APPENDIX A

GEOTECHNICAL AND GEOLOGIC CONDITIONS ASSESSMENT

PREPARED BY:
LOWNEY ASSOCIATES

AUGUST 24, 2000

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Environmental/Geotechnical/Engineering Services

Geotechnical and Geologic Conditions Assessment

Communications Hill Development

San Jose, California

Report No. 991-17A has been prepared for:

Kaufman and Broad - South Bay, Inc.

2201 Walnut Street, Suite 150, Fremont, California 94538

October 23, 2000

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October 23, 2000
991-17A

Mr. Mark Dawson
KAUFMAN AND BROAD–SOUTH BAY, INC.
2201 Walnut Avenue, Suite 150
Fremont, California 94538

RE: REVISED GEOTECHNICAL AND GEOLOGIC CONDITIONS ASSESSMENT COMMUNICATIONS HILL DEVELOPMENT SAN JOSE, CALIFORNIA

Dear Mr. Dawson:

As requested, in this report we present the results of our geotechnical and geologic conditions assessment for the area of the proposed approximately 110-acre Communications Hill Development, to be located in San Jose, California. This report is a revision to our August 24, 2000 report to incorporate City of San Jose review comments to the environmental impact report (EIR) for the project. We understand this information will be used to support the revised EIR for the project site. The final geologic hazards clearance will be completed when our final geotechnical and geologic hazards report is completed.

If you have any questions regarding this letter, please call and we will be glad to discuss them with you.

Very truly yours,

LOWNEY ASSOCIATES

Thomas F. McCloskey, C.E.G.
Principal Engineering Geologist

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1.0 INTRODUCTION

In this report, we present the results of our geotechnical and geologic conditions assessment for the Communications Hill Development to be located in San Jose, California, as shown on the Vicinity Map, Figure 1. The project site spans three separate parcels: Vieira, Long Kwei, and Bern and Ross. The purpose of our investigation was to evaluate the surface conditions at the project site and surrounding areas, provide detailed geologic mapping of the site, and provide an assessment of the potential impacts of geotechnical and geologic hazards to the planned development area including infrastructure improvements. We have performed geologic mapping over the entire site area to develop the conclusions in this report. Currently, we are performing detailed subsurface exploration (borings and test pits) to provide design-level geologic and geotechnical recommendations for project-specific development plans.

For our use, we received a topographic base map, included as Figure 2, of the approximately 130-acre development area, which includes the hills to the east of the site where an access road is planned.

1.1 Project Description

We understand that the project on Communications Hill is to consist of developing approximately 130 acres for construction of high-density, two- to three-story, wood-frame townhouses and an access roadway east of the main development. Structural loads are yet to be determined; however, we assume that structural loads will be representative for this type of construction. Asphalt concrete streets, driveways, parking areas, and underground utilities also are planned, as well as retaining walls along the proposed roads. The steeper portions of the site are to be used as open space. An access road also is proposed on an adjacent parcel, northeast of the Long Kwei and Burns and Ross parcels. Based on the preliminary grading plans, cuts ranging to approximately 70 feet are currently planned with fills in the existing swales ranging to 40 feet.

1.2 Scope of Services

Our scope of services included the following:

- Geologic site mapping of the surface conditions including potential geologic hazards. The mapping included measurements of bedding structure including strikes and dips of foliations on rock outcrops.

- Review of published and unpublished maps and reports for the site area.
- Preparation of this report to summarize our findings.

2.0 METHODS OF INVESTIGATION

Our investigation of the site geologic hazards that could impact the planned improvements included the review of a number of published and unpublished geologic and geotechnical reports, listed in Section 6.0, and site reconnaissances conducted by our engineering geologist. We mapped the extent of surficial deposits such as alluvium, colluvium, as well as the bedrock units and structure observable in bedrock outcrops throughout the site. We also have performed a geotechnical investigation on the Vieira Property and used the subsurface data to aid our evaluation of the geologic hazards.

3.0 SITE CONDITIONS

This section describes the regional and site geologic conditions as well as the surface and subsurface conditions and topography at the site to the extent they are defined at the present time.

3.1 Regional Geology

Communications Hill is a bedrock ridge that rises above the gently sloping Santa Clara Valley, a northwest-southeast trending valley within the Coast Range Geomorphic Province. The Santa Clara Valley is within the San Francisco Bay Block, which is bounded to the east by the Hayward and Calaveras faults and to the west by the San Andreas Fault. According to McLaughlin et al. (1999), a Neogene range-front thrust system, which includes the Shannon, Sargent, Hooker Gulch, Berrocal, and Monte Vista faults, lies in the foothills of the Santa Cruz Mountains along the western boundary of the valley. The eastern edge of the valley is bounded by active and potentially active faults, such as the Calaveras fault.

Jurassic to Cretaceous aged serpentinite and Franciscan Assemblage (sandstone and claystone) underlie Communications Hill (Dibblee 1972; Rogers and Williams 1974). The broad alluvial plain of the Santa Clara Valley surrounding the hill consist of Holocene and Pleistocene alluvial deposits (Helley and Wesling 1990) that consist of a deep section of unconsolidated and semi-consolidated stream and basin deposits that were deposited largely by ancestral Coyote Creek and Guadalupe Creek on top of Franciscan Assemblage present at the bottom of the basin.

The tectonic regime in the San Francisco Bay region is primarily translational, expressed by mostly right-lateral strike-slip movement along the faults of the San Andreas Fault system, including the nearby Calaveras and Hayward faults. A small component of compression is active in the region, resulting in continued folding and faulting of the geologic units. Compressional reverse or thrust faulting has occurred along the Monte Vista - Shannon Fault to the southwest of the site, but its present activity at this location is poorly understood. Similar evidence of compression is evident along the Silver Creek Fault in the hills bordering the northeast side of Santa Clara Valley.

3.2 Site Geologic Units

As shown on the Site Plan and Geologic Map, Figure 2, bedrock underlies thin soils and thicker colluvium on the topographically elevated portions of the site. The bedrock formation is the Franciscan Assemblage, which in these areas consists predominately of foliated serpentinite with some silica-carbonate alteration interlayered with unaltered basalt. Extensively fractured, well-indurated units of interbedded silty and coarse-grained sandstone is also present in the lower, southern area of the site. Holocene and Pleistocene alluvium is present in the flat-lying areas at the base of the hills. This material consists typically of unconsolidated silty and clayey sand and gravel fluvial deposits. The valley alluvium is capped by silty clay soils. Accumulations of colluvium are present within swales and at the base of the hills. We did not observe any surficial evidence of active landsliding at the site, although shallower soil slumps and creeps are present within thicker sections of colluvium. A more detailed description of these surficial deposits is included below.

3.2.1 Franciscan Assemblage

As shown on Figure 2, Franciscan Assemblage rocks underlie the elevated portions of the site. The sedimentary units of the Franciscan rocks on site consist of well-indurated, light gray-green to light brown silty and coarse-grained sandstone, with extensively fractured, well-indurated units of interbedded siltstone and claystone. The rock is generally moderately weathered to fresh, and moderately hard to strong. In some localized areas, the bedrock can be characterized as completely weathered and weak. The sandstone had blocky fracture structure, breaking along the fractures into blocks between 1 and 6 inches.

Serpentinite was mapped on the ridges and ravine sidewalls in the site area. The serpentinite was highly foliated with foliation planes varying from chaotic to trending generally east-west along the south-facing hill front and dipping steeply into the hillslope. This rock also was moderately fractured, normally breaking into subangular fragments up to 8 inches in size. The serpentinite generally was siliceous and hard in this area as the result of silica-carbonate alteration that is common in this area. Portions of the area mapped as serpentinite include units of interlayered hard, strong, slightly weathered basalt.

3.2.2 Alluvium

The low-lying areas surrounding the project site are underlain by Holocene and Pleistocene alluvium. The material can be characterized generally as consisting of very stiff silty to sandy clay underlain by alternating lenses of stiff clay and dense channel deposits containing varying amounts of medium to course sand and gravel. As shown on Figure 2, alluvium was mapped on a small portion of the Berns and Ross parcel along Hillsdale Avenue.

3.2.3 Colluvium

Colluvium is present in the small swales and drainages on site as shown on Figure 2. The colluvium showed evidence of soil slumps and active soil creep in many areas as discussed in the next section. The colluvium varies in thickness and is at least 10 feet thick in the larger ravines. The colluvium encountered in our borings consisted of soft to medium stiff, silty clay with varying amounts of sand and gravel. Additional subsurface investigations will be done during design-level geotechnical investigations in areas in close proximity to, or could be affected by, the presence of colluvium.

3.2.4 Artificial Fill

During our reconnaissance, we noted several areas where undocumented fills were present. All the fills at the site likely vary in composition and thickness and have unknown densities. The fill was encountered around the existing buildings on the Berns and Ross parcel. Relatively small pockets of fill also are likely present along Hillsdale Avenue and surrounding the communications tower.

3.3 Surface Conditions and Topography

The approximately 130-acre site is a hill rising above the relatively flat-lying Santa Clara Valley and consists of three parcels. Approximately 41 acres east of the Vieira, Long-Kwei and Burns and Ross parcels will be graded as part of the project. The site is bordered by Hillsdale Avenue to the south, a quarry and cattle pasture to the east, an open hillside and the Santa Clara County Communications Center to the north, and trailer parks to the southwest of the Vieira parcel. The individual properties are discussed in more detail below.

3.3.1 Vieira Parcel

The approximately 54-acre Vieira parcel is located on the southern portion of Communications Hill (please refer to Figure 2) and is comprised essentially of three ridges and two large colluvial swales that converge near the lower portion of the site. The site is bounded by a quarry to the east, the Long Kwei parcel to the south, a communication tower to the southeast, the Santa Clara County Communications Center to the northwest, and a mobile home park at the base of the hill to the west. Based on available topographic information, site grades range from approximately Elevation 150 feet adjacent to the existing mobile home park, to approximately Elevation 420 feet on the ridge top that forms the northwestern property boundary.

Existing slopes across the site range to as steep as approximately 2:1 (horizontal:vertical), but are mostly 3:1 in slope angle. Surface runoff from the site appears to drain into the colluvial swales and discharges to the west into a concrete-lined V-ditch that drains to a storm drainage inlet at the edge of the mobile home park.

3.3.2 Long Kwei Parcel

The approximately 14 acre Long Kwei parcel is located on the southwestern portion of Communications Hill (Figure 2) and is comprised essentially of three ridges and two large colluvial swales that converge near the lower portion of the site. The site is bounded by a cattle pasture and quarry to the northeast, the Berns and Ross parcel to the southeast, the Vieira parcel to the northwest, and a townhouse development to the southwest. Townhomes are located at the base of the hill to the west. Based on available topographic information, site grades range from approximately Elevation 220 feet adjacent to the townhouses, to approximately Elevation 400 feet on the ridge top that forms the northwestern property boundary.

Existing slopes across the site generally range to as steep as approximately 3:1 (horizontal:vertical). Surface runoff from the site appears to drain into the colluvial swales and discharges to the west into a concrete-lined V-ditch that drains to a storm drain at the townhouses to the south. Grading for the townhomes has modified the hillside along the proposed western property boundary. Extensive retaining walls have been constructed as part of the grading.

3.3.3 Berns and Ross Parcel

The approximately triangular-shaped, 18-acre Berns and Ross parcel is located on the southern portion of Communications Hill and is comprised essentially of one ridge and two colluvial swales that converge near the lower portion of the site. The site is bounded by a cattle pasture and quarry to the northeast, the Long Kwei parcel to the northwest, and Hillsdale Avenue to the south. Based on available topographic information, site grades range from approximately Elevation 155 feet adjacent to Hillsdale Avenue, to approximately Elevation 320 feet on the ridge top at the northern property boundary.

Existing slopes across the site generally range to as steep as approximately 4:1 (horizontal:vertical). Surface runoff from the site appears to drain into the colluvial swales, percolates into the soil, and discharges to the south.

3.4 Subsurface Conditions

Based on our subsurface investigation at the Vieira parcel (Lowney Associates 1999) and the work performed by Terrasearch and Harza on the Long Kwei and Berns and Ross parcels, respectively, the hillsides are blanketed by a 2- to 3-foot-thick layer of residual soil consisting of medium stiff to stiff, silty clay. The on-site clays have high expansion potential. These near-surface soils are underlain by predominantly hard and strong serpentinite bedrock as indicated on Figure 2. Thin beds of very hard basalt were encountered at depths as shallow as 17 feet within the serpentinite at several locations in our borings on the Vieira parcel. As shown on Figure 2, softer and more weathered sandstone and claystone bedrock comprise portions of the site. Also, our borings encountered highly expansive colluvial soils within the drainage ravines up to approximately 10 feet thick.

3.5 Ground Water

Based on limited site investigation, ground water was not encountered on the hillsides or within the colluvium-filled ravines. Within the alluvium adjacent to Hillsdale Avenue, Harza (1998) encountered water at 13 feet. Fluctuations in the level of the ground water may occur due to variations in rainfall, underground drainage patters, and other factors not evident at the time our measurements were made.

4.0 GEOLOGIC HAZARDS

This section describes our qualitative evaluation of the geologic hazards for the project site area. As part of this evaluation we have reviewed the newly released State of California Seismic Hazard Zone Maps (CDMG, 2000). The results of this review are presented in Sections 4.3 and 4.8 of this report.

4.1 Fault Surface Rupture Hazard

A regional fault map illustrating known active faults relative to the site is presented in Figure 3. No active or potentially active faults pass through the project site. The site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone (known formerly as a Special Studies Zone) or a City of San Jose Fault Hazard Zone. Fault surface rupture through the site, therefore, is not anticipated. Several small subparallel faults mapped in the vicinity are discussed below.

4.1.1 Eastern Santa Clara Valley Faults

Several subparallel faults are present within the hills along the eastern margin of the Santa Clara Valley, including the Silver Creek Fault located 3 miles northeast of the site near the valley margin. Although there is some geomorphic expression of the fault, the activity of this fault is poorly understood. The fault is not considered active by the CDMG (1982) because there is no conclusive evidence that surface rupture has occurred along it during the last 11,000 years (Hart 1981). The City of San Jose has zoned the Silver Creek Fault as potentially hazardous and prohibits construction across the surface trace. The active Calaveras fault passes approximately 8½ miles northeast of the site. The seismic hazard posed by this fault is discussed in Section 4.2.

4.1.2 Western Santa Clara Valley Faults

The southern trace of the Monte Vista - Shannon Fault is mapped 4½ miles southwest of the site. The Monte Vista - Shannon Fault is part of a complex system of thrust faults along the eastern front of the Santa Cruz Mountains on the west side of the Santa Clara Valley. However, it is unclear whether this is currently an active fault capable of generating earthquakes (seismogenic) or if motion along the fault trace is due to coseismic deformation during large earthquakes on active faults.

The Loma Prieta Earthquake of 1989 on the San Andreas Fault produced coseismic ground deformation on the lower eastern flank of the Santa Cruz Mountains from the region of Los Gatos and Saratoga to Los Altos Hills (Haugerud and Ellen 1990) in the vicinity of the mapped trace of the Monte Vista - Shannon Fault. Studies conducted after the 1989 earthquake have also identified topographic lineaments along the northeastern foothill terrain of the Santa Cruz Mountains that may represent other past occurrences of thrust fault related ground deformation (Hitchcock et al. 1994). The State of California has not zoned the Shannon Fault as an active fault, but the City of San Jose zoned the fault to protect structures against potential surface rupture. The Uniform Building Code has assigned near-source factors to mitigate potential seismic shaking should an earthquake occur along this fault.

4.2 Seismicity and Seismic Hazards

The project site is located within the seismically active San Francisco Bay region that has been subjected to recurring large earthquakes. According to the Working Group (WG99), there is a 70 percent chance of at least one magnitude 6.7 or greater earthquake affecting the San Francisco Bay region. The major active faults that could impact the project area include the San Andreas Fault, located approximately 10½ miles to the southwest, the Hayward Fault, located approximately 6½ miles northeast, the Monte Vista - Shannon Fault located approximately 4½ miles southwest, and the Calaveras Fault, located approximately 5 miles to the northeast. The San Andreas Fault produced the 7.1 magnitude 1989 Loma Prieta earthquake, and the Calaveras Fault produced the 1984 magnitude 6.2 Morgan Hill earthquake. It can be expected that earthquakes could produce strong ground shaking at the project site during the lifetime of the structures built there. Engineering measures are feasible to mitigate this hazard and seismic design criteria will be generated in future studies prior to development.

4.3 Liquefaction Potential

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, and fine-grained sands. The site is located within an area designated as having a low potential for liquefaction according to regional evaluations performed by Geomatrix (1992). The project site is not within a potential liquefaction hazard zone as delineated on the newly released State of California Seismic Hazard Zone Maps (CDMG, 2000). In addition, exploratory borings previously performed at the site (Harza 1998) encountered clayey alluvium overlying the bedrock. Based on the surface conditions encountered, in our opinion, there is a low potential for liquefaction; therefore, liquefaction is not anticipated to be a significant issue for this project. This issue will be further evaluated with future site-specific data collected from the alluvium adjacent to Hillsdale Avenue.

4.4 Differential Compaction

Strong earthquake shaking can cause non-uniform compaction of soil strata, resulting in settlement of near-surface soils. Factors that affect this hazard include soil composition and consistency, the magnitude of loading on native soils, such as from fills and structures, and any other changes in thickness or consistency abruptly over short distances. The potential for differential compaction and settlement will be evaluated in design-level studies for structures and infrastructure improvements.

4.5 Compressible Soils

Near-surface, compressible, saturated clays are present in some areas of the site, mainly in the colluvium-filled ravines and swales and are of concern in the design of fill slopes. Short-term (immediate compression) and long-term (consolidation) settlement of these improvements will be considered during design. Future settlements will be evaluated in design-level studies for structures and infrastructure improvements.

4.6 Lateral Spreading

Lateral spreading typically occurs as horizontal displacement of relatively flat-lying alluvial material toward an open or "free" face such as an open body of water, channel, or excavation. Generally in soils, this movement is due to failure along a weak plane and is associated with earthquake-induced liquefaction. A significant factor is the presence of loose, shallow, saturated sands. The site is located within an area designated as having a low potential for liquefaction based on regional evaluations performed by Geomatrix (1992). Therefore, we consider the potential for lateral spreading to be low. This issue will be further evaluated with future site-specific data collected from the alluvium adjacent to Hillsdale Avenue.

4.7 Flooding Potential

As shown on the August 2, 1982 Federal Emergency Management Agency (FEMA) "Flood Insurance Rate Map" (FIRM), the flatlands of the site area are within Zone D, described as "Areas of undetermined, but possible flood hazards." Therefore, flooding from Canoas Creek is unlikely.

The March 1982 Santa Clara County General Plan identified 12 dams in Santa Clara County that could inundate downstream areas should dam failure occur. None of these dams would be expected to inundate the site if a failure occurred. The site is several miles inland from the San Francisco Bay shoreline and well beyond the projected run-up by seismically generated tsunamis impacting the bay (Ritter and Dupre 1972). Hence, the potential for inundation due to tsunami and/or seiche is considered remote.

4.8 Landslide Potential

Based on our surface reconnaissance, research of published and unpublished geologic maps and reports, and our aerial photo review, no landslides or debris flows are present on the project site. Much of the south-facing hillslopes of the project site, however, are included in the newly released Seismic Hazard Zone Maps for earthquake-induced landsliding (CDMG, 2000). Swales filled with surficial soil and colluvium derived from weathering of the Franciscan Assemblage rocks showed some signs of localized slumping. Proposed cuts into bedrock may create areas with adverse bedding conditions. Slope stability, including the potential for seismically induced landsliding or debris flows on existing slopes and proposed cut and fill slopes, will be evaluated in our detailed design-level geotechnical report for the proposed development.

4.9 Soil Creep

Soil creep also was evident, and is expected, on steep slopes on Communications Hill. Such movement is generally slow and gradual and is generally the result of seasonal expansion and contraction of the upper few feet of soil under the influence of gravity. Though not a serious geologic hazard, this condition could be a nuisance to proposed development where slow displacement of surficial soil could impact site development located on or at the base of slopes. Recommendations to mitigate creeping soils will be presented in our detailed design-level geotechnical report for the proposed development.

4.10 Expansive Soils

Expansive soils have been identified during previous investigations at the project site (Lowney 1999). Expansive soils can undergo significant volume change with changes in moisture content. In general, expansive soils shrink and harden when dried and swell and soften when wetted. Such changes can cause distress to building foundations and structures, slabs on grade, pavements, and other surface improvements.

Expansive soils are also generally a major contributing factor to soil creep on slopes. To reduce the potential for damage to improvements, recommendations regarding the use of non-expansive fill, footing depths, drainage, landscaping considerations, and other geotechnical considerations will be presented in our detailed design-level geotechnical report for the proposed development.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Site improvements should be designed to avoid potential impacts from unstable soil or bedrock identified in design-specific investigations. The primary geologic and geotechnical concerns at the site are:

- Seismic hazards
- Compressible soil

- Expansive soil/bedrock
- Undocumented fills
- Slope stability
- Asbestos containing rock
- Rippability

A brief discussion of each of these concerns is presented below.

5.1 Seismicity and Seismic Hazards

Though fault surface rupture is not an anticipated hazard at this site, it is located within the seismically active San Francisco Bay region that has been subjected to recurring large earthquakes. The San Andreas Fault, which generated the great San Francisco earthquake of 1906, passes about 10 miles southwest of the site. Three other major active faults in the area are the Monte Vista - Shannon Fault, located about 4½ miles southwest of the site, the Hayward Fault, located approximately 4 miles northeast, and the Calaveras Fault, located approximately 9 miles northeast of the site. The San Andreas Fault also produced the 7.1 magnitude 1989 Loma Prieta earthquake, and the Calaveras Fault produced the 1984 magnitude 6.2 Morgan Hill earthquake. It can be expected that earthquakes could produce strong ground shaking at the site during the lifetime of the structures built there. Engineering measures are feasible to mitigate this hazard and seismic design criteria will be generated in future studies prior to development. The 1997 Uniform Building Code has assigned near-source factors to mitigate potential seismic shaking should an earthquake occur on nearby faults, including the Monte Vista - Shannon Fault.

5.2 Compressible Soil

Near-surface, compressible, saturated clays are present in some areas of the site and are of concern in the design of structures. Short-term (immediate compression) and long-term (consolidation) settlement for these improvements will be considered during design. Future settlements will be evaluated in design-level studies for structures and infrastructure improvements.

5.3 Expansive Soil and Bedrock

Moderately to highly expansive surficial soils most likely blanket much of the low lying areas of the project site, and may contribute to the creep observed on site slopes. Additionally, the claystone bedrock anticipated in the project cuts may be highly expansive. To reduce the potential for damage to the planned structures and other improvements, the expansive properties of the native soils and bedrock will be considered in developing design recommendations for foundations, slabs-on-grade, exterior concrete flatwork, pavements, and other site improvements. In addition, it is important to limit moisture changes in the surficial soils by using positive drainage away from buildings and other hardscaped areas, as well as limiting landscape watering. In addition, supplemental grading recommendations to mitigate potential impacts from expansive soil-related creep will be developed for hillside grading in the design-level investigation.

5.4 Undocumented Fills

A number of relatively small pockets of undocumented fills exist at the site (Figure 2) mostly surrounding the existing buildings on the Berns and Ross parcel. These areas will be explored during design-level geotechnical investigations. Undocumented fills are usually unsuitable for the support of structures and will need to be removed and replaced as properly compacted fill, depending upon the proximity of improvements.

5.5 Slope Stability

Based on our surface reconnaissance, research of published and unpublished geologic maps and reports, and our aerial photograph review, no significant landslides are present on Communications Hill that could impact the project area. Much of the south-facing hillslopes of the project site, however, are included in the newly released Seismic Hazard Zone Maps for earthquake-induced landsliding (CDMG, 2000). Swales with accumulated colluvial soils are common on the flanks of Communications Hill. The colluvium-filled swales commonly show signs of creep and occasional small slumps. At all areas of the site where thick colluvium is present and grading is proposed, the colluvium is likely to be unstable and require removal to protect improvements. More specific recommendations will be provided in the design-level investigation report including the potential for seismically induced landsliding on existing slopes and seismic performance of the proposed cut and fill slopes. These evaluations will be performed in general accordance with the CDMG Special Publication 117 (CDMG 1997).

Franciscan Assemblage serpentinite and sedimentary bedrock can be susceptible to instability where foliation planes are adversely oriented. We did not observe the presence of adverse bedding, foliations, or jointing failure conditions in the outcrops observed on site. Geologic review is recommended when design-level grading plans for any hillside cuts are developed. Additionally, we recommend that our engineering geologist inspect all cut slopes at the time of grading operations for indications of potentially unstable conditions.

5.6 Asbestos-Containing Rock

Asbestos-containing serpentinite rock outcrops along the ridge tops and the sidewalls of the ravines across the project site. During our subsurface exploration on the Vieira parcel we encountered serpentinite interlayered with basalt extending to depths of at least 70 feet, the maximum depth explored. Previous investigations by Harza (1997 and 1998) and Terrasearch (1992) also identified asbestos-containing serpentinite on the Long Kwei and Berns and Ross parcels. If this rock is disturbed during grading, there is a potential for release of asbestos fibers. Health and safety measures during grading operations would be required per OSHA Guidelines to reduce the potential health threat to workers and the public. These measures include dust control and possible air monitoring, special training for site workers, hazardous materials licensing by the grading contractor, Proposition 65 warnings, buyer disclosures, and worker monitoring for exposure.

To reduce the long-term potential release of asbestos after grading, cut areas in serpentinite as well as exposed fill slopes composed of serpentinite rock should be capped with asbestos-free soil. Capping of rock also would be beneficial to support landscaping. Recommendations for capping of the rock will be presented in our design-level investigation report.

5.7 Rippability

Our previous work on the Vieira parcel indicated that the bedrock below a depth as shallow as 17 feet has shear wave velocities exceeding approximately 7,500 feet per second, making bedrock rippability marginal and non-rippable with conventional equipment, such as a caterpillar D9 dozer. Consideration should be given to reducing the depth of cut through the basalt beds, where possible, to limit the need for blasting or use of hoe rams to excavate the rock. Site-specific recommendations regarding rock rippability will be included in our design-level investigation.

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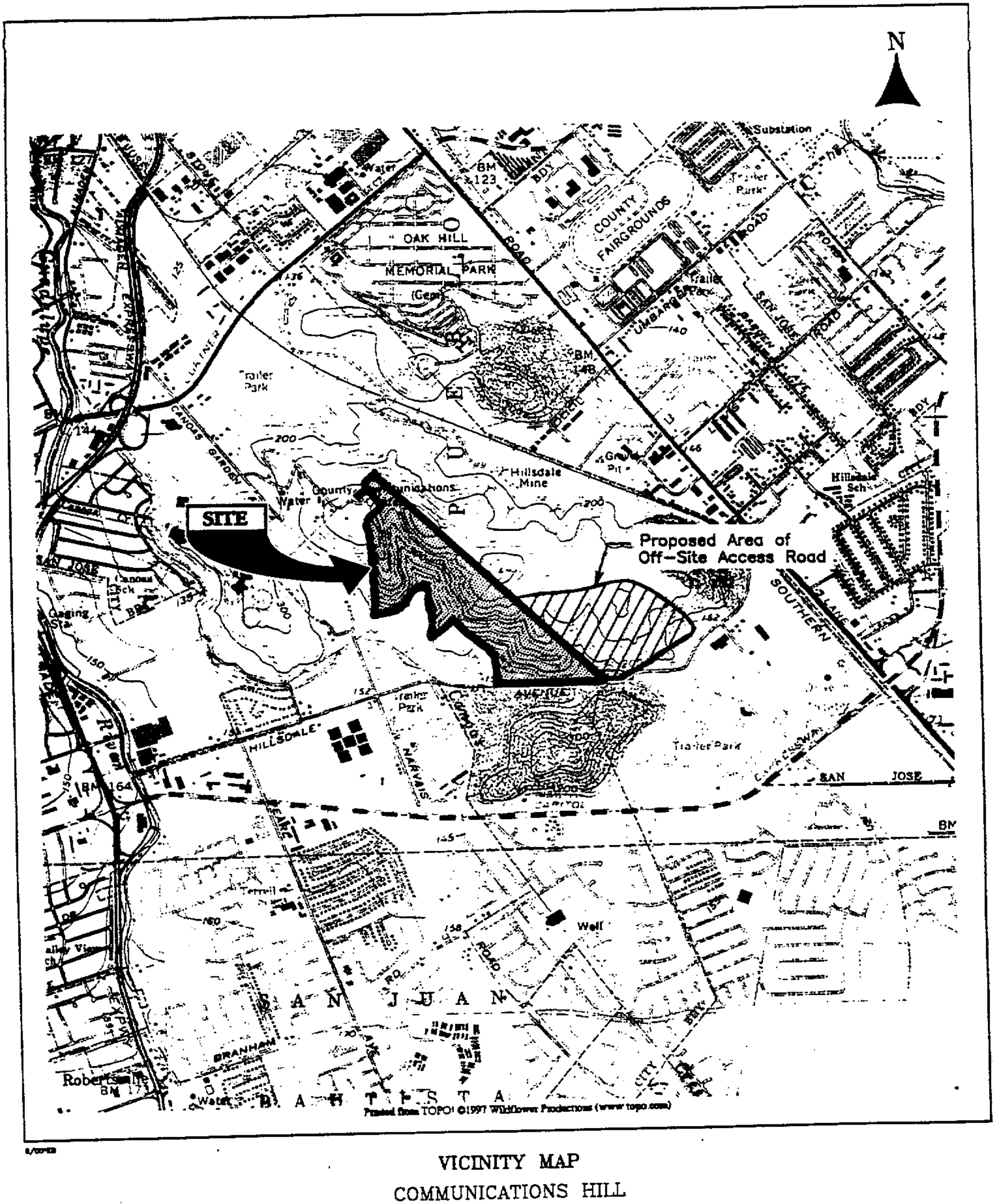


VICINITY MAP

COMMUNICATIONS HILL

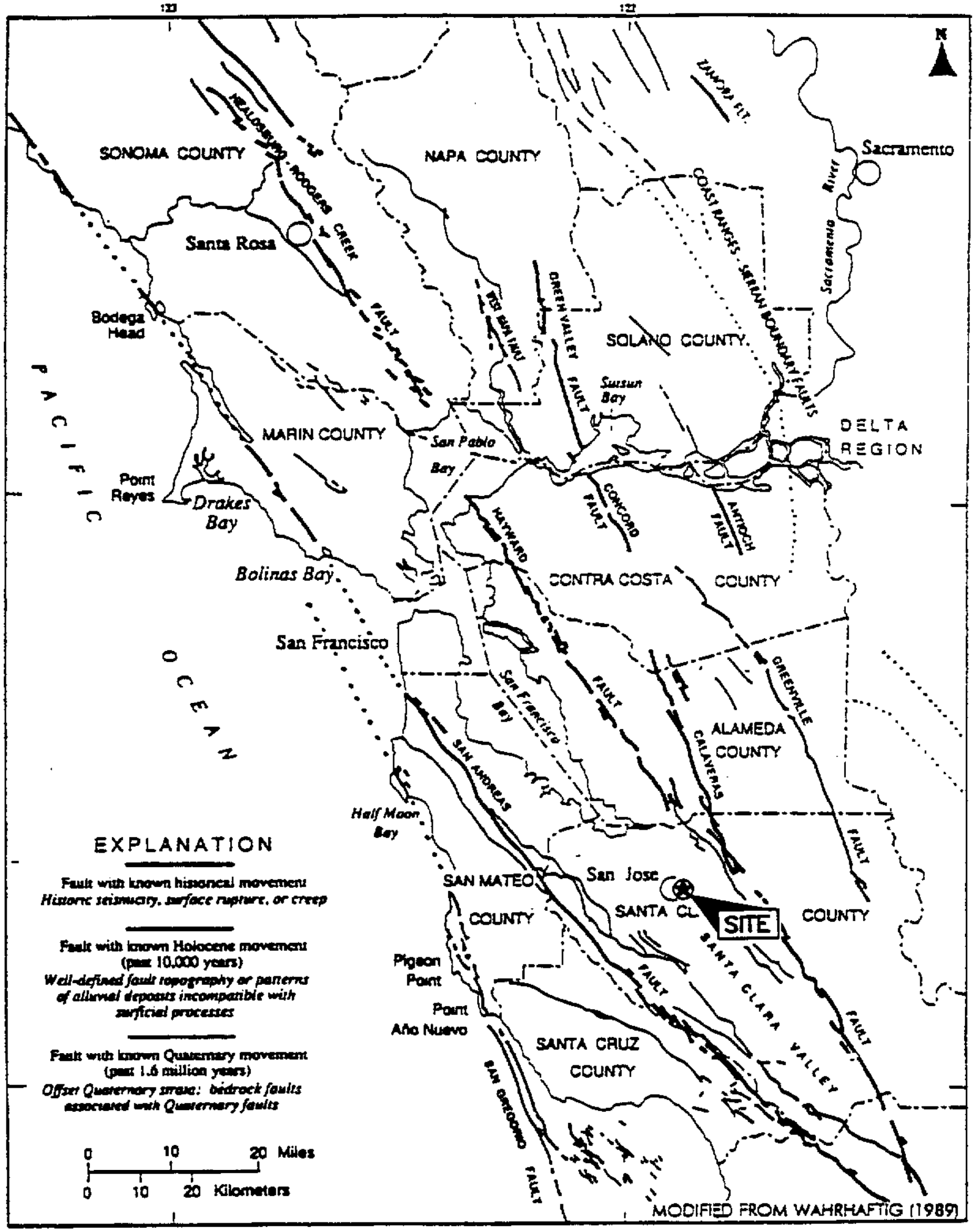
San Jose, California

LOWNEYASSOCIATES

Environmental/Geotechnical/Engineering Services

FIGURE 1

991-17A



REGIONAL FAULT MAP
COMMUNICATIONS HILL
San Jose, California

LOWNEYASSOCIATES
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FIGURE 3
991-17A

APPENDIX B

HYDROLOGY STUDY

PREPARED BY
SCHAAF & WHEELER,
CONSULTING CIVIL ENGINEERS

SEPTEMBER, 2000

COMMUNICATION HILL
DEVELOPMENT

Draft

HYDROLOGY STUDY

PREPARED FOR
Kaufman & Broad

PREPARED BY
SCHAAF & WHEELER
CONSULTING CIVIL ENGINEERS

September 2000

COMMUNICATION HILL DEVELOPMENT

HYDROLOGY STUDY

Introduction

The Communications Hill project is located in the City of San Jose on the north side of Hillsdale Avenue. The project would include high-density housing on the hillside site. The site is generally bounded by Hillsdale Avenue on the south, the top of Communications Hill on the north, the Helzer Ranch project on the west, and the continuation of Vista Park Drive on the east. The site development was included in the Communications Hill Specific Plan.

Existing Flood Conditions

The effective City of San Jose FIRM (August 2, 1982) shows the project site located within Zone D, defined as an area of possible but unknown flood risk. Most of the areas outside the 100-year flood plain are shown as Zone D due to the potential food risk due to levee failures. The current flood maps were prepared prior to the current FEMA levee policy and did not consider levee failures. However, the entire site is located above the estimated 100-year flood elevation for Canoas Creek and is part of the hillside area that drains to Canoas Creek. The average slope on the site is approximately 12 percent. The site would not be subject to 100-year flooding for FEMA purposes.

The project site drains to Canoas Creek, a tributary to the Guadalupe River. Canoas Creek is an engineered drainage channel, owned and maintained by the Santa Clara Valley Water District (SCVWD). The reach of Canoas Creek from the Guadalupe River to Hillsdale Avenue is generally leveed on the west side. The east side generally follows the base of Communications Hill, without a levee.

The Guadalupe River is a generally natural channel that has been partially improved for flood control purposes. The SCVWD and the Corps of Engineers (COE) are in the process of completing the flood control project for the Lower Guadalupe River that would provide 100-year design capacity from San Francisco Bay to Highway 280 in downtown San Jose. The project is currently scheduled for completion in 2000. The reach upstream of Highway 280 does not have 100-year design capacity. The area near Alma Avenue and Highway 87 has flooded several times in the past 20 years, including 1995 and 1998. The SCVWD has proposed a flood control project for the Upper Guadalupe River to provide 100-year capacity. The projected time frame for the project is approximately 20 years.

The area west of Canoas Creek would be subject to flooding from Guadalupe River overflows upstream of the Capitol Expressway bridge during a 100-year flood event. An estimated 900 to 1300 cfs would overtop the east bank of the Guadalupe River and flow northward between the Guadalupe River and Canoas Creek. The overflow would end up on Nightingale Avenue at the Canoas Creek bridge. There, a combination of high water in the Guadalupe River and peak flows in Canoas Creek would result in additional overbank flooding. The overbank flooding would proceed north past Canoas Creek through residential and commercial property to ultimately join the Guadalupe River south of Interstate 280.

Hydrology Methodology - Canoas Creek

The increase in impervious surfaces associated with project development would generally cause an increase in storm water runoff. The SCVWD has expressed concern that increased runoff from development in the Canoas Creek watershed may affect the existing flood conditions for flood plain areas downstream on Canoas Creek or the Guadalupe River.

The SCVWD HEC-1 hydrology model was modified to evaluate the potential impact of the proposed project and cumulative development on the hydrology for Canoas Creek and Guadalupe River. The HEC-1 model includes the entire upper Guadalupe River. The project site is located in Subarea F, the Canoas Creek watershed area generally north of Capitol Expressway. In the SCVWD HEC-1 model, Subarea F is included as an unurbanized area. Since the area is now over 50 percent urbanized, the area was modified to use the SCVWD urban methodology for the basin. The basin was also subdivided to separate the east and west sides of the Canoas Creek channel, and to separate the southwest portion of the Communications Hill near Hillsdale Avenue and the hillside areas near Narvaez Avenue that drain directly to the creek channel without levees.

Subarea F was divided into three new subareas: Subarea F-North includes the Narvaez Avenue area drainage and the southwest corner of Communications Hill which drains directly to Canoas Creek without levees; Subarea F-East includes the southeast portion of Communications Hill which drains to Hillsdale Avenue, and the development area south of Hillsdale Avenue to Capitol Expressway, which drain to the Hillsdale Avenue storm drain to Canoas Creek; and Subarea F-West which includes the portion of Subarea F west of Canoas Creek. The Communications Hill project is included in Subarea F North, and Subarea F-East. The subareas are shown in Figure 1.

The SCVWD urban hydrology methodology develops separate runoff hydrographs for the pervious and impervious portions of each subarea and adds these hydrographs for the total subarea runoff hydrograph. For the subareas within Subarea F, the areas west of Canoas Creek and south of Hillsdale Avenue were assumed to be developed with 60% impervious area and 40% pervious area. This is normal practice for urbanized subareas in the Canoas Creek watershed. For the area within the Communications Hill planning area and Dow Drive area, the existing condition was assumed to be 100% pervious. For developed conditions, the Communications Hill Specific Plan and Dow Drive Development land uses were assumed. Because of the higher densities proposed in the Specific Plan, the development areas within the Specific Plan area were assumed to be 80% impervious. However, because of the open space included in the Specific Plan, the net percent impervious values are less than the standard 60% used in other subareas. The individual drainage areas and estimated percent impervious values shown in Table 1.

Table 1
Subarea Drainage Data

Subarea	Drainage Area (sq mi)	1997 Existing % Impervious	Development % Impervious
F - West	0.453	30	60
F - East	0.320	30	59
F - North	0.330	18	37

The existing HEC-1 model uses a time interval of 30 minutes for calculation, which is sufficient for large watersheds with subareas of several square miles that have times of concentration greater than 90 minutes. For the smaller subarea within Subarea F, the times of concentration are 20 minutes, or less, and a smaller time interval was required. The subareas within Subarea F were modeled separately using a time interval of 5 minutes. The 30-minute rainfall pattern was divided into 5-minute intervals. Within the 30-minute interval of maximum rainfall, the rainfall was distributed to match the ratios of the 5- and 10- minute rainfall to the 30-minute rainfall from the San Jose Intensity-Duration-Frequency curve for a 100-year recurrence interval.

For urbanized watersheds, the SCVWD design hydrology model routes the runoff hydrograph through the storm drain system using the HEC-1 storage-discharge routing technique. The runoff hydrograph from Subareas F-West was routed through generalized storm drains systems, using the 1976 storage discharge relationship for leveed areas (no overbank flow to channel). For Subarea F-East, the subarea hydrograph was routed through generalized storm drains, using the 1976 storage discharge relationship for non-leveed areas. This relationship assumes that flows in excess of the storm drain capacity would flow overland to the creek channel. For Subarea F - North, the subarea was assumed to drain directly to the creek without routing through a storm drain storage relationship. The majority of the subarea is so steep that only limited storage would be available. Runoff that does not enter the storm drain system would flow overland to the channel with little or no ponding.

Subarea F Runoff

Because the SCVWD has expressed concerns relating to the entire Communications Hill Specific Plan area development, the planned development in Subarea F-North and Subarea F-East was evaluated to consider cumulative development conditions. The 1998 existing development was assumed for the existing conditions. The potential development impacts were evaluated using the modified SCVWD model. The results of the model for the North and East subareas are shown in Table 4 for existing conditions and developed conditions.

The development conditions for Subarea F-North include both the current project development and the Helzer Ranch development. The Helzer Ranch development is under construction.

However, the Helzer Ranch project includes a drainage detention pond that was sized to include the current project development in Subarea F-North. Both projects drain to a storm drain outfall to Canoas Creek at Narvaez Avenue. The Helzer Ranch project includes approximately 8 acres of development. The current Communications Hill project includes approximately 23 acres of development in the Narvaez Avenue drainage basin.

Table 2
Subarea Peak Flow Rates
Modified SCVWD Model Procedure

Location	1998 Existing Conditions (cfs)		Specific Plan Development (cfs)	
	10-yr	100-yr	10-yr	100-yr
Subarea F - North	113	173	125	191
Subarea F - East Before Storm Drain Routing	116	178	132	200
Subarea F - East After Storm Drain Routing	50	53	75	78

Based on the modified SCVWD model procedure, the 10-year peak runoff for Subarea F-North was estimated to be 113 cfs for existing conditions, and 125 cfs for development conditions, an increase of 12 cfs. The 100-year peak runoff was estimated to be 173 cfs for existing conditions, and 191 cfs for development conditions, an increase of 18 cfs.

For Subarea F-East, the Hillsdale Avenue storm drain area, the 10-year peak runoff was estimated to be 116 cfs for existing conditions, and 132 for development conditions, an increase of 16 cfs. The flow from Subarea F-East was routed through a generalized storm drain based on the SCVWD 1976 storage discharge relationship. After routing, the estimated 10-year flow rate was 50 cfs for existing conditions, and 53 cfs for project conditions, an increase of 3 cfs. For the

The 100-year peak runoff for Subarea F - East was estimated to be 178 cfs for existing conditions, and 200 cfs for development conditions, an increase of 22 cfs. After routing through the storm drain system, the contribution to Canoas Creek was estimated to be 75 cfs for existing conditions, and 78 cfs for development conditions, an increase of 3 cfs. During both the 10-year and 100-year flood events, the excess runoff that cannot enter the storm drain system would pond in streets and flow overland to the stream channel.

Hydrology Methodology - Site Runoff

The existing and developed conditions runoff hydrographs were also estimated using the SCS Curve Number (CN) methodology for the project site drainage areas. This methodology is part of the Districts draft hydrology procedure, but has not been implemented for existing design flow for major streams, including Canoas Creek.

