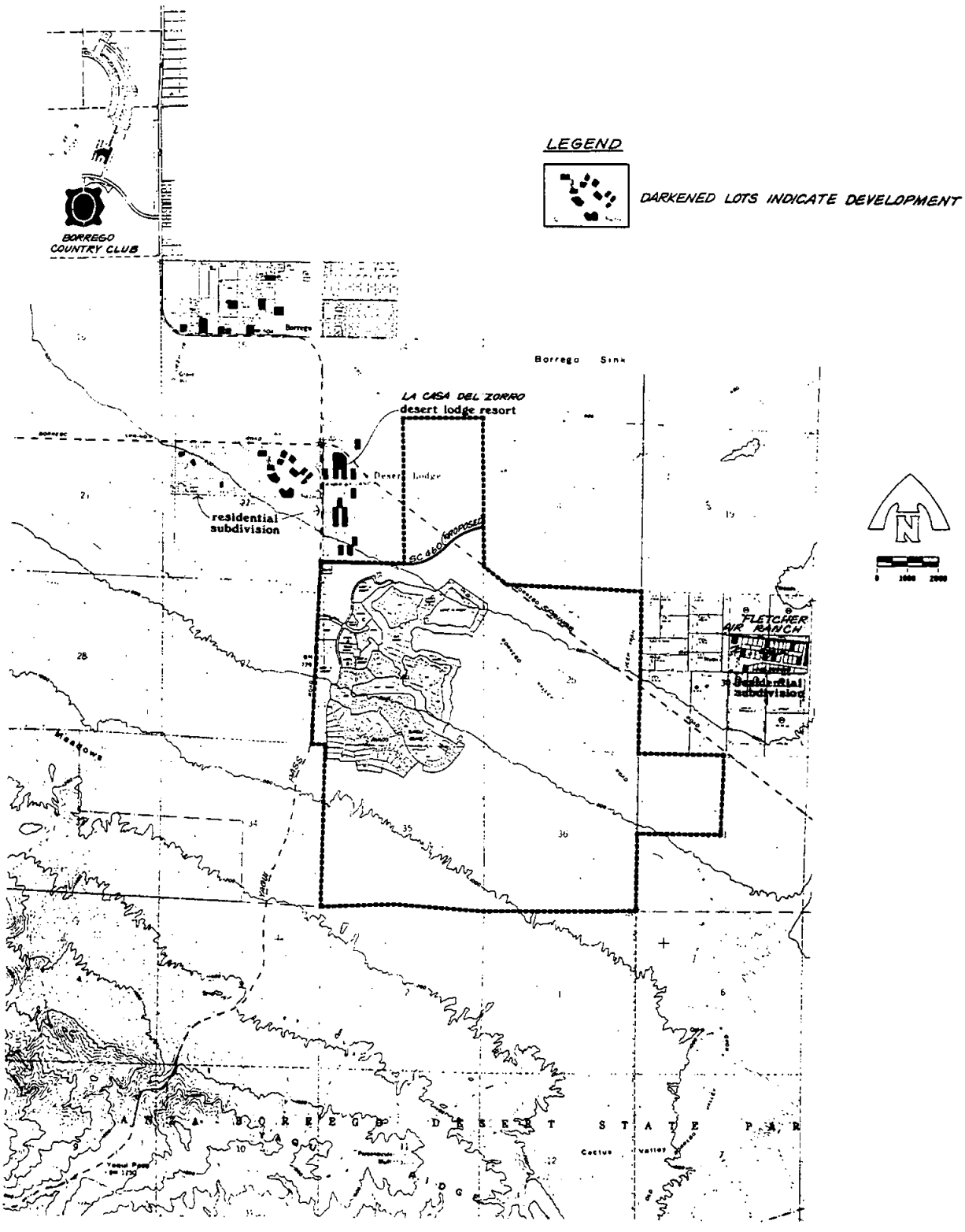
The Rams' Hill Country Club would be located on a 3,124-acre parcel on the south slope of the Borrego Valley. Yaqui Pass Road borders the western side of the property. Borrego Springs Road traverses the northeast section of the site. Both roads are paved two-lane County highways. Figure III-B-1 is a local vicinity map of the property. Two currently undeveloped roads are designated by the County Circulation Element as crossing the property: SC 460 is a designated collector road crossing the center of the property from west to east. The developer proposes to relocate this road north of this designated alignment in conformance with Exhibit C-9 of GPA 77-02. Old Borrego Valley Road, currently a dirt trail which crosses the property diagonally from northwest to southeast, is designated as a collector road which would traverse the eastern panhandle of the site from north to south. Figure III-H-1 is the Circulation Element as it applies to the project.

The Rams' Hill site is presently vacant. Sparse desert vegetation covers the property. A small area shows indication of previous agricultural use and the remains of a single structure. The property is generally flat with nearly 80 percent of the site being under six percent slope. Only a small area in the southwest corner, which is outside the area proposed for development, is over ten percent slope. Figures III-B-2 and III-B-3 are the slope map and spatial analysis map on the project.

The land surrounding Rams' Hill, like the project site itself, is largely vacant. Figure IV-A-1 is a map of surrounding land uses. The Anza Borrego Desert State Park adjoins the property to the south and southwest. Many portions of the area to the west and northwest are divided into parcels for residential development, though they have few improvements. The most substantial use within the vicinity of the project is the Casa del Zorro resort, located immediately north of the project at the junction of Yaqui Pass Road and Borrego Springs Road. This resort includes 18 cottages, 12 suites, four studios, a large lodge and restaurant facility with a swimming pool and two tennis courts. In total, approximately 50 single-family residences, in addition to the resort, are located in the general area west and northwest of Rams' Hill.

Figure IV-A-1

LAND USE MAP



land use map

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RAMS HILL

The area north and east of the project site is sparsely developed with fewer residences than the area to the west. Most of this land to the north and east, including the entire Borrego Sink, is held in larger ownerships. The Fletcher Air Ranch, consisting of approximately 50 one-acre parcels, numerous dwelling units and a small airstrip and auxiliary buildings, is the main development to the north and east of the site.

The form of development in the Borrego Valley is distinctly nodal. A certain portion of the residential development has been a product of random construction. Many homes are scattered at wide intervals on individual lots throughout the valley. These individual homes do not form a particular pattern. The major concentrations of residential development, however, are "projects" which form distinctive nodes. The heart of the community of Borrego Springs is an area extending from Christmas Circle west three blocks to the Mall. This area is the main commercial area in the valley. The most significant residential node is the De Anza Country Club in the northwest corner of the valley, three to four miles from Christmas Circle. This node is distinctive both in its separation from the heart of town and its characteristic as a golf course "oasis". A second major concentration point is the Roadrunner Mobile Home Park, about a half mile east of Christmas Circle on Palm Canyon Drive. This node contains the densest development in the valley. The third node is formed by the Casa del Zorro Resort and the partially developed residential subdivision immediately west of the resort. This node, adjacent to the northern portion of the Rams' Hill property, at the intersection of Yaqui Pass Road and Borrego Springs Road, is about five miles southeast of Christmas Circle. A fourth node, located on the east and west sides of Borrego Springs Road, is formed by a partially developed subdivision and the beginnings of the Borrego Country Club development two miles south of Christmas Circle. The Borrego Country Club property was the subject of a recent General Plan Amendment, GPA 77-02. Through the amendment, the property became designated as a Specific Plan area with an overall density of 0.77 dwelling units per acre. This action provided no net density increase, consistent with the Board's recent policy to limit growth in the valley to existing densities. The partially developed subdivisions in the third and fourth nodes are remnants of the boom in speculative subdivision activity in the late fifties and throughout the sixties. The Rams' Hill project would integrate with this pattern of nodal development.

a. Community Plan and Regional Growth Management Plan

The Borrego Valley is a 70 square mile private enclave in the Anza Borrego Desert State Park. Figure IV-A-2 is a map of the relationship of the site and the valley to the State Park. The valley is an unincorporated community in the County of San Diego. Although the citizens have requested one, no Community Plan has been developed for the valley. None is planned for the immediate future because the County has assigned Borrego a low priority in the community planning process. The Borrego Valley has been designated as a Special Study Area on the County Regional Growth Management Plan which has been adopted in concept by the Board of Supervisors. For the Desert Special Study Area in the vicinity of Borrego Springs, no application for changes in the General Plan which would result in an overall increase in the potential number of dwelling units will be accepted until a cumulative environmental analysis and long range plan are prepared for the area.

2. Potential Impacts

The Rams' Hill Specific Plan conforms to the Specific Plan Area requirements applied to the property in GPA 76-02, and conforms to the Regional Growth Management Plan for the County.

The land use allowed on the Rams' Hill Specific Plan Area was specified in GPA 76-02 as follows:

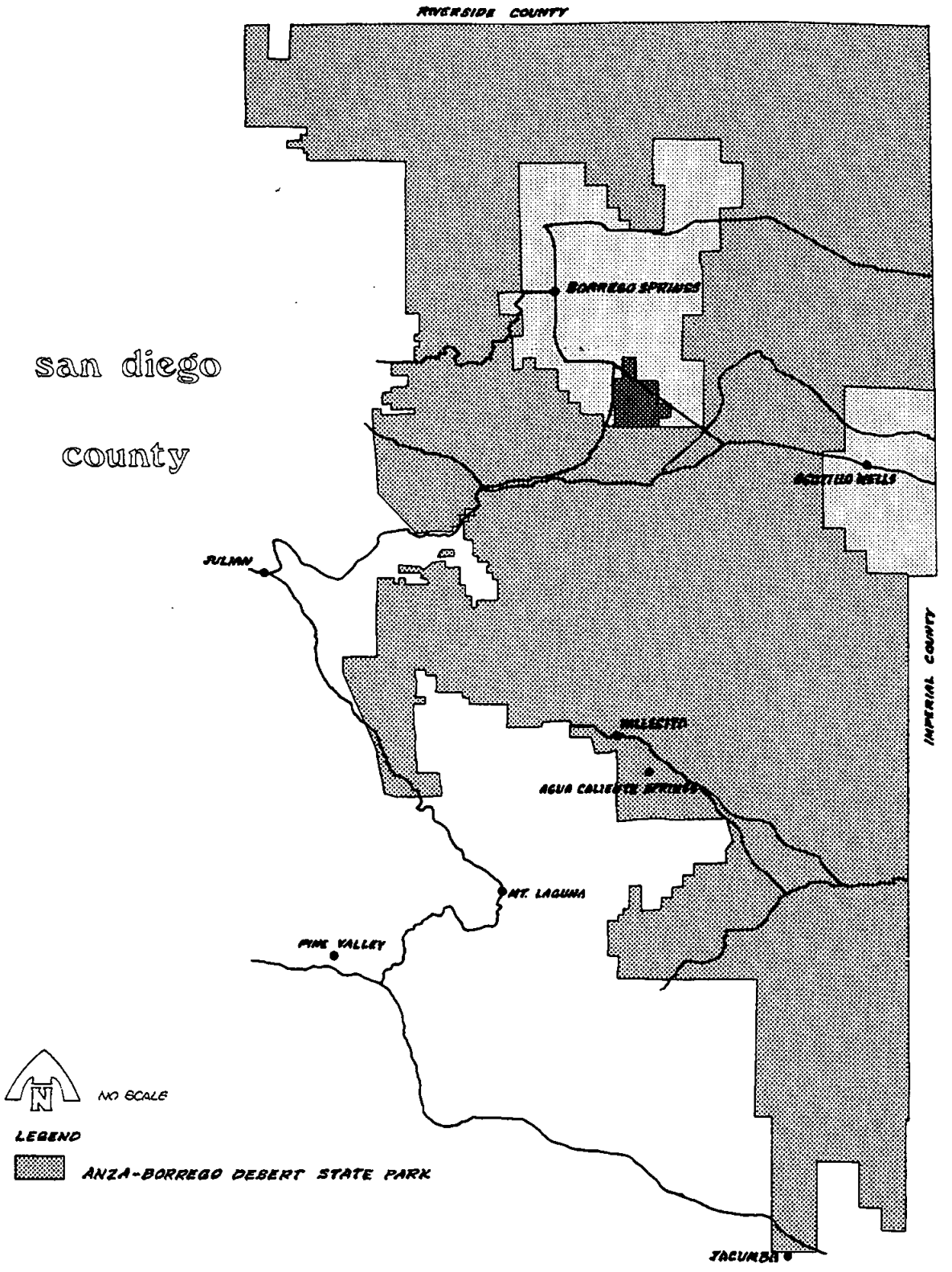
1. The maximum residential density for this area shall be an overall one dwelling unit per two acres with a maximum of 1,562 dwelling units on 3,124 acres.

2. Development shall occur in general conformance with the concept plan dated November 12, 1976, and identified as Exhibit C-9. (Plate 3).

3. The Specific Plan may allow for a range and mix of residential, commercial and medical uses and facilities which are consistent with accepted design principles as determined appropriate by the County and with the provision of necessary public services and facilities; and "other land uses as may be necessary or convenient for recreation and for the provision of commercial and other support services for the future residents of the specific planning area and other properties..."

Figure IV-A-2

ANZA BORREGO DESERT STATE PARK



anza-borrego desert state park

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RAMS HILL

The Department of Land Use and Environmental Regulation determined in May, 1978 that the land use proposed for the property and the location of the proposed development as set forth in the Initial Plan Conformance Report is consistent with the requirements set forth in General Plan Amendment 76-02. As required by the Board of Supervisors Policy I-59, "Large Scale Project Review", the Specific Plan identifies only that potential development proposed for a five-year period.

The Specific Plan would provide for a residential development density of less than one dwelling unit per two acres. All development proposed for the project would be restricted to the appropriate area identified in Exhibit C-9. All of the area required to be retained as permanent natural open space would be retained in that category. Additional uses proposed for the site would be limited to those allowed by the General Plan Amendment. A complete discussion of project land uses is contained in the Project Description.

When implemented, the Rams' Hill Specific Plan would increase the number and variety of second home and retirement housing stock available in the valley. Commercial, resort and a range of recreational opportunities would be provided in addition to the residential units. The desert resort would provide increased services to residents and visitors to Borrego Springs and Anza Borrego Desert State Park. The project would increase the economic base of the community and the ability of the area to attract investment from elsewhere. This is discussed more fully in the sections on Growth Inducement and socio-economic conditions.

A much needed primary care medical facility for the Borrego Valley would be provided thereby enhancing the availability of health care service throughout the San Diego desert area. The Borrego Valley does not have adequate medical services today. This facility would provide emergency, acute and primary care, and an executive physical program.

The project would provide its own sewage disposal and water distribution systems. A site for a new fire station to serve residents of the property and adjacent developments would be provided. A gross density of one dwelling unit per 2.7 acres is proposed in this Specific Plan phase. When implemented, Rams' Hill would convert the property from a large, relatively undisturbed parcel to a residential/resort land use while retaining over half the site in natural open space.

The Board determined on August 1, 1977, that the proposed Rams' Hill project is consistent with the Regional Growth Management Plan since no application for a change to the General Plan which would result in a higher density is proposed.

The Rams' Hill project would conform with uses in the surrounding area. The nearest developments, Casa del Zorrow, Fletcher Air Ranch and Borrego Country Club are all desert resort/second home complexes. However, this is a major project proposing intensive development in an unurbanized area which has a low level of public services. This may be viewed as a significant adverse impact. See the sections on socio-economic conditions and growth inducement for a full discussion of both sides of this issue.

a. Zoning

The property is presently zoned "Limited Control" (S-87). This was a zone applied in 1969 to all properties in the County which had not then been zoned. It was intended to be a temporary application. Final zoning for Borrego Valley is planned to be applied upon completion of a community or a subregional plan. This designation allows one dwelling unit for 2½ acres or any use with a special use permit.

The majority of the Borrego Valley remains in LC (S-87) zoning. The few exceptions are a PRD-9 (R-V-9) zone for the circle at Borrego Country Club, and R-1 (R-S-4) zone for the newer development at De Anza Country Club, an R-2 (R-V-15) zone for the Road Runner Mobile Home Park, and R-3 (RU-29) zone for the areas adjacent to the Mall Shopping Center, and a C (C-36) zone for The Mall.

The land surrounding Rams' Hill is zoned LC (S-87). The resorts at Casa del Zorro and the Fletcher Air Ranch are both uses which were pre-existing before the implementation of the LC zone in 1969.

In order to implement the proposed project, the use designations on portions of the site would need to be reclassified from LC (S-87) to C-42, R-V-6, RR-.5, R-S-3, S-80, and S-88. Full zoning would be established upon submittal of tentative maps. Table IV-A-1 illustrates the precise land uses and designations proposed.

Major use permits would be required for implementation of the hotel-resort, waste water treatment plant and ambulance services. Planned development permits would be required for the planned residential areas and single-family areas. Site development plans would be required for the entire project upon submittal of the tentative maps.

3. Analysis of Significance

This project would impact land use in the Borrego Valley by committing a large portion of the valley to high intensity resort uses. These uses are consistent with the smaller scale projects in the valley. The project has, however, been designed substantially to mitigate potential impact. The project is a planned development rather than a haphazard subdivision. Two-thirds of the residential units would be clustered in the central portions of the property to minimize grading and land conversion. Half the property would be dedicated as permanent undeveloped open space.

The proposed project conforms to the San Diego General Plan and the Regional Growth Management Plan and provides a wide variety of housing, recreational and commercial-resort opportunities. The project is consistent with the existing nodal pattern of development in the valley.

TABLE IV-A-1

PROPOSED ZONING

Use Designation	Land Use	Acres	Location	Allowed Density	# Units Proposed
C-42 with major use permit pursuant to Section 2425	Hotel	50	West Central Portion of site, east of Yaqui Pass Road entrance	40 du/acre	350
C-42	Golf Course	160	Central portion of site	0	0
C-42	Tennis Courts	6	Adjacent to hotel in west central portion of site	0	0
C-42	Fire Station	3	Junction of Yaqui Pass Road and SC 460	0	0
R-V-6 with Planned Development Permit pursuant to Section 2146	Planned Residential Development	102	Clusters located within and along golf course	6 du/acre	530
R-R-.5	Estates	124	Southwest portion of site	1 du/2 acres	50
R-S-3 with Planned Development Permit pursuant to Section 2146 for common recreation areas	Single family homes	127	Central portion of site along eastern and southern perimeters of golf course	3 du/acre	200

TABLE IV-A-1
continued

PROPOSED ZONING

Use Designation	Land Use	Acres	Location	Allowed Density	# Units Proposed
S-80	Dedicated Undeveloped Open Space	1,562	Eastern one-half of property	1 du/8 acres	0
S-80 with Major Use Permit pursuant to Section 2805	Waste Water Treatment Plant	15	North of Borrego Springs Road	1 du/8 acres	0
S-88	Future Development Areas	966	North, south and within areas proposed for development	0	0
S-84 with Major Use Permit for Ambulance Services	Medical Clinic	12	West of major hotel and adjacent to Yaqui Pass Road	0	0

B. SOCIO-ECONOMIC CONDITIONS

The following section is based on census data gathered by the Integrated Planning Office for the years 1975 and 1977, and information provided by the Borrego Springs Chamber of Commerce. The census data describes the characteristics of the permanent residents of Borrego Springs in terms of age, income, employment status and housing type. Because a significant portion of the population in Borrego is seasonal, and the census data does not include these part-time residents, the Chamber of Commerce has provided invaluable assistance in identifying characteristics of the composite population. The demographic and economic growth patterns in the valley are discussed in the section on Growth Inducement.

1. Existing Setting

Borrego Springs is a resort community which does not have a self-contained economic base. The economy, which is marginally viable during the summer, relies upon resort activity, tourism and a small business and service sector. A large portion of the money spent in the valley is earned elsewhere. Agriculture was the major economic activity in the past. Since the late 1950's, it has undergone a dramatic decline and is now only of minor importance.

Resort activity, in conjunction with tourism from the Anza Borrego State Park, is the main basis of the valley economy. The population in Borrego is comprised of approximately one-third full-time residents; one-third part-time residents, who live in Borrego from four to eight months each year; and one third weekenders. Maximum seasonal population in the valley in 1977 was approximately 2,200. Campers and day visitors to the park swell the valley population to three and four times normal levels on the weekend. Approximately 800,000 people visited the headquarters of Anza Borrego Desert State Park in 1977; by 1980 this number is expected to increase to 1,000,000. This resort and tourist activity supports a small, undersized business community. The commercial sector is not adequate to handle maximum demand during the winter. Expansion of the commercial sector is limited by the lack of year-round residents. The population in the summer cannot support even a basic service sector. This lack of population causes most businesses to close entirely during the summer. Those businesses which remain open, even with intermittent hours, tend to lose money.

Agriculture used to play a major role in the valley. In the late 1950's DiGiorgio Corporation farmed almost 2,200 irrigated acres producing grapes and asparagus. Only about 300 of these acres are under production today, including the

150 acre tree farm. An additional 600 acres is farmed currently by other interests. By the mid-1960's, agriculture was becoming increasingly less viable because of labor shortages, costs of transportation and costs of pumping water. Agriculture is expected to continue to decline in the foreseeable future.

The demographic characteristics reported in the census for the valley strongly reflect the resort nature of the community. Over 50 percent of the population is more than 45 years old. In the county as a whole, only 28 percent is over 45. Over 20 percent of the men in Borrego are more than 65 years old. On the opposite extreme, 45 percent of the county-wide population is under 25 years of age; only 31 percent of the population of Borrego is under 25.

These age characteristics are extremely significant in the valley economy and society. The school system is currently functioning at less than half capacity. Labor is scarce. Sixty-one percent of the population is not in the labor force, and an additional three percent are students. As expected with this labor shortage, the unemployment rate in Borrego is less than four percent of the labor force. The unemployment rate in the county is 9.5 percent.

Apart from the small business community, the majority of the labor force in the valley is lower income, being primarily Mexican laborers. These laborers live only a portion of the year in Borrego, while their families remain in Mexico.

An extreme shortage of low and moderate income housing prevents many skilled tradesmen and construction workers who are employed in Borrego from living there. The development of a stable labor force is hampered by the fluctuations in business demand and by the high cost of living in Borrego. A diversity of housing types is not available. The housing stock is aimed primarily at the vacation/resort market. Over one-third of the stock in 1977 was occupied seasonally during the mild winter months. About one quarter of the stock is mobile home units in the Roadrunner Mobile Home Park, an adult resort community. The De Anza Community Club, the most exclusive resort in the valley, has sold 310 lots to date. Homes on the golf course range from $105,000 to $350,000.

In contrast to many communities with a large proportion of elderly persons, Borrego Springs is not a poor community. Mean income in the valley in 1975 was $12,377, almost $1,400 higher than the county-wide average. The income distribution reveals that while 15 percent of the population earns less than $5,000 annually, 25 percent earns more than $20,000 a year.

The number of low income families reflects the economic condition of the agricultural work force.

The demographic characteristics of the permanent population probably reflect the characteristics of the seasonal residents. While no official census data has been gathered, it could be expected that the seasonal residents also are older than the county-wide average; wealthier than the average; and with far fewer children per household. The De Anza Country Club development for example, with 310 lots in the northwest valley, contributes no children to the Borrego Springs school system. The 300 unit Roadrunner Mobile Home Park is also an all-adult development.

A primary problem in the valley is the lack of adequate medical facilities. Primary medical care is currently provided by one physician and a clinic. Dr. Woolcott, who is 66 years old, has been practicing medicine in Borrego Springs for seven years. His office is open four days per week. It has the necessary equipment for x-rays, EKG's and minor lab tests. Recently, he has been joined by one physician's assistant. The Clinica Salubridad offers hypertension diagnoses and treatment, social services, family counseling and laboratory services. An ophthalmologist, an optometrist and a podiatrist visit Borrego about twice each month. Emergency care is available from the fire department (whose capabilities are described in the fire protection section) and, to a limited extent, by rangers from the Anza Borrego Desert State Park. Acute-care hospital facilities are available in Brawley, which is an hour away by car or in Escondido, which is two hours away by car. Since there is a large percentage of older people in addition to lower income people in the valley, the shortage of medical facilities is especially serious. It has been projected that by 1985, the valley will need two full-time primary care physicians in winter.

2. Potential Impacts

Over the long term, the Rams' Hill project could tend to solve some of the socio-economic problems in the Borrego Valley. It may help stabilize the economy by increasing the permanent year-round population. The project would increase the commercial base, thereby expanding services available to residents and park visitors. It would also increase the tax base and this would add support to the public service sector.

The project would include a primary care medical facility affiliated with the Scripps Clinic in La Jolla. In addition to providing primary care, this facility would offer limited

emergency care and executive physical services. The clinic would provide diagnostic capabilities in pulmonary function analysis, EKG's and EKG stress testing. Facilities also would include radiology equipment and a laboratory. The clinic's initial phase is projected to include as many as three primary care physicians. Specialists from Scripps Clinic in La Jolla would visit the valley on a continual, rotating basis. The clinic would be able to expand in the future as valley medical needs increase.

An expanded discussion of the economic impacts of the project is included within the section on Growth Inducement. Residents at Rams' Hill would continue the existing socio-economic trends of the Borrego Valley. The residents would be expected to be older, wealthier and with fewer children than the population of the county as a whole. It is anticipated that the development would be similar to the De Anza Country Club and Casa del Zorro resorts.

Over the short term, the construction phase of the Rams' Hill project could have some significant impacts on the Borrego Valley community. The implementation of the project would require a significantly larger work force than resides in the valley today. Some of these workers could be expected to commute from the metropolitan areas. A portion of the workers, however, will find accommodations in the valley either by renting pre-existing homes or perhaps importing a mobile home. These workers would strain an already tight housing market. The additional units could potentially impact public services such as fire protection. Normally the construction phase has an immediate impact by creating a shortage of public services. The impacts occur before planned services are available and excess service capacity is available when the construction phase has passed. The construction worker might also significantly impact the services in the Anza Borrego State Park due to increased activity including increased ORV usage.

The Rams' Hill project would probably have the beneficial impact of making surrounding property in the valley more valuable. This would especially be true of other nearby resort areas such as the Fletcher Air Ranch, Casa del Zorro and Roadrunner Mobile Home Park. The project might also provide the impetus for a more rapid development of contemporary projects such as Borrego Country Club project.

3. Analysis of Significance

The construction phase might significantly impact the Borrego Springs community by creating a housing shortage and a strain on public services such as fire and sheriff's protection.

These impacts could be expected to be transient, disappearing when the public service sector expands to accommodate increased demand. The housing impacts could be substantially mitigated by development of a mobile home park in the Borrego Valley. This would provide immediate housing.

The Rams' Hill project is not anticipated to have any long term adverse impacts on the Borrego Valley. The project would, however, increase property values throughout the valley enclave and perhaps induce increased growth. No mitigating measures are proposed nor are any deemed necessary.

C. LANDFORMS/GEOLOGY/SOILS

1. Existing Setting

The Rams' Hill property is located on a north-facing alluvial fan. The property slopes gently upward from northeast to southwest with elevations ranging from 475 feet near the Borrego Sink to 1,150 feet in the dissected southwest quarter adjacent to the Anza Borrego Desert State Park. Figure III-B-4 is a USGS map of the site. A spatial analysis reveals that 80 percent of the site is relatively flat with natural slopes of 0-6 percent; the remainder of the site is heavily dissected with steeper slopes ranging from 7-15 percent. (Figure III-B-4) These steeper areas are largely concentrated in the dissected southwest quarter.

A preliminary investigation of geologic conditions was completed by Woodward-Gizienski and Associates in 1973 (5) and updated by Woodward-Clyde Consultants in 1977. (6) A description of the geology of the south slope is included in Dr. Richard Threet's report "Hydrology of the Southern Borrego Valley." (7) Dr. Threet's description is based on a report by the California State Department of Water Resources. (8)

a. Surface Features

The Rams' Hill site is characterized by dissected alluvial fans above the 800 foot elevation and by a smooth alluvial surface below 800 feet. Surface soils, generally consisting of well-graded sands exhibiting little or no cohesion, are relatively uniform throughout the property. The eroded fans above 800 feet typically have a greater percentage of large cobbles. (6) Dense caliche zones resulting from cementation by calcium carbonate are present in erratic patterns at various depths over the entire site. (6)

b. Subsurface Conditions

No site-specific studies of subsurface conditions have been done. The following discussion, based upon Dr. Threet's report, is drawn from regional data. The Rams' Hill property is underlain by predominantly alluvial deposits of medium dense to dense sands with gravel, sandy silts and silty clays lying at depths of 50 to 1,150 feet. The geologic formational units which are most relevant to the Rams' Hill site are: (1) crystalline basement rock of schist and granitic rock; (2) the red clay and minor amounts of fine sand of the non-marine Palm Springs Formation; (3) the "older allumivum" which truncates and lies unconformably on the preceeding formations beneath most of

Borrego Valley; and (4) the "younger alluvium" which was deposited in structural and topographic depressions in and on all the older formations. Figure IV-C-1 is a geologic cross-section.

Beginning in the southwest corner, the geology consists of crystalline basement rocks composed of schists and granitic rocks at shallow depths. These rocks probably extend beneath much of the Borrego Valley. The basement rock is thinly covered by the terrestrial clays and sand of the Palm Springs Formation. Moving toward the northeast, the Palm Springs Formation becomes thicker and is gradually covered by a thick layer of "older alluvium". A "younger alluvium" has been deposited in structural and topographic depressions. Figure 1 is a geologic cross-section trending southwest to northeast showing an interpretation of typical subsurface conditions beneath the property. (7) An expanded description of the subsurface geology is contained in the Water Section of this EIR.

c. Economic Geology

A review of "Mines and Mineral Resources of San Diego County, California, County Report 3", prepared by the California Division of Mines and Geology, (9) indicates there are no commercial size deposits of minerals or aggregates on the property. According to available data, the Quaternary alluvials deposits have not yielded commercial quantities of minerals or aggregate.

d. Soils

The U. S. Department of Agriculture San Diego Soil Survey (10) identifies three soils present on the site: Carrizo Very Gravelly Sand (CeC): Sloping Gullied Land (SrD); and Mecca Sandy Loam, Saline (MoA). Figure IV-C-2 is a map of the soils on the property.

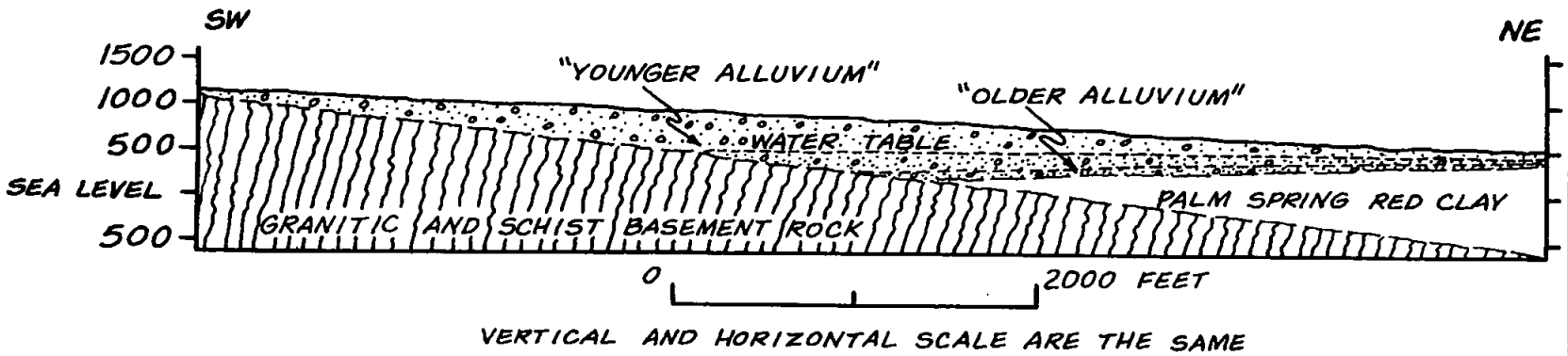
Carrizo Very Gravelly Sand,(CeC), which covers approximately 77 percent of the property on the gently to moderately sloping fans and floodplains, is derived from granitic alluvium. The fertility of CeC is very low, permeability is very rapid, available water holding capacity is 1.5 to three inches. Run-off is very slow to slow; and erosion hazard is moderate. The soil is slightly calcareous, mildy alkaline and marginally suited to growing alfalfa, grapes, citrus, jojoba, ornamental trees and nursery stock.

Sloping Gullied Land (SrD), which covers approximately 20 percent of the site in the south and southwest corners, is characteristic of desert alluvial fans adjacent to mountains. It consists of a wide variety of material derived

Figure IV-C-1

GEOLOGIC CROSS SECTION

RAMS HILL



geologic cross-section

from igneous, sedimentary and metamorphic rocks. The fertility is low; drainageis good to excessive; runoff is rapid; and erosion hazard is severe. This soil has no value for farming because of landform characteristics. The establishment and maintenance of permanent vegetation is desirable for erosion control.

Mecca Sandy Loam, Saline (MoA), covers approximately three percent of the property on the tip of the panhandle adjacent to the Borrego Sink, where slopes are nearly flat. The soil is slightly calcerous and moderately saline. The water table fluctuates, but is generally located at a depth of more than 60 inches. While the fertility is moderate, its suitability for crops is limited by poor drainage and salinity. Tillage pans form easily. Runoff is slow; erosion hazard is slight. Water holding capacity is six to 7.5 inches. The land is most suitable for range.

Characteristics of the soil types are listed below.

Table IV-C-1

Soils

	Carrizo Very Gravelly Sand	Sloping Gullied Land	Mecca Sandy Loam Saline
Symbol	CeC	SrD	MoA
Percent on Property	77	20	3
Natural Drainage	Excessive	Good to somewhat excessive	Slight
Subsurface Permeability	Rapid to very rapid	Moderate	Moderate
Erosion Susceptibility	Moderate	Severe	Slight
Shrink Swell Potential	Slight	Slight	Slight
Sewage Effluent Disposal Limitation	Slight	Severe	Moderate
Runoff Potential	Very slow to slow	Moderate	Slow
Inherent Fertility	Low	None	Medium

Figure IV-C-2

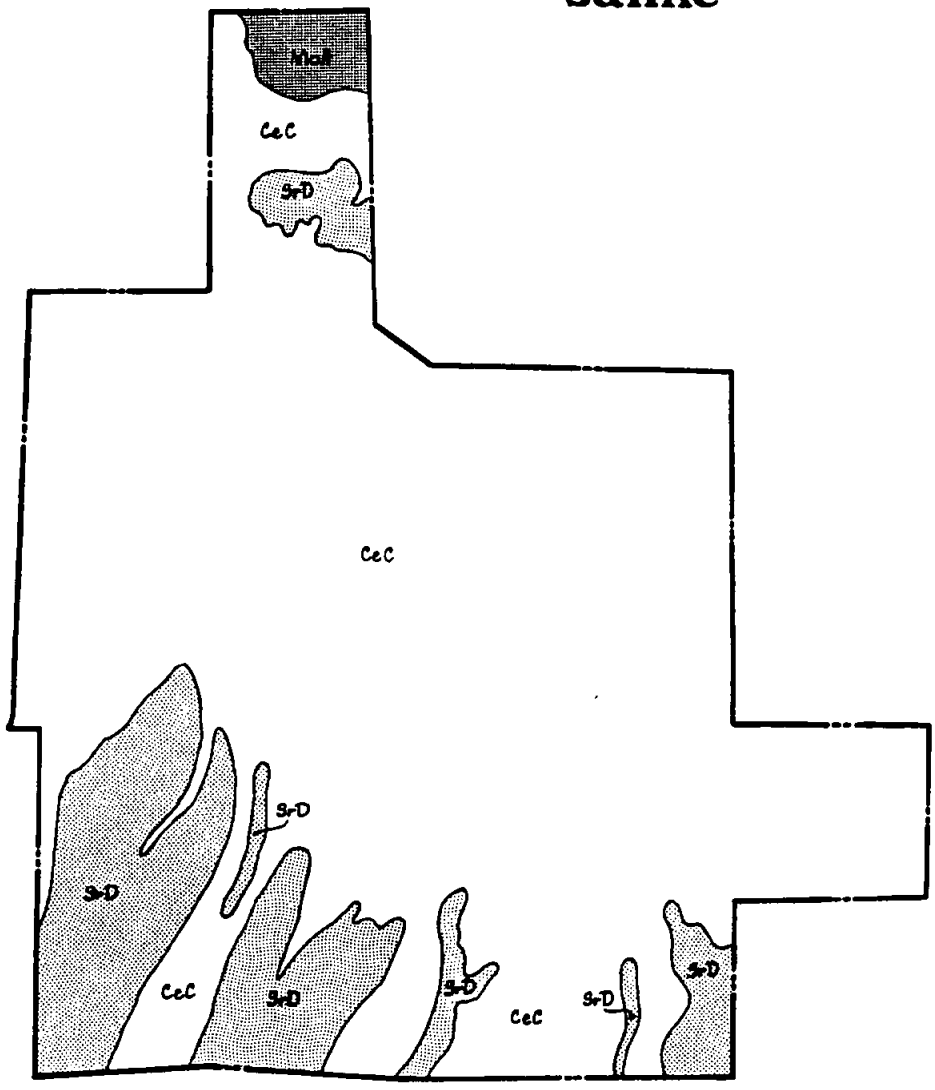
SOILS MAP

legend

SrD - sloping gullied land

CeC - carrizo, very gravelly sand

MoA - mecca sandy loam, saline



N

soils map

SCALE 1:24000

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2. Potential Impacts

Implementation of the Rams' Hill project would result in alterations to the landforms due to grading, recompaction and associated activities.

Grading activities have the potential to create adverse environmental impacts associated with erosion, soil stabilization failures, dust generation and aesthetics. Problems with erosion and soil stabilization are discussed in detail in the Geologic Hazards section. Aesthetics are considered in the Visual Quality section.

Precise grading plans will be completed as final designs and tentative maps are prepared. Based on preliminary grading studies using "typical situations", it is estimated that grading for the streets, single family homes, PRD units, hotel, clinic, golf course, and flood diversion system would require 1,969,000 cubic feet of cut and fill, or approximately 3,300 cubic yards per developed acre. It is anticipated that minimal grading for streets and pads would occur on the estate lots. The majority of this grading will occur during the first phase in conjunction with development of the golf course.

Substantial grading would be done to create the golf course and to excavate the flood-diversion channel around the perimeter of development. Maximum fill bank height would be 30 feet and maximum cut depth would be 30 feet. This maximum cut-fill would occur for two areas: the decorative ponds and flood channels. Average cut and fill for the developed acres would be less than three feet. Maximum slope gradient would be one and a half to one for the drainage channel and for the large decorative pond on the golf course.

3. Analysis of Significance

The proposed project would irreversibly change the form of the south slope alluvial fan by grading. Grading impacts have been mitigated by project design. Over 80 percent of the property is under six percent slope. The intensive land uses, including the PRD units, hotel-resort complex and single family homes, would be located in the flat, central portions of the property. The steeper areas have been designated as estate lots. Grading in the estate area would only be done for roads and pads. Individual homes would be custom built leaving major natural areas.

All grading would conform to the County grading standards. These standards govern construction practices and require that the site be intensively watered to keep dust generation to a minimum.

No impacts to economic geology or the subsurface of the land are anticipated. No mitigating measures are deemed necessary, therefore, none are proposed.

D. AGRICULTURE

1. Existing Setting

Agriculture has in the past played an important role in the economy of the Borrego Valley. The crops which have been historically significant include grapes, alfalfa, asparagus, citrus and ornamental trees. Most of the agricultural activity has taken place in the northern portions of the valley where the soils and micro-climatic conditions are most favorable. Like many desert basins, the Borrego Valley has an abundance of ground water which has been easily tapped for agricultural enterprise. Although the soils of the valley are considered marginal for most crops because of their low fertility, they lack nothing in mineral content which would limit their capabilities. (12) In the late 1950's DiGiorgio Corporation produced grapes and asparagus on 2,200 acres in the northern portion of the valley. Today total farmed acreage has fallen below 900 acres. DiGiorgio farms about 300 irrigated acres; another 600 acres are farmed by others. The primary factors limiting the viability of agricultural enterprises are the uncertain labor supply, expense of transporting goods to market, and the cost of pumping water. All of these factors make farming uneconomical.

Approximately 77 percent of the Rams' Hill site is overlain by the Carrizo Very Gravelly Sand (CeC) soil type. Although this soil is very low in fertility, combined with an adequate water supply, it could produce such crops as alfafa, grapes, citrus,ornamental trees, nursery stock and jojoba. Freezing should not pose a threat to crops grown on the site because of its elevated location on the alluvial fan. From the perspective of the suitability of soils, 77 percent of the site is viable for agriculture. Sloping Gullied Land (SrD) is the soil type covering approximately 20 percent of the site. This soil is suitable for range, but not for crops because of the intensive management required to prevent the accumulation of salts and the formation of tillage pans. (10)

2. Potential Impacts

Currently, agriculture is not an economically viable activity in Borrego. There is nothing which intrinsically limits over 80 percent of the site for agriculture, however, should cultivation become feasible at some later point in time.

Agriculture, therefore, is a potential alternative land use for the Rams' Hill property, although one which is not practical

today. This alternative use would require a significantly greater volume of water than the proposed resort use. In the late 1950's and early 1960's some localized areas in the valley subsided as much as 12 feet because the heavy agricultural water use caused the water table to dramatically drop.

3. Analysis of Significance

The Rams' Hill development would irreversibly commit 596 acres of undeveloped land to residential-resort uses, precluding future conversion to agriculture. The 1,562 acres to be dedicated to the County as permanent undeveloped open space would still be available at a later stage for agricultural use though new approvals for any such use would have to be obtained. Portions of the remaining "unplanned" 966 acres which are planned in concept but are not included in this Specific Plan also could possibly be used for future agricultural activities.

The Borrego Valley has a surplus of land which potentially could be converted to agriculture uses, but which is not being cultivated at the present time. Even the better agricultural lands located on the northern side of the valley are not being utilized currently. Much land, in fact, is being withdrawn from agriculture. Therefore, the construction of the proposed residential-resort complex on the south slope would not significantly impact the agricultural economy of the Borrego Valley. No mitigating measures are deemed necessary.

E. GEOLOGIC HAZARDS

1. Existing Setting

The Rams' Hill site is subject to potential impacts from geologic hazards including seismicity, erosion, slope failure and shrinkage.