The CN methodology includes model parameters to consider soil types and ground cover complexes that are not considered in the SCVWD design hydrology procedure. The major difference in the procedures is the calculated loss rates for pervious areas. The loss rate represents the portion of rainfall that is assumed to infiltrate into the soil and does not runoff as surface flow. The SCVWD procedure assumes a uniform loss rate throughout the watershed and does not consider local variations in soil types and vegetation. The existing conditions in Subarea F-North are generally steep hillsides with shallow clay type soils and grass vegetation. This means that the potential losses to infiltration would be lower than for other areas with deeper soils and less clay type soils, particularly during large flood events when the surface soils may be saturated by earlier rainfall.

For the CN procedure, impervious areas were assumed to have a CN of 98 (maximum runoff). The hilltop and hillside open space areas were assumed to have a CN of 84 (for Antecedent Moisture Condition II (AMC II). Lawn and open space areas were assumed to have a CN of 71 (AMC II). The AMC values were previously calibrated for the 10- and 100-year flood conditions to match the SCVWD design values for other natural watersheds. The calibrated AMC values were AMC II for the 10-year flood event, and AMC II½ for the 100-year flood. AMC II½ is half way between AMC II and AMC III. Based on the CN procedure, AMC II implies 1.4 to 2.1 inches of rainfall in the previous 5 days. AMC III implies more than 2.1 inches of rainfall in the previous 5 days. The 24-hour rainfall and storm pattern from the modified SCVWD model were used for the CN procedure.

Narvaez Drainage Area Site Runoff

The existing condition and development condition runoff was estimated for the local Helzer Ranch drainage basin using the CN procedure. The local drainage basin was considered to include the Helzer Ranch development area, the Communications Hill project site, and the hillside areas above the development area or above the access road from Helzer Ranch up to the Communications Hill site. The local drainage area is approximately 69.0 acres. The local drainage areas for the Narvaez drainage area are shown in Figure 2.

The existing and project condition unit hydrographs were based on the Clark's unit hydrographs procedure, based on the subarea parameters for the individual subbasins. For the pervious areas, the time of concentration was estimated based on the Kerby-Hathaway formula based on an average n-value of 0.07 for overland flow. The storage coefficient R was estimated to be equal to the Tc. The estimated Tc for the pervious area was 0.25 hr, (15 min). For the impervious areas, the Tc was estimated based on the estimated flow time in the project storm drain system. The development condition Tc was estimated to be 0.14 hr, (9 min). The routing coefficient R was assumed to be 20 percent of the Tc.

Table 3
Local Drainage Area Peak Flow Rates
Narvaez Drainage System

Recurrence Interval	Existing Conditions Peak Flow (cfs)	Developed Conditions Peak Flow (cfs)
10 Year Storm	34	49
100 Year Storm	61	79

Based on the CN hydrology procedure, the 10-year peak runoff was estimated to be 34 cfs for existing conditions, and 49 cfs for development conditions, an increase of 15 cfs. The 100-year peak runoff was estimated to be 61 cfs for existing conditions, and 79 cfs for development conditions, an increase of 18 cfs.

Due to the site grading and the overall phasing of development on Communications Hill, the current project site includes a portion that would drain to a future storm drain system with full development. In order to build that portion of the site, the project would build an interim detention pond and pump station to discharge to the Narvaez drainage system. The interim pond and the drainage area are shown on the drainage area map in Figure 2. The estimated design capacity of the interim pond is 1.0 acre feet for the 100-year flood. The estimated design flow rate for the pump station would be approximately 0.5 cfs. The estimated developed conditions peak flow rate and hydrographs include the additional flow from the additional area.

Hillsdale Drainage Area Site Runoff

The existing condition and development condition runoff was estimated for the local Hillsdale drainage basin using the CN procedure. The local drainage basin was considered to include the current project development area, portions of the future Communications Hill specific plan area, the hillside areas above and below the development area at the area the access road from Hillsdale Avenue up to the Communications Hill site. The local drainage area is approximately 64.7 acres. The local drainage areas for the Hillsdale drainage area are shown in Figure 3.

The existing and project condition unit hydrographs were based on the Clark's unit hydrographs procedure, based on the subarea parameters for the individual subbasins. For the pervious areas, the time of concentration was estimated based on the Kerby-Hathaway formula based on an average n-value of 0.07 for overland flow. The storage coefficient R was estimated to be equal to the Tc. The estimated Tc for the pervious area was 0.25 hr, (15 min). For the impervious areas, the Tc was estimated based on the estimated flow time in the project storm drain system. The development condition Tc was estimated to be 0.14 hr, (9 min). The routing coefficient R was assumed to be 20 percent of the Tc.

Table 4
Local Drainage Area Peak Flow Rates
Hillsdale Drainage System

Recurrence Interval	Existing Conditions Peak Flow (cfs)	Developed Conditions Peak Flow (cfs)
10 Year Storm	36	49
100 Year Storm	63	79

Based on the CN hydrology procedure, the 10-year peak runoff was estimated to be 36 cfs for existing conditions, and 49 cfs for development conditions, an increase of 13 cfs. The 100-year peak runoff was estimated to be 63 cfs for existing conditions, and 79 cfs for development conditions, an increase of 16 cfs.

Cumulative Flood Plain Impacts - Canoas Creek

Based on discussion with the SCVWD and City of San Jose staff, the potential cumulative impacts on Canoas Creek from development on Communication Hill were considered to be significant. For the combined runoff from the Narvaez drainage system and the Hillsdale drainage system, the potential cumulative development within the Communications Hill specific plan area would increase by approximately 16 cfs for the 10-year flood event, and 19 cfs for the 100-year flood event.

The 10-year and 100-year flood hydrographs for Canoas Creek upstream of the confluence with the Guadalupe River are shown in Figures 4 and 5.

Due to the limited capacity of the storm drain systems which drain to Canoas Creek and the large amount of storage in the watershed area, the peak flows in the Canoas Creek channel last for a long period during the 100-year design storm. The peak flow rate at Capitol Expressway is 1963 cfs, but the channel flow rate is over 1800 cfs for more than 22 hours. Therefore, the increased runoff from Subarea F-North and Subarea F-East add to the peak channel flow. The 100-year peak flow rate in Canoas Creek at the Guadalupe River would increase by approximately 19 cfs, an increase of 0.89 percent. This would include the Communications Hill Specific Plan development.

Detention Storage

The City of San Jose has proposed detention storage ponds within the Communications Hill Specific Plan that drain directly to Canoas Creek to mitigate for potential increased flows due to development. The specific plan included detention ponds in both the Narvaez and Hillsdale drainage areas. The Helzer Ranch project includes a detention pond that was designed to mitigate for both the Helzer Ranch project and the plan upstream development that would be included in the current project.

Narvaez System

The Helzer Ranch project includes a storage area designed to serve the upstream development area on the project site. The detention pond was graded to the final design contours. The outlet structure would be modified when the additional drainage area is added to the drainage system. The detention pond has a maximum design water depth of approximately 3 feet. The detention pond has a required capacity of approximately 1.0 acre-feet for the 100-year design storm. The detention pond location is shown in Figure 2.

Table 6
Narvaez Avenue Drainage Area
Ultimate Development
Peak Discharge Flow Rates

Recurrence Interval	Existing Conditions (cfs)	Developed Conditions (cfs)	Detention Conditions (cfs)
10-Year Storm	34	49	34
100-Year Storm	61	79	58

The 10-year and 100-year hydrographs for the existing, developed and detention conditions are shown in Figures 6 and 7. The existing, developed and mitigated peak discharge rates are shown in Table 6.

Hillsdale System

The proposed project includes a storage area designed to serve the development area on the project site and the future upstream development . The detention pond would be graded to the final design contours. The detention pond has a maximum design water depth of approximately 3 feet. The detention pond has a required capacity of approximately 1.5 acre-feet for the 100-year design storm. The detention pond location is shown in Figure 3.

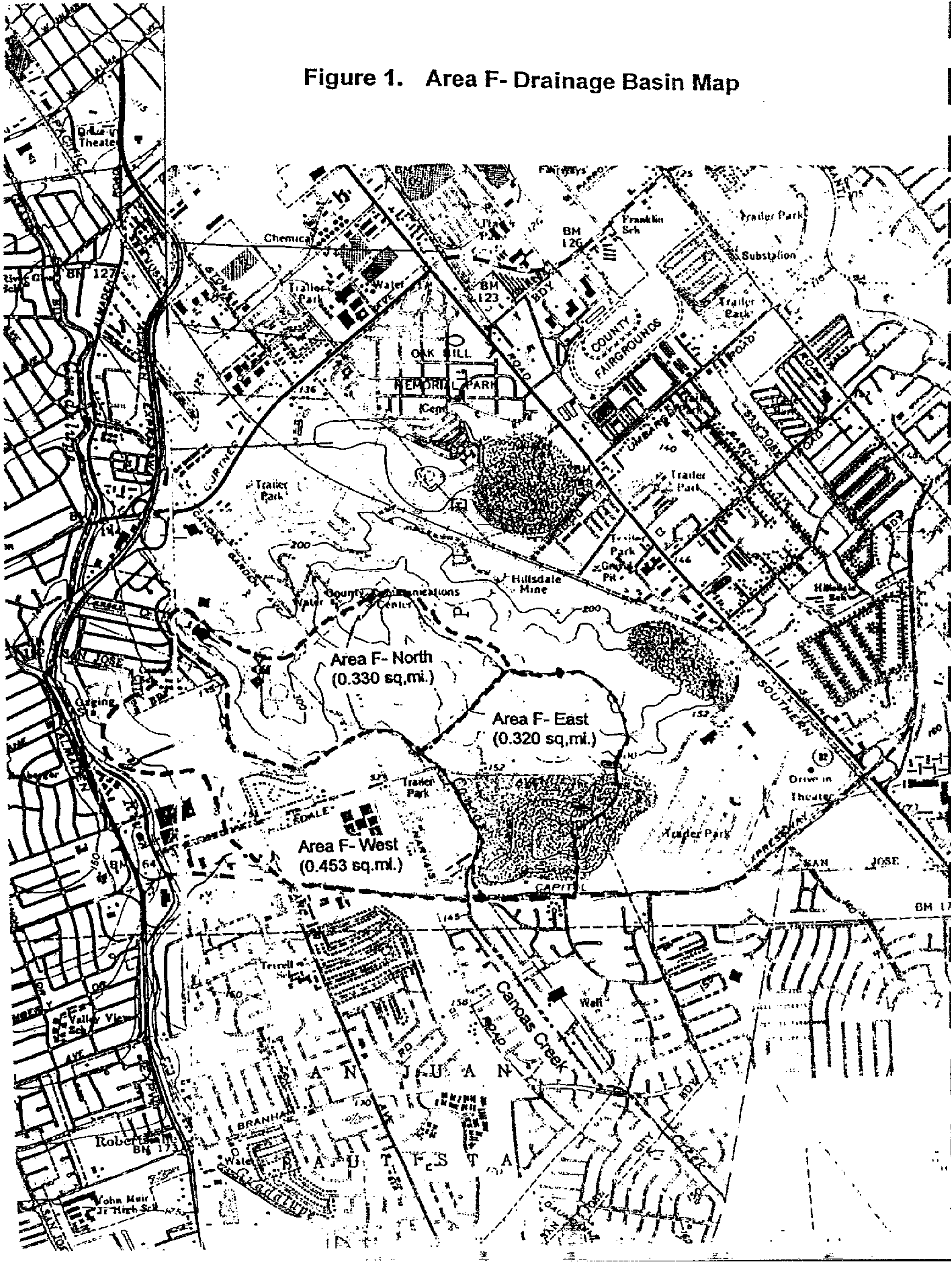
The 10-year and 100-year hydrographs for the existing, developed and detention conditions are shown in Figures 8 and 9. The existing, developed and mitigated peak discharge rates are shown in Table 7.

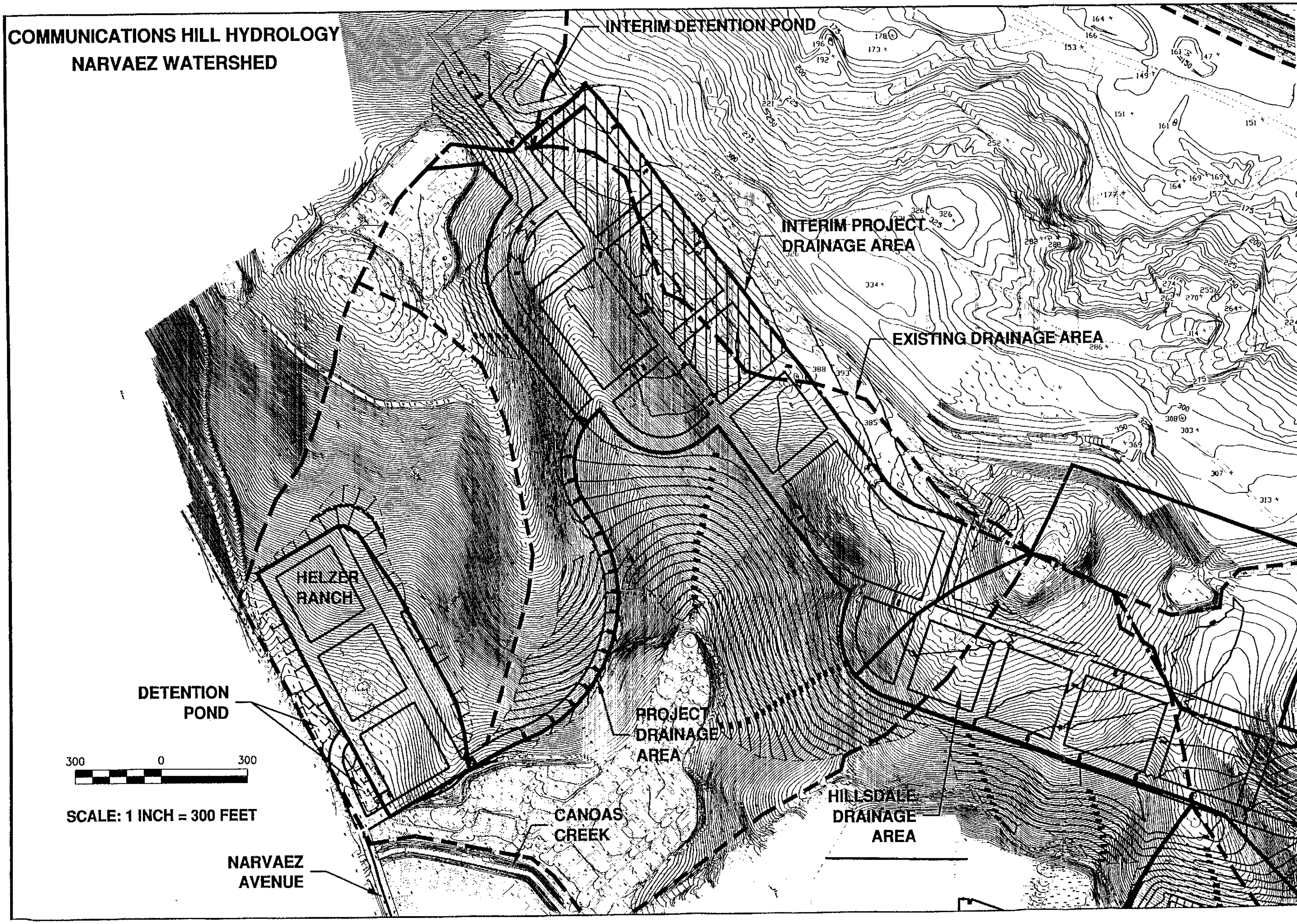
Table 7
Hillsdale Avenue Drainage Area
Ultimate Development
Peak Discharge Flow Rates

Recurrence Interval	Existing Conditions (cfs)	Developed Conditions (cfs)	Detention Conditions (cfs)
10-Year Storm	36	49	30
100-Year Storm	63	79	57

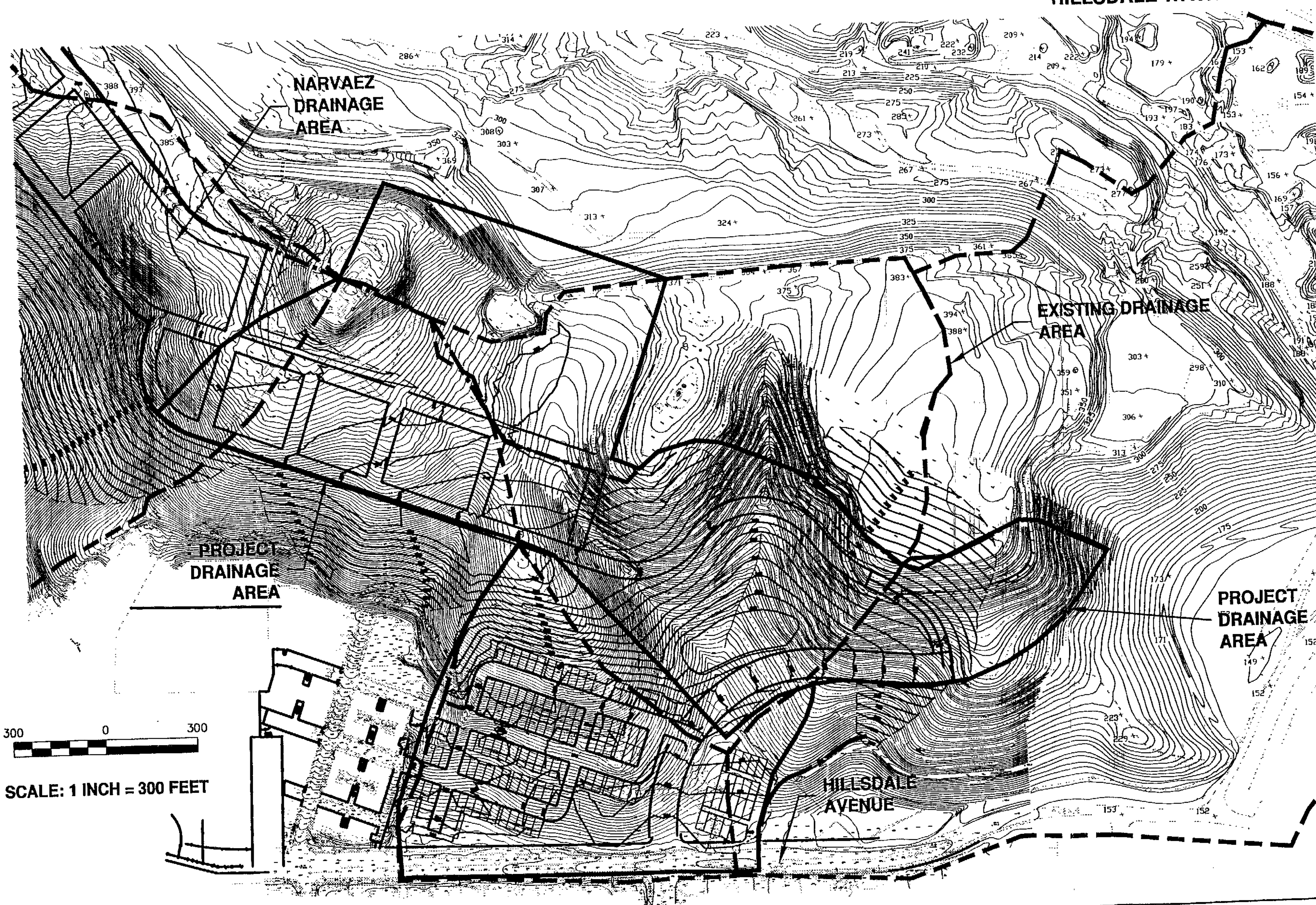
The specific requirements for the Hillsdale detention storage area may be affected by the specific site plans and grading conditions for the project and the planned development in the drainage area. In particular, grading on the top of Communications Hill has the potential to divert runoff from the north side to the south side of the hill, or the reverse. The north and east sides of the hill drain to Coyote Creek. A grading and drainage plan that increased the drainage area to Canoas Creek could affect the performance of the detention pond, and increase flows to Canoas Creek. The sizing and operation conditions of the detention storage area would be reviewed and updated as part of the final design of the individual development projects.

Figure 1. Area F- Drainage Basin Map




COMMUNICATIONS HILL HYDROLOGY
NARVAEZ WATERSHED
INTERIM DETENTION POND
INTERIM PROJECT DRAINAGE AREA
EXISTING DRAINAGE AREA
HELZER RANCH
DETENTION POND
PROJECT DRAINAGE AREA
CANOAS CREEK
HILLSDALE DRAINAGE AREA
NARVAEZ AVENUE
300 0 300
SCALE: 1 INCH = 300 FEET

COMMUNICATIONS HILL HYDROLOGY
HILLSDALE WATERSHED



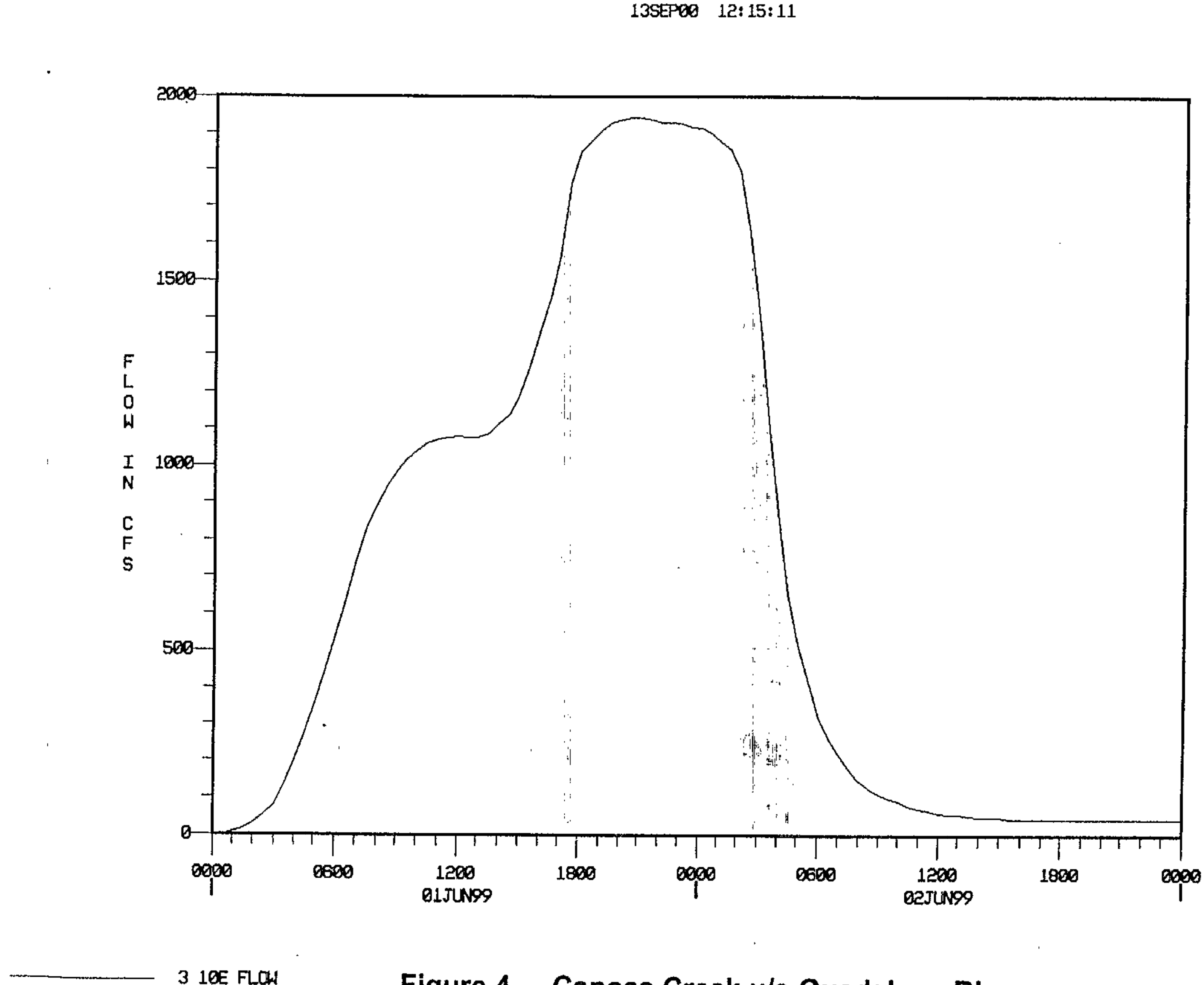


Figure 4 Canoas Creek u/s Guadalupe River
10-Year Flood

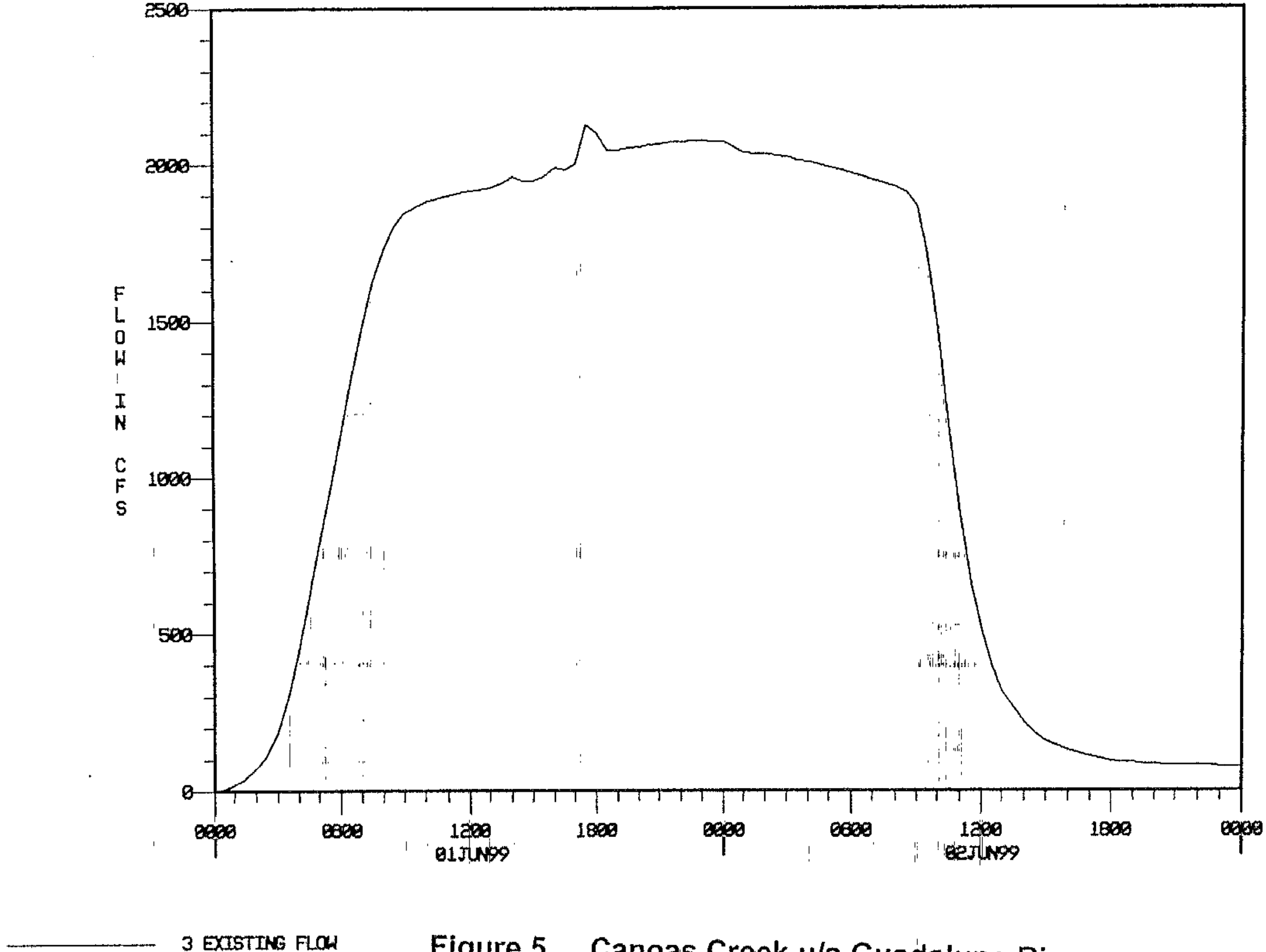


Figure 5 Canoas Creek u/s Guadalupe River
100-Year Flood

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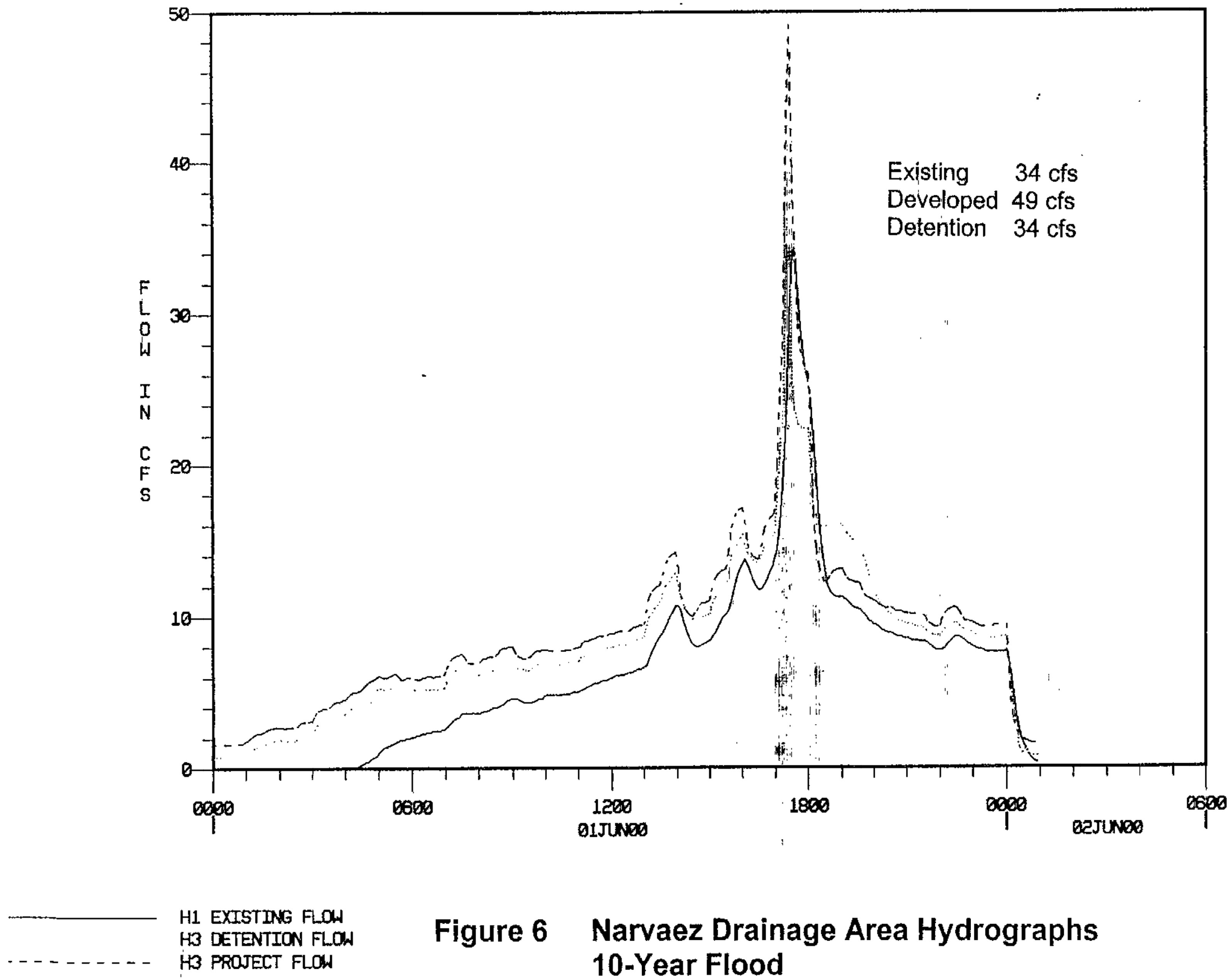

Figure 6 Narvaez Drainage Area Hydrographs 10-Year Flood

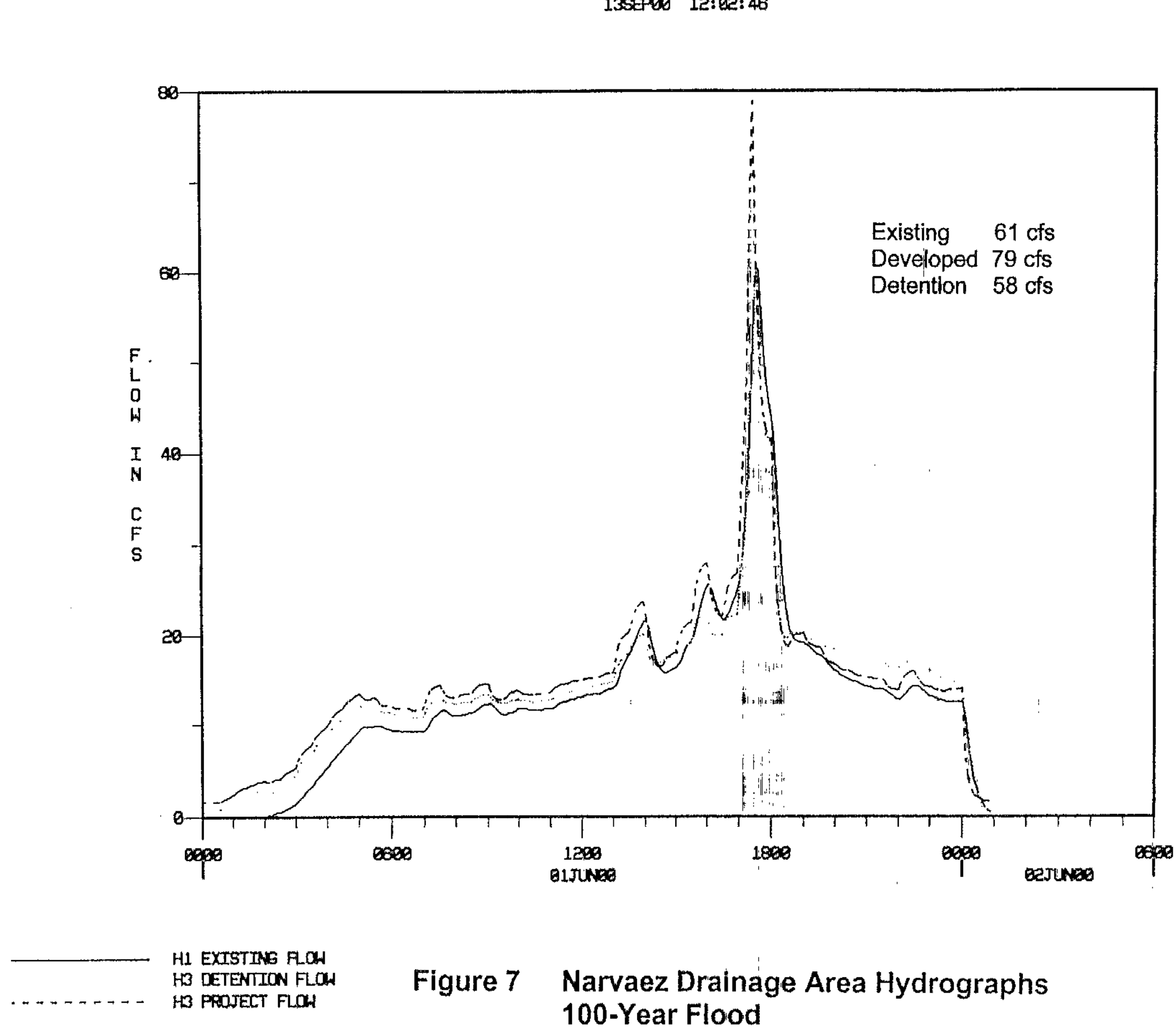

Figure 7 Narvaez Drainage Area Hydrographs 100-Year Flood

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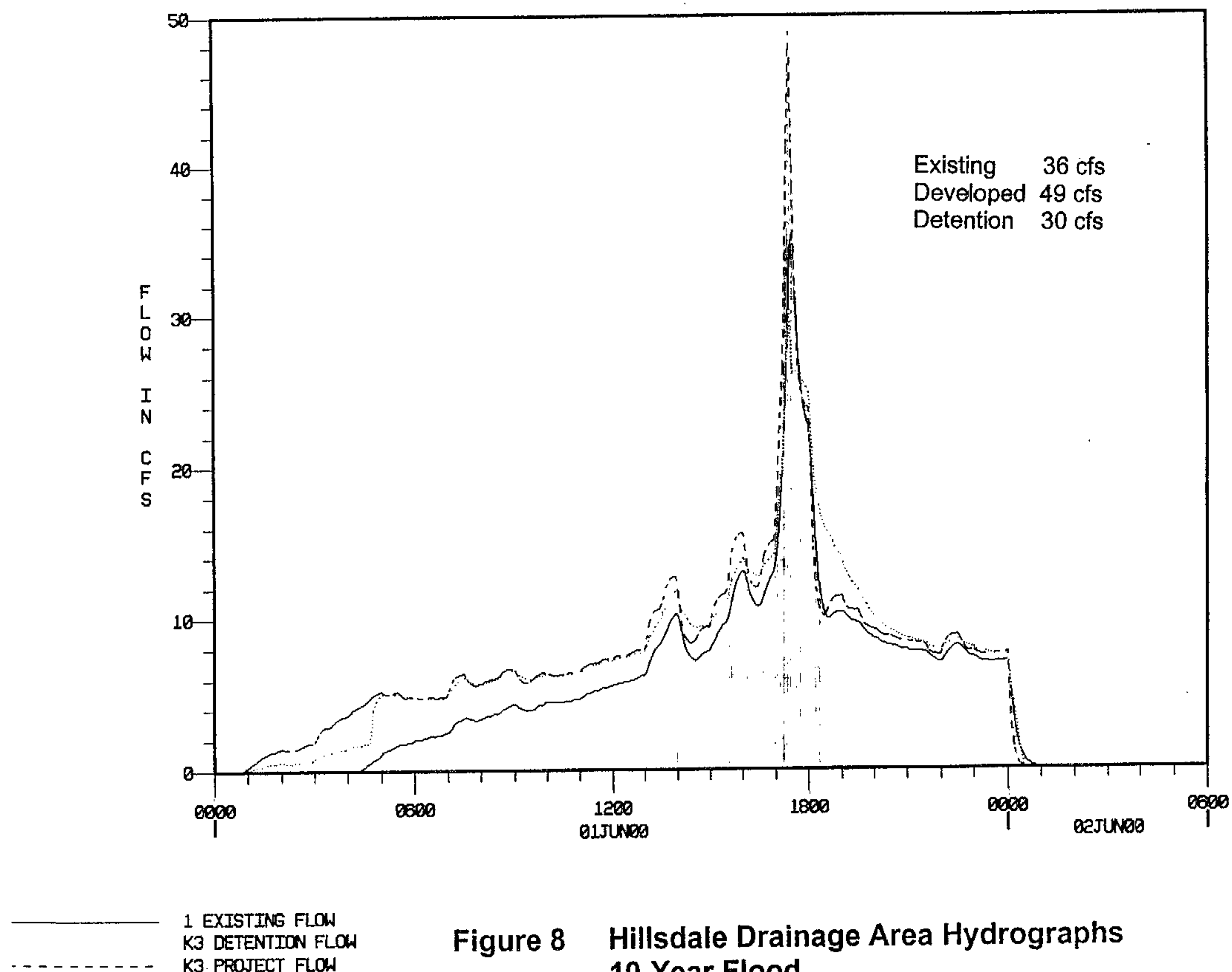

Figure 8 Hillsdale Drainage Area Hydrographs 10-Year Flood

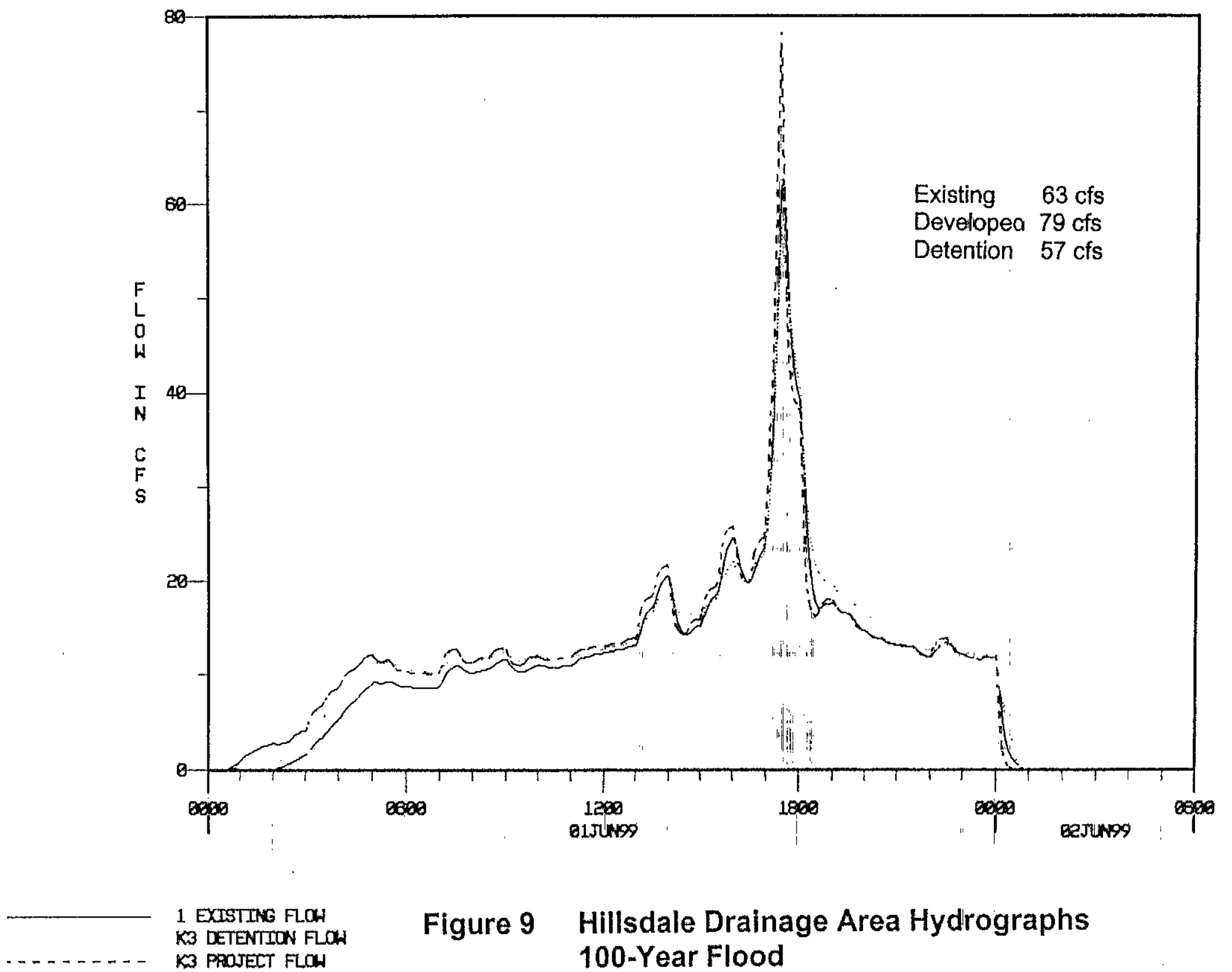

Figure 9 Hillsdale Drainage Area Hydrographs
100-Year Flood

APPENDIX C

BIOLOGICAL INVENTORY
WETLANDS/WATERS OF THE U.S. DELINEATION
TREE SURVEY
AND
SANTA CLARA VALLEY DUDLEYA MITIGATION/MONITORING PLAN
FOR THE COMMUNICATION HILL DEVELOPMENT PROJECT

PREPARED BY
OLBERDING ENVIRONMENTAL, INC.

MAY-OCTOBER, 2000

AND

BAY CHECKERSPOT BUTTERFLY HISTORICAL REVIEW
ON COMMUNICATIONS HILL

PREPARED BY
LIVE OAK ASSOCIATES, INC.

OCTOBER, 2000

BIOLOGICAL INVENTORY OF THE COMMUNICATION HILL STUDY AREA, SAN JOSE, CALIFORNIA

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September 2000
(Revised)

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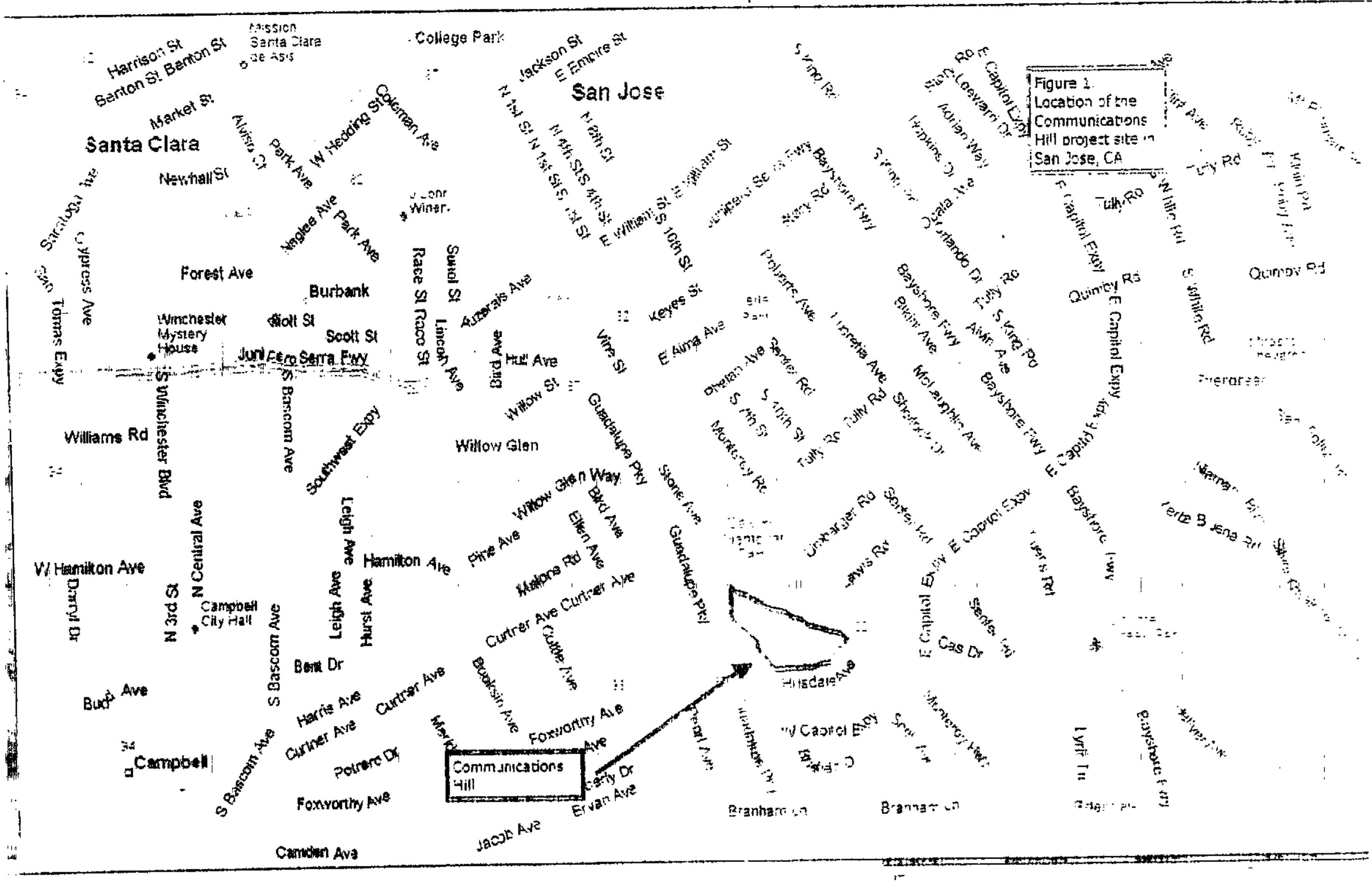
1.0 INTRODUCTION

Kaufman and Broad, Inc. proposes to develop a site on Communication Hill, located in the southern portion of the City of San Jose, Santa Clara County, California, for residential housing. The proposed development site is located within the area bounded by Highway 87 (Guadalupe Parkway) on the west, Curtner Avenue on the north, Monterey Highway on the east, and Hillsdale Avenue on the south. The site is located mostly along and southwest of the summit of Communication Hill, an isolated northwest-southeast-trending ridge. The site extends from the vicinity of the Santa Clara County Communications Center on the northwest to Hillsdale Avenue on the southeast. The site is mostly undeveloped at present. An American Telephone and Telegraph (AT&T) communications facility occurs at the high point of the hill in the east-central portion of the site. Two developed areas near the south end of the site contain a house and associated outbuildings and trailers. Figure 1 shows the project location, while Figure 2 identifies the Communication Hill study area.

Detailed plans for the proposed development were not available at the time this report was prepared. Development will involve extensive excavation, filling, and grading on the site to create areas of level or gently sloping topography, followed by construction of residential housing and associated streets and other developed facilities.

Botanical and wildlife surveys of the proposed Communication Hill development site were conducted during March-June 2000. The objective of these surveys was to identify and evaluate botanical and wildlife resources on the property, supplementing and updating previous surveys conducted by H.T. Harvey and Associates (1992, 1994). Field surveys were conducted to characterize and map the vegetation of the property, to identify sensitive habitats, to identify the wildlife resources (habitats and species) of the property, and to identify and map special-status plant and wildlife species on the property. This report presents the findings of the botanical and wildlife surveys of the Communication Hill study area.

LocationMap



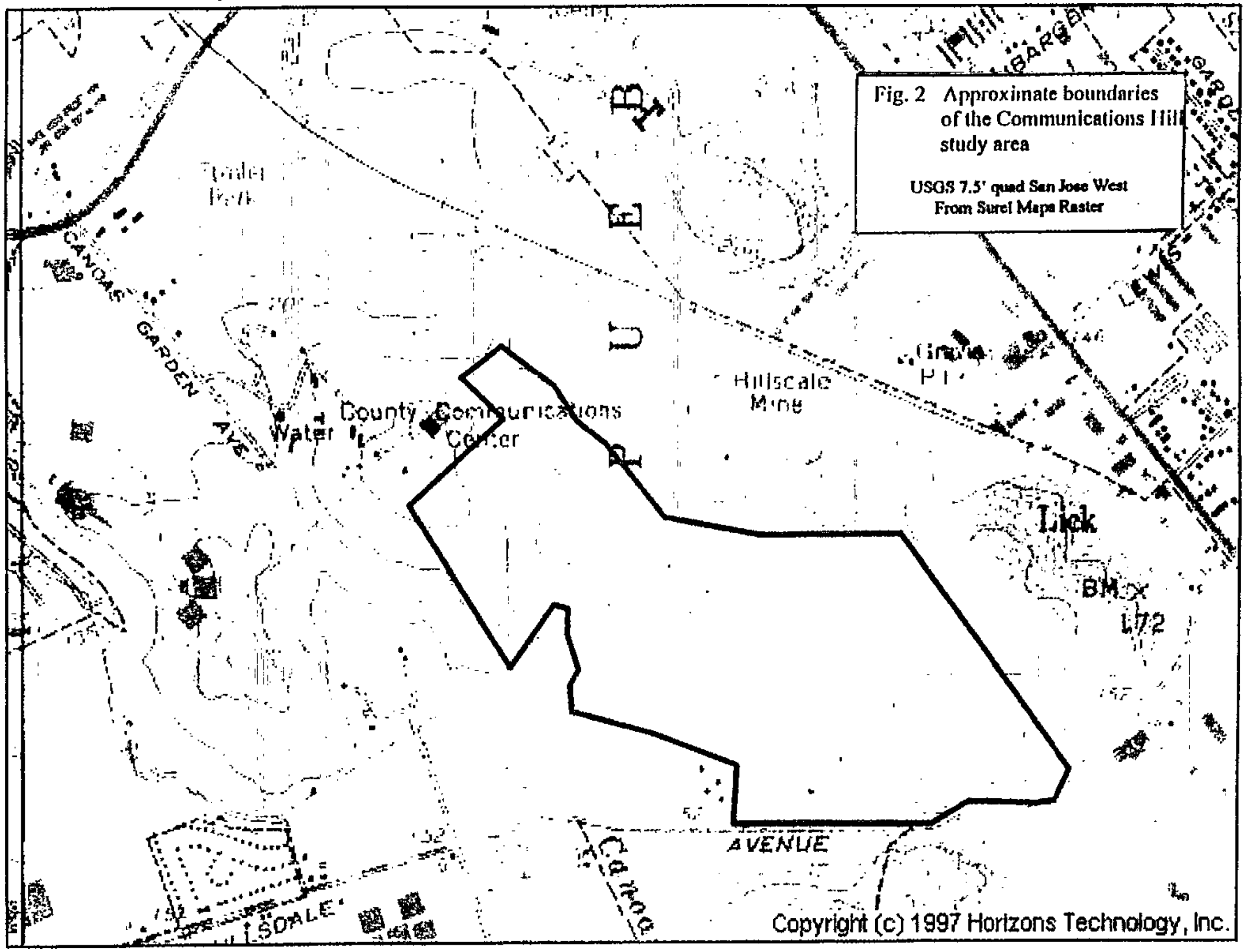


Fig. 2 Approximate boundaries of the Communications Hill study area

USGS 7.5' quad San Jose West
From Surel Maps Raster

2.0 SITE DESCRIPTION

The Communication Hill site generally occupies portions of the summit and southwest-facing slope of an isolated northwest-southeast-trending ridge (Figure 2). Slopes on the site are generally steep except near the ridgetops. Several side canyons of varying sizes, draining generally south to south-southeast, indent the ridge. The largest of these, in the northern portion of the site, has a steep northeast-facing slope that is included in the study area. Elevations on the site range from 150 feet along Hillsdale Avenue at the southeast end of the site to 435 feet at the AT&T facility.

Much of the site is underlain by serpentine substrate. Non-serpentine substrate occurs mostly around the western and southern margins of the site.

Most of the site is occupied by grassland, with scattered patches of coastal scrub. Trees are restricted to a few individuals of valley oak (*Quercus lobata*) in and on the northeast-facing slope of the large side canyon in the northern portion of the site, a small stand of blue gum (*Eucalyptus globulus*) just south of the valley oaks, and individuals of landscaping species in the vicinity of the developed areas in the southern portion of the site. Numerous serpentine outcrops occur over much of the site, especially on the upper slopes.

The AT&T site consists of a large communications tower and associated graded and paved areas. The two developed areas near the southeast end of the site contain a house, outbuildings, trailers, miscellaneous junk and debris, and planted trees and landscaping plants.

3.0 METHODS

3.1 Botany

The purposes of the botanical survey we· 1) To characterize and map the habitat types (plant communities) of the study area; (2) To determine whether any special-status plant species, or suitable habitat for any special status plant species, occur within the study area; and (3) To determine whether any sensitive habitat types occur within the study area.

3.1.1 Review of Literature and Data Sources

Special-status plant species include species listed as Rare, Threatened, or Endangered by the U.S. Fish and Wildlife Service (USFWS) under provisions of the federal Endangered Species Act (ESA) of 1973 (USFWS 1999a) or by the State of California under provisions of the 1984 California Endangered Species Act (CESA) and the 1977 Native Plant Protection Act (California Department of Fish and Game [CDFG] 2000a). Species formally Proposed for listing and federal Candidate species (USFWS 1999b) are also special-status species. Special-status species also include species listed on List 1A (Plants Presumed Extinct in California), List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), or List 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994). All species in the above categories fall under state regulatory authority under the provisions of the California Environmental Quality Act (CEQA), and may also fall under federal regulatory authority. Also considered special-status species are species included on List 3 (Plants About Which We Need More Information -- A Review List) or List 4 (Plants of Limited Distribution -- A Watch List) of the CNPS *Inventory*. These species are considered to be of lower sensitivity, and generally do not fall under specific state or federal regulatory authority. Specific mitigation considerations are not generally required for species in this category.

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species and CDFG Species of Special Concern, areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the California Natural Diversity Data Base's (CNDDB) working list of "high priority" habitats (i.e., those habitats that are rare or endangered within the borders of California) (Holland 1986).

Focused surveys of literature and special-status species data bases were conducted in order to identify special-status plant species and sensitive habitat types with potential to occur in the study area. Sources reviewed include CNDDB occurrence records for the San Jose East USGS 7.5' quadrangle; county occurrence records and USGS quadrangle occurrence records in the CNPS *Inventory* (Skinner and Pavlik 1994) for the San Jose East quadrangle and the eight quadrangles surrounding it; and standard floras (Munz and Keck 1973; Hickman 1993). Also reviewed were the results of a previous biological survey of the property (H.T. Harvey and Associates 1992). Sources consulted for up-to-date agency status information include USFWS (1999a, 1999b) for federally listed species and CDFG (2000a) for State of California listed species. Based on information from the above sources, we developed a target list of special-status plants with potential to occur in the vicinity of the Communication Hill site (Table 1).

3.1.2 Field Survey

Botanical surveys of the Communication Hill site were conducted on 28 March 2000 and between 14 May and 20 June 2000. The entire site was surveyed in detail on foot. All vascular plant species encountered were identifiable using keys and descriptions in Munz and Keck (1973) and Hickman (1993). The timing of the survey was appropriate for identification of most of the special-status species listed in Table 1. Special-status plant locations were mapped in the field on a detailed topographic base map of the site, taken from H.T. Harvey and Associates (1992).

All habitat types occurring on the site were characterized, mapped and recorded data on physiognomy, dominant and characteristic species, topographic position, slope, aspect, substrate conditions, hydrologic regime, and evident disturbance for each habitat type. In classifying the habitat types on the site, the generalized plant community classification schemes of Holland (1986) and Sawyer and Keeler-Wolf (1995) were consulted. Final classification and characterization of the habitat types of the study area were based on field observations.

3.2 Wildlife

3.2.1 Review of Literature and Data Sources

A focused review of literature and data sources was conducted in order to determine which special-status wildlife species are known to occur or have potential to occur in the Communication Hill study area. Sources reviewed include: California Natural Diversity Database RareFind Report, San Jose East USGS 7.5' quadrangle; Biological Resources Analysis Letter of Findings for Preliminary Site Survey of Communications Hill (Olberding 1999); the results of a previous biological survey of the property (H.T. Harvey and Associates 1992); the Santa Clara Valley Water District California Red-legged Frog Distribution and Status report (H.T. Harvey and Associates 1997); the Santa Clara Valley Water District California Tiger Salamander Distribution and Status report (H.T. Harvey and Associates 1999a); the Santa Clara Valley Water District Western Pond Turtle Distribution and Status report (H.T. Harvey and Associates 1999b); and the Communications Hill Bay Checkerspot Butterfly and Horn's Micro-blind Harvestman Surveys and Habitat Assessment Surveys (H.T. Harvey and Associates 1994). Current agency status information was obtained from USFWS (1999b, c) for species listed as Threatened or Endangered, as well as Proposed and Candidate species for listing, under the federal Endangered Species Act; and from CDFG (1999, 2000b) for species listed as Threatened, or Endangered by the state of California under the California Endangered Species Act, or listed as "species of special concern" by CDFG. From the above

Table 1. Special-status plant species with potential to occur in the vicinity of the Communication Hill Study Area

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat[5]	Distribution by County[6]	Period Identifiable[6]
Acanthomintha lanceolata Santa Clara thorn-mint	None	None	1-2-3 List 4	Coastal scrub, chaparral, often serpentinite soil	ALA, FRE, MER, MNT, SBT, SCL, STA	March-June
Androsace elongata ssp. *acuta* California androsace	None	None	1-2-2 List 4	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland	ALA, CCA, COL, FRE, KRN, LAX*, MER, SBD, SBT, SCL, SDG, SIS, SJQ, SLO, TEH?, Oregon*, Baja California	March-June
Astragalus tener var. *tener* alkali milk-vetch	None	None	3-2-3 List 1B	Alkaline or adobe clay soil, playas, valley and foothill grassland, vernal pools	ALA*, CCA*, MER, MNT*, NAP, SBT*, SCL*, SFO*, SJQ*, SOL, SON*	March-June
Atriplex joaquiniana San Joaquin spearscale	SOC	None	2-2-3 List 1B	Alkaline soil, chenopod scrub, meadows, playas, valley and foothill grassland	ALA, CCA, COL, GLE, MER, MNT, NAP, SAC, SBT, SCL*, SJQ*	April - October

Table 1 (continued)

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat[5]	Distribution by County[6]	Period Identifiable[6]
Azolla mexicana Mexican mosquito fern	None	None	1-2-1 List 4	Ponds, slow-moving streams, wet ditches	BUT, KRN, LAK, MOD, NEV, PLU, SCL, SDG, TUL, Baja California, Arizona, Nevada, Oregon, etc.	August
Calandrinia breweri Brewer's calandrinia	None	None	1-2-2 List 4	Sandy, loamy, or gravelly soil in chaparral, coastal scrub, generally on burns or disturbed places	CCA, LAX, MEN, MNT, MPA, MRN, NAP, SBA, SBD, SCL, SCR, SCZ, SDG, SLO, SMT, SON, VEN, Baja California	March-June
Calochortus umbellatus Oakland star-tulip	None	None	1-2-3 List 4	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland, often on serpentine	ALA, CCA, MRN, SCL, SCR*, SMT	March-May
Campanula exigua chaparral harebell	None	None	1-1-3 List 4	Rocky areas in chaparral, usually serpentinite soil	ALA, CCA, SBT, SCL, STA	May-June

Table 1 (continued)

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat[5]	Distribution by County[6]	Period Identifiable[6]
Castilleja affinis ssp. *neglecta* Tiburon Indian paintbrush	Endangered	Threatened	3-2-3 List 1B	Serpentinite soil, valley and foothill grassland	MRN, NAP, SCL	April -June
Ceanothus ferrisae Coyote ceanothus	Endangered	None	3-3-3 List 1B	Serpentinite soil, chaparral, coastal scrub, valley and foothill grassland	SCL	January-March
Chorizanthe robusta var. *robusta* robust spineflower	Endangered	None	3-3-3 List 1B	Sandy or gravelly soil, cismontane woodland, coastal dunes, coastal scrub	ALA*, MNT, SCL*, SCR, SMT*	April-September
Cirsium fontinale var. *campylon* Mt. Hamilton thistle	SOC	None	2-2-3 List 1B	Seeps in serpentinite soil, chaparral, cismontane woodland, valley and foothill grassland	ALA, SCL, STA	February-October
Clarkia breweri Brewer's clarkia	None	None	1-2-3 List 4	Chaparral, cismontane woodland, coastal scrub, often serpentinite soil	ALA, FRE, MER, MNT, SBT, SCL, STA	April-May
Clarkia concinna ssp. *automixa* Santa Clara red ribbons	SOC	None	2-2-3 List 1B	Chaparral, cismontane woodland	ALA, SCL	April-July

Table 1 (continued)

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat[5]	Distribution by County[6]	Period Identifiable[6]
Dudleya setchellii Santa Clara Valley dudleya	Endange red	None	3-3-3 List 1B	Rocky areas in serpentinite soil, cismontane woodland, valley and foothill grassland	SCL	April-June
Eriogonum argillosum clay-loving buckwheat	None	None	1-1-3 List 4	Serpentinite or clay soil, cismontane woodland	MNT, SBT, SCL	March-June
Eriogonum luteolum var. *caninum* Tiburon buckwheat	None	None	?-2-3 List 3	Serpentinite soil in chaparral, coastal prairie, valley and foothill grassland	ALA, COL, LAK, MRN, NAP, SCL, SMT, SON*	June-September
Eriophyllum jepsonii Jepson's woolly sunflower	None	None	1-1-3 List 4	Chaparral, cismontane woodland, coastal scrub	ALA, CCA, KRN, SBT, SCL, STA, VEN	April-June
Eryngium aristulatum var. *hooveri* Hoover's button-celery	SOC	None	1-1-3 List 4	Vernal pools	SBT, SCL, SLO	July
Erysimum franciscanum San Francisco wallflower	SOC	None	1-2-3 List 4	Coastal dunes, coastal scrub, valley and foothill grassland, often serpentinite or granitic soils	MRN, SCL, SCR, SFO, SMT, SON	March-June

Table 1 (continued)

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat[5]	Distribution by County[6]	Period Identifiable[6]
Fritillaria liliacea fragrant fritillary	SOC	None	1-2-3 List 1B	Coastal prairie, coastal scrub, valley and foothill grassland in heavy clay soil	ALA, CCA, MNT, MRN, SBT, SCL, SFO, SMT, SOL, SON	February-April
Galium andrewsii ssp. *gatense* serpentine bedstraw	None	None	1-2-3 List 4	Rocky serpentinite soil, chaparral, cismontane woodland	ALA, CCA, FRE, MNT, SBT, SCL, SLO	April-July
Hemizonia parryi ssp. *congdonii* Congdon's tarplant	SOC	None	3-3-3 List 1B	Alkaline soil, valley and foothill grassland	ALA, CCA, MNT, SCL(*?), SCR*, SLO, SOL*	June-November
Isocoma menziesii var. *diabolica* Satan's goldenbush	None	None	1-2-3 List 4	Cismontane woodland	SBT, SCL	August-October
Lasthenia conjugens Contra Costa goldfields	Endangered	None	3-3-3 List 1B	Moist sites, valley and foothill grassland, vernal pools cismontane woodland, playas (alkaline)	ALA, CCA, MEN*, MNT, NAP, SBA*, SCL*, SOL	March-June

Table 1 (continued)

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat[5]	Distribution by County[6]	Period Identifiable[6]
Lessingia hololeuca woolly-headed lessingia	None	None	?-?-3 List 3	Clay or serpentinite soil, broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland	ALA, MNT, MRN, NAP, SCL, SMT, SCL, SON, YOL	June-October
Lessingia micradenia var. *glabrata* smooth lessingia	SOC	None	3-2-3 List 1B	Serpentinite soil in chaparral, often disturbed areas	SCL	July-November
Linanthus ambiguus serpentine linanthus	None	None	1-2-3 List 4	Cismontane woodland, coastal scrub, valley and foothill grassland, usually serpentinite soil	ALA, CCA, MER, SBT, SCL, SCR, SJQ, SMT, STA	March-June
Linanthus grandiflorus large-flower linanthus	None	None	1-2-3 List 4	Coastal scrub, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, valley and foothill grassland, usually in sandy soil	ALA, KRN, MAD, MER, MNT, MRN, SBA*, SCL, SCR, SFO, SLO, SMT, SON	April-August
Malacothamnus hallii Hall's bush mallow	None	None	3-2-3 List 1B	Chaparral, coastal scrub	ALA?, CCA, MER, SCL, STA	May-September

Table 1 (continued)

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat[5]	Distribution by County[6]	Period Identifiable[6]
Perideridia gairdneri ssp. *gairdneri* Gairdner's yampah	SOC	None	1-2-3 List 4	Mesic sites in coastal prairie, broadleafed upland forest, chaparral, valley and foothill grassland,	KRN, LAX*, MEN, MNT, MRN, NAP, ORA*, SBT, SCL, SCR, SDG*, SLO, SMT(*?), SOL, SON	June-October
Piperia michaelii Michael's rein orchid	None	None	1-2-3 List 4	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, broadleafed upland forest, coastal scrub, lower montane coniferous forest	ALA, AMA, BUT, CCA, FRE, HUM, LAX*, MNT, MRN, SBA, SBT, SCL, SCR, SCZ, SFO, SLO, SMT, STA, TUL, TUO, VEN(*?), YUB	April-August
Plagiobothrys glaber hairless popcorn-flower	None	None	— List 1A	Alkaline meadows, coastal salt marshes	ALA*, MER*, MRN*, SBT*, SCL*	March-May
Plagiobothrys myosotoides forget-me-not popcorn-flower	None	None	1-1-1 List 4	Chaparral	FRE, SCL, TUL, South America	April-May

Table 1 (continued)

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat[5]	Distribution by County[6]	Period Identifiable[6]
Psilocarphus brevissimus var. *multiflorus* delta woolly-marbles	None	None	1-2-3 List 4	Vernal pools	ALA, NAP, SCL, SJQ, SOL, STA, YOL	May-June
Ranunculus lobbii Lobb's aquatic buttercup	None	None	1-2-3 List 4	Vernal pools; seasonally wet sites in cismontane woodland, North Coast coniferous forest, valley and foothill grassland	ALA, CCA, MEN, MRN, NAP, SCL, SOL, SON, Oregon, etc.	February-May
Senecio aphanactis rayless ragwort	None	None	3-2-1 List 2	Alkaline soil, chaparral, cismontane woodland, coastal scrub	CCA, FRE, LAX, MER, ORA, RIV, SBA, SCL, SCT, SCZ, SDG, SLO, SOL, SRO, VEN, Baja California	January-April
Sidalcea malachroides maple-leaved checkerbloom	None	None	2-2-2 List 1B	Broadleafed upland forest, coastal prairie, coastal scrub, north coast coniferous forest, often in disturbed areas.	DNT, HUM, MEN, MNT, SCL, SCR, SON, Oregon	May-August

Table 1 (continued)

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat[5]	Distribution by County[6]	Period Identifiable[6]
Streptanthus albidus ssp. *albidus* Metcalf Canyon jewel-flower	Endangered	None	3-3-3 List 1B	Serpentinite soil, valley and foothill grassland	SCL	April-July
Streptanthus albidus ssp. *peramoenus* most beautiful jewel-flower	SOC	None	2-2-3 List 1B	Serpentinite soil, chaparral, cismontane woodland, valley and foothill grassland	ALA, CCA, SCL	April-June

[1]Nomenclature follows Hickman (1993) and Skinner and Pavlik (1994).
[2]U.S. Fish and Wildlife Service (1999a, b).
[3]Section 1904, California Fish and Game Code (California Department of Fish and Game 2000a).
[4]Skinner and Pavlik (1994).

Top line: CNPS R-E-D (Rarity-Endangerment-Distribution) code. Rarity: 1=Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time; 2=Occurrence confined to several populations or to one extended population; 3=Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported. Endangerment: 1=Not endangered; 2=Endangered in a portion of its range; 3=Endangered throughout its range. Distribution: 1=More or less widespread outside California; 2=Rare outside California; 3=Endemic to California.

Bottom Line: CNPS List. List 1B: Rare, Threatened, or Endangered in California and elsewhere. List 4: Plants of limited distribution: a watch list.

[5]Munz and Keck (1973); Hickman (1993); Skinner and Pavlik (1994); and unpublished information.
[6]Skinner and Pavlik (1994) and unpublished information; counties abbreviated by a three-letter code (below); occurrence in other areas as indicated.

ALA: Alameda	BUT: Butte	COL: Colusa
AMA: Amador	CCA: Contra Costa	DNT: Del Norte

Table 1 (continued)

FRE: Fresno
GLE: Glenn
HUM: Humboldt
KRN: Kern
LAK: Lake
LAX: Los Angeles
MAD: Madera
MEN: Mendocino
MER: Merced
MNT: Monterey
MOD: Modoc
MPA: Mariposa
MRN: Marin
NAP: Napa

NEV: Nevada
ORA: Orange
PLU: Plumas
RIV: Riverside
SAC: Sacramento
SBA: Santa Barbara
SBD: San Bernardino
SBT: San Benito
SCL: Santa Clara
SCR: Santa Cruz
SCT: Santa Catalina Island (LAX Co.)
SCZ: Santa Cruz Island (SBA Co.)
SDG: San Diego
SFO: San Francisco

SIS: Siskiyou
SJQ: San Joaquin
SLO: San Luis Obispo
SMT: San Mateo
SOL: Solano
SON: Sonoma
SRO: Santa Rosa Island (SBA Co.)
STA: Stanislaus
TEH: Tehama
TUL: Tulare
TUO: Tuolumne
VEN: Ventura
YOL: Yolo
YUB: Yuba

sources, a list of special-status wildlife species with known or with the potential to occur was developed (Table 2).

3.2.2 Field Surveys

3.2.2.1 General Habitat Assessment

Wildlife biologists conducted habitat evaluations for mammals, birds and amphibians on 28 March and 7 June 2000. The purpose of the field surveys was to evaluate general wildlife habitats as well as the potential for any protected species to occur. Protected species include any wildlife species that warrant CEQA review (state or federally listed species, locally unique species, or species with population declines making them potentially eligible for proposed listing) within the proposed project site.

3.2.2.2 Special-Status Invertebrate Surveys

Dr. Richard Arnold conducted surveys for three special-status invertebrate species with potential to occur in the study area: Bay Checkerspot butterfly (*Euphydryas editha bayensis*), Hom's Microblind harvestman (*Microcina homi*), and Ricksecker's Water Scavenger beetle (*Hydrochara rickseckeri*). Field surveying was conducted between 19 March and 29 April 2000. The methods and findings of this survey are fully presented in Appendix A.

3.2.2.3 Focused Avian Surveys

Surveys for nesting birds were conducted during the day and evening on 28 March and 19 and 20 June 2000. Particular attention was given to locating and mapping nests of special-status birds, as listed in Table 2. Focused avian surveys included looking for evidence of nesting on all three days, as well as two evening surveys to listen and spotlight for owls on 19 and 20 June. Surveys included looking for evidence of burrowing owl use (burrows, pellets etc.). A habitat assessment for burrowing owls was conducted following Phase One and Two of the Burrowing Owl Survey Protocol (1993). Part of the burrowing owl habitat assessment included documenting any known burrowing owl use within the project site within the last three years.

3.2.2.4 Focused Surveys for Bats

Bat surveys were conducted on 7 June 2000. Visual surveys for bats and bat guano in tree cavities and crevices in small rock outcrops were conducted during the day. Focused visual surveys for bats in buildings where not conducted due to occupancy of the buildings and related safety issues. However, a habitat evaluation of these buildings was conducted. Trees with potential bat habitat were acoustically surveyed at night. Acoustic monitoring was done with an Anabat II bat detector, zero crossing analyzer and laptop computer to collect acoustic files of the echolocation calls of the bats.

Table 2. Special-status wildlife species with potential to occur in the vicinity of the Communication Hill Study Area

Common Name (*Scientific Name*)	**Status Federal/State**
Insects	
Hom's micro-blind harvestmen (*Microcina homi*)	SC/--
Ricksecker's water scavenger beetle (*Hydrochara rickseckerii*)	SC/--
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	T/--
Opler's longhorn moth (*Adela operella*)	SC/--
Amphibians	
California red-legged frog (*Rana aurora draytonii*)	T/SC
California tiger salamander (*Ambystoma californiense*)	C/SC
Reptiles	
Western pond turtle (*Clemmys marmorata*)	--/SC
Birds	
California horned lark (*Eremphila alpestris actia*)	--/SC
Loggerhead shrike (*Lanius ludovicianus*)	--/SC
Burrowing owl (*Athene cunicularia*)	C/SC
Northern harrier hawk (*Circus cyaneus*)	--/SC
Sharp-shinned hawk (*Accipiter striatus*)	--/SC
Cooper's hawk (*Accipiter cooperi*)	--/SC
White-tailed kite (*Elanus caeruleus*)	--/FP
Short-eared owl (*Aiso flammeus*)	--/SC
Mammals	
Pallid bat (*Antrozous pallidus*)	--/SC
Townsend's big-eared bat (*Corynorhinus* (= *Plecotus*) *townsendii*)	C/SC
Long-eared myotis (*Myotis evotis*)	C/--
Fringed myotis (*Myotis thysanodes*)	C/**
Long-legged myotis (*Myotis volans*)	C/SC**
Yuma myotis (*Myotis yumanensis*)	C/--
Western red bat (*Lasiurus blossevillii*)	--/**
Western mastiff bat (*Eumops perotis*)	C/SC

The wildlife status definition and governing agencies follow:

Federal (USFWS 1999b, c)

E = Endangered : Any species which is in danger of extinction throughout all or a significant portion of its range.

T = Threatened: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Table 2 (continued)

C = Taxa which are under review, and for which sufficient biological information exists to support a proposal to list as an endangered or threatened species.
M = Avian species and their nests which are protected during their breeding season under the Federal Migratory Bird Treaty Act.

State of California (CDFG 1999, 2000b)
E = Endangered: A native species or subspecies of animal which is in serious danger of becoming extinct throughout all, or a significant portion of its range, due to loss of habitat, change in habitat, over exploitation, predation, competition and/or disease.
T = Threatened: A native species or subspecies that, although no presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.
SC = CDFG Species of Special Concern
FP = Fully Protected under CDFG codes
* - Taxa given special consideration because they are biologically rare, very restricted in distribution, declining throughout their range, or at a critical stage in their life cycle when residing in California or taxa that are closely associated with a habitat that is declining in California (e.g., wetlands, riparian, old growth forest).

The Anabat system uses a bat detector to detect bat ultrasonic echolocation calls in the field and uses a zero-crossing unit to convert the detected signals into frequency/time graphs on a laptop computer. The graphs are then used together with reference knowledge of acoustic signatures of different species to identify calls to species level. Calls are identified by comparison with calls recorded during previous mist net and harp trapping activities, calls recorded from bats which have been visually identified at the time of recording, and by comparison with existing bat vocal signature libraries. At the time of the acoustic survey of the habitat a hand held spotlight was used to get visual confirmation of species identification.

3.2.2.5 Evaluation of Upland Habitat Use by California Tiger Salamander and California Red-Legged Frog

California tiger salamanders (*Ambystoma californiense*) are known to occur and breed in the quarry pond adjacent to Monterey Highway north of the project area (see Figure 5). Upland habitat evaluations for this species and for California red-legged frog (*Rana aurora draytonii*) were conducted on 28 March and 20 June 2000, during the life history stage when adults are non-aquatic.

4.0 RESULTS

4.1 Botany

4.1.1 Floristic Inventory and Habitat Characterization

A total of 109 species of vascular plants were observed on the Communication Hill site (Appendix B). Of these, 69 species are native and 40 species are non-native. Our classification and mapping of habitat types on the site closely follows that of H.T. Harvey and Associates (1992). We recognize four habitat types within the study area: non-native grassland; Diablan sage scrub; freshwater seep; and developed/ruderal. Two distinct phases of non-native grassland are recognized: one phase on serpentine substrate, and the other phase on non-serpentine substrate. Non-native grassland occupies most of the study area. Patches of Diablan sage scrub occur at several locations within the grassland. One small area of freshwater seep habitat occurs in the southern portion of the study area. The developed/ruderal habitat type, a habitat type associated with human occupation and intensive disturbance, encompasses the area around the AT&T communications facility and the two developed areas near the southeast end of the site. Each of these habitat types is briefly described below. Figure 3 depicts the distribution of habitat types within and in the immediate vicinity of the study area.

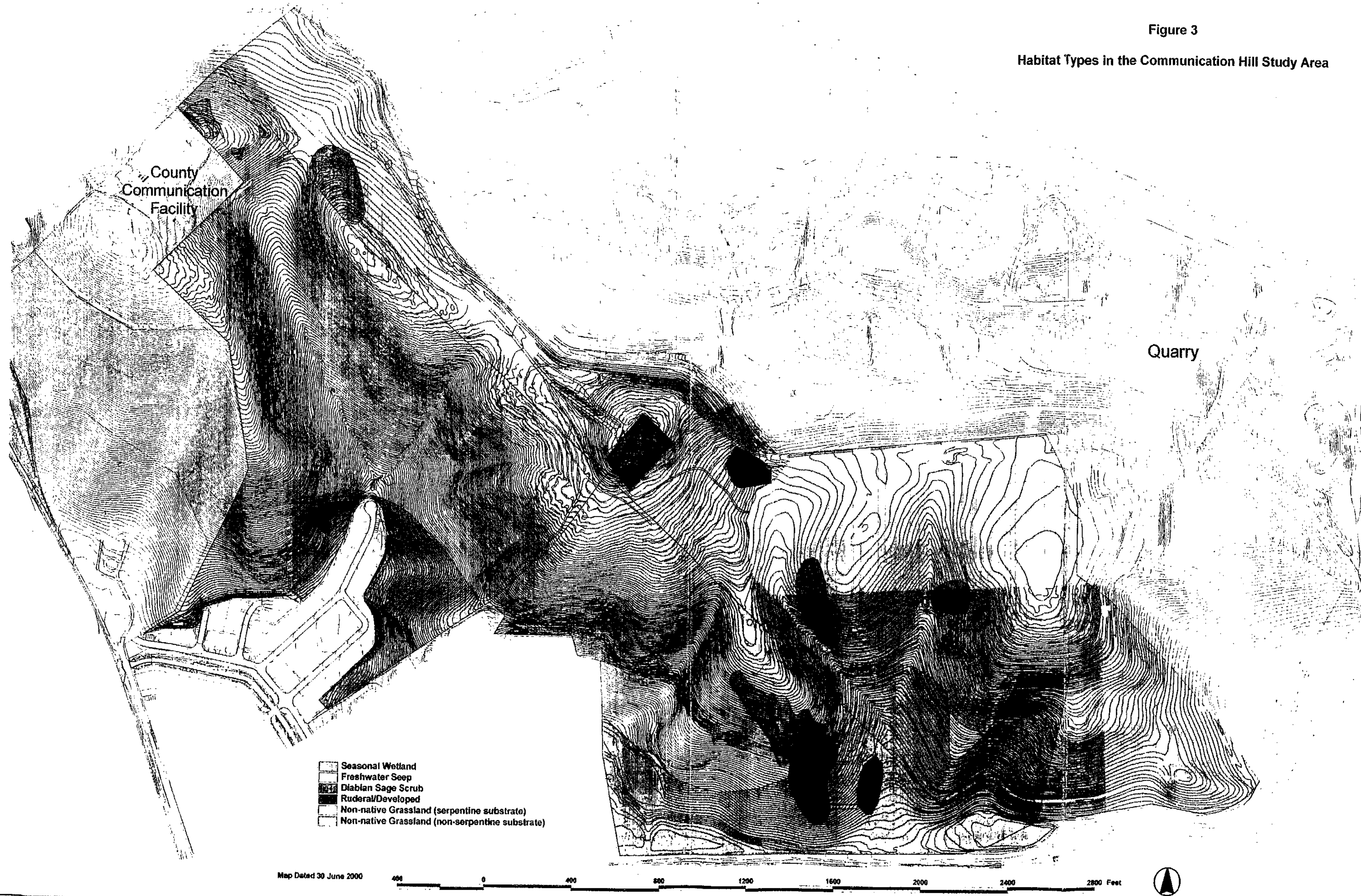
Non-native grassland. This habitat type is recognized by Holland (1986), and corresponds to the California annual grassland series of Sawyer and Keeler-Wolf (1995). Non-native grassland occupies most of the Communication Hill study area. Two phases of this habitat type are recognized: non-native grassland on non-serpentine substrate, and non-native grassland on serpentine substrate. The non-native grassland on most of the site occurs on serpentine substrate. Non-native grassland on non-serpentine substrate is restricted to a few areas along the southern and western perimeter of the site.

The non-native grassland habitat type is characterized by a generally dense cover of grasses and associated herbs. Locally, especially where the soil is thin, the vegetation cover may be relatively sparse. The non-native grassland in the study area has been subject to varying intensities of grazing in the recent past, and cattle were present east of the north-south fence crossing the site at the time of the survey. A portion of the non-native grassland at the extreme southeast end of the study area was tilled sometime between 28 March and 14 May.

Although this habitat type is variable in species composition from place to place on both serpentine and non-serpentine substrate, species diversity on non-serpentine substrate is generally low at any one location. The dominant grasses are predominately non-native and annual. They include Italian rye grass (*Lolium multiflorum*, sometimes biennial), wild oat (*Avena barbata*, *A. fatua*), soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*), and wall barley (*Hordeum murinum* ssp. *murinum*). The native perennial bunchgrass purple needlegrass (*Nassella pulchra*) is occasional. Herbaceous associates are predominately non-native, and include prickly lettuce (*Lactuca serriola*), common vetch (*Vicia sativa* ssp. *sativa*), Italian thistle (*Carduus pycnocephalus*), black mustard (*Brassica nigra*), and yellow star thistle (*Centaurea solstitialis*). Italian thistle and black

Figure 3

Habitat Types in the Communication Hill Study Area



mustard locally form dense patches. Although less abundant than the non-natives, a number of native herbs are also widely distributed in this habitat type. These include California poppy (*Eschscholzia californica*), yarrow (*Achillea millefolium*), succulent annual lupine (*Lupinus succulentus*), common fiddleneck (*Amsinckia menziesii* var. *intermedia*), and common soap plant (*Chlorogalum pomeridianum*).

Because of the unusual chemical composition of serpentine substrate, serpentine soils, such as those occurring in the study area, constitute an inhospitable habitat for many plants. Largely because many common plants are poor competitors on serpentine substrate, or are excluded from that substrate entirely, the vegetation of serpentine areas is often quite different in physiognomy and species composition from the vegetation of adjacent areas underlain by other substrates (Kruckeberg 1984; McCarten 1987). Some plant species are relatively well adapted to serpentine, and, throughout California, there are a substantial number of plant species that occur entirely or mostly on serpentine substrate. Some of these species are widespread and occur on serpentine outcrops over a wide area of the state, while other serpentine-restricted species are narrow endemics, occurring only on serpentine outcrops within a limited geographic area.

The species composition of the non-native grassland on serpentine substrate in the study area is often quite similar to that of the non-native grassland on non-serpentine substrate, and may be virtually identical in areas of deeper soil, especially in the northwestern portion of the study area and on ridgetops and lower slopes elsewhere. In areas where the soil is thinner and less well developed, especially on the upper halves of slopes, the vegetation density is often slightly less, but the species diversity is considerably enhanced by the widespread occurrence of a variety of native species. Native herbaceous species that seem especially characteristic of this habitat include butterfly mariposa lily (*Calochortus venustus*), many-stemmed gilia (*Gilia clivorum*), hill morning glory (*Calystegia subacaulis*), and peninsular onion (*Allium peninsulare* var. *franciscanum*). Numerous serpentine outcrops within this habitat support Santa Clara Valley dudleya (*Dudleya setchellii*), a special-status species (Section 4.1.2). Native perennial grasses occasionally occurring in this habitat, in addition to purple needlegrass, include Malpais bluegrass (*Poa secunda*), Torrey's melica (*Melica torreyana*), and California melica (*Melica californica*). California poppy is especially abundant in this habitat. Other characteristic native species include naked-stemmed buckwheat (*Eriogonum nudum*), blue dicks (*Dichelostemma capitatum*), hog fennel (*Lomatium caruifolium*, *L. dasycarpum*), purple sanicle (*Sanicula bipinnatifida*), vinegar weed (*Trichostema lanceolatum*), and cryptantha (*Cryptantha clevelandii*, *C. flaccida*). California plantain (*Plantago erecta*) is locally abundant where the soil is thin and gravelly and the vegetation cover is sparse. The native shrub California sagebrush (*Artemisia californica*) is locally widely scattered in the grassland, indicating areas transitional to the Diablan sage scrub habitat type (below). The native rhizomatous perennial grass creeping wild rye (*Leymus triticoides*) occasionally forms dense patches in areas of relatively gentle slope where the soil is seasonally moist.