The Borrego Valley is seismically active. The area is bounded on the north and south by two major fault zones, the San Jacinto and Elsinore, located approximately 11 and 15 miles to the northeast and southwest respectively. In addition, numerous smaller faults lie within ten miles of the project site: Earthquake Valley fault is 9½ miles away; Coyote Creek fault is five miles away; two smaller,unnamed faults are between 2½ and three miles away. The San Andreas fault zone is located approximately 30 miles to the east along the Imperial Valley. No located or inferred fault traces are present on site. Figure IV-E-1 is a fault map of the Borrego Valley.

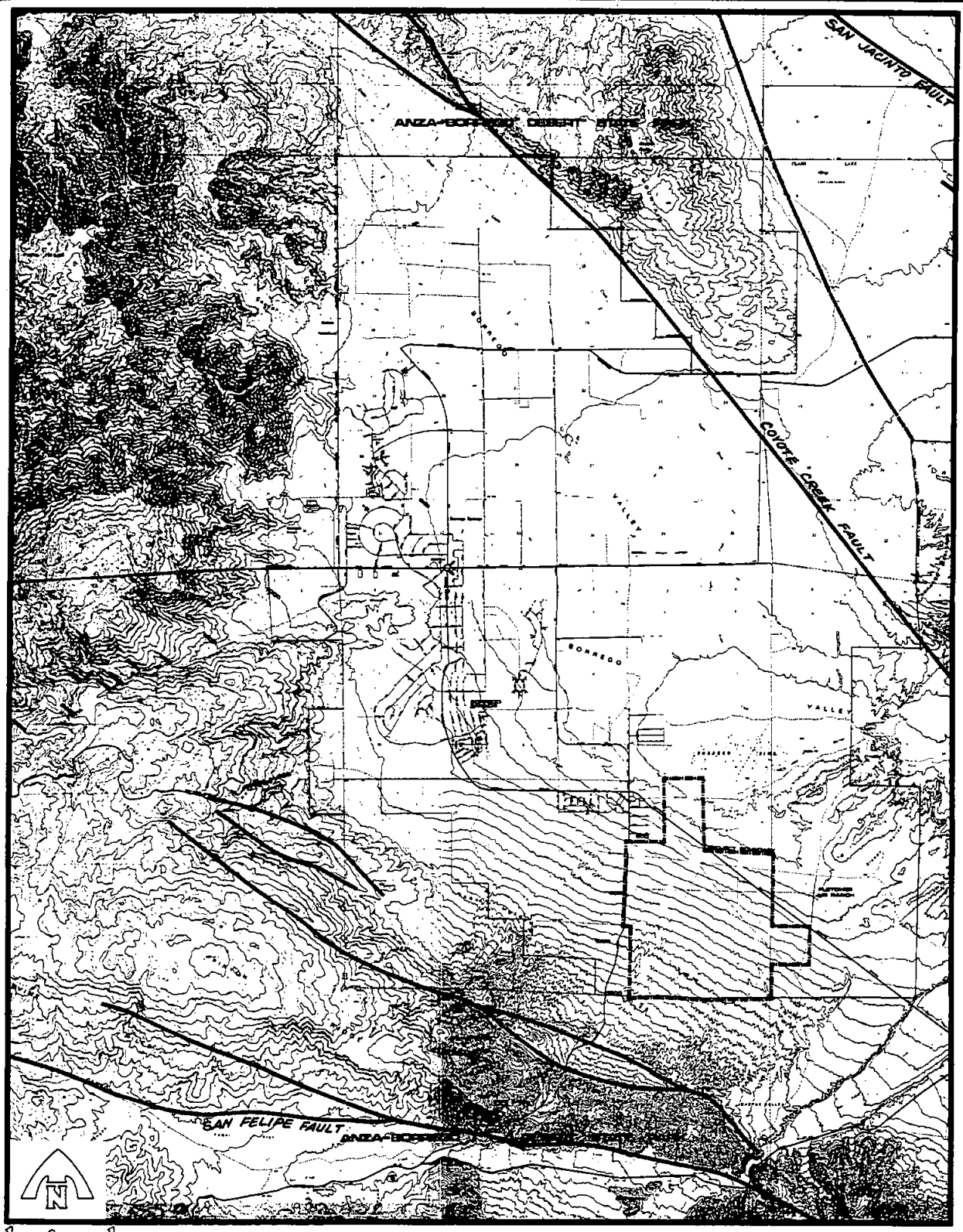
All of the indentified faults pose a potential threat to residents in the Borrego Valley, as well as to residents of the Rams' Hill development. This seismic hazard is probably as severe as in any place in San Diego County. This hazard can be considered less severe, however, than that in some other parts of the state such as San Francisco. Studies indicate that an earthquake having a Richter magnitude of 7.3 could occur once every 60 years along the San Jacinto fault. This fault, the most active large fault in the county, has a maximum probable earthquake magnitude of 7.5 to 7.8. (11) A quake of this magnitude could cause severe damage in Borrego Springs. In 1968, the Coyote Creek fault, a branch of the San Jacinto which trends northwest to southeast along Coyote Canyon and the steep northeast face of Borrego Mountain, gave rise to an earthquake of magnitude 6.8 near Ocotillo Wells. This earthquake seriously damaged one structure in the community of Borrego Springs, and caused extensive minor damage to windows, glasses, and other breakables.

The Elsinore Fault zone is the largest active zone in the county. Studies indicate that an earthquake having a Richter magnitude of 7.3 could occur once every 60 years along the Elsinore Fault. The maximum probable earthquake along the fault system is 7.6, which could cause serious damage in the Borrego Valley. (11)

Erosion is influenced by material type, grain size, gradient of topography, depth of flow and fluid velocity. The Woodward-Clyde Study indicates that clean sands such as those present onsite are susceptible to erosion, and the County Soil

Figure IV-E-1

FAULT MAP



legend

— inferred fault

— located fault

0 6000'

fault map

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Survey indicates that the erosion hazard over 80 percent of the site is moderate. Transport of smaller grains downslope, therefore, will occur even at relatively low velocities. This process results in hydraulic sorting which tends to reach an equilibrium flow condition after some sediment transport has occurred. Erosion of the on-site sands will occur at velocities in the order of 1.75 feet per second. This velocity corresponds to an overland sheet flow having a flow depth of approximately 0.1 feet on a slope of about 2/3 percent. This value assumes no vegetation on site and is relatively conservative. For further information, refer to the Flooding/Hydrology section.

Slope stability is not a major concern at Rams' Hill. The natural gradient over 80 percent of the site is very gentle, approximately five percent. Figure III-B-2 is a slope analysis of the site. While deep seated slope failure is not a serious problem, the soils on site are very sandy, making the hazard from surface sloughing moderate to severe. (See description of soils in the Geology/Landforms/Soils section.) Preliminary slope stability analyses have been made to evaluate the effects of different slope inclinations. Based on the results of the Woodward-Clyde investigation, slope gradients can be as steep as 2:1 before deep-seated slope failure becomes a serious hazard.

Shrinkage of the soils on site could occur. The soils in most desert areas tend to shrink after excavation and recomposition.

2. Potential Impacts

Woodward-Gizienski and Associates performed a preliminary engineering geological and soil investigation on the Rams' Hill site in 1973. This study was updated in 1977 by Woodward-Clyde Associates. As part of the 1973 report, Woodward-Gizienski analyzed the potential impacts on site resulting from an earthquake of magnitude 7.3 on the Richter scale with an epicenter five miles from the property. The report concluded that ground motion characteristics are likely to vary substantially due to the extreme variation in depth of the soil deposits at the site. The maximum bedrock acceleration which would result on site from the model earthquake is 0.4 g.

In general, the effect of intense shaking on soil deposits is to produce a wide variety of phenomena which include slope failures, fissures, soil compaction or settlement and liquefaction. The Rams' Hill site is susceptible to varying degrees of impact from each of these phenomena, except liquefaction.

The soils on site generally consist of medium dense, well-graded medium to fine sands with about ten percent fine grained material (silt and clay). There is chemical cementation in addition to the small amount of fines which gives the insitu deposits a cemented character. In many areas, the cemented character can be lost when the soil is wetted. This will occur with extensive landscaping. The gentler slopes on the property probably are not susceptible to large sliding or flow type movements. In the steeper areas, some cracking and minor slumping may well occur. The steeper areas have been designated for large lot, custom-home development, thereby minimizing potential damage. Liquefaction is not likely at the site due to the dryness and apparent high relative density of the soils. Compaction and settlement during a severe earthquake may occur, especially in areas of wetting by irrigation (7). These areas correspond to the areas which would be most extensively developed.

There is a strong possibility that earthquake damage from soil compaction and settlement on the Rams' Hill site could occur. Although the potential for settling on site is no greater than elsewhere in the valley, the potential damage might be considered incrementally greater because the relative density of housing is somewhat higher. An earthquake of magnitude 7.3 on the Richter scale could cause extensive structural damage and possible loss of life if adequate mitigation is not implemented in the form of structural designs. The potential damage from shaking to structures could likewise be high,resulting in extensive structural damage and damage to personal property within residences. Both impacts can be fully mitigated by constructing buildings safely to withstand the calculated earthquake impacts.

The potential for erosion damage on 80 percent of the site is slight. (10) Like all desert sites, erosion resulting from rainfall could cause damage to slopes, creation and expansion of gullies, deposits of alluvium in undesirable locations and, possibly, damage to roadbeds and foundations. Flooding potential is significantly less on this site, however, than in other areas of the valley due to the small drainage area and absence of a canyon water shed influence.

The potential for damage from slope failure is not as severe as elsewhere, as long as graded slopes have a gradient which is gentler than 2:1. Surface erosion and sloughing will occur even with extensive mitigation and continuous maintenance will be necessary. (6)

Shrinkage of soils from excavation and grading would probably occur on Ram's Hill as it would throughout much of the desert

province. The magnitude of shrinkage is dependent on the type and density of material on site. Based on analysis performed by Woodward-Clyde, it appears the shrinkage values for the existing near surface soils may range from less than five percent to over 20 percent.

3. Analysis of Significance

The potential damage to structures at Rams' Hill from the identified geologic hazards - seismicity, erosion, slope failure and shrinkage - can be largely mitigated through proper structural design, landscaping and conformance with County codes and standards.

The potential for damage and loss of life from a severe earthquake is substantially mitigated by constructing buildings in conformance with the San Diego County Building Code. The Uniform Building Code, which is implemented through the San Diego County Code, adequately regulates for seismic factors. Its regulations can be supplemented by additional requirements such as on-site geological studies in areas of exceptional seismic and geologic hazard. These studies will be performed prior to construction of units for Phase I. Constructing buildings to withstand the maximum bedrock acceleration of 0.4 g in conformance with the 1973 report prepared for the developer by Woodward-Gizienski would substantially mitigate potential damage and the risk of loss of life.

The erosion hazard on site is slight. This hazard could be mitigated by planting grasses throughout much of the landscaped area and on graded slopes. The golf course rough and all other areas proposed to be left in a natural state may not be artificially revegetated. The use of a grass cover would result in turbulance and a greater loss of energy which would tend to stabilize the soil surface and help retard erosion. Grass covered areas can generally withstand velocities of approximately five feet per second without significant erosion, providing proper maintenance of vegetation is provided.

The naturally occurring erosion hazard on the undeveloped open space would not be mitigated. The area would still be subject to erosion after implementation of the project, as it is today. The areas which are designated "Not a Part" would also be left undisturbed and therefore be subject to natural erosion. The portion of the estate lots which would be left in a natural state and the portion of the single family lots which would be minimally landscaped would likewise be subject to an erosion hazard. The sewage treatment plant and percolation basins would be protected from depostion of eroded materials through the

construction of flood protection structures. (Refer to the Flooding/Hydrology section).

Short term potential impacts from erosion would be much greater during the construction phase and would remain significant until the vegetative cover is re-established.

The potential for slope failure would be mitigated by design and landscaping. Because of the moderate slopes, landsliding due to earthquakes is not expected. Suitable landscaping and provisions for adequate drainage would be implemented in the construction and final engineering stages. No water would be allowed to pond above slopes or to flow over the tops of slopes.

Construction would conform with the County Grading Ordinance, which adequately considers problems of slope stability.

To mitigate potential impacts due to shrinkage, a balance area would be provided in which final grades can be raised or lowered depending on actual shrinkage factors.

The Rams' Hill site is subject to moderate to severe hazard from intrinsic geologic hazards. The hazard from earthquakes is particularly serious, but mitigatable, as it is throughout the Borrego Valley and most of California. Proper construction in conformance with the County Building Code and design based upon a maximum bedrock acceleration of 0.4 g would minimize this hazard to the greatest extent feasible. It would still be possible that some damage could occur during a severe earthquake episode. Erosion in the desert is a problem. This hazard would be minimized by design and landscaping. Erosion hazard would not be mitigated during the construction phase. Because of the flooding hazard and the unpredictability of storms, erosion would remain a problem in the areas which are not carefully landscaped. With the implementation of the mitigating measures, slope failure and shrinkage would not be a significant hazard on the site.

F. FLOODING/HYDROLOGY

1. Existing Setting

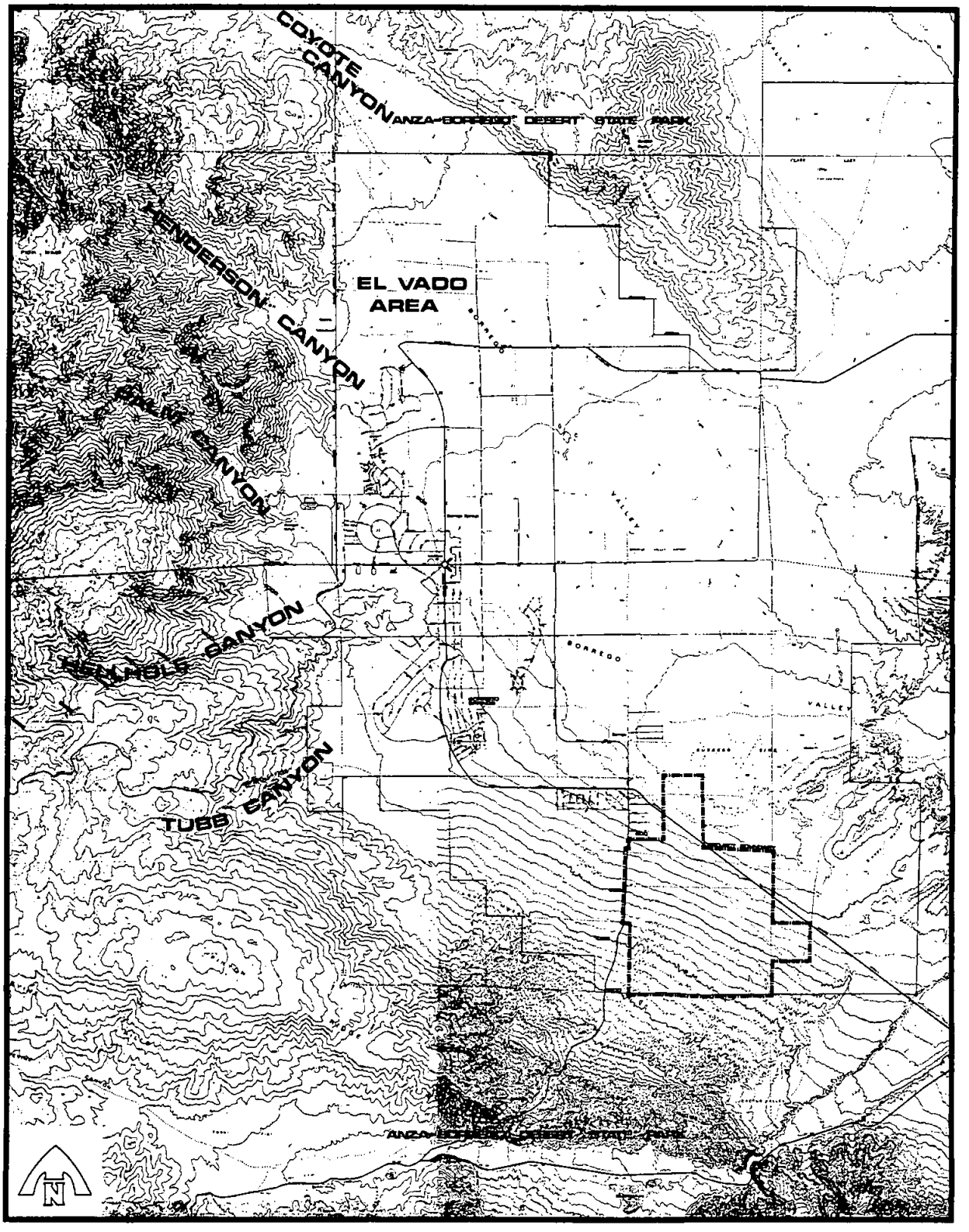
The Borrego Valley, like the rest of the desert southwest, is subject to severe flash floods from the brief, but intense, convective thundershowers that occur during the summer. These storms are primarily due to tropical weather moving north from the Gulf of California. Evidence of extensive past flooding in Borrego is apparent in topographical features, such as the alluvial fans which skirt the base of the encircling mountain ranges The canyons leading out of the mountains are sparsely vegetated and very steep, with overburden composed of low-porosity igneous and metamorphic rock. During severe storms, large quantities of run-off, originating in the canyons and moving at high speeds, can flood areas of the valley. The run-off also spreads in a sheet flow across the fan surfaces, creating an unpredictable pattern of water courses. The result is a high potential, at all times, for flash flooding in all portions of the valley.

Sizable floods have occurred in recent years near Coyote Canyon, Henderson Canyon, Tubbs Canyon, in the El Vado area, near Borrego Springs Road and along Yaqui Pass Road. Figure IV-F-1 is a map of the valley with the canyons identified. Recent floods resulted from relatively minor storms which are much smaller than the design 100-year floods. (13) Most flooding takes place during summer months. Coastal storms which affect the valley in winter usually do not cause flooding because the intensity and volume of rainfall are much lower than that of tropical storms that come in the summer. A major exception is the extensive flooding along Coyote Creek in winter, 1977, resulting from a particularly violent Pacific storm system. This storm front dropped an abnormally large amount of precipitation in a short period of time.

The San Diego County Department of Sanitation and Flood Control has made an in-depth study of the flooding hazard in the Borrego Valley. (13) In 1972, the Department issued a report which quantified the flood potential, and recommended that a series of flood control levees be built to minimize potential impacts. This study did not include the Rams' Hill area because of its unique characteristics. Unlike the rest of the valley, the Rams' Hill area is not at the mouth of a canyon and is, therefore, only subject to sheet flow. Because of this relatively lesser flooding potential, no major improvements were proposed to protect the Rams' Hill property.

Figure IV-F-1

CANYONS



canyons

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Although no actual streambeds are located on the Rams' Hill site, there are numerous arroyos or "channels" above the 800 foot elevation which could pose problems to proposed development. The "rational method" was used to assess the flood hazard on this site. This method is set forth in the Design and Procedure Manual for Flood Control and Drainage, prepared for the San Diego County Department of Special Districts-Flood Control in December, 1960. (14) The "rational method", rather than the hydrograph method, was chosen in consultation with Larry Hurt of County Department of Sanitation and Flood Control, because of its special features which make it very effective in analyzing small drainage areas. (15) The drainage area above the Rams' Hill site is small, approximately 6.5 square miles. The "rational method" provides a conservative worst case estimate of flooding hazard on the Rams' Hill site.

The "rational method" calculates the quantity of discarge flow using the formula Q=CIA, where: Q equals the design discharge flow on cubic feet per second; C is the co-efficient of runoff (a term which denotes the percentage of rainfall which is not absorbed by the soil); I is the average intensity of rainfall in inches per hour (which is a function of the 100-year storm intensity and the time of concentration); and A is the contributing drainage area. Using the tables and guidelines in the County Manual, the coefficient of runoff is determined to be 0.55, the worst case for terrain of this nature. The intensity of the 100-year storm is determined to be 2.08 inches per hour. Time of concentration is set at 39 minutes. Applying the formula, Figure IV-F-2 is a map of the hydrology of the area with the seven identified drainage channels on site, their contributing areas and 100-year design flows. Table IV-F-1 summarizes the results of calculations.

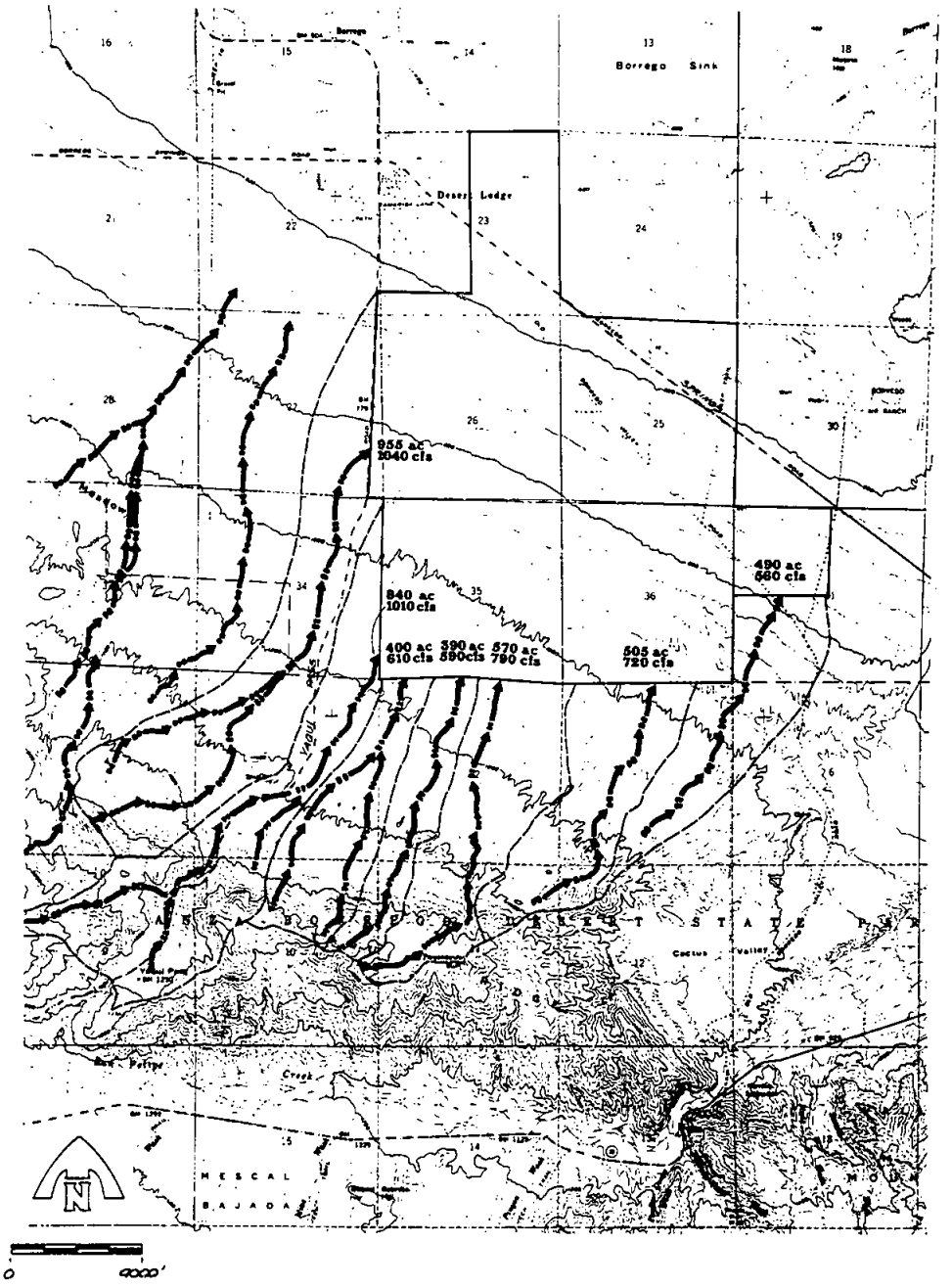
TABLE IV-F-1

POTENTIAL FLOOD HAZARD FROM 100-YEAR STORM

CHANNEL	ACRES IN WATERSHED	PROJECTED VOLUME CFS	CUBIC FEET PER ACRE PER SECOND
1	490	560	1.14
2	505	720	1.43
3	570	790	1.39
4	390	590	1.51
5	400	610	1.53
6	840	1010	1.2
7	955	1040	1.09

Figure IV-F-2

HYDROLOGY



hydrology

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The results of this analysis, using the "rational method", are extremely conservative, (i.e.,worst case). The San Diego County Department of Sanitation and Flood Control analyzed flood hazard in the Borrego Valley in 1972, using the hydrograph method.(13) The most severe flood for any major channel analyzed in the County study produced runoff of 1.27 cubic feet per acre per second. The design flood for the Rams' Hill project is 1.5 cubic feet per acre per second (channels 4 and 5). This should not imply that Rams' Hill has a more severe flood potential than other areas of the valley. In fact, the site has a lower potential. The Yaqui Ridge does not have as great a potential for runoff as the higher, steeper mountain ranges which ring the western and northern sides of the valley. In addition, the total size of the watershed which can contribute to flooding on the site is relatively small, approximately 6.5 square miles. De Anza Country Club, for example, is subject to flooding from Coyote Canyon with a watershed of 137 square miles. Rather, these figures imply that flood control measures designed for these calculated storm flows would protect Rams' Hill with a wide margin of safety.

2. Potential Impacts

Because of its unique characteristics, the flood hazard on Rams' Hill is not as great as elsewhere in the valley. A flood of the magnitude projected in Table 1, however, could cause extensive damage to proposed structures on Rams' Hill and potential loss of life should no flood control structures be constructed. Innundation from projected flow potentially could destroy the golf course and wash out roads. Flooding of the major traffic arterials to the west and north of the property could be expected to occur during times of relatively heavy precipitation. In August, 1977, tropical storm Doreen dropped 3.61 inches in Borrego,and Yaqui Pass Road and Borrego Springs Road turned into virtual rivers. Extensive flood damage to homes in the area of Borrego Country Club to the northwest also resulted. Without protective measures, flooding of the proposed waste water treatment plant potentially could halt sewage treatment over a short period and cause a health hazard. Flooding of the percolation basin could spread effluent over a wide area and inhibit percolation capability. These flooding ing hazards on the Rams' Hill site are substantially less than hazards throughout the rest of the valley. They can and would be mitigated substantially and to the satisfaction of the Regional Water Quality Control Board by the construction of diversion channels and levees.

3. Analysis of Significance

In order to protect development at Rams' Hill to the greatest extent feasible, an extensive system of flood control structures would be built encircling the project on the south to divert

flow around and away from proposed structures. Figure IV-F-2 is a map which illustrates the direction and volume of sheet flow calculated using the "rational method", which would result from a 100-year storm. Figure IV-F-3 is a map of the proposed floodworks.

As illustrated in Figure IV-F-2, flood waters which could impact Rams' Hill would originate along the Yaqui Ridge and would flow from a southwesterly direction to a northeasterly direction perpendicular to the topography.

To protect structures from potential impacts, two stabilized earth channels, designed to carry the calculated 100-year storm levels, would be constructed. These channels would direct flow to the west and east around the perimeter of the project, completely separating watercourses from development areas. This would minimize potential damage to the structures and golf course to the greatest extent feasible. Complete separation is the preferred method for the Borrego Valley, recommended by the County Department of Sanitation and Flood Control. (13)

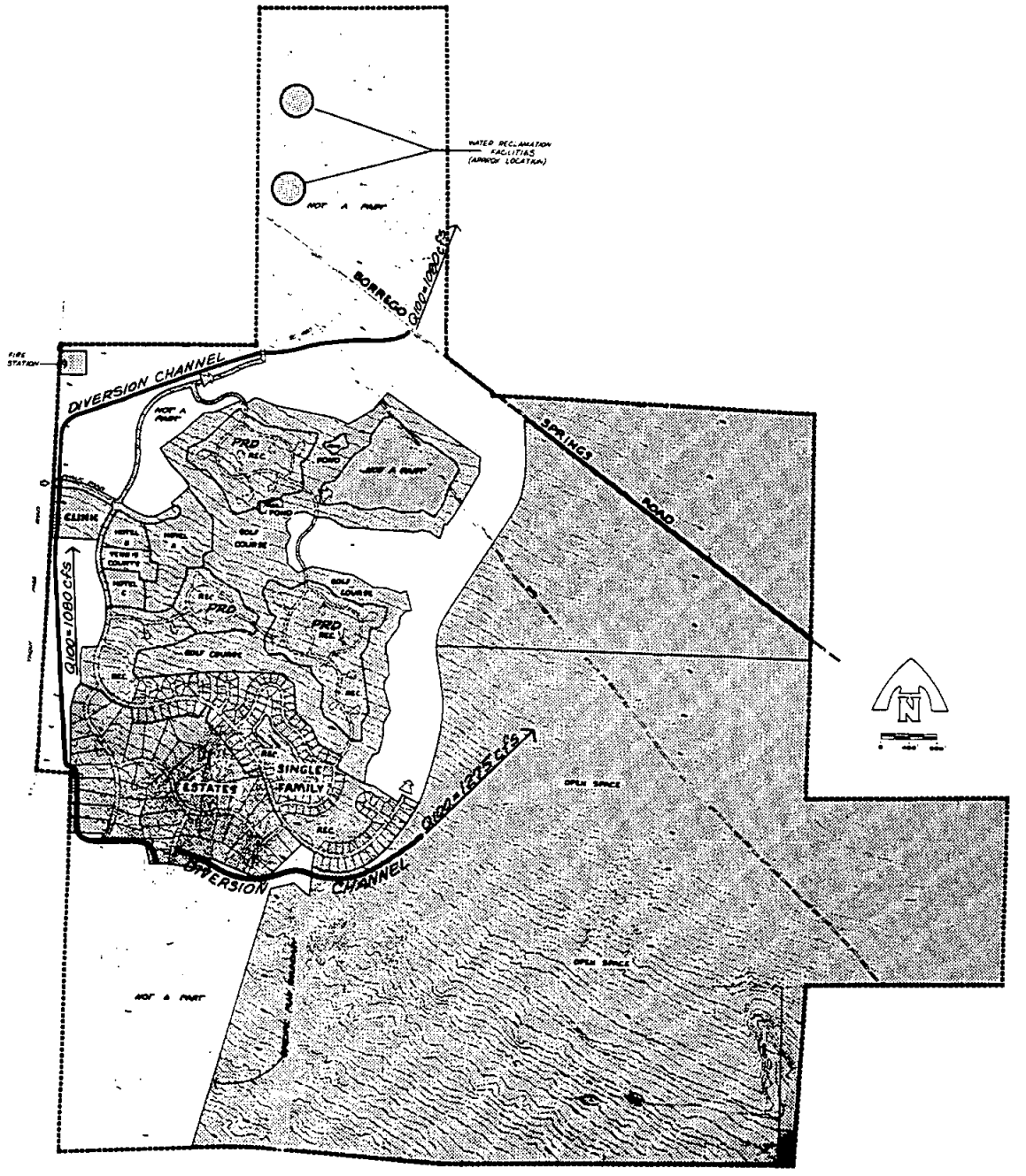
The two channels would be constructed, one slightly south of the other. The southern channel, which would divert flow to the east into open space, would be designed to carry 1,275 cubic feet per second. The northern channel, which would divert flow to the west along Yaqui Pass Road, would be designed to carry 1,080 cubic feet per second. As discussed, the channels are designed with a wide margin of safety. Figure IV-F-3 is a map of these proposed channels.

Final engineering has not been completed on the structure design. Preliminary calculations indicate that the diversion channels would need to be 15 feet wide and five feet deep to have sufficient capacity to carry the predicted flow. The channel which would ultimately be designed would probably be much broader, with a gentler bank, so that the structure would blend aesthetically with the surrounding desert landscape. The channel would be lined with native vegetation. The curves of the diversion swales would be reinforced with rip-rap. The channel would be constructed to the standards of the Borrego Flood Protection District or appropriate County agency. It is proposed that the structures be annexed and maintained by this District.

To provide further protection, a two-foot high levee/wall of masonry block would be constructed extending along the northern side of the east-west portion of the diversion channel. Desert studies have shown that such a wall, if unbreached, in conjunction with a diversion channel, will provide maximum flood protection. The location of the diversion channel was

Figure IV-F-3

FLOOD PROTECTION MAP



flood protection map

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based on two parameters: the need to protect the main development, while at the same time preserving the archaeological site immediately south of the estates. As a result, two of the estate lots would not be fully protected against the flooding hazard. Construction of homes of the two impacted lots would, however, pose no greater relative risk than that which exists for the majority of homes in the Borrego Valley, especially for those which are at the mouths of canyons. Specific measures will be necessary to reduce impacts to these lots.

The two proposed channels would divert flow around the property, discharging into undeveloped areas. The northern channel would divert flow into the eastern half of the site. The southern channel which extends along Yaqui Pass Road would discharge into the eastern side of the panhandle north of Borrego Springs Road. The discharge velocity of either channel will be reduced at the point of discharge by rip-rap and a flared transition section. When the velocity is reduced, as above, impacts to the discharge areas would be minimized.

In addition to flood protection for most of the development, flood protection would be provided for the sewage treatment plant and percolation basins. The design and extent of the necessary measures would be regulated by the Regional Water Quality Control Board. Because the entire Rams' Hill property is subject to innundation by sheet flow, it is not possible to locate the treatment plant out of the 100-year floodplain. The Regional Water Quality Control Board will probably recommend that a diversion channel with a wall, similar to that designed to protect the development, should be designed to protect the plant and the basins.

With the implementation of the flood control structures described above, flooding hazard to the site would be minimized to the greatest extent feasible. The two estate lots described above, however, would remain subject to a significant unmitigated flooding hazard. Because flash storms in the desert are completely unpredictable in terms of location and volume, it is still possible that the Rams' Hill development could sustain major flood damage.

G. BIOLOGY

1. Existing Setting

The Ram's Hill property is located on the south slope of the Borrego Valley adjacent to the Anza Borrego Desert State Park. In its present undeveloped condition, the site can be considered an extension of the park ecosystem. The only disturbances on the site are a dirt road and an abandoned farmhouse. Yaqui Pass Road and Borrego Springs Road, both two lane, paved county highways, bound the property on the west and east, with Borrego Springs Road dissecting a portion of the property.

A biological survey of the Rams' Hill property was conducted in late spring, 1977, by R. Mitchel Beauchamp, botanist, and Stephen J. Montgomery, zoologist. The following is an abstract of their report, which is included in full as a technical appendix to the EIR.

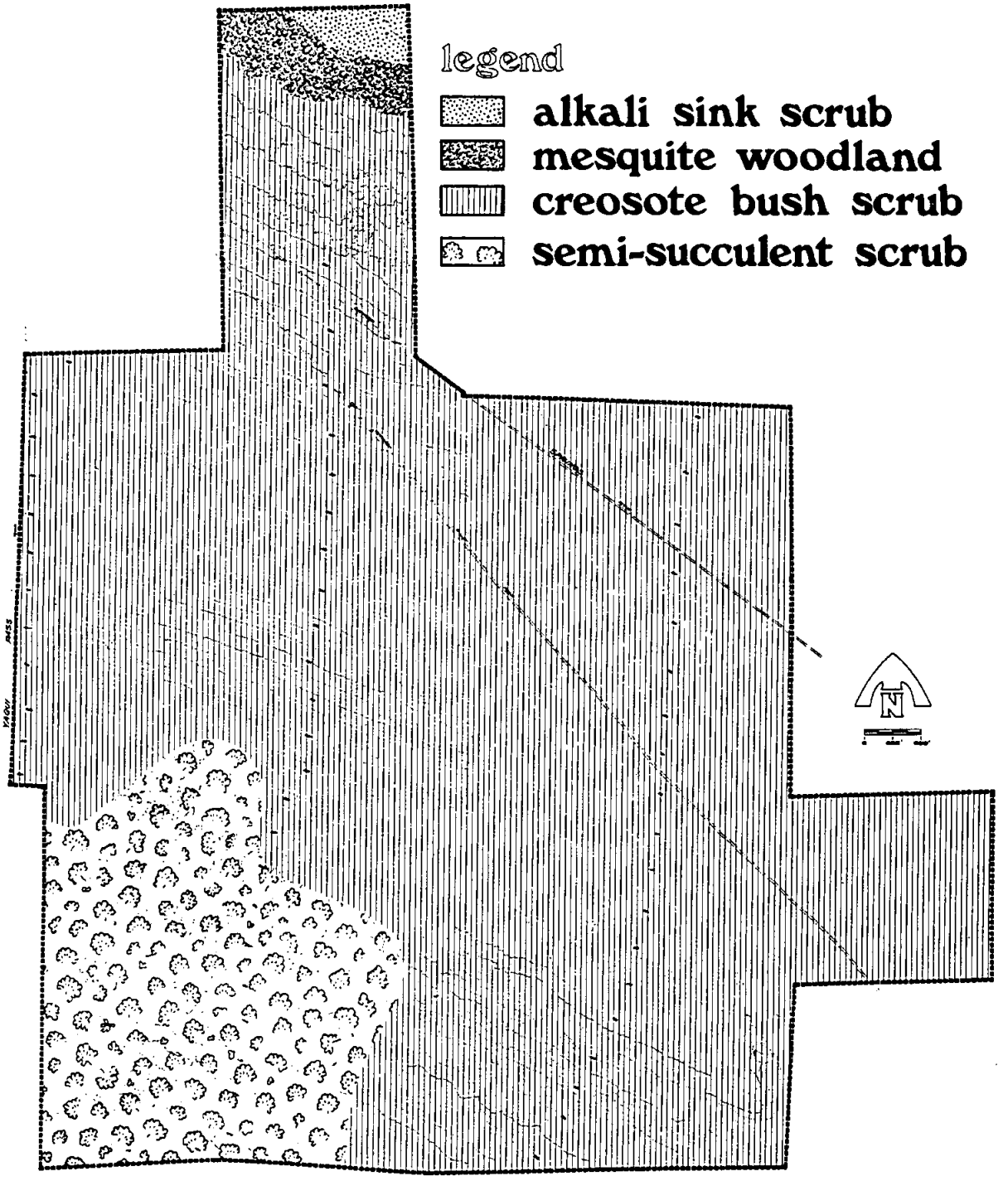
a. Botany

Three distinct habitats are found on the Rams' Hill site. The three are the creosote brush scrub community which covers 70 percent of the site; a ridge-and-wash area in the southwest corner, covering 27 percent of the site; and a mesquite woodland on three percent of the site in the northeast corner adjacent to the Borrego Sink. Each of these habitats is common to the surrounding desert areas. Figure IV-G-1 is a map showing the location of each habitat.

Approximately 70 percent of the site on the gently sloping areas consists of a creosote brush scrub community. This habitat is composed primarily of creosote brush, burro-weed and silver cholla. A complex ridge-and-wash area occupies the southwestern corner of the property. This rugged topography promotes a diverse habitat consisting of a desert wash community in the gullies and semi-succulent scrub along the intervening ridge. Desert lavender, chuparosa and maguey dominate the desert wash vegetation, while pencil cholla, ocotillo, burro-weed, desert barrel cactus and teddy bear cactus dominate the species along the ridges. This diverse ridge-and-wash area occupies approximately 27 percent of the property. The remaining three percent of the Rams' Hill site is occupied by a mesquite woodland forming a narrow strip across the northern peninsula of the property and an alkali sink scrub community abutting the Borrego Sink. Mesquite is the only species comprising the woodland; Haplopappus, Atriplex, and Cleomella are the dominant species in the alkali sink. While all portions of the property provide high quality

Figure IV-G-1

VEGETATION MAP



vegetation map

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habitat for desert-adapted animals, the most significant habitats are the mesquite woodland and the ridge-wash complex. The mesquite woodland and the adjacent alkali sink are particularly attractive due to the varied vegetative heights, the abundance of insects, seeds and cover for nests. The variety of species and individual numbers were greater in the woodland than on any other portion of the property. The rugged ridge-wash area is a significant habitat for predatory animals and their prey due to the density of the vegetation and the varied topography.

One sensitive plant species, Lyrocarpa coulteri var. palmeri was found in a single locality on the property. This species is listed by the California Native Plant Society as being of limited occurrence in San Diego desert areas. However, it is not rare or endangered.

b. Zoology

During the survey of the Rams' Hill site, a combined total of 54 bird, mammal, amphibian and reptile species were observed on the property. A naturalist from the Anza Borrego Desert State Park stated that an additional 50 species could be expected on the property if a more extensive survey had been conducted.

One amphibian and ten reptile species, including five lizard and five snake species, were noted on or in the vicinity of the project site during the survey. The one amphibian observed was the California Toad, which was found on a paved road in association with irrigation canals along Borrego Valley Road. Most species were noted in the central and southwestern portions of the site where vegetation is denser. An additional 15 species of reptiles and one amphibian species could be expected during a more prolonged survey. Populations of each of these reptiles commonly occur throughout the valley.

Thirty-three species of birds, 19 of which are permanent residents, were observed on the property during the survey. Two raptors,the American Kestrel and the Great Horned Owl were noted. The most common species were Gambel's Quail, Wilson's Warbler, and Mourning Dove. The mesquite woodland-alkaline sink habitat featured greater numbers and species diversity than any other portion of the site due to the varied vegetative heights. Elimination of the mesquite would reduce habitat for migrants and resident species and likely diminish overall densities in the area. All the observed birds and the additional 20 expected species, are common to the Anza-Borrego desert region.

Ten species of mammals were detected on the property through observation and a limited trapping program. Because of the similarity in habitat with the surrounding park, naturalists state that an additional 14 species would be expected on the site. Typical mammal species include Desert Cottontail, White-tailed Antelope Squirrel, Desert Pocket Mouse, Desert Kangaroo Rat, Desert Woodrat and Coyote. The Coyote was detected in the many washes on the southern portion of the property.

No rare, endangered or threatened animal species were noted on the site in the course of the survey. The Ringtail Cat, a possible visitor to the property and the Golden Eagle, a confirmed visitor, are considered sensitive and are fully protected by California State law. Three bird species, the American Kestrel, Loggerhead Shrike, and Yellow Warbler, are currently included on the Blue List. It is anticipated that three other Blue Listed Species utilize the property for hunting, nesting and foraging. None of these species are experiencing population decline in San Diego County.

2. Potential Impacts

The Rams' Hill property consists of 3,124 acres, of which 2,158 are included in the Specific Plan proposal. (Figure III-F-1) The remaining 966 acres are planned in concept pursuant to the Board of Supervisors approved plan, Exhibit C-9. (Figure III-D-1) Following Exhibit C-9, the eastern half of the property, 1,562 acres, is included in this Specific Plan proposal to be dedicated as natural undeveloped open space.

The heart of this Specific Plan development would be clustered in the west-central portion of the site on 457 acres of the less sensitive Creosote Brush Scrub. An additional 124 acres immediately south of this clustered area would be developed in two to five acre estate lots. A substantial portion of the 596 developed acres would be retained in various open space uses including a golf course and extensive common areas. The identified significant habitats, the Mesquite Woodland and ridge-wash area, are included in the 966 acres planned only in concept at this time and, therefore, are not a part of this Specific Plan. It can be assumed that in the second Specific Plan phase certain portions of these sensitive habitats would be impacted.

The developer has stated that his Rams' Hill design incorporates features to promote the natural open atmosphere of the desert and preserve sensitive areas. Despite this, biological impacts both during and after construction are inevitable. If property mitigation is not implemented, the

proposed development plan could create four potentially significant and adverse biological impacts. First, the project would increase water availability on the site. Increased water availability associated with irrigation of the golf course, landscaping and discharge of waste water to the percolation ponds could facilitate the introduction and proliferation of non-native species in the Mesquite Woodland. The project contains measures incorporated in the design to mitigate this impact. These measures will be more fully discussed under analysis of significance.

Second, the project could significantly impact the hydrologic characteristics of the south slope area. Redirection of wash channels for flood control would lead to a deterioration and alteration of the desert wash habitat. Should ground water below the site be tapped as the exclusive long term supply for the project, rapid reduction in the water table could significantly and adversely impact deep-rooted desert species, diminishing the quality of the habitat on-site and off. This impact may not occur should the project be annexed to the Borrego Water District and should the district carefully regulate water consumption throughout the valley.

Third, the designation of the riding and hiking trails would impact the quantity and variety of species utilizing habitat on the site due to increased human presence. The regional riding and hiking trail is shown on the County Trails Element along the southern perimeter of the mesquite woodland. Dedication and marking of this trail could significantly and adversely impact the numbers of faunal species and individuals utilizing this rare,significant habitat. Likewise, the internal regional riding and hiking trail would be constructed from the estate lots east into the open space area and north to connect with the regional trail. This trail would significantly impact the preservation aspects of this large open area.

Fourth, several of the southernmost estate lots encroach upon the northern fringe of the ridge wash area. Construction of homes on these lots would diminish the quality of this significant habitat and significantly reduce the numbers of large animals and raptors using the area.

Although the majority of the property would remain in a natural, undisturbed state, development would interfere with the foraging behavior of raptors, larger mammals and various species of snakes. By contrast, some wildlife species might increase in number with human habitation due to greater availability of surface water and other factors. Among those species possibly responding to such new resources are the Barn Owl, Great Horned Owl, House Finch, Western Toad, Southern Pocket Gopher and Desert Cottontail.

Short term impacts during the construction phase would occur. Grading and construction would irreversibly damage habitat in the 596 developed acres. Construction workers using off road vehicles could impact additional areas both on and off site. Should material from the site be used as subgrade material on roads, additional biological impacts to the mined areas would occur. For a full discussion of all potential short term and long term impacts, refer to the Biology Technical Appendix.

3. Analysis of Significance

The Rams' Hill project has incorporated in this Specific Plan phase design features to reduce the impact of development on the biota and habitat of the south slope area.

First, in order to reduce the increased availability of subsurface water from the percolation basins, certain operation practices would be observed. The basins must be kept totally free of vegetation to operate properly, thereby reducing the impact of the surface water. The basins would only operate a few months each year during the summer when evaporation is greatest. Subsurface water discharge would be intermittent and minimal, therefore, minimizing impacts to the mesquite.

If the percolation basins were to be operated year round, the additional moisture in the vicinity of the mesquite woodland could significantly impact the woodland and alkalai sink habitats by altering the present vegetative complex. Since these basins would only operate with low effluent flows of under 100,000 gallons per day, over the summer period when evaporation rates are highest, the actual extent of increased moisture would be imperceptible. The impact of the percolation basins would, therefore, be reduced to an insignificant level.

A significant water supply would be available on site from the golf course and landscaped areas. This would lead to an adverse impact through the facilitation of non-native weedy species in the large eastern open space.

Second, the impacts to the water table would be mitigated by the Borrego Water District. The district would be responsible for long-term management of water supply throughout the valley. Careful planning by the district would preclude localized impacts such as that described above. Ground water supplies for the valley are capable of supplying the Specific Plan phase of development without mining. However, should the valley growth rate rapidly exceed the current rate of eight percent a year or should additional new large scale projects such as Borrego Country Club be implemented, water mining could occur resulting in significant

impacts to the water table both on and off site. Refer to the sections on water and cumulative impacts for more information.

Third, the impacts of the regional and internal riding and hiking trails would be mitigated by minimally improving the trails. Even with this, however, the Regional Riding and Hiking Trail would increase human presence in a significant area and could decrease variety of species and number of individuals visiting the habitat.

Fourth, the impacts to the ridge wash habitat by the southern estate lots would be mitigated by design. Grading on these lots would be minimal. Significant portions of the two to five acre lots would be left in a natural state. Nevertheless, the ridge-wash area is utilized by large animals and raptors. These species would reduce their use of the habitat with increased human presence.

In addition to mitigation for specific impacts, the project has been designed to reduce general impacts. The entire eastern portion of the site, including 1,562 acres of the total 2,162 acre plan, would be left primarily in its natural state, continuing to provide a somewhat undisturbed habitat for indigenous species and remaining as a natural extension of the ecosystem of the adjacent Anza-Borrego Desert State Park. Development would be clustered in the center of the site,preserving additional large areas of open space. In the second Specific Plan phase, however, it is anticipated that significant impacts could occur to these habitats. The Mesquite Woodland and the sensitive ridge-wash habitats would remain undeveloped at this time. Within the bounds of County requirements, internal road construction would be minimal and would be designed to serve only the needs of the Rams' Hill residents. The project would irreversibly commit 600 acres of the relatively isolated, undisturbed 3,200 acre desert site to residential and resort development. An artificial hydrologic condition would be established which would increase moisture in the vicinity, facilitating the propagation of non-native weedy species.

Should the project be implemented, the increased number of people in the valley could lead to indirect impacts further degrading habitat from increased human presence. These indirect impacts would be especially severe should construction of Rams' Hill and Borrego Country Club lead to increased recreational use of ORV's in the valley and in the adjacent State Park. It is recommended that the Board of Supervisors close that portion of Old Borrego Valley which crosses the property diagonally from northwest to southeast to minimize the potential use of ORV's on the eastern portion of the site and in the adjacent state park.

H. ARCHAEOLOGY

Two archaeological reconnaissances have been conducted on the Rams' Hill property. The first was conducted in 1973 by Dr. Paul Ezell of San Diego State University, and the second by PRC Toups Corporation in 1977 and 1978. These two studies identified seven archaeological sites on the 3,200-acre property. Two of the sites are on the portion of the property designated for potential development. Five are on the portion designated for permanent open space. The full text of the PRC Toups report is included as a technical appendix.

1. Existing Setting

It is likely that archaeological sites would be located in the Rams' Hill area. The Borrego Sink, which forms the northern boundary of the property, was once a lake. The lake shore would have provided a stable environment for prehistoric peoples of Paleo Indian and Early Archaic times. The animal and plant life which is present in the Borrego Valley today could have been exploited by peoples of Late Archaic times, which extended until the coming of Europeans to the area. Thus archaeological sites representing peoples from Paleo Indian, Early Archaic and Late Archaic times could be located on the property.

a. Record Searches

Background research into recorded archaeological sites on the property was conducted at both the San Diego Museum of Man and San Diego State University Department of Anthropology. No sites had been recorded at the Museum of Man. Records at the University indicated some known sites in the project vicinity. Site numbers but no descriptions of the sites are present in the University records. The sites are designated SDi-4598, SDi-9599, SDi-4600, SDi-4601, SDi-4602. In Ezell's report (1973), one additional site, Cal:E:15:6 was noted on the property. The record searches also revealed an area in the general vicinity of the project which has been nominated to the National Register of Historic Sites (C-490, 1977, Ron May). The Archaeology Appendix contains these record searches.

b. Previous Work on the Property

In October, 1973 an archaeological assessment of Borrego Springs was conducted by Dr. Paul Ezell of San Diego State University. The presence of four sites on the property and one nearby was recorded in this study. The records describe the sites as "sites of aboriginal activity including camp sites, sleeping circles, and trails". (Ezell 1973:2).

Cal:E:15:1 - This site consists of clusters of quartz flakes, chipping waste and several cleared areas of desert pavement. It was designated as a Paleo Indian site in the report.

Cal:E:15:2 - This site is located in a wash and consists of pottery sherds and stone tools. It has been designated a Late Archaic site in the report.

Cal:E:15:3 - This site consists of two cleared circles and two stone tools. It was designated as a Paleo Indian site.

Cal:E:15:4 - This site consists of sleeping circles, cleared areas of pavement and a trail, in association with potsherds and lithic artifacts. It was designated as a Late Archaic site in the report.

Cal:E:15:5 - This site is made up of a wide scatter of ceramics. It was designated as a Late Archaic site in the report.

Cal:E:15:6 - This site consists of a scattering of 20 potsherds.

Cal:E:15:7 - This site is a remnant of a recent cabin, and is not archaeologically significant.

Cal:E:15:8 - This site is off the property and is a large concentration of potsherds and lithic flakes. It was designated a Late Archaic site in the report.

Sites in the Vicinity

C-490 - This site consists of a campsite with an associated hearth, stone tools, flakes, cores, scrapers, metates, sherds, and milling slabs. The site is off the property adjacent to a well-traveled road.

Results of 1978 Survey

The Toups survey of the 3,200-acre property was conducted by two crews of archaeologists. Each archaeologist walked a series of north/south and east/west intersecting transects. The survey revealed two sites within the 1,562 acres designated for potential development and five sites within the 1,562 acres designated to be dedicated as permanent natural open space.

Site 1. (SDi4601 or Cal:E:15:7.)

This site is made up of a very recent stone chimney and is therefore not archaeologically significant.

Site 2 (Cal:E:15:4)

This site consists of approximately 75 unlined "sleeping circles", trails, a light but concentrated pottery scatter, one blade fragment, chipping waste and two metates. These circles are interconnected by the numerous trails. They generally are not associated with the artifacts. The trails continue off the property and probably extend into the foothills. The site is located in the southwest corner of the property. Most of the site is within the area shown as "not a part". The area covered is nearly 2,100 feet north-south by 3,000 feet east/west. It is irregular in outline and follows the alluvial ridges. It is much larger than was indicated in Ezell's report.

Site 3 (Cal:E:15:1 and SDi-4598)

This site consits of stone flakes and two sleeping circles, one of which is stone-lined. It is situated along the top of a low-lying north/south trending ridge in the extreme southeast corner of the subject property.

Site 4 (Cal:E:15:2 and SDi-4599)

This site is situated in a wash area and has, therefore, been susceptible to extensive damage from erosion. Although the Ezell study noted pottery and tools (Ezell, 1973:3), all that was found by the present study were several very large potsherds of Tizon Brownware.

Site 5 (Cal:E:15:3 and SDi-4600)

The site consists of two unlined sleeping circles, three stone-lined circles with four flakes (one utilized) and one core fragment. This kidney-shaped site is roughly 50 feet in length and 20 feet in width.

Site 6

This is an isolated unlined sleeping circle on a small berm near the southern boundary of the project.

Site 7

This small site consists of a stone-lined circle, approximately .7 meters in diameter, situated atop a small hill near Old Borrego Valley Road. It is the right size for a fire hearth, but no evidence of fire was found.

It should be noted here that sites Cal:E:15:5 and Cal:E:15:6 were not relocated. These sites were located near the sink and may have been removed or buried by recent floods. Salvage is not presented here as a means to adequately mitigate impacts upon the resource. It would merely be a method to retrieve some data prior to loss of the resource. Preservation is considered the best mitigation.

Sites 3, 4, 5, 6 and 7 - All of these sites are in the area to be left in open space. It is recommended that indirect impacts could be kept to a minimum through limiting off-road vehicle access to the property. This can be achieved by closing off Old Borrego Valley Road.

2. Impacts of Proposed Action

Implementation of the Borrego Springs planned resort community would result in the loss of Site 1 and a small part of Site 2.

Indirect impacts might also occur on those portions of Site 2 which would not be subject to construction. Sites 3, 4, 5, 6 and 7 might also be indirectly impacted by project implementation. Indirect impacts could occur to Site C-490 located off the property due to increased human presence in the valley. No direct impacts are anticipated to the site due to distance separation.

3. Analysis of Significance

Site 1 - Since this site had been previously recorded and this study did not locate any new significant artifacts, no mitigating measures are recommended.

Site 2 - The size and complexity of this site make it significant and rare. A cluster of sleeping circles and a network of trails is especially rare because so many sites have been destroyed by off-road vehicle activity and vandalism. Preservation of this resource is the best means available to mitigate impacts to it. This can be achieved by providing a buffer zone between the new construction and the resource. A natural buffer of native cholla cactus and ocotillo bush about six feet wide would be sufficient to limit encroachment into the site. Such a buffer, if properly implemented, could be an innovative, aesthetic measure to protect the resource.

Mitch Beauchamp of Pacific Southwest Biologic Services indicates that a barrier of native plants to protect archaeology Site 2 may be difficult to maintain. The density of the cholla and ocotillo on site is probably the maximum natural density for the plants under the existing hydrologic regime. To maintain a standing cactus dense enough to discourage

trespass would therefore probably require substantial irrigation. This irrigation would, in turn, encourage the spread of undesirable weedy species. Should the native plant barrier not prove to be a practical or feasible method to protect the resource, the developer could erect a fence along the southern border of the estate development area to discourage encroachment.

Another recommended means of protection would be to place the site under the control of a homeowners' association. Creation of an open air museum by laying out gravel trails and interpretive signs placed near the features could provide a highly beneficial mitigation of impacts.

Data must be salvaged in the areas of encroachment into Site 2. Salvage of the portion of the data inherent in the site must include the following steps:

(a) Preparation of a comprehensive, problem oriented salvage design.

(b) Preparation of a base map with each "sleeping circle" plotted.

(c) Mapping and collection of all surface artifacts.

(d) Test excavation of 35-50 percent of the affected site area, with the methodology specified in the research design.

(e) Cataloging and analysis of all artifacts.

(f) Performance of pertinent special studies: C14, paleontological, lithic, and ethnobotanical analyses.

(g) Report on findings according to County of San Diego and American Antiquity standards.

Salvage is not presented here as a means to adequately mitigate impacts upon the resource. It would merely be a method to retrieve some data prior to loss of the resource. Preservation is considered the best mitigation.

The Specific Plan does not pose any inherent limitations to implementing this mitigation for Site 2. No development is proposed south of the site. The area adjacent to and north of the site will be developed in estates in Phase 2 of the project. Mitigating measures will need to be completed before the tentative map for the adjacent areas can be approved by the County. The area marked "not a part" will not be developed in any way with this Specific Plan.

Sites 3, 4, 5, 6 and 7 - All of these sites are in the area to be left in open space. It is recommended that indirect impacts would be kept to a minimum through limiting off-road vehicle access to the property. This can be achieved by closing off Old Borrego Valley Road.

I. CLIMATE

1. Existing Setting

The Rams' Hill property is located in the Borrego Valley about 25 miles west of the Salton Sea. The valley is situated at the foot of the eastern slope in the rain shadow of the Peninsular Range and represents the western extremity of the Salton Basin. Topographic and air quality parameters such as wind speed and mixing depths, are discussed at length in the section on Air Quality.

The Borrego Valley is part of the Colorado, or low elevation, Desert of California. As such, it is characterized by climatic extremes. In summer, hot, sunny days and warm nights prevail. The winter season has generally warm days, but cold nights. Although the lowest average temperature minimum for any month is 45°F, below freezing temperatures can occur at night from October into April. The average length of the growing season is 257 days.

Borrego is in a desert. Four classes of large-scale weather phenomena have significant, although not persistent, effects on the climate of the Borrego Valley. (1) Low pressure storm systems from the Pacific Ocean affect the region primarily from mid-October to mid-April. These storms account for heavy rains experienced in the winter of 1978. (2) Occasional incursions of moist and unstable air from the east and southeast during the summer cause widespread rainshowers. These rainshowers are responsible for the majority of the precipitation which normally occurs in the valley. (3) In the summer and early fall, less frequent, but sometimes damaging thunderstorms, or Sonora storms, are experienced. These storms are northernmost remnants of hurricanes that have moved from the eastern tropical Pacific Ocean into the areas of Southern Baja California and thence north. (4) Strong Santa Ana winds, occurring mainly in fall and winter from an extreme buildup of high atmospheric pressure over the inland deserts, disrupt the normal weather in the valley approximately 45 days each year. These easterly winds can cause severe dust storms.

a. Temperature

A temperature summary of the Borrego Valley, derived from data gathered at the Borrego Springs Airport, is given in degrees Fahrenheit.*

Table IV-I-1

TEMPERATURE

MONTH	HIGH	AVERAGE MAXIMUM	MEAN	AVERAGE MINIMUM	LOW
January	86	66.8	50.4	34.0	15
February	90	73.0	56.0	38.9	22
March	94	76.7	60.1	43.5	28
April	106	88.7	70.0	51.4	31
May	114	93.5	74.7	55.8	39
June	115	102.4	82.5	62.5	47
July	116	107.8	89.1	70.4	57
August	119	106.0	87.6	69.1	53
September	121	101.8	83.4	64.9	46
October	107	89.4	71.4	53.4	33
November	95	77.9	59.8	41.7	25
December	88	69.4	53.1	36.8	22
Annual	121	87.8	69.8	51.9	15

* E. L. Felton, California's Many Climates, Pacific Books, 1966.

b. Precipitation

Rainfall in the Borrego Valley is light and somewhat variable, as is typical for the desert provinces. It has been theorized that precipitation in this region is cyclical, with the first half of the century having somewhat more precipitation than the second half. Available rainfall records indicate this may be the case in San Diego County, although rainfall records for Borrego during the first half of this century are lacking.

Estimated annual precipitation in Borrego has ranged from 3.4 inches to 5.06 inches. While some of this rain falls during winter, the heaviest rains occur during thunderstorms in August. The driest portion of the year is typically late spring and early summer.

This low rainfall and lack of extensive vegetation and tree cover result in low relative humidity except during and immediately after rainy periods. Because of high isolation values, evaporation rates in the valley are very high, averaging 25 times more than the available rainfall. The following is a summary of precipitation in inches by month:

Table IV-I-2

PRECIPITATION BY MONTH

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Mean	0.35	0.16	0.36	0.05	0.01	0.04	0.16	1.28	0.22	0.28	0.15	0.73

c. Project Climates

The climatic characteristics of the Rams' Hill site are relatively unique. In 1972 and 1973 the DiGiorgio Corporation conducted a climatic study on site of the type the corporation regularly performs as a basis for agricultural decisions. The survey consists, in part, of placing a recording thermometer on site and taking readings twice a day. The results of the study were striking. The Rams' Hill site is ten to 20 degrees cooler in summer and ten to 20 degrees warmer in winter than other areas in the Borrego Valley. The cooler summer temperatures are apparently due to the higher elevations; the warmer winter temperatures are apparently a result of subsidence whereby the colder air flows down the fan slope settling in the lower areas of the valley.

2. Potential Impacts

Climatological impacts resulting from the implementation of the Specific Plan would be imperceptible. Relative humidity in the valley would not change with development, although there would be increased evaporation from irrigation, swimming pools, transpiration from plants used in landscaping and from automobile exhaust. Project-area temperatures and wind speeds would not change perceptibly. Precipitation in the Borrego Valley would not be affected.

3. Analysis of Significance

No large scale climatological impacts are anticipated. Microclimatological impacts would be minor and confined to the immediate development area. Measures which have previously been proposed to minimize water and energy impacts would also mitigate potential impacts on the microclimatology. Such measures would include the use of evaporative rather than refrigeration cooling units, night watering of the golf course and landscaped areas and the planting of drought resistant plants.

Because the implementation of this project would have no significant impacts on the climate of the Borrego Valley, no mitigation is proposed nor deemed necessary.

J. AIR QUALITY

1. Existing Setting

The following discussion is based on the report, "Air Quality Impacts of the Proposed Rams' Hill Country Club" which is included in full as a technical appendix. The technical reader is referred to this appendix for a complete discussion of the emission factors, pollutant volumes and a full discussion of the impacts for the three air spaces.

a. Topography

The Rams' Hill Country Club property is located in the Borrego Valley, 40 miles south of Palm Springs, 60 miles northeast of San Diego and 25 miles west of the Salton Sea. Figure III-A-1 is a vicinity map of Southern California. The valley is surrounded by mountains on all sides except the southeast. The Santa Rosa Mountains, with extensive elevations above the 6,000 foot level, rim the valley on the north and east. The San Ysidro Mountain Range, at approximately 5,000 feet, is the nearest chain of mountains on the west side. To the south are the Vallecito Mountains, with elevations generally between 3,000 and 4,000 feet. The Borrego Valley is broad and flat, sloping gently to the southeast toward the Imperial Valley. The elevation near Christmas Circle is approximately 500 feet. Figure III-B-4 illustrates the topography of the valley.

The proposed Rams' Hill project is located on the south slope of the Borrego Valley approximately five to six miles southeast of Christmas Circle, adjacent to La Casa del Zorro resort. The property lies on a north facing alluvial fan surface, which extends north from the Yaqui Ridge to the Borrego Sink. Elevations on the property range from 480 feet to 1,180 feet.

b. Meteorology

Only those aspects of meteorology, such as winds and mixing depths, which are directly related to air pollution are discussed here. General climatic data is included in the section on climate. Virtually no monitoring of air quality has been done in the Borrego Valley. Basic climatological data on wind speeds and direction, mixing depths and cloudiness are scant. The following information, therefore, is the "probable" behavior of atmospheric parameters, based on approximations of local peculiarities.

The Borrego Valley is in the rainshadow of the Peninsular Range and is part of the Colorado Desert province. Unlike the coastal areas of San Diego County, the Borrego Valley does not manifest the annual or daily land-sea breeze cycle. General flow in the valley in summer is dependent on the position and strength of the fairly permanent desert low pressure system. Summer air flow has a strong southerly component which results from the steep pressure gradient and the desert low trough. In winter, the flow shifts and winds evidence more of a northerly component from the prevailing basin and area high pressure system.

Winds are generally quiet during the mornings, increasing in intensity and variability during the afternoons. During the late night a drainage flow, which is conditioned by topographical variables, develops. Flow is downslope at night, when the cold air drains into the basins and valleys. During the day the sun heats the eastern face of the mountains and a strong upslope movement develops. In the valley, localized thermal currents develop due to intense surface heating.

No direct measurements of mixing depths have been made in the Borrego Valley. It is anticipated that the maximum daily mixing depth averages about 12,000 feet, the approximate altitude at which the converging marine and desert air masses stabilize. (17) During the day, vertical mixing should be very good because of strong thermal updrafts and the deep mixing layer. Depending upon the effectiveness of the flushing action by large scale currents, pollution dispersion should be fairly effective. It is probable that during early winter mornings, cold air settling in low lying areas and night time radiation create a strong surface-based inversion. After sunrise, the ground is rapidly heated and the surface inversion disappears.

c. Present Zoning and Land Use

The 3,124 acre Rams' Hill property is designated in the County General Plan as a Specific Plan Area with an overall density of one dwelling unit per two acres. The following general uses for this property were designated by GPA 76-02: PRD units; single family residences; two acre estates; golf course; medical clinic; hotel; and resort support facilities, including a mixture of recreational and commercial uses.

In this Specific Plan, 2,158 acres of the total 3,124-acre property would be "developed", including 1,562 acres which would be dedicated as natural, undeveloped open space. Implementation of the Specific Plan would result in the construction of 780 dwelling units, part of the hotel, medical clinic, golf course, tennis courts and a mixture of commercial facilities.

The Specific Plan Area is currently zoned LC (limited control) which allows one dwelling unit per 2.5 gross acres or any use with a Special Use Permit. Proposed zoning is discussed under Land Use.

d. Existing Air Quality

No monitoring of air quality has been done in the Borrego Valley. The following is a "best guess" description of local conditions.

Air quality in the Borrego Valley should be exceptionally good. While no area in the continental United States is believed to be free of pollution episodes, the Borrego Valley, in its sheltered position from transported pollutants and with the low level of local emissions, should be relatively pristine. Although a potential exists for early morning build-up of carbon monoxide because of surface-based inversions, CO emissions are extremly low. CO levels are, therefore, not expected to ever exceed standards. Oxidant levels, likewise, should be very low because of the limited sources and deep mixing depth. The pollutant of most concern in the Borrego Valley is particulates. High volumes of dust do not occur naturally in the desert. Human activities, such as farming and off-highway vehicles, however, can generate extensive dust plumes. It is expected that during high activity periods, Federal particulate standards are frequently exceeded.

Transport of oxidant and its precursors into the Borrego Valley from the coastal metropolitan areas does not appear to be significant. Oxidant from the San Diego Air Basin is trapped by the marine inversion on the coastal side of the Peninsular Mountain Range. Where the marine and desert air masses converge, the oxidant apparently becomes stratified into thin layers and injected into the upper level westerly winds. The pollutants do not concentrate on the eastern face of the mountains because of the well-developed upslope winds during the day. It is anticipated that localized instantaneous oxidant values in the Borrego Valley can exceed federal standards of 0.08 parts per million ozone when the elevated laminae of pollutants are mixed downward to the ground by convection. (18) Hourly oxidant levels, however, are not expected to exceed standard. The Borrego Valley is not in the direct path of air flow from the South Coast Air Basin. Pollution from Los Angeles normally flows through the San Gorgonio Pass, down the Coachella Valley and from there south. Under the infrequent "Santa Ana" condition when air flows shift to north-south, strong winds flowing down the San Jacinto trough could bring pollutants from Los Angeles down both sides to the San Jacinto Mountains, transporting oxidant into the Borrego Valley.

e. Existing Emissions

Information on pollutant emissions has not been gathered in the Borrego Valley. No monitoring of oxidant, carbon monoxide or nitrogen oxides has ever been done. The Southeast Desert Basin APCD did some limited monitoring of particulates in the vicinity of Ocotillo Wells (Burro Bend) to assess the impact of off-road vehicles. A full Emission Inventory, however, has never been done. The valley is on the border between the San Diego Air Basin and the Southeast Desert Air Basin. While it shares climatic characteristics with the rest of the Lower Colorado Desert province, topographically, the valley can be considered a semi-independent air basin. The Borrego Valley was originally designated as part of the Southeast Desert Air Basin. Because of difficulties with planning, the valley was subsequently considered to be part of the San Diego Air Basin (SDAB) in 1977. This designation is strictly administrative, however, since the two areas do not share a common air mass. The Emissions Inventories of 1972 and 1974 do not include Borrego Valley emissions. (19)

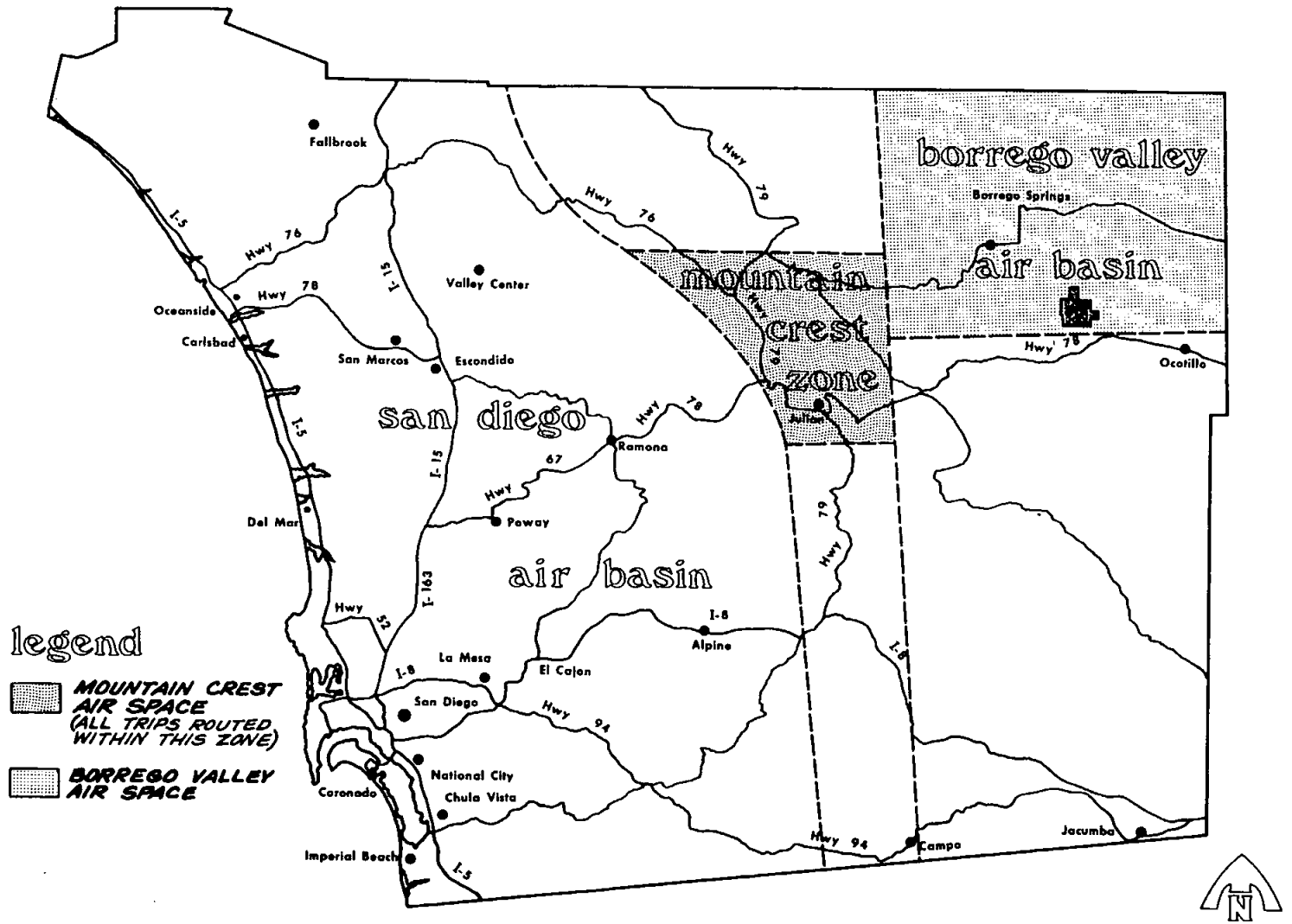
2. Project Emissions and Potential Impacts

The technical reader is referred to the appendix for a complete discussion of factors, summary of calculations, the distribution of pollutants by air space and a fuller discussion of impacts. The air quality analysis was performed after separating VMT, trips and emissions in the (1) Borrego Valley, (2) Mountain Crest area, and (3) San Diego Air Basin. Figure IV-I-1 is a schematic of the three air basins. This abbreviated discussion will include a similar format. The impact analysis used 1978 as the Base Year for emissions in the valley and 1985 as the year for full project implementation. Emissions calculations are summarized in Tables 7 through 20 of the technical appendix.

The most significant air quality issue is the impact of Rams' Hill on the pristine air quality of the Borrego Valley and Anza Borrego Desert State Park. Because existing emissions are so low, it is inconceivable that this project could trigger violations of the hourly Federal Air Quality Standards. The State Air Resources Board has proposed, though, that the Anza Borrego Desert State Park be designated as a "Class A" or pristine air quality area. This would mean that no increase in activity level could occur which would degrade the air quality below that quality which existed in 1975. The quality of the air would be judged based on an Emission Inventory using 1975 data. It is possible that ARB would allow a small increment of deterioration to preclude a permanent future moratorium. Caroline Stromberg of the ARB has voiced concern that Rams' Hill could absorb all of this potential increment. Figure IV-A-2 is a map showing the

RAMS HILL

PRC TOUPS CORPORATION



general scheme of air spaces used for air quality analysis

Figure IV-J-1

GENERAL SCHEME OF AIR SPACES USED
FOR AIR QUALITY ANALYSIS

relationship of the Borrego Valley to the Anza Borrego Desert State Park. This map illustrates that emissions in the valley enclave could impact the air quality of less than half the park.

The expanded analysis concludes that the implementation of Rams' Hill would not affect the designation of the State Park as a "Class A" area, nor would Rams' Hill absorb any potential increment of deterioration that is allowed by the State Air Resources Board. The decrease in VMT and trip-related emissions per vehicle from 1978 to 1985, because of more stringent controls on vehicle emissions, would more than outweigh the projected increase in automobile activity resulting from the project. The absolute levels of reactive hydrocarbon emissions in the valley, after implementation of Rams' Hill and a 25 percent increase in State Park visitorship, would decline between 1978 and 1985 not including RHC emissions from off-road vehicles. The level of RHC emission would decline from 8.05 tons per week to 4.76 tons per week in the peak season; and from three tons per week to 2.27 tons per week in the off peak season. Absolute levels of carbon monoxide would likewise decline between 1978 and 1985 from 61.57 tons per week to 45.88 tons per week in the peak season, and from 25.22 tons per week to 21.76 tons per week in the off peak. Figures IV-J-2 and IV-J-3 summarize RHC and CO trends from 1978 to 1985 by emission source. The absolute levels of nitrogen oxides, not including emissions from ORV's, could increase between 1978 and 1985 from 6.58 tons per week to 6.55 tons per week in the peak season; and from 2.67 tons per week to 3.18 tons per week in the off peak season. Figure IV-J-4 summarizes NO_x trends by source.

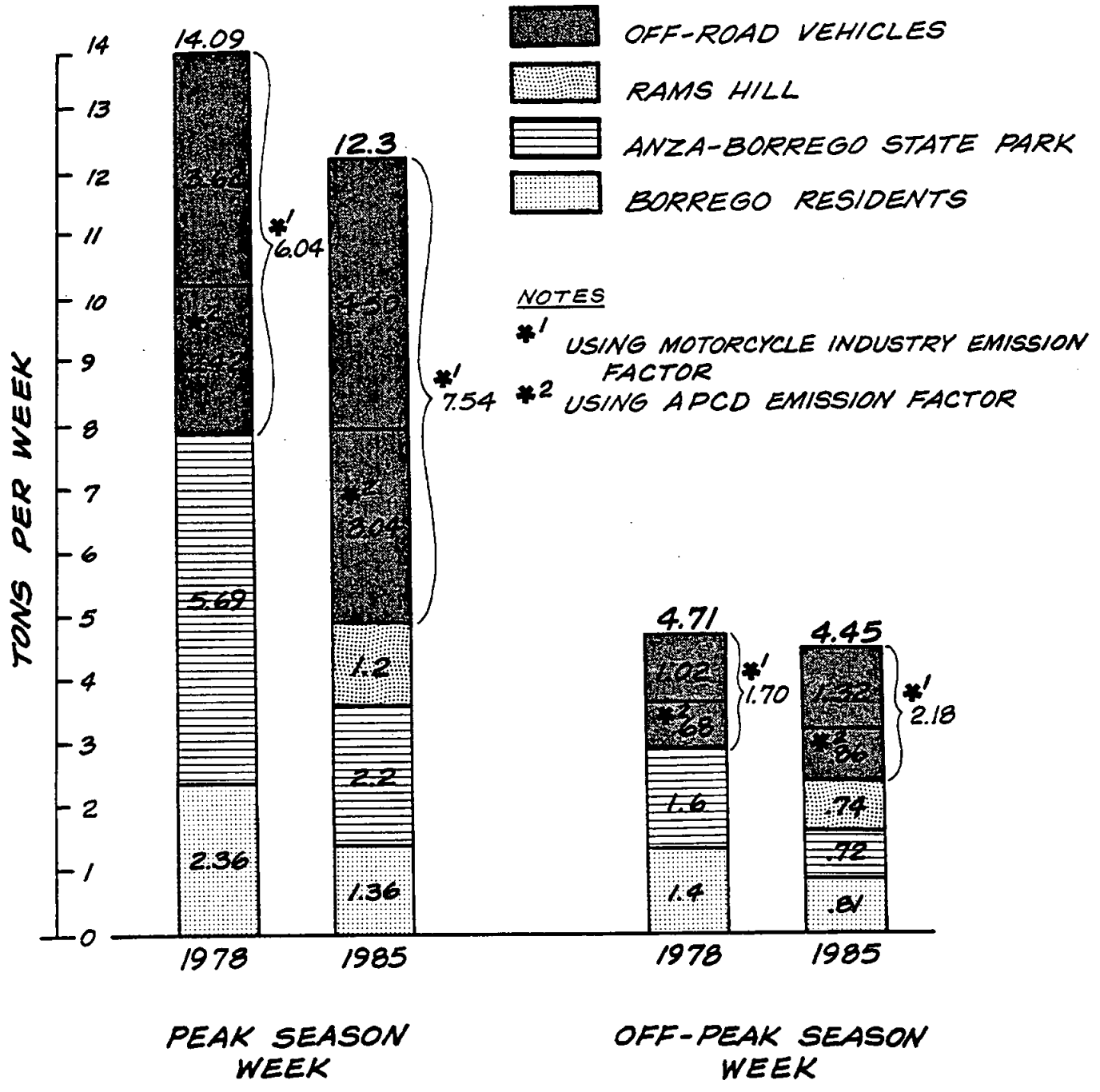
It is interesting to compare projected emissions by source, including park visitors, residents of Rams' Hill, associated activities and ORV's in the valley in 1985.

During a peak visitor season week, approximately 11 to 18 percent of the total RHC emissions would result from activity by permanent residents; 10 to 15 percent would result from Rams' Hill; 18 - 28 percent would result from park visitors; and 39 to 61 percent would result from ORV activity. In other words, emissions from ORV's are projected to be twice as great as from any other mobile source.