Several large native herb species constitute a specialized element in the vegetation around some rock outcrops, especially toward the northwest end of the study area. These include

California bee plant (*Scrophularia californica* ssp. *floribunda*), common phacelia (*Phacelia distans*), and California goosefoot (*Chenopodium californicum*).

Diablan sage scrub. This habitat type is recognized by Holland (1986). It corresponds to a phase of the California sagebrush series of Sawyer and Keeler-Wolf (1995). Within the study area, this habitat type is overwhelmingly dominated by California sagebrush. California sagebrush is the only shrub species in this habitat type in the southern portion of the study area. In the northern portion of the study area, poison-oak (*Toxicodendron diversilobum*) and coffeeberry (*Rhamnus californica*) are occasional shrub associates. The shrub density is variable. In portions of the large stand of Diablan sage scrub near the south end of the site, shrub cover locally approaches 100 percent, but in most of the Diablan sage scrub on the site, the shrub cover is rather open, with well-spaced individual shrubs or small groups of shrubs. The areas between the shrubs are vegetated with a mostly dense cover of grasses and herbs that does not differ substantially in species composition from that of the adjacent non-native grassland. Most of this habitat type on the site is clearly transitional to the non-native grassland habitat type.

Wetland. This habitat type is recognized by Holland (1986). Two small wetland areas occur on the site. The first is located at the bottom of a southeast-draining side canyon in the southern portion of the site. This 100 square foot area is densely vegetated, primarily by the non-native species Italian rye grass and annual beard-grass (*Polypogon monspeliensis*) and the native species common large monkeyflower (*Mimulus guttatus*) and Spanish-clover (*Lotus purshianus*). The second wetland area is located in the southeastern corner of the site adjacent to Hillsdale Avenue. Vegetation observed in the wetland located on the southeastern corner of the site consisted of rabbit's foot grass (*Polypogon monspeliensis - FACW*), curly dock (*Rumex crispus*), Italian rye grass (*Lolium multiflorum*), heliotrope (*Heliotropium curvassicum* - OBL), and prickly lettuce (*Lactuca seriola - FAC*). The total wetland area includes an area of approximately 1.42 acres. Of this amount, approximately 0.35 acres occur within the project site (Burns/Ross portion of the project site) east of the fence line. In addition to the two wetland areas, a non vegetated intermittent drainage channel was identified in the southwestern canyon extending from the mobile home park. This defined drainage channel is approximately 75 feet in length and 2-3 wide. The drainage channel empties into a culvert at the property line.

Developed/ruderal. This artificial habitat type consists of sites occupied by buildings and other developed facilities, associated landscaped areas, and adjacent areas where the original vegetation has been removed completely or intensively disturbed. On the Communication Hill site, this habitat type consists of the fenced-in area surrounding the AT&T communications facility and the two developed areas near the southeast end of the site. Within the AT&T facility perimeter fence, areas not occupied by the communications tower itself or graded and paved are occupied by ruderal species. The two developed areas near the southeast end of the site contain numerous planted trees and other landscaping plants, and are otherwise vegetated primarily by ruderal species. Also included in this habitat type is an excavated area south of the AT&T facility that is sparsely vegetated by ruderal species.

4.1.2 Special-Status Species

One special-status species, Santa Clara Valley dudleya (*Dudleya setchellii*), occurs within the study area. Santa Clara Valley dudleya is federally listed as Endangered, and is also on List 1B of the CNPS *Inventory* (Skinner and Pavlik 1994; Section 3.1.1). It falls under the regulatory authority of CEQA. Santa Clara Valley dudleya is a low-growing perennial succulent in the stonecrop family (Crassulaceae), with thick, fleshy, oblong-triangular basal leaves and flowering stalks producing clusters of pale yellow flowers about 8-13 mm long (Bartel 1993). This species occurs only in rocky areas on serpentine substrate in grasslands and cismontane woodlands in and bordering the Santa Clara Valley in Santa Clara County (Bartel 1993; Skinner and Pavlik 1994; USFWS 1995). The species is known to occur on about 14 sites, with about 33,000 plants known to exist (USFWS 1995). Eleven of the 14 known populations are on private land. Urban development and concomitant loss of habitat is the primary threat to Santa Clara Valley dudleya. Other potential threats include off-road vehicles, grazing, and horticultural collecting.

On the Communication Hill site, Santa Clara Valley dudleya occurs on numerous serpentine outcrops on the upper half of the south-facing slope of the main ridge and on the adjacent slopes of side canyons. On the site, the species is restricted to the surfaces of the rock outcrops themselves, and sometimes to very thin, rocky soil immediately adjacent to the outcrops, where there is very little competing vegetation. It appears that the plants are specialized to produce extensive root systems penetrating deep into fractures in the rock. Figure 4 shows the distribution of Santa Clara Valley dudleya on the site, based on the results of 2000 field surveys.

H.T. Harvey and Associates (1992) previously mapped the distribution of Santa Clara Valley dudleya on the site, based on field surveys conducted in 1992. The 1992 and 2000 mappings are similar but do not coincide exactly. It appears that the species is present in 2000 on some outcrops from which it was absent in 1992, and was present in 1992 on some outcrops from which it is absent in 2000. It is likely that the population biology of the species on the site involves a process of occasional local extinction on outcrops on which the species was previously present, along with occasional colonization of outcrops on which the species was previously absent. Outcrops not occupied by the species at present should therefore be considered suitable habitat that will likely be occupied at some time in the future.

4.1.3 Sensitive Habitats

Seasonal wetlands are recognized as a sensitive habitat type. This habitat type is recognized as a "high priority" habitat by CNDDB (Holland 1986).

4.2 Wildlife

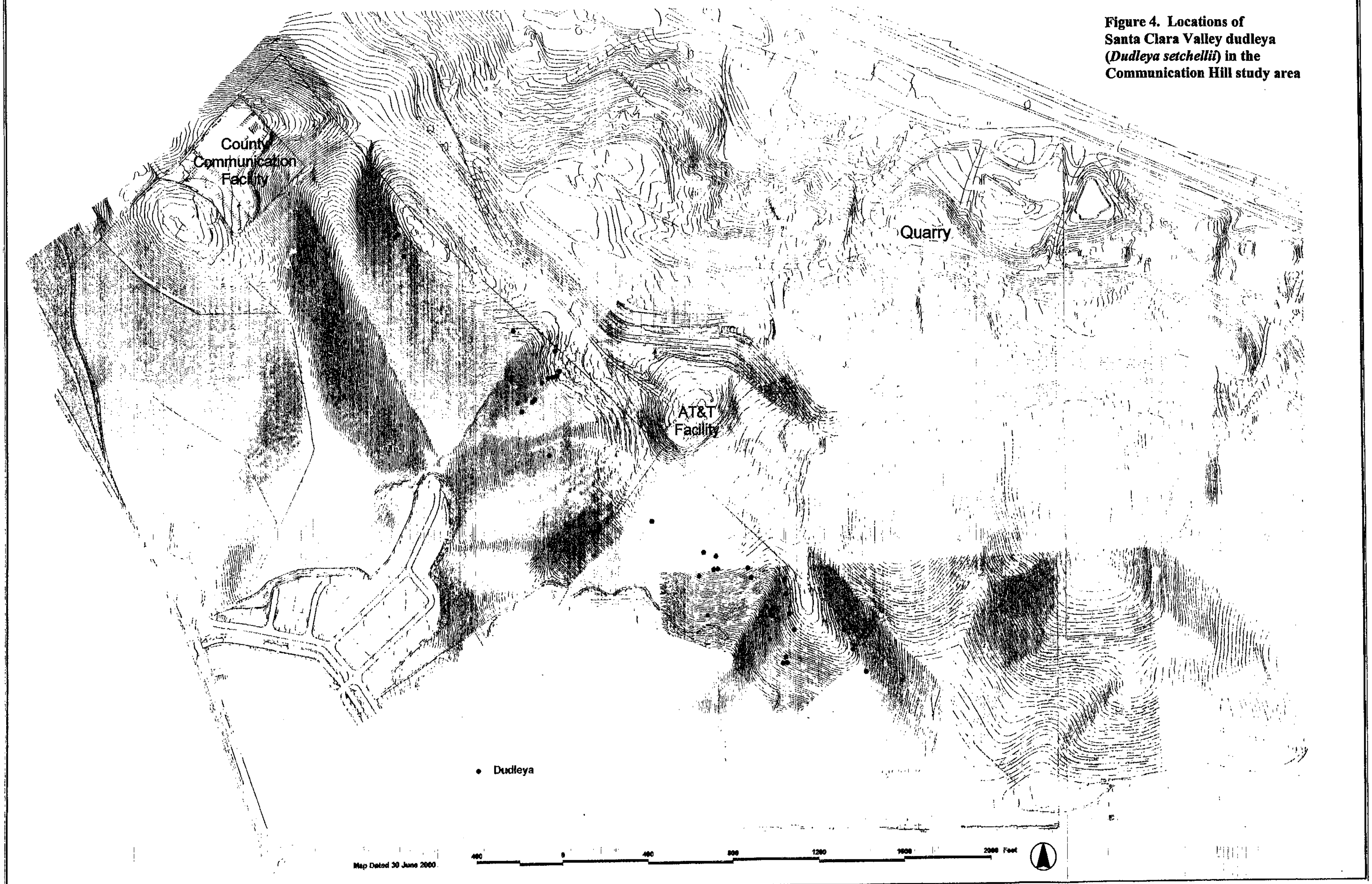
4.2.1 General Wildlife Species and Habitats

The Communication Hill project site is predominantly an open, dry grassland habitat interspersed with a smaller amount of Diablan sage scrub dominated by California sagebrush. Dense urban development occurs on all sides of Communication Hill. This oasis of grassland habitat provides an important foraging resource for a wide variety of wildlife species. Grasses in ungrazed ruderal grassland habitats are normally taller that native grasses, and therefore wildlife species often differ between these two habitats. However, due to both the cattle grazing and soil types, the ruderal grasslands on the project site are relatively low in height. The grasses and forbs produce an abundance of seeds and attract numerous insects, providing food for granivorous and insectivorous wildlife, including lizards and skunks (*Mephitis mephitis*). Grasslands are productive habitats for small mammals, providing abundant food plants and cover. Burrows of Botta's pocket gopher (*Thomomys bottae*) were among the most numerous burrow types observed in these habitats on the site. California vole (*Microtus californicus*) burrows were also observed. The abundance of small mammals, insects and lizards in the grasslands provides valuable foraging sites for raptors such as hawks and owls, and other predators such as foxes, snakes, and long-tailed weasel (*Mustela frenata*). Other common species expected to occur include black-tailed jackrabbit (*Lepus califoricus*) and California ground squirrel (*Spermophilus beecheyi*), although burrows of these species were not observed. Reptiles observed include western fence lizard (*Sceloporus occidentalis*) and gopher snake (*Pituophis catenifer*). Pacific tree frogs (*Pseudacris regilla*) were heard in the quarry pond adjacent to the project site and are likely to use mammal burrows in the grasslands. Other amphibians such as western toads (*Bufo boreas*) and California tiger salamanders (*Ambystoma californiense*) may also use these mammal burrows and/or mud crevices in grasslands during the non-reproductive season as aestivation habitat or while traveling between aquatic habitats. A road killed Western toad was found near the driveway to the house on the project site off Hillsdale Avenue.

The grassland habitat for ground nesting birds on the project site is degraded due to presence and high encounter rate of non-native red-foxes (*Vulpes vulpes*). Passerine birds observed in the grasslands include habitat included northern mockingbird (*Mimus polyglottos*), western meadowlark (*Sturnella neglecta*), morning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), red-winged black bird (*Agelaius phoeniceus*), Western kingbird (*Tyrannus verticalis*), black-headed phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), California quail (*Lophortyx californicus*), song sparrow (*Melospiza melodia*), and several swallow species. Raptors that feed on small mammals in grassland habitat which were observed on the site include white-tailed kites (*Elanus caeruleus*), northern harrier hawk (*Circus cyaneus*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*) and common barn owl (*Tyto alba*).

Scattered through out the grassland are small, low rock outcrops. The rock formations and outcroppings found on the property often contain crevices and small cave-like features that provide habitat for lizards, snakes, and rodents and limited but potential roosting habitat for bats. Rock wren (*Salpinctes obsoletus*) was observed in a rock outcrop area with California sagebrush. Also within the project site is a grassland area with some coyote brush and California sagebrush scrub (nearest Carol Road), a small oak and eucalyptus grove (nearest Hillsdale Avenue and Highway 87). The tree and scrub habitats increase the potential for wildlife species richness as many species utilize grasslands for feeding and trees and shrubs for cover and/or nest sites. Red-tail hawks are currently nesting in the eucalyptus grove. The mature oaks near the eucalyptus grove

Figure 4. Locations of Santa Clara Valley dudleya (*Dudleya setchellii*) in the Communication Hill study area



(in the southwest portion of the property) are being utilized as a foraging roost by a barn owl (no nest). These mature oaks contain cavity branches with several beehives. The mature oaks on the southwest portion of the property also provide potential nesting and roosting habitat for bats, in the form of hollows and exfoliating bark (Section 4.2.2.3). The oaks also provide potential roosting habitat for foliage roosting Western red bat (*Lasiurus blossevillii*) and Hoary bat (*Lasiurus cinereus*). The buildings on the project site off Hillsdale Avenue provide potential roosting habitat for big brown bat (*Eptesicus fuscus*), Yuma myotis (*Myotis yumanensis*) and pallid bat (*Antrozous pallidus*), especially in the tin roof shed.

Drainages in the southeast portion of the site drain to an ephemeral pond (seasonal wetland) just off the project site adjacent to Hillsdale Avenue. The ephemeral pond held some water in March but was completely dry in April. Although the project site primarily contains dry grasslands and sagebrush habitat, surface water for wildlife is available nearby in the adjacent quarry pond nearest Monterey Road, Canoas Creek off of Hillsdale Avenue (a tributary to the Guadalupe River) and in a ditch along the railroad tracks between the quarry pond and the Hillsdale Avenue ephemeral pond. The non-aquatic, dry habitats of the project site were therefore evaluated as potential aestivation habitat for amphibians during their non-aquatic life-history stages.

4.2.2 Special-Status Wildlife Species

The special-status wildlife species presented in Table 3 are the endangered, threatened and sensitive wildlife species with the potential to occur in the project site based on available habitat. Under Section 15380 of the CEQA Guidelines, a species not listed by the State of California "shall nevertheless be considered rare or endangered if the species can be shown to meet the criteria" for listing. The U.S. Fish and Wildlife Service encourages the consideration of Proposed and Candidate species (USFWS 1999b) in environmental planning, such as environmental impact analysis, under the National Environmental Policy Act of 1969.

Species that are listed in Table 2 that are not likely to occur on the project site based on the lack of suitable will not be discussed further. The following section contains a summary and discussions and of the special-status wildlife species listed in Table 3 which are either known to occur or have the potential to occur at the project site based on our habitat evaluation and the focused species survey results. Natural history accounts for these species are presented in Appendix C. The three special-status avian species that are known to occur (Table 3), are known as foraging species on the site. Although potential nesting habitat also occurs on the site for these species, nests were not observed. Figure 5 shows the locations of special-status wildlife observations and potential habitat within the study area.

4.2.2.1 Special-Status Invertebrates

No special-status invertebrates were observed during the invertebrate surveys. The larval and adult food plants for the federal Threatened species Bay Checkerspot butterfly (*Euphydryas editha bayensis*) are present on the site, but overall habitat quality was judged to be poor, and it is unlikely that the species is present. Although Hom's Microblind harvestman (*Microcina homi*), a federal species of concern, was not found in the 2000 survey, the species was found on the site in 1992 and 1993 (H.T. Harvey & Associates 1992, 1994). One seasonally ponded wetland on the site is potential habitat for Ricksecker's Water Scavenger beetle (*Hydrochara rickseckeri*), also a federal species of concern, but this species was not found during conducted surveys. A complete discussion of the results of the invertebrate surveys is presented in Appendix A.

4.2.2.2 Special-Status Birds

Special-status birds with the potential to occur on the property are listed in Table 3. See Appendix C for the natural history of special-status birds with the potential to occur at the project site. Two California species of special concern, loggerhead shrike (*Lanius ludovicianus*) and a pair of Northern harrier hawks (*Circus cyaneus*) were observed foraging over the project site during the reproductive season. Loggerhead shrikes were observed on June 19 and June 20 in two areas (Figure 5). Potential nesting habitat for loggerhead shrikes occurs on the project site in the areas with trees and shrubs (Figure 5). The cactus garden adjacent to the house off Hillsdale Avenue on the project site as well as barbed wire fences throughout the site, provide features that shrikes may use for impaling prey and storing food caches. Barbed wire fences were free of food caches. The cactus garden was not surveyed due to human occupancy of the buildings and area. Loggerhead shrikes were also observed on Communication Hill in 1992 (H.T. Harvey and Associates 1992). Northern harrier hawks were observed foraging over the ridgeline of the project site on 28 March and on 7 June.

White-tailed kite (*Elanus caeruleus*), a CDFG protected species (Table 2) was also observed foraging over the project site on 28 March. Suitable nesting habitat on the project site is limited to a few oaks that are not being utilized at present. In addition, nesting kites were not observed in the trees immediately adjacent to the project site.

None of the ground nesting birds listed in Table 3, including short-eared owl (*Aiso flammeus*), burrowing owl (*Athene cunicularia*) and California horned lark (*Eremphila alpestris actia*), were observed during the focused surveys. California horned larks were observed on Communication Hill in 1992 (H.T. Harvey and Associates 1992). We encountered red foxes (at least four individuals occur and den within the project site) during each of our visits. On 28 March, red foxes were encountered on the project site six times. The red fox is a non-native predator that eats small animals, including bird eggs and chicks of ground nesting birds. The limited foraging area for foxes on Communication Hill highly degrades the habitat for ground nesting birds.

Phase One and Two of the burrow surveys (burrow and summer evening surveys to look and listen for calls) resulted in no evidence of either foraging or nesting use of the project site by burrowing owls. Suitable foraging habitat for both wintering and summering burrowing owls occurs on the project site. However, potential nest sites are lacking mainly due to the lack of ground squirrel (*Spermophilus beecheyi*) burrows that could then be secondarily used by the owls. Although there is a small ground squirrel population, the squirrels are primarily using small rock cervices in the rock outcrops.

Figure 5

Special-Status Wildlife Observations and Potential Habitat in the Communication Hill Study Area

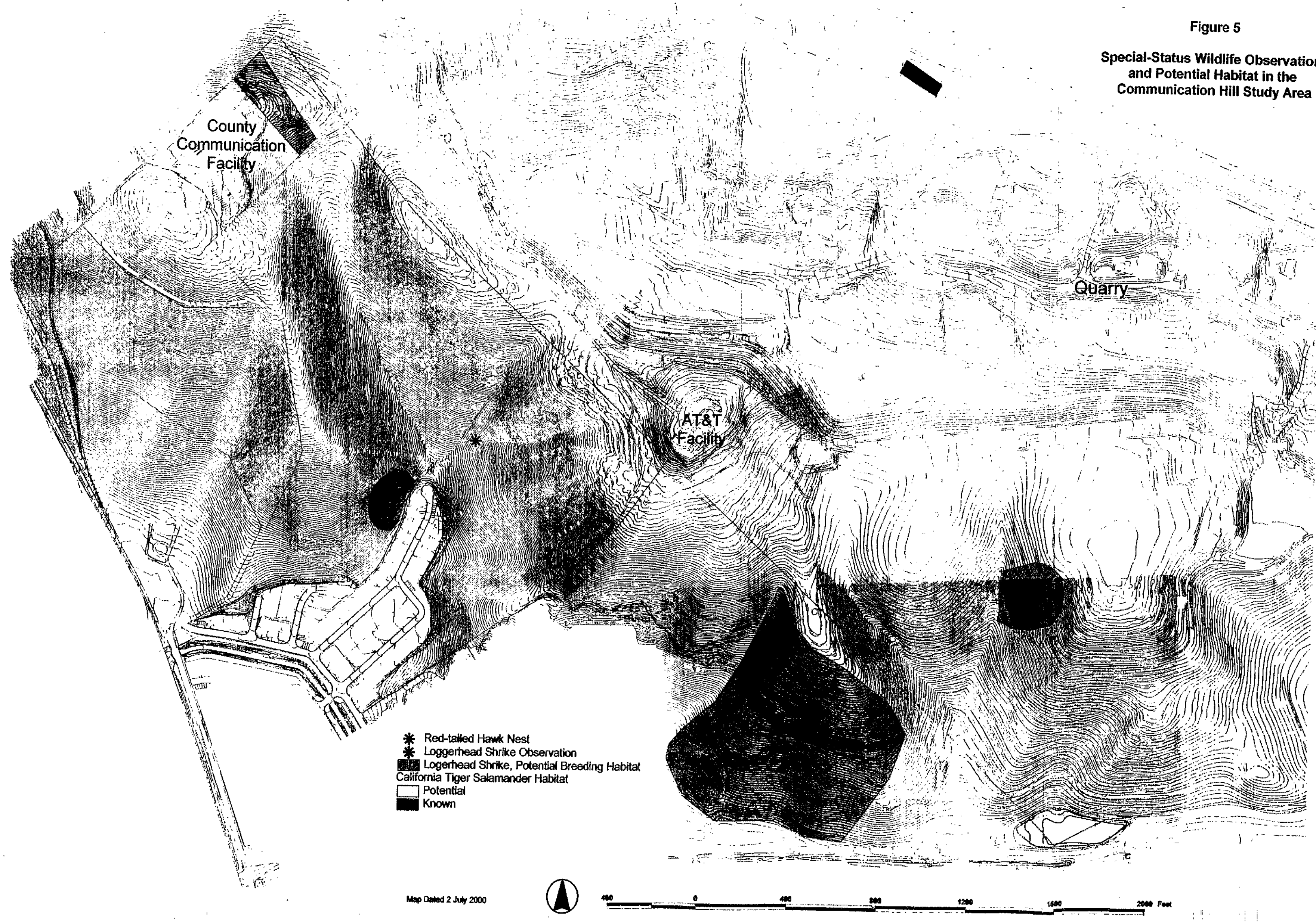


Table 3. Special-status wildlife species known or for which potential habitat occurs in and immediately adjacent to the Communication Hill study area

Common Name (*Scientific Name*)	Presence	Habitat Type
Insects		
Hom's micro-blind harvestman (*Microcina homi*)	previously known[1]	Rocky serpentine areas in grassland or oak woodland
Ricksecker's water scavenger beetle (*Hydrochara rickseckerii*)	potential but unlikely	Ponds, streams, marshes, lakes
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	potential but unlikely	Serpentine grassland
Amphibians		
California red-legged frog (*Rana aurora draytonii*)	potential but unlikely	Non-aquatic aestivation habitat
California tiger salamander (*Ambystoma californiense*)	potential	Non-aquatic aestivation habitat
Birds		
California horned lark (*Eremphila alpestris actia*)	potential	Nesting: grassland Foraging: grassland
Loggerhead shrike (*Lanius ludovicianus*)	known	Nesting: trees and shrubs Foraging: grassland and adjacent ponds. Cactus spines, barbed wire for impaling prey and storing food caches.
Burrowing owl (*Athene cunicularia*)	potential but unlikely	Nesting: rock piles (large mammal burrows in grassland are lacking). Foraging: grasslands
Northern harrier hawk (*Circus cyaneus*)	known	Nesting: grasslands and shrubs Foraging: grasslands and adjacent pond
White-tailed kite (*Elanus caeruleus*)	known	Nesting: oaks Foraging: grassland and adjacent pond
Short-eared owl (*Aiso flammeus*)	potential but unlikely	Nesting: grassland Foraging: grassland
Mammals		
Pallid bat (*Antrozous pallidus*)	potential but unlikely	Roosting: buildings, rock crevices and tree cavities. Foraging: grassland
Long-eared myotis (*Myotis evotis*)	potential but unlikely	Roosting: buildings, rock crevices and tree cavities. Foraging: grassland

Common Name (*Scientific Name*)	Presence	Habitat Type
Long-legged myotis (*Myotis volans*)	potential but unlikely	Roosting: buildings, rock crevices and tree cavities. Foraging: generalist: over trees, grassland and aquatic habitats
Yuma myotis (*Myotis yumanensis*)	potential but unlikely	Roosting: buildings, rock crevices and tree cavities. Foraging: over aquatic habitats
Western red bat (*Lasiurus blossevillii*)	potential	Roosting: Tree foliage Foraging: large moths

[1]H.T. Harvey and Associates 1992, 1994

Potential burrowing owl den locations are limited to these rock piles on the project site, as the mammal burrows present on the site are too small for the owls. Owl pellets or signs or owl use were not present on the project site. The last recorded evidence of a burrowing owl at Communication Hill adjacent to the project site was in 1993 (CNDDB record). At that time, a burrow with owl pellets and white wash was observed (not owls) along the railroad tracks approximately 1 mile south of Monterey Road and Curtner road.

Red-tailed hawks are currently nesting in the eucalyptus grove. Although red-tailed hawk is not a special-status species, its nest locations are protected under CDFG codes and the federal migratory bird treaty act.

4.2.2.3 Special-Status Bats

Special –status bats with the potential to occur on the property are listed in Table 3. See Appendix C for the natural history of special-status bats with the potential to occur at the project site. The project site was evaluated for potential bat use due to the presence of limited but available roosting features (trees, buildings and rock crevices) and close proximity of the project site to adjacent (but off-site) aquatic habitats including quarry ponds, ephemeral ponds, Canoas Creek, and the Guadalupe River. The mature oaks on the southwest portion of the property provide roosting habitat in the form of hollows and exfoliating bark for the following common and special-status species:

- Pallid bat (*Antrozous pallidus*), special-status species
- Long-eared myotis (*Myotis evotis*), special-status species
- Yuma myotis (*Myotis yumanensis*), special-status species
- Big brown bat (*Eptesicus fuscus*)
- California myotis (*Myotis californicus*)
- Silver-haired bat (*Lasionycterus noctivagans*)

The oaks also provide roosting habitat for foliage-roosting western red bat (*Lasiurus blossevillii*), a special-status species, and hoary bat (*Lasiurus cinereus*).

A focused survey for bats was conducted in June in order to detect potential maternity roosts. Surveys focused on the mature oaks located on the southwest corner of the project site that contain cavities, and therefore provide potential maturity, day and nighttime roost structures for pallid bats (*Antrozous pallidus*). Bats were not detected during the focused surveys for roosting bats and/or bat guano during the day, nor were bats detected during the visual and acoustic surveys conducted at the time of evening emergence and at night. An unidentified bat was observed foraging over the grasslands of the project site on 19 June at night during the owl surveys. We therefore conclude that maturity roosts for bats do not occur in the mature oaks but that there is some light use of the grasslands as foraging habitat for bats.

Focused surveys for bats in the buildings on the southeast section of the property were not conducted due to human occupancy of the buildings and related safety issues. However, potential habitat for Yuma myotis (*Myotis yumanensis*) and pallid bat (*Antrozous pallidus*) occurs in these buildings, especially in the tin roof shed.

The rock formations and outcroppings found on the property have crevices and small cave-like features that provide potential roosting habitat for pallid bats (*Antrozous pallidus*) and western pipistrelle (*Pipistrellus hesperus*). Pallid bats are known to use rock formations of this size and nature as maternity roost habitat in other grassland settings. The following special-status and common bats have the potential to use grasslands of the project site as foraging habitat:

- Pallid bat (*Antrozous pallidus*), special-status species
- Long-eared myotis (*Myotis evotis*), special-status species
- Yuma myotis (*Myotis yumanensis*), special-status species
- Western red bat (*Lasiurus blossevillii*), special-status species
- California myotis (*Myotis californicus*)
- Mexican free-tailed (*Tadarida brasiliensis*)
- Hoary bat (Lasiurus cinereus)
- Big brown bat (*Eptesicus fuscus*)
- Silver-haired bat (*Lasionycterus noctivagans*)

4.2.2.4 Upland Habitat Use by California Tiger Salamander and California Red-Legged Frog

Drainages occur on the southeast side of the project site. These drainages drain to a longer lasting, but still ephemeral pond adjacent to Hillsdale Avenue just outside the project area. The ephemeral pond held some water in March but were completely dry in April. More permanent surface water occurs in the adjacent quarry pond nearest Monterey Road and in Canoas Creek off Hillsdale Avenue (a tributary to the Guadalupe River). In 1993, California tiger salamander (*Ambystoma californiense*) larvae were known to occur in temporary ditches, seasonal ponds and in a quarry pond on Communication Hill adjacent to the project site (CNDDB record). Adult California tiger salamanders were observed on the northeast-facing slope of Communication Hill adjacent to the project site. The non-aquatic, dry habitats of the project site were therefore evaluated potential upland habitat for amphibians (California tiger salamander and California red-legged frog [*Rana aurora draytonii*]) during their non-aquatic life-history stages. The abundance of small mammal burrows (gopher) and small rock/earth crevices located among the rock outcrops provide potential upland habitat for California tiger salamanders throughout the project site. The microclimates in these miniature caves are cool and moist. In addition, at the base of the ephemeral drainage and immediately adjacent the ephemeral pond located off Hillsdale Aveune is an area with deeply incised mud cracks. Potential upland habitat for California tiger salamanders occurs in these cool and moist mud cracks. More than half of the California tiger salamander life history depends on upland habitats. With both the known presence of California tiger salamanders in areas adjacent to the project site and the lack of upland habitat in the dense urban environment surrounding Communication Hill, focused studies of potential upland use of the project site by California tiger salamanders are warranted.

Potential reproductive habitat for California red-legged frogs occurs in the quarry pond off Monterey Road adjacent to the study area. This pond was surveyed both visually and by dip-net for California red-legged frogs in 1992 (H.T. Harvey and Associates 1992) but none where found. Potential upland habitat for California red-legged frogs also occurs on the project site. However, the project site is unlikely to contain California red-legged frogs as there are no known California red-legged frog observations in the aquatic habitats adjacent to the study site.

Museum records show that, historically, California red-legged frogs occurred in the Guadalupe River near the study area (H.T. Harvey and Associates 1997). California red-legged frogs have been observed within the last two years in the Guadalupe River watershed upstream and at distances greater than five miles from the study area (H.T. Harvey and Associates 1997; Jones and Stokes Associates 1998). An analysis of California red-legged frog distribution and status in Santa Clara County, conducted by H.T. Harvey and Associates (1997) for the Santa Clara Valley Water District, indicates that the project site is not located within the current known distribution of California red-legged frogs.

5.0 POTENTIAL IMPACTS AND MITIGATION MEASURES

5.1 Thresholds of Significance

For the purposes of this project, impacts to vegetation and wildlife are considered significant if the project would

- substantially affect a rare or endangered species of animal or plant or the habitat of the species; or
- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations; or
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations; or
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; or
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or
- eliminate mature native oak trees or specimen quality examples of other tree species or substantially reduce the number of smaller trees within a given area, or significantly reduce nesting or roosting habitat for birds within the project area; or
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- substantially reduce the habitat of a fish or wildlife species; or
- cause a fish or wildlife population to drop below self-sustaining levels; or
- threaten to eliminate a plant or animal community; or
- reduce the number or restrict the range of a rare or endangered plant or animal; or
- damage or reduce the size of an existing environmentally sensitive habitat area; or
- result in contamination of an environmentally sensitive habitat area which has the potential to adversely affect health or reproduction of native plants or wildlife in the habitat area.

5.2 Methods

Using the baseline information and survey results described in the setting section, sensitive biological resources were identified, located, and mapped. Project descriptions and designs were compared to the occurrence pattern of sensitive resources to determine the project's direct and indirect impacts.

5.3 Impacts and Mitigations

The impacts discussion below focuses on the identified significance criteria. Potential impacts to those species or habitats not discussed are expected to be less than significant.

5.3.1 Loss of Agricultural and Ruderal/Non-Native Grassland Habitats

Impact: *The loss of agricultural and ruderal habitats as a result of the project would contribute to a reduction in the diversity of wildlife species present in the project site area, including precluding or limiting the presence of special-status species.*

The proposed project development would result in the conversion of approximately 105 acres of agricultural and ruderal habitat to high-density attached residential development. These habitats support a variety of plant and animal species, some of which are of special-status. The loss of these habitats on the site would contribute to the reduction in the overall carrying capacity of the project area for a variety of common animals like Killdeer, Western Meadowlarks, Mourning Doves, California ground squirrels, western fence lizard, Botta's pocket gopher, and others. Predators such as gopher snakes and Red-tailed Hawks would also lose foraging habitat on the site. The loss of this habitat would also reduce the presence of less common species such as horned larks and loggerhead shrikes.

The project would reduce the ability of the site to support raptors such as Red-tailed Hawks, White-tailed Kites, and Northern Harriers. Development of the project would contribute to a reduction in the overall variety of species found in the surrounding area. While the project would contribute to the loss of agricultural and ruderal habitat in the area, development of the site itself would not constitute a significant impact. Annual grasslands enhance the value of surrounding habitats by providing foraging and hunting opportunities for raptors that may nest in suitable tree habitat in the adjacent areas. The habitat value of the grassland area is not limited to raptors, and many small birds, rodents and insects use this habitat type. The project site is dominated by disturbed non-native annual grasses, which are not considered to be sensitive habitats. However, it should be noted that this habitat is declining throughout the State. The loss of approximately 105 acres of agricultural and ruderal habitats as a result of the project would contribute to a reduction in the diversity of wildlife species present in the project site area, including precluding or limiting the presence of special-status species. Biological impacts from conversion of annual grassland to residential units and landscaping would be considered a significant impact.

Implementation of the following mitigation measures would reduce impacts to grassland habitats to a less than significant level.

Mitigation Measure 5.3.1.1: Non-native grassland habitat shall be replaced by seeding with a mix of California native grasses and forbs, and/or planting of plugs of native grasses. Seeding/plugging shall be performed by October 30th or before the first significant winter rainfall in the year of grassland removal.

Mitigation Measure 5.3.1.2: All non-disturbed grassland shall be preserved and placed into a conservation easement preventing future development or use of those areas.

Mitigation Measure 5.3.1.3: Mowing for fire control shall be performed around the perimeter of any grassland areas, leaving as much of the internal area intact as allowable to local fire authorities, and leaving the mowed area no higher than 18 inches.

5.3.2 Loss of Nesting Habitat for Birds, Including Sensitive Species Such as Raptors and Migrating Songbirds

Impact: *Raptors such as red-tail hawk, white-tail kite and northern harrier have been observed within the project area and could nest within the on-site trees or shrubs. The project would result in significant impacts to suitable bird nesting habitat.*

Trees scheduled for removal on the project site provide suitable nesting habitat for raptors and sensitive bird species. Raptors such as red-tail hawk, white-tail kite and northern harrier have been observed within the project area and could nest within the on-site trees.

A pair of northern harriers was observed foraging over the project site during the reproductive season and may nest on the site. Development of the project would result in the removal of existing grasses, shrubs, and short trees on the site which provide potential nesting habitat for northern harriers.

White-tailed kites were observed foraging on the site. While suitable nesting habitat is limited to the few oak trees on the site, nesting kites could be present at the time of project construction. Development of the project would result in the removal of existing trees on the site, which provide potential nesting habitat for white-tailed kites.

Loggerhead shrikes were observed in two areas on the project site. Loggerhead shrikes have been observed on the Communications Hill site over several survey seasons and it is presumed they nest on the site due to the regularity of observations and consistency in reporting by various independent sources. Nesting habitat for loggerhead shrikes occurs on the project site in the areas with trees and shrubs. Development of the project would result in the removal of existing grasses, shrubs, and short trees on the site which provide potential nesting habitat for loggerhead shrikes.

Red tailed hawks and American kestrel could also find the site suitable for nesting. If any raptor species is found nesting on the project site, impacts to these birds could be a significant impact. Tree removals during the nesting season could destroy nests of sensitive bird species. Nesting raptors are protected under the provisions of the Migratory Bird Treaty Act and the CDFG Code Section 3503, 3503.5 and 3800. This is considered a significant impact.

Implementation of the following mitigation measures would reduce impacts to nesting birds to a less than significant level.

Mitigation Measure 5.3.2.1: To avoid the nesting season of raptors and sensitive songbirds, tree removals shall not take place between February 15 and June 30, or as determined by CDFG on a case-by-case basis..

Mitigation Measure 5.3.2.2: If tree removal in the same calendar year before February 15 (i.e., between January 1 and February 15) is required, a pre-construction season survey shall be conducted no more than 30 days prior to the removal of any tree or shrub area to identify the presence, or lack thereof, of nests of raptors. Pre-construction surveys are necessary during this period to protect possible early nesting raptors. Surveys are not warranted until immediately prior to construction because nesting may occur in different trees from year to year. If no nests are identified in trees to be removed during the pre-construction survey, no further mitigation is necessary. If nests are identified, CDFG shall be contacted and appropriate protocols for nest relocation shall be implemented.

5.3.3 Loss of *Santa Clara Valley Dudleya Populations*

Impact: *The project would result in the removal of virtually all Santa Clara Valley dudleya plants within the grading area of the project site.*

As described previously, Santa Clara Valley dudleya occurs on the site, on numerous serpentine outcrops on the upper half of the south-facing slope of the main ridge and on the adjacent slopes of side canyons. On the site, the species is restricted to the surfaces of the rock outcrops themselves, and sometimes to very thin, rocky soil immediately adjacent to the outcrops, where there is very little competing vegetation. The project would result in the removal of virtually all Santa Clara Valley dudleya plants within the grading area of the project site. Because this species is federally listed as endangered, the loss of these plants on the site is considered a significant impact.

Implementation of the following mitigation measures would reduce impacts to Santa Clara Valley dudleya to a less than significant level.

Mitigation Measure 5.3.3.1: The project would develop a Santa Clara Valley dudleya mitigation plan for the project site, including coordination with the CDFG and the USFWS prior to approval and implementation.

Mitigation Measure 5.3.3.2: The Santa Clara Valley dudleya mitigation plan may include on-site preservation, translocation and creation of new habitat that allows colonization to achieve no net loss of this special-status plant species on the project site.

Mitigation Measure 5.3.3.3: Alternative mitigation measures may include preservation of existing habitat at off-site locations.

5.3.4 Loss of Wetland and Drainage Channel Habitat

Impact: *The loss of approximately 0.13 acres of wetland and drainage channel habitats as a result of the project would contribute to a reduction in the diversity of wildlife species present in the project site area, including precluding or limiting the presence of special-status species associated with these habitat types. The project would result in impacts to wetlands/waters regulated by the U.S. Army Corps of Engineers.*

Two small areas of wetland habitat occur on the site. The first is located at the bottom of a southeast-draining side canyon in the southern portion of the site. This 100 square foot (0.002 acre) seep is densely vegetated, primarily by the non-native species Italian rye grass and annual beard-grass (*Polypogon monspeliensis*) and the native species common large monkeyflower (*Mimulus guttatus*) and Spanish-clover (*Lotus purshianus*). The second wetland area is located in the southeastern corner of the site adjacent to Hillsdale Avenue. Vegetation observed in the seasonal wetland located on the southeastern corner of the site consisted of rabbit's foot grass (*Polypogon monspeliensis*), curly dock (*Rumex crispus*), Italian rye grass, heliotrope (*Heliotropium curvassicum*), and prickly lettuce (*Lactuca seriola*). This wetland includes an area of approximately 1.42 acres. Of this amount, approximately 0.35 acres occurs on the project site (within the Berns/Ross Property, west of the fence line).

In addition to the two wetland areas, a non vegetated intermittent drainage channel was identified in the southwestern canyon extending from the mobile home park. This defined drainage channel is approximately 75 feet in length and 2-3 wide (0.005 acre). The drainage channel empties into a culvert at the property line.

Activities associated with grading of the site would result in direct impacts to 0.002 acres of seep habitat and 0.005 acres of drainage channel habitat. The widening of Hillsdale Avenue associated with the project would result in direct impacts to approximately 0.125 acres of the wetlands within the Berns/Ross property. Direct impacts would involve the placement of fill into the described areas to facilitate development. Indirect impacts may also occur to the 0.35-acre seasonal pond if construction is conducted during the winter rains. Indirect impacts could include disturbance to wildlife species utilizing the ponded area during construction. Additional indirect impacts could include the degradation of water quality within the wetland associated with runoff from unstabilized soils exposed during grading or earth moving activities.

Both wetland and drainage habitats present on the project site do not contain significantly special habitat values for wildlife species. These habitats experience some sporadic or opportunistic use by wildlife species during the rainy season when hydrological conditions allow flooding or temporary pond to be present. It should be recognized that these areas provide suitable cover, nesting habitat and viable foraging areas only for several months. The primary value of these habitats is the presence of standing water, and the associated perennial vegetation, which provides a food source for birds and small mammals after the surrounding annual grasses, have withered and died.

Wetlands and drainage channel areas are considered sensitive habitats by State and Federal agencies, and impacts to these areas will trigger regulatory requirements. The 0.357 acres present on the project site have been disturbed by past grazing and agricultural practices such as disking, and do not provide good quality habitat. However, despite their low quality and limited functions and values, these areas constitute jurisdictional wetlands/waters under the U.S. Army Corps of Engineers regulations, and will require mitigation for impacts resulting from fill activities associated with this project. Direct impacts to these areas are therefore considered significant.

Activities associated with grading of the site would result in direct impacts to 0.002 acres of seep habitat, 0.005 acres of drainage channel habitat, and approximately 0.125 acres of wetlands along Hillsdale Avenue. Wetland mitigation measures are typically project specific, and several approaches are usually available for consideration during project development. Significant impacts to wetland areas can be mitigated by use of the following measures individually or in combination, on or off the project site. Indirect impacts may also occur to the 0.35-acre seasonal pond if construction is conducted during the winter rains. Additional indirect impacts could include the degradation of water quality within the wetland associated with runoff from unstabilized soils exposed during grading or earth moving activities.

Implementation of the following mitigation measures would reduce impacts to wetland and drainage channel habitats to a less than significant level. Potential wetland mitigation measures include the following:

Mitigation Measure 5.3.4.1: The described alternative measures for wetland mitigation are recommended for the proposed project impacts. The actual alternative measure selected would be coordinated and ultimately determined by the Corps through the Section 404 permitting process and the Regional Board through the Section 401 permitting process. To mitigate the loss of wetland habitat on the site, permit applications will be prepared and submitted to the Corps and Regional Water Quality Control Board. A wetland mitigation plan shall, at a minimum, specify the type of mitigation selected (e.g., creation of new wetlands, dedication of existing wetlands, or payment of in lieu fees), and the method of determining the amount of mitigation (e.g., fees, amount of replacement habitat). If wetlands are to be replaced, the mitigation plan shall specify the location, existing conditions, method of improvement, maintenance, and success criteria.