Figures IV-J-2 and IV-J-3 illustrate that future activity in the Anza Borrego Desert Park is projected to have a significant impact on the air quality of the Borrego Valley. In 1977, the California State Department of Parks and Recreation was granted a negative declaration by the San Diego County Board of Supervisors for the construction of a Visitor Center for Anza Borrego Desert State Park. This center will be located

Figure IV-J-2

REACTIVE HYDROCARBONS EMISSIONS COMPARISON
BY SOURCE, PEAK AND OFF-PEAK SEASONS
1978 AND 1985

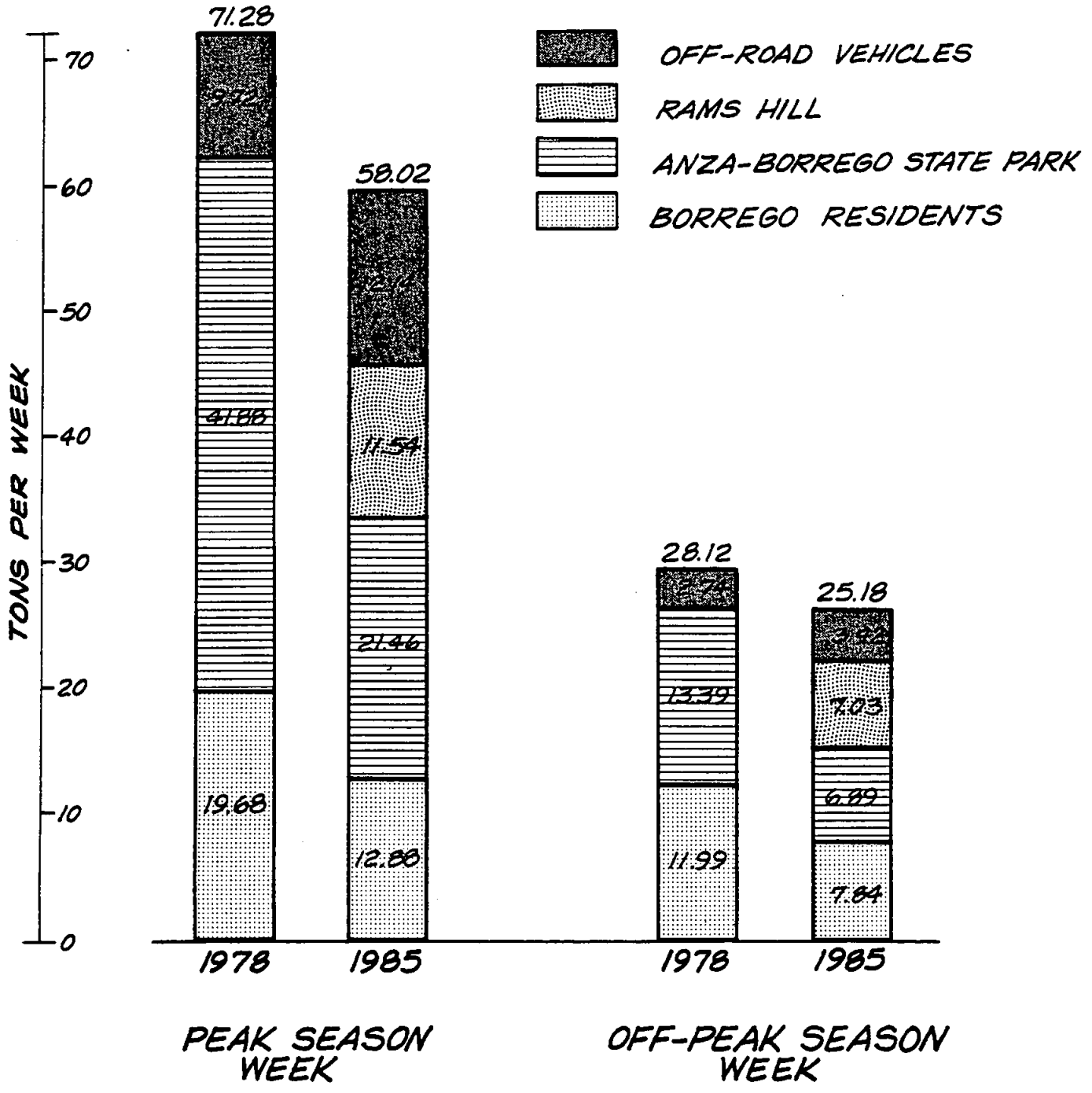


REACTIVE HYDROCARBONS EMISSIONS
COMPARISON BY SOURCE
PEAK AND OFF-PEAK SEASON WEEK
1978 vs. 1985

RAMS HILL

Figure IV-J-3

CARBON MONOXIDE EMISSIONS, COMPARISON
BY SOURCE, PEAK AND OFF-PEAK SEASON
1978 AND 1985

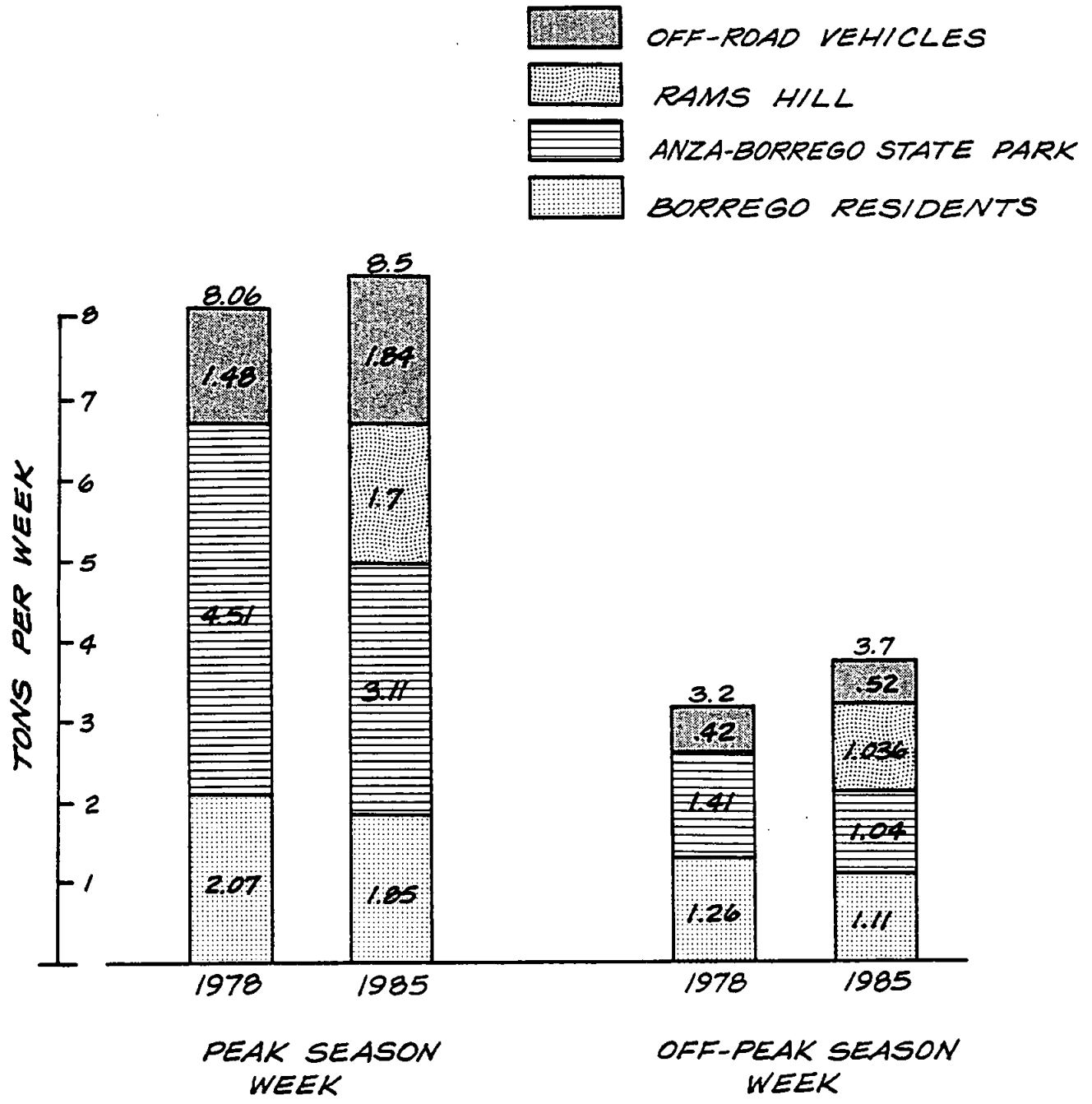


CARBON MONOXIDE
COMPARISON OF EMISSIONS BY SOURCE
PEAK AND OFF-PEAK SEASON WEEK
1978 vs. 1985

RAMS HILL

Figure IV-J-4

NITROGEN OXIDES EMISSIONS, COMPARISON
BY SOURCE, PEAK AND OFF-PEAK SEASON
1978 AND 1985



NITROGEN OXIDES
COMPARISON OF EMISSIONS BY SOURCE
PEAK AND OFF-PEAK SEASON WEEK
1978 vs. 1985

RAMS HILL

at Borrego Palm Canyon, two miles east of the town center of Borrego Springs, and will have parking for 70 vehicles. The center will provide desert interpretive displays for visitors and is anticipated to increase visitorship to the Borrego Valley by 25 percent each year, mostly during the peak visitor season. This increased visitorship will potentially lead to higher ORV usage. The visitor center was determined to have no significant impact on the air quality or traffic flow in the Borrego Valley.

The single most significant emission source in the valley is off-road vehicle activity. Should the State Air Resources Board become concerned about air quality in the Anza Borrego Desert State Park in the future, it is suggested that restrictions be placed on off-road activity within the Park. These restrictions would have the additional benefit of decreasing particulate pollution, preserving archaeological sites, and protecting the desert ecosystem and biological habitat, all of which are being severely impacted by increasing ORV activity.

As with any development, the Rams' Hill project would increase the level of emissions within the Borrego Valley air space over that level which would exist without the project. Because of the increasing regulation of motor vehicles, however, total emissions in the Borrego Valley are proposed to be slightly lower in 1985 with the full implementation of Rams' Hill and the anticipated increase in State Park visitorship than the total volume in 1978.

a. Potential Impacts on the San Diego Air Basin

The Rams' Hill Project would impact the San Diego Air Basin by increasing the number of long distance trips destined for the Borrego Valley and by increasing the level of power plant emissions to supply energy to the project. The analysis in the appendix assumes as a "worst case" that trips destined for Rams' Hill would not otherwise go to Borrego, and that the electricity generated for use at Rams' Hill would not otherwise be used by the same people in homes elsewhere in the San Diego Air Basin.

Based upon the complete analysis set forth in the appendix, Rams' Hill would incrementally increase the levels of RHC, NO_X, CO and particulates emitted in the San Diego Air Basin. This impact would be somewhat mitigated by the seasonal nature of visitorship to the project. Peak levels of RHC and NO_X emissions would occur during the winter months, November through April, rather than during the more critical "smog season", May through October. The emissions of CO, however, would be greater during winter months when the potential for CO buildup is most severe along the coast. While the absolute level of emissions in the San Diego Air Basin is extremely low, any increase in emissions in a non-attainment zone could be considered significant.

b. Mountain Crest

The Rams' Hill project would not significantly impact air quality in the Mountain Crest. Rams' Hill would incrementally increase the levels of RHC, CO and NO_x, due to increased vehicle travel destined for Borrego Springs. RHC emissions in the mountain area would increase by 0.014 tons per day during the peak season and by 0.009 tons per day during the off peak season. CO emissions would increase 0.21 tons per day during the peak season and by 0.13 tons per day during the off peak season. NO_x emission would increase by 0.05 tons per day during the peak season and by 0.03 tons per day during the off peak season.

3. Analysis of Significance

The Borrego Valley is currently a pristine air basin. All efforts to protect air quality and preserve the natural beauty of the valley and the Anza Borrego State Park should be encouraged. The State Air Resources Board and San Diego County Air Pollution Control District should establish a full monitoring program to assess the current air quality in the Borrego Valley. The Air Resources Board and local APCD also should develop an emissions inventory, and impose restrictions on all stationary sources to the greatest extent feasible.

Because Rams' Hill would not impact air quality in the Borrego Valley, no mitigating measures are deemed necessary. The project design, however, does incorporate an internal bicycle trail system, and an internal and regional riding and hiking trail system. All of these would tend to reduce motor vehicle emissions and thereby enhance air quality in the valley. All measures to increase the utilization of these facilities and other alternative modes of transportation should be encouraged.

The number and frequency of air flights to the Borrego Valley would probably increase by 1985, capturing an increasing portion of potential long-distance trips thereby reducing VMT related emissions. The increased level of service would be implemented by Sun Aire Lines.

The level of service of the Rural Lifeline Transit System to Borrego Springs could be increased. This system, which will be implemented from San Diego to Borrego Springs in January 1979, should capture approximately one percent of the long distance commuter trips at current project levels of service.

According to the foregoing analysis, the single most significant emissions source in the Borrego Valley is off-road vehicles. Should the State Air Resources Board and Anza Borrego Desert State Park become concerned about air quality deterioration, it is suggested that a quota on the number and type of off-road vehicles be established and enforced in the park.

The Rams' Hill project would incrementally increase the level of RHC, CO, NO_x and particulate emissions in the San Diego Air Basin. The use of solar energy for domestic space and water heating would substantially mitigate the potential impacts on the San Diego Air Basin by decreasing by about one-third the emissions of CO, NO_x, sulphur oxides, and particulates from power plant generation to supply the project.

An increase in the level of public transportation facilities for long distance trips to and from Rams' Hill, as described above, could potentially decrease VMT and trip related emissions within the San Diego Air Basin.

In conclusion, the Rams' Hill project would not significantly impact the air quality of the Borrego Valley because of the projected reduction in emissions per vehicle. The project would not impact air quality in the Mountain Crest area because existing and projected emissions are so low. The project would increase emissions in the San Diego Air Basin. This increase would be substantially mitigated by project design and provision of alternative transportation. Any increase in emissions in a non-attainment zone, however, could be considered significant and cannot be fully mitigated.

K. NOISE

1. Existing Setting

The primary sources of noise in the vicinity of the project site are traffic, aircraft flyovers and off-road vehicles. The roads which would potentially impact the project include Yaqui Pass Road, Borrego Springs Road, SC 460 and roads for internal circulation. Aircraft using Borrego County Airport and the Fletcher Air Ranch could potentially impact the site. (Figure IV-B-1 is the map of the Borrego Valley). Off-road vehicles, operating mainly on weekends, create noise impacts throughout the Borrego Valley.

Existing noise levels on the project site are well below County standards. A noise survey of the site was conducted in May 1979 by PRC Technical Applications, Inc. This survey, which is included in full as a technical appendix to the EIR, revealed that noise levels on site have not changed substantially since 1978, when a noise survey was conducted by Westec Services, Inc. Little recent development has taken place within the immediate vicinity of the project, although traffic on Yaqui Pass Road has increased due to increased State Park traffic.

Aircraft flyovers are an intermittent source of noise at the project site. Although Rams' Hill is not in a direct flight path to Borrego Valley Airport, it is within the flight route for Fletcher Air Strip. In 1977, the Borrego Airport handled 38,000 flights, including "touch and go's". Data on average daily volumes was not available. It was not possible to calculate associated airport noise due to a lack of information. Very few planes use the Fletcher Air Strip.

According to residents, off-road vehicles operating within the valley on weekends can cause serious disturbances. Information on the number and pattern of ORV's operating in the vicinity of the site is unavailable. Random motorcycle trails on-site indicate that significant numbers of ORV's have used the area in the past.

2. Potential Impacts

A major goal of the developer for the Rams' Hill project has been the preservation of a serene desert atmosphere for the residents and visitors at the development. Large areas of open space, extensive landscaping, setbacks of building pads from internal roads and complete separation of residences from major roads, such as Yaqui Pass Road, are all design features which serve to preserve a quiet, ambient noise level.

Upon implementation of the proposed project, the major on-site noise source would be traffic. The noise levels resulting from this traffic in 1985 and 1995 will be well below County standards as defined in the General Plan Noise Element. The addition of project-generated traffic to other valley roads would slightly increase the amount of noise produced valley-wide. Traffic generated by the Anza Borrego State Park and secondary growth would also slightly increase noise levels.

By 1985, noise levels on-site may increase due to expansion of facilities of proposed roads, population increase and increased visitorship to the site by people touring the Anza Borrego Desert State Park. Using 1995 traffic projections and Wyle Laboratory calculation methods, the following theoretical noise levels were calculated. These estimates assume that all roads would be built to full standard. In addition to that traffic generated by Rams' Hill, it is assumed that other traffic on the roads would continue to increase from 1985 to 1995 in the same manner as it is projected to increase from present day to 1985. The Wyle Report is on file with the Comprehensive Planning Organization and the County Environmental Analysis Division. Table IV-K-1 summarizes the projected noise levels by phase I, phase II and 1995. Figure IV-K-1 is a map of the 1995 projected CNEL levels.

Noise from aircraft flyovers would incrementally increase from 1978 to 1995 with the development of Rams' Hill. Since the completion of the 5,000 foot runway, the capacity of the airport is 300,000 flights per year. The airport can handle any size plane up to private jets. Should use of this airport increase significantly, potential safety hazards might necessitate the installation of a control tower and regulation of flight paths. These measures could also serve to minimize the number of aircraft flying directly over the property, thereby reducing potential noise impacts.

Increased vehicular activity within the Borrego Valley by residents of Rams' Hill would incrementally and insignificantly increase the level of noise in the valley, including traffic noise, aircraft noise and possibly off-road vehicle noise.

Short-term intermittent noise impacts in the valley might be experienced during the construction phase due to increased truck traffic on valley roads. No significant impacts are anticipated in the immediate vicinity of the project. The site is removed from existing homes and structures and there are few potential receptors.

When the 966 acres included in the Concept Plan are fully developed, the level of traffic activity due to the project would increase substantially. It is not anticipated at this

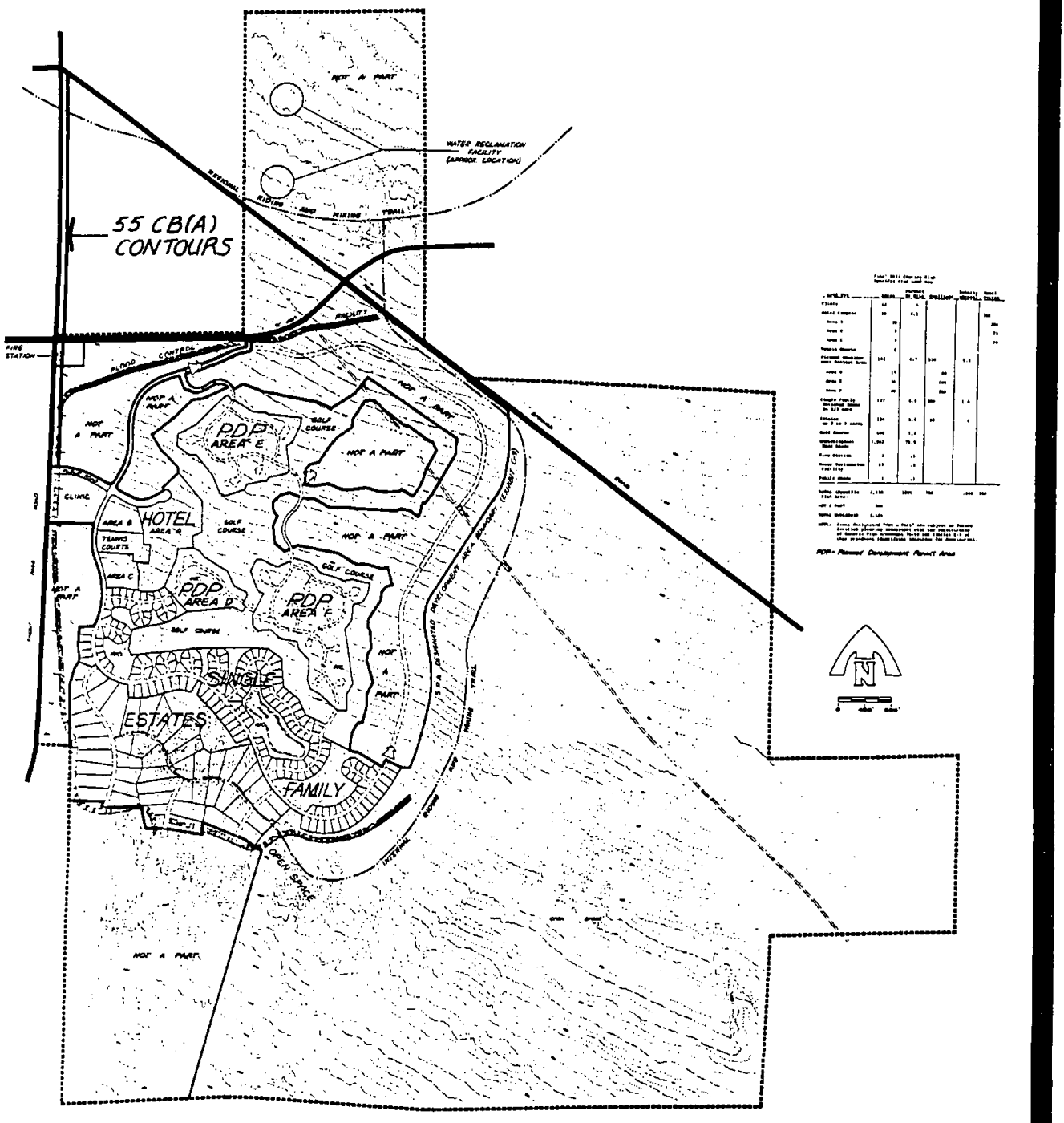
Table IV-K-1

Projected Noise Levels

Road	Distance to Property Boundary (Ft.)	1978 CNEL Noise Level at 50 Feet	Phase I CNEL Noise Level at 50 Ft.	Phase II CNEL Noise Level at 50 Ft.	1995 CNEL Noise Level at 50 Ft.
Yaqui Pass Road between Borrego Springs Road and project entrance	0	50 dB(A)	55 dB(A)	56.6 dB(A)	57 dB(A)
Borrego Springs Road	0	50 dB(A)	50 dB(A)	50 dB(A)	50 dB(A)
SC 460	0	does not exist	50 dB(A)	50 dB(A)	50 dB(A)
Internal Loop Road at Hotel	0	does not exist	52 dB(A)	55 dB(A)	53 dB(A)

Figure IV-K-1

1995 PROJECTED CNEL LEVELS



1995 cnel levels

PRC TOUPS CORPORATION

RAMS HILL

time that this additional level would create significant noise impacts. However, should the valley population increase more rapidly than anticipated, the roads could generate noise above the 55 dB(A) CNEL level in 1995.

3. Analysis of Significance

No significant noise impacts are anticipated due to implementation of the Rams' Hill project. Increased activity in the valley from the additional population would incrementally, but not significantly, increase traffic-related noise levels.

As discussed above, the on-site design of the project creates large separations between traffic and residences which would serve to preserve the quiet desert environment for residences and guests. Controlled access to the site and the closure of Old Borrego Valley Road, which extends diagonally across the project, would further control traffic-related noise. It is suggested that a covenant be placed on residents and guests prohibiting use of ORV's on the project site.

Noise from off-road vehicles could increase due to recreational use of ORV's by Rams' Hill residents and visitors. This could be mitigated by prohibiting ORV use on the project's open spaces, including the 1,562 acres in the eastern half of the project. ORV activity could also be regulated within the Anza Borrego Desert State Park.

L. ENERGY

1. Existing Setting

Because of its relatively isolated location, the Borrego Valley does not enjoy the diversity of energy sources available in the coastal metropolitan areas. The primary source of energy for domestic and commercial uses is electricity. The valley is not served by natural gas. The Roadrunner Mobile Home Park is the only facility which uses liquified natural gas (LNG). Small users of propane and butane are scattered throughout the valley. Alternative energy sources, such as wind and solar energy, are not widely utilized yet in Borrego, although the valley could prove to be an ideal testing ground for many such alternatives.

As the primary source of energy, electricity is used for home purposes such as heating, cooling and the operation of appliances; for commercial purposes such as lighting; for domestic and agricultural water supply; and for industry. The one industry located in the valley, other than agriculture, is the Borrego Assembly, which manufactures electronic circuit boards.

Electric service is provided by the San Diego Gas and Electric Company which operates one substation in Borrego Springs with a capacity of 8.75 megawatts. One transmission line corridor, which runs adjacent to Borrego Springs Road, serves the substation. San Diego Gas and Electric utilizes an intertied transmission system, so electricity to Borrego Springs can come from numerous generating stations located in the coastal areas using a multitude of fuels. San Diego Gas and Electric was unable to ascertain the number of kilowatt hours used each month in Borrego, although patterns in peak demand were identified. (22)

Electrical consumption patterns in the Borrego Valley evidence a strong seasonality. The peak electrical demand is greatest during the summer when the peak demand at the Borrego Springs substation is between 5.5 and six megawatts per day. This high demand is probably attributable to the high energy consumption for air conditioning and for water pumping. Winter peak demand is approximately 75 percent of summer peak, or four to 4.5 megawatts per day. Space heating is probably responsible for a large portion of this demand. Spring and fall peak demands are approximately 65 percent of the summer peak, or 3.5 to four megawatts per day. (23)

Gasoline and diesel fuels for transportation and commuting are the other primary energy resources utilized in the Borrego Valley. Food and supplies for Borrego Springs are trucked in from the coastal metropolitan areas and from the Imperial Valley. Agricultural products are in turn trucked out to market. Borrego Springs is a resort and second home community for coastal residents. The valley has limited support services so residents make long distance trips to the coastal metropolitan areas for major shopping, medical care, entertainment and other purposes. The valley also features the headquarters of the Anza Borrego Desert State Park. Average trip length into the valley from San Diego is 65 miles; the trip length from El Centro is 65 miles. Locally, the Borrego Springs residential community is dispersed with shopping facilities centralized downtown. The average local trip length is approximately eight miles.

The Borrego Valley provides an ideal setting for utilization of solar energy. The generally clear skies permit the collection of large amounts of solar energy on a year-round basis. Temperatures during the winter are relatively mild, thus reducing the heating lost and improving collector efficiency. Thermal storage is required mainly for providing heat at night and not for prolonged periods of cloud cover. Table IV-L-1 is a table of the estimated available solar radiation at Borrego Springs. Table IV-L-2 is a table of the average temperature and number of heating degree days by month in Borrego Springs.

2. Potential Impacts

The Rams' Hill project would increase the level of energy consumption in the Borrego Valley. Electricity would be used for domestic purposes and to supply power for the sewage system and for water supply. Petroleum fuels would be consumed for transportation. Total domestic consumption would be minimized by the use of solar energy and by basic design constraints. Domestic energy consumption is analyzed in the Solar Energy Feasibility Report prepared by Dr. Dennis Kasper. This report is included in full as Technical Appendix F to the EIR. The Solar Energy Report analyzes the energy consumption for each domestic function (lighting, space heating, appliances) by land use (hotel, condominium, single family home). In addition to the domestic energy

Table IV-L-1

ESTIMATED AVAILABLE SOLAR RADIATION AT BORREGO SPRINGS

	Radiation on Horizontal Surface (BTY/FT^2 day)	Radiation on Surface at 30° from Horizontal (BTU/FT^2 day)
January	1014	1615
February	1364	1904
March	1751	2075
April	2027	2057
May	2286	2066
June	2396	2036
July	2396	2086
August	2212	2111
September	1990	2020
October	1475	1949
November	1106	1679
December	922	1536

From: Kasper, Dennis, "The Effect of Solar Energy on Electrical Energy Demands at Borrego Springs" p. III-3

Table IV-L-2

CLIMATOLOGICAL DATA FOR BORREGO DESERT PARK
AVERAGE TEMPERATURE AND DEGREE DAYS

Month	Average Temperature (a)	Heating Degree Days (b)
January	55.4	293
February	58.4	166
March	61.4	155
April	66.5	52
May	77.6	14
June	87.0	0
July	90.8	0
August	89.3	0
September	84.6	0
October	74.6	9
November	64.3	106
December	57.6	260
Total		1,055
Average	72.2	

(a) Average 1973-1976 Borrego Desert Park, degrees Fahrenheit.

(b) Average 1972-1977 Borrego Desert Park.

From: Kasper, Dennis, "The Effect of Solar Energy on Electrical Energy Demands at Borrego Springs", p. III-5

projection, the energy required to operate public facilities, such as water wells and the sewage treatment plant, has been estimated. The fuel consumed for transportation by residents, guests and commercial service vehicles has been projected based on vehicle miles traveled.

a. Domestic Energy

The Solar Energy Report projects the level of energy consumption for domestic and hotel-resort uses. These uses include space conditioning, cooking, appliances, laundry, and illumination. For purposes of this analysis, a worst case projection of domestic electrical consumption was used. In practice, domestic consumption for electrical appliances tends to be substantially less than this maximum projected figure. The analysis for space conditioning is based on standard formulas in use by the State Uniform Building Code.

Because occupancy fluctuates substantially in a desert resort area such as Borrego Springs, the seasonal occupancy has a significant effect on monthly and yearly energy requirements. The Solar Energy Report projects energy consumption based on a net monthly occupancy factor. Net monthly occupancy equals the percentage of units occupied plus a factor to account for base load usage of unoccupied units. Base load includes energy to maintain minimum lighting, space conditioning and other maintenance needs. During the summer months when the average occupancy is as high as 35 percent, the net occupancy approaches 50 percent, since it is assumed that the unoccupied dwellings would increase the load by about 15 percent. Figure IV-L-2 illustrates the projected occupancy fluctuations which have been used for planning purposes in this study.

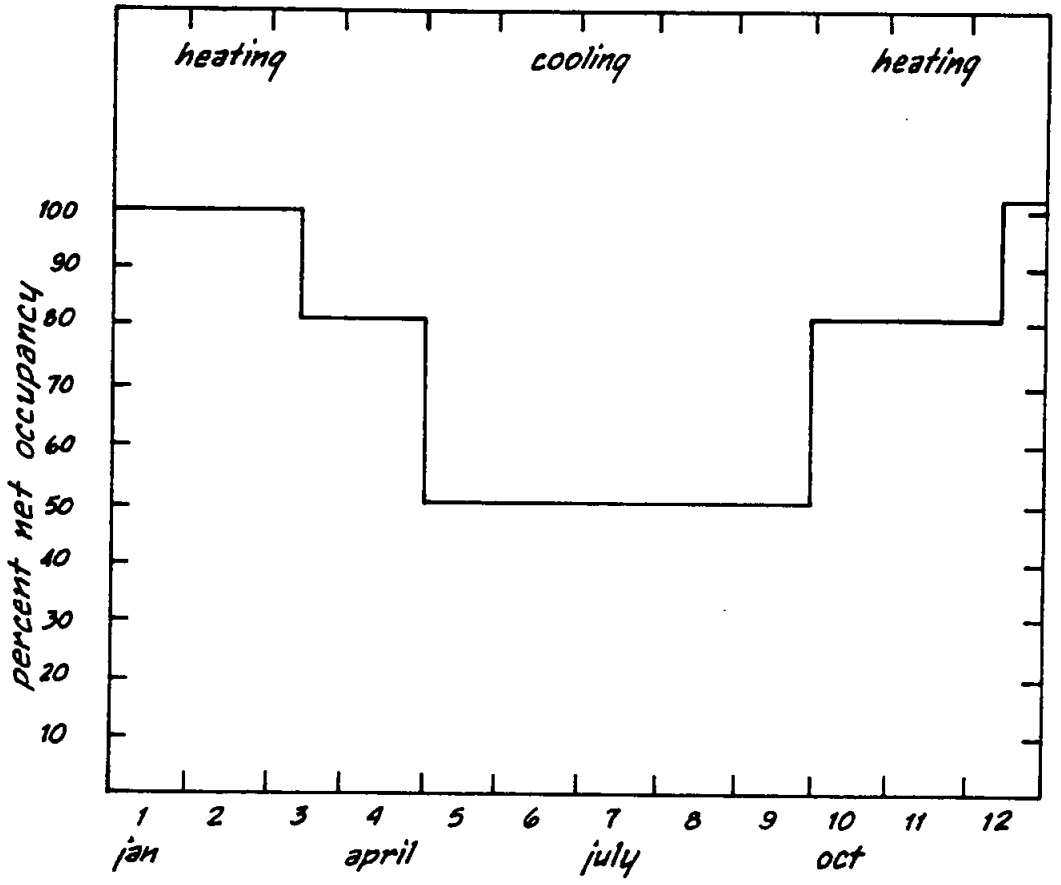
Assuming that the entire energy needs of the project would be supplied by electricity and assuming no mitigation through the use of solar space and water heating, Kasper estimated that the annual electricity demand would be 19,418,700 kilowatt hours. Monthly electricity demand would range from a high of 2,299,500 kilowatt hours in the summer to a low of 913,700 kilowatt hours in the late spring. The peak monthly demand would occur in July even though net occupancy is assumed to be only 50 percent during the month. The large energy requirement in July would be due to the large electrical requirement for air conditioning. In a theoretical worst case context, should year-round occupancy of all dwellings occur, the peak power demands which would occur during July could possibly increase almost two-fold over the projected demands. Table IV-L-3 is a projection of the total energy demands by use each month for the Specific Plan phase of development.

Figure IV-L-1

PROJECTED SEASONAL VARIATION
IN NET OCCUPANCY

FIGURE IV-L-1

Projected Seasonal Variation in Net Occupancy



b. Solar Energy

The energy requirements would not be met entirely by electricity. Solar energy would be used for pool, water and space heating. Solar energy would not be used for space cooling because no reliable systems are yet available commercially. Dr. Kasper projected the reduction in electricity consumption with the use of solar equipment designed to supply 70 percent of the hot water/space heating requirements for January. A net occupancy and utilization factor of 50 percent for summer was assumed for planning purposes as explained above. Use of solar energy for both water and space heating would substantially reduce annual energy requirements from 19,418,700 kilowatt hours to 13,033,700 kilowatt hours. Peak power savings of 956,800 kilowatt hours per month would occur during December when heating demands would be greatest. Peak power consumption still would occur during summer when no space heating requirements occur and when all water heating is done by the solar system. Table IV-L-4 summarizes the projected reduction in both annual and peak monthly electrical requirements which would be achieved by application of the proposed solar energy system.

c. Water and Sewer Energy Consumption

In addition to the energy required for domestic purposes, electricity would be required to operate the waste water treatment plant and the pumps for water supply. The energy requirements of the waste water treatment facilities have been estimated in the Lowry and Associates report, Waste Water Reclamation, Rams' Hill Country Club, which is included as Technical Appendix E. The electricity to operate well pumps has been estimated based on project projected demand and Borrego well data in "Water Supply for Southern Borrego Valley Project" by Linden Burzell.

Lowry and Associates have estimated the power requirements of the waste water reclamation plant functioning at its design capacity of 250,000 gallons per day. Electrical energy demand would be proportional to the volume of sewage processed by the plant. The larger the flows, the longer the pumps would need to operate. The energy requirements presented below would not be applicable to the marginal volumes which could be expected before the Specific Plan is fully implemented. The estimates would also not apply to flows below 100,000 gpd. These low flow periods would occur during summer months, when sewage effluent is not being recycled for use on the golf course.

Table IV-L-3

TOTAL ENERGY DEMANDS FOR RAMS' HILL SPECIFIC PLAN

Month	Hot Water (KWH)	Space Heater (KWH)	A/C (KWH)	Appliances (KWH)	Total (KWH)
January(100%) a	462,200	904,700	0	753,300	2,120,200
February (100%)	462,200	513,900	0	753,300	1,729,400
March (90%)	416,000	426,500	0	678,500	1,521,000
April (80%)	370,000	132,200	0	603,700	1,105,900
May (50%)	231,100	20,900	282,400	379,300	913,700
June (50%)	231,100	0	1,297,200	379,300	1,907,600
July (50%)	231,100	0	1,689,100	379,300	2,299,500
August (50%)	231,100	0	1,537,700	379,300	1,645,900
September (50%)	231,100	0	1,035,500	379,300	1,645,900
October (80%)	370,000	16,600	0	603,700	990,300
November (80%)	370,000	264,400	0	603,700	1,238,100
December (90%)	416,000	704,500	0	678,500	1,799,000
Total	4,021,900	2,983,700	5,841,900	6,571,200	19,418,700

a Occupancy factor.

From: Kasper, Dennis, "The Effect of Solar Energy on Electrical Demands at Borrego Springs".

Table IV-L-4

REDUCTION IN ELECTRICAL ENERGY DEMAND
WITH SOLAR HOT WATER

Month	Total Energy Demand (KWH)	Total Hot Water Demand (KWH)	Hot Water Energy Demand Supplied by Solar (KWH)	Total Electrical Energy Demand with Solar Hot Water (KWH)
January	2,120,200	462,200	323,500	1,796,700
February	1,729,400	462,200	381,400	1,348,000
March	1,521,000	416,000	415,600	1,105,400
April	1,105,900	370,000	370,000	735,900
May	913,700	231,100	231,100	682,600
June	1,907,600	231,100	231,100	1,676,500
July	2,299,500 b	231,100	231,100	2,068,400
August	2,148,100	231,100	231,100	1,917,000
September	1,645,900	231,100	231,100	1,414,800
October	990,300	370,000	370,000	620,300
November	1,238,100	370,000	336,300	901,800
December	1,799,000	416,000	307,700	1,491,300
Total	19,418,700	4,021,900	3,660,000	15,758,700

a Based on supply 70 percent of January hot water demand with Solar. Other months use:

$$(\text{Jan Solar Supply}) \times \frac{\text{Monthly Rad.}}{\text{January Rad.}} = \text{Monthly Water Supply}$$

b Peak Electrical Requirement

Electricity would be required to operate equipment in the sewage treatment plant including the cominutor, aeration brushes, secondary clarifier, return sludge pump, and reclaimed water pumps. The combined horsepower necessary to run the equipment would be 56 HP per hour. For a maximum flow day, power consumption would therefore be:

56 HP (.746 kw/hour) x (24 hours) = 1,003 KwH/day of maximum flow

During low flow periods below 100,000 gpd, the sewage effluent would not be recycled for use on the golf course, so the reclaimed water pumps would not be operating. The combined horsepower required to run equipment during non-recycling flows would be 36 HP per hour. Power consumption during summer would therefore be:

36 HP (.746 kw/hour x (24 hours) = 645 KwH/day of low flow

Annual energy consumption to operate the sewage treatment plant would be:

265 days (1,003 KwH day) + 100 days (645 KwH/day) = 330,295 HwH/year

In Water Supply for the Southern Borrego Valley, Linden Burzell has estimated the amount of electricity needed to supply water for the project, using four wells, with known flow rates and well depths, three of which are on the property and one of which is on a parcel located a mile away. This analysis can be assumed to be representative of energy requirements to operate wells within the Borrego Valley today. Should the water table drop, the energy needed to pump water would increase. Should wells be used other than the three located on-site and the one located off-site, additional energy would be required to pump water up grades and over longer distances. The total energy expended to supply water to this project, therefore, would probably increase over time. This analysis is a conservative estimate of the amount of electricity needed to supply water for the Specific Plan. Assuming that the Rams' Hill project would require 2064 acre feet of water per year after full implementation of the Specific Plan, the electricity required to operate the four on-site well pumps would be:

$$\frac{257 \text{ KWH} \times 1 \text{ hour}}{1970 \text{ gp} \times 60 \text{ min}} \times \frac{325{,}900 \text{ gallons}}{\text{acre feet}} \times \frac{2064 \text{ acre feet}}{\text{year}} =$$

1,462,547 KWH per year

d. Gasoline Consumption

The implementation of the Rams' Hill project would incrementally increase the amount of gasoline consumed in the Borrego Valley. The valley has limited support services available, so residents of Rams' Hill would make short distance trips within Borrego Valley and long distance trips to the coastal metropolitan areas. This would be somewhat mitigated by the provision of transit service to San Diego by the County Rural Lifeline Transit System which will begin operations in January, 1979. Air line service is also expected to increase with the implementation of the project. Supplies and provisions for residents of the project and for the resort complex would need to be trucked in from nearby coastal areas and from the Imperial Valley. The level of tourism in the State Park could increase above that level currently projected by the California State Department of Parks and Recreation due to increased trips by project residents, guests and resort visitors.

CalTrans has estimated that the 1985 automobile fleet will have a fuel economy of 18.5 miles per gallon. This factor assumes that the "Federal Energy Policy and Conservation Act of 1975", which mandates fuel performance standards for automobiles, is not quite met. Using this factor of 18.5 miles per gallon, the following calculations estimate the amount of gasoline which would be consumed by residents of the project, guests and resort visitors. These calculations include the gasoline associated with trucking supplies into the valley for use at Rams' Hill.

$$18.5 \frac{\text{miles}}{\text{gallon}} \div \frac{167{,}597 \text{ miles}}{\text{peak season day}} = \frac{9{,}059 \text{ gallons}}{\text{peak season day}}$$

$$18.5 \frac{\text{miles}}{\text{gallon}} \div \frac{95{,}539 \text{ miles}}{\text{off season day}} = \frac{5{,}164 \text{ gallons}}{\text{off season day}}$$

$$183 \text{ peak season days} \times \frac{9{,}059 \text{ gallons}}{\text{peak season day}} +$$

$$182 \text{ off season days} \times \frac{5{,}164 \text{ gallons}}{\text{off season day}} = 2{,}597{,}645 \text{ gallons/year}$$

e. Concept Plan

The energy requirements for the second Specific Plan phase can not be precisely determined since the uses are planned in concept only at this time. It is anticipated that the numbers of residential units would double and the number of hotel rooms would increase by 250 units. Therefore it can be assumed that the total domestic energy consumption

would double in the concept phase, as would the energy used for transportation. The energy required to run the waste water facility would more than double since the number of low flow days would be considerably less with more units and with people residing year-round. The energy needed to pump water would increase by about 25 percent.

f. Comparative Energy Use

Because of the climatic and elevation differences, the energy requirements for heating and cooling homes varies widely in San Diego County. One good indicator of these requirements is the climatic design data listed in the Energy Conservation Standards for new residential buildings (California Administrative Code) for various towns in the County. Table IV-L-5 includes design data for a sample of areas in the County.

Table IV-L-5

Climate Design Data
San Diego County

Location	Heating Degree Days	Winter Design	Summer Design
Ramona	2,223	26	99
Alpine	2,104	32	98
El Cajon	1,920	30	96
Escondido	2,052	31	93
Borrego Springs	1,262	28	106
San Diego	1,439	42	84
Envinitas	1,952	39	83
Oceanside	2,092	37	82

As this table indicates, the heating requirements for a home in Borrego are 12 to 45 percent lower than in other parts of the County. The cooling requirements, however, are substantially greater.

San Diego Gas & Electric Company divides San Diego County into three climatic zones: maritime, coastal and inland. The maritime zone includes those areas along the coast, such as Del Mar and Oceanside. The coastal zone includes those areas within a few miles of the coast, such as Chula Vista and Mira Mesa. The inland zone includes areas which are less moderated by the ocean such as El Cajon and Poway. The interior areas such as Ramona and Borrego are also included in the inland zone.

According to data received from San Diego Gas and Electric Company, the average single family all-electric home in the maritime zone uses 11,371 KwH/year; a similar all-electric home in the coastal zone uses 13,966 KwH/year; the average single-family home in the inland zone uses 14,759 KwH/year.

According to data derived from actual meter samples, a typical Borrego residence which is occupied year-round uses 16,635 KwH/year. San Diego Gas and Electric estimates that each Borrego home typically uses 585 KwH/month from late May to late September for space cooling. By contrast only about 15 percent of the homes in the maritime and coastal zones have air conditioning.

The Rams' Hill project will require substantially less energy per unit for heating and cooling than a typical Borrego residence. The Rams' Hill units will be insulated with at least R-19 insulation in the roof and R-11 insulation in the walls. Solar energy systems will be used to meet 70 percent of the space heating requirements. Of the 780 dwelling units proposed, 530 units will be townhouses, which require approximately 30 percent less energy to cool than the typical single-family structure.

The seasonal occupancy anticipated for a second home development such as Rams' Hill will also reduce annual electrical consumption. In similar developments, such as De Anza Country Club and the Roadrunner Mobile Home Park, approximately one third of the units are occupied year round, one third are occupied seasonally and one third are occupied on weekends only. Since as many as two thirds of the units could be vacant during the high energy demand summer months, total annual consumption on the project will be substantially less than the potential maximum consumption.

3. Analysis of Significance

Total annual energy consumption for the project is estimated to be 14,862,542 KwH and 2,597,645 gallons of gasoline per year, based on:

Table IV-L-6

Total Energy Consumption

Domestic	-	13,033,700 KwH per year
Sewage	-	330,295 KwH per year
Water	-	1,462,547 KwH per year
Transportation	-	2,597,645 gallons of gasoline per year

Total domestic energy consumption on the Rams' Hill project would be minimized to the extent feasible by the application of solar technology and passive design techniques. As discussed above, solar energy would be used for pools, water and space heating. The system recommended for use in the Solar Energy Report would be sized at 70 percent of the January hot water/space heating requirement. Implementation of this system would reduce domestic energy demands by one-third from 19,418,700 KwH per year to 13,033,700 KwH.

Passive design and orientation techniques would be encouraged in the siting of the structures to the extent feasible. Proper orientation and shading of buildings would aid in heating a building during cold months and reducing cooling load in the summer. Other design techniques which could be used include maximizing insulation in the roofs and walls, using light colors on building roofs, designing windows and proper landscaping for maximum natural ventilation.

The County Rural Lifeline Transit system will begin service from San Diego to Borrego Springs in January, 1979. The increase in valley population due to the project could create demand to further increase the level of service available from the transit system. Utilization of this service by project residents would decrease the number of long-distance vehicle trips between the coastal areas and the project, thereby reducing gasoline consumption.

The complex would include an internal and a regional trail system to encourage walking, bicycling and riding. Clustering of dwelling units and the provision of services on site would minimize number and length of vehicle trips.

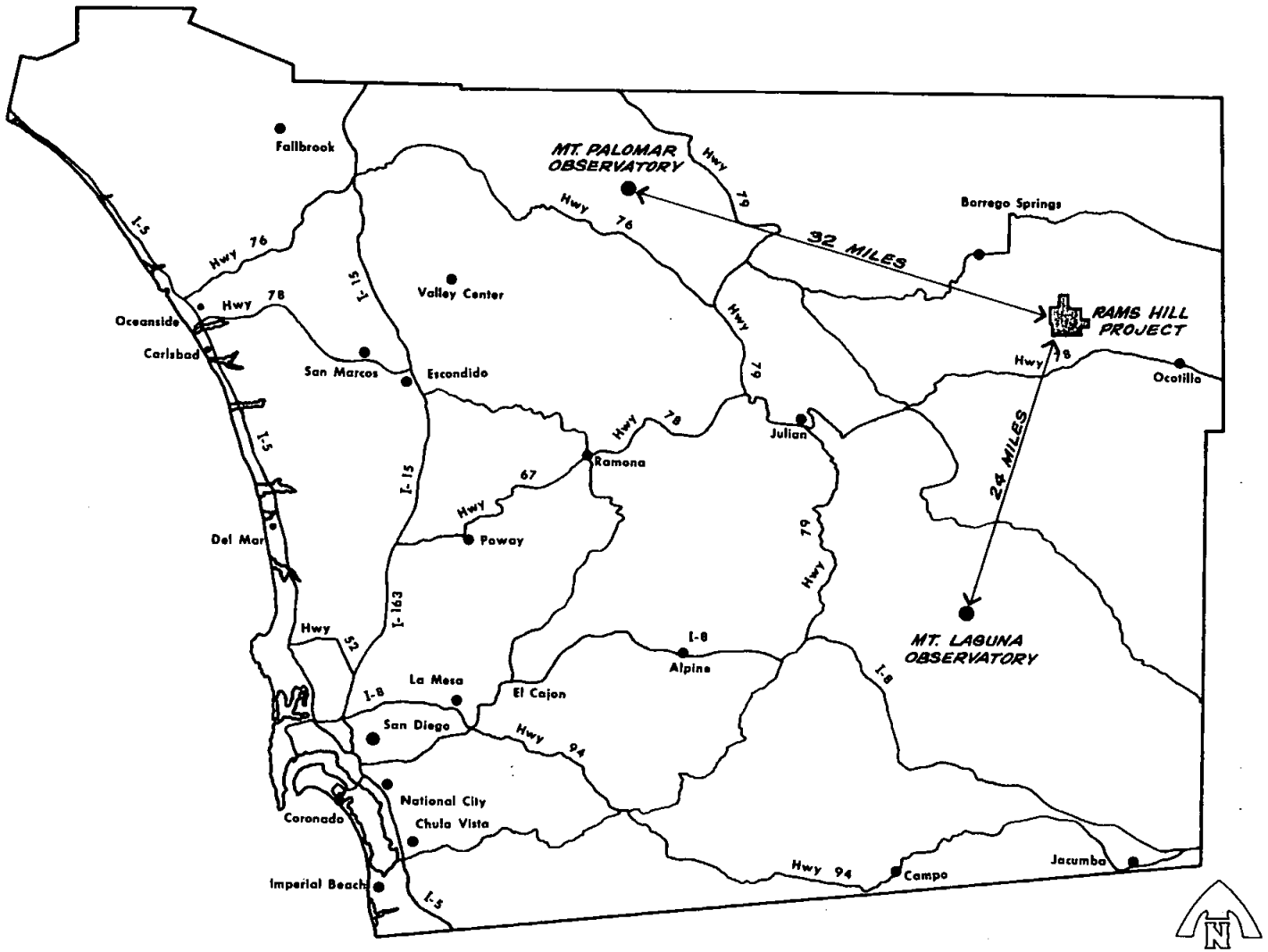
The waste water treatment facility would be designed to handle a large variability in flow volumes, from 250,000 gallons per day in winter to 50,000 gallons per day or below in summer. Effluent would be recycled for use on the golf course during high flow periods, but discharged to percolation beds during low flow periods. This flexibility would provide more efficient and economical performance. Total annual energy required for plant operation would be reduced from a maximum of 366,095 KwH, assuming all pumps would operate 24 hours a day year round, to approximately 330,295 KwH per year.

The Rams' Hill project would significantly increase the amount of energy consumed in the Borrego Valley. Due to the proposed size of the development, San Diego Gas and Electric Company has stated that it is possible that an increase in the capacity of the Borrego Springs substation might be necessary. This could entail the construction of a second transmission line to ensure transmission reliability and some work on the circuit of the distribution system. With the implementation of the second Specific Plan phase and should the Borrego Country Club project also be built, the likelihood that the additional capacity would be needed is significantly greater.

Because there is only one transmission line available currently, a potential exists within the Borrego Valley for a disruption in energy service. Such a disruption of electrical service could have a significant adverse impact

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dark sky–

location of observatories relative to project site

M. DARK SKIES

1. Existing Setting

The dark sky issue relates to the impact that additional urban illumination can have on the scientific research capabilities of the astronomical observatories in San Diego County. San Diego County is the home of two major astronomical research observatories: the Mt. Palomar Observatory, operated by Hale Observatories, and the San Diego State University Mt. Laguna Observatory. Figure IV-M-1 is a map of the location of the observatories. The renowned Mt. Palomar Observatory houses the world's second largest reflecting telescope, the 200-inch Hale Reflector. Astronomers from around the world wait up to three years to use the Hale Reflector, whose mirror is so powerful that it could detect the striking of a match as far away as San Francisco. The Mt. Laguna Observatory houses a much smaller 60-inch telescope. The sky over the Mt. Laguna Observatory is so dark that it is believed to be the nation's second best dark sky site.

Remarkably few sites in the United States are suitable for observatories because of requirements for clear skies, a stable air mass and dark sky. Mt. Palomar is an outstanding location selected after a ten year search. A number of factors make the Palomar location outstanding. The San Diego mountain area averages approximately 300 clear nights each year. The quality of the "seeing" is excellent because the atmosphere above the site at night is very stable, with a low level of turbulence. The marine inversion, which is responsible for the stability of the night air, traps air pollutants below the crest of the mountains and prevents convection currents from stirring the air mass at higher altitudes. Finally, when the Palomar site was chosen in 1932, the darkness of the natural night sky was particularly good.

Unfortunately, the quality of the dark sky in San Diego County is deteriorating with increasing urbanization. There are three sources of illumination at night. The first is the moon. In practice, difficult observations are always made during the two weeks around new moon, when the moon is not in the sky. The second source of nighttime illumination is the earth's atmosphere. Particles from the sun bombard the upper atmosphere and produce the ionosphere. This ionosphere glows and produces radiation at some selected colors, mostly in the red and infrared part of the spectrum. The third source of nighttime illumination is the artificial light associated with populated areas in the valley and along the coast. The light which is of most concern to

on the community. Should SDG&E studies indicate that the situation warrants the construction of a second transmission line, reliability of service to Borrego would increase substantially, providing a net benefit to the entire community.

A medical clinic would be built on-site which would provide emergency medical services and out patient care for the public. Borrego currently has only one doctor and no hospital facilities. Residents have to seek medical care in coastal areas or in the Imperial Valley. The provision of medical outpatient care would incrementally decrease the number of long distance trips made by Borrego residents.

astronomers is the artificial light emitted toward the blue end of the spectrum, where most astronomical photographic emulsions and photoelectric detectors have their peak sensitivity. Therefore, the natural darkness of the sky depends upon the brightness of the moon, the degree of radiation from the ionosphere and artificial illumination.

Any general decrease in the darkness of the sky in San Diego County is significant because it limits the extent of research which can be performed at the Mt. Palomar and Laguna observatories. The natural brightness of the night sky in Southern California is about 22 magnitude per square second of arc. Observations made with telescopes which point over San Diego and Los Angeles show a substantially higher brightness Mt. Palomar suffered a zenith light pollution level in 1965, which was only about 0.1 magnitude or roughly ten percent of the natural light of the night sky. Los Angeles and San Diego contributed almost equally to this pollution, although from quite different distances. Currently, at Palomar Observatory on the 200-inch telescope, photographic exposures cannot be made for periods of time longer than that required to just record 24th magnitude stars. Skylight fogs photographic plates when exposure time exceeds this value. An approximate calculation indicates that if artificial sky illumination becomes comparable with that from the natural sky, all exposures will have to be two times longer; in other words, the telescope will become less efficient by a factor of two.

Most artificial sky illumination which affects Palomar now comes from the cities of San Diego and Los Angeles. The smaller communities such as Ramona, Escondido and Valley Center, however, which are closer to the observatories, also have a significant impact on the dark sky. Although the quantity of light emitted from these small towns is much lower than that from the cities, the impact of the light sources increases geometrically with the closer distance.

Of particular importance with regard to development, is the eastern perspective from the observatories. To the east of the mountains, the closest major developed area is the Imperial Valley. Because of distance from the observatories, light pollution from the Imperial Valley does not impact the dark sky. Consequently, the darker eastern horizon permits more detailed investigations of the heavens because observation can begin much closer to the horizon, allowing a relatively longer exposure time.

2. Potential Impacts

Development of the Rams' Hill project could impact the quality of the dark sky to the east of the Mt. Palomar and Mt. Laguna Observatories if proper mitigation were not undertaken. The project site is located in the Borrego Valley, 32 miles east of the Mt. Palomar Observatory and 24 miles south of Mt. Laguna. Rams' Hill would include 780 new homes, a hotel-resort complex with lighted tennis courts, and a medical clinic. Each light source would contribute incrementally to the illumination received at the observatories. Because the eastern horizon is currently not plagued by light pollution, impacts to the eastern perspective are relatively more severe than those to the west. Therefore, a small light source, such as the Rams' Hill development, could have an incrementally greater impact than if the development occurred along the coast. Currently there is no acceptable methodology for quantifying and projecting the extent of impact. San Diego Gas and Electric Company and San Diego State University are studying the problem to help provide such a quantitative procedure.

The 966 acres included in the Concept Plan areas would be developed after full implementation of this Specific Plan phase. This second Specific Plan would approximately double the number of light sources at the Ram's Hill project.

3. Analysis of Significance

A number of relatively simple measures would be taken which would significantly reduce the impact of the project on dark skies. These measures would be consistent with the project's goal of promoting the natural desert serenity. The primary objectives of this mitigation are (1) to minimize the amount of ultraviolet radiation emitted by the light fixtures; (2) to avoid any light being directed toward the observatories; (3) to avoid creating any luminous surfaces such as lighted tennis courts; and (4) above all, to prevent the direct projection of light above the horizontal from any light sources.

All outdoor lighting fixtures would be shaded on top so that all light shines downward. This would increase the ground illumination while decreasing the amount of light going into the sky. Cut-off luminaries can be used which emit no light above 90 , thereby eliminating unwanted light scattering into the atmosphere. Either low-pressure mercury lamps equipped with ultraviolet filters or high-pressure sodium lamps can be used in outdoor fixtures.

The most troublesome light for astronomers is that light emitted within certain ultraviolet bands where the astronomical photographic emulsions are most sensitive. These lamps minimize ultraviolet radiation while maximizing light in the visible bands. Quartz or incandescent lamps can be used for decorative lighting as long as they are not directed toward the observatories.

Various design features of the project would minimize light sources. The golf course would not be lighted at night. The tennis courts at the hotel complex and perhaps within the residential areas would be lighted for a limited period each night. Cut-off luminaries using high sodium lamps with flood light configuration should be used to light the tennis courts. All lights for the pools, outside club house facilities and tennis courts would be turned off at a reasonable hour.

If the suggested mitigating measures are implemented, the Rams' Hill project should not significantly impact the quality of the dark sky to the east of the Mt. Palomar and Mt. Laguna Observatories.

N. TRAFFIC

Introduction

The following discussion is based upon an extensive traffic analysis included in full as a technical appendix to the EIR. The technical reader is referred to this appendix for more detailed information on generation factors, assignments and associated data. Because the population of the valley is so low today, and because implementation of Rams' Hill is projected to approximately double this population, the full traffic analysis considered the impacts both to valley-wide circulation and to circulation in the immediate vicinity of the project.

1. Existing Setting

The Rams' Hill site is located in the sparsely settled Borrego Valley in eastern San Diego County. There are four main access routes into the Borrego Valley:

1. Montezuma Valley Road (S22) which serves traffic from points to the west, such as Lake Henshaw and Warner Springs.

2. Borrego Salton Seaway (S22), which serves traffic from points to the east, beyond the Santa Rosa Mountains.

3. Yaqui Pass Road (S3), which serves traffic from points to the south, such as Julian, Agua Caliente and the more densely populated areas of San Diego County.

4. Borrego Springs Road, which serves points to the southeast, such as Ocotillo Wells and El Centro.

The roads in the Borrego Springs community which are most heavily travelled today are Palm Canyon, Borrego Springs and Borrego Valley Roads. Not only do they serve as routes for the State Park and through traffic in the valley, but they also lead local traffic to the major trip attractors in the valley. These attractors include the many State Park subareas which surround the community, the Mall, Christmas Circle, and the County airport. Rams' Hill traffic would rely heavily on these three local roads to provide access to and from these attractors. Access to the Rams' Hill site is provided by Yaqui Pass Road, which bounds the property on the west; and by Borrego Springs Road which transects the northeastern portion of the site. Figure IV-N-1 is a map of the 1978 Borrego Springs Road Network, the Rams' Hill project site, and the 1978 traffic counts.

Borrego Springs is subject to wide variation in traffic volumes during the year. This is due to its location within a popular desert state park only a few hours' drive from the more densely populated areas of San Diego and Los Angeles. Visitors are also attracted by its seasonal weather patterns. Borrego has a cool and pleasant climate during the peak season winter months. By contrast, during off season summer months, temperatures often exceed 100 degrees. These variations result in very high traffic volumes during the months between November and April, with peaks occurring on Saturdays, Sundays and holidays; and by very low volumes during the months between May and October, with the lowest volumes occurring on non-holiday weekdays.

These wide seasonal variations are of major concern. The road system in the area would be over-built for the off-season if only peak season traffic were to be considered, and yet, it would cause severe congestion during the peak season if off-season traffic were to be considered alone.

Analysis is therefore based on peak season, weakday traffic. It is assumed that peak season weekend traffic would be approximately 10 - 20 percent more and that off-season weekday traffic would be 20 to 30 percent less than this model traffic.

a. Trip Generators

The main trip generators in the Borrego Valley today are: (1) the Anza Borrego Desert State Park; (2) the commercial areas of Christmas Circle and The Mall; (3) and the Borrego Valley Airport. The Anza Borrego Desert State Park attracts tourists from outside the valley who also make local trips while visiting the park. Since the various park areas completely surround the residential community in the valley, the State Park traffic must necessarily be routed onto the local roads across the community. Future traffic generated by State Park visitors will thus be an integral part of the traffic impact analysis. Figure IV-A-2 is a map showing the relationship of Anza Borrego Desert State Park to the Borrego Valley enclave.

The Mall and the small shops at Christmas Circle currently serve as the main Borrego Springs commercial trip generators. The several grocery, drug and clothing stores, as well as banks and real estate offices, generate trips by residents, as well as tourists.

The San Diego County Department of Transportation Airports Division operates a small airport in Borrego Springs. It is located north of Palm Canyon Road and east of Borrego Valley

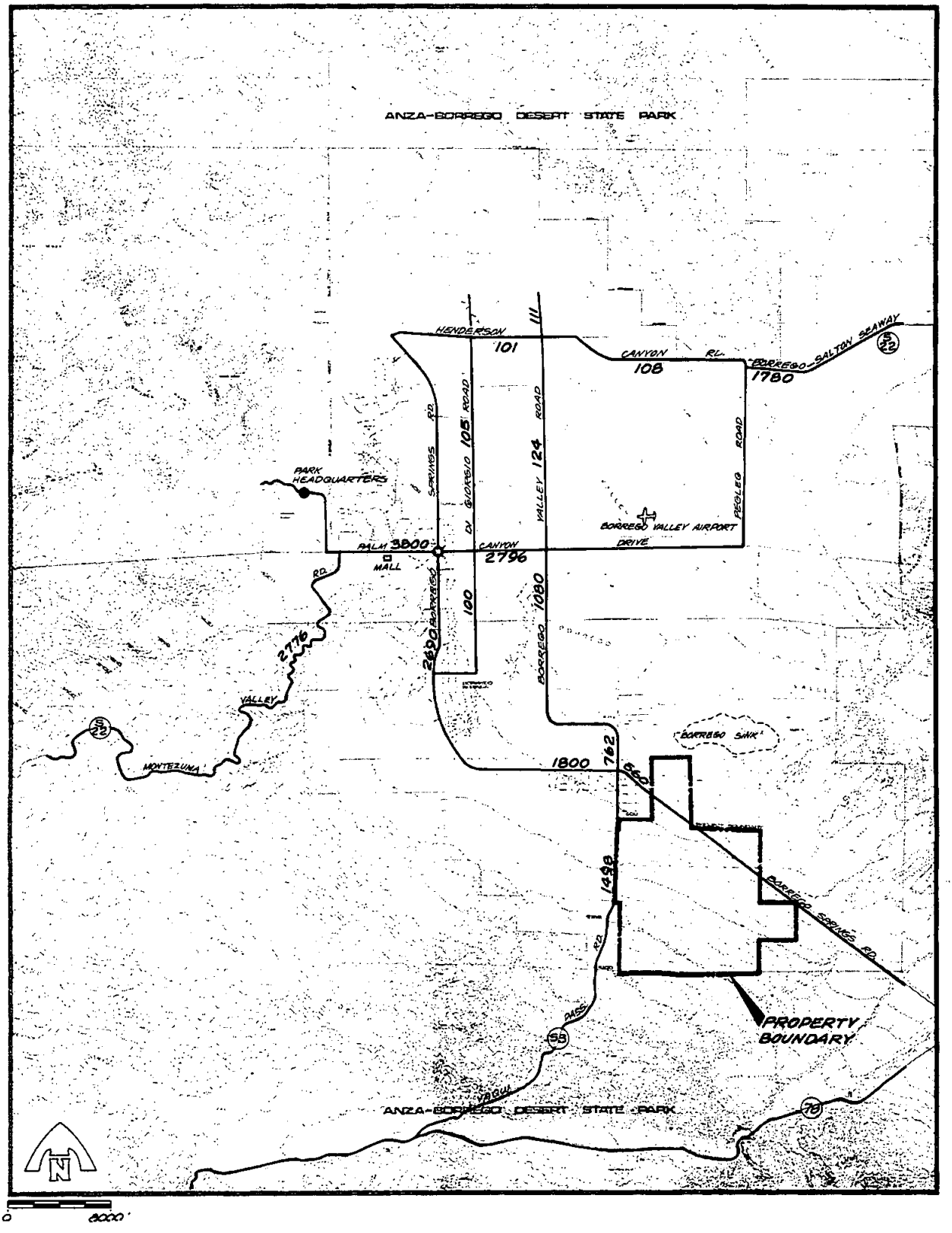
Road. The County recently completed work on the 5,000 foot runway, which is capable of handling 300,000 planes per year. The runway renovation enables the airport to provide service for small jets. Although there are no plans in the near future for a control tower, photo-electrically controlled runway lighting has been installed, making it possible for the airport to function effectively 24 hours a day. The airport is available for both private and commercial flights. Sun Aire Lines is presently running a commuter service to the airport. In 1977, the airport served 38,000 flights, 80 percent of which were for recreation, executive and business purposes. The remaining 20 percent were student cross country trips, group fly-ins and training flights.

b. Existing Traffic Conditions

Since the Borrego Valley is an enclave of the Anza Borrego State Park, circulation within the valley is strongly influenced by Park traffic. The two main access roads into the Valley, Montezuma Valley and Yaqui Pass Roads, often experience high levels of congestion during peak season. Visitor traffic from the west and south bottlenecks on the steep grades and winding paths of the narrow, two-lane rural roads. The passing of slower vehicles is severely restricted by the roads' narrow widths and curves. The existing daily traffic counts on these roads are 2,776 and 1,498. Approximately 20 percent of this 24-hour volume occurs during the peak hours, just before and just after noon. CalTrans and San Diego County DOT assume a capacity of 300-400 vehicles per hour for winding, mountain roads, such as Montezuma Valley and Yaqui Pass Roads. As illustrated in Table IV-N-1 congestion currently occurs during the AM and PM peak hours of the peak season day.

Figure IV-N-1

EXISTING TRAFFIC COUNTS



existing traffic counts – march 30, 1978

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Table IV-N-1

1978
Borrego Springs Main Access Roads
Traffic Profile

	24-Hour Traffic Count 3/30/78*	Trips/Hour AM Peak	Trips/Hour PM Peak	Remaining Daylight Trips Hour[1]	Night Trips Hour[2]
Montezuma Valley Road	2,776	470	480	139	23
Yaqui Pass Road	1,498	345	359	75	12

1 50 percent of 24-hour count (i.e., non-peak hour trips) + 10 hours of remaining daylight

2 10 percent of 24-hour county (i.e., night trips) + 12 hours of night

* Source: San Diego County Department of Transportation Master Traffic Census.

The three roads which serve the central Borrego Springs area, Palm Canyon, Borrego Springs and Borrego Valley Roads, carry the heaviest volumes of local traffic, with 3,800, 2,690 and 1,800 trips respectively. Because of the relatively small number of permanent residents in the Borrego Valley, and because of the dispersed location of the major Borrego trip attractors, there is no significant congestion problem on any of the local Borrego roads today, even during the peak periods of Park visitation.

c. Transit

There is no conventional transit system existing in Borrego Springs today. San Diego County has, however, adopted a Rural Transit Plan that will, in early 1979, provide lifeline transit service to residents in the unincorporated rural areas of the County.

Service to the Borrego Springs area is included in the plan (see the Traffic Appendix). Development of the Rams' Hill project would undoubtedly encourage the future expansion of such a transit plan to further serve the Borrego Springs area.

d. Bicycle

Although the County Bicycle Element contains a bicycle route along Highway 78 to the south of Borrego Springs and beyond Yaqui Ridge, there is no route which directly serves the local Borrego Valley community.

e. Riding and Hiking

The County Regional Riding and Hiking Trail Corridors Map shows a trail encircling the Borrego Springs community. Only a very small portion of this entirely undeveloped trail is included within the northern borders of the Specific Planning Area. No section of the trail has been dedicated to date. The Specific Plan Map illustrates the location of this trail system in relationship to the project site.

f. Scenic Highway

Three scenic highways have been designated within easy traveling distance of the Rams' Hill project. As shown in Figure IV-N-2 the Borrego Salton Seaway, a third priority route, is located at the northern bounday of the Borrego Springs community. Highway 78, an existing route, is located south of Yaqui Pass beginning about five miles from the project site. Montezuma Valley Road, also an existing route, is one of two major access routes into the valley from the west.

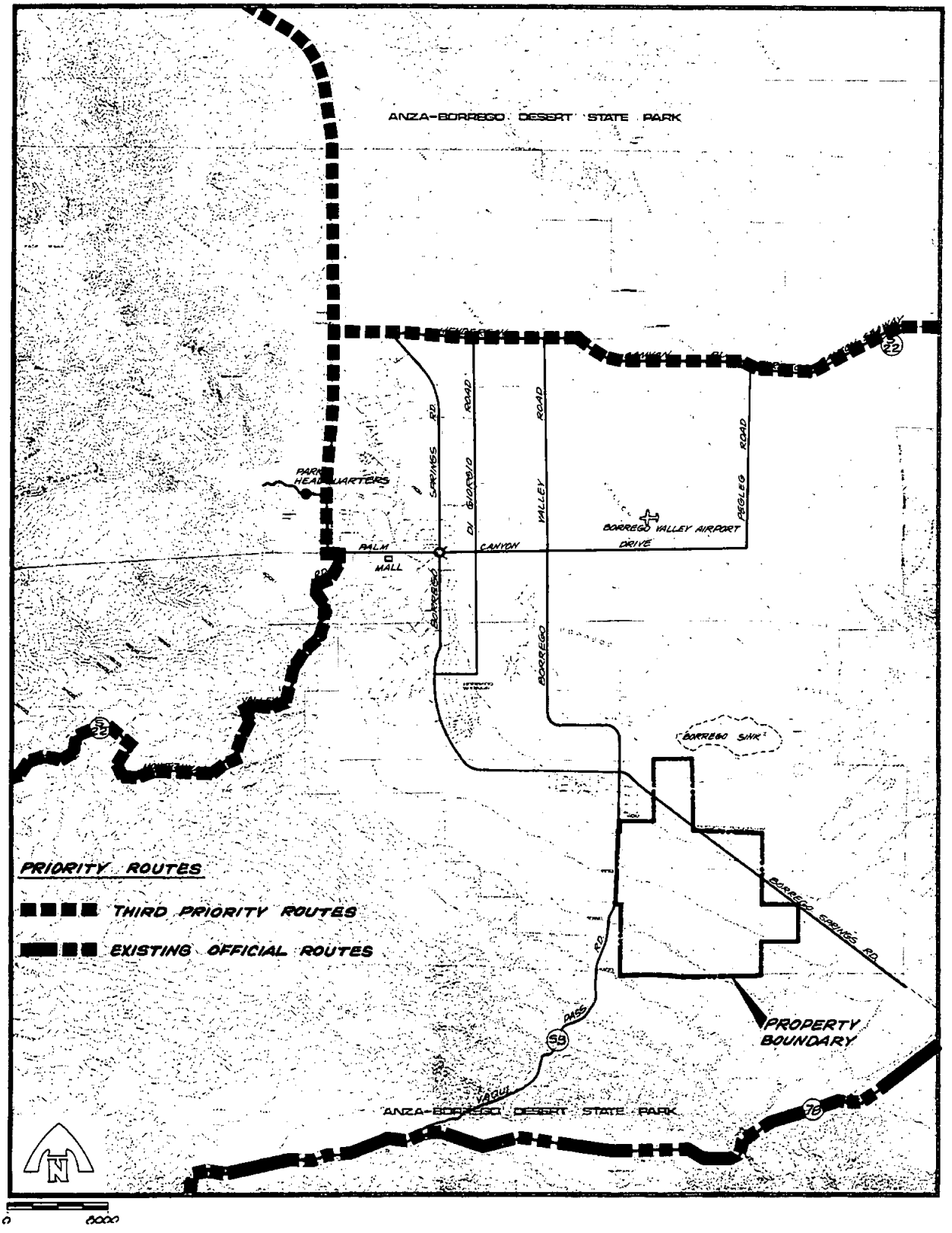
g. Circulation Element

The Circulation Element of the San Diego County General Plan, as adopted by the Board of Supervisors, is a schematic representation of the planned road right of way corridors for which the County believes there will be demand by 1995, or ultimate build-out. The purpose of the Circulation Element is to reserve these corridors for future access based upon designated General Plan land uses.

The Circulation Element for the Borrego Valley is represented on Sheets 3 and 5, (Figure III-H-1) Based upon conversations with County staff, this road network was not designed based upon projected populations or traffic counts, but was designed to accommodate a theoretical "ultimate potential build-out" of the valley.

Figure IV-N-2

SCENIC HIGHWAYS



san diego county scenic highways

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The Circulation Element designates four roads on the Rams' Hill site:

(1) Yaqui Pass Road which bounds the property on the west (SF 1406), is designated as a Major Road with a right of way of 102 feet.

(2) Borrego Springs Road (SA 190), which transects the northeast portion of the site, is designated as a Major Road with a right of way of 102 feet.

(3) SC 460 is designated as a Collector Road with a right of way of 84 feet. Unlike Yaqui Pass and Borrego Springs Roads, SC 460 does not exist at present. The Circulation Element schematic represents SC 460 as bisecting the property from east to west. No adjacent sections of this road have been built or dedicated at present. The developer proposes to relocate this road north of the Circulation Element representation in conformance with Exhibit C-9 of GPA 76-02, the Concept Map governing development on this project. Refer to Figures III-F-1 and III-H-1 to compare the alternate locations for SC 460.

(4) Old Borrego Valley Road (SC 500) is designated as a Collector Road with a right of way of 84 feet. This road is currently a dirt trail which bisects the property from northwest to southeast. The Circulation Element schematic represents this road as bounding the eastern panhandle of the property.

2. Potential Impacts

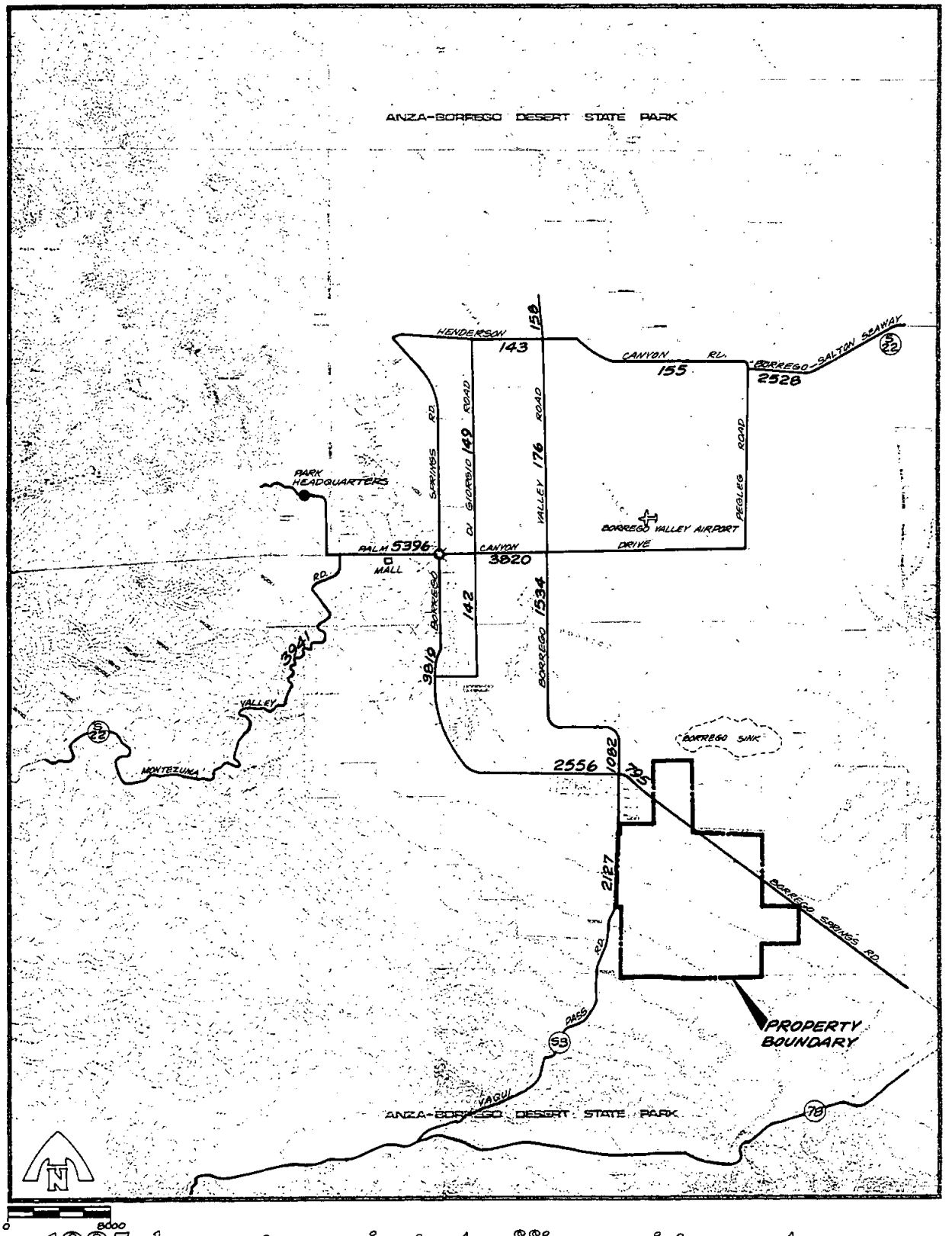
a. Without Rams' Hill 1985

Between 1978 and 1985, traffic volumes in the Borrego Valley will increase by about 42 percent without the implementation of Rams' Hill. Presently the residents account for approximately 41 percent of the trips, while the Park generates approximately 59 percent. The total permanent and seasonal population is projected to increase by 68 percent (see Growth Inducement). Park officials project a growth in attendance at the State Park Headquarters of 25 percent by 1985. (Personal communication with Dora Teal). Figure IV-N-3 shows the 1985 traffic assignment for Borrego Springs without Rams' Hill.

The 1985 Borrego Springs traffic assignment without Rams' Hill indicates minor congestion impacts only on the two access roads

Figure IV-N-3

1985 TRAFFIC ASSIGNMENT WITHOUT RAMS' HILL



1985 borrego springs traffic assignment
without rams hill

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into the Valley, Montezuma Valley and Yaqui Pass Roads. Congestion would occur only during peak hours (shortly before and shortly after noon) in the peak season. While County DOT assumes the capacities of these roads as they exist today to be 300 to 400 vehicles per hour, the projected peak hour traffic exceeds those levels, as shown in Table IV-N-2.

Table IV-N-2

1985
Borrego Springs Main Access Roads
Traffic Profile

	24 Hour Projection	#Trips[1] AM Peak	#Trips[1] PM Peak	Remaining Daylight Traffic/Hour[2]	Night Traffic/Hour[3]
Montezuma Valley Road	3941	788	788	197	33
Yaqui Pass Road	2127	425	425	106	18

[1] 20 percent of 24-hour count occurs in each peak hour

[2] 50 percent of 24-hour count (i.e., non-peak hour traffic) ÷ 10 hours of remaining daylight

[3] 10 percent of 24-hour count (i.e., night traffic) ÷ 12 hours of night

All other Borrego Springs roads would continue to offer Level of Service "A".

b. 1985 Traffic Analysis for Borrego Springs with the Rams' Hill Project

The Rams' Hill project includes several commercial/recreational facilities which would generate considerable levels of traffic: one 350-room resort hotel, a sizeable restaurant with banquet

facilities, 13 tennis courts, a medical clinic, and an 18-hole golf course. These uses would generate a total 6,324 trips per peak season weekday. Rams' Hill residents would contribute 9.8 of these trips while the remaining 5,286 trips would have to enter and leave the project area by the Yaqui Pass Road access.

The Rams' Hill project includes three residential land uses: 530 planned residential units; 200 single family homes; and 50 two to five acre estates. The total number of trips generated by these 780 residential units and destined for points outside the project boundaries is 5302. Figure IV-N-4 is a map of the 1985 traffic assignment with Rams' Hill.

3. Analysis of Significance

a. Impacts of the Rams' Hill Specific Plan on the 1985 Road Network

The impacts of the Rams' Hill development on roads in Borrego Springs and recommended mitigation measures are summarized in Table IV-N-3

Table IV-N-3

Roads Impacted by Rams' Hill Project and Recommended Mitigation Measures

A. Project Vicinity
B. Other Borrego Roads
C. Access Roads to Borrego Valley

	Road	Impact	Mitigation
A.	Yaqui Pass Road (north of access road to project)	None when built to Major Road standards to conform to DOT and Circulation Element requirements	None
	Borrego Springs Road	None	None
	Intersection of Yaqui Pass and Borrego Springs Road	Peak season only: significant congestion and safety hazards caused by turning movements	Traffic signal: normal operation during peak season flashing yellow during off-peak season

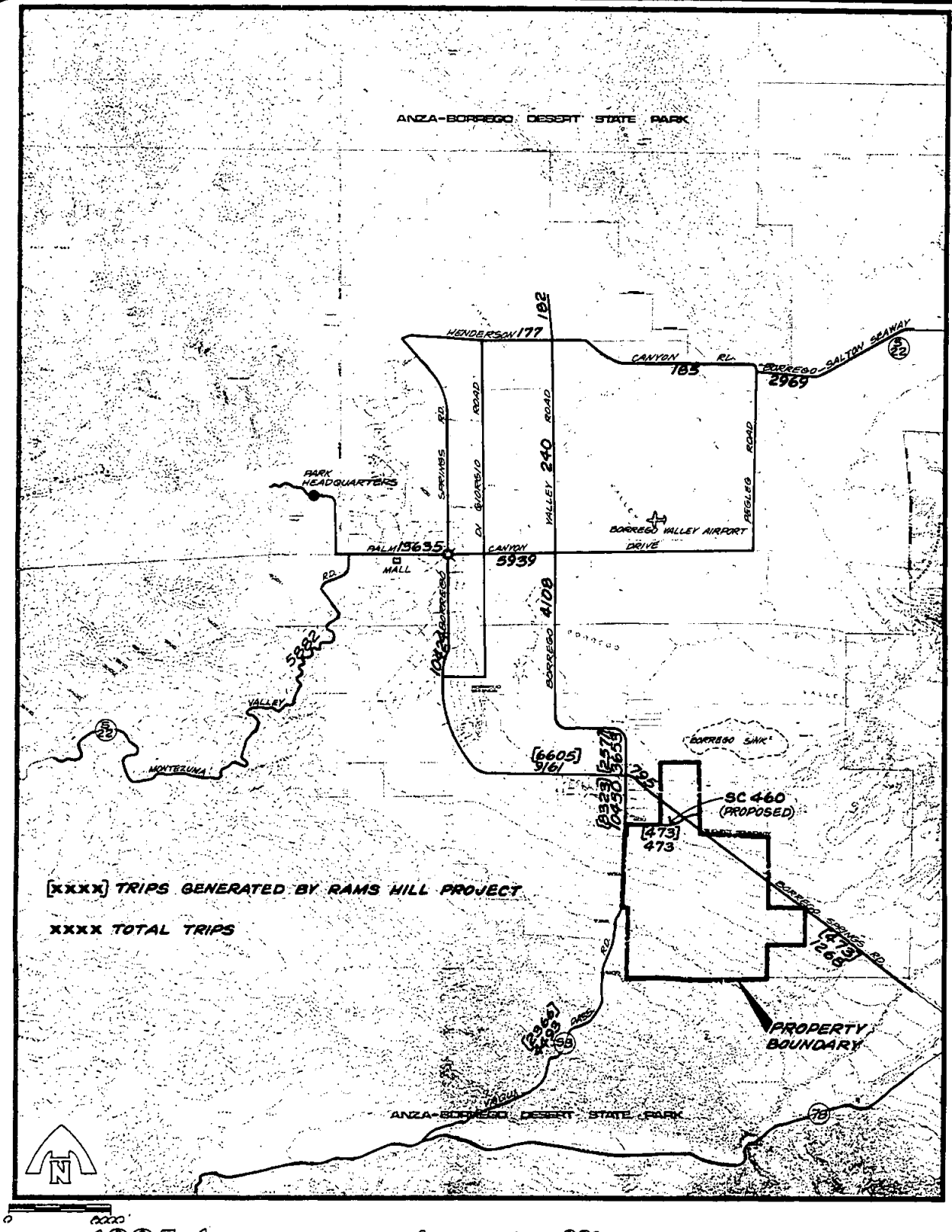
Table IV-N-3 - continued

A. Project Vicinity
B. Other Borrego Roads
C. Access Roads to Borrego Valley

	Road	Impact	Mitigation
B.	Christmas Circle	Peak season only: significant congestion and safety hazards caused by high volumes and driver confusion	Adequate directional signing and roadway striping; construction of roads to County standards (see below)
	Borrego Springs Road (south of Christmas Circle)	Peak season only: significant congestion	Construction to County Major Road standards, widen to allow center left turn lane. Commercial and retail establishments curb cuts should be minimized
	Palm Canyon Road (west of Christmas Circle)	Peak season only: significant congestion	Construction to County Major Road standards, or more turnouts; Lifeline transit service
C.	Borrego-Salton Seaway	None	None
	Borrego Springs Road (south of SC 460)	None	None
	Montezuma Valley Road	Peak season only: significant congestion	Construction to County Major Road standards or more turnouts; Lifeline transit service
	Yaqui Pass Road	Peak season only: minor congestion	More turnouts

Figure IV-N-4

1985 TRAFFIC ASSIGNMENT WITH RAMS' HILL



1985 borrego springs traffic assignment with rams hill

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b. Roads in Project Vicinity

Although Borrego Springs and Yaqui Pass Roads are currently paved to only 24 feet, they are both classified as Major Roads on the County Circulation Element, with capacities of between 10,000 and 16,000 ADT. The projected peak season 10,450 ADT on Yaqui Pass Road north of the Rams' Hill access road would be more than adequately served by a road built to a paved width of 40 feet by the developer. Borrego Springs Road south of Yaqui Pass Road has more than enough capacity to handle the projected Rams' Hill and other Borrego traffic (795 ADT), even with its existing paved width.

There could be congestion at the intersection of Yaqui Pass and Borrego Springs Roads caused by the desire of most northbound trips on Yaqui Pass Road to make a left turn, while southbound trips on Borrego Valley Road desire to continue on through the intersection to the project.

SC 460, located at the northernmost boundary of the project, would primarily serve those trips headed out of Rams' Hill toward the southeast (El Centro). With a projected 473 ADT, SC 460 built to County Collector Road standards would be more than adequate.

Table IV-N-4 shows the projected ADT on these roads, the necessary improvements and the County requirements.

c. Other Borrego Roads

Two other local roads, Borrego Springs Road (south of Christmas Circle) and Palm Canyon Road (west of Christmas Circle), which are classified as Major Roads but currently exist as two-lane rural roads, could be expected to carry a substantial number of trips generated by the Anza Borrego Desert State Park and the Rams' Hill commercial/recreational facilities. Table 7 shows the traffic profile for roads projected to be significantly impacted by Rams' Hill. If built to full major road standards as planned by the County, both roads would offer "A" Levels of Service. It is unlikely, however, that these improvements would be made by 1985 since the FY 1979-80 Six-Year Capital Improvements Plan does not include any road improvements in the Borrego Valley. With approximately 2,000-3,000 trips during each of the peak hours, and at their present paved widths, these roads would offer "C" Levels of Service. As illustrated in Table IV-N-5, at times other than the few peak periods, the projected traffic levels fall far below the capacities of these two roads, even with the peak widths which exist today.