- Avoidance of wetland areas
- Enhancement or restoration of existing wetlands
- Creation of new wetlands
- Contribution of in-lieu fees for the restoration or preservation of existing wetlands
- Purchase of existing wetlands through a wetland mitigation bank

Mitigation Measure 5.3.4.2: Purchase of existing wetlands throu[illegible] a wetland mitigation bank. These alternative measures for wetland mitigation are recommended for the proposed project impacts. The actual alternative measure selected would be coordinated and ultimately determined by the Corps through the Section 404 permitting process and the Regional Board through the Section 401 permitting process. To mitigate the loss of wetland habitat on the site, permit applications will be prepared and submitted to the Corps and Regional Water Quality Control Board. A wetland mitigation plan shall, at a minimum, specify the type of mitigation selected (e.g., creation of new wetlands, dedication of existing wetlands, or payment of in lieu fees), and the method of determining the amount of mitigation (e.g., fees, amount of replacement habitat). If wetlands are to be replaced, the mitigation plan shall specify the location, existing conditions, method of improvement, maintenance, and success criteria.

Mitigation Measure 5.3.4.3: Proper erosion control measures shall be implement to ensure that existing wetlands and water quality are not impacted. An erosion control plan shall be prepared prior to construction.

Mitigation Measure 5.3.4.4: Vegetated buffers shall be constructed between development and existing wetlands and drainages. Buffers should be of sufficient width and should be designed to eliminate potential deposition of sediment in the wetland. When feasible, buffers should be designed in a manner, which complements the habitat values associated with the wetland areas.

5.3.5 Loss of Ordinance Trees

Impact: *Development of the project would result in the removal of approximately 15 ordinance size trees from the site.*

Ordinance size trees are defined by the City of San Jose as all non-orchard trees having a trunk measuring 56 inches or more in circumference (18 inches in diameter) at the height of 24 inches above the natural grade of slope. It is anticipated that most or all of the ordinance size trees on the site would be removed from the site to accommodate construction of the project. Approximately 12 ordinance size trees would be removed from the Vieira property portion of the project site, including eight blue gums and 12 valley oaks. Approximately three (3) ordinance size trees would be removed from the Berns/Ross property portion of the project site, including one Monterey pine and two California pepper trees.

Trees that would be removed for the project site include non-native species such as blue gum and pepper tree and native species such as valley oak. The eucalyptus trees are located mostly in a cluster on the south slope of the middle of the project area. Valley oak trees are scattered throughout the Vieira property. Various non-native ornamental and fruit trees are also located on the Berns-Ross portion of the project site, surrounding existing structures.

The eucalyptus and valley oak trees represent habitat for nesting raptor species. The eucalyptus trees are very large and have value as nesting habitat, although somewhat less value than a native species in a natural area. The valley oak trees provide high biological value due to the association with annual grassland and scrub habitats. The habitat on this portion of Communication Hill is mostly undisturbed by humans and has been utilized as grazing land. The trees in this habitat provide foraging, perching, nesting, and protection to the wildlife species, especially birds, in the project area. Under the thresholds of significance listed above, removal of these trees would constitute a significant impact.

Implementation of the following mitigation measures would reduce impacts to ordinance size trees to a less than significant level

Mitigation Measure 5.3.5.1: Loss of ordinance size trees would be mitigated by implementation of the proposed landscaping plan, including conformance with the City of San Jose landscaping guidelines. The loss of ordinance size trees on the site would be mitigated by moving or replanting 24-inch box specimen trees within the new landscaped areas throughout the site at a minimum ratio of 1:1 (replaced:impaced) for ordinance size trees removed.

Mitigation Measure 5.3.5.2: Native trees removed for the projects shall be replaced at a ratio of 3:1 with the same species from locally collected stock. Replacement trees shall be planted with container stock at standard planting densities for that species (about 15-foot on center for oaks and large native trees, about 8-foot centers for small trees such as willows or buckeyes). Monitoring of all planted trees shall be required for a period of five years. Monitoring shall be conducted in years 1-3 and in year 5. Monitoring reports will be prepared and submitted to the City. The survival rate for these trees after five years shall be 80 percent. If at the end of three years, the survival rate is less than 80 percent, replanting shall be conducted to attain that rate and CDFG shall be consulted to determine other corrective actions. If irrigation systems are used, all replacement native tree species grown in natural areas that are intended to be self-sustaining shall be "weaned" of any supplemental water by the fourth year.

Mitigation Measure 5.3.4.3: All trees adjacent to proposed project construction areas which are not removed will be avoided and protected according to the following procedures:

- Before other phases of the construction project begin, a continuous protective fence must be installed surrounding the bases of trees to be saved. For the ideal configuration, locate the fence to maximize the exclusion of traffic over the root zones, preferably at the drip lines. Realistically, where the building envelopes extend under a tree's canopy, define as much of that root zone as possible; modification of the fence line to the building eaveline is allowable.

- To preserve the important absorbing roots of trees to remain after construction, no cuts or fills should be allowed beneath their canopies. The method for site preparation of scraping the surface soil with a blade should not be allowed within the drip lines.

- Roots which must be severed and measure over one and one-half inches (1.5") in diameter should be cut cleanly, smoothly without crushing, shattering, or tearing. If roughly cut by heavy equipment, re-cut to sound wood. Cuts should be made only to lateral roots where possible.

- Equipment operators should be informed that machinery can cause great injury to standing trees. They must take unique care to operate with as much distance as possible between machines and trees (branches, trunks, and roots). Any accidental damage should be promptly repaired by a qualified arborist.

- Avoid grade changes such as can occur when soil or other construction materials are stored or stock-piled beneath any tree's canopy and thus over its root zone.

- Avoid extra stress for tree roots to remain by limiting machine and vehicle traffic and parking over roots. Where frequent traffic must pass beneath a canopy, consider placement of a buffer to absorb and dissipate the load and reduce soil compaction in the root zones; wood chips or crushed rock could be used for this purpose.

- No storage, pouring, or leaking of any fuel, oil or chemical is to be allowed beneath a tree's canopy.

- No signs, wires or other construction apparatus should be attached to any tree.

- Any necessary trimming should be done to published standards under the supervision of a qualified arborist, either a Certified Arborist (Western Chapter, International Society of Arboriculture), a member of the California Arborists' Association, or a member of the American Society of Consulting Arborists.

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APPENDIX A

Report of Surveys Conducted for Special-Status Invertebrates at Communications Hill in San Jose, CA in 2000

REPORT OF SURVEYS CONDUCTED FOR SPECIAL-STATUS INVERTEBRATES AT COMMUNICATION HILL IN SAN JOSE, CALIFORNIA

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INTRODUCTION

Kauffman and Broad is proposing to build homes on three parcels at Communications Hill in San Jose, CA. The three parcels are the Viera. Kwei, and Berns/Rock properties. Collectively these parcels encompass approximately 92 acres.

Portions of these three properties support serpentine grasslands, a habitat that is known to support special-status animals and plants in the greater San Jose area. This report describes the results of surveys that were conducted during the spring of 2000 to determine the presence/absence of three special-status invertebrates with some potential to occur at Communications Hill:

a) Bay Checkerspot butterfly (*Euphydryas editha bayensis*);
b) Hom's Microblind harvestman (*Microcina homi*); and
c) Ricksecker's Water Scavenger beetle (*Hydrochara rickseckeri*).

Pursuant to provisions of the Endangered Species Act of 1973, as amended, the Bay Checkerspot butterfly (BCB) is recognized by the U.S. Fish & Wildlife Service as a threatened species. Both Hom's Microblind harvestman and Ricksecker's Water Scavenger beetle are considered federal species of concern. Another species of concern that is associated with serpentine grassland habitat, Opler's Longhorn moth, *Adela oplerella*, was not observed at the project site during earlier surveys by H.T. Harvey & Associates (1992).

Surveys for the BCB and Hom's Microblind harvestman were conducted in 1992 and 1993 by H.T. Harvey & Associates (1992 and 1994). Despite an intensive survey effort, only a single transient adult BCB was observed at the site at that time. Similarly, the harvestman was located in the lower portion of a valley between the Santa Clara County and AT&T communication facilities. Surveys for Ricksecker's Water Scavenger beetle were not conducted.

Because the earlier surveys had occurred seven and eight years ago, the U.S. Fish & Wildlife Service requested that new surveys be conducted in 2000 to update information on the status of these taxa. For this reason, presence/absence surveys were performed during the spring of 2000 and this report provides updated information on the status of these taxa at Communications Hill.

The remainder of this report provides pertinent background information on the three invertebrate taxa, describes the site, and describes my survey methods and findings.

PROJECT SITE DESCRIPTION

Communications Hill is located in San Jose, CA. As is illustrated in Figure 1, it is roughly bounded by Monterey Road on the east, Hillside Avenue on the south, Guadalupe Freeway (Hwy. 87) on the west, and Curtner Avenue on the north. Figure 2 illustrates the approximate boundaries of the study area on the San Jose East USGS 7.5' topographic map.

The project's study area included three parcels. The Viera parcel measures approximately 55 acres, the Kwei parcel measures about 19 acres, and the Berns/Rock parcel measures about 18 acres. Grading for the project will also include adjacent portions of the Azevedo Quarry parcel, so the western portions of the quarry property are also part of the project site.

Topography at the site is characterized by moderately steep, rounded hills. Elevations range from approximately 150 to 420 feet. Adjacent land uses are residential, industrial, and commercial development, a cemetery, and a quarry.

Terrestrial plant communities include serpentine grassland and annual grassland. A few scattered trees grow in lower portions of the site. The hilltops are generally characterized by the serpentine grassland, while the lower slopes and valleys are generally characterized by annual grassland. Figures 3 and 4 are photographs that illustrate the grassland habitats at the site along the primary ridge of Communications Hill. A small seasonally-ponded wetland and intermittent drainages in the valleys are the primary aquatic habitat on the site.

BACKGROUND INFORMATION

Bay Checkerspot Butterfly

<u>**Species Description and Status.**</u>

The BCB is a member of the brush-footed butterfly family Nymphalidae and the insect order Lepidoptera. It has a wingspan of about two inches. As its common name implies, the color pattern of the wings somewhat resembles a checkerboard in appearance. The fore and hind wings have black bands along the veins on the upper side, which enclose bright red, yellow, and white spots, hence the checkerboard resemblance.

This butterfly was recognized as a threatened species in 1987 (U.S. Fish & Wildlife Service 1987). Although five areas totaling about 8,300 acres were tentatively proposed as critical habitat for the checkerspot (U.S. Fish & Wildlife Service 1984), when it was recognized as threatened the U.S. Fish & Wildlife Service (1987) decided that critical habitat was not determinable. A recovery plan for the butterfly and other serpentine endemic species was recently published by the U.S. Fish & Wildlife Service (1998).

<u>**Distribution/Habitat/Ecology.**</u>

Historically, the butterfly was known from 16 locations in the greater San Francisco - San Jose Bay Area. Populations were known from San Francisco (Twin Peaks and Mount Davidson), San Mateo County (San Bruno Mountain south to Edgewood Park), Santa Clara County (numerous locations), Alameda County (Oakland hills), and Contra Costa County (Franklin Canyon and Morgan Territory). The BCB is usually associated with serpentine grassland vegetation, particularly areas that are characterized by native bunch grasses, but historically was also known from a few non-serpentine locations. The primary oviposition and larval food plant is Dwarf Plantain (*Plantago erecta*). In some years the larvae require a secondary food plant, one of two species of Owl's Clover (*Orthocarpus densiflora* or *O. purpurascens*).

Primary reasons for the decline of the butterfly are habitat loss, caused by urban and suburban development, and habitat degradation, caused by non-native plants displacing or reducing native food plants of the butterfly. In addition, drought and other extremes in weather conditions have been implicated as possible causes in the extirpation of some populations, particularly in areas where livestock may have overgrazed the habitat (Ehrlich *et al.* 1980; Weiss 1996). Habitat loss has not only reduced the number checkerspot populations, but also increased the distances between remaining populations, which limits the opportunities for dispersal and gene flow to occur.

The sequence of life history events for the Bay Checkerspot can be described as follows. The butterfly is univoltine, i.e., it has one generation per year. There are four stages in the butterfly's life cycle: egg, larva (i.e., caterpillar), pupa, and adult.

Its adult flight season is typically about four to six weeks in length, starting in late February to mid-March and terminating in late April to early May. Actual starting and ending times can vary by several weeks from year-to-year. Individual adults live approximately one to two weeks, during which time they must mate and reproduce. Adults obtain energy and nutrients from the nectar of various native wild flowers that grow in serpentine grasslands. *Lomatium utriculatum*, *L. dasycarpum*, *Lasthenia californica*, *Layia platyglossa*, *Linanthus adrosaceus*, *Muilla maritima*, *Amsinckia intermedia*, and *Allium serratum* are known nectar plants. Mate location occurs primarily on hilltops, where both sexes congregate after eclosion (i.e., adult emergence from the pupal life stage). Upon mating, females disperse throughout the hilltops and away from the hilltops to lay their eggs. The eggs are laid is masses containing as many as 200 eggs, near the base of *Plantago erecta* plants.

Larvae hatch in about 10-14 days and feed for approximately another 3-4 weeks until their food plants senesce or are defoliated. Young larvae, which have limited mobility at this stage, frequently fail to find sufficient edible food plants and starve. Typically, 90% or more of these young larvae starve to death. As its annual food plant senesces, the partially grown larvae enter a physiological dormant period, known as diapause, which is spent under rocks or in cracks and crevices in the soil to survive the dry season when there is no food for the larvae. The summer diapause ends with the onset of the next rainy season and the germination of *Plantago erecta*. Larvae resume feeding and complete their development by pupating. The pupal stage generally lasts about 2-4 weeks before emergence of the adult butterfly.

Sun exposure, topographic aspect, and microclimatic conditions at ground level affect the developmental rates of the immature stages of the butterfly and the seasonal activity period of the adults. Topographic diversity in conjunction with the abundance of food plants are important determinants of habitat quality for the BCB. Locations with considerable habitat on eastern and northern-facing slopes are more likely to allow BCB populations to persist through periods of drought or other short-term, adverse climatic conditions (Dobkin *et al.* 1987; Weiss 1996).

Studies of the BCB by Dr. Paul Ehrlich and his colleagues at Stanford University for the past 40 years have determined that the butterfly has a metapopulation type of distribution and population structure. A metapopulation is a network of semi-isolated populations with some level of regular or intermittent migration and gene flow among them, in which individual populations may go extinct but then are recolonized by dispersing individuals from other populations. Studies of the BCB contributed to the formulation of the metapopulation concept that is now widely discussed in conservation biology (Ehrlich *et al.* 1975, 1980; Harrison 1994; Murphy *et al.* 1990).

The U.S. Fish and Wildlife Service (1998) states that there are two metapopulations of the Bay Checkerspot, one each in Santa Clara and San Mateo counties. Core areas of the metapopulation refers to primary habitat, while satellite areas refer to secondary habitat, which are generally smaller and contain less high quality habitat than core areas, and may occur at some distances from core areas (U.S. Fish & Wildlife Service 1998). Many satellite areas of habitat do not routinely support populations of the BCB. Communications Hill is probably best categorized as an area of satellite habitat to the Silver Creek Hills and Cero Plata core areas

<u>Field Observations/Historical Occurrence in Project Vicinity</u>.

As summarized by H.T. Harvey (1994), serpentine areas at Communications Hill were visited on at least 46 dates by various parties interested in the Bay Checkerspot butterfly between the mid-1980's and 1993. Throughout that period of time only a single adult checkerspot was observed at Communications Hill. In addition, larval surveys conducted during 1992 and 1993 by H.T. Harvey (1992 and 1994) did not find any immature stages of the butterfly.

Other nearby populations of the threatened butterfly are known from the neighboring Silver Creek Hills BCB Reserve, an area between Metcalf Road and south of the Silver Creek Hills BCB Reserve, south of Metcalf Road (United Technologies Corp.), and Kirby Canyon. Collectively these populations comprise the Coyote Ridge core area (U.S. Fish & Wildlife Service 1998), which is considered to have the greatest chance for long-term persistence and conservation value for the BCB (Murphy 1988, Murphy and Weiss 1988). Additional nearby satellite or secondary populations of the BCB occur at Tulare Hill (Murphy 1990) and Santa Teresa County Park (Arnold 1992).

Hom's Microblind Harvestman

The animal class Arachnida consists of several orders, including ticks and mites (Acarina), scorpions (Scorpiones), spiders (Araneida), harvestmen and phalangids (Opiliones), false scorpions (Pseudoscorpions), and sun spiders (Solifugae). Harvestmen, phalangids, and harvest spiders are common names for a family, the Phalangodidae, of free-living, spider-like arachnids. The harvestman species of concern belongs to the suborder Laniatores, which contains about 1,500 to 2,000 species distributed throughout the world, but principally from southern latitudes (Cloudsley-Thompson 1958).

Harvestmen in the genera *Microcina* are generally found under serpentine rocks, particularly in association with serpentine grassland or oak woodland vegetation. Collection dates are generally during the winter rainy season, and range from December through April, depending on the soil moisture conditions in any particular year. During the rainy season, the harvestmen can be found under the serpentine rocks, while during the drier seasons of the year, the harvestmen are believed to live in the cracks and crevices of the soil below serpentine rocks. Unfortunately, little is known about their life history and natural history.

Microcina homi, which is commonly known as Horn's Microblind Harvestman, was described as a new species in 1989 by Briggs and Ubick (1989). It is known only from grassland habitats, where it has been found under rocks of either serpentine or franciscan origin. This species is known only from a few locations in the Coyote Valley and Silver Creek Hills areas of Santa Clara County. It is also known from one location on Communications Hill (H.T. Harvey & Associates 1992, 1994). This harvestman was formerly recognized by the U.S. Fish & Wildlife Service (1991) as a category 2 candidate for endangered or threatened status, but is currently considered a species of concern.

Ricksecker's Water Scavenger Beetle

Ricksecker's Water Scavenger beetle (RWSB) was described by Horn in 1895 as *Hydrocharis rickseckeri* (Coleoptera: Hydrophilidae) from a single male collected by Mr. H. Ricksecker from Harris Pond, near Santa Rosa, on 30 March 1893 (Horn 1895). Other than a change in the spelling of the generic name to *Hydrochara*, there have been no other taxonomic or nomenclatural changes affecting this species. Smetana (1980) revised the genus *Hydrochara*.

Specific details of the RWSB's natural history are unknown. However, some inferences can be made based on knowledge of the natural history of related species as described by Malta (1974), Smetana (1980), and Wooldridge (1967). Other members of this genus are aquatic scavengers as adults, while larvae feed as predators on soft-bodied aquatic invertebrates. Larvae must hold their prey above the water surface to feed; thus they are usually found in relatively calm, shallow water of ponds, streams, marshes, or lakes.

RWSB is known only from the immediate San Francisco Bay area. In addition to the type specimen, only another 14 specimens have been collected at various times during the past century. All are housed at the California Academy of Sciences in San Francisco. The most recent specimen was collected in 1969, but most of the specimens at the Academy were collected during the 1940's and 1950's. These specimens were collected in Alameda (Oakland and Livermore), Marin (Bolinas), San Mateo (San Mateo and Woodside), Solano, and Sonoma (near Penngrove) counties. Collection dates include the months of January through July.

SURVEY METHODS

Bay Checkerspot Butterfly.

Prior to the start of my survey, I contacted the Sacramento office of the U.S. Fish & Wildlife Service to insure that the survey methods used and information collected would satisfy any concerns of this agency about presence/absence of the BCB at Communications Hill. I was advised by David Wright, a staff biologist, to follow the survey protocol (U.S. Fish & Wildlife Service 2000) for the related Quino Checkerspot, *Euphydryas editha quino*. A copy of the survey protocol is attached to this report as Appendix A.

The survey protocol states that a site assessment should be performed prior to or during the first week of the butterfly's adult flight season to identify those portions of the site that should be surveyed for the butterfly. The site assessment was performed on March 19th.

Authorization to begin my surveys to determine the presence/absence of the BCB (as well as the beetle and harvestman) was received on March 16th and surveys were performed at least weekly between March 19th and April 29th, 2000. Additional survey dates were March 25th, April 1st, 2nd, 7th, 12th, 16th, and 22nd. All surveys were performed on days when air temperatures were greater than 60° F on sunny days and when winds were less than 15 mph. Searches for the BCB were conducted between 9:00 am and 5:30 pm by hiking throughout all portions of the project's study area on each survey date in accordance with the survey protocol (U.S. Fish & Wildlife Service 2000).

A global positioning system (GPS), manufactured by Trimble and with real-time, sub-meter precision, was used to map the locations of the BCB's larval and adult food plants. This was accomplished by walking transects spaced at approximately 5-10 foot intervals throughout the entire project site. Although the project site includes three parcels that collectively cover about 92 acres, the grading plan for the proposed residential development also includes the western portions of the adjacent Azevedo Quarry. Thus, those portions of the quarry, which lie immediately east of the project site, were also surveyed to map the locations of food plants and determine the presence/absence of BCBs.

Hom's Microblind Harvestman.

Based on my surveys for this and other species of harvestmen at numerous sites between Mendocino and Kern Counties, I've found that rocks that are partially buried in deeper, clayey soils tend to be favored by the harvestmen, rather than the shallow, particulate soils of many serpentine areas. I typically find harvestmen associated with serpentine rocks in drainage channels or other depressions, and at the toes of slopes, areas where soils have accumulated and are generally deeper than the typically shallow serpentine soils.

The project site was visited on March 19th to survey for the harvestman. I systematically surveyed rocks in the valleys and in selected areas on the hilltops. The rocks ranged in size from cobbles to large boulders. My survey concentrated on examining serpentine rocks, although several rocks of another, unknown origin were also inspected. Rocks were overturned and inspected for the harvestmen, which range in size from 0.5 to 1.0 mm. and are brownish-orange in color. Despite their small size, their coloration and overall appearance are characteristics that readily distinguish the harvestmen from other arachnids that live under serpentine rocks. I also checked a nearby harvestman location in Metcalf Canyon, which is known to support the harvestmen taxa, to confirm if it was still active at the time of my survey on Communications Hill.

Ricksecker's Water Scavenger Beetle.

A standard, D-ring aquatic net and mosquito dipper were used to sample the aquatic habitats for Ricksecker's Water Scavenger beetle. The only aquatic habitat sampled was a seasonally-ponded wetland in the southern portion of the site near Hillsdale Avenue. Intermittent drainages, depressions that temporarily pond water, seeps, and ditches noted by H.T. Harvey & Associates (1992) were dry by the time of my first site visit and could not be surveyed for this reason.

RESULTS AND DISCUSSION

Bay Checkerspot Butterfly.

The 92-acre project site supports a mixture of serpentine grassland and annual grassland plant communities, which include the larval and adult food plants for the BCB. Figure 5 illustrates the locations where larval and adult food plants were observed. All food plants are widely, but patchily distributed on the hilltops and slopes, and locally abundant. No food plants were observed in the valley bottoms or other areas that are dominated by ruderal annual grassland.

Because of the distribution and abundance of the butterfly's larval and adult food plants, the initial conclusion of my habitat assessment was that the site provided potentially suitable habitat for the butterfly. However, presence/absence surveys failed to observe any adults of the BCB despite nine site visits within the approximate 5-week flight season of the butterfly during the spring of 2000. Weather conditions during each survey visit were favorable for BCB activity, with sunny to partly cloudy skies, air temperatures that ranged from 62° to 88° F, and winds that did not exceed 13 mph. Other butterflies were observed actively flying on Communications Hill during one or more of my all site visits, including *Papilio zelicaon*, *Pieris rapae*, *Pyrgus communis*, *Junonia coenia*, *Vanessa* sp., *Coenonympha californica*, and *Phyciodes campestris*. For these reasons, I conclude that Communications Hill does not support a population of the threatened butterfly at this time.

A check with biologists monitoring the BCB during its 2000 flight season revealed that the earliest adults were observed on March 10^{th} at other locations, with adults being active at most locations sometime during the week of March 13^{th}. No butterflies were seen after the week of April 17th. Thus, my site visits at

Communications Hill, between March 19th and April 29th, coincided with nearly the entire 2000 flight season of the butterfly in the greater San Jose area.

Launer and Murphy (1991) speculated that the BCB was once distributed throughout virtually all serpentine soil-based grasslands in the greater San Francisco-San Jose area, "including, in all probability, Communications Hill". Similar statements occur elsewhere in the literature (e.g., Murphy and Weiss 1988). Yet H.T. Harvey & Associates (1994) could not uncover any voucher specimens or other evidence that a population of the butterfly resided at Communications Hill since 1940. One adult BCB, determined to be a transient individual, was observed by an H.T. Harvey biologist in 1992.

A comparative analysis of food plant phenology between Communications Hill and other known BCB locations determined that its primary larval food plant, *Plantago erecta*, matured and senesced earlier at Communications Hill (H.T. Harvey & Associates 1994). Even though the butterfly's primary larval food plant is present in abundance at Communications Hill, most of the food plant population becomes inedible at a time when developing larvae need food to survive at the site. Similarly, Communications Hill was found to support favored nectar plants of adult BCBs that are visited in the early and middle portions of the flight season, namely a couple of species of *Lomatium* and *Lasthenia*, but lacked nectar plants that are visited later in the BCB's flight season. A combination of factors at Communications Hill, such as slope, aspect, low elevation, and minimal topographic diversity compared to other BCB locations, are probably responsible for the earlier maturation and senescence of the BCB's larval and adult food plants there (H.T. Harvey & Associates 1994). Although I did not attempt to duplicate this analysis, based on my familiarity with other known BCB locations, and now Communications Hill, I concur with this conclusion. Even though Communications Hill supports habitat for the BCB, the quality of its habitat is poor for the aforementioned reasons.

The BCB is well known for its ability to disperse from core populations and colonize satellite areas of serpentine grassland. It is my understanding that BCB populations in the nearby Cero Plata core area (immediately east of Highway 101) recently crashed and that no individuals have been observed there since the early to mid-1990s (H.T. Harvey & Associates 1998). Similarly, I am not aware of any recent sightings of the BCB at Tulare Hill or Santa Theresa County Park in recent years, even though BCB was observed at these locations as recently as 1990 for Tulare Hill (Murphy 1990) and 1992 for the park (Arnold 1992). Thus, BCB populations at the nearest known historical locations to Communications Hill do not exist at this time, and adult butterflies would have to disperse from more distant populations, a factor that substantially reduces the probability that dispersing BCB adults could find and successfully colonize Communications Hill.

To conclude, presence/absence surveys conducted in the BCB's spring 2000 flight season determined that it does not currently inhabit the project site at Communications Hill. Furthermore, based on existing site conditions and the continued absence of BCB at its nearest known populations, the chances for successful colonization of Communications Hill in the near future are quite minimal.

Hom's Microblind Harvestman.

Despite considerable search effort at rock outcrops throughout the entire project site, no harvestmen were observed during my survey on March 19th, 2000. The valley bottom where H.T. Harvey & Associates (1994) had previously observed the harvestman was graded at some unknown time between the end of that survey and mine. Although rocks were still present, the original soil contours have been rearranged and no harvestmen could be found at this location. A few other valley bottoms on the project site may still provide suitable habitat for the harvestman, but no individuals were observed to confirm my assessment of potential habitat suitability.

As the authorization to begin surveys was received after the rainy season had nearly concluded in the spring of 2000, it became apparent during my first site visit that soil conditions near the surface had already become dry, which limited my opportunities to find the harvestman at the project site. Even when I checked a known location of Hom's Microblind harvestman in Metcalf Canyon on March 19th, no individuals were observed, which suggests that the timing of the survey may have been after the detection period had concluded in the spring of 2000. Subsequent spring rains did not saturate the soils enough to drive any harvestmen to the soil-rock interface.

Ricksecker's Water Scavenger Beetle.

Despite an intensive survey effort, no specimens of the beetle were observed during my visits. A seasonally-ponded wetland, located near the northeastern boundary of the Berns/Rock property, was the only potentially suitable habitat for this beetle at the project site. Since my surveys occurred within its known activity period and no beetles were observed, I doubt that it occurs at the project site.

CONCLUSIONS

Larval and adult food plants of the BCB were observed growing throughout much of the upper elevations of the project site at Communications Hill, but no individuals of the threatened butterfly were observed throughout its 2000 flight season. During earlier surveys in 1992 and 1993 by H.T. Harvey & Associates (1994), only a single, transient adult BCB was observed. Based on the findings of these surveys, I conclude that the BCB does not currently reside within the project site on Communications Hill.

Similarly, surveys for the Hom's Microblind harvestman and Ricksecker's Water Scavenger beetle did not find either species. I conclude that Ricksecker's Water Scavenger beetle does not occur at the project site. I conclude that the harvestman no longer occurs in the valley bottom where H.T. Harvey & Associates (1994) found it in 1993 due to alteration of its habitat at this location. However, it is possible that this species still occurs in other valley bottoms on the project site, but it was not detected during my survey because the soils had already dried by the time of my first site visit.

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LocationMap

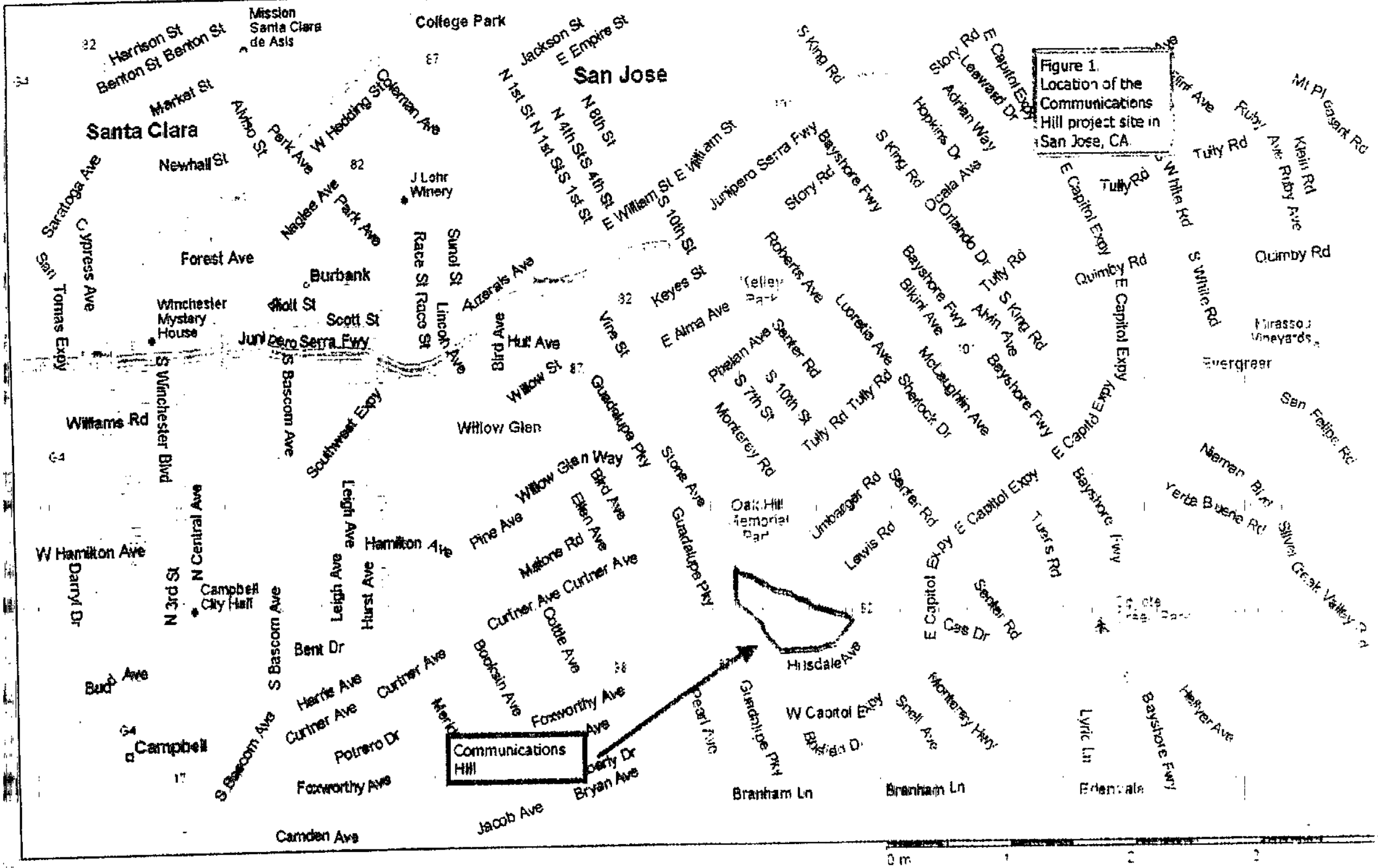


Figure 1. Location of the Communications Hill project site in San Jose, CA.

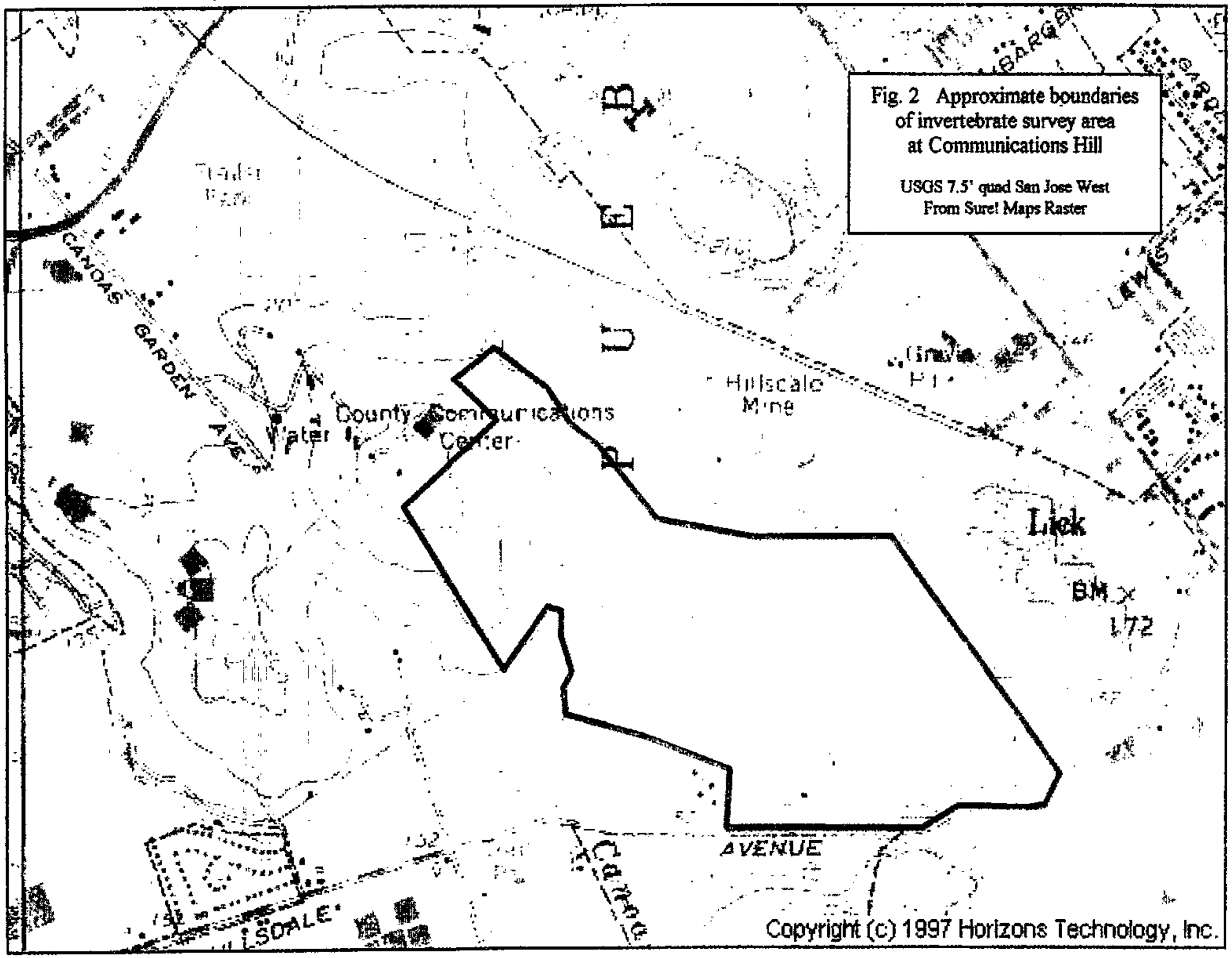


Fig. 2 Approximate boundaries of invertebrate survey area at Communications Hill

USGS 7.5' quad San Jose West From Sure! Maps Raster

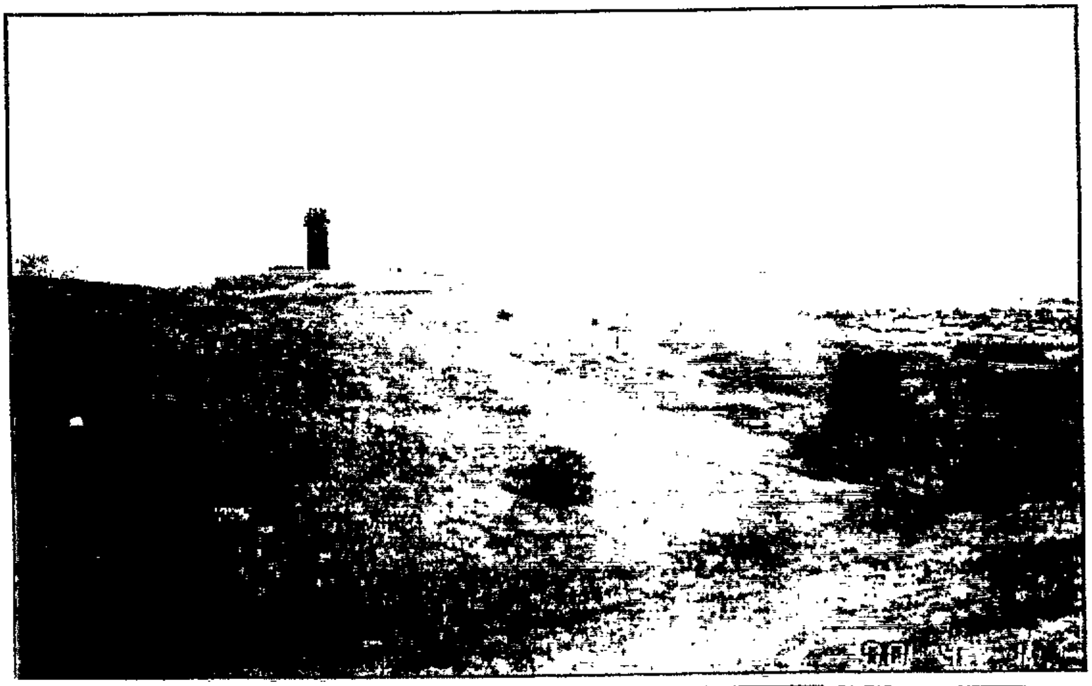
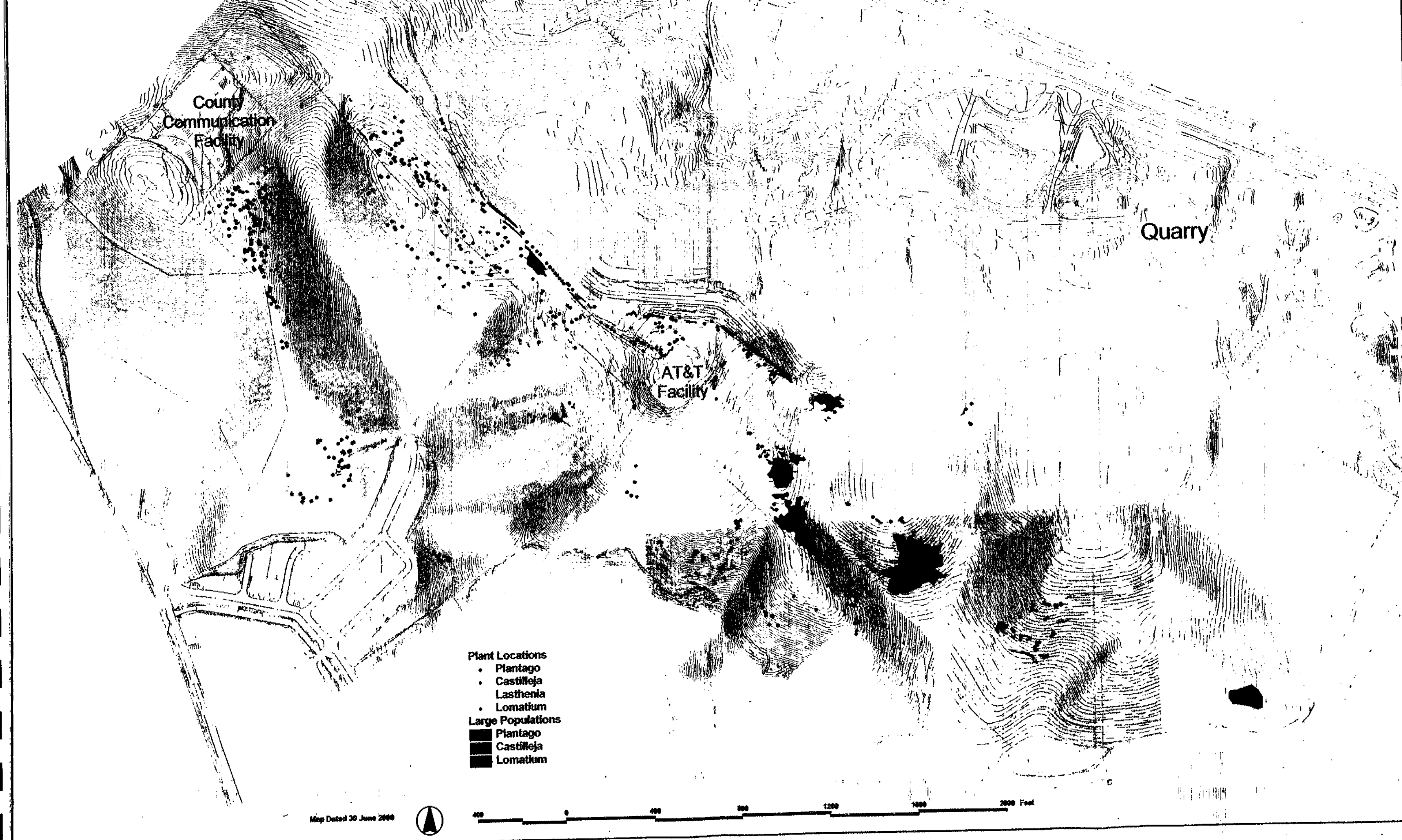


Fig. 3 - Communications Hill looking southeast

Fig. 4 - Communications Hill looking northwest

Figure 5
Distribution of Bay Checkerspot Food Plants
Communications Hill
San Jose, California



APPENDIX A:

YEAR 2000 QUINO CHECKERSPOT SURVEY PROTOCOL

Quino Checkerspot Butterfly
(*Euphydryas editha quino*)

YEAR 2000
SURVEY PROTOCOL

U.S. Fish and Wildlife Service
2730 Loker Avenue West
Carlsbad, CA 92008

SUMMARY

The quino checkerspot butterfly (*Euphydryas editha quino*. quino) was listed as an endangered species on January 16. 1997 (62 FR 2313), and is protected under the provisions of the Endangered Species Act of 1973, as amended (Act). Incidental take authorization for the quino should be obtained pursuant to sections 7 or 10 of the Act prior to activities that may result in take. This recommended survey protocol provides guidance on surveys and outlines requirements for biologists conducting quino butterfly surveys under recovery permits issued under the Act.

In revising the year 2000 survey protocol and map we consulted with our Quino Recovery Technical Team and other biologists knowledgeable about this species. reviewed field data and scientific literature on quino and other subspecies of *Euphydryas editha*, and reviewed comments we received during and following a public workshop on the draft year 2000 survey protocol.

We recommend protocol surveys for all sites within a survey area (see Year 2000 Quino Survey Area Map). Protocol surveys consist of a site assessment conducted prior to or during the first week of the butterfly flight season to determine if the site contains areas where butterfly surveys are recommended. If a site is comprised solely of excluded areas, weekly butterfly surveys are not recommended. If a site is not entirely excluded areas, then weekly butterfly surveys are recommended for the non-excluded areas of the site during the identified 5-week survey season.

Permits are not required for biologists conducting site assessments. Recovery permits under section 10(a)(1)(A) of the Act and issued by the U.S. Fish and Wildlife Service (Service) are required to conduct quino butterfly surveys.

The following items summarize the year 2000 quino survey protocol:

- Site assessments should be conducted prior to (and not concurrent with) the first weekly butterfly survey.
- Butterfly surveys should be conducted weekly for the duration of the 5-week survey season for non-excluded portions of the site.
- Dates of the butterfly survey season will be determined based on monitoring and announced by the Service one to two weeks prior to the season opening (generally late February to early March).
- Live capture and transport of a quino larva or butterfly by permitted biologists is authorized under very limited circumstances for identification and documentation purposes.

This survey protocol and additional information can be downloaded from U.S. Fish and Wildlife Service's Region 1 web page at www.r1.fws.gov/text/quino.html or can be obtained by contacting the Portland Regional Office at (503) 231-2063 or the Carlsbad Fish and Wildlife Office at (760) 431-9440.

INTRODUCTION

The quino checkerspot butterfly (*Euphydryas editha quino*, quino) was listed as an endangered species on January 16, 1997 (62 FR 2313). This animal is protected under the provisions of the Endangered Species Act of 1973, as amended (Act). To avoid possible take of this federally listed species, we recommend that site assessments be conducted for sites partially or completely within year 2000 survey areas and butterfly surveys be conducted where indicated by site assessments. Butterfly surveys may only be conducted by a biologist possessing a current recovery permit for the quino pursuant to section 10(a)(1)(A) of the Act (permitted biologist). This permit allows for the pursuit of butterflies for identification and photography, and under very limited circumstances (described below) authorizes live capture and transport of a larva or butterfly for verification.

In revising the year 2000 survey protocol and survey area map we consulted with our Quino Recovery Technical Team and other biologists knowledgeable about this species, reviewed field data and scientific literature on quino and other *Euphydryas editha* subspecies, and reviewed comments received during and after a November 1999 public workshop on the draft year 2000 survey protocol.

We continue to work with local, State, and Federal biologists; scientific and academic institutions; commercial organizations; and other interested parties to collect additional data on the distribution, ecology, and biology of the quino. We will revise this survey protocol as needed using the best available data. This survey protocol supersedes all previously recommended quino survey protocols.

YEAR 2000 QUINO CHECKERSPOT BUTTERFLY SURVEY PROTOCOL

Protocol surveys are recommended for all sites partially or completely within year 2000 survey areas (see Year 2000 Quino Survey Area Map). Protocol surveys consist of a site assessment prior to or during the first week of the butterfly survey season to determine if the site contains areas recommended for butterfly surveys. If the site is determined to be comprised solely of excluded areas (described below), surveys are not recommended. If a site has areas suitable for butterfly surveys (non-excluded areas), then surveys should be conducted for those portions of the site during the entire 5-week butterfly survey season.

Due to the close proximity of documented quino populations, we recommend that sites within Survey Areas 1 and 3 have a protocol survey conducted during the survey season immediately prior to any ground-disturbing activities.

Butterfly emergence from pupae varies according to environmental factors, so the butterfly flight season varies regionally and annually. To ensure that butterfly surveys are initiated during the beginning of the flight season, we will monitor the phenology of quino larvae and their host plants to determine the beginning of the 5-week survey season and announce the opening at least one week in advance. This announcement will generally occur in February or early March.

SITE ASSESSMENTS

Site assessments should be conducted before or during the first week of the butterfly survey season (but not concurrent with a butterfly survey) to identify which portions of a site should be surveyed for quino. These assessments involve conducting a general field survey of the site and broadly mapping excluded areas and butterfly survey areas on a U.S. Geological Survey 7.5' (1:24,000) topographic quadrangle map that has been enlarged 200 percent (See Appendix 1 for example). We request that this site assessment map be submitted within 45 days of the close of the survey season. We will not be providing concurrence on site assessments. We will use negative and positive site assessments and butterfly survey results to refine future survey area maps.

Excluded Areas

The following areas are not recommended for butterfly surveys:

- Orchards, developed areas, or in-fill parcels largely dominated by non-native vegetation;

- Active/in-use agricultural fields without natural or remnant inclusions of native vegetation (i.e., fields completely without any fallow sections, unplowed areas, and/or rocky outcrops);

- Closed-canopy forests or riparian areas, dense chaparral, and small openings completely enclosed within a closed-canopy or dense chaparral area;

  "Closed-canopy" describes vegetation in which the upper portions of the plants converge (are touching) to the point that the open space between two or more plants is not significantly different than the open space within a single plant. Dense chaparral is defined here as vegetation so thick that it is inaccessible to humans except by thrashing or bushwhacking.

Butterfly Survey Areas

All areas that are not excluded should be surveyed for butterflies, regardless of quino host plant presence, absence, and/or density. Quino is generally associated with sage scrub, open chaparral, grasslands, and vernal pools, especially open or sparsely vegetated areas, hilltops and ridgelines, rocky outcrops, trails, and dirt roads.

BUTTERFLY SURVEY GUIDELINES

Surveys for quino butterflies are to be conducted:

- By a biologist with a current Service recovery permit for this species. Quino protocol surveys **may not** be conducted concurrently with any other focused survey (e.g., coastal California gnatcatcher survey).

- Once per week throughout the 5-week survey season on non-consecutive days. **All non-excluded portions of the site must be thoroughly surveyed for butterflies during each weekly survey, even if quino are observed on an earlier visit.**

- At an average rate of 10-15 acres per hour. In large, open areas, 5-10 meters on either side of a survey route can generally be examined for quino butterfly presence, so survey routes in these areas should be roughly parallel and 10 to 20 meters apart. Surveyors should walk along the edge (within 1 meter) of excluded areas such as closed-canopy shrublands.

- Only under acceptable weather conditions. Weekly surveys **will not** be considered valid if one or more of the following weather conditions occur: fog, drizzle, or rain; sustained winds greater than 15 miles per hour measured 4-6 feet above ground level; temperature in the shade at ground level less than 60°F on a clear, sunny day; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day.

A weekly survey may only be missed because of week-long adverse weather. If weather conditions as described above preclude conducting a weekly survey, two (2) surveys must be conducted on non-consecutive days the following week. If an entire week of adverse weather occurs during the fifth (last) week of the survey season, one survey only may be conducted the following (sixth) week. If adverse weather precludes surveys two weeks in a row, two protocol surveys must be conducted on non-consecutive days each of the two weeks immediately following the weeks of adverse weather.

Survey Maps

- Map the locations of all adult quino and larvae observed on a non-enlarged 7.5' USGS topographic map (Appendix 2). We suggest using a Global Positioning System (GPS) unit and/or aerial photos if available. All GPS locations should be corrected with an accuracy not to exceed 5 meters.

- Map all areas of quino larval host plants on your site assessment map (Appendix 1). Provide a list of the plant communities on the site.

Survey Techniques

Required equipment for permitted biologists includes: binoculars, wind meter, thermometer, and a camera with close focus telephoto or macro lens. A GPS unit is also useful. Permitted biologists surveying outside Survey Areas 1 and 3 should carry a butterfly net, clear glass or plastic jar with a lid, and 35 mm film canister.

- Survey carefully to avoid trampling or otherwise harming quino larvae and butterflies. *Plantago erecta*, a small, often inconspicuous annual plant, is quino's primary host plant. Care should be taken to avoid stepping on all host plants, whether occurring singly, in small patches, or in dense stands. Female quino often use plants found on bare soil or in open areas for laying their eggs.

- Walk slowly and stop periodically within areas that have an especially high potential for quino use, such as patches of host plants or nectar sources; ridgelines and hilltops; bare or sparsely vegetated areas between shrubs; and areas of cryptobiotic soil crusts. Field observations indicate that females may lay eggs on *Castilleja exserta* and/or *Cordylanthus rigidus*. Nectar plants most likely to be visited include but are not limited to members of the Asteraceae (*Lasthenia* spp., *Layia* spp., *Ericameria* spp.), *Cryptantha* spp., and *Allium* spp. Quino cannot use flowers with deep corolla tubes or those evolved to be opened by bees such as snapdragons.

- Stop occasionally to look around–surveyors standing still are more likely to see a moving butterfly. Use binoculars to scan the area ahead and around you, and to help identify butterflies from a distance.

- Follow the movements of other butterflies. Quino males are aggressive, can spot other butterflies from a distance, and will chase them away. If quino are resting with wings closed, they can be very difficult to notice until another butterfly flies by and they give chase.

Approaching a Butterfly Suspected of Being a Quino

When approaching a butterfly, move slowly and keep the movement of your hands, arms, legs, and body to a minimum. If the butterfly is first seen in flight, follow it discreetly, keeping at least 5-6 feet away from it until it alights (lands). Do not make sudden movements.

If the butterfly is circling, stand still and wait for it to alight–if it perceives your movement, it is less likely to stop. Observe the flight pattern. If the butterfly is a quino and flies in a zigzag motion with frequent abrupt changes of direction, it is likely a male. If it appears to be flying in a straight line, or with more gradual changes of direction, it is likely a female.

Once the butterfly has alighted, or if it is first seen when alighted, approach it slowly from an angle where it is not likely to perceive your shadow–from the side may give you the best view of the butterfly's body. Take a photograph of the butterfly when approximately 5-6 feet away (or at a greater distance if your camera has adequate telephoto capabilities), taking care not to allow your shadow to fall on the butterfly.

Slowly move toward the butterfly, taking photographs periodically. When your shadow is within about 1 meter of the butterfly, circle slowly around it if necessary to approach it more closely without casting a shadow on it. As you get closer you should move more and more slowly. Insects that are engaged in some activity such as courtship or feeding on flowers are easier to approach than those that are basking.

Permitted biologists may wish to practice their approach and species identification techniques with other grassland Nymphalid butterflies such as buckeye *(Junonia coenia)*, California ringlet *(Coenonympha californica)*, and West Coast lady *(Vanessa annabella)* as it will greatly improve their ability to approach and identify quino.

QUINO OUTSIDE THE AREAS OF RECENT DOCUMENTATION

If a permitted biologist observes a larva or butterfly known or suspected to be a quino **outside of Survey Areas 1 and 3**, s/he may live capture one larva or butterfly using the techniques described below. Notify us by phone (760) 431-9440 and fax (760) 431-5901 the same day and as soon as possible after capture so we can arrange for identification.

Quino butterflies or larvae may not be captured or handled within Survey Areas 1 and 3.

Live Capture Techniques

To collect a larva, gently pick it up, taking care not to crush it, and place it in a 35 mm film canister or similar container. Keep the container in a cool place out of direct sunlight.

To capture a butterfly, try to net it using a gentle sweeping motion through the air. If the animal is resting, you may be able to approach it slowly and place the net over it. Do not slap the net on the ground or onto a bush to capture a resting adult–this will likely result in damage or death. Do not chase the butterfly. Many butterflies will return to the same basking site or shrub after a disturbance. Once the adult has been netted, gently place the individual in a clear glass or plastic jar with ventilation. Keep the animal in a cool location while it is transported for identification. Collect the larva or butterfly even if it is inadvertently injured or killed during capture and contact the Service as described below under "Reporting Requirements."

Map where the known or suspected quino was captured on a non-enlarged 7.5' USGS topographic map (Appendix 2). Include in your field notes a description of the location, habitat type, time of day, date, weather conditions, and the collector's name and permit number.

REPORTING REQUIREMENTS

If a permitted biologist observes or collects a **suspected or known** quino adult or larva, within 24 hours s/he is to notify us by phone and fax; phone (760) 431-9440 and fax (760) 431-5901. Fax a photocopy of a 7.5' USGS topographic map with the observation site marked and a detailed description of the location of the quino.

Within 45 days of the close of the butterfly survey season, permitted biologists must send us a written report based on the terms and conditions of the quino recovery permit and signed by the permitted biologist(s) who conducted the surveys. Survey reports should include:

- Name, permit number, and legible copies of field notes of the permitted biologist(s) who conducted the surveys. Please note that all personnel conducting butterfly surveys must be authorized under a section 10(a)(1)(A) recovery permit for quino.
- Non-enlarged 7.5' USGS topographic map (and aerial photo if available) with quino larvae and/or adult locations marked.
- Site assessment map with quino larval host plant locations mapped.
- Dates and times of each weekly survey.
- Air temperature, wind speed, and weather conditions at the start and end of each survey.
- List of butterflies observed during each weekly survey.
- List of larval host plants, nectar plants, and plant communities observed on the site.
- Photographs of any quino larvae and/or butterflies observed. **Within survey areas 1 and 3 photographs should be taken without handling or in any way harming larvae or butterflies.**

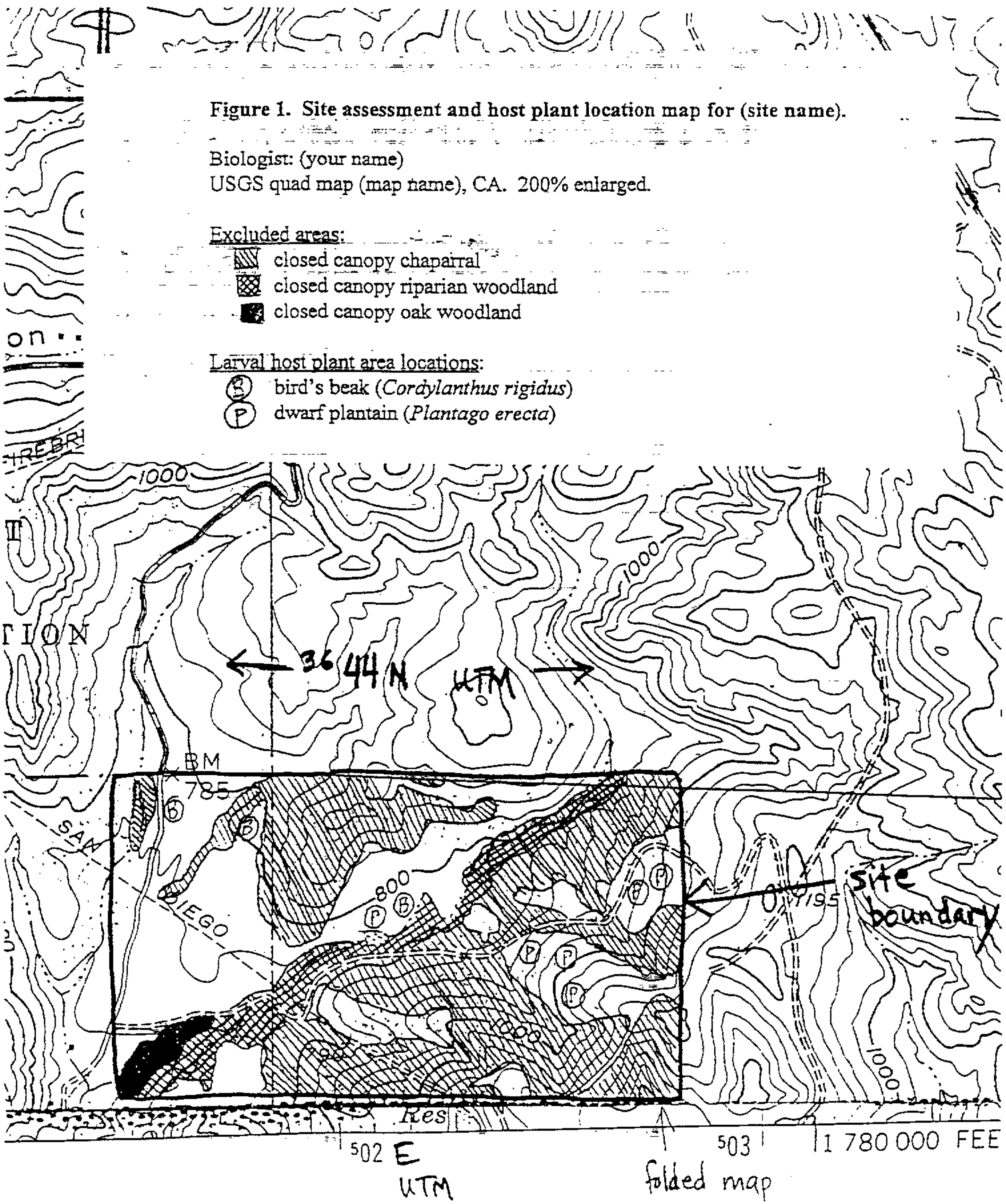
Survey reports should be sent to Field Supervisor, Carlsbad Fish and Wildlife Office, 2730 Loker Avenue West, Carlsbad, CA 92008.

ADDITIONAL INFORMATION AND LIMITATIONS

Butterfly surveys may not be considered valid if: 1) unfavorable weather such as drought limits quino butterfly detectability or the flight season; 2) the specific survey methods described above are not followed (unless deviations are requested in writing prior to the survey and approved by the Service), or 3) additional information indicates that the survey was inadequate or inaccurate.

Questions regarding the protocol or its application to specific projects should be sent by email to: fw1quino@fws.gov. We will try to provide a response within 72 hours for time-sensitive questions.

Appendix 1. Sample site assessment and host plant location map.



Appendix 2. Sample quino location map.

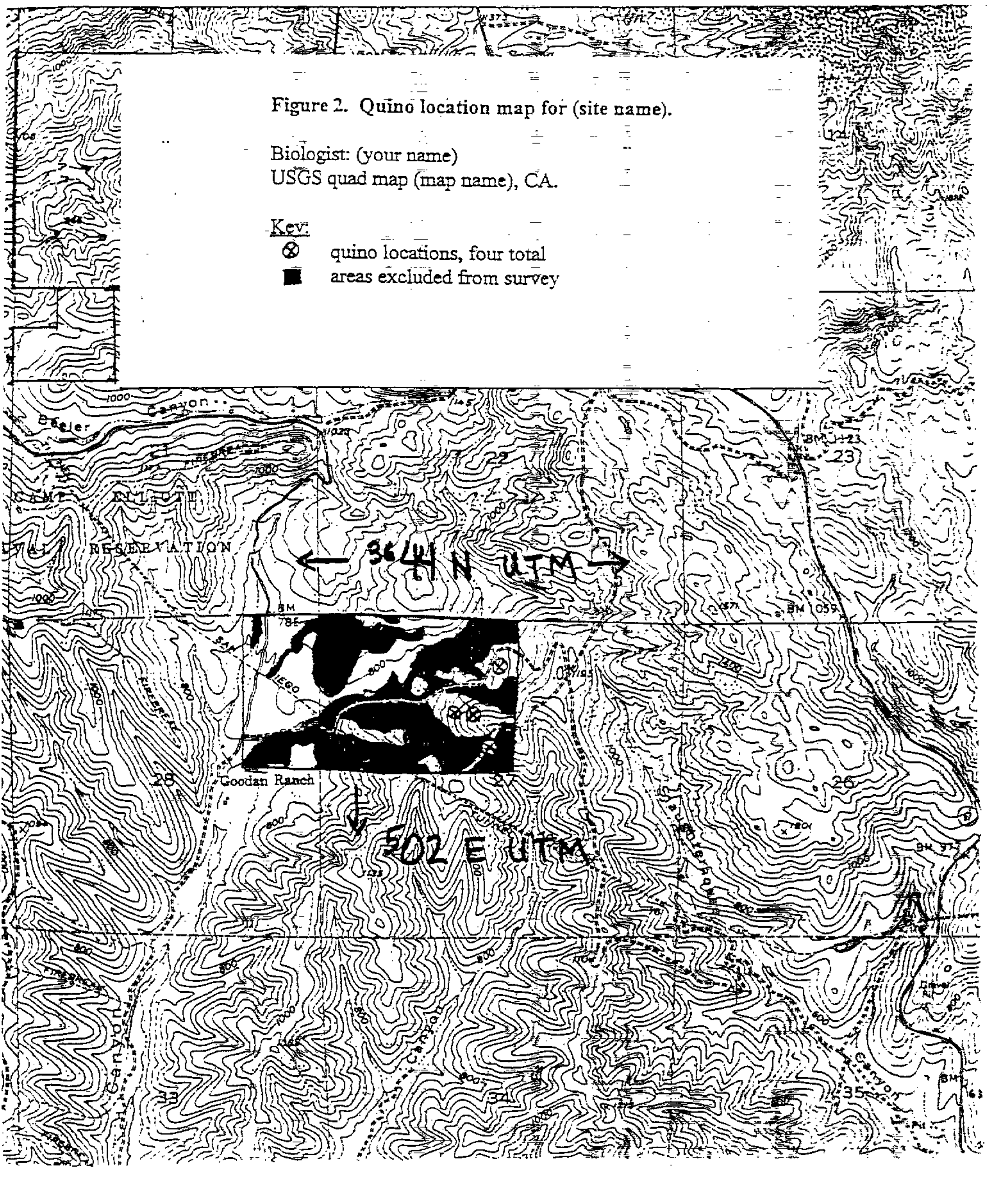


Figure 2. Quino location map for (site name).

Biologist: (your name)
USGS quad map (map name), CA.

Key:
⊗ quino locations, four total
■ areas excluded from survey

APPENDIX B

Vascular Plant Species Observed at the Communication Hill Site, San Jose, CA

FERNS AND FERN-ALLIES

PTERIDACEAE
- Pellaea andromedifolia
- Pellaea mucronata var. mucronata
- Pentagramma triangularis ssp. triangularis

FLOWERING PLANTS (ANGIOSPERMAE - DICOTYLEDONEAE)

ANACARDIACEAE
- *Schinus molle
- Toxicodendron diversilobum

APIACEAE
- *Conium maculatum
- Lomatium caruifolium
- Lomatium dasycarpum
- Sanicula bipinnata
- Sanicula bipinnatifida

ASCLEPIADACEAE
- Asclepias fascicularis

ASTERACEAE
- Achillea millefolium
- Artemisia californica
- Baccharis pilularis
- *Carduus pycnocephalus
- *Centaurea melitensis
- *Centaurea solstitialis
- Hemizonia pungens ssp. pungens
- Holozonia filipes
- *Hypocharis glabra
- *Lactuca serriola
- Lasthenia californica
- *Senecio vulgaris
- *Silybum marianum
- *Sonchus asper
- *Sonchus oleraceus
- Uropappus lindleyi
- Xanthium spinosum

BORAGINACEAE
- Amsinckia menziesii var. intermedia
- Cryptantha clevelandii
- Cryptantha flaccida
- Heliotropium curassavicum

BRASSICACEAE
- *Brassica nigra
- *Lepidium latifolium
- Lepidium nitidum
- *Sinapis arvensis
- *Sisymbrium orientale

CAPRIFOLIACEAE
- Sambucus mexicana

CARYOPHYLLACEAE
- *Stellaria media
- Stellaria nitens

CHENOPODIACEAE
- *Beta vulgaris
- Chenopodium californicum
- *Salsola tragus

CONVOLVULACEAE
- Calystegia subacaulis
- *Convolvulus arvensis

CRASSULACEAE
- Crassula erecta
- Dudleya setchellii

CUCURBITACEAE
Marah fabaceus

EUPHORBIACEAE
Euphorbia spathulata

FABACEAE
Lotus purshianus
Lotus wrangelianus
Lupinus succulentus
*Medicago polymorpha
*Melilotus indica
Trifolium gracilentum var. gracilentum
Trifolium willdenovii
*Vicia sativa ssp. sativa

FAGACEAE
Quercus lobata

GERANIACEAE
*Erodium cicutarium
*Erodium moschatum

HYDROPHYLLACEAE
Phacelia californica
Phacelia distans

LAMIACEAE
*Marrubium vulgare
Stachys bullata
Trichostema lanceolatum

MALVACEAE
*Lavatera cretica

MYRTACEAE
*Eucalyptus globulus

ONAGRACEAE
Clarkia unguiculata
Epilobium brachycarpum

PAPAVERACEAE
Eschscholzia californica

PLANTAGINACEAE
Plantago erecta

POLEMONIACEAE
Gilia clivorum

POLYGONACEAE
Eriogonum nudum
*Polygonum arenastrum
*Rumex crispus

PORTULACACEAE
Calandrinia ciliata
Claytonia perfoliata

RANUNCULACEAE
Delphinium hesperium ssp. hesperium
Ranunculus californicus

RHAMNACEAE
Rhamnus californica ssp. californica

ROSACEAE
Aphanes occidentalis

RUBIACEAE
*Galium parisiense

SCROPHULARIACEAE
Castilleja exserta ssp. exserta
Mimulus guttatus
Scrophularia californica ssp. floribunda

SOLANACEAE
Datura wrightii

VERBENACEAE
Verbena lasiostachys

FLOWERING PLANTS
(ANGIOSPERMAE -
MONOCOTYLEDONEAE)

JUNCACEAE
- Juncus balticus

LILIACEAE
- Allium peninsulare var. franciscanum
- Brodiaea terrestris
- Calochortus venustus
- Chlorogalum pomeridianum
- Dichelostemma capitatum
- Triteleia laxa

POACEAE
- *Avena barbata
- *Avena fatua
- *Bromus diandrus
- *Bromus hordeaceus
- *Bromus madritensis ssp. rubens
- *Hordeum murinum ssp. murinum
- Leymus triticoides
- *Lolium multiflorum
- Melica californica
- Melica torreyana
- Nassella pulchra
- *Phalaris aquatica
- *Piptatherum miliaceum
- *Polypogon monspeliensis
- Poa secunda

*Species introduced or naturalized in the study area.

APPENDIX C

Natural History Accounts for Special-Status Wildlife Species Known or With Potential To Occur in the Communication Hill Study Area

Natural History Of Special-Status Birds With The Potential To Occur At The Project Site

Burrowing Owl (*Athene cunicularia*). Breeding populations of burrowing owls are a California Species of Special Concern. Breeding occurs from March to August, and clutches average 5-6 eggs. Burrowing owls use open grassland habitats with low-growing vegetation. They prefer such areas interspersed with bare ground, and raised areas used as rest/perch sites. Small mammals and insects are their primary prey. Abandoned burrows, especially of ground squirrels, are used as roost and nest sites. Under the intense pressures from urban development burrowing owls have been known to use less than optimal habitat, including man-made structures such as culverts.

Agricultural, industrial, and urban development have resulted in a significant decline of suitable habitat for this species throughout California (Remsen 1978). Programs to control burrowing mammals with poison as well as burrow destruction have also reduced owl populations (Zarn 1974).

Loggerhead Shrike (*Lanius ludovicianus*). The loggerhead shrike is a State species of special concern. Common residents of lowlands and foothills, this species prefers open habitats with scattered shrubs, trees, fences, or other lookout posts. Loggerhead shrikes occur only rarely in heavily urbanized areas. They hunt insects, snakes, small birds, and rodents which they often impale on thorns or barbed wire to hold it while they eat. Eggs are laid from March to May, with a clutch size of 4-7 eggs, in shrubs and trees with dense vegetation for concealment.

White-tailed Kite (*Elanus caeruleus*). The white-tailed kite (formerly known as black-shoulder kite) is protected under the California Department of Fish and Game and under the Federal Migratory Bird Treaty Act. Stick nests are made near the tops of trees, camouflaged from below but open on top. Kites feed on rodents, lizards, birds, and insects. Nests are located near herbaceous and open stages of most habitats. Breeding season occurs from late February to early August. Occasionally kites will double brood in a single season (Faanes and Howard 1987). Nest sites may be used from year to year with 4 to 5 eggs laid (Erlich *et al* 1988).

Under favorable conditions, kites may nest semi-colonially (Ehrlich et al 1988). Males feed both the females and young during nesting season (Ehrlich et al 1988, B. Walton, pers. comm. 1996). Human activity within kite foraging areas during breeding and nesting season may result in interference with feeding and abandonment of nest sites (B. Walton, pers. comm. 1996).

Northern harrier hawk (*Circus cyaneus*). The northern harrier (also known as marsh hawk) is a State Species of Special Concern and is fully protected under the federal

Migratory Bird Treaty Act. It is also protected under California Department of Fish and Game codes 3511, 4700, 5050, and 5515. Northern harriers use grasslands, prairie, savanna, slough, wet meadows, and marshes. Northern harriers fly low over open habitats and savannas to hunt. These birds build a loose stick and grass nest on the ground or in thick vegetation near the ground. Their diet consist mainly of voles but they will also take birds, insects, snakes, frogs and carrion. Females brood, raise and defend the young without the males. However, male and female northern harriers will roost communally (on the ground) during the non-breeding season.

Natural History Of Special-Status Bats With The Potential To Occur At The Project Site

Pallid bat (*Antrozous Pallidus*). Pallid bat is a California Species of Special Concern. It is a year round resident in California. The pallid bat is found in arid desert areas, grasslands and oak savanna, coastal forested areas, and coniferous forests of the mountain regions of California. Roost sites are typically rock outcroppings, caves, hollow trees, mines, buildings and bridges (Wilkins 1989). Pallid bats make use of similar structures for night roosting and will use more open sites such as eaves, awnings, and open areas under bridges for feeding roosts. Pallid bats are largely inactive in the winter months. There is evidence for both hibernation and migration. Hibernation aggregations tend to be much smaller than in the summer. Pallid bats have been observed foraging during the winter when prey is available (Hermanson and O'Shea 1983). Pallid bats feed on large insects (20 to 70mm in length). Prey is most often caught on the ground. Jerusalem crickets, scorpions and beetles make up most of the diet of pallid bats central California.

Copulation occurs in the fall, October through December. Females store the sperm and ovulation occurs in the following spring. Parturition timing is determined by local climate and embryonic development usually takes about 9 weeks with birth occurring May or June. Twins are the norm in northern California but in other areas they are known to have triplets. Maternity colonies range from 20 to 200 individual adult bats. Males roost in much smaller groupings (Hermanson and O'Shea 1983).

Western red bat (*Lasiurus blossevillii*). Western red bat is included on 1996 preliminary list of revised Mammal Species of Special Concern. Very little research has been done on the Western red bat and little is known about this species. Much of the natural history is inferred from what is known about the Eastern red bat although the degree of similarity of the biology of these two species is unknown at present.

The Western red bat is a solitary foliage roosting bat. The genus *Lasiurus* are the hairy tailed bats. These bats are adapted for this exposed roosting behavior with their hairy tail membrane and small ears. In California this bat is known to roost in cottonwood trees and willows. Roost heights range from 3 to 15 meters (Pierson and Heady 1997).

The range of the Western red bat is from British Columbia to Central and South America. Migration occurs throughout its range and bats of Canada move into the coastal low lands of California, and the California bats are thought winter in Central America (Nagorsen and Brigham 1993). Mating takes place in late summer and fall, sperm is stored over winter and fertilization occurs in early spring. Gestation period is 80 to 90 days and one to four young are born in late May to early July. The young are born small naked and underdeveloped (Nowak1994). Females leave the young at the roosting site while foraging but will carry them when moving to a new roosting site. Young are capable of sustained flight at 6 weeks.

Large moths are the primary prey of the Western red bat. This bat is a fast flyer, foraging in straight flights or large circles (Nagorsen and Brigham 1993). The echolocation calls are highly variable depending on the terrain. Though variable these calls are very distinct.

Yuma Myotis (*Myotis yumanensis*). Yuma myotis is a federal Species of Concern and a California Species of Special Concern. It is a year-round resident in most of California at lower elevations in a wide variety of habitats from coast to mid-elevation. It is very tolerant of human habitation and survives in urbanized environments. Day roosts are in buildings, trees, mines, caves, bridges, and rock crevices. Night roosts are in buildings, bridges, and other man-made structures. It is presumed to be non-migratory and hibernates in winter, but no large winter aggregations have been reported.

A single young is born per year between June and July. Females form large maternity colonies of 200 to several thousand individuals. Males roost singly or in small groups.

The Yuma myotis feeds on emergent aquatic insects, such as caddisflies and midges. Foraging occurs directly over the surface of still water ponds, reservoirs, or pools in streams and rivers.

Long-legged myotis (*Myotis volans*). Long-legged myotis is a federal Species of Concern. *Myotis volans* inhabits Western North America from South East Alaska to Central Mexico. It is found in an elevational range from sea level to 3,770 m. *Myotis volans* is primarily a coniferous forest bat although it may also be found in riparian and desert habitats (Warner and Czaplewski 1984).

Maternity colonies can be up to 300 individuals. Maternity roosts are found in buildings, rock crevices, and under exfoliating bark. Males roost signally or in small numbers in rock crevices, buildings and under tree bark. Night roosts are known to be found under bridges, in caves and mines, and in buildings (Nagorsen and Brigham 1993). In the Northern reaches of *M. volans* range hibernation is common. It is unknown whether this bat migrates in the portion of its range where winters are less severe.

Mating takes in the fall and sperm is stored over winter. Ovulation and fertilization takes place from March to May and parturition occurs from May to August. There is extensive variation in the timing of reproductive activity in this species. California records show pregnant females July 4. *M. volans* is known to live 21 years in the wild (Warner and Czaplewski 1984). *M. volans* feeds primarily on moths, it is also know to feed on other soft bodied prey such as flies, termites, lacewings, wasps, bugs, leafhoppers, and small beetles. *M. volans* is a rapid, direct flier pursuing its prey over relatively long distances through, around, under and over forest canopy (Warner and Czaplewski 1984).

Natural History Of Special-Status Amphibians With The Potential Use The Project Site As Aestivation or Non-aquatic Habitat

California Tiger Salamander (*Ambystoma californiense*). The California tiger salamander is a California Species of Special Concern and proposed for federal listing. This tiger salamander is a permanent resident of annual grasslands and valley and foothill woodlands, and is occasionally found along streams. Adults spend most of the year underground in mammal burrows, coming out at night to forage. The first heavy rains of winter initiate the migration of adults to permanent and temporary ponds, where breeding takes place from December to February (Stebbins 1985). Agricultural and urban development have reduced much of the former habitat of this species. Introduction of non-native fish that prey on the salamander larvae has devastated local populations.

California Red-Legged Frog (*Rana aurora draytonii*). California red-legged frogs are listed as Threatened by the US Fish and Wildlife Service under the Federal Endangered Species Act. California red-legged frogs occurring throughout the entire Central Valley hydrographic basin, as well as Ventura County south to the border of Mexico, have been the most depleted in the state of California (Jennings, Hayes, and Holland 1993). Populations of California red-legged frogs in the Coast Ranges between Marin County south to Santa Barbara are more intact than populations in the rest of the state. The estimated disappearance of historical populations in the Coast Ranges are 50 percent. Populations of California red-legged frogs have declined due to exotic aquatic predators, habitat degradation from agricultural and grazing practices, a decrease in water quality from human manipulation of habitats, and from water diversion.

California red-legged frogs are known to occupy and breed in marshy habitats, springs, ponds (both natural and artificial), and slack water pools of rivers and streams (Stebbins 1985) and wildlife guzzlers (Reis 1999a). California red-legged frogs (CRLF) occur and reproduce in tidally influenced coastal marsh with low salinity levels during the reproductive season (Smith and Reis 1996, Reis 1999b).

The habitat characterization of CRLF eggs, tadpoles and adults are known to be different (Reis 1999b). In a coastal marsh, adult CRLF frogs select both warmer and shallow water sites for laying eggs, while tadpoles utilize shallow to medium water depths, and adult are more likely to be found in deep water (Reis 1999b). Juvenile red-legged frogs also appear to have different habitat needs from adults. Most sites where juvenile red-legged frogs occur have shallow water and limited shoreline or emergent vegetation (Jennings and Hayes 1988). It is important for juvenile red-legged frogs that there be small one-meter breaks in the vegetation or clearings in the dense riparian cover to allow juveniles to sun themselves and forage, but also to have close escape from predators (Jennings and Hayes 1988). In addition to vegetation cover, Jennings and Hayes (1988) note that tadpoles use mud. It is speculated that red-legged frog larvae are algae grazers; however, larval foraging ecology remains unknown (Jennings, Hayes, and Holland 1993).

California red-legged frogs have been observed to move up to 3 miles overland in non-riparian habitats (Norm Scott pers. comm. 1997). Recent radio-tracking studies of California red-legged frog in Waddel Creek indicate that adult frogs remain close to reproductive ponds during the reproductive season (J. Smith pers. comm. 1999). A radio-tracking study of adult California red-legged frogs, conducted in Santa Cruz county by the National Biological Service, found that adult red-legged frogs stay resident and within a few feet of surface water areas during the spring and summer months, but will move long distances (over a mile) to other aquatic areas during rainy weather (Bulger and Seymour 1998, J. Bulger pers. comm. 1997). Further, these movements appear to take a straight line of travel across upland habitats out side of riparian or wetland areas (Bulger and Seymour 1998, J. Bulger pers. comm. 1997).

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

REPLY TO
ATTENTION OF:

MAR 01 2000

Regulatory Branch

Subject: File Number 24975S

Mr. Jeff McMullen
Kaufman & Broad
2201 Walnut Avenue, Suite 150
Fremont, California 94538

Dear Mr. McMullen:

Thank you for your submittal of January 2000, requesting confirmation of the extent of Corps of Engineers jurisdiction at the Burns/Ross Property located on Hillsdale Avenue in the City of San Jose, Santa Clara County, California.

Enclosed is a map showing the extent and location of Corps of Engineers jurisdiction on February 25, 2000.

We have based this jurisdictional delineation on the current conditions of the site. A change in those conditions may also change the extent of our jurisdiction. This jurisdictional delineation will expire in five years from the date of this letter. However, if there has been a change in circumstances which affects the extent of Corps jurisdiction, a revision may be done before that date.

All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands.

Your proposed work does not appear to be within our jurisdiction and a permit may not be required. However, should it become necessary, application for Corps authorization should be made to this office using the application form in the enclosed pamphlet. To avoid delays it is essential that you enter the file number at the top of this letter into Item No. 1. The application must include plans showing the location, extent and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note, in planning your work, that upon receipt of a properly completed application and plans, it may be necessary to advertise the proposed work by issuing a public notice for a period of 30 days.

If an individual permit is required, it will be necessary for you to demonstrate to the Corps that your proposed fill is necessary because there are no practicable alternatives, as outlined in the U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines. A copy is enclosed to aid you in preparation of this alternative analysis.

However, our nationwide or regional permits have already authorized certain activities provided specified conditions are met. Your completed application will enable us to determine whether your activity is already authorized. You are advised to refrain from commencement of your proposed activity until a determination has been made that it is covered by an existing permit. Commencement of work before you received our notification may be interpreted as a violation of our regulations.

If you have any questions, please call Mark D'Avignon of our Regulatory Branch at telephone 415-977-8446. All correspondence should reference the file number at the head of this letter.

Sincerely,

Edward A. Wylie

for Calvin C. Fong
Chief, Regulatory Branch

Enclosure

Copy furnished:

Mr. Jeff Olberding, Olberding Environment
San Jose, California 95118.

LOCATION OF AREAS POTENTIALLY SUBJECT TO U.S. ARMY CORPS OF ENGINEERS JURISDICTION

WETLAND/U. S. WATERS DELINEATION FOR THE

BURNS/ROSS PROPERTY

SANTA CLARA COUNTY, CALIFORNIA

Prepared for:

Kaufman & Broad
2201 Walnut Avenue, Suite 150
Fremont, California 94538

Prepared by:

OLBERDING ENVIRONMENTAL, INC.
Wetland Regulatory Consultants
4340 Almaden Expwy., Suite 111
San Jose, California 95118

Phone: (408) 448-2322 ~ FAX (408) 448-2010
Contact: Jeff Olberding

January 2000

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ATTACHMENT NO. 1 FIGURES

This report should be cited as: Olberding Environmental, Inc. January 2000. *Location of Areas Potentially Subject to U.S. Army Corps of Engineers Jurisdiction: Wetland/U.S. Waters Delineation for the Burns/Ross Property, Santa Clara County, California.* 16 pp. plus attachments. Prepared for Kaufman & Broad, Alameda County, California.

SUMMARY

Results of the jurisdictional delineation identified one area that most likely contains seasonal wetlands on the subject property. This area, located on the southeastern corner of the Burns/Ross Property adjacent to Hillsdale Avenue, is a topographical depression dominated by vegetation commonly associated with wetland plant communities and contains soils associated with saturated or ponded conditions. In addition to positive vegetation and soils indicators, water marks were visible on several wood fence posts in the center of a topographical depression indicating periods of prolonged ponding. Based on this information it was determined that 1.42 acres of potential jurisdictional wetland habitat exists within the topographical depression that crosses the Burns/Ross Property boundary (fence line) onto lands owned by MTA Properties. Of the 1.42 acres identified in this depression approximately **0.35** acres occur on the Burns/Ross Property.

1.0 INTRODUCTION

1.1 Scope

At the request of Kaufman & Broad, Olberding Environmental, Inc. (Olberding Environmental) conducted an investigation as to the presence and geographic extent of possible wetland areas and/or other types of waters of the United States potentially subject to Corps of Engineers regulation under the Clean Water Act within the Burns/Ross Property boundary.

The placement of fill material in areas identified as jurisdictional waters is subject to the permit requirements of the U.S. Army Corps of Engineers (Corps), under Section 10 of the Rivers and Harbors Act (1899) and Section 404 of the Clean Water Act (1972). The data and conclusions of this report are subject to confirmation by the Corps.

1.2 Project Location

This report represents the findings of a jurisdictional delineation conducted on the 21-acre Burns/Ross Property located between State Route 87, Hillsdale Avenue and State Route 82 (Monterey Highway) within the San Jose City limits. Attachment 1, Figure 1 illustrates the regional location of the property. The Burns/Ross Property is located on the southern slopes of Communications Hill, north of the intersection of Hillsdale Avenue and Vistapark Drive. Attachment 1, Figure 2 illustrates the location of the property on the San Jose East 7.5 minute USGS quadrangle map. The site is accessed by Hillsdale Avenue.

1.3 Project Description

The 21-acre Burns-Ross Property is located directly adjacent to Hillsdale Avenue at the base of the southern most edge of Communication Hill. There are residential structures and outbuildings located in the center of the property. The middle portion of the site drains the adjacent hills and has accumulated various refuse such as abandoned furniture, metal, garbage and wood debris. The land to the west is currently being developed with apartment style buildings and the lands to the north and east are undeveloped and consist of mostly nonnative annual grasslands. The southern edge of this property abuts Hillsdale Avenue, South of Hillsdale Avenue is existing subdivision housing.

Historically, the Burn/Ross Property has been used as grazing land for cattle. This activity has resulted in a highly disturbed site. Most native vegetation has been replaced with nonnative annual grasses and weed species common to disturbed sites. Overall the vegetative cover on the site is sparse to moderate.

Topography of the site ranges from approximately 300 feet on the northern portion of the property, which is situated on the hill side, to 150 feet along the base of Hillsdale Avenue. The general site topography consists of sloping hillsides that face east, west and south. The east and west facing hills drain toward the middle of the site where a flat intermittent swale empties toward the eastern corner of the site. North of the property line the drainage swale is defined, however, once the swale crosses the Burns-Ross fence line it fans out and is undefined. Rain water from the northern slopes, on and off site, run south into the southeast corner of the property and into the adjacent property to the east. The southern facing slope drains toward the western portion of the site.