Table IV-N-4

Peak Season
1985 Rams' Hill Significantly Impacted Roads Traffic Profile

	24-Hour Traffic Protection	#Trips[1] AM Peak	#Trips[1] PM Peak	Remaining Daylight Traffic/Hour [2]	Night Traffic/Hour [3]
Borrego Springs Road (south Christmas Circle)	10,425	2,085	2,085	521	87
Palm Canyon Road (west Christmas Circle)	13,635	2,727	2,727	682	114

1 20 percent of 24-hour count occurs in each peak hour

2 50 percent of 24-hour count (i.e., non-peak hour traffic ÷ 10 hours of remaining daylight

3 10 percent of 24-hour count (i.e., night traffic) ÷ 12 hours of night

All other Borrego Springs roads would continue to offer Level of Service "A".

d. Access Roads to Borrego Valley

The peak hour traffic for both the existing Borrego Salton Seaway (S 22) and Borrego Springs Road (south of SC 460) is less than 600 trips per hour. They offer Service Level "A" capacities for the projected 1985 ADT of 2,969 and 1,268, respectively.

Table IV-N-4 summarizes the County Department of Transportation requirements and the needed improvements.

e. Conclusion

The internal road network of the Rams' Hill project would more than adequately serve its residential population. Off-site

Table IV-N-5

RAMS' HILL

COUNTY DOT ON & OFF-SITE RIGHT OF WAY DEDICATION AND IMPROVEMENT REQUIREMENTS AND PROJECTED NEEDS

	Existing Status	Existing ADT	Projected ADT	Necessary Improvements to carry Projected ADT	DOT Requirements	Road Capacity	Excess Capacity ADT
SC 460 between Yaqui Pass and Borrego Springs Rd. through Rams' Hill	does not exist	--	500	36' paved	COLLECTOR RD: 84' ROW dedication 64' paved	10,000 ADT	9,500
SF 1406 Yaqui Pass Road North of access rd to Rams' Hill	2 lanes, 24-32 feet paved	1,498	10,500	Half width of: 51' ROW 40 feet total paved width	MAJOR ROAD: Half width of: 51' ROW dedication 40' paved width	12,000 ADT	5,500 ADT
South of access rd to Rams' Hill	2 lanes 24-32 feet paved	1,498	4,500	Existing roadway adequate	MAJOR ROAD: Half width of 51' ROW dedication. No requirements req.	12,000 ADT	7,500 ADT
Borrego Springs Rd North of SC 460	2 lanes 24-32 feet paved	560	800	Existing paved Roadway Adequate	MAJOR ROAD: ROW 82' paved	10,000 ADT	9,200
South of SC 460	2 lanes 24-32 feet paved	560	1,300	Existing paved roadway adequate	MAJOR ROAD: 82' paved	10,000 ADT	8,700
SC 500 Old Borrego Valley Rd	does not exist	--	--	none	COLLECTOR RD: 84' ROW dedication. Recommended for rejection. No improvements required.		

circulation element improvements, including the improvement by the developer of Yaqui Pass Road (from the entrance of the project to the intersection with Borrego Springs Road) to 40 feet of paved travelled way and the addition of a traffic signal would mitigate to insignificance the significant traffic impact in the project vicinity caused by the Rams' Hill project.

At times other than peak season weekends and holidays, all traffic impacts of the Rams' Hill project on other Borrego Springs access and local roads would be insignificant. During the peak season (November - April), weekends and holidays, the high growth in Anza Borrego Desert State Park visitation expected by State Park officials, together with the Rams' Hill development, would result in significant traffic impacts on several existing Borrego Springs intersections, local roads and access roads. The roadway capacity impacts can be mitigated to insignificance by improvement to full County Circulation Element requirements of Palm Canyon Road, Borrego Springs Road (south of Christmas Circle to Yaqui Pass Road), MOntezuma Valley Road and Yaqui Pass Road. They can be partially mitigated by the provision of left turn lanes and pockets at entrances to and exits from residential developments and commercial/retail land uses which generate high trip volumes.

Further partial mitigation can be achieved by requiring new residential developments and business establishments to minimize the number of curbcuts onto the roadway. Partial mitigation measures for the access roads into the Valley include more frequent well-marked turnouts to allow for safe passing of slower vehicles. Finally, the encouragement of the County Lifeline Transit System would, to a limited extent, help to reduce the actual number of vehicular trips entering and leaving the Borrego Valley.

O. WATER

This water analysis is based on a consultant report prepared jointly by Linden Burzell, a registered civil engineer, and Dr. Richard L. Threet, professor of geology at San Diego State University. Their report is included in full as a technical appendix. The ground water conditions in the Borrego Valley have been studied in-depth over the last 35 years. Refer to the consultant report for further references.

1. Existing Setting

While the Borrego Valley is located in the region known as the "Colorado Desert" and receives less than five inches of rain a year, it is underlain by an extensive ground water basin. The valley is not connected to the regional pipelines for imported water, so development in the valley relies exclusively upon the ground water resources. The closest imported water lies approximately 30 miles east in the Imperial Valley. The quantity of water in the aquifer has been the subject of extensive research and concern for the past 35 years. A major consideration in planning for the Rams' Hill project, therefore, was the extent of available ground water resources both underlying the property and valley-wide.

a. Ground Water in the Borrego Valley

As stated above, during the past 35 years, numerous investigations have been made of the hydrogeologic conditions in the Borrego Valley. Most investigators indicate that the long-term annual recharge to the Borrego Valley is in the range of 6,000 to 11,000 acre feet per year. According to experts at the County of San Diego, 11,000 acre feet appears to be the more realistic recharge rate.

The United States Bureau of Reclamation reports that the Borrego Valley aquifers have a capacity of 1.3 million acre feet from the present ground water surface to a depth of 200 feet. Extensive additional water is available in the deeper reserves which extend to a depth of at least 900 feet. It is, therefore, possible to forecast reliably that there will be a negligible difference in the availability of water from wet years to dry years.

The aquifers underlying the Borrego Valley produce abundantly, routinely yielding from five to 50 gallons per minute per foot of drawdown depending upon location, depth, diameter and method of well construction. The occasional dry or poor producing wells recorded have resulted from drilling in locations where the underlying rock formation is at a higher elevation than the ground water elevation, or in areas such as the clay-cored anticline located near the Desert Lodge, which has a very low permeability. As a result of over 30 years experience in constructing wells in Borrego Valley, it

is now possible to readily identify well sites where production of 250 - 1,250 gpm capacity can be obtained using conventional rotary or cable tool drilling methods.

Table IV-O-1 indicates that the total present consumptive water use in Borrego is approximately 11,300 acre feet per year. Consumptive water use is that water which is drawn out of the aquifer and which does not at a later point percolate through the strata to recharge the water table. This level is dramatically below the peak use in the 1950's when agricultural demand was as much as 22,500 acre feet per year. During this ten-year period of heavy agricultural use the water table dropped as much as 11 feet in localized areas in the center of the valley. Within the last ten years of lower use, the water table in the same portions of the Valley has risen five to ten feet.

Agriculture plays the greatest role in determining water use in the Borrego Valley. Agriculture in 1978 used the lowest volume of water in 30 years, yet still consumed almost 70 percent of all water produced. In 1958, during peak agricultural production, agriculture consumed 96 percent of all water produced.

Table IV-O-1

Consumptive Water Use in the Borrego Valley

Acre feet/Year

Use	1950	1958	1962	1968	1978
Agricultural Water	11,435	22,455	13,830	7,260	5,705
Golf Course and Landscape Irrigation (1)	190	790	1,725	1,720	1,450
Domestic Water Use	170	225	265	475	550
Riparian Plant Use (2)	3,000	3,000	3,000	3,000	3,000
TOTAL	14,795	26,470	18,820	12,455	11,305

(1) Includes non-domestic use of water from water service agencies

(2) Threet and other researchers believe that riparian plant use approximately equals 3,000 acre feet/year

b. Hydrogeology of Rams' Hill Site

A complete hydrogeologic description of the Borrego Valley is contained in Addendum A. In summary, the formational units which are important in the southern Borrego Valley are the crystalline basement rock, the Palm Springs Formation, the older alluvium and the younger alluvium. Figure

IV-C-1 is a geologic cross-section of the property. The most favorable prospects for development of ground water are in the areas where the permeable "older alluvium" sands and gravels now lie at or below the regional water table. This table currently stands at an elevation of about 470 feet above sea level in southern Borrego Valley. The crystalline basement rock is generally impermeable, although fractures and weathered zones may yield trifling amounts of water to wells. The Palm Springs Formation is no more likely to yield ground water than the basement rock.

c. Desert Lodge Anticline

The clay-cored Desert Lodge Anticline marks a conspicuous geologic boundary which is important in the hydrogeology of the Rams' Hill site. This anticline is an upwarped flexure (or hump) in the underlying sedimentary strata, and functions very much like a subsurface clay dam. The anticline transects the northern peninsula of the project property and forms an effective boundary which separates the Borrego Valley aquifer into two semi-independent basins. Figure IV-O-1 shows the location of the anticline in relationship to the site. The water levels recorded by the Department of Water Resources, however, seem to show that the ground water of the southern part of the valley is in hydrogeologic continuity with the ground water in the central and northern parts of the valley. That is, that the anticline is not a dam between two water sources but a peninsula creating the appearance of two basins.

The water supply for the initial phase of the Rams' Hill project would be drawn from four wells, three of which are located on site, and one of which is located approximately one mile west of the property. All four wells draw water from the aquifer south of the Desert Lodge Anticline. For planning purposes, the water availability for this southern water basin has been calculated, although it is assumed that water would eventually be supplied by wells north of the property.

The water bearing area of the southern Borrego Valley is confined on the south by basement rock and, on the north by the Desert Lodge Anticline. The cross section of the basin on an aximuth line of 40 indicates a width of water surface of 7,500 feet. This width of water surface will be reduced to about 5,000 feet if the water table is lowered 200 feet. The water bearing area runs for at least 32,000 feet along the 130 aximuth line. Accordingly, the southern basin contains the following volume of water in storage:

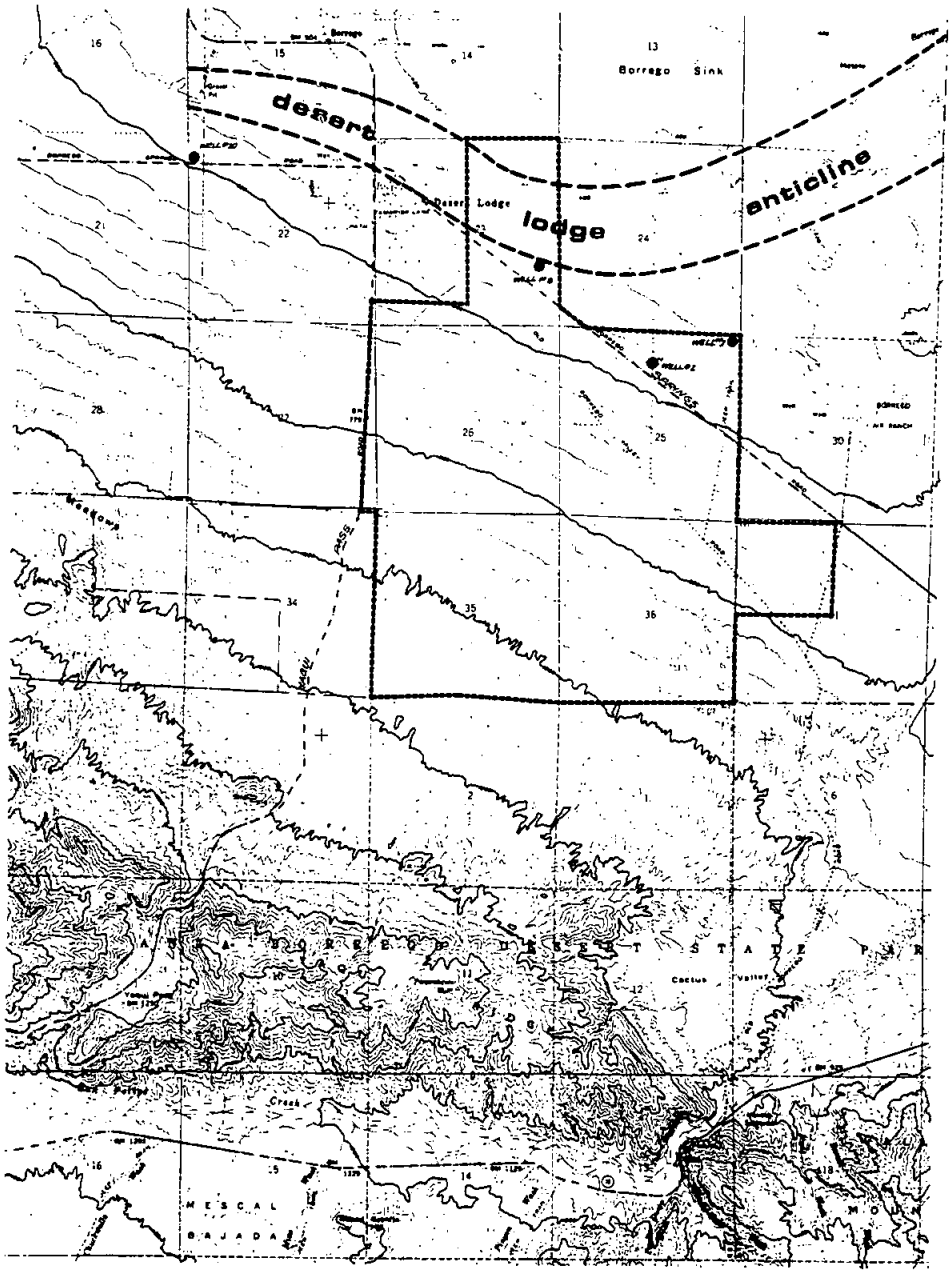
$$\text{Vol} = 32{,}000 \text{ ft.} \times \frac{(7{,}500 + 5{,}000 \text{ Ft.})}{2} \times 200 \text{ ft.} \times \frac{\text{Ac. Ft.}}{43{,}560 \text{ ft.}} \quad 3 =$$

918,274 ac. ft.

If specific yield averages ten percent, the volume of water available is 91,800 ac. ft.

Figure IV-O-1

DESERT LODGE ANTICLINE



desert lodge anticline

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2. Potential Impacts

Because the Borrego Valley relies exclusively on ground water resources, a major issue surrounding the project is ground water mining. To calculate whether Rams' Hill would create a mining condition, the volume of water which will be used in the valley if current growth continues, and the volume of water which would be consumed by Rams' Hill have been forecasted. This total volume has then been compared to the annual recharge of the basin. Because the two water bearing areas, north and south of the anticline, are believed to be in hydrogeologic continuity, these calculations for water mining have been based on the assumption that the two areas will act as one basin.

Furthermore, the analysis has assumed that Rams' Hill would be served by a public water district to provide water to Rams' Hill and other service areas as needed. Under these circumstances, the ground water resources of the entire agency could be used to serve water where needed, thereby making it unnecessary to produce all of the water supply for Rams' Hill from aquifers underlying the project. The agency-wide concept of water service is widespread in all of California. Seldom does any one project rely only on ground water resources which underlie the project in question.

Future levels of water use are difficult to forecast because of the uncertainty in predicting agricultural trends. Since 1958, the number of acres under production has declined by almost 50 percent. Agriculture in the Borrego Valley relied on early marketing of crops at higher prices to offset relatively high production costs. By the mid 1960's, however, the climbing labor and transportation costs reduced the viability of the early marketing strategy. Since then, the costs of energy and water production have tripled, further reducing the ability of Valley farmers to compete in state and national markets. While acreage has declined by 50 percent, the amount of applied water has decreased by 75 percent. With the increasing use of drip irrigation, changing crop patterns and escalating energy costs, it appears realistic to assume that agricultural water use will continue to decline.

In predicting future water use, two trends have been used. The first trend, the worst case trend, assumes that agriculture will continue to be viable, and that the actual acreage will expand. Under this trend, the volume of agricultural water use will be constant. The second trend assumes that agriculture will decline in the Valley. This trend assumes that increasing water costs will make citrus and alfalfa production in the Valley economically unprofitable. In fact, the Borrego Valley today cannot compete with citrus from the Central Valley or Florida because water costs are significantly higher in Borrego than in other major citrus areas. Under this second trend, water use will decline substantially as lands are no longer farmed.

Table IV-O-3 summarizes the water use projected for Rams' Hill. This is a conservative estimate assuming worst case levels of landscape watering. The projection includes a total of 1,584 acre feet. Twenty percent of the use is projected for domestic consumption and 80 percent for landscaping and golf. As the concept plan stage is developed, water use for landscaping will decrease sharply due to increased use of reclaimed water.

Table IV-O-3

RAMS' HILL PROJECT

Estimated Water Use 1985

		Water Use Ac./Ft./Yr.
Hotel 40 acres gross	350 rooms @ .1 AF/YR/RM	35.0
Clinic 12 acres gross	Inside use	5.0
Villas 102 acres gross	530 units @ .3 AF/AC/YR	159.0
Golf Course 160 acres gross	120 acres @ 6 AF/AC/YR less use of reclaimed water 165 AF	555.0
(Golf course water use includes evaporation from ponds; the roughs would not be watered)		
Single Family Homes (1/3 acre site, desert style landscaping) 127 acres gross	200 units @ .75 AF/UNIT/YR	150.0
Estates (2 acre sites, desert style landscaping) 124 acres gross	50 units x 2 AC @ 2.00 AF/AC/YR	200.0
General Landscaping 180 acres	120 acres @ 4 AF/AC/YR	480.0
	TOTAL	1,584.0

Table IV-O-4 consolidates the forecasts of water use for the Borrego Valley under Trends A and B and adds the water use of the Rams' Hill development and the use resulting from secondary growth. Comparing the trends, should agricultural water use remain constant between 1978 and 1985, the development of Rams' Hill would create a minor water mining condition. The 1.3 million acre feet in storage within the first 200 feet would be consumed in 620 years. More intensive pumping techniques such as those currently employed in the Central Valley would then be needed to tap the unestimated resources below 200 feet. These resources are believed to extend to at least 900 feet. Under the more probable Trend B, no ground water mining would occur and the basin would remain in a steady state with recharge approximately equal to use.

Table IV-O-4

Consumptive Water Use in Borrego Valley and a Forecast of Water Use in 1985

	1985 Trend A Including Rams' Hill	1985 Trend B Including Rams' Hill
Agricultural Water	5,700	3,700
Golf Course and Landscape Irrigation	2,050	2,050
Domestic Water Use	780	780
Riparian Water Use	3,000	3,000
Rams' Hill Development	1,600	1,600
	13,130	11,130

a. Differential Lowering of the Water Table

It has been suggested that the Rams' Hill development might cause some accelerated local lowering of the water table

relative to levels in other portions of the Borrego Valley this possibility has been considered in some detail. For a "worst case" scenario, the most severe circumstances were assumed, i.e., that only very limited water movement was possible across the clay-cored Desert Lodge Anticline identified by Threet; and that the project water supply would only be drawn from wells south of the anticline. If the anticline should prove to be an effective barrier, there would be limited water movement from the northern area to the south to supply the wells underlying the project. As the water table is lowered by the Rams' Hill project operation, ground water would then tend to move easterly and westerly toward any depression that is created. A similar situation seems to have developed when the heavy irrigation of grapes in the 1950's caused a localized drop in the water table in the central part of the valley.

Calculations indicate that the area south of the anticline holds at least seven percent of the underground storage of the valley, or about 90,000 acre feet. If the worst condition occurred and the 1,624 acre feet per year demand on Rams' Hill was in fact drawn from only a 90,000 acre-feet southern reservoir, and the rest of the valley drawing their needs of 7,500 acre feet per year from the remaining 1,210,000 acre feet of underground storage in the northern basin, the depletion would result in a more rapid lowering of the ground water table under Rams' Hill. This could result in a lowering of the water table under Rams' Hill by 200 feet in 45 years, assuming that none of the known recharge reached that area; and that ground water failed to move around the anticline at sufficient rate to equalize the water table. Should the water table drop rapidly and substantially, localized subsidence could occur.

Should the water table beneath the Rams' Hill property decline at a rapid rate, the deep rooted native vegetation, such as mesquite and some species of deep rooted cactus, both on site and on other properties in the southern valley, could be seriously impacted.

b. Wells Proposed to Supply the Project

The developer has drilled and tested four wells which are proposed to supply water for the project. Three of these wells are located onsite. The fourth well is located one mile west of the project site on a separate parcel owned by the developer. The four wells are identified on Figure IV-O-1, Desert Lodge Anticline. Water service for the project will initially utilize resources from these four wells. This will necessitate construction of a water main from

Well #10 to the project site, and construction of the necessary infrastructure onsite to connect the wells to a water distribution system. Ultimately, to prevent differential lowering of the water table it will be necessary to utilize water resources from wells in the northern portion of the basin. To facilitate construction and operation of an intertied basin distribution system it is proposed that the project be annexed to and served by the Borrego Water District. The Borrego Water District is making application to the Local Agency Formation Commission to annex the property to the District for the purpose of providing water and sewer service.

Transmitting water from Well #10, the off-site well, will not have any significant environmental impacts. Installation of a transmission main from the well to the project site will result in temporary impacts. This main will be constructed pursuant to standards established by the Borrego Water District, or other appropriate agency. These standards will probably require burying the main pipes 42 to 48 inches deep, and ten feet south of the centerline of Borrego Springs Road. The pipe will be confined to areas already disturbed. Temporary impacts will include intermittent heavy equipment noise, dust and intermittent slowing and diversion of traffic along the road. The transmission main will be maintained by the agency providing water service to the project.

c. Concept Plan

Assuming that the number of dwelling units would double if the 966 acres, planned only in concept at this time, were fully developed, the water consumption for the Rams' Hill project would increase by 350 acre-feet per year at full project implementation. However, the total valley wide consumption of water is expected to continue to decline in 1995 without the approval of additional major new projects such as the Borrego Country Club.

3. Analysis of Significance

The developer has proposed certain water conservation mitigation measures as part of the planning of the Rams' Hill project. Mitigation includes on-site measures, annexation to the Borrego Water District, and consideration of potential future sources should groundwater become seriously depleted.

a. On-Site Measures

Three measures are proposed to conserve water at Rams' Hill: (1) Waste water would be recycled; (2) drought resistant plants would be used for landscaping; (3) a large percentage of the site would be maintained in natural state. Water would be conserved through a waste water management program. The waste water treatment plant for th project would include a system to recycle reclaimed water for use on the golf course. The reclaimed water would be recycled when effluent flows reach 100,000 gallons per day. The capacity of the plant would be large enough and the demand of the golf course great enough that virtually all waste water could be recycled.

At full implementation of this Specific Plan, a maximum of 250,000 gallons of recycled water per day would be available for use on the golf course. (See the Liquid Waste Section, and the Liquid Waste Technical Appendix).

To conserve water further, the following measures would be taken. Drought resistant plants would be used to the maximum extent feasible for landscaping in common areas. Plans for the project include designing the single family homes with desert landscaping and maintaining a natural buffer between the golf course fairways and the single family lots. One half of the site, 1,562 acres, would be dedicated as permanent undeveloped open space, where there would be virtually no increase in water consumption.

In addition, the following measures could be implemented. The landscaping and golf course could be watered at night to help reduce evaporation losses. Water flow restrictors could be included on all faucets. Low flow basin toilets and water efficient dishwashers could be installed in all dwelling units. Covenants banning water consumptive plants, and requiring that substantial landscaping be done with drought resistant species could be placed on estate and single family lots when the final maps are approved. Drip irrigation could be used for shrubbery in common areas.

b. California Water District

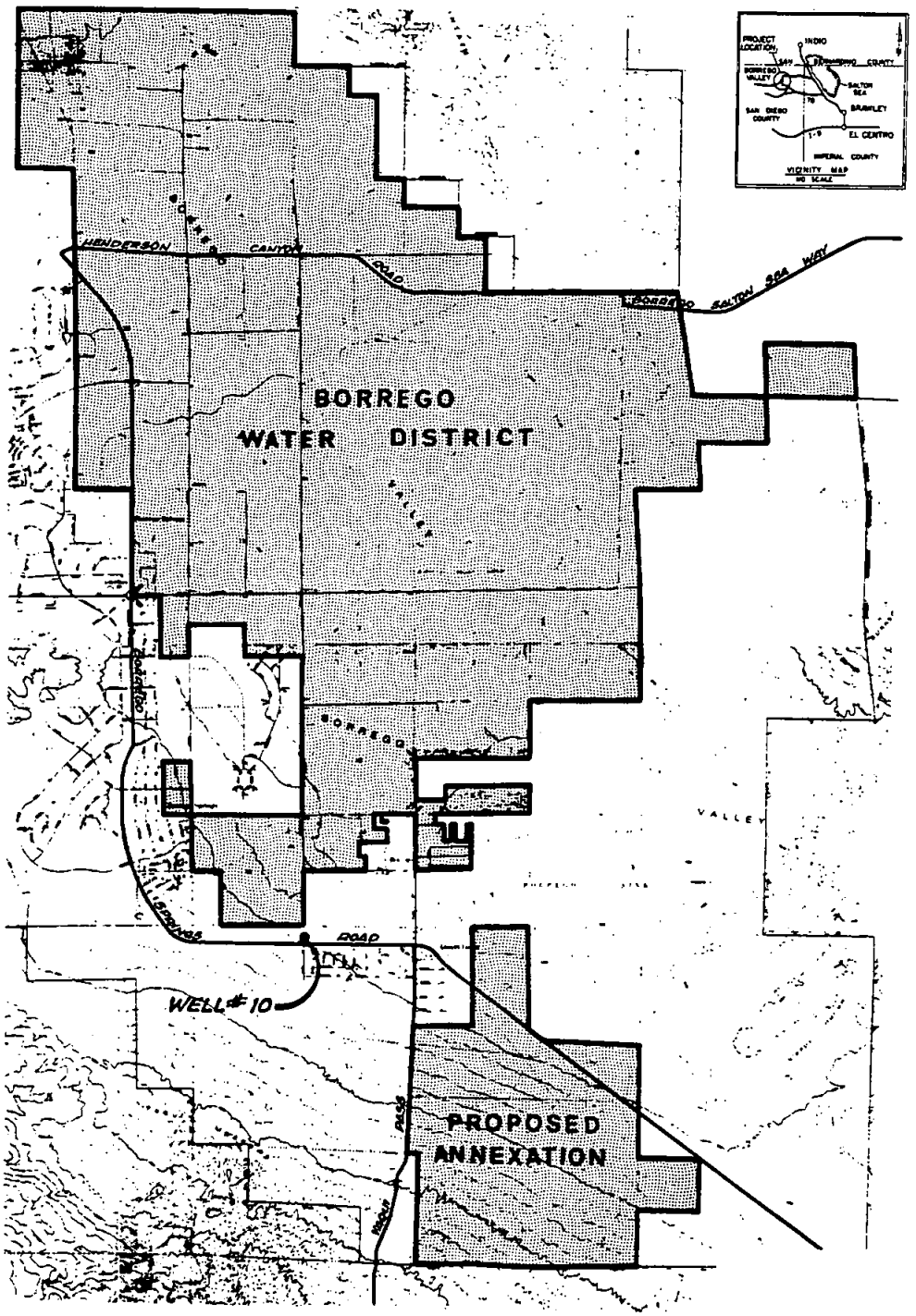
In 1961, property owners in the Borrego Valley formed a California water district, the Borrego Water District, covering an area of roughly 43 square miles. The District lies generally east of Borrego Springs Road and north of the Borrego Sink (Figure IV-O-2). Functional over the past 18 years, the District has its own Board of Directors, consisting of Borrego Valley landowners.

The Rams' Hill site is not currently a part of this water district. Annexations may be made to and by a California water district, subject to review and approval by the Local Agency Formation Commission (LAFCO). The Borrego Water District has made formal application to LAFCO for annexation of the Rams' Hill site concurrent with the processing of this project.

Division 13 of the California Water Code grants to California water districts a wide range of authority with respect to water supply and for a variety of complementary purposes. In addition, a California water district is empowered to operate and furnish facilities and services, within or without the district, for the collection, treatment and disposal of sewage, waste and storm water. The Borrego Water District has made application to LAFCO to activate its latent powers relative to water and sewer service. For a full discussion of the impacts of this activation, refer to the Environmental Impact Report on the application for authorization of latent powers.

Figure IV-O-2

BORREGO WATER DISTRICT



proposed annexation to
borrego water district

N

NO SCALE

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The developer would pay for the development of the water distribution system and would subsequently dedicate the system to the district to own and operate. A special service district would be formed pursuant to which the guests and residents of the Rams' Hill project would pay for the District's services.

The annexation of the Rams' Hill project to the Borrego Water District would have several beneficial environmental impacts. Because of its size, the Borrego Water District would be better suited to carry on basin and community-wide, long-term water planning than any other existing district in the Borrego Valley. The potential problems with differential lowering of the water table can be prevented through a basin-wide supply agency. Regulation of water usage and equalization of rights to water can be ensured.

c. Alternative Water Sources

The records of San Diego County Water Authority indicate that none of the developed areas of San Diego County has a local water supply of the magnitude of Borrego Valley in comparison to its long range needs. Nearly all of the balance of the developed area in San Diego County must rely upon imported water for its existence. In the event future conditions change and an even higher rate of development occurs, requiring the eventual importation of water to Borrego, there are many possibilities for acceptable solutions within the time frame available for action. Some of these solutions have been proposed by the United States Department of the Interior Bureau of Reclamation. (8)

Typical of several possibilities is the transfer of some Colorado River water via Imperial County. Over 3.5 million acre feet of irrigation water are used each year in Imperial Valley for relatively low value truck crops. It is certainly within the realm of possibility for Borrego to obtain a small supplemental municipal supply from this source. Currently, the City of San Diego owns unused carrying capacity in the All American Canal which could be made available if such a project should be required. The 60 to 70 miles of possible future pipeline involved is not considered to be an unrealistic engineering solution. There are other possible water sources in Imperial Valley, such as the desalting of agricultural return irrigation water,which is being discharged into the Salton Sea in quantities as high as one million acre feet per year.

As early as 1946, a Bechtel Corporation report prepared for the DiGiorgio Fruit Corporation recognized that frequent flash floods from Coyote Creek caused substantial discharge to Borrego Sink. This portion of the natural runoff to the Borrego Valley is lost to evaporation in the sink because it crosses the north half of the valley before it has time

to infiltrate to the underground basins. In July 1972 a report by the County of San Diego proposed a system of levees to minimize loss to Borrego Sink as a refinement of the Bechtel proposal. Flood water salvaged by levees and infiltration ponds proposed in the report would make more water available for recharge to the ground water basin than presently exists.

Another alternative is the long studied high line route for State Project water that traverses the Warner Valley 20 miles west of Borrego. That project has never been forgotten by those who still hope to see the higher level reservoirs like Lake Henshaw used for regulation of imported water. Within the projected time frame available for solving a potential shortage in Borrego under current growth patterns, these possible solutions and perhaps even better ones yet to be devised offer ample justification to predict that Borrego will be able to obtain a supplemental supply if it should need more water.

In conclusion, this Specific Plan phase of the Rams' Hill project by itself and with a continuation of the current growth trend would not significantly impact the water supply in the Borrego Valley. The total ground water resources of the Borrego Valley, including both basins, are more than adequate to supply the projected activity in the Borrego Valley by 1985, including the Rams' Hill development and induced growth. Under the worst conditions of recharge, ground water could potentially be mined at a rate of 2,130 acre feet per year. Under the more realistic recharge assumptions, 1985 development would be well within the constraints of natural recharge, resulting in no ground water mining. Should growth in the valley accelerate substantially, and should the Borrego Country Club project be built, it is possible that moderate ground water mining could occur in the near future. Again, resources are sufficient to provide ample time to develop a comprehensive ground water management plan to prevent unwise use of the resource. A discussion of the number of buildable lots in the Borrego Valley is included in the section on Growth Inducement. Potential impacts of this growth on water resources is discussed in the section on Cumulative Impacts. The Rams' Hill project could create a significant adverse water mining situation in the southern Borrego Valley, should the project not be annexed to the Borrego Water District or another similar water agency. Although highly unlikely, should this situation develop, the water table in the valley could lower differentially creating a significant impact due to localized subsidence.

WATER

Addendum A

Description of Geologic Conditions

This description is excerpted from Hydrology of the Southern Borrego Valley prepared by Dr. Threet in 1972. The various geologic formations of the Borrego Valley region have been adequately described in DWR Bulletin 91-15, which should be consulted along with the Threet report.

The formational units which are most relevant to the Rams' Hill property, in the south portion of Borrego Valley, are: (1) the crystalline basement rock of schist and granitic rock, (2) the red clay and minor amounts of fine sand of the non-marine Palm Springs Formation, (3) the "older alluvium" which truncates and lies unconformably on the preceding formations beneath most of Borrego Valley, and (4) the "younger alluvium" which was deposited in structural and topographical depressions in and on the older formations.

The crystalline basement rock extends to depths of many miles beneath the barren mountains on the northwest, north, west and south sides of Borrego Valley. It lies beneath the thick sequence of sedimentary strata of the Borrego Badlands along the east edge of Borrego Valley, and it lies beneath the sedimentary filling of Borrego Valley, at depths probably as great as one or two miles. The crystalline basement rock lies at a comparatively shallow depth beneath several square miles of pediment, a planed rock surface incorrectly identified in earlier geologic reports as a bajada or deeply alluviated plain, near the southwest corner of the Rams' Hill property. Only extensive drilling or extensive geophysical work would show the exact extent of the buried surface of the basement rock, but the present geologic study suggests than the basement rock lies at a depth of no more than a few tens to a few hundreds of feet, well above the regional water table, in the southwestern portion of the proposed site. The basement rock is generally impermeable, although fractures and weathered zones may yield trifling amounts of water to wells.

The basement rock may be overlain unconformably by sedimentary deposits of the Canebreak Conglomerate, but the basement rock of the Rams' Hill property is more likely to be overlain by the non-marine red clay and fine sand of the Palm Springs Formation. The Palm Springs Formation is known to be several hundred or even a few thousand feet thick in its entirety, in the area between the proposed site and Borrego Mountain and beneath the younger alluvium of the central and northern parts

of Borrego Valley. Only thin remnants probably are present beneath the southern part of the property. In any case, the Palm Spring Formation is no more likely to yield ground water than the basement rock. When a drill hole encounters the telltale red clay of the Palm Spring Formation, there is no reason to drill deeper, in hopes of developing more ground water.

The Palm Spring strata and older formations, including the underlying basement rock, were strongly deformed by earth movements which have affected most of the Southern California region in geologically recent time. Great thicknesses of the older sedimentary cover of the basement rock were removed locally by erosion, and a widespread sheet of sand and gravel was spread to depths of about 100 feet across the region that is now southern Borrego Valley. In spite of its geologic youth, the sheet of "older alluvium" was mildly involved in continuing earth movements in the Borrego Valley region, resulting in up-arched anticlinal ridges and down-warped synclinal valleys trending southwest into at least the east edge of the Rams' Hill property. The more depressed portions of the folded "older alluvium" were covered by deposits of "younger alluvium" and wind-blown sand, while the more uplifted portions were eroded, exposing the underlying red clays of the Palm Spring Formation. The most favorable prospects for development of ground water are in the areas where the permeable "older alluvium" sands and gravels now lie at or below the regional water table, which now stands at an elevation of about 470 feet above sea level in southern Borrego Valley. Figure IV-C-1 shows a necessarily simplified geologic cross-section of the property, as interpreted from the present study.

There is a very tentative additional interpretation of the existence of a northwest-trending fault or oroclinal flexure at depth, approximately beneath Borrego Valley Road. This could have considerable bearing on the occurrence of ground water under the property which may well be substantiated or rejected by results of the test drilling. The only evidence now known for the fault or flexure consists of the pronounced bending westward and northwestward of the axis of the Desert Lodge Anticline, plus the systematic leaning southeastward of the axial planes of the rest of the synclines and anticlines in the group near Sleepy Hollow, east of the property. Both lines of evidence are compatible with an interpretation of right-lateral slip on a northwest-trending fault approximately through Desert Lodge.

Chemical Characteristics of Water Underlying the Borrego Valley

There have been thousands of chemical analyses made on water samples from Borrego Valley. Most samples indicate levels of Total Dissolved Solids in the range of 350-1,000 milligrams per liter (mg/l) with relatively low hardness, i.e., less than 200 mg/l calculated as $CaCO_3$. There are isolated wells which produce water high in nitrates. When the nitrate concentration exceeds 45.0 mg/l, the water is not considered suitable for domestic use; however, it is ideally balanced for irrigation, primarily due to the fertilizer value of the nitrates. Most waters in Borrego contain natural low levels of fluoride, in the range of .5 to 1.0 mg/l -- a level considered ideal for prevention of dental caries. In isolated locations, there have been wells which produce water containing fluorides at levels which are considered excessive and for which either special treatment or blending is necessary before it is used for domestic drinking water. None of these problems occur in the water supply sampled in the vicinity of the Rams' Hill development.

P. LIQUID WASTE

1. Existing Setting

As in many small communities, liquid waste in the Borrego Valley is treated almost exclusively by individual on-site septic systems. One exception is the area designated as the Borrego Country Club Specific Plan Area which is served by a small, private sewage plant operated by the Borrego Springs Park County Water District. The other exception is the Roadrunner Mobile Home Park which uses "master septic tanks" with each tank serving approximately ten mobile home units. However, most homes and businesses in Borrego treat liquid waste on-site with privately owned and maintained septic systems.

The Rams' Hill site is presently vacant and there are no facilities on site for processing liquid waste. The site is not currently within the jurisdiction of a sewer district, however, an existing California Water District is being activated to provide water and sewer service to the project. The Rams' Hill site would be annexed to this district upon its activation. Figure IV-O-2 is a map of the Borrego Water District and proposed annexation.

A proposed waste water treatment facility, which would be owned and operated by the California Water District, would be constructed and paid for by the developer to serve the Rams' Hill project. A special service district would be formed so that the operation and maintenance of the facility would be paid for by the residents and guests of the project. This facility has been described in detail in the Project Description. The developer's consultant, Lowry and Associates, prepared a report, Waste Water Reclamation Rams' Hill Country Club, July 1978, from which the technical data in this section has been drawn. This report is included in full as a technical appendix.

The waste water facility to be build for Rams' Hill would provide secondary sewage treatment plus infiltration. The facility would serve the hotel complex including support facilities, the medical clinic, the 530 multi-family units, the 200 single family units and the fire station. Sewage treatment on the 50 two-acre estate lots would be accomplished by individual septic tanks and leaching facilities on each lot, installed in conformance with San Diego County Department of Public Health standards and Regional Water Quality Control Board requirements. A five acre site has been designated on the Specific Plan for the waste water treatment plant and a ten acre site for the percolation beds (Figure III-F-1, Specific Plan Map).

2. Potential Impacts

Table IV-P-1 presents a summary estimate of sewage production at the end of the Specific Plan period. Total estimated peak sewage production is 224,000 gallons per day. In calculating these flows, it was assumed that domestic sewage production would amount to 250 gallons per day per single family dwelling unit or 70 gallons per person per day, a level generally accepted for residential sewage production among communities in the San Diego area.

Seasonal variations in the rate of occupancy are expected in the new development, much the same as currently occur in the community of Borrego Springs. During the winter, up to 100 percent occupancy is expected over a three or four month period. Summertime occupancy may drop to between 10 and 20 percent, since many of the residences would be used as "second homes". Thus, sewage flows may drop below 50,000 gallons per day during the summer, with peak flows of 250,000 gallons per day during the milder winter months.

The Regional Water Quality Control Board has not issued waste water discharge requirements for the Rams' Hill treatment facility. These requirements will be issued upon final review of the application being submitted by the Borrego Water District. The completed EIR is a key document for this application. A set of tentative waste water discharge requirements which reflect the current policies of the Board has been analyzed. The recommended sewage disposal/waste water reclamation system will meet these anticipated requirements and will comply with Title 22 standards of the State Health Department so that ground waters will be protected from pollution and other adverse quality impacts. The specific requirements and the manner in which they will be met are set forth in Part II of the Lowry Report.

As related earlier, seasonal variations in the rate of occupancy are expected in the new development, much the same as currently occur in the community of Borrego Springs. Thus, sewage flows may drop below 50,000 gallons per day during the summer, with peak flows of 250,000 gallons per day during the milder winter months.

Many chemical analyses which have been made on water samples from the Borrego Valley indicate the levels of total dissolved solids (TDS) to be in the range of 350-600 milligrams per liter (mg/l), with relatively low hardness. (See Technical Appendix H). This is a substantially lower TDS level than that of the Colorado River water used in metropolitan San Diego.

Table IV-P-1

Estimate of Peak Season Sewage Production (1)

	Number of Units	Factor	Sewage Flow GPD
Hotel Complex			
350 rooms & suites		100 GPD/Room	35,000
Clinic	25 beds	250 GPD/Bed	6,250
Villas	530 DU's	250 GPD/DU	132,500
Single Family Detached (1/3 acre)	200 DU's	250 GPD/DU	50,000
Fire Station	1	250 GPD	250
Average Peak Season Daily Sewage Flow - TOTAL			224,000 (2)

(1) Applies only to area planned for service by public sewer. Excludes estate lots.

(2) Rounded out to 250,000 gallons per day. Waste water treatment and reclamation facilities would therefore be sized to process an average daily flow of 250,000 gallons per day,

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Average Peak Season Daily Sewage Flow - TOTAL			224,000 (2)

(1) Applies only to area planned for service by public sewer. Excludes estate lots.

(2) Rounded out to 250,000 gallons per day. Waste water treatment and reclamation facilities would therefore be sized to process an average daily flow of 250,000 gallons per day,

Assuming that the mineral quality of the potable water supply would be about 500 mg/l TDS, and assuming that on-site regneration of water softeners is prohibited, the increase of TDS in the sewage and the reclaimed water can be limited to between 250 and 300 mg/l. (See Technical Appendix I)

The developer has included conservation of water as a major goal in the design of the waste water facility. Therefore, sewage produced by Rams' Hill Country Club will be reclaimed as one source of irrigation water for the planned 18-hole golf course. After secondary treatment, the sewage effluent would be disinfected and pumped to an irrigation storage pond/decorative lake on the golf course. The golf course irrigation system would have sufficient demand to consume the highest volume of reclaimed water produced in the Specific Plan Phase. Due to the high cost of analysis required for waste water reclamation, it is economically feasible to use reclaimed sewage effluent for golf course irrigation only during those periods when the volume of reclaimed water available is 100,000 gallons per day or more. Effluent volumes less than 100,000 gallons per day would be disposed of by discharge to percolation beds.