Construction of Hillsdale Avenue has created a barrier to overland flows causing rain water to temporarily pond on the southeastern corner of the site. Due to the presence of a five to six foot depression adjacent to the roadway, water collects at varying depths and eventually develops characteristics of seasonal wetlands intermixed with nonnative grasslands as the pond evaporates in late spring. (See Attachment 1, Figure 3)

2.0 METHODOLOGY

Olberding Environmental, Inc. completed an on-site survey of the Burns/Ross Property on November 5 and December 13, 1999. The existing landforms as well as associated vegetation, hydrology, and soil conditions were studied to identify areas that would likely contain wetland/waters and aquatic habitats at the site. Potential jurisdictional areas were identified on field maps and compared to available aerial photography and topographical maps.

The extent or boundary of these habitats was further defined using the 1987 "Corps Wetlands Delineation Manual" (1987 Manual)[1] incorporating the routine methodology currently in use by the U.S. Army Corps of Engineers (the "Corps"), published Corps of Engineers regulatory guidance letters, and San Francisco District regulatory policy.

[1] Environmental Laboratory 1987. "Corps of Engineers Wetlands Delineation Manual." U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. plus appendices

Pursuant to the 1987 Manual, key criteria for determining the presence of wetlands are:

a) the presence of inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water; and

b) a prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation).

Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. The combined use of indicators of all three parameters enhances the technical accuracy, consistency, and credibility of wetland determination and, for that reason, each is required to be present according to the 1987 Manual.

Aquatic habitats other than wetlands which are considered to be waters of the United States were also investigated as part of this study. Their landward extent was defined following the definitions provided in the Corps of Engineers regulations [33 CFR Ƶ328.4(a)(b) and (c)]:

(a) *Territorial Seas*. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles.

(b) *Tidal Waters of the United States*. The landward limits of jurisdiction in tidal waters:

 (1) Extends to the high tide line, or

 (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in (c) below.

(c) *Non-Tidal Waters of the United States*. The limits of jurisdiction in non-tidal waters:

 (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark (OHW), or

 (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.

(3) When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetlands.

Tributary waters and their impoundments are under the regulatory jurisdiction of the Corps and extend to the ordinary high water (OHW) mark on opposing channel banks. Tributary waters include rivers, streams and seasonal drainage channels. The OHW mark is typically indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in character of soil, destruction of vegetation, exposed roots on the bank, deposition of leaf litter and other debris materials or lower limit of moss growth on channel banks.

Areas meeting the regulatory definition of "Waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the Corps. The Corps under provisions of Section 404 of the Clean Water Act (1972), has jurisdiction over "Waters of the U.S." These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U. S.," tributaries of waters otherwise defined as "Waters of the U. S.," the territorial seas, and wetlands adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (33 CFR, Part 328).

Prior to site surveys, site maps, topographic maps and aerial photographs of the project area were obtained from several sources and reviewed. These sources included the U. S. *Geological Survey Quadrangle Map for San Jose East, CA* (1980), an aerial photograph contained in the *Soils of Santa Clara County, California* (SCS 1968) and additional aerial photographs and topographical maps provided by Kaufman & Broad.

The site was also reviewed to verify the potential of qualifying for Section 10 jurisdiction as a navigable water of the United States. Navigable waters of the U.S. are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR 329, Section 329.4). Section 10 jurisdiction extends to the lateral extent of the ordinary high water marks on opposing channel banks. Based on the description above, the site would not meet the regulatory definition of a navigable water. Ultimately, the determination of navigability is made by the division engineer (33 CFR, Part 329, Section 329.14).

An initial reconnaissance-level survey for jurisdictional waters was conducted by Olberding Environmental on November 5, 1999. A second survey was conducted on December 13, 1999. The purpose of this investigation was to identify and delineate potential jurisdictional waters, including wetlands. Surveys were conducted within the project boundary of the property which met the technical criteria of jurisdictional waters. The site was examined for topographical features, drainages, alterations to site hydrology and areas of recent disturbance.

A total of four (4) sample points were established within the project boundaries of the Burns/Ross Property. Two sample points were located in areas having gently sloping topography near Hillsdale Avenue, while the two remaining points were positioned along the intermittent drainage swale in the center of the site. The first sample point was located in the center of the drainage swale with the second sample point positioned slightly higher up the slope. A third sample point was located in the topographical depression of the southeastern corner of the site. The fourth sample point was located in the assumed transitional area at the top of the depression.

Data was collected on vegetation, soils, and hydrology using routine on-site wetland determination protocol as described in the 1987 Manual. Upland and wetland data was collected to distinguish wetland boundaries from the adjacent upland. The approximate location and extent of jurisdictional wetlands/waters were transferred onto a 1"=100' scale topographical map of the study area in the field. The size of those areas meeting the jurisdictional criteria were determined in the field by direct measurements and subsequently checked using digital planimetry. The results of the surveys were recorded on modified Corps data sheets which are included in this report (Attachment 4). Photographs were also taken at the site (Attachment 5).

The survey discussed in this report establishes the location and extent of jurisdictional wetlands/waters present at the time of the survey within the study area. The site was surveyed for areas meeting the technical criteria of jurisdictional wetlands/waters. A primary focus of surveys in the identification of jurisdictional waters was the investigation of surface and sub-surface hydrology. Attachment 1, Figure 5, depicts the location of areas containing potential wetlands and other waters of the United States identified during this study.

3.0 TECHNICAL FINDINGS

The following discussion reports the hydrology, soil and vegetation conditions observed at the study site during the course of the investigation.

3.1 Wetland Hydrology

The 1987 Manual states that the diagnostic environmental characteristics indicative of wetland hydrology conditions are: "the area is inundated either permanently or periodically at mean water depths less than or equal to 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation" (1987 Manual, p. 14). According to the Manual, indicators of hydrologic conditions that occur in wetlands may include:

Table 1. Hydrology Indicators

Primary Indicators	Secondary Indicators
Watermarks	Oxidized Rhizospheres Associated with Living Roots
Drift Lines	Water-Stained Leaves
Water-Borne Sediment Deposits	FAC-Neutral Test
Drainage Patterns Within Wetlands (With Caution)	Local Soil Survey Data

Department of the Army, U.S. Army Corps of Engineers, Washington, D.C., *Memorandum - Subject: Clarification and Interpretation of the 1987 Manual*, dated March 8, 1992 provides further clarification that:

> "Areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days for more than 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas wet between 5 percent and 12.5 percent of the growing season in most years (see Table 5, page 36 of the 1987 Manual) may or may not be wetlands. Areas saturated to the surface for

less than 5 percent of the growing season are non-wetlands. Wetland hydrology exists if field indicators are present as described herein and in the enclosed data sheet."

Each of the sample points was examined for positive field indicators of wetland hydrology. During the December 13, 1999, site survey, evidence of wetland hydrology indicators was visible at sample point 3 only. Positive hydrological indicators included observations of water marks on wood fence posts in the center of the topographical depression located adjacent to Hillsdale Avenue on the southeastern corner of the site. Water marks indicate periods of prolonged ponding. Other observations included the presence of deep cracks in the soil. Review of existing aerial photography also identifies ponding at this location. No secondary indicators were identified at any of the sample points. (See Attachment 4)

3.2 Wetland Soils

The Corps' 1987 Manual states that the diagnostic environmental characteristics indicative of wetland soil conditions are met where "soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions" (1987 Manual, p. 14). According to the Manual, indicators of soils developed under reducing conditions may include:

1. Organic soils (Histosols);
2. Histic epipedons;
3. Sulfidic material;
4. Aquic or peraquic moisture regime;
5. Reducing soil conditions;
6. Soil colors (chroma of 2 or less);
7. Soil appearing on hydric soils list; and
8. Iron and manganese concretions.

According to the most recent version of the National Technical Committee for Hydric Soils, the criteria to be used by the Corps for what constitutes current hydric soil/wetland soil conditions for the soils found at the site are:

1. <u>Minimum Saturation at 12" to the surface</u>: 14 consecutive days during growing season.

2. Minimum Inundation (Flooded or Ponded): Soils that are frequently "ponded" for long duration ($\geq$ 15 to 30 consecutive days) or very long duration (> 30 consecutive days) during the growing season, or soils that are frequently "flooded" for long duration or very long duration during the growing season.

In all four test pits, the top 20 inches of the soil profile was examined for hydric characteristics. Such characteristics include the presence of organic soils (Histisols), histic epipedons, aquic or peraquic moisture regime, presence of soil on a hydric soil list, mottling indicated by the presence of gleyed or bright spots of colors (in the former case, blue grays; in the latter case, orange red, or red brown) within the soil horizons observed. Mottling of soils usually indicates poor aeration and lack of good drainage. A Munsell soil color charts (Kollmorgen Instr. Corp. 1990) was reviewed to obtain the soil color matrix for each soil sample. The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers beginning with 0 for neutral grays and increasing at equal intervals to a maximum of about 20. Chroma values of the soil matrix which are one (1) or less, or of two (2) or less when mottling is present, are typical of soils which have developed under anaerobic conditions.

Three soil types are found on the Burns/Ross site as mapped by the USDA Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service, *Soils of Santa Clara County*.

Montara rocky clay loam, fifteen to fifty percent slopes, eroded.

The Montara rocky clay loam occupies the steep upper elevations on site and consists of a dark gray, granular, hard, moderately alkaline soil. Between five and 10 percent of this soil series is composed of rocky outcrops and the average slope is approximately 30 percent. The parent materials consist of serpentine rock. Surface runoff on this soil series is medium to rapid, the soil is somewhat excessively drained, and the permeability is moderately slow.

Climara clay 9 to 30 percent slopes.

Climara clay is composed of a dark gray, granular, very hard, neutral soil. This soil occupies strongly sloping to moderately sloping steep uplands. On the project site Climara clay soil series is located on the central section of the property. The parent material for this soil complex is calcareous, metamorphosed basic igneous rock. The average slope in this series is approximately fifteen percent. Surface runoff in this soil series is medium and the soil is well drained.

Cropley clay 2 to 9 percent slopes.

Cropley clay soils are composed of a very dark gray clay about 36 inches deep. These soils are associated with areas occupying alluvial fans. Cropley clay soils are composed of a heavy clay loam that accumulate in low depressions. Runoff is very slow in these soils. These soils are located along the south portion of the site adjacent to Hillsdale Avenue.

Review of the local hydric soils list did not identify any of these soils as a hydric soils (SCS, 1968). None of these soils is listed in the national listing of hydric soils (SCS, 1991). It is important to note, however, that although a soil for a particular site may be classified as a hydric soil by the SCS listing, it can nevertheless fail to be hydric and presently exhibit wetland soil characteristics if it has become effectively drained (Corps 1987). The converse is also possible when a soil is not listed as hydric, but site drainage conditions bring about wetland soil characteristics.

The majority of the site has undergone annual discing to control weeds. The exception to this are areas in the drainage swale and along the fence line bisecting the lower southeastern corner of the site. Soil material at sample points 1 and 2 were similar having a Munsell soil color that most closely resembled 5Y 2.5/1 while sample point 3 and 4 had a soil color resembling 5Y 3/1 and 5Y 3/2 respectively. Textures of all four sample points was similar having a clay or clay loam mixture. As observed in the field, there was indication of soil saturation within the southeastern depression near the fence line. At this location annual discing has not occurred within the top 0-12 inches of the soil profile. Deep cracking indicated an area of considerable shrinking and swelling due to periods of prolonged ponding. Wetland soil indicators included the presence of low chroma soil colors at sample point locations 1-3. Soils at sample point 4 were somewhat lighter in color.

3.3 Wetland Vegetation

The 1987 Manual states that the diagnostic environmental characteristics indicating wetland vegetation conditions are met when the prevalent vegetation (more than 50%) consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described above. In addition, hydrophytic species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. Indicators of vegetation associated with wetlands include:

1. more than 50% of the dominant species are rated as Obligate ("OBL"), Facultative Wet ("FACW") or Facultative ("FAC") on lists of plant species that occur in wetlands;[2]

2. visual observations of plant species growing in areas of prolonged inundation or soil saturation; and

3. reports in the technical literature indicating the prevalent vegetation is commonly found in saturated soils" (1987 Manual).

Table 2. Wetland Plant Indicator Status Categories.

INDICATOR CATEGORY	SYMBOL	FREQUENCY OF OCCURRENCE
OBLIGATE	OBL	greater than 99%
FACULTATIVE WETLAND	FACW	67 - 99%
FACULTATIVE	FAC	34 - 66%
FACULTATIVE UPLAND	FACU	1 - 33%
UPLAND	UPL	less than 1%

* Based upon information contained in Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987).

It is important to note that, although there is a high probability that one would expect to find obligate, facultative wet and facultative plants growing in wetlands, there is also a significant possibility that the obligate, facultative wet, and facultative species will occur in areas that do not exhibit wetland soil and/or wetland hydrology conditions.

The vegetation on the Communication Hill site consists of annual grassland, remnant coast scrub, and seasonal wetlands.

2 Reed, P B 1988. National List of Plant Species That Occur in Wetlands: California (Region 0) Biological Report 88(26 10) May 1988 National Ecology Research Center, National Wetlands Inventory, U S Fish and Wildlife Service. St. Petersburg, FL.

Annual Grassland

The dominant vegetation series found on the Burns/Ross property is California annual grassland. The annual grassland habitat was composed of a variety of annual grass species such as wild oats (*Avena fatua, A. barbata*), rip-gut brome (*Bromus diandrus*), Italian rye grass (*Lolium mulitiflorum*), soft chess (*Bromus hordeaceous*), and intermittently occurring species consisted of redbrome (*Bromus madritensis* var. *rubens*), rat-tail fescue (*Vulpia myuros*) and goldentop (*Lamarkia aurea*). Forbs and bulbs were common on site and species were observed such as fillaree (*Erodium cicutarium, E. moschatum, E. botrys*), plantain (*Plantago erecta*), buckwheat (*Eriogonum fasciculatum*), yarrow (*Achillea milifolium*), poppy (*Eschscnolzia caespitosa*), lupine (*Lupinus* sp.), peppergrass (*Lepidium nitium* var. *nitidum*), brodiaea (*Brodiaea* sp.), and soaproot (*Chlorogalum pomeridiam*). Late season plants were observed in bloom on site such as prickly lettuce (*Lactuca seriola*), vinegar weed (*Trichelostemma lanceolata*), Italian thistle (*Carduus pycnocephalus*) and willow weed (*Epilobium paniculatum*).

Seasonal Wetland

An intermittent drainage area was located in the middle of the site within the annual grassland habitat. This area was characterized by Italian rye grass (*Lolium multiflorum - FAC*), bull thistle (*Cirsium vulgare - FACU*), black mustard (*Brassica nigra* - UPL) and curly dock (*Rumex crispus - FACW-*). Vegetation observed in the wetland located on the southeastern corner of the site consisted of rabbit's foot grass (*Polypogon monspeliensis - FACW*), curly dock (*Rumex crispus*), Italian rye grass (*Lolium multiflorum*), heliotrope (*Heliotropium curvassicum* - OBL), and prickly lettuce (*Lactuca seriola - FAC*).

Plants observed at each of the sample sites were identified to species using standard floras appropriate for central California, wherever necessary. The dominant wetland plant taxa observed included Italian rye grass (*Lolium multiflorum*), rabbit's foot grass (*Polypogon monspeliensis*), and curly dock (*Rumex crispus*). These plants are typical of seasonal wetland communities. Attachment No. 2 provides a list of plant species identified at the project site.

4.0 AREAS POTENTIALLY REGULATED BY THE CORPS OF ENGINEERS

4.1 Areas Potentially Subject to Regulation (Wetlands/Waters of the U.S.)

The EPA and Corps regulations define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (40 C.F.R. Ȥ230.3(t); 33 C.F.R. Ȥ328.3(b)).

The term "waters of the United States" are defined in 40 C.F.R. Ȥ328.3(a) as:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

> (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
>
> (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
>
> (iii) Which are used or could be used for industrial purpose by industries in interstate commerce.

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs [1-4] of this section;

(6) The territorial sea; and

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs [1-6] of this section (40 CFR Ȥ230.3(s); 33 CFR Ȥ328.3(a)).

Notwithstanding the regulatory definition of waters of the United States, however, in the November 13, 1986 Federal Register preamble to Army Corps of Engineers regulations, "waters of the United States" is said to be interpreted by the U.S. Environmental Protection Agency (EPA) to include waters:

a. which are or would be used as habitat by birds protected by Migratory Bird Treaties; or

b. which are or would be used as habitat by other migratory birds which cross state lines; or

c. which are or would be used as habitat for endangered species; or

d. used to irrigate crops sold in interstate commerce (51 Fed. Reg. 41217).

4.1.1 Potential Wetlands

Seasonal Wetland

The southeast corner of the site is the location at which water from the above described drainage swale ponds for a sufficient length of time to create a seasonal wetland. The wetland formed is approximately 61,855 square feet (1.42 acres) in size. Of this amount, approximately **0.35** acres occur within the Burns/Ross Property. The remaining wetland acreage (1.07 acres) is located on lands owned by MTA Properties. Hillsdale Avenue forms the southern border for the wetland and blocks all flow off of the Burns/Ross Property and MTA Properties site. The Burns/Ross property fence line transects the wetland along Hillsdale Avenue. Fence posts were observed with watermarks as high as five feet one inch (5'1") deep. The observed vegetation and hydrology features strongly suggest that this area falls within the parameters established by the Corps to be considered a wetland.

4.1.2 Potential Other Waters

The Burns/Ross Property did not contain areas defined as "other waters."

Table 3. Potential Corps Jurisdictional Wetlands/Waters

Location	Wetlands (acres)	Other Waters (acres)
Southeastern Depression Burns/Ross Property	**0.35**	**0**
Southeastern Depression MTA Properties	**1.07**	
Total	**1.42**	**0**

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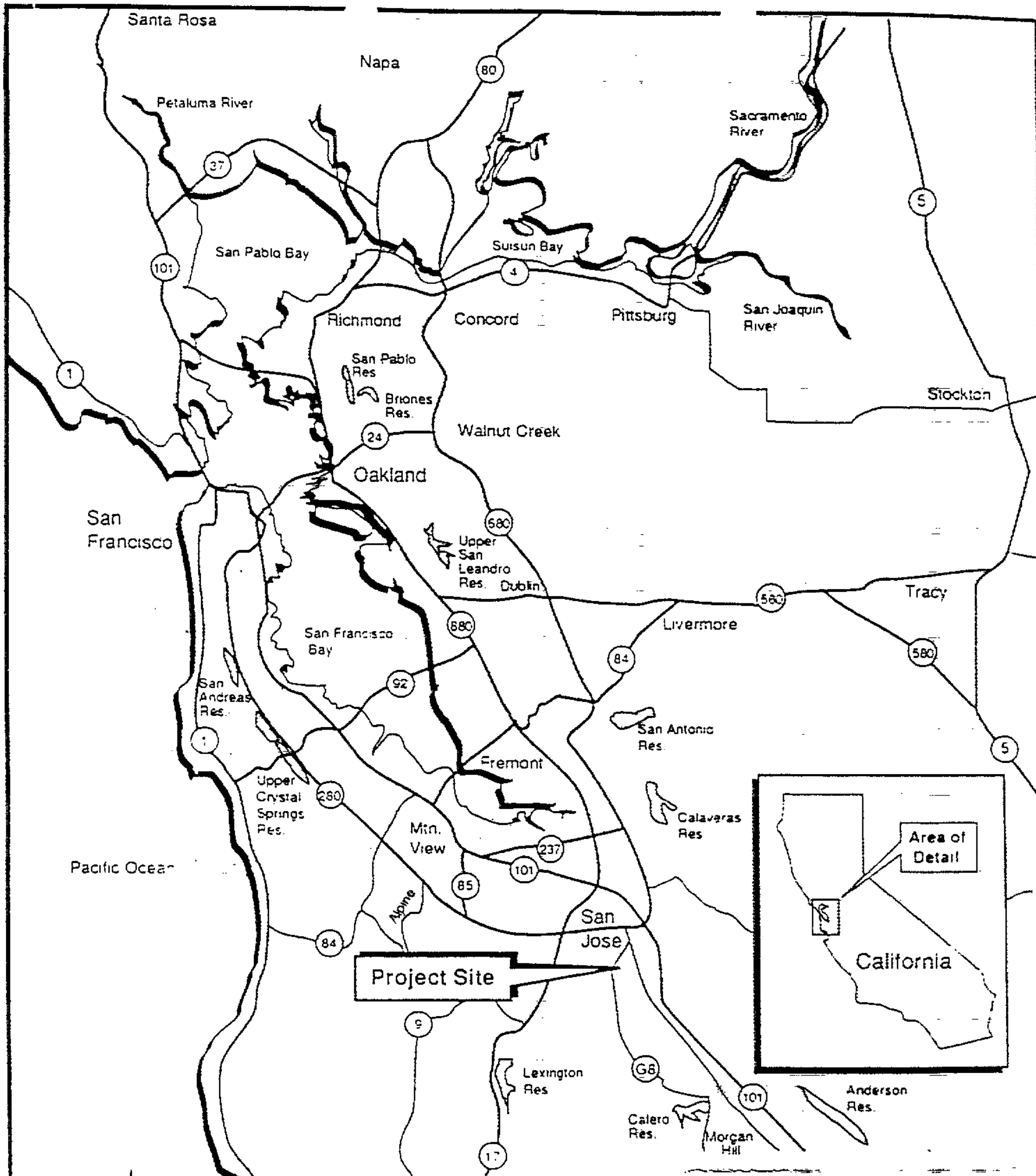
ATTACHMENT NO. 1

FIGURES

FIGURE NO. 1.

REGIONAL MAP



OLBERDING ENVIRONMENTAL, INC

Figure 1

Burns/Ross Property	Regional Map	**Project:** Burns/Ross Property **Location:** San Jose, California **County:** Santa Clara County **Date:** 12-19-99 **Source:** H.T Harvey & Associates 1992

FIGURE NO. 2.

SITE /VICINITY MAP

OLBERDING ENVIRONMENTAL, INC

Figure 2

Burns/Ross Property	Site/Vicinity Map	Project: Burns/Ross Property Location: San Jose, California County: Santa Clara County Date: 12-19-99

FIGURE NO. 3.

AERIAL PHOTOGRAPH

Figure 3

OLBERDING ENVIRONMENTAL, INC

Burns/Ross Property	Aerial Photograph	**Project:** Burns Ross Property **Location:** San Jose, California **County:** Santa Clara County **Date:** 12-19-99

FIGURE NO. 4.

NRCS SOIL SURVEY MAP

OLBERDING ENVIRONMENTAL, INC

Figure 4

Burns/Ross Property	NRCS Soil Survey Map	**Project:** Burns/Ross Property **Location:** San Jose, California **County:** Santa Clara County **Date:** 12-19-99

FIGURE NO. 5.

JURISDICTIONAL WATERS MAP

ATTACHMENT NO. 2

PLANT LIST

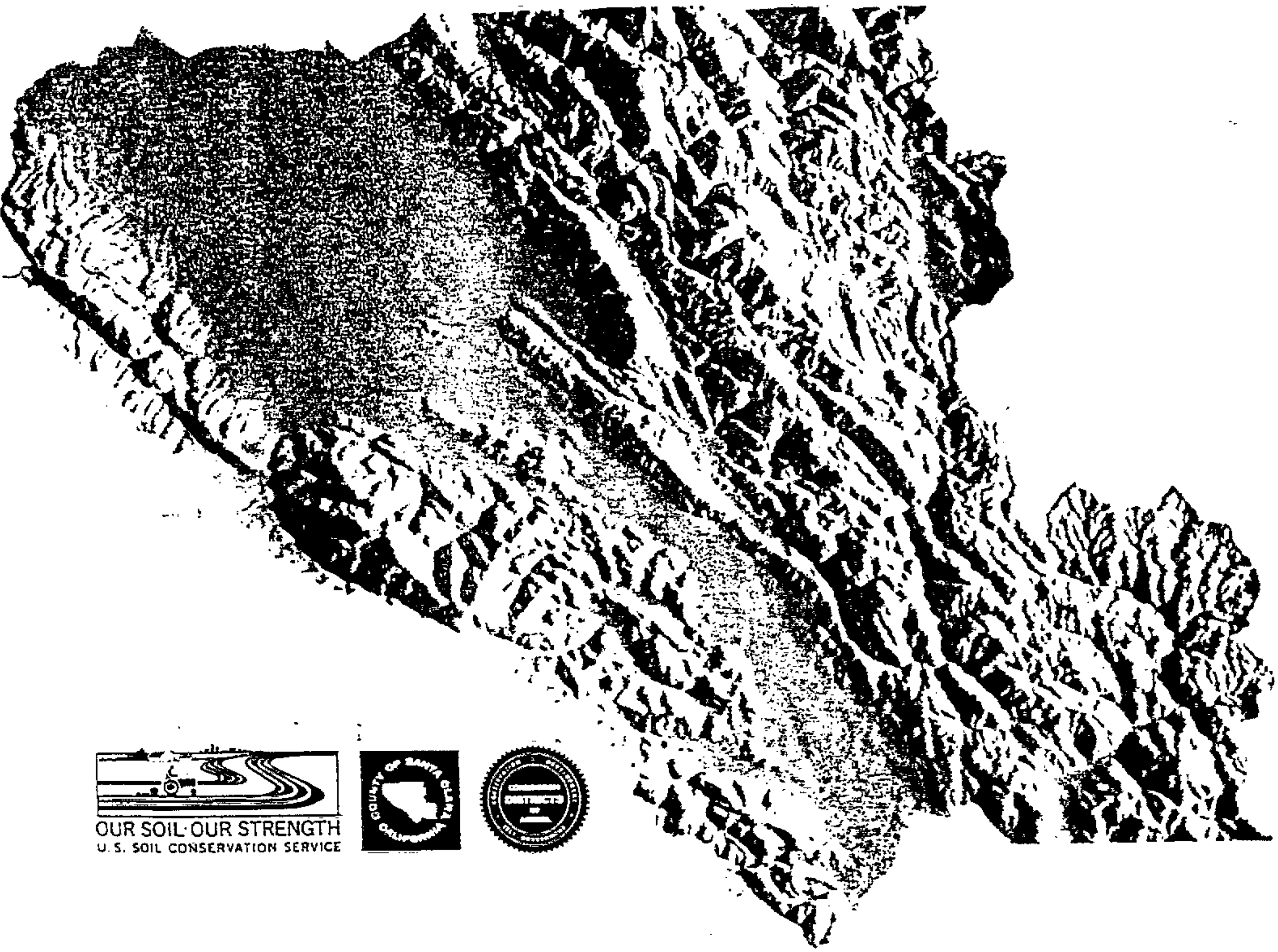
Plants Observed on the Burns/Ross Site

Italian rye (*Lolium multiflorum*)
Rip-gut brome (*Bromus diandrus*)
Italian rye grass (*Lolium mulitiflorum*)
Soft chess (*Bromus hordeaceous*)
Wild oat (*Avena fatua*)
Redbrome (*Bromus madritensis* var. *rubens*)
Rat-tail fescue (*Vulpia myuros*)
Goldentop (*Lamarkia aurea*)
Fillaree (*Erodium cicutarium, E. moschatum, E. botrys*)
Plantain (*Plantago erecta*)
Buckwheat (*Eriogonum fasciculatum*)
Yarrow (*Achillea milifolium*)
Poppy (*Eschscholzia caespitosa*)
Lupine (*Lupinus* sp.)
Peppergrass (*Lepidium nitium* var. *nitidum*)
Brodiaea (*Brodiaea* sp.)
Soaproot (*Chlorogalum pomeridiam*).
Prickly lettuce (*Lactuca seriola*)
Vinegar weed (*Trichelostemma lanceolata*)
Bull thistle (*Cirsium vulgare*)
Willow weed (*Epilobium paniculatum*)
Prickly lettuce (*Lactuca seriola*)
California sagebrush (*Artemisia californica*)
Needle grass (*Nasella pulchra*).
Yellow starthistle (*Centaurea solstitialis*)
Rabbit's foot grass (*Polypogon monspeliensis*)
Curly dock (*Rumex crispus*)
Heliotrope (*Heliotropium curassavicum*)
Common tarweed (*Hemizonia pungens*)
Bermuda grass (*Cynodon dactylon*)
Beta (*Beta vulgaris*)
Pepper grass (*Lepidium latifolium*)

ATTACHMENT NO. 3

NRCS SOILS DATA

SOILS OF SANTA CLARA COUNTY



OUR SOIL·OUR STRENGTH
U.S. SOIL CONSERVATION SERVICE

Prepared by the United States Department of Agriculture, Soil Conservation Service, in cooperation with and for the County of Santa Clara Planning Department, the Santa Clara County Flood Control and Water District, and the Black Mountain, Evergreen, and Loma Prieta Soil Conservation Districts.

surface.

This soil is used for dryland pasture; a few areas are planted to irrigated sugar beets. Drainage, irrigation management, flood control and presence of salts are management problems. Capability unit IIIw5 (14).

CLIMARA SERIES

The Climara series consists of well drained, fine textured soils underlain by calcareous, soft to hard metamorphosed basic igneous rock at depths of 2 to 5 feet. They formed on strongly sloping to steep uplands. Vegetation is mainly annual grasses and a few scattered oaks. Elevations range from 500 to 2,000 feet. Mean annual rainfall is 16 to 20 inches; mean annual air temperature is 58 to 60° F. The growing season is about 200 to 250 days. Azule and Montara are the principal associated soils.

The surface soil is a very dark gray neutral clay, averaging 13 to 30 inches in thickness. The subsoil is a dark grayish brown calcareous clay ranging in thickness from 7 to 10 inches. Both the surface and subsoil develop deep cracks, when the soil is dry. The substratum is soft to hard calcareous weathered metamorphosed basic igneous rock.

Climara soils are used for dryland pasture and range.

Climara stony clay, 15 to 50 percent slopes (CmE). This soil has variable slopes, averaging about 30 percent.

Representative profile: On Roop Road 1/2 mile from the intersection with New Avenue, in the N. W. 1/4 of the N. W. 1/4 of Sec. 22, T. 10 S., R. 4 E., Santa Clara County, California.

A11 — 0 to 5 inches, dark gray (10YR 4/1) clay, very dark gray (10YR 3/1) moist; strong medium and fine granular structure; hard, friable, sticky and plastic; abundant very fine roots; many very fine interstitial and tubular pores; neutral (pH 7.0); clear smooth boundary. (5 to 12 inches thick).

A12 — 5 to 19 inches, dark gray (10YR 4/1) clay, very dark gray (10YR 3/1) moist; moderate coarse angular blocky structure; very hard, firm, sticky and plastic; few very fine roots; many very fine interstitial and tubular pores; few slickensides and vertical cracks 1/4 to 1/2 inches wide; neutral (pH 7.0); clear irregular boundary. (8 to 18 inches thick).

Cca — 19 to 27 inches, dark grayish brown (10YR 4/2) clay, very dark grayish brown (2.5Y 3/2) moist; strong coarse prismatic structure; extremely hard, firm, sticky and plastic; few fine roots; many very fine interstitial and tubular pores; many slickensides and vertical cracks 1/4 to 1/4 inches thick; slightly calcareous, moderately alkaline (pH 8.0); clear wavy boundary. (7 to 10 inches thick).

C&R 27 inches, calcareous soft to hard metamorphosed basic igneous rock.

Surface soil color may be dark gray or gray. Texture is typically clay but occasionally is heavy clay loam. About 5 to 10 percent of the area is covered by stones. Reaction is neutral to moderately alkaline and a few areas are calcareous near the surface. Subsoil color is grayish brown or dark grayish brown; it is moderately alkaline and calcareous. Average depth to bedrock is 27 inches. In extreme, depth to bedrock is over 60 inches.

Included in mapping this soil are 15 percent Montara rocky clay loam, along the ridge crests and fault lines; a few areas that are calcareous on the surface, eroded areas, gullied land, and a few rock outcrops.

This well drained soil has a water holding capacity of 4 to 7 inches plants can use. Natural fertility is moderate. Subsoil permeability is slow. Surface runoff is medium to rapid and the erosion hazard is moderate to high. Rooting depth is moderately deep to deep.

This soil is used for dryland pasture and range. Capability unit VIe5 (15); pasture and range site Clayey, steep phase.

Climara clay, 9 to 30 percent slopes (CnD). Except for having less than 3 percent stones and rock outcrops on the surface, medium runoff and moderate erosion hazard, this soil is similar to Climara stony clay 15 to 50 percent slopes. The soil occurs on rounded ridgetops or as small areas of lesser slopes, in areas of steeper Climara soils. The average slope is about 15 percent. Included in mapping are Montara rocky clay loam 15 percent; areas of severe sheet erosion, small landslips and gullied land.

This soil is used for dryland pasture and range. Capability unit IVe5 (15); pasture and range site, Clayey.

CORTINA SERIES

The Cortina series consists of somewhat excessively drained, coarse textured, very gravelly soils, underlain by very gravelly mixed alluvium. They occur on nearly level to gently sloping stream benches along major drainageways. Vegetation is grass, forbs, brush, scattered sycamore and oak trees. Elevations range from 100 to 2,400 feet. Mean annual rainfall ranges from 16 to 25 inches; average annual air temperature is 58 to 60° F.; and the frost free season is about 250 to 300 days. Yolo and Esparto are the principal associated soils.

Rooting depth is very deep, but root density is limited by droughty, very gravelly subsoils and substratum.

A few of the more usable soils have been planted to irrigated prunes; it is mostly used for limited grazing. Capability unit IVs4 (14), and VIIe4 (15).

CROPLEY SERIES

The Cropley series consists of well drained,fine textured soils, underlain by mixed, mostly sedimentary alluvium. They have formed on nearly level to moderately sloping fans. Vegetation is annual and perennial grasses and forbs. Elevations range from 130 to 1,000 feet. Mean annual rainfall is 16 to 20 inches; mean annual air temperature is about 58 to 60° F. The growing season is about 260 to 300 days. Clear Lake and Pleasanton are the principal associated soils.

Surface soil is very dark gray, neutral clay or clay loam, averaging 12 to 22 inches in thickness. The subsoil is a dark gray mildly alkaline clay, averaging 15 to 30 inches in thickness. When these soils are dry, deep cracks develop in the surface and upper subsoil. The substratum material consists of dark grayish brown calcareous clay.

Cropley soils are used for irrigated row crops, orchards, dry-land grain hay, pasture, housing and commercial developments.

Cropley clay, 0 to 2 percent slopes (CrA). This soil occurs on nearly level alluvial fans averaging about 1 percent slope.

Representative profile: One tenth of a mile east in a field, two tenths of a mile south of Foothill road from Tennant Avenue intersection; Santa Clara County, California.

Ap 0 to 7 inches, very dark gray (10YR 3/1) clay, black (10YR 2/1) when moist; weak medium subangular blocky and strong medium and fine granular structure; very hard, very firm, very sticky and very plastic; abundant very fine roots; many fine and very fine interstitial pores and a few medium tubular pores; neutral (pH 7.0); clear smooth boundary. (5 to 10 inches thick).

A12 7 to 14 inches, very dark gray (10YR 3/1) clay, black (10YR 2/1) when moist; strong coarse prismatic structure with few medium and fine granules; very hard, very firm, very sticky and very plastic; few very fine and a few coarse woody roots; common very fine interstitial and few fine tubular pores; neutral (pH 7.0); small numerous slickensides; gradual wavy boundary. (7 to 12 inches thick).

A13 14 to 36 inches, dark gray (10YR 4/1)clay, black and very dark gray (10YR 2/1, 3/1) moist; prismatic, very hard, very firm, very sticky and very plastic; few fine interstitial and fine tubular pores; numerous slickensides, also pressure faces; mildly alkaline (pH 7.5); gradual wavy boundary. (15 to 30 inches thick).

Cca 36 to 60 inches, dark grayish brown (2.5Y 4/2) clay, very dark grayish brown (2.5Y 3/2) moist; massive; hard, firm, sticky and plastic; many very fine interstitial and common very fine tubular pores; calcareous, moderately alkaline (pH 8.0).

Surface soil color may be dark gray or very dark gray, or nearly black. Reaction is neutral to mildly alkaline. Texture may range to a heavy clay loam but is typically clay. Segregated lime occurs at depths of 20 to 60 inches in extreme, but commonly occurs at an average depth of 36 inches. When this soil is dry, deep cracks develop averaging 1/2 to 1 1/2 inches in width, extending to an average depth of 36 inches.

Included in mapping this soil are small bodies of Clear Lake clay, occurring in low depressional positions, 10 percent; also areas of gravelly clay loam overwash ranging from 12 to 30 inches in thickness.

This well drained soil has high fertility and holds about 10 to 12 inches of water plants can use. Permeability is slow. Surface runoff is very slow and erosion hazard is not a problem. Rooting depth is very deep but somewhat restricted by the clay texture.

This soil is used for irrigated prunes, apricots, dryland hay and pasture. Capability unit IIs5 (14).

Cropley clay, 2 to 9 percent slopes (CrC). This soil is similar to Cropley clay, 0 to 2 percent slopes, except it occupies gently to moderately sloping alluvial fans; surface runoff is slow to medium, erosion hazard is slight to moderate. Included in mapping are areas that have a heavy gravelly clay loam or gravelly clay texture.

This soil is used for irrigated prunes, apricots, dryland hay and pasture. Capability unit IIe5 (14).

Cropley clay loam, 0 to 2 percent slopes (CsA). This soil consists of Cropley clay, 0 to 2 percent slopes with calcareous clay loam overwash. Average thickness is about 12 inches, however, the range in thickness is 8 to 20 inches. Included in mapping are areas where the clay loam texture may be 30 inches thick; also, about 15 percent is Campbell silty clay loam.

This soil is used for irrigated row crops, sugar beets, apricots, prunes, walnuts, housing and commercial developments. Capability unit IIs5 (14).

inches of water plants can use. Otherwise, this soil is similar to Mocho loam. Included in mapping are areas west of Milpitas along Coyote Creek, slightly affected by alkali, also areas of pale brown calcareous soils.

This soil is used for irrigated row crops, sugar beets, apricots cherries, prunes and pears. About 30 percent of this soil is now used for housing and commercial developments. Capability unit I-1 (14).

Mocho soils, undifferentiated (Mk). This undifferentiated soil occupies small, nearly level low benches along the channel of Coyote Creek at lower elevations than the associated Yolo soils. Soil texture is so variable, separation was not practical. Texture ranges from coarse sandy loam, gravelly sandy loam, silt loam to clay loam, within short distances. Surface soil color may be brown, or pale brown, and slightly to moderately calcareous. The soils are subject to cutting and filling by flood waters about once every ten years.

Because of extremely variable texture, the available water for plant use is not predictable, and fertility is low. Runoff is medium and the soil is subject to deposition and cutting. Plant rooting depth may be limited by gravel substratum.

A few areas of this undifferentiated soil have been used for irrigated row crops and orchard crops. However, most of the areas are used as a source of sand and gravel. Capability unit IVs4 (14).

MONTATA SERIES

The Montara series consists of somewhat excessively drained, moderately fine textured soils, underlain by serpentine bedrock at depths of 8 to 16 inches. They formed on moderately steep to steep uplands. Vegetation is annual grasses and forbs with scattered dwarfed oak trees and Digger pines. Elevations range from 800 to 3,000 feet. Mean annual rainfall is 16 to 25 inches; mean annual air temperature is 58 to 60° F. The average growing season is 250 to 300 days. Climara, Azule, and Inks are the principal associated soils.

The surface soil ranges in thickness from 2 to 8 inches and is a dark gray and very dark gray, moderately alkaline clay loam. Subsoil is a very dark gray, moderately alkaline clay loam, averaging from 6 to 8 inches in thickness. The substratum is greenish gray serpentine bedrock.

Montara soils are used mainly for dryland pasture, limited range, wildlife, recreation and watershed.

Montara rocky clay loam, 15 to 50 percent slopes, eroded (MwF2). This soil is on moderately steep to steep uplands with broad well rounded ridges. Average slope is about 30 percent.

Representative profile: In a road cut 1/2 mile north of Pigeon Point, T. 8 S., R. 3 E., Santa Clara County, California.

A11 0 to 2 inches, dark gray (10YR 4/1) clay loam, black (10YR 2/1) when moist; moderate fine and medium granular structure; hard, friable, sticky and plastic; few fine roots; many fine and very fine pores; moderately alkaline (pH 8.0); clear wavy boundary. (0 to 2 inches thick).

A12 2 to 6 inches, very dark gray (10YR 3/1) clay loam, black (10YR 2/1) when moist; moderate medium subangular blocky structure; hard, very friable, sticky and plastic; plentiful very fine roots; many very fine and fine pores; few Krotovina; many small and medium stone fragments; moderately alkaline (pH 8.0); clear wavy boundary. (2 to 6 inches thick).

A13 6 to 13 inches, very dark gray (10YR 3/1) clay loam, black (10YR 2/1) when moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; few very fine roots; common fine and very fine tubular pores; many small and medium sized fragments of serpentine; moderately alkaline (pH 8.0); abrupt irregular boundary. (6 to 8 inches thick).

R 13 to 20 inches, greenish gray serpentine rock.

Color of the surface soil is dary gray or very dark gray. Reaction is neutral or moderately alkaline and changes little with increasing depth. Texture is a clay loam. 5 to 10 percent of the surface is covered by rock outcrop.

Included in mapping this soil are 15 percent areas of Inks rocky clay loam; also, areas of clay texture and Rock land.

This somewhat excessively drained soil holds 2 to 3 inches of water plants can use. Fertility is low, because of an unfavorable calcium-magnesium ratio. Permeability is moderately slow. Surface runoff is medium to rapid, and the erosion hazard is moderate to high. Rooting depth is shallow to bedrock.

This soil is used for limited dryland pasture, range, watershed, wildlife and recreation. Capability unit VIIs9 (15); pasture and range site Serpentine.

Montara stony clay loam, 30 to 50 percent slopes, severely eroded (MxF3). This soil occupies steep slopes averaging about 40 percent. Past sheet erosion has removed most of the surface soil. Runoff is rapid and the erosion hazard is high. Depth to serpentine rock is 8 to 12 inches. This soil holds about 1 to 2 inches of water plants can use, and the fertility is very low. Otherwise, this soil is similar to Montara rocky clay loam, 15 to 50 percent slopes, eroded. Included in mapping are areas of Rock land.

This soil is used for wildlife, recreation and watershed. A few areas have been cut and shaped for housing developments. Capability unit VIIIs1 (15).

Montara-Climara complex, 15 to 30 percent slopes (MyE). This complex consists of shallow rocky clay loam and moderately deep clay soils, underlain by serpentinized rock. They formed on moderately steep uplands. Montara soil is similar to the described Montara rocky clay loam, 15 to 50 percent slopes, eroded. Climara soils are similar to Climara stony clay, 15 to 50 percent slopes. Vegetation is mostly grass.

The proportion of soils will vary but there is about 60 percent Montara rocky clay loam and 25 percent Climara stony clay. The other 15 percent consists of brown, calcareous clay soils.

This complex is used for dryland pasture and range. Montara rocky clay loam is Capability unit VIIs9 (15) and Climara stony clay is Capability unit VIe5 (15); Montara is pasture and range site Serpentine and Climara is pasture and range site Clayey.

ORESTIMBA SERIES

The Orestimba series consists of poorly drained, moderately fine textured soils, underlain by sedimentary alluvium. They formed on low level alluvial plains and basins. Vegetation is mostly salt tolerant grasses and forbs. Elevations range from 150 to 300 feet. Mean annual rainfall is 15 to 20 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 325 days. Willows and Sunnyvale are the principal associated soils.

The surface soil averages 9 to 11 inches in thickness and is a grayish brown silty clay loam or clay loam. The subsoil is a dark grayish brown, salty heavy clay loam, ranging in thickness from 25 to 34 inches. The substratum is silty clay loam, mottled, calcareous, alluvium. Most of the soils are affected by concentrations of both neutral and alkaline salts.