Table IV-P-2

Treatment Methods and Disinfection Requirements for Reclaimed Water

Treatment Compared to Water Use

Title 22, California Administration Code, sets the Requirements for Reclaimed Water Use. Summarized Excerpts from the Code for Health Considerations Relating to Pathogens are as follows:

Article 2

Irrigation of Food Crops Spray Irrigation	- 2.2/100 median, 23/100 once/30 days coagulated, clarified, filtered
Surface Irrigation Orchards and Vineyards	- 2.2/100 median -- oxidized - primary, no coliform

Article 3

Irrigation of Fodder, Filter and Seed Crops	
Fodder, filter, seed crops	- primary
Pasture for milking animals	- 23/100 median -- oxidized

Table IV-P-2 - continued

Article 4

Landscape Irrigation (Public Access) Golf courses, cemetaries lawns, parks, playgrounds, freeways	-	23/100 median -- oxidized

Article 5

Recreational Impoundments Nonrestricted Recreational Imp. (swimming)	-	2.2/100 median, 23/100 once/ 30 days, coagulated, clarified, filtered
Restricted Recreational Imp. (fishing, boating)	-	2.2/100 median -- oxidized
Landscape Impoundment (No public contact)	-	23/100 median -- oxidized

Another way to look at the requirements is to relate the level of treatment to water use allowed. This is shown in the following table:

Treatment	Water Use
Tertiary	
Coagulated, settled, filtered 2 turbidity units Coliform: 2.2/100 median 23/100 once/30 days	Spray irrigation of food crops, nonrestricted recreational impoundments (allows swimming)
Secondary	
Oxidized High Performance Reliable disinfection Coliform: 2.2/100 median	Surface irrigation of food crops, restricted recreational impoundments (allows fishing & boating)
Secondary	
Oxidized Average performance Coliform: 23/100 median	Pasture for milking animals landscape irrigation (for lawns, parks, playgrounds, golf courses)

Table IV-P-2 - continued

Primary	
1/2 ml/l/hr. settleable solids	Orchard and vineyard surface irrigation, fodder, fiber and seed crops

The Health Department and Regional Water Quality Control Board allows irrigation of golf courses using reclaimed effluent which has been processed by secondary treatment facilities. (Table IV-P-2 is a summary of permitted use of reclaimed water.) This effluent would not impact groundwater quality or the potable water supply because very little of it would ever percolate as deep as the groundwater table.(24) Over two-thirds of this reclaimed water would be lost through evapo-transpiration; the remaining one-third would filter very slowly through the substrata, perhaps returning to the surface through capillary action. Because of the volume of water used for irrigation, the stable inorganic substances (salts) would be flushed down below the root zone where they would be deposited. The quality of the soil or the groundwater, therefore, should not be impacted.

Percolation beds with sufficient capacity to dispose of the entire output of the waste water treatment plant on a continuous, long-term basis, also would be provided for effluent disposal. These beds are designed in conformance with State Health Department Title 22 regulations as a planned back-up method to insure safe, reliable disposal of effluent in the event of reclamation plant failure. The beds would also be used as the primary disposal method during periods of low flows when waste water would not be recycled for use on the golf course. These percolation beds would be four to six acres in size. They will be adequately separated from existing project related water well sites, and would be located on the north side of the Desert Lodge anticline, so that the discharge would percolate toward the saline Borrego Sink, rather than into the southern basin from which the potable water would be drawn. The beds would be north of the mesquite woodland to minimize impacts to the habitat and biota. Additional soil study will be necessary at the recommended location for measurement of permeability and final determination of percolation bed size. The Specific Plan Map, Figure III-F, illustrates the ten acre site proposed for the location of the percolation beds.

As with potable water supply for Rams' Hill, the water supply for the adjacent La Casa del Zorro resort will not be impacted by the waste water reclamation facility. Potable water service to La Casa del Zorro is provided by Rancho Borrego Mutual Water Company. This company owns two wells, one of which is located at the intersection of Yaqui Pass Road and Borrego Springs Road, and one of which is located just south of the resort. Distance from the percolation basins to the wells is 2,750 feet and 2,300 feet, respectively. Both wells draw water from the southern basin.

The disposal of effluent in the percolation beds should not impact the quality of groundwater under the Borrego Sink and may in fact improve it. The existing water under the sink is highly alkaline and has high levels of nitrates. The effluent would have a significantly lower level of TDS than this existing groundwater. The overall level of TDS may incrementally improve with the addition of the effluent.

The percolation beds would be used for effluent disposal during periods of low flow, approximately four months each year. During this period it is possible that the increased water availability could facilitate non-native species introduction in the mesquite woodland or sink scrub community. (See Biology). This impact should be minimal. The percolation beds would operate during the period of highest evaporation. The beds must be kept totally free of vegetation to operate properly. Increased water availability in the root zone would be intermittent, minimizing the possibility of non-native species invading the mesquite woodland.

The waste water treatment facility will generate 210 pounds of wet sludge each day at full capacity and 58 pounds each day during the summer. This sludge will be discharged to two solar drying beds located on the plant site. Each drying bed will be 40 feet by 60 feet in size, providing 1.0 square foot area space per capita per day. The sludge will be dried to a maximum water content of 25 percent, with an average water content of 10 percent. Allowing for few variations, the plant will generate between 3.5 and 8 tons of dry sludge each year.

This dry sludge should pose no disposal problem. It could be used by agricultural enterprises in the valley, or disposed of in a sanitary land fill. Eric Lewis of the County Department of Sanitation and Flood Control has indicated that the moisture content of sewage sludge is the most important parameter in disposal. In general, any landfill site can accomodate sludge as long as it is mechanically or air dried to 45 percent solids. The sludge which will be generated at Rams' Hill will be dried in the solar beds to at least 25 percent solids.

The County is developing guidelines for sludge disposal at County landfill sites. Until these guidelines are issued, there are no "approved" sites. Since the sludge at Rams' Hill will be adequately dried, however, the sludge should easily be accommodated at the Borrego Landfill, located approximately five miles northeast of the project. A seven-ton diesel truck will probably collect sludge twice each year and transport the sludge to the landfill. This will require approximately five gallons of diesel fuel each year.

The operation of the treatment plant could potentially increase the ambient noise level in the immediate vicinity by 3 dB(A). This increase would be imperceptible. The resulting ambient level would remain far below the standards for noise described in the Noise Element of the General Plan. This noise would not impact residences at Rams' Hill or adjoining properties. The nearest residence at Rams' Hill would be at least a mile away. The adjoining properties to the north are held in larger ownerships, making it unlikely that a house would be built near the plant in the future.

The portion of the Specific Plan area which is located north of Borrego Springs Road in the sewage treatment plant area is not proposed for development at this time. The area could potentially be developed as part of a subsequent Specific Plan. The level of noise expected to be generated by the facility would be far below the noise standards and no impacts are anticipated in this area in the future.

The waste water treatment facility would utilize an aerobic process. Odor should, therefore, not be a problem since odorous compounds are oxidized in the aeorbic disgester. It is possible that in the warm summer months, the sewage may back up due to low flows. In such instances, it is possible that the sewage would not remain fresh and a slight odor could be present. These odor problems could occur throughout the transmission network, but will probably be minimal in the vicinity of the plant itself. All odor problems would be temporary.

The second Specific Plan phase would double the number of residential units and increase the number of hotel rooms by 250. This second phase would, therefore, approximately double the volume of liquid waste from the project. The waste water treatment plant and percolation beds have been suitably designed and sited to permit easy expansion of the facilities. The developer would be responsible for paying for all necessary improvements to the first Specific Plan phase plant to accommodate planned increased flows.

3. Analysis of Significance

The sewage disposal/waste water reclamation system which would be designed and constructed by the developer is proposed to be owned and operated by the Borrego Water District, a California Water District. The Local Agency Formation Commission will be requested to authorize the exercise of latent sewage collection and treatment and waste water reclamation powers by the District.

The use of on-site regenerated water softeners should be prevented in the service area of the public sewer system to protect the ground water from excess salinity. Because of low salinity of well water, no softeners should be necessary. Because of careful design and operation procedures, liquid waste and the waste water treatment plant should have no significant environmental impacts. During the construction phase the local habitat would be irreversibly changed due to grading and recompaction. The plant has been designed to conserve virtually all the waste water, recycling it for use on the golf course.

Q. SHERIFF'S PROTECTION

1. Existing Setting

The Rams' Hill property falls within the Sheriff's Master Beat 71, which is covered out of the Sheriff's Borrego Office located at 610 Palm Canyon Drive. Response time to the property is approximately ten minutes for priority calls and 13 minutes for non-priority calls.

Normal patrol coverage in Master Beat 71 consists of one patrol unit on duty from 8:00 a.m. to 5:00 p.m. The resident deputy remains on a "call-out" status the remaining 15 hours per day.

There are currently no projected or budgeted increases in staff or equipment for the Sheriff's Borrego Office.

2. Potential Impacts

By itself, the proposed project would incrementally impact the Sheriff's level of service in the area as the development is implemented. Currently there is one patrol per deputy per 1,650 people within the Sheriff's jurisdiction in this area.

The Sheriff's Department estimates that by 1985 current growth trends will necessitate the addition of two deputies in the Borrego Valley to maintain the same level of service available today. This estimate includes service for normal Borrego growth plus service to cumulative projects which recently have been approved in the valley, including Borrego Country Club. In order to serve the Rams' Hill project in 1985, assuming full build-out and occupancy, the Sheriff estimates two additional deputies would be required to maintain the present level of service. Therefore, in 1985, with implementation of Rams' Hill, normal growth and assuming the construction of all other recently approved projects, the Sheriff estimates that the staff in Borrego Springs will need to expand by a total of four additional deputies, in order to maintain the ratio of one deputy per 1,650 population. The yearly cost of a one-deputy car on duty seven days a week eight hours a day is $87,504.

3. Analysis of Significance

The developer has stated that the Rams' Hill development will be designed to incorporate a high level of internal

security, which would minimize the impact on sheriff services. Entry into and egress from the property would be regulated. The residential developments are oriented around cul-de-sacs. This cul-de-sac form of development is designed to create "mini-neighborhoods" thereby reducing through traffic in the project, potential vandalism and associated problems. Use of the second homes would be seasonal in nature and the need for sheriff services would probably be substantially reduced during the summer. The phased development of the proposed project would result in a gradual population increase, thus staggering the impacts upon existing levels of sheriff's protection.

The Rams' Hill project would significantly increase the tax base in the community. These additional tax revenues would somewhat offset the cost of expanded service. In light of Proposition 13, the extent to which tax revenues subsidize public service costs is debatable.

The expansion of Sheriff's service in the valley as a result of Rams' Hill would benefit the entire community. Currently the one deputy in the valley is available nine hours a day and "on call" the remaining 15 hours. Weekend coverage is less complete, with the deputy from Ranchita sharing duty in Borrego. The expanded service necessitated by Rams' Hill would result in more complete service throughout the valley.

It is highly probable that three deputies could provide full service (24 hours a day, seven days a week), instead of the current abbreviated service of eight hours a day, five days a week.

In conclusion, the Rams' Hill project would have a substantial adverse impact on the level of Sheriff's protection in the valley should additional deputies not be assigned to the Borrego Substation. The cost of providing two additional deputies would significantly impact the budget of the Sheriff's Department.

R. SCHOOLS

This discussion is based upon information confirmed by the Borrego Springs Unified School District in a service letter dated August 1, 1978.

1. Existing Setting

The Rams' Hill property lies within the Borrego Springs Unified School District. The District operates one elementary school serving grades K-6 and one high school serving grades 7-12. The school district is attempting to diversify educational opportunities by offering vocational education and a limited number of courses through the Palomar Community College District.

The public schools serving the Borrego Springs community are currently functioning at approximately half of their design capacity. Since 1970 the Borrego Valley has experienced an eight percent annual growth rate as the resort and retirement communities have expanded. Based upon this growth, the school district is projecting a two percent annual enrollment increase for the immediate future. The following table summarizes the existing enrollments and future enrollment trends.

TABLE IV-R-1

Existing Trends: School Enrollment

	Served	1977-78 Enrollment	Projected 1982-83 Enrollment	Capacity
Borrego Springs Elementary 1315 Palm Canyon Drive	K-6	120	132	220
Borrego Springs High School 2281 Digueno Road	7-12	118	130	250

2. Potential Impacts

The County Department of Education recently completed work on a project to help predict the number of students projected to enroll in a given school based upon year round housing types in different parts of San Diego County. Second home developments, such as that anticipated at the Rams' Hill project, however, were not analyzed. It is recognized that second homes generate considerably fewer students than primary residences. For example, there are no students

attending schools in the Borrego School District from the De Anza Country Club development, a similar resort- second home project located in the northwest corner of the Borrego Valley. Therefore, in consultation with the school district, it was agreed that the following generation factors appear reasonable for Rams' Hill:

TABLE IV-R-2

Generation Factors per Dwelling Unit

Grade Level	Detached Units	Attached Units
K-6	.075	.0525
7-12	.100	.0625
TOTAL	.175	.1150

Based on these estimated generation factors, the first phase of the Rams' Hill project could generate 47 primary students and 58 secondary students.

In addition to the students who would be living in the Rams' Hill development, a small number of additional students could be expected as a result of the induced growth prompted by Rams' Hill. Analysts for the County's Regional Growth Management program estimated that this project could provide 350 jobs, resulting in the creation of approximately 175 households in Borrego Springs.

The County recommends use of the following factors to estimate the number of students which might be generated by permanent year-round dwelling units in Borrego: K-6, .3 students; 7-12, .4 students. Based on these generation factors for permanent households, this induced growth could result in an additional 52 primary students and 70 secondary students. These students would be gradually entering the school system over a five year period. Therefore, the total maximum number of students which could be expected to enter the school system as a result of the development includes 99 primary students and 128 secondary students. The following table summarizes the impact of these students on the school district.

TABLE IV-R-3

Projected School Enrollments

School	Grades	Projected 1982-83 Existing Trends	Maximum 1982-83 Existing Trends Plus Rams' Hill	Capacity
Borrego Springs Elementary	K-6	132	231	220
Borrego Springs High School	7-12	130	258	250

The project is located six to eight miles from the Borrego Springs elementary and high schools. Busing of students residing at Rams' Hill to these schools would be necessary. The school district has indicated that busing would not be a problem.

3. Analysis of Significance

The Rams' Hill project would not create any significant adverse impacts on the Borrego Springs School District. Should enrollments continue to grow, 37 acres have been reserved on the property to be dedicated as an elementary school site. The agreed generation factors for Rams' Hill are low, due to the character of the project and the area. It is highly unlikely that the full number of projected students would, in fact, enter the district. Should maximum enrollments occur over the next five to ten years and should no school expansion occur, capacity would be exceeded by 1.5 students per grade. Such a small increase would not warrant construction of new facilities.

During the construction phase it is anticipated that additional students would enter the school district from construction worker's families. Because the district has such a large and under-utilized capacity, these children should not seriously impact the district.

The second Specific Plan phase of the project could double the number of students entering the district schools. These children would not begin to enter the schools until seven to ten years after initial construction of this Specific Plan phase. Because of the large lead time, the school district would have sufficient opportunity to assess more precisely the impacts likely to be generated by this second phase and to plan appropriately.

The school district is currently operating at less than half capacity, resulting in a very poor utilization of capital facilities and an over-staffing at the various grade levels. Increased enrollments would improve capital utilization and increase state subsidies to the district. This would probably result in an overall improvement in the utilization of school system facilities. The increase in state per capita subsidies would be especially beneficial to the community. The current state-wide policy is that by 1980 school district funding will be based entirely on the number of students attending schools in the district.

S. FIRE PROTECTION

The following discussion is based upon correspondence with Chief Jack Hansen of the Borrego Springs Fire Protection District.

1. Existing Setting

The Rams' Hill property lies within the jurisdiction of the Borrego Springs Fire Protection District. The closest fire station to the site, and the station which currently serves structures in the project vicinity, is located at 2324 Stirrup Road, between six and one-half miles away. Response time to the site would be six to eight minutes.

Nine full-time, paid firefighters and approximately seven volunteer firefighters man the Stirrup Road station in shifts of five men each. All personnel are certified as Emergency Medical Technicians, with skills rated between that of advanced first aid and paramedic level one. The staff is divided into three engine companies which man two 2,000 gallon per minute pumpers and one 500 gallon per minute pumper. To facilitate rescue and emergency medical relief services, the District maintains two intensive care ambulances, a four wheel drive ambulance and a rescue equipment truck.

2. Potential Impacts

Implementation of the proposed project would significantly increase the demand for fire protection services within the District. The developer has contacted the Fire Protection District and they have not been able to provide a detailed assessment of the impacts the project could have on the District in light of State Proposition 13. Chief Jack Hansen has stated that the District may undergo some cutbacks in current levels of service, effective July 1, 1979.

The proposed project may require the construction of a new fire station. A class ten insurance rating would be given to all new structures on the property until a new fire station adjacent to or on the development sites is constructed. Implementation of a new station at Rams' Hill would require additional personnel for the District's staff. Additional service vehicles for the engine companies and the rescue and ambulance teams would be necessary. Normally, one fireman is required per 1,000 population.

3. Analysis of Significance

When the General Plan was amended by the adoption of a Specific Planning Area for the DiGiorgio property, a 2.5-acre parcel on the site was designated for the provision of a future fire station. The District, however, has no immediate plans or funds for the construction of a new station or other expansion.

Should the District be forced to assume the financial burden to construct the needed fire station on site this project would have a significant adverse impact on the District. This impact could be mitigated in one of two ways. The developer could construct the fire station to District standards. As an alternative, a special assessment district could be formed and placed on the new owners and guests of the project to capitalize and pay for the operation of the necessary fire station.

Although not stated by the Chief, it is assumed that the new station would require additional service vehicles and men to operate the station. Should a special assessment district not be formed so that the residents pay for the operation of the station, the project could have a significant adverse impact upon the operation of the Fire Protection District.

The development of the Scripps Satellite Clinic at Rams' Hill would significantly mitigate the impact of the project on emergency medical services. The clinic would provide primary and emergency health care for residents throughout the valley and at the Anza Borrego Desert State Park.

The Rams' Hill project would significantly expand the tax base in the valley. The additional tax revenues would somewhat offset the cost of expanded service. In light of Proposition 13, the extent to which local tax revenues will offset the cost of public services is questionable.

T. SOLID WASTE

1. Existing Setting

Solid waste in the Borrego Valley is collected by Desert Waste Systems, a private carrier based in Ramona. Service is provided on a contractual basis with individual owners. At the present time, collections are made at weekly intervals using 20-cubic yard trash compactors. The carrier operates the compactor in Borrego Springs five days a week.

Solid waste is currently deposited at the sanitary land fill located at the eastern end of Palm Canyon Drive, approximately six miles north of the project site. The land fill has a remaining life expectancy at current population levels of approximately 20 years.

2. Potential Impacts

San Diego County Department of Sanitation and Flood Control has confirmed the following generation factors for planning purposes to estimate the volume of solid waste to be produced by the Rams' Hill Specific Plan:

one dwelling unit	2.1 persons/unit
one individual	5 lbs waste/day
hotel complex	3 lbs waste/room/day
medical facility	10 lbs waste/patient/day

The volume of solid waste generated by the residents of the project would vary with the season of year as occupancy rates go up and down. During the peak season, when it can be assumed for planning purposes that 100 percent of the dwelling units would be occupied, 8,860 pounds of solid waste per day would be generated. During the off season, when occupancy is projected to fall below 35 percent, the volume of solid waste generated would fall to 3,224 pounds per day. The following table summarizes the generation rates.

Maximum Projected Solid Waste Generation at Ram's Hill by Season Lbs/Day

Peak Season - (October to April)

Use	# of Units	Occupancy	Factor/Day	Total lbs/Day
Hotel	350	100	3 lbs/room	1,050
Multi-family	530	100	5 lbs/person	5,035
Single-family	250	100	5 lbs/person	2,625
Medical facility	15		10 lbs/patient	150
TOTAL				8,860 lbs/day

Off Season - (May to September)

Use	# of Units	Occupancy	Factor/Day	Total lbs/Day
Hotel	350	100	3 lbs/room	1,050
Multi-family	530	35	5 lbs/person	1,762
Single-family	250	10	5 lbs/person	262
Medical facility	15		10 lbs/patient	150
TOTAL				3,224 lbs/day

3. Analysis of Significance

The projected life expectancy of the Borrego Landfill is approximately 20 years at the current projected rate of landfill development. The landfill site is now being loaded with 18000 tons of solid waste each year. This project will generate 1172 tons per year, thereby increasing the loading by approximately 6% annually.

The project's gradual phasing would stagger the cumulative impacts over five years. Since solid waste disposal is provided by private carrier, the project would not adversely impact service costs for solid waste disposal. The second Specific Plan phase now planned only in concept would increase the total volume of solid waste generated in the valley but would likewise not impact service levels or costs.

The life expectancy of the Borrego Landfill site is currently projected to be 20 years. The Specific Plan phase of the Rams' Hill project would have a significant adverse unmitigated impact upon the life expectancy of the Borrego Land Fill by several years. In addition, it would contribute incrementally to the regional need for new disposal methods and sites on a gradual basis. The expanded tax base resulting from project implementation would somewhat offset costs for the provision of new land fill facilities. As an alternative to providing new land fill sites, the County or another interested public or private agency might wish to utilize solid waste for energy generation or some other alternative use. Should this be implemented, the additional residents and solid waste production at Rams' Hill would have a beneficial impact for the community.

U. VISUAL QUALITY

1. Existing Setting

The site of the proposed Rams' Hill project is presently an open, undisturbed alluvial fan along the southern perimeter of the Borrego Valley. The site contains three vegetative communities including a mesquite woodland bordering the Borrego Sink; a desert scrub community over most of the property; and a ridge-wash community in the southwest quarter. The site is easily viewed from all areas in the valley and is an integral part of the desert panorama. Rams' Hill is adjacent to Yaqui Pass Road and is the first view to the right of the road as one enters the valley traveling north on Yaqui Pass. The Rams' Hill site includes a large portion of the southern Borrego Valley and can be considered a visual resource within the open beauty of this desert basin.

2. Potential Impact

The project would convert a portion of the south slope of the Borrego Valley to a large scale desert resort with introduced landscaping. The resort would include a one-story medical clinic; an extensive ,three-story hotel with detached bungalows; a golf course; streets; parking lots; 530 planned residential units; 200 single family units; 50 estates; and other accessory features. The native vegetation within the area to be developed would be converted from sparse desert scrub to introduced turf and drought resistant landscaping. The 966 acres planned in concept only would likewise change a portion of the desert fan to an intensively developed resort. The concept phase would also be landscaped in a manner appropriate to the desert area. Grading, although minimal, would disrupt the natural, smooth grade of the fan surface. The development, including buildings and landscaping, would be visible from the entire valley, and especially from Montezuma Valley and Yaqui Pass Roads, the two major access routes from the west and south. The waste water treatment facility would be visible from Borrego Springs Road. The project would not, however, block the view of any significant visual resource.

3. Analysis of Significance

As proposed, over half of the site would be dedicated as permanent undeveloped open space, including the entire eastern half of the property. Native vegetation would be used to the extent feasible to landscape the single family resi-

dences and two-acre estates. The large rough on the borders of the golf course would be left in native vegetation. The waste water treatment facility would be screened from view through the use of desert adapted trees and shrubs. The mesquite woodland adjacent to the Borrego Sink, and the ridge and wash area in the southwest corner would not be developed at this time. Plans for these sensitive areas would be fully developed in the second Specific Plan phase.

The developer has proposed that the goal of the Rams' Hill project is to preserve a natural, low-key, desert quality. While the project would convert a portion of an undisturbed alluvial fan to a residential-resort complex, landscaping and development would be sensitive to the desert environment. The project would substantially alter the vista of the Borrego Valley. The significance of this alteration will vary with the values of the observer.

V. ALTERNATIVES

There are a number of potential alternatives that can be considered. The following six are presented as being the most feasible and providing the broadest range of discussion of the issues: (1) development of the same concept plan at a higher density; ((a) 25 percent higher and (b) 50 percent higher); (2) development of the same concept plan at a lower density, ((a) 25 percent lower and (b) 50 percent lower); (3) development of a residential project without resort facilities; (4) development of a resort facility with no residential units; (5) agricultural uses; and (6) no project.

1. Development of the Same Concept at a Higher Density

The first potential alternative to the proposed Specific Plan is the development of the concept plan at a higher density. This higher density would be in addition to that density reserved for development in the second Specific Plan Phase. Two bench marks will be used for this alternative: increasing the density by 25 percent and increasing the density by 50 percent. Density increase above 50 percent is not practical to consider at this time.

a. 25 percent increase

This alternative would increase residential density by 25 percent, or 200 units. The units under this alternative would be located in those areas included for development in this Specific Plan phase. They would not be located in the 1562 acre open space area or in the areas reserved as "not a part". Under this alternative, a series of impacts can be expected. Land use impacts would increase by intensifying development and decreasing open space. Energy consumption for domestic use would increase by about 19 percent. Impacts on public services such as fire, sheriff and solid waste would increase in proportion to the number of units.

This alternative would not substantially increase the significance of impacts to biology, archaeology and noise although human presence and activity would increase. The impacts to biology relate to altering the hydrologic regime of the property, alterations and destruction of habitats, and increased human presence. These impacts would not change substantially. Archaeological impact relates to

development adjacent to a rare resource. This would still occur.

Impacts on air quality and traffic would be marginal since trips from Rams' Hill would only increase by 10 to 12 percent. This alternative would proportionally increase the number of units exposed to a significant flooding and seismic hazard. Grading would not increase substantially since those intensively developed areas are already proposed for grading. No significant impacts would occur to liquid waste since the capacity of the treatment plant could be easily expanded by the developer. The alternative could possibly decrease water consumption because landscaping consumes proportionately more water than dwelling unit uses. The amount of recycled water available to the golf course would increase by 25 percent resulting in a net increase in water used for plants. The short term impacts of this alternative would not be substantially different than those of the Specific Plan proposal.

Increasing the density by 25 percent would increase the social and economic benefits to the Borrego Springs community and to San Diego County. The permanent year-round population could be anticipated to increase thereby assisting in economic viability. The increased density would not substantially increase the recreational opportunities in the County.

b. 50 percent increase in density

This alternative would increase residential density by 50 percent or 390 units. In this alternative the units would be located in those areas included for development in this Specific Plan phase. They would not be located in the 1562 acre open space area, or in the areas reserved as "not a part". The following impacts would occur should this project be implemented: Land use impacts would be substantially more adverse; the intensified development would either eliminate open space or result in multi-story buildings. The design of this project would not blend well with the desert nor would it be consistent with surrounding development. Multi-story buildings would adversely impact visual quality. Energy consumption could be expected to increase by 37 percent. This would probably necessitate construction of additional transmission capability to the valley. Initially, impacts on public services during the construction phase would be no different from the proposal. After implementation, impacts would be substantial and adverse necessitating construction of a new fire station, and additional sheriff's

deputies.

This alternative would substantially alter the character of the Borrego Valley. The intensive development would create more activity of a more intense nature resulting in greater impacts on biology, archaeology, as well as increased noise levels. The volume of traffic and air pollution generated by the project would increase by approximately twenty percent. This alternative would proportionately increase the number of units exposed to a significant flooding and seismic hazard. Grading would not increase substantially since grading would already occur over most of the developed areas. The volume of liquid waste would increase by 95,000 gallons per day. This would be easily accommodated by an increase in the capacity of the treatment plant. Increased liquid waste would have a beneficial impact by making more recycled water available to irrigate the golf course. This alternative would probably decrease net water consumption by reducing the landscaped area and increasing the volume of recycled water. The short term impacts of this alternative would not be substantially different than those of the Specific Plan proposal.

The beneficial impacts to the Borrego economy would increase in proportion to the number of year-round residents at the project. This alternative would increase the number of second home and retirement units in the County of San Diego. The per unit value of the homes could decrease since the higher density development might not have as great a market potential. The recreational benefits for the County as a whole would not change substantially from the proposal.

2. Development of the same concept plan at a lower density

The second potential alternative to the proposed Specific Plan is the development of the concept plan at a lower density. This lower density would reduce the total number of dwelling units constructed during both phase 1 and phase 2 of the project. Two levels of reduced density will be discussed: 25 percent reduction and 50 percent reduction. Reduction by more than 50 percent would not be feasible.

a. 25 percent lower density

This alternative would reduce the number of residential units by 25 percent, or 200 units. The overall density of this phase of the development would be reduced from one dwelling unit per 2.7 acres to one dwelling unit per 3.75 acres. This alternative would increase the amount of open space within the developed areas, but would not change the overall

form of extent of development. Decreasing the density by 25 percent would not substantially change the land use impacts of the project. 596 acres would still be irreversibly committed to resort-residential development. The alternative would be consistent with surrounding development.

Under this alternative a series of impacts would occur. This alternative would not substantially decrease the biological and archaeological impacts. Even this reduced level of human presence and activity would still interfere with the patterns of faunal activity. The hydrological characteristics of the property would be substantially altered. The volume of traffic and air quality emissions generated by the project would decrease by about ten percent. Noise levels would not change substantially. Energy consumption for domestic uses would decrease by 19 percent. Impacts on services would also decrease by 25 percent. Despite this, the number of sheriff's deputies needed to serve the project would not change; the need for a fire station would not lessen. The volume of liquid waste would be reduced by 48,500 gallons per day at peak occupancy. This would not impact the treatment plant since it has been designed to accommodate a wide variety of volumes. This alternative would increase the overall consumption of water by increasing the amount of landscaped area to be irrigated and by reducing the volume of reclaimed water which could be used to irrigate the golf course. The short term impacts of this alternative would not be substantially different from the proposal.

The beneficial impacts to the Borrego community of this alternative would be slightly, but not substantially, less than those of the proposal. The number of permanent year-round residents would still increase substantially thereby assisting in the creation of an economically viable community. The amount and diversity of recreational opportunities in San Diego County would be substantially increased but to a lesser degree than under the proposal.

b. 50 percent reduction in density

This alternative would decrease residential density by 50 percent or 390 units. The area proposed for development under this alternative would not change. The overall density of the Specific Plan would be reduced from one dwelling unit per 2.7 acres to one dwelling unit per 5.5 acres. This alternative would create the following impacts. The land use impacts would not change substantially since the same acreage would be committed for resort-residential uses. Common open space would increase substantially between

the planned residential areas and within the single-family home areas. The land uses would not be balanced with the large resort hotel and the small number of residential units. Impacts on public services would be decreased. The alternative could require one less deputy than the proposal. The need for a new fire station could be eliminated.

This alternative would not change on-site biological impacts. Indirect impacts could decrease with decreased human presence. The impacts to the archaeological site would not be substantially lessened since development would still occur relatively close to a rare resource. Traffic and air pollution generated by the project would decrease by approximately 20 percent. This would not create a significantly lesser impact than that of the proposal. This alternative would proportionately decrease the number of units subject to a significant flooding and seismic hazard. Energy consumption would decrease by 40 percent. Noise levels would decrease incrementally. Grading would not change substantially. The volume of liquid waste would decrease by 90,000 gallons per day. Recycling the waste water would not be feasible during most of the year under this proposal. Therefore the volume of potable water needed to irrigate the golf course would increase. The net impact would be to increase the volume of water consumption due to increased landscaping needs and less recycled water. Short term construction impacts would not change substantially.

The social and economic benefits of this alternative would be substantially less than those of the proposal. A lower density would not be consistent with the intent of the Specific Plan Area or the development objectives and needs of the valley. At substantially lower densities, the project would not provide an adequate population base to help solve some of the critical problems in the valley,including a lack of economic stability during the summer, and underutilization of capital facilities such as schools. Development at a lower density would have all the potentially adverse impacts of development in an undeveloped scenic valley, but would not provide the overriding social benefits to be derived for the community at large.

3. Development of a residential project without resort facilities

The third possible alternative to the proposed Specific Plan is the development of a residential complex without resort facilities. This alternative would include the same number of dwelling units as the proposal in the same location, but

would eliminate the golf course, resort, medical clinic, and large tennis facilities. The Borrego Valley is primarily a second home/retirement community. As explained more fully in the section on growth inducement, a primary factor in the marketability of these second home areas is the development of associated resort facilities.

There are already approximately 2,500 buildable lots in the Borrego Valley. These lots are the product of earlier speculative subdivision activity. Borrego has had several "false starts" for growth in the past because this earlier activity lacked a resort orientation. This alternative is economically infeasible and ignores the explicit intent of the Rams' Hill development and its inherent attractiveness to future residents.

The environmental impacts of this alternative would probably be as follows: The alternative would irreversibly commit 538 acres to residential uses. This would be consistent with earlier land project activity in the valley, but not consistent with the needs of the community. This alternative would increase open spaces within the development and reduce the total irrigated acreage. Without a resort orientation the planned residential units would lose their marketability,perhaps depressing the market potential of the single family units. The estate units could probably maintain their attractiveness. This alternative would not substantially impact the value of development elsewhere in the valley.

The residential alternative would have significant impacts on biology, although not as severe as those of the proposal. The alternative would irreversibly alter the habitat over 538 acres of the south slope, increasing human presence and potential ORV activity. The hydrology of the area would be altered, although not as severely because less acreage would be irrigated. The potential impact to a rare archaeological resource would remain. Energy consumption for domestic uses would decrease by 25 percent. Impacts on public services would decrease in proportion to the reduction in population. Impact to the fire protection district would be incrementally reduced although the need for a new station could still remain. Traffic and air pollution generated by the project would decrease by approximately 50 percent. Noise levels would incrementally decrease. Road noise would decrease by about 3dB(A). This alternative would proportionally decrease the buildings and the number of people exposed to a significant seismic and flooding hazard. Grading would decrease substantially because of the

elimination of the golf course. The volume of liquid waste would decrease by about 20 percent. This alternative would significantly decrease the volume of water use. Elimination of the golf course would save 954 acre feet per year. The recycled water could be applied to the remaining landscaped areas saving an additional 100 acre feet each year. Elimination of the hotel would save an additional 40 acre feet in domestic water use each year. The short term impacts of the alternative would not be substantially different since a large construction force would be needed to build the residential units.

This alternative would substantially reduce the social and economic benefits of the project without significantly changing the magnitude of irreversible environmental impacts. Judging by the failure of similar residential development, the project without a resort would probably not be marketable. Assuming all units would be occupied by 1985, the project would increase permanent year-round population, but not any more than would the proposed Specific Plan. The project would not substantially change the recreational opportunities in San Diego County. The elimination of the medical clinic would be a significant loss to the Borrego Valley and desert community.

4. Development of a resort without residential facilities

The fourth possible alternative to the proposed Specific Plan is the creation of a resort without a residential component. In concept there are three levels of resort development: large, medium and small. A large or moderately scaled resort, however, would not be feasible without residential support. It takes at least 200 residential units to support a golf course. A small scale resort would be the only feasible alternative.

This alternative is conceptualized as a 25 to 60 room resort with swimming pool and tennis courts, but no golf course. A small commerical support facility could be established including a restaurant. The medical clinic would be eliminated.

This alternative would have the following environmental impacts. A small area of perhaps 50 acres on the south slope would be committed to resort uses. This land use would be consistent with the neighboring uses at Casa del Zorro and Fletcher Air Ranch. The geological impacts would be substantially less significant since only one percent of the site could be developed. The habitat would not be significantly impacted and the hydrologic characteristics

would not be substantially changed. The potential impact to the archaeological site could remain but would be less severe with fewer inhabitants. Energy consumption would be reduced dramatically. Traffic and air pollution would be reduced by approximately 90 percent. Impacts to services would be minimal. Noise levels would not be impacted. This alternative would decrease the buildings and people exposed to a significant seismic and flooding hazard. Grading would be insignificant. The volume of liquid waste would be reduced substantially and the project could easily be served by a private septic system. The resort alternative would substantially decrease water consumption to an insignificant level. The short term construction impacts would be reduced to an insignificant level.

While the resort alternative would essentially eliminate most environmental impacts because of the small feasible scale, it would not solve any basic problems in the valley economy. The fluctuations in the valley population which make business solvency precarious in the summer would remain and be reinforced. This problem is more fully discussed in the section on socio-economic conditions. The problems with inadequate health care facilities would remain without the Scripps Satellite Clinic. This alternative would tend to aggravate local problems and would not provide the degree of overriding social benefit to be gained from the Specific Plan proposal.

5. Agricultural uses

The fifth possible alternative is to farm the 3,124 acres. This alternative is compatible with the General Plan designation and would require no special use permits. As discussed in the section on agriculture, farming is not an economically viable activity in the valley at present because of a labor shortage and high costs associated with water and transportation. Should farming become viable, this land could grow a variety of crops including citrus, asparagus, grapes, jojoba and ornamental nursery stock. This alternative would have significant unmitigated impacts to the rare archaeological sites and would result in the destruction of valuable habitat. Farming would also consume many times more water than the proposed development. In the past, farming a similar-sized area in the valley required five times more water than the proposal, causing ground water mining and localized subsidence.

6. No project

The sixth alternative to the proposed Rams' Hill Specific Plan is the "no project" alternative. This issue is highly complex because the Borrego Valley has experienced minimal development to date. Two key issues in the "no project" alternative are: (1) the effect of increased development in the valley on the State Park and (2) the relative benefits of preserving the scenic valley versus the social and economic benefits of development.

The Borrego Valley is a privately owned enclave in the 472,000 acre Anza Borrego Desert State Park. The community of Borrego Springs provides commercial support (such as stores and restaurants) for visitors to the Park. The population is so low, however, that the enclave does not appear to have significant adverse impacts on the Park habitat. The number of visitor days in the Park have increased dramatically since 1970, apparently due to the combination of increased metropolitan populations and mushrooming use of off road vehicles. At the same time the population of Borrego Springs has approximately doubled.

Two of the primary operational goals of the Anza Borrego Desert State Park are the preservation of the quality of the desert environment and the provision of diversified recreational opportunities for the public. Key issues are: will expanded development in the private enclave be consistent with broader state and regional goals for the park; will development impact the quality of the park environment; and will development increase recreational opportunities?

The resolution of these issues is complicated because increased public recreation in a desert area can lead to degradation of the environment. Consequently the balance between serving the public's need for recreation and protecting the habitat in the Park is very tenuous, requiring intensive management practices.

Because of the increasing demand for recreational opportunities in Southern California, the California State Department of Parks and Recreation is actively developing more facilities near the major southern population centers. At the Anza Borrego Desert State Park, the number of annual visitors has doubled since 1970. By 1985, the Park expects the number of visitor days to exceed 1 million. To accommodate this increase, the Park is now constructing a new visitors center on Palm Canyon Drive, two miles west of Christmas Circle at Park Headquarters. An extended initial study was done to assess the environmental impacts of the additional 200,000 visitors days that this center is expected to induce. This initial study found that the marked visitor increase would not significantly impact biology, habitat, air quality, noise levels,

services or cause traffic congestion. The impact of the 200,000 days on the ORV activity was not assessed.

Based upon the conclusions of this initial study, the incremental increase in visitor days in the Borrego Valley as a result of the implementation of Rams' Hill would not have significant adverse impacts on the environment in the State Park. The project would, however, positively support the objective of providing an increased and more diversified range of recreational opportunity in San Diego County.

Should the implementation of Rams' Hill have a significant impact on the level of ORV use in the State Park, it is highly possible that adverse impacts could occur requiring more sophisticated management practices by the Park. In conclusion, the implementation of Rams' Hill would not appear to significantly impact the management goals of the State Park in light of the conclusions of the State's initial study for the visitors center.

Therefore the Rams' Hill project would probably not impact the quality of the State Park. The project would support the park goal of providing increased recreational opportunity and would lead to increased visitor levels. Not constructing the project will not improve the park habitat.

A second issue in assessing the no project alternative is the relative benefits of preserving the scenic valley in a relatively undeveloped state versus the social and economic benefits of development. This is a value question which should be decided by the decision-making body. The economic benefits which the Borrego community will receive from this project have been adequately discussed in the sections on socio-economic conditions and growth inducement.

It is possible that the Borrego Valley within the Anza Borrego Desert State Park should be preserved as a rare natural resource. The valley has unique characteristics including: (1) unusually clean air resulting from unique air flow conditions; (2) an abundant natural water supply; (3) a diverse, complex biotic community; (4) rich archaeological resources; (5) the valley is beautiful and forms a valuable visual resource. From the perspective of the Western United States, the Borrego Valley is a highly unusual and scenic desert resource. Other desert areas with unusual resources such as Phoenix, Palm Springs and Tucson have experienced dramatic building booms in large part to accommodate the second home and retirement home markets. These areas, although developed on a significantly larger scale than is envisioned for the Borrego Valley, have suffered marked degradation of resources.

The no project alternative would result in the avoidance of on-site significant impacts such as on biology, water, noise, archaeology, and services. Maintenance of the status quo would also result in the avoidance of significant indirect and off-site impacts, such as avoidance of increased traffic congestion at Yaqui Pass and avoidance of biological impacts due to increased human presence. No project, however, also means the continuation of a marginally viable economic community in Borrego Springs, lack of medical services, and a fewer number of and less diverse recreational opportunities in San Diego County.

VI. ENVIRONMENTAL SUMMARIES

A. GROWTH INDUCING IMPACTS

1. Existing Setting

The Borrego Valley has experienced an annual growth rate of eight percent since 1970. People who enjoy the desert life come to Borrego for retirement or for seasonal activities. In 1970 the population of Borrego was 828. At present, there are an estimated 1,600 full-time residents in Borrego Springs. During the winter, the population in the valley can swell to 8,000 persons. The winter population includes, in addition to the permanent population, people who own second homes in Borrego and temporary visitors who camp, stay in resorts or are day visitors at the Anza Borrego Desert State Park.

While the percentage growth for Borrego has been fairly high, eight percent over the last ten years, the actual number of new residents in Borrego is quite small, only 772. The County has had an informal "no growth" or "limited expansion" policy for areas without urban levels of service. The Regional Growth Management Plan recommends that no changes be made to the County General Plan in the Borrego Valley until a community plan is prepared. This plan will not be prepared in the foreseeable future because the valley is extremely low on the County's priority list for new community plans. The ultimate shape and density of the future community plan will probably have more influence on growth in Borrego than the development of Rams' Hill.

Prior to the adoption of the Regional Growth Management Plan, the County had established a pattern of not approving General Plan Amendments which would increase densities in the Borrego Valley. As an example, in 1977, the San Diego County Board of Supervisors considered a General Plan Amendment for a 1,090 acre parcel known as the Borrego Country Club, located northwest of the Rams' Hill site. The developer proposed that the parcel be designated a Specific Plan Area with an overall density of 0.77 dwelling units per acre, the approximate existing density of the parcel.

Zoning is another large factor in the development patterns of Borrego. Presently the zoning throughout the majority of this valley is limited control, LC, which allows one dwelling unit per 2.5 acres gross or any use with a special use permit. This zoning does not exclude development on existing legal building sites of less than 2.5 acres, but only new subdivisions, which are the common means of development in the urban areas today. The County has direct control over the rate and location of larger scale project development throughout the valley by its control of special use permits and zoning changes.

Historically, two key factors in the development of Borrego have been the availability of resort-affiliated projects and the policies of lending institutions. Just as government policy is a key factor in large scale project development, individual preferences and banking policies are key factors in individual housing starts. The valley has had a history of speculative land division and lot sales but little development. As a result, Borrego has about 2500 buildable lots many of which would require only a building permit to be developed. However, they also require individual financing and expensive individual construction to be utilized.

Individual construction in the past has been limited by a variety of factors. Perhaps the chief one of these is the scarcity of accessible resort facilities. The typical second home buyer in areas like Palm Springs, tends to buy a home or lot which is part of a "community development". Access to resort facilities such as tennis courts and a golf course is a vital market factor. A community identity and possibly security services are likewise desirable from the perspective of a part-time resident. Lots outside of projects historically have been extremely slow to develop. The demand for these lots has come primarily from permanent residents who have been induced to move to the resort area because of an expanding service sector.

While a large portion of the resort/retirement market is comprised of individuals who have adequate funds to construct or purchase homes without outside financing, a substantial demand also exists from moderately affluent individuals who do seek outside financing. Banks have historically curtailed mortgage funds for resort and retirement housing. Because individuals are not as firmly stabilized in the valley by jobs and family, banks have not tended to view the second home market as a good risk. Until very recently, money was not readily available for home mortgages. Money to construct a new home is still scarce. In conclusion, therefore, the growth in individual home starts has been and probably will continue to be a function of the willingness of people to build on a custom home basis without integrated resort facilities and the willingness of banks to invest.

a. Growth-Existing Trends

Growth in Borrego is not expected to fall below the current eight percent annual rate, at least in the near future.

The number of visitors who maintain second homes in Borrego is growing at a more rapid rate than the permanent full-time residents. In consultation with Phil Steed, analyst for the

County Regional Growth Management Task Force, and Nick Marinovich, a staff research analyst from the Integrated Planning Office, the following factors were used in forecasting existing growth trends of permanent and second-home residents for the Borrego Springs area from 1978 to 1985. No attempt was made to forecast the total number of monthly visitors.

- o seven percent growth rate for permanent population
- o eight percent growth rate for seasonal population (those people who maintain a second home in Borrego)
- o 2.5 people/dwelling unit for second-home residents
- o seasonal percentage occupancy of units as follows:

Table VI-A-1 Seasonal Occupancy of Residences

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Permanent	90	90	90	90	70	70	70	70	90	90	90	90
Second Home	90	90	70	55	35	35	30	30	30	70	90	90

The following table summarizes the projected growth trend for Borrego Springs from 1977 to 1985 without the Rams' Hill project:

Table VI-A-2 Current Growth Trend for The Borrego Valley

	Maximum Population 1977	1985
Permanent	1,570	2,320
Second-Home	650	1,400
	2,220	3.720

Table VI-A-3 Projected Seasonal Distribution of Population in 1985

	Jan	Feb	Mar	Apr	May	June
Permanent	2,088	2,088	2,088	2,088	1,624	1,624
Seasonal	1,260	1,260	980	693	490	420
	July	Aug	Sept	Oct	Nov	Dec
Permanent	1,624	1,624	2,088	2,088	2,088	2,088
Seasonal	420	420	420	980	980	1,260

Potential Impacts of Rams' Hill on Existing Growth Trends

In conjunction with Phil Steed and Nick Marinovich of the County Integrated Planning Office, a worst case analysis of the impact of the Rams' Hill project on the population of the Borrego Valley has been conducted. The purpose of this analysis was to estimate the number of residents who would live at the Rams' Hill project and to estimate the additional new residents who would be induced to move to Borrego as a result of the project but would live elsewhere in the valley. This analysis was based on the following assumptions:

- There would be 2.1 people/single family and estate unit of the Rams' Hill project. This projection is based on second home/retirement factors.
- 1.9 people per PRD unit of the Rams' Hill project.
- Two people per hotel unit of the Rams' Hill project.
- 1.7 person increase in permanent population per job generated.
- 1.11 multiplier (SIC code) used to compute total jobs (hotel, service) generated (Each job directly related to Rams' Hill would generate 1.11 more local jobs).
- Seasonal percentage occupancy as follows:

Table VI-A-4 Percentage Seasonal Occupancy at Rams' Hill

Month	Hotel (200 + 150) units 2 people/unit Occupancy	Persons	PRD Units 530 units 1.9 people/unit Occupancy	Persons	Residential Estate (200 + 150) units 2.1 people/unit Occupancy	Persons	Total
Jan.	90	630	90	906	90	473	2,009
Feb.	90	630	90	906	90	473	2,009
March	70	490	90	906	45	236	1,632
April	70	490	35	352	45	236	1,632
May	35	245	35	352	45	236	833
June	35	245	35	352	45	236	833
July	35	245	35	352	10	53	650
August	35	245	35	352	10	53	650
Sept.	35	245	35	352	10	53	650
Oct.	70	490	90	906	45	236	1,632
Nov.	70	490	90	906	45	236	1,632
Dec.	90	630	90	906	90	473	2,009

Using the above assumptions, the following table summarizes the projected seasonal population distribution in 1985. In this table "Rams' Hill" are the residents and guests who would be in

residence at the project; "Rams' Hill Induced" are the new, permanent residents who would move to Borrego to work at the resort; "Seasonal" are the second-home residents who are projected, using existing trends, to live in the valley but not at Rams' Hill in 1985; "Permanent" are the residents who are projected, using existing trends, to live in Borrego full time by 1985.

Table VI-A-5 Projected Population

Maximum Population (100% occupancy)	1977	1985
Permanent	1,570	2,320
Seasonal	650	1,400
Rams' Hill		2,009
Rams' Hill Induced		655
TOTAL	2,220	6,382

Table VI-A-6 Projected Seasonal Population Distribution in 1985

	Permanent	Seasonal	Rams' Hill	Rams' Hill(Induced)	TOTAL
JAN	2088	1260	2009	589	5946
FEB	2088	1260	2009	589	5946
MAR	2088	980	1632	589	5289
APR	2088	693	1078	589	4448
MAY	1624	490	833	458	3405
JUNE	1624	490	833	458	3405
JULY	1624	420	650	458	3135
AUG	1624	420	650	458	3135
SEPT	2088	420	650	589	3730
OCT	2088	980	1632	589	5289
NOV	2088	980	1632	589	5289
DEC	2088	1260	2007	589	5946

2. Analysis of Significance

Over the short term (one to five years) the forecast which predicts that the population would increase by 72 percent (2,664 people), as described above, is probably conservatively high.

In doing the analysis, it was presumed that the Rams' Hill growth would not absorb any of the normal growth which has been predicted based on existing trends. This assumption is conservative. There are currently about 2500 buildable lots in the valley, a product of earlier speculative subdivision activity. This project would therefore not affect the availability of lots, but rather the availability of constructed, project-affiliated units. A portion of the people who are part of the existing growth trend would therefore probably choose to live at Rams' Hill, rather than construct a new residence at random. For the analysis it was also presumed that the jobs which would be generated by the project would be filled chiefly by people who do not currently live in Borrego. This, again, would probably not be the case, since most of the service jobs at the project would not be the type of job which is traditionally held by the head of a household. The presence of middle income jobs, however, would generate an influx of new residents, once moderately priced housing became available. Therefore, these two presumptions were intentionally used to present a worst case analysis of the amount of growth - direct and induced - which would result from the development of Rams' Hill.

Using this analysis, Rams' Hill would, by 1975, directly and indirectly increase the permanent population in Borrego (the full year residents) by a maximum of 1,110 people, and the seasonal population by a maximum of 2,600 people. While this is a significant impact, it is not necessarily an adverse impact as discussed below.

a. Economic Impacts of Short-term Growth

The Rams' Hill project would probably have a significant, beneficial impact on the private and public sectors of the valley economy. Borrego is only a half-formed community. The nucleus exists but in an isolated area with inadequate public and private services. The economy of the valley functions like a teeter totter: it is up in winter during the height of the tourist season; but the economy is "grounded" in summer when businesses close and services become unavailable. Because of the tremendous fluctuation of demand, many services (such as, TV repair and plumbing) do not exist

locally. Services must be imported from the metropolitan areas and are available imtermittently, if at all. The services which are locally available tend to be operated by only one vendor and,therefore, tend to be extremely expensive.

Increased growth should stabilize the economic base of the community, especially in summer. The implemented project should expand the permanent residential population by 1100 people making it sufficiently large to support full-time services in the summer. The increased population should also stimulate and attract private service. By creating competition and increasing local demand, it is possible that a rudimentary and functional local economy might develop.

The public service sector would be significantly impacted by development of Rams' Hill. For a more complete discussion of impacts refer to the appropriate section pertaining to the service. Characteristically, a substantial increase in population in a small community such as Borrego Springs, whose economy and service sectors are marginally viable, would initially significantly and adversely impact services. Subsequently, once additional capacity is created, the additional population would create a higher standard of service than originally prevailed. In this way, Rams' Hill would initially significantly and adversely impact fire protection, sheriff's protection and solid waste disposal. In time the impact of growth on these services would be to increase the levels of service.

The project would broaden the tax base, increasing property and sales tax revenues to the County and community. These increases would somewhat offset the public expenditures necessary to provide service to the project.

Some public services would definitely benefit from the development of the project. Public schools are currently underutilized, functioning at half capacity. Incremental growth would, therefore, increase the viability of schools, especially in light of the proposed per capita funding to be implemented by the State in 1980. The Rams' Hill project would stimulate the activation of the Borrego Water District. This district would provide service to the project. It could potentially be used to regulate water usage valley-wide, providing a substantial benefit to the entire community.

b. Long-Term Impacts

Borrego does not have an adequate industrial or economic base. The future growth of the valley lies in the resort/second home

market. Trends in government policies toward growth, the condition of the economy, availability of money, more intangible trends in recreation and vacation activities, all will have a decisive role in long-term growth patterns.

The first Specific Plan phase of the Rams' Hill project would stimulate growth in the form of the second phase of Rams' Hill. This second phase would add an additional 2000 to 3000 people to the valley population. The impact of both phases of Rams' Hill on the valley would be to significantly and irreversibly change the character of the Borrego Valley from a small town to a major recreational resort area. San Diego County does not presently have a major desert resort. This could provide a needed recreational resource for the rapidly growing metropolitan population.

The cumulative impacts of the first Specific Plan phase, second Specific Plan phase of Rams' Hill and of the Borrego Country Club project will be more specifically analyzed in the section on cumulative impacts.

Taken by itself the Rams' Hill Specific Plan would not have a significant impact on the Borrego Valley. In relation to other projects, the Rams' Hill development may be environmentally significant. These significant impacts are substantially mitigated by positive social and economic benefits of assisting in the development of a viable economic community in the Borrego Valley and of providing a needed large-scale desert recreational and resort area in San Diego County.

B. CUMULATIVE ENVIRONMENTAL IMPACTS

This section is a projection of the type of cumulative impacts related to the Rams' Hill project which could result if additional major projects planned and/or filed with the County of San Diego for the Borrego Valley were built and fully occupied by 1995. This projection involves numerous uncertainties. The timetable of development may be very different. For example, the projects may not be completed by 1995. Government regulations, the state of the economy, and demand factors may make the second phase of Rams' Hill or the Borrego Country Club projects infeasible at any date. The Borrego Country Club project may develop into a land development project which results in lot sales but minimal improvement. This section is speculative, based upon a conceptual scenario. The following is a description of impacts which could possibly occur based upon tenuous assumptions.

1. Future Setting

This section is written based on two assumption: (1) the Rams' Hill project will be fully constructed by 1995 including two Specific Plan phases with a total of 1,562 dwelling units, 600 hotel rooms, a medical clinic and a complementary range of resort facilities and small retail shops; (2) the Borrego Country Club will be fully constructed and occupied by 1995 at the currently designated Specific Plan density of .77 dwelling units per acre for a total of 782 residential units.

This section assesses the cumulative impacts of the Rams' Hill project if these additional projects are also constructed.

2. Potential Impacts

The cumulative impacts of the three projects would substantially change the character of the Borrego Valley by converting the small community of 1,600 people into a large-scale desert resort area. The total population could exceed 10,000. Land use patterns would significantly change, with property becoming substantially more valuable. The resort areas in the valley would experience increased demand. The number of individual houses built outside of resorts to accommodate an expanded service community, including the construction section, would increase substantially. The socio-economic conditions in the valley could be expected

to change significantly. The proportion of lower income households would be expected to decline as the number of second home residences for wealthy persons and the number of middle income homes increase. The business community would expand significantly and become viable on a year round basis. The number and variety of services available to the general public would increase. The medical needs of the community would increase while at the same time the capacity of medical services available, such as the services available at the Scripps Clinic, would expand.

The cumulative impacts of the three projects on biology and habitat would be substantially greater and more adverse than those of the projects examined individually. In addition to direct biological impacts, the projects would probably have significant adverse indirect impacts on the desert environment of the valley and surrounding Anza Borrego Desert State Park. Increased human presence would probably reduce the number and variety of faunal species. Increased population could also lead to increased ORV activity. Impacts to the State Park can be somewhat mitigated by management practices.

Assuming the same level of automobile use as that prevalent today, the levels of traffic, noise and air pollutant emissions would increase substantially if the three projects were completed. The main western access roads into the valley, Yaqui Pass Road and Montezuma Valley Road, which are already experiencing moderate levels of congestion, would experience significant levels of congestion by 1995 unless major improvements were undertaken. With sufficient road expansion these impacts could be mitigated. As activity levels, especially traffic levels, in the valley increased, noise levels would increase. It is highly probable that noise levels along the major valley roads would exceed a CNEL level of 55dB(A) by 1995 resulting in substantial adverse noise impacts. The level of air pollutant emissions would increase in proportion to increased vehicular activity. The level of emissions per vehicle are projected to decrease substantially by 1995. Although the level of activity in the valley by 1995 would be substantially greater than that today, the air quality would probably not be impacted because of the unique meteorological situation in the valley.

The amount of energy consumed within the valley would increase in proportion to increased population. This could be

substantially mitigated through the newly adopted business code which encourages solar and alternative energy systems. It is probable that SDG&E would have to construct additional transmission lines. Assuming power generation in San Diego, the volume of air pollutants emitted in the San Diego Air Basin would incrementally increase as additional energy is generated and transmitted to Borrego.

The three projects together would collectively create more significant impacts on the quality of the dark skies than each project individually. With proper mitigation, however, none of the projects would significantly increase the intensity of night illumination. The creation of a community of 10,000, in the valley with a current population of 1,600, could be expected to result in significantly more night lighting than would result only from the projects themselves. This could be mitigated through the adoption of an ordinance which would require proper shielding and lighting in the valley.

Initially, services in the Borrego Valley, including fire and sheriff's protection, would be significantly and adversely impacted by the high rate of growth. Once the service sectors adjusted to increased population levels, however, it is highly likely that the quality and level of service by each affected jurisdiction would substantially improve, creating a net beneficial impact. Schools would be beneficially impacted from the initiation of the projects and continue to be beneficially impacted since the district facilities are grossly under-utilized. Collectively the projects would create more substantial adverse impacts on the sanitary land fill facilities in the valley than each would individually.

The visual quality in the valley would be significantly altered by this major expansion of the community.

The most significant cumulative impact of the three projects would be the impact on water supply. The valley is not connected with the County supply of imported water, but relies exclusively on ground water resources. Because of the projected decline in agricultural production in the valley, it is anticipated that ground water supplies could meet the demand of the Rams' Hill project, including both Specific Plan 1 and Specific Plan 2, by 1995. Under the best circumstances, Rams' Hill would not initiate a ground water mining situation. Under the worst condition a minor mining situation could occur, but supplies are projected to

last at least 300 years. The addition of the Borrego Country Club with an additional nine-hole golf course plus the incidental growth that the projects would cumulatively induce would create a significant adverse water mining condition. This could be somewhat mitigated by extensive valley-wide conservation measures including staggered watering days and restrictions on the amount and type of landscaping.

Finally, the cumulative impact of the projects on the valley population would be the inducement of more growth than would be induced from each project individually. The creation of major recreation and shopping areas, the development of exclusive specialty shops and extensive restaurant facilities could be expected, in addition to those at the project. Increased air service would become available, attracting more visitors and potential new residents to the valley and to the Anza Borrego Desert State Park. Improvement of access roads to the valley in response to high levels of congestion could be expected to lead to greater population as people move to the valley from metropolitan areas.

3. Analysis of Significance

The cumulative impact of the Rams' Hill project with 1,562 dwelling units, and Borrego Country Club project with 782 units would be to substantially change the character of the Borrego Valley from a small community to a community of over 10,000 people. This dramatic change would have associated significant impacts on biology, noise, traffic, water, services and visual quality.

The cumulative projects would also have cumulative beneficial impacts by assisting in the development of a viable business community in the valley and by creating a major desert recreational and resort area close to the coastal metropolitan areas.

The projects could increase visitorship levels to the Anza Borrego Desert State Park. With substantially greater number of visitors, each visitor experience could change markedly as services within the park are expanded to accommodate the additional people. The Park may, however, experience significant difficulties in maintaining the quality of the desert environment, and especially the habitat of the endangered Big Horn Sheep, with such expanded use.

4. Conclusion

This section has been a description of the type of impacts

which could occur should the Borrego Valley develop according to the given assumptions. Both the analysis and the assumptions are speculative. This section is an attempt to "crystal ball" the future.

last at least 620 years. The addition of the Borrego Country Club with an additional nine-hole golf course plus the incidental growth that the projects would cumulatively induce would create a more substantial water mining condition. This could be mitigated by the development of the Borrego Water District. For a full discussion refer to the Environmental Impact Report on the authorization of latent powers for the Borrego Water District.

Finally, the cumulative impact of the projects on the valley population would be the inducement of more growth than would be induced from each project individually. The creation of major recreation and shopping areas, the development of exclusive specialty shops and extensive restaurant facilities could be expected, in addition to those at the project. Increased air service would become available, attracting more visitors and potential new residents to the valley and to the Anza Borrego Desert State Park. Improvement of access roads to the valley in response to high levels of congestion could be expected to lead to greater population as people move to the valley from metropolitan areas.

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C. SIGNIFICANT ENVIRONMENTAL IMPACTS

1. Land Use

The project would irreversibly commit 596 acres of relatively undisturbed desert to residential and resort uses, and permanently dedicate 1562 acres for natural, undevelopable open space. Rams' Hill would provide 780 dwelling units, increasing the number and diversity of retirement and seasonal residences available in San Diego County.

2. Socio-Economic Conditions

The project would irreversibly change the character of the Borrego Springs community to a full scale resort community, and would provide a primary and emergency medical facility affiliated with Scripps Medical Clinic in La Jolla, in an area without adequate medical care.

The project would temporarily exacerbate a shortage of moderate income housing because of the influx of skilled workers during the construction phase. The project would assist in the development of a viable economic community in Borrego. It would also significantly increase the recreational resources in San Diego County.

3. Landforms/Geology

Implementation of the Rams' Hill project would result in alterations to the landforms, due to grading, recompaction and associated activities. Grading activities have the potential to cause erosion, dust generation and soil stabilization failures. The plan would require about 1,969,000 cubic yards of cut and fill.

4. Geologic Hazards

The site is located in a seismically active area and could potentially be impacted by an earthquake with a magnitude of 7.3 on the Richter Scale, producing maximum bedrock acceleration of 0.4g. This could cause slope failures, fissures and soil impaction. The erosion hazard on site is slight. In steeper areas, some cracking and minor slumping could occur when the soil is wetted. Shrinkage of the soils from excavation would probably occur.

5. Agriculture

The project would irreversibly commit 596 acres of arable land

to residential-resort uses. Since it is not, at present, economically feasible to farm the land, and better land is available for agricultural uses in the valley, this impact is not significant or adverse.

6. Biology

The project would have a significant impact on the hydrologic regime of the south slope. Should a rapid drop in the water table occur, the project would significantly impact biological species, both on and offsite. Increased water availability could facilitate the introduction of weedy species. The riding trails could significantly impact the number and variety of fauna in the mesquite woodland. Construction would significantly and irreversibly damage the habitat on 600 acres of the site. The project would interfere with the foraging behavior of raptors and larger mammals. By contrast, some wildlife species might increase in number.

7. Archaeology

Implementation of the development would result in the loss of a small part of Site 2, a significant, rare archaeological resource.

8. Air Quality

Rams' Hill would incrementally increase the level of emissions above that which would exist without the project. The project would not significantly impact air quality in the Borrego Valley or the Mountain Crest, but it would incrementally impact the level of emissions in the San Diego Air Basin.

9. Off-Road Vehicles

The project could indirectly increase the level of off-road vehicle use, resulting in impacts to the desert habitat, archaeological resources, air quality and noise.

10. Dark Skies

Development of the Rams' Hill project could impact the quality of the dark sky to the east of Mt. Palomar and Mt. Laguna Observatories if proper mitigation were not undertaken.

11. Noise

Noise from off-road vehicles could increase, due to recreational use of ORV's by Rams' Hill residents and visitors.

12. Visual Quality

The project would significantly change the view of the Borrego Valley.

13. Energy

The Rams' Hill project would significantly increase the level of energy consumption in the Borrego Valley, perhaps requiring an increase in transmission capacity. This energy consumption includes electricity for domestic purposes, and for supplying power for the sewage system and water supply and for transportation.

14. Traffic

Rams' Hill development would generate nearly 12,000 daily trips during the peak season, November through April, and nearly 8,000 daily trips during the off-season, May through October. During the peak season, weekends and holidays, the high growth in Anza Borrego Desert State Park visitation expected by State Park officials, together with the Rams' Hill development, would result in an increase in traffic on several Borrego Springs access and local roads. Significant impacts on certain road segments and intersections can be mitigated to insignificance.

15. Water

The Rams' Hill project would consume about 1,600 acre feet of water per year. There is a possibility that the development might cause some accelerated local lowering of the water table relative to levels in other portions of the Borrego Valley. Should the water table beneath the Rams' Hill property decline at a rapid rate, the deep rooted native vegetation, such as mesquite and some species of deep rooted cactus, both on site and on other properties in the southern valley, could be seriously impacted.

16. Fire Protection

Implementation of the proposed project would significantly impact the demand for fire protection service within the Borrego Springs Fire Protection District, and could require the construction of a new fire station.

17. Sheriff's Protection

The proposed project would incrementally impact the Sheriff's level of service in the area, by requiring two additional deputies per year.

18. Solid Waste

Development of Rams' Hill would significantly impact the life expectancy of the Borrego Land Fill. In addition, it would contribute incrementally to the regional need for new disposal methods and sites on a gradual basis.

19. Liquid Waste

Total estimated sewage production during the peak season at the end of the Specific Plan period is 224,000 gallons per day. Virtually all of this would be reclaimed to irrigate the golf course.

D. MITIGATING MEASURES

The following list of mitigating measures would minimize potential adverse impacts that might occur. For further information refer to the Analysis of Significance in the appropriate section of the Environmental Analysis.

Land Use

Several design features mitigate impacts resulting from the development of a residential-resort complex: (1) the residential units would be clustered; (2) half the property would be dedicated as permanent,undeveloped open space. Extensive landscaping with desert adapted plants would be done.

Landforms/Geology/Soils

Grading is significantly mitigated by design. The intensive land uses, including the PRD units, hotel-resort complex and single family homes would be located in the flat, central portions of the property. The steeper areas would be designated as estate lots where grading would be done only for roads and possibly pads. All grading would conform to the County's grading standards so dust generation would be mitigated to an insignificant level.

Agriculture

No mitigating measures are proposed or deemed necessary.

Geologic Hazards

Potential damage to structure and loss of life from severe earthquake would be substantially mitigated by constructing buildings to withstand a quake of 7.3 on the Richter Scale and a bedrock acceleration of 0.4g. The slight erosion hazard would be mitigated by planting extensive grassy areas throughout the landscaped area and on graded slopes. The naturally occurring erosion hazard on the undeveloped open space, the areas which are designated "not a part", the portions of the estate lots which would be left in a natural state and the portions of the single-family lots which would be minimally landscaped would not be mitigated.

The potential for slope failure would be fully mitigated by design and landscaping. The maximum gradient would be 1½:1. Construction would conform to the County Grading Ordinance.

To mitigate potential impacts due to shrinkage, a balance would be provided in which final grades could be raised or lowered depending on actual shrinkage factors.

Flooding/Hydrology

To mitigate the hazard from flooding to structures, an extensive system of two flood control channels would be built to divert flow around the east and west sides of the developed areas. This system would significantly mitigate the hazard on all but two of the estate lots. The waste water treatment plant and percolation basins would be fully protected from flooding to the satisfaction of the Regional Water Quality Control Board.

Biology

The potential impacts have been mitigated to the extent feasible by design. The eastern portion of the property would remain undeveloped. The southern extent of development would be in estate lots of two to five acres to minimize impacts in the sensitive ridge wash area. The required trails would be only minimally improved. Potential water impacts due to increased water from the percolation basins would be substantially mitigated by operation practices whereby the water would be recycled most of the year rather than discharged.

Archaeology

Impacts to Site 2 would be fully mitigated by preservation. This could be achieved by providing a six-foot wide buffer zone between the new construction and the resource, such a buffer of native cholla or ocotillo bush. Another potential means of protection would be the creation of an open air museum. No mitigating measures are proposed or deemed necessary on site 1. Sites 3, 4, 5, 6 and 7 would be fully mitigated by preservation since they are located in the area to be designated as undeveloped open space.

Climate

No mitigating measures are proposed or deemed necessary.

Air Quality

The APCD should undertake a full monitoring program to assess air quality. To reduce emission levels, the project design includes internal bicycle and riding and hiking trail systems. It is also suggested that Old Borrego

Valley Road be closed to reduce impact from ORV's.

The use of solar energy substantially mitigates potential impacts on the San Diego Air Basin resulting from electrical generation. The use of solar energy for domestic space and water heating would substantially mitigate emissions from power plant energy generation by about one-third. An increase in the level of public transportation facilities for long distance trips to Borrego could potentially decrease trip related emissions within the San Diego Air Basin from long distance trips destined for Rams' Hill.

Dark Skies

To avoid impacting the quality of the dark sky to the east of the Mt. Palomar and Mt. Laguna Observatories, a number of measures would be undertaken. All outdoor lighting fixtures would be shaded on top so that all light shines downward. Cut-off luminaries could be used which emit no light above 90°, thereby eliminating unwanted light scattering into the atmosphere. Either low pressure mercury lamps equipped with ultraviolet filters or high-pressure sodium lamps could be used in outdoor fixtures. The golf course would not be lighted at night. The tennis courts at the hotel complex and perhaps within the residential areas would be lighted only for a limited period each night. Cut-off luminaries using high sodium lamps with flood light configuration would be used to light the tennis courts. All lights for the pools, outside clubhouse facilities and tennis courts would be turned off at a reasonable hour.

Noise

Prohibiting ORV use in the project's open spaces and regulating ORV use in the Anza Borrego Desert State Park would mitigate any increase in noise due to recreational use of ORV's by Rams' Hill residents and visitors. The project design mitigates potential noise impacts on residents and guests of Rams' Hill. Residential units would be separated from major traffic areas; and units would be clustered around cul-de-sacs to reduce through traffic.

Visual Quality

To reduce impacts to visual quality, extensive landscaping using native vegetation would be done throughout the resort, PRD and single family areas of the project. The large roughs on the borders of the golf course would be left in native vegetation. The waste water treatment facility

would be screened from view through the use of desert adapted trees and shrubs. The mesquite woodland adjacent to the Borrego Sink and the ridge wash areas in the southwest corner would not be developed at this time.

Energy

Domestic energy consumption would be reduced by one-third by the application of solar technology and passive design techniques. Solar energy would be used for pool, water, and space heating. Proper orientation and shading of buildings would aid in heating a building during cold months and reducing cooling load in the summer. Other design techniques include maximizing insulation in roofs and walls, using light colors on roofs, and designing windows and proper landscaping for maximum natural ventilation.

Utilization of the County Rural Lifeline Transit system by Rams' Hill residents would decrease the number of long-distance vehicle trips between the coastal areas and Rams' Hill. The complex would include an internal and a regional trail system to encourage walking, bicycling and riding. Clustering of dwelling units and the provision of services on site would minimize number and length of vehicle trips.

The waste water treatment facility would be designed to handle a large variability in flow volumes. Effluent would be recycled for use on the golf course during high flow periods, but discharged to percolation beds during low flow periods. This flexibility would provide more efficient and economical performance.

The medical clinic built on site would incrementally decrease the number of long distance trips made by Borrego residents for medical care.

Traffic

Should the on and off site improvements required by County Department of Transportation,in their letter dated September 5, 1978,be fully implemented, the following additional measures would be needed to fully mitigate traffic impacts throughout the Borrego Valley.

Left turn pockets and a traffic signal at the intersection of Yaqui Pass and Borrego Springs Roads, which would flash a yellow caution light in the off-season and which would operate normally in the peak season, would greatly increase the safety and capacity of that intersection, and thus mitigate any impact there to insignificance. A four-way stop would be sufficient even in the peak season until full build-out of the project.

Adequate signing and striping around this traffic circle should be implemented in order to facilitate orderly and safe traffic flow. Signs posted for vehicles approaching the circle from all directions should clearly indicate directions to major Park and community attractions, while lane striping should clearly indicate travelled way and shoulders.

Improvement to County Major Road standards would mitigate the projected Borrego Springs peak season traffic impacts on these roads to insignificance. Since it is unlikely that such substantial improvements will be made in the near future, efforts should be made by the County to widen the paved roadways where necessary to create a center left turn lane or left turn pockets for entrance to and exit from residential developments and commercial/retail land uses. Furthermore, new developments and business establishments should be required to minimize the number of curbcuts onto the roadway.

Improvement to County Major Road standards would mitigate projected Borrego Springs peak season traffic impacts on these main access roads to insignificance. This measure, however, is unlikely to be implemented due to financial and terrain constraints. More well-marked turnouts on these narrow sloping roads, to allow for passing of slower vehicles, would greatly increase traffic flow and safety.

Should the lesser level of improvements discussed in the text be implemented rather than those required by DOT, no measures other than those discussed above would be necessary to fully mitigate circulation impacts.

Liquid Waste

The construction and careful operation of the proposed waste water treatment plant would mitigate to an insignificant level all potential impact, except direct construction impact, due to liquid waste. Sewage produced by the Rams' Hill development would be reclaimed as irrigation water for the golf course. Effluent volumes less than 100,000 per day would be dispersed by discharge to percolation beds.

Schools

The project would not create any adverse impacts on schools. Therefore no mitigation is proposed or deemed necessary. A 37 acre site has been reserved to be dedicated as an

elementary school site should one become necessary at a future time.

Fire Protection

A 2.5 acre parcel on site has been designated for the provision of a fire station. The development of the Scripps Satellite Clinic would significantly mitigate the impact of the project on emergency medical services. The project would not mitigate the adverse impacts resulting from the immediate necessity of constructing a new fire station. A service district could be formed to pay for construction, operation and maintenance of the new station.

Sheriff's Protection

The Rams' Hill development is designed to incorporate a high level of internal security, which would tend to mitigate the impact on sheriff services. Entry into and egress from the property would be regulated. The residential developments are oriented around cul-de-sacs, designed to create "mini-neighborhoods" thereby reducing through traffic, potential vandalism and associated problems. Use of the second homes would be seasonal in nature, and the need for sheriff services would probably be substantially reduced in summer. The Rams' Hill project would significantly expand the tax base in the community. The additional tax revenues would somewhat offset the cost of expanded service

Solid Waste

The gradual phased construction of the project would stagger impacts over five years. The impacts of the project on the sanitary land fill could be mitigated to an insignificant level by developing the capability in the valley to generate low grade energy from solid waste. This would in turn reduce impacts of electrical generation from fossil fuels along the coast, and would minimize the need for additional transmission capacity.

Water

There are three types of mitigating measures available to the project. Responsibility for the on-site measures and the application for annexation to the Borrego Water District would be the developer's. Acquisition of a substitute future supply, should one become necessary, would be the responsibility of public agencies.

On site, a series of measures are proposed to conserve

water at Rams' Hill. Up to 250,000 gallons of waste water would be recycled to irrigate the golf course. Drought resistant plants would be used for landscaping. A large percentage of the site would be maintained in a natural state. In addition, the following measures could be implemented. The landscaping and golf course could be watered at night to help reduce evaporation losses. Water flow restrictors could be included on all faucets. Low flow basin toilets and water efficient dishwashers could be installed in all dwelling units. Covenants banning water consumptive plants, and requiring that substantial landscaping be done with drought resistant species could be placed on estate and single-family lots when the final maps are approved. Drip irrigation could be used for shrubbery in common areas.

Annexation through the approval of LAFCO of the Rams' Hill project to the Borrego Water District would have several beneficial effects. Because of its size, the Borrego Water District would be better suited to carry on basin and community wide, long-term water planning. The potential problems with differential lowering of the water table could be prevented through a basin-wide supply agency. Regulation of water usage and equalization of rights to water could be ensured.

Potential future water sources would be considered should ground water become seriously depleted. Some possible solutions to this problem have been proposed by the United States Department of the Interior Bureau of Reclamation.

E. Significant Irreversible Environmental Changes

The discussion of irreversible impacts will be divided into two sections: (a) impacts should the project be successful and occupied over a long term; and (b) impacts should Rams' Hill be constructed but not succeed on the market. This latter discussion is extremely pertinent in view of the history of land development in the Borrego Valley.

(a) Impacts of a Long Term Project

The implementation of the Rams' Hill Specific Plan could irreversibly change land use patterns in the Borrego Valley and could result in the continual commitment of resources which make removal or non-use thereafter unlikely. The project would irreversibly commit 596 acres on the south slope to resort and recreational uses. Portions of an additional 966 acres could be irreversibly committed in the second Specific Plan phase. Should both phases of the project be implemented, this project could irreversibly commit the Borrego Valley to expanded development and additional resort uses. The project would increase the population of the valley community and expand business facilities. The expanded service sector would result in more housing in the valley. Should development expand significantly beyond projected levels due to growth induced by the project, a ground water mining condition would develop, which would irreversibly commit the valley to an unsafe water yield. Increased population would irreversibly impact habitat, energy consumption, traffic levels and public services.

(b) Impacts of a Short Term Project

The Borrego Valley has had numerous false starts for growth. The Rams' Hill project could fail, as have projects in the past. The following discussion assumes that the project fails after the construction phase. The direct and indirect irreversible impacts would then be less significant. Habitat would be destroyed on the developed acres. Adjoining habitat could be significantly altered due to increased human presence and activity. With sufficient time a new plant assemblage would develop to replace those destroyed plants. The local hydrologic system would be changed only as long as irrigation continued. Should ground water mining occur, the impact would cease if activity ceased. Experience with ground water mining and associated subsidence elsewhere in the valley indicates that the water table would stabilize with cessation of activity. Impacts to the archaeological sites would be irreversible. Grading

impacts and damage to desert pavement would be irreversible. The construction of all buildings and facilities would probably be irreversible, as would impacts to the visual quality, and to the sanitary land fill facilities. The impacts which would not be irreversible include: air quality, noise, energy, traffic levels, dark skies, fire protection and sheriff's protection. Construction of additional road capacity would not irreversibly lead to increased traffic levels since roads are not used to capacity today.

F. The Relationship Between Local Short Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The Rams' Hill project would have certain cumulative and long-term effects on the environment. This specific plan phase of 780 dwelling units would induce the second phase of an additional 782 dwelling units. The cumulative impacts of both phases would be to irreversibly commit the Borrego Valley to long term resort uses. The environmental impacts resulting from this cumulative growth are fully discussed in the section on Cumulative Impacts. (Part VIB)

Besides committing other portions of the valley to additional growth and possibly resort uses, the project could narrow the range of management options available to the Anza Borrego State Park, especially pertaining to wilderness areas. The project would not pose long-term risks to health and safety. In fact, the development of the medical clinic affiliated with Scripps Clinic would enhance health and safety in the Borrego Valley and surrounding State Park areas.

The Borrego Valley is a half-formed community. The economy is marginally viable during the summer months when services are severely curtailed, or not available at all. During the busy winter months the range of services available is limited. With the rapid growth in the coastal population, more recreational opportunities will need to be developed within easy travel distance of metropolitan areas. This project should be developed at this time to assist in solving the social and economic problems of the Borrego Valley and supply recreation for the metropolitan areas. Postponing Rams' Hill for five years or even ten years would not lessen the environmental impacts of the development, but would delay the realization of the overriding benefits.

AGENCIES AND ORGANIZATIONS CONSULTED 2

Public Agencies (continued)

Comprehensive Planning Organization:

Dennis Thompson

Anza Borrego Desert State Park

Bud Getty Dora Teal

State Air Resources Board:

Carolyn Stomberg Bob Georges
Don Lust Patrick Nevis

Borrego Springs Fire Protection District:

Chief Jack Hansen

Borrego Springs Unified School District:

Dr. Norman Guith

Borrego Water District

Borrego Springs Chamber of Commerce

California State Department of Parks and Recreation

Planning Division

Private Agencies

San Diego Gas & Electric Company:

Bruce Williams Mrs. Hughes
Bob Ladner Terry Dougherty
Mike Leite

Pacific Telephone

Desert Waste Systems of Ramona

Kawasaki Motorcycle Corporation:

Dennis David

Casa del Zorro Resort

VII. SOURCES

A. AGENCIES AND ORGANIZATIONS CONSULTED

Public Agencies

San Diego County Department of Transportation:

Bill Byers	Frank Julian
H. E. Sorlie	Kent Burnam
Chuck Moore	A. C. Waldman

San Diego County Department of Sanitation and Flood Control:

Don Wiltse	Bob Allen
Larry Hurt	Eric Lewis
Greg Miller	

San Diego County Integrated Planning Office:

Bill Chatham	Urmila John
Charles Lough	Eric Pulliam
Nick Marinovich	Mike Wright

San Diego County Dept. of Land Use and Environmental Regulation:

Harry Trax	James J. Gilshian
Dick Esgate	Mark LeBree

San Diego County Regional Growth Management:

Phil Steed	Paul Ross
Dave Nielson	Steve Lower

San Diego County Regional Trails Coordinator:

Mary Augustine

San Diego County Air Pollution Control District:

Hal Brown	Mike Sloop
Mike Alberson	Ray Weeks

San Diego County Sheriff's Department:

Barbara Hayes	Richard Shope

San Diego County Department of Agriculture:

Terry Tocco

CALTRANS:

Chad Lambirth

B. STAFF AND CONSULTANTS

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Socio-Economic	Al Nevin, Sanford Goodkin Research Associates

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D. FOOTNOTES

PROJECT DESCRIPTION

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(4) C. R. B. Claire, confirmed by Dave Vokac, Chief of Local Park Development, San Diego County Department of Parks & Recreation, December, 1977.

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AIR QUALITY

(17) Brown, Hale, Chief Meteorologist, San Diego County Air Pollution Control District, personal communication, July 1978.

(18) Global Weather Consultants. A Preliminary Study of the Air Pollutants over the California Desert, Report submitted to Bureau of Land Management, December 1977.

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Energy

(22) Williams, Bruce, San Diego Gas & Electric Co., Planning Division, personal correspondence, August 1978.

(23) Williams, Bruce, San Diego Gas & Electric Co., personal communication, August 14, 1978.

Liquid Waste

(24) O'Leary, Dennis, Lowry and Associates, personal conversation, August 1978.

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SL

NOTICE OF DETERMINATION

TO: Secretary for Resources
1416 Ninth Street, Room 1311
Sacramento, California 95814

County Clerk
County of San Diego #C11

FROM: County of San Diego
Board of Supervisors
EIR and record may be examined at
1600 Pacific Highway, Room 306
San Diego, California 92101

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of Public Resources Code

Re: 5-7-80 (31-36)

Date of Approval: 5-7-80

Project Title SP80-01; R79-80; TM 4053; P79-130; P79-131; P79-132
Rams Hill Country Club

State Clearinghouse Number (If submitted to State Clearinghouse)
79091206

Contact Person Sonja Itson Telephone Number 714- 565-3928

Project Location Borrego Springs, California

Project Description Approximately 630 acres==residential, hotel, tennis and recreation complex, medical clinic, golf course, water reclamation facility, fire station, public roads and approximately 1,560 acres of open space

This is to advise that the County of San Diego Board of Supervisors

has approved the above described project and has made the following determinations regarding the above described project:

1. The project [X] will, [ ] will not, have a significant effect on the environment.

2. [X] An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.

   [ ] A Negative Declaration was prepared for this project pursuant to the provisions of CEQA. A copy of the Negative Declaration may be obtained at:

3. A statement of Overriding Considerations [X] was, [ ] was not adopted for this project.

4. Mitigation measures were made a condition of the approval of the project and are described in the EIR and Specific Plan Resolution of Approval.

Date Received for Filing May 21, 1980

PORTER D. CREMANS
Clerk of the Board of Supervisors

By Dana E Trumble
Deputy

SAN DIEGO COUNTY
DEPT. OF PLANNING
ARCHIVE

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PROJECT PROCESSING
CONTROL CENTER