Orestimba soils are used for irrigated row crops, prunes, pears, dryland pasture and grain hay. A few areas are used for housing developments.

Orestimba silty clay loam (Og). This soil occupies low positions of the alluvial plains or small basin areas.

Representative profile: In a field 50 yards north east of the Jackson Avenue and Story Road intersection; Santa Clara County, California.

A 0 to 10 inches, grayish brown (10YR 5/2) silty clay loam,

TABLE V- SOIL CHARACTERISTICS AND QUALITIES, SANTA CLARA COUNTY, CALIFORNIA

MAP SYMBOL	SOIL NAME	POSITION	SOIL PROFILE (dry)			NATURAL DRAINAGE	SUBSOIL PERM.	RUNOFF	EROSION HAZARD	EFFECTIVE DEPTH Inches)	A.W.C. 1/ (Inches)	INHERENT FERTILITY	PRESENT LAND USE
			Surface Layer	Subsoil	Substratum or Parent Material								
Ca	Campbell silty clay loam	Level alluvial plain	Dark gray,granular, hard, mildly alkaline 22 to 28 inches thick	Dark gray silty clay loam,subangular blocky hard, mottled, slightly calcareous, 12 to 15 inches thick	Light olive brown silty clay loam, mottled calcareous alluvium	Somewhat poor 2/	Moderately slow	Very slow	None	60	10 to 11	High	Irrigated row crops sugar beets, prunes walnuts, apricots and pears
Cd	Campbell silty clay	Level alluvial plain	Dark gray, granular, hard,mildly alkaline, 22 to 28 inches thick	Dark gray silty clay loam, subangular blocky,hard,mottled. slightly calcareous 12 to 15 inches thick	Light olive brown silty clay loam, mottled calcareous alluvium	Somewhat poor 2/	Slow	Very slow	None	60	10 to 11	High	Irrigated row crops, sugar beets, prunes, walnuts, apricots and pears
Cc	Campbell silty clay loam, clay substratum	Level alluvial plain	Dark gray granular, hard, mildly alkaline 22 to 28 inches thick	Dark gray silty clay loam, subangular blocky, hard, mottled slightly calcareous. 12 to 15 inches thick	Dark gray clay	Somewhat poor	Slow	Very slow	None	36 to 60	6 to 9	High	Irrigated row crops and sugar beets
Ce	Campbell silty clay, muck substratum	Level alluvial plain	Dark gray, granular, hard, mildly alkaline, 22 to 28 inches thick	Dark gray silty clay loam, subangular blocky, hard, mottled slightly calcareous, 12 to 15 inches thick	Stratified layers of muck and clay	Somewhat poor	Moderately slow	Very slow	None	30 to 40	7 to 8	High	Irrigated row crops and sugar beets
Cf	Castro clay	Low level alluvial plain	Very dark gray, granular, hard, slightly calcareous, 17 to 30 inches thick	White clay, massive, extremely hard, strongly calcareous, 10 to 24 inches thick	Pale yellow clay alluvium	Poor	Very slow	Ponded	None	60	8 to 10	High	Irrigated row crops sugar beets, pears, dryfarmed grain hay housing and commercial.
Ch	Clear Lake clay, drained	Low level alluvial plain	Dark gray, granular, very hard, neutral, 22 to 29 inches thick	Grayish brown clay, mottled, prismatic, very hard,calcareous, 10 to 20 inches thick	Grayish brown, mottled calcareous clay alluvium	Poor 2/	Slow	Ponded	None	60	10 to 12	High	Irrigated row crops, sugar beets,prunes, walnuts, apricots, pears and dryland grain hay
Cg	Clear Lake clay	Low level alluvial plain	Dark gray, granular, very hard, mildly alkaline,22 to 29 inches thick	Grayish brown clay, mottled, prismatic, very hard,calcareous, 10 to 20 inches thick	Grayish brown mottled calcareous clay alluvium	Poor	Slow	Ponded	None	30 to 48	6 to 8	High	Irrigated row crops and sugar beets
Ck	Clear Lake clay, saline	Low level alluvial plain	Dark gray,granular, very hard, mildly alkaline, salty, 22 to 29 inches thick	Grayish brown clay, mottled, prismatic, very hard,calcareous, 10 to 20 inches thick	Grayish brown mottled calcareous clay alluvium	Poor	Slow	Ponded	None	30 to 48	6 to 8	Moderate	Irrigated sugar beets, dryland pasture
CmE	Climara stony clay, 15 to 50 percent slopes	Moderately steep to steep uplands	Dark gray, granular, very hard, neutral, 13 to 30 inches thick	Dark grayish brown clay, prismatic, very hard, calcareous, 7 to 10 inches thick	Calcareous metamorphosed basic igneous rock	Good	Slow	Medium to rapid	Moderate to high	27 to 60	4 to 7	Moderate	Dryland pasture and range
CnD	Climara clay, 9 to 30 percent slopes	Strongly sloping to moderately steep uplands	Dark gray, granular, very hard, neutral, 13 to 30 inches thick	Dark grayish brown clay, prismatic, very hard, calcareous,7 to 10 inches thick	Calcareous, metamorphosed basic igneous rock	Good	Slow	Medium	Moderate	27 to 60	4 to 7	Moderate	Dryland pasture and range
CcB	Cortina very gravelly loam, 0 to 5 percent slopes	Nearly level gently sloping stream benches	Pale brown, massive, hard, slightly acid, 8 to 12 inches thick	Brown very gravelly, fine sandy loam, massive, slightly hard, slightly acid, 20 to 30 inches thick	Very gravelly stratified alluvium	Somewhat excessive	Rapid	Very slow	Subject to deposition	60	2 to 4	Low	Irrigated prunes, limited grazing.

1/ Total available Water holding capacity within effective soil depth

2/ Natural drainage is now moderately good because of the general lowering of ground water levels in the valley.

MAP SYMBOL	SOIL NAME	POSITION	SOIL PROFILE (dry) Surface Layer	Subsoil	Substratum or Parent Material	NATURAL DRAINAGE	SUBSOIL PERM.	RUNOFF	EROSION HAZARD	EFFECTIVE DEPTH (inches)	A.W.C. 1/ (Inches)	INHERENT FERTILITY	PRESENT LAND USE
CrA	Cropley clay, 0 to 2 percent slopes	Nearly level fans	Very dark gray, granular, very hard, neutral, 12 to 22 inches thick.	Dark gray clay, prismatic, very hard, mildly alkaline, 15 to 30 inches thick	Dark grayish brown, calcareous clay	Good	Slow	Very slow	None	60	10 to 12	High	Irrigated prunes, apricots, dryland hay and pasture
CrC	Cropley clay, 2 to 9 percent slopes	Gently to moderately sloping fans	Very dark gray, granular, very hard, neutral, 12 to 22 inches thick	Dark gray clay, prismatic, very hard, mildly alkaline, 15 to 30 inches thick	Dark grayish brown, calcareous clay	Good	Slow	Slow to medium	Slight to moderate	60	10 to 12	High	Irrigated prunes, apricots, dryland hay and pasture
CsA	Cropley clay loam, 0 to 2 percent slopes	Nearly level alluvial fans	Brown, massive, hard, moderately alkaline, 8 to 20 inches thick	Dark gray clay, massive very hard, moderately alkaline, 15 to 30 inches thick	Dark grayish brown, calcareous clay	Good	Slow	Very slow	None	60	10 to 12	High	Irrigated row crop sugar beets, prunes, apricots, walnuts, housing and commercial developments.
DaD	Diablo clay, 9 to 15 percent slopes	Strongly sloping uplands	Very dark gray, blocky, very hard, mildly alkaline, 16 to 36 inches thick	Olive gray clay, prismatic, very hard, calcareous, 10 to 20 inches thick	Calcareous sandstone	Good	Slow	Medium	Moderate	26 to 56	5 to 8	High	Dryland grain hay, pasture and range
DaE	Diablo clay, 15 to 30 percent slopes	Moderately steep uplands	Very dark gray, blocky, very hard, mildly alkaline, 16 to 36 inches thick	Olive gray clay, prismatic, very hard, calcareous, 10 to 20 inches thick	Calcareous sandstone	Good	Slow	Medium	Moderate	25 to 56	5 to 8	High	Dryland grain hay, pasture and range
DaE2	Diablo clay, 15 to 30 percent slopes, eroded	Moderately steep uplands	Very dark gray, blocky, very hard, mildly alkaline, 16 to 30 inches thick	Olive gray clay, prismatic, very hard, calcareous, 10 to 20 inches thick	Calcareous sandstone	Good	Slow	Medium	Moderate	26 to 50	4 to 7	High	Dryland grain hay, pasture and range
DaF	Diablo clay, 30 to 50 percent slopes	Steep uplands	Very dark gray, blocky, very hard, mildly alkaline, 16 to 36 inches thick	Olive gray clay, prismatic, very hard, calcareous, 10 to 20 inches thick.	Calcareous sandstone	Good	Slow	Rapid	High	26 to 56	5 to 8	High	Dryland pasture and range
EsA	Esparto loam, 0 to 2 percent slopes	Nearly level small fans and stream benches	Pale brown, massive, very hard, medium acid 10 to 16 inches thick	Light brownish gray clay loam, subangular blocky, very hard, slightly acid, 30 to 42 inches thick	Mottled gravelly clay loam alluvium	Moderately well	Moderately slow	Very slow	None	60	8 to 10	Moderate	Dryland grain hay and pasture
EsC	Esparto loam, 2 to 9 percent slopes	Gently to moderately sloping benches	Pale brown, massive, very hard, medium acid, 10 to 16 inches thick	Light brownish gray clay loam, subangular blocky, very hard, slightly acid, 30 to 42 inches thick	Mottled gravelly clay loam alluvium	Moderately well	Moderately slow	Slow to medium	Slight to moderate	60	8 to 10	Moderate	Dryland hay and pasture
FaG	Felton silt loam, 50 to 75 percent slopes	Very steep uplands	Brown, granular, slightly hard, medium acid, 2 to 6 inches thick	Light brown clay loam subangular blocky, hard medium acid, 24 to 41 inches thick	Shaly clay loam over shale and sandstone	Good	Moderately slow	Very rapid	Very high	26 to 47	4 to 6	Moderate	Timber, recreation and watershed
FaE	Felton silt loam, 15 to 30 percent slopes	Moderately steep uplands	Brown, granular, slightly hard, medium acid, 2 to 6 inches thick	Light brown clay loam, subangular blocky, hard, medium acid, 18 to 30 inches thick	Shaly clay loam over shale and sandstone	Good	Moderately slow	Medium	Moderate	20 to 36	3 to 5	Moderate	Dryland pasture, dryfarmed grain hay, Christmas trees
FaF	Felton silt loam, 30 to 50 percent slopes	Steep uplands	Brown, granular, slightly hard, medium acid, 2 to 6 inches thick	Light brownish clay loam, subangular blocky, hard, medium acid, 24 to 41 inches thick	Shaly clay loam over shale and sandstone	Good	Moderately slow	Rapid	High	26 to 47	4 to 6	Moderate	Timber, pasture and range

1/ Total available water holding capacity within effective soil depth

TABLE V- SOIL CHARACTERISTICS AND QUALITIES, SANTA CLARA COUNTY, CALIFORNIA

MAP SYMBOL	SOIL NAME	POSITION	SOIL PROFILE (dry)			NATURAL DRAINAGE	SUBSOIL PERM	RUNOFF	EROSION HAZARD	EFFECTIVE DEPTH (Inches)	A.W.C. 1/ (Inches)	INHERENT FERTILITY	PRESENT LAND USE
			Surface Layer	Subsoil	Substratum or Parent Material								
LhG	Los Gatos-Gaviota complex, 50 to 75 percent slopes	Very steep uplands	See (LfG) and (GcG)	for description of respective soils		- -	- -	- -	- -	- -	- -	- -	Range
LkG3	Los Gatos and Maymen soils, 50 to 75 percent slopes, severely eroded	Very steep uplands	See (LfG) and (MfG2	for description of respective soils		- -	- -	- -	- -	- -	- -	- -	Wildlife, recreation and watershed
LoE	Los Osos clay loam, 15 to 30 percent slopes	Moderately steep uplands	Dark grayish brown, subangular blocky, hard, slightly acid, 8 to 12 inches thick	Dark brown clay, subangular blocky, very hard, slightly acid, 18 to 28 inches thick	Hard, fine grained sandstone	Good	Slow	Medium	Moderate	26 to 40	5 to 6	High	Dryland hay, pasture and range
LoF	Los Osos clay loam, 30 to 50 percent slopes	Steep uplands	Dark grayish brown, subangular blocky, hard, slightly acid, 8 to 12 inches thick	Dark brown clay, subangular blocky, very hard, slightly acid, 18 to 28 inches thick	Hard, fine grained sandstone	Good	Slow	Rapid	High	26 to 40	5 to 6	High	Dryland pasture and range
LoG	Los Osos clay loam, 50 to 75 percent slopes	Very steep uplands	Dark grayish brown, subangular blocky, hard, slightly acid, 8 to 12 inches thick	Dark brown clay, subangular blocky, very hard, slightly acid, 18 to 28 inches thick	Hard, fine grained sandstone	Good	Slow	Very rapid	Very high	26 to 40	5 to 6	High	Range
LrA	Los Robles clay loam, 0 to 2 percent slopes	Nearly level fans	Dark brown, cloddy, slightly hard, neutral 8 to 12 inches thick	Dark brown gravelly clay loam, subangular blocky, hard, neutral 36 to 54 inches thick	Gravelly fine sandy clay loam alluvium	Good	Moderately slow	Very slow	None	60	9 to 10	High	Irrigated prunes, walnuts, grapes, dryland hay and pasture
LrC	Los Robles clay loam, 2 to 9 percent slopes	Gently to moderately sloping fans	Dark brown, cloddy, hard, neutral 8 to 12 inches thick	Dark brown gravelly clay loam, subangular blocky, hard, neutral, 36 to 54 inches thick	Gravelly fine sandy clay loam alluvium	Good	Moderately slow	Slow to medium	Slight to moderate	60	9 to 10	High	Irrigated prunes, walnuts, grapes, dryland hay and pasture
LtD	Los Trancos stony clay, 15 to 30 percent slopes	Moderately steep uplands	Dark brown, blocky, hard, slightly acid, 6 to 19 inches thick	No separate subsoil; surface soil rests on rock.	Fractured, hard volcanic rock.	Good	Slow	Rapid	High	6 to 19	1 to 2	Low	Dryland pasture and range
Ma	Made land	Nearly level tidal marshes	Variably textured salty soil material over tidal marshes and Alviso soils			- -	- -	- -	- -	- -	- -	- -	Wildlife and recreation
MbF	Madonna loam, 30 to 50 percent slopes	Steep uplands	Pale brown, granular, hard, medium acid, 8 to 10 inches thick	Brown loam, massive, hard, medium acid, 12 to 18 inches thick	Moderately hard coarse grained sandstone	Good	Moderate	Rapid	High	20 to 28	3 to 4	Moderate	Range and watershed
MbE	Madonna loam, 15 to 30 percent slopes	Moderately steep uplands	Pale brown, granular, hard, medium acid, 8 to 10 inches thick	Brown loam, massive, hard, medium acid, 12 to 18 inches thick	Moderately hard, coarse grained sandstone	Good	Moderate	Medium	Moderate	20 to 28	3 to 4	Moderate	Dryland grain hay, pasture and range
MbE2	Madonna loam, 5 to 30 percent slopes, eroded	Moderately sloping to moderately steep uplands	Pale brown, granular, hard, medium acid, 2 to 6 inches thick	Brown loam, massive, hard, medium acid, 12 to 18 inches thick	Moderately hard, coarse grained sandstone	Good	Moderate	Medium	Moderate	14 to 24	2 to 3	Moderate	Dryland prunes, apples, Christmas trees, hay and pasture

1/ Total available water holding capacity within effective soil depth.

ATTACHMENT NO. 4

DATA SHEETS

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: Burns/Ross Property
Applicant/Owner: Kaufman & Broad
Investigator(s): Olberding

Date: December 13, 1999
County: Santa Clara
State: CA

Do Normal Circumstances exist on the site? X Yes ___ No
Is the site significantly disturbed (Atypical Situation)? ___ Yes X No
Is the area a potential Problem Area? ___ Yes X No
(If needed, explain answer on reverse or attach separate sheet.)

Community ID: ______
Transect ID: 1 Plot ID: ______

VEGETATION

Dominant Plant Species	Indicator	Dominant Plant Species	Indicator
1. Lolium multiflorum	FAC	9.	
2. Cirsium vulgare	FACU	10.	
3. Brassica nigra	UPL	11.	
4. Rumex crispus	FACW-	12.	
5.		13.	
6.		14.	
7.		15.	
8.		16.	

Observations & Remarks:
1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 50 %
2. Assume presence of wetland vegetation? ___ Yes X No; or,
3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: ___ Yes X No
4. Taxonomic Reference(s): ______

HYDROLOGY

__ Recorded Data (Attached):
___ Stream, Lake, or Tide Gauge
X Aerial Photographs: Dates: 1999
Other
a. ______
b. ______
c. ______

__ No Recorded Data Found

Current Field Observations:
Depth of Surface Water: ______ (in.)
Depth to Free Water in Pit: ______ (in.)
Depth to Saturated Soil: ______ (in.)

__ Tidal Influence

X Non-Tidal Influence

Corps Wetland Hydrology Indicators:
Corps Primary Indicators (current conditions):
___ Inundated: ___ Flooded ___ Ponded
___ Saturated: ___ In Upper 12" of Soil Profile
Corps Primary Indicators (Historic conditions):
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Corps Secondary Indicators (2 or more required; historic conditions):
___ Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: ___ Upper 12" of Soil Profile
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
Other, If Necessary (Explain in Remarks)
a. ___ Landscape Position "Drains"
b. ___ Landscape Position "Ponds"
c. X Located in swale

Observations and Remarks:
1. *Filamentous or sheet forming algae present?* ___ *Yes* X *No*
2. *Matted vegetation* ___ *Yes* X *No*
3. *Surface Sediment with Bedding Planes* ___ *Yes* X *No*
4. *Encrusted detritus* ___ *Yes* X *No*
5. *Slope:* ___ *0-2%; or* ___ *> 2%*
6. *Oxidized rhizospheres:* ___ *new roots only;* ___ *old roots only;* ___ *new and old roots, or* ___ *none*
7. *Flooding:* X *none, flooding not probable;* ___ *rare, unlikely but possible under unusual weather conditions;* ___ *occasional, occurs on an average of once or less in 2 years, or* ___ *frequent, occurs on an average of more than once in 2 years*
8. *Continuous flooding duration:* X *None;* ___ *very brief, if < 2 days;* ___ *brief, if <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ___ *very long, if > 12.5% GS*
9. *Ponding?* ___ *Yes* X *No*
10. *Continuous ponding duration:* X *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS or;* ___ *very long, if > 12.5% GS*
11. *Saturation?* ___ *Yes* X *No*
12. *Continuous duration of Saturation:* X *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ___ *very long, if > 12.5% GS*

SOILS

Map Unit Name
(Series and Phase): Climara Clay
Taxonomy (Subgroup): ____

Profile Description (Surface to 12"):

Drainage Class[1]: MWD
Permeability[2]: S
Run off[3]: M
Field Observations Confirm NRCS Mapping?
X Yes ___ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance[4]/ Contrast[5]	Texture[6], Concretions, Structures[7], etc.
0 to 12		5Y 2.5/1			clay
___ to ___					
___ to ___					

Hydric Soil Indicators:

Historic:
___ Histosol
___ Histic Epipedon
___ Organic Streaking in Sandy Soils
___ Listed on National Hydric Soils List
___ Listed on Local Hydric Soils List
___ Mottles Present (Redoximorphic features)
___ Concretions (Redoximorphic Feature)
___ High Organic Content in Surface Layer in Sandy Soils
X Gleyed or Low-Chroma Colors (chroma ≤2)
___ Other (Explain in Remarks): ____
___ Dead Root Halos (Redoximorphic Feature)
a. ____
b. ____
c. ____

Current:
___ Sulfidic Odor
___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)
___ Aquic Moisture Regime (nearly free of dissolved oxygen for period of time)
___ Other (Explain in Remarks):
a. ____
b. ____

Observations and Remarks:

1. Smell: X Neutral; ___ Slightly Fresh; ___ Freshly Plowed Field Smell; or ___ Sulfidic Odor
2. Site has been: ___ Irrigated; ___ Land Leveled; ___ Ditch Drained; ___ Tile Drained; ___ Pumped; ___ Graded to drain via slope
3. Soils Currently are: ___ Flooded; ___ Ponded; ___ Saturated[8]
4. Soils: ___ do ___ do not, become continuously flooded or ponded for long (≥7 to 30 days) to very long durations; (>30 days) during the growing season; ___ Unknown
5. Soils: ___ do ___ do not, become continuously saturated for 14 days or greater ____

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? X Yes ___ No
Wetland Hydrology Conditions Present? ___ Yes X No
Hydric Soils Conditions Currently Present? X Yes ___ No

Is this Sampling Point Within a Wetland? ___ Yes X No

Signature: ____

Remarks:
1. Possible water of the U.S.? ___ Yes X No (can be a water and not a wetland when vegetation is absent if bed and bank present).
2. Possibly exempt from Corps/EPA regulation? ___ Yes ___ No (If yes, check item(s) below).
(a) ___ Non-tidal drainage and irrigation ditches excavated on dry land
(b) ___ Artificially irrigated areas which would revert to upland if the irrigation ceased.
(c) ___ Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.
(d) ___ Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.
(e) ___ Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

NOTES:

Approved by HQUSACE 3/92*

[1] *Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).*
[2] *Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.06 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inches), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches), or Variable (V).*
[3] *Runoff: Very slow (VS) Slow (S), Moderate (M), Rapid (R), or Variable (V).*
[4] *Mottle abundance: Few (F), Common (C), or Many (M).*
[5] *Mottle contrast: Faint (F), Distinct (D), or Prominent (P).*
[6] *Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.*
[7] *Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.*
[8] *Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.*

APPENDIX D

PHASE I ENVIRONMENTAL SITE ASSESSMENTS
APN 455-10-033,
455-10-05,
AND
A PORTION OF APN 455-9-49

PREPARED BY
AQUA SCIENCE ENGINEERS, INC.

SEPTEMBER 28, 1999
AND
NOVEMBER 18, 1999

ase environmental

ENVIRONMENTAL ASSESSMENT SERVICES, CONSULTING
AND CONTRACTING

aqua science engineers inc.

September 28, 1999

Phase I Environmental Site Assessment
A.P.N. 455-10-033
San Jose, California
ASE Job #3549

Prepared for:

Mr. Jeffrey McMullen
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Prepared by:

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208 W. El Pintado Road
Danville, CA 94526

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APPENDICES

1.0 EXECUTIVE SUMMARY

Based on the visual inspection of the subject site, historical and database review, and local agency contact, no environmental concerns are noted.

On-Site

No significant environmental concerns were identified at the subject site.

ASE does not recommend any further assessment activities related to on-site conditions.

Off-Site

Based on the VISTA report, there are no off-site sources that have the potential to impact the subject site due to the distance from the subject property.

ASE does not recommend any other assessment activities related to off-site conditions.

2.0 INTRODUCTION

2.1 Purpose

The objective of this Phase I Environmental Site Assessment is to identify, to the extent feasibly possible, recognized environmental conditions in connection with the subject property. This Phase I Environmental Site Assessment contains four major components (1) records review; (2) site reconnaissance; (3) interviews with regulatory agencies/property owners; (4) reporting. This Phase I Environmental Site Assessment has been prepared using the guidelines within the American Society for Testing and Materials (ASTM) Designation: E 1527-97.

2.2 Special Terms and Conditions

No special terms or conditions were made between Aqua Science Engineers, Inc. (ASE) and Mr. Jeffrey McMullen of Kaufman & Broad South Bay, Inc. This report has been produced by ASE to be within the scope of the American Society for Testing and Materials (ASTM) *Standard Practice for Environmental Assessment: Phase I Environmental Site Assessment Process* document (Designation: E 1527-97).

2.3 Limitations and Exceptions of Assessment

As noted in the ASTM E 1527-97 Standard Practice document, it is up to the environmental professional conducting the Phase I Environmental Site Assessment to determine the content of the report. Therefore, Aqua Science Engineers, Inc. (ASE), with extensive experience in conducting Phase I Environmental Site Assessments, has strategically designed this Phase I Environmental Site Assessment to provide a site-specific evaluation of the environmental conditions affecting the subject site. This report has been prepared for use solely by Mr. Jeffrey McMullen. This report shall not be relied upon by or transferred to any other party, or used for any other purpose, without the express written authorization of Mr. Jeffrey McMullen and Aqua Science Engineers, Inc.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The subject property is located approximately 1000 ft. northeast of the intersection between Hillsdale Avenue and Narvaez Avenue, in the City of San Jose, in Santa Clara County, California (Figure 1). The subject site is on the parcel with the Assessor Parcel Number 455-10-033. The subject site area is approximately 65 acres. The subject site is undeveloped land, and is not secured by fences.

The property is bound to the south by a residential area, to the west by an area under development, to the northwest by the County Communications Center and to the north and east by undeveloped vacant land.

On September 16, 1999, ASE representative Mr. Valentin Constantinescu conducted a site walk at the subject site.

3.2 Site and Vicinity Characteristics

The subject site occurs in a urban setting, in the City of San Jose, in the county of Santa Clara, California. The surrounding area is undeveloped land to the north and east, land under development as a residential area to the west, and residential area to the south.

3.3 Description of Structures, Roads, and Improvements

There are no structures at the subject site. The road leading to the subject property, Narvaez Avenue, is an asphalt paved road. This road is lightly traveled.

3.31 Source of Potable Water

Because the site is undeveloped land, it is assumed there is no source of potable water.

3.32 Sewage Disposal System

Because the site is undeveloped land, it is assumed there is no sewage disposal system.

3.33 Solid Waste Disposal

Since the site is undeveloped land, no solid waste disposal service was necessary at the subject site at the time of our site inspection.

3.4 Environmental Setting

3.41 Geology

Based on review of regional geologic maps (U.S. Geological Survey Professional Paper 943 "Flatland Deposits Their Geology and Engineering Properties and Their Importance to Comprehensive Planning" by E.J. Helley and K.K. Lajoie, 1979), the subject site is underlain by the Franciscan Formation consisting of mostly well-indurated sandstone and shale which includes subordinate amounts of greenstone, chert, limestone, conglomerate, and metamorphic rocks of blueschist facies. This Formation is generally highly deformed and locally intensively sheared with hard blocks of various lithologies in a matrix of clay materials.

The subject site is located approximately 6 miles southwest of the Hayward Fault, and approximately 10 miles northeast of San Andreas Fault.

3.42 Hydrogeology

Based on review of the above mentioned Professional Paper 943, depth to ground water is greater than 20 feet below ground surface.

Based upon the site topography, ground water is expected to flow to the north, east, and south.

3.5 Information Regarding Environmental Liens

None were identified during the preparation of this Phase I Environmental Site Assessment.

3.6 Current Use of Property

The property is currently undeveloped vacant land (Photographs #1 through #4). No odor, soil discoloration or other signs of obvious environmental impairments were noted during the site walk.

3.7 Former Uses and History of Property

Based on the aerial photographs, the property was always undeveloped land.

3.71 Rationale

The purpose of the records review is to obtain and review records, photographs, maps and other related historical documents that will assist in the identification of recognized environmental conditions in connection with the subject property. The objective of consulting historical sources is to develop a history of the property and surrounding area. This review helps identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. The following recommended sources/databases are used to investigate the property history.

3.72 Historical Aerial Photographs Review

Aerial photographs from Pacific Aerial Surveys in Oakland were studied on September 16, 1999 by ASE representative, Mr. Valentin Constantinescu, to help determine the history of use of the site and surrounding land. Photos were available for various years between 1954 and 1997. The scale of some of the aerial photographs did not provide for detailed analysis.

AV 129, dated 03-02-54

The subject property is vacant land. Off-site, immediately to the southwest, there are farm buildings and a residential structure. The adjacent area to the north, east, and south is undeveloped land. There are orchards and vacant land far to the south and west, and residential areas far to the northeast, east, and west.

AV 385, dated 03-22-60

The subject site appears as it did in the previous photograph. A structure appears at the adjacent site to the northwest and the shape and number of the structures at the farm located off-site to the southwest has changed.

AV 710, dated 04-25-66

The subject site is vacant land. There appear more structures at the adjacent site to the northwest (now the County Communications Center) and other structures are under construction to the southwest. One large above ground tank appears far to the west. More residential areas appear far to the northeast, west, and east.

AV 1006, dated 08-11-71

The subject site is vacant land. There are no significant changes in the immediate surrounding areas. There are now two large above ground storage tanks far to the west and more residential areas appear far to the west and south.

AV 1277, dated 10-13-76

The subject site is vacant land. There appears a residential area at the adjacent property to the south. The areas located far are mostly residential.

AV 1935, dated 07-23-80

The subject site is vacant land. The adjacent area to the south is in construction. There are more residential areas far to the south. There are no other significant changes in the surrounding areas.

AV 2485, dated 07-01-84

The subject site is vacant land. On the southwestern portion of the site there is a discoloration, which appears to be burned brass. There are now new houses at the adjacent site to the south. There are no other significant changes in the immediate surrounding areas.

AV 3324, dated 06-28-88

The subject site is vacant land. There are no other significant changes in the immediate surrounding areas.

AV 4230, dated 07-20-92

The subject site is vacant land. The freeway (now Guadalupe Freeway #87) is under construction to the west. There are no other significant changes in the immediate surrounding areas.

AV 5417, dated 06-10-97

The subject site is vacant land. The freeway to the west is constructed. There are no other significant changes in the immediate surrounding areas.

3.73 Historical Maps Review (Sanborne Fire Insurance and USGS).

The site vicinity area map is attached as Figure 1 in Appendix A. Sanborne Fire Insurance Maps were available for review at San Jose Public Library - Map Room, but did not cover the subject site area.

3.74 Business License Review

Since the site does not have a street number, no business licenses review could be performed.

3.75 Haines Criss-Cross Directory

The Haines Criss-Cross Directories dating back to 1980 were viewed by ASE at the San Jose Public Library on September 21, 1999. ASE personnel reviewed directories of other businesses to determine what type of businesses existed in the immediate surroundings areas, and to evaluate the potential for any environmental impact on the subject site. There are no businesses listed in the immediate surrounding areas, along Narvaez Avenue and Hillsdale Avenue. There exists a series of car dealers and shopping centers located far to the south.

4.0 SURROUNDING PROPERTIES

4.1 Description

A general description of the usage of surrounding and/or adjoining properties is determined by the environmental professional during the site visit, through interviews or from the records review. This is performed to help identify recognized environmental concerns that may have the potential to impact the subject site.

4.11 Current Uses of Surrounding and/or Adjoining Properties

Based on the site visit, the use of the surrounding properties located to the south are residential and the property to the west is under development as a residential area. There exists a County Communications Center to the northwest. The areas located immediately to the north and east, and the area located far to the west, across the freeway, are undeveloped.

4.12 Former Uses of Surrounding and/or Adjoining Properties

Based upon the aerial photograph review, the areas to the north, east, and west have been vacant land for decades. Farm buildings and a residential structure existed to the southwest until recently. In the early 60's, there appear structures at the County Communications Center to the northwest. The area to the south was developed as residential in the early 70's and in the early 80's.

5.0 REGULATORY REVIEW

The purpose of the regulatory review is to obtain and review regulatory agency records that will assist in the identification of recognized environmental conditions in connection with the subject property and neighboring properties within a 1-mile radius. The regulatory review also includes visiting or contacting local regulatory agency representatives for interviews regarding the subject site or surrounding properties.

5.1 VISTA Report

The following information is based on a report supplied to ASE by VISTA Information Solutions, Inc. (VISTA). See Appendix E for a copy of the VISTA report and drawings.

The subject site was not listed in any of the databases searched by VISTA.

Leaking Underground Storage Tanks (LUST)

There are fourteen (14) LUST sites listed within approximately 0.5 miles of the subject property. All these LUST sites are located downgradient or far away from the site; therefore, it is unlikely that these sites could impact the subject site.

State index of properties with hazardous waste (CORTESE)

There are six (6) CORTESE sites within approximately 0.5 miles of the subject property. All these CORTESE sites are located far away and downgradient; therefore, it is unlikely that these sites could impact the subject site.

RCRA registered small or large generators of hazardous waste (GNRTR)

There is one (1) GNRTR site within approximately 1/8 mile of the subject site. Because this site is a known generator, it is assumed that it is periodically inspected by and under the guidance of the local regulatory agencies, assuring the proper storage and handling of the hazardous material.

No mapped sites were found by VISTA for the following databases:

NPL, CORRACTS, SPL, SCL, CERCLIS/NFRAP, TSD, SWLF, DEED RSTR, SOUTH BAY, TOXIC PITS, WATER WELLS, RCRA Viol, TRIS, UST/AST, ERNS.

For an explanation of the above government records please see the executive summary of the VISTA Report.

5.2 Regional Water Quality Control Board (RWQCB)

The subject site does not appear on any of the RWQCB environmental case lists.

5.3 Santa Clara Valley Water District (SCVWD)

The subject site does not appear on any of the SCVWD environmental case lists.

5.4 City Building Department

Since the subject site was vacant, no building existed at this site.

6.0 SITE RECONNAISSANCE AND INTERVIEWS

6.1 Hazardous Substances/Materials Usage and Storage

None identified.

6.2 Hazardous Waste Storage, Disposal

None identified.

6.3 Underground & Aboveground Storage Tanks, Sumps, Drains

None identified.

6.4 Identification of PCBs

None identified.

6.5 Identification of Asbestos Containing Materials (ACMs) and Lead Paint

None identified.

6.6 Surface Staining, Distressed Vegetation

None identified.

7.0 CONCLUSIONS

7.1 Subject Site

No significant environmental concerns were identified at the subject site.

ASE does not recommend any further assessment activities related to on-site conditions.

7.2 Off-Site

Based on the VISTA report, there are no off-site sources that have the potential to impact the subject site due to the distance from the subject property.

ASE does not recommend any other assessment activities related to off-site conditions.

8.0 REPORT LIMITATIONS

The findings and analysis contained in this Phase I Environmental Site Assessment report have been prepared by the professional staff of Aqua Science Engineers, Inc. (ASE) in accordance with generally accepted professional practices and from the guidance within the standard practice of ASTM E 1527-97.

Some of the information provided in this Phase I Environmental Site Assessment report is based upon personal interviews and research of available documents, records and maps held by appropriate government and private agencies. This is subject to the limitations of the historical documentation, availability and accuracy of pertinent records, and the recollection of those persons contacted and interviewed. The information contained in this report has received appropriate technical and peer review. The findings and analysis represent professional judgments and are based upon the investigations conducted and the review and interpretation of such data based on our experience and expertise according to the existing standard. No warranty or guarantee is expressed or implied. The scope of services within this Phase I Environmental Site Assessment did not include sample collection and/or analysis for hazardous materials. In addition, it did not include a property title search or evaluate radon or seismic risk.

The findings and analysis set forth in this report are strictly limited in time and scope to the date of the evaluation(s), and for the sole use of our client.

9.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL(S)

Aqua Science Engineers, Inc. appreciates the opportunity to have prepared this Phase I Environmental Site Assessment for our client. Should any questions or comments arise, please feel free to call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

Valentin Constantinescu, R.E.A. 05246
Registered Environmental Assessor

Report Reviewed by

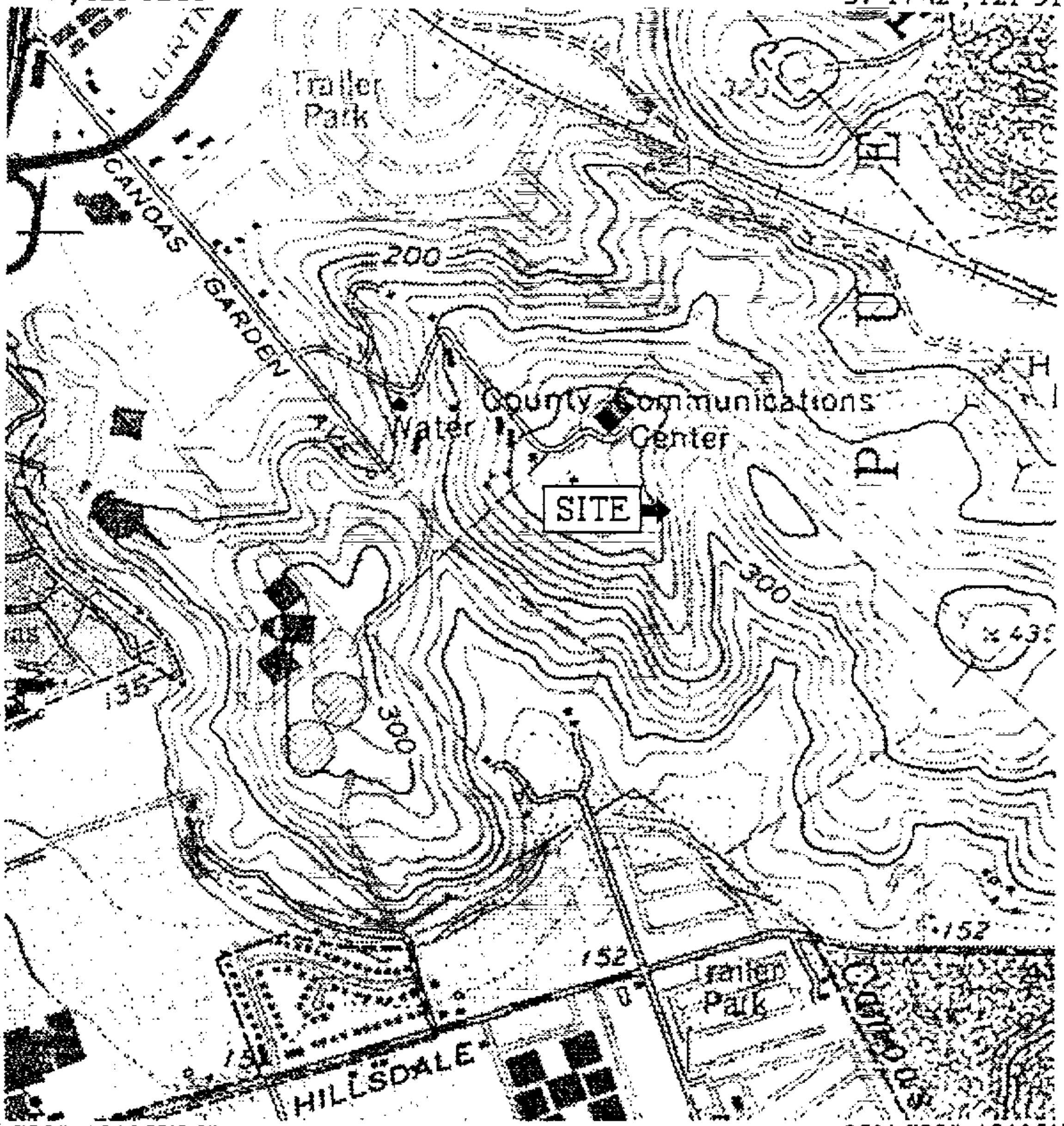
Gerald W. Sasse, R.E.A. 06963
Vice President

APPENDICES

APPENDIX A

Figures and Aerial Photographs

37°17'42", 121°52'36" 37°17'42", 121°51'23"



37°16'38", 121°52'36" 37°16'38", 121°51'23"

TN MN 15½°

0 1/2 1 MILE

1000 0 1000 2000 3000 4000 FEET

Printed from TOPO! ©1996 Wildflower Productions (www.topo.com)

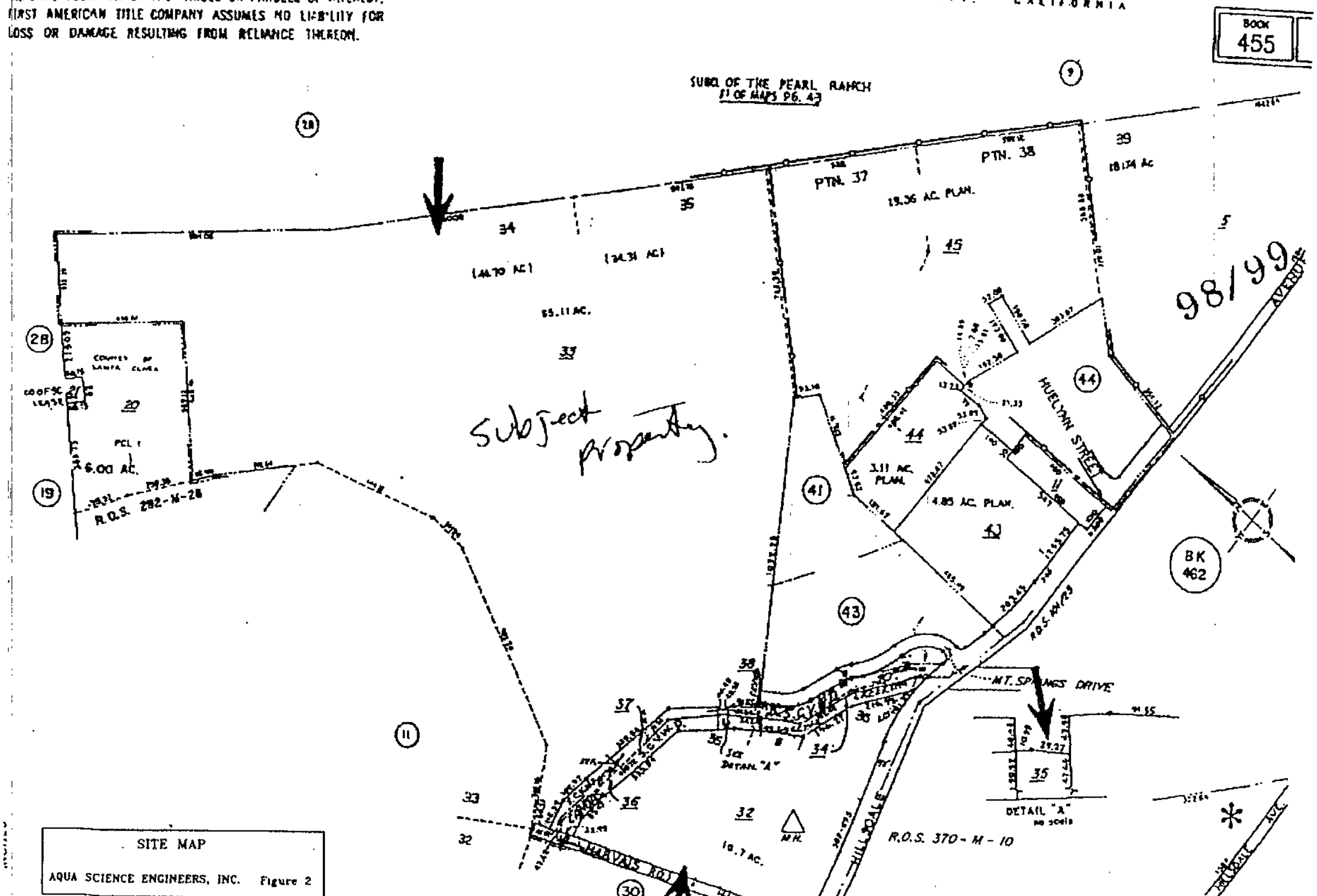
SITE LOCATION MAP

AQUA SCIENCE ENGINEERS, INC.	Figure 1

NOTICE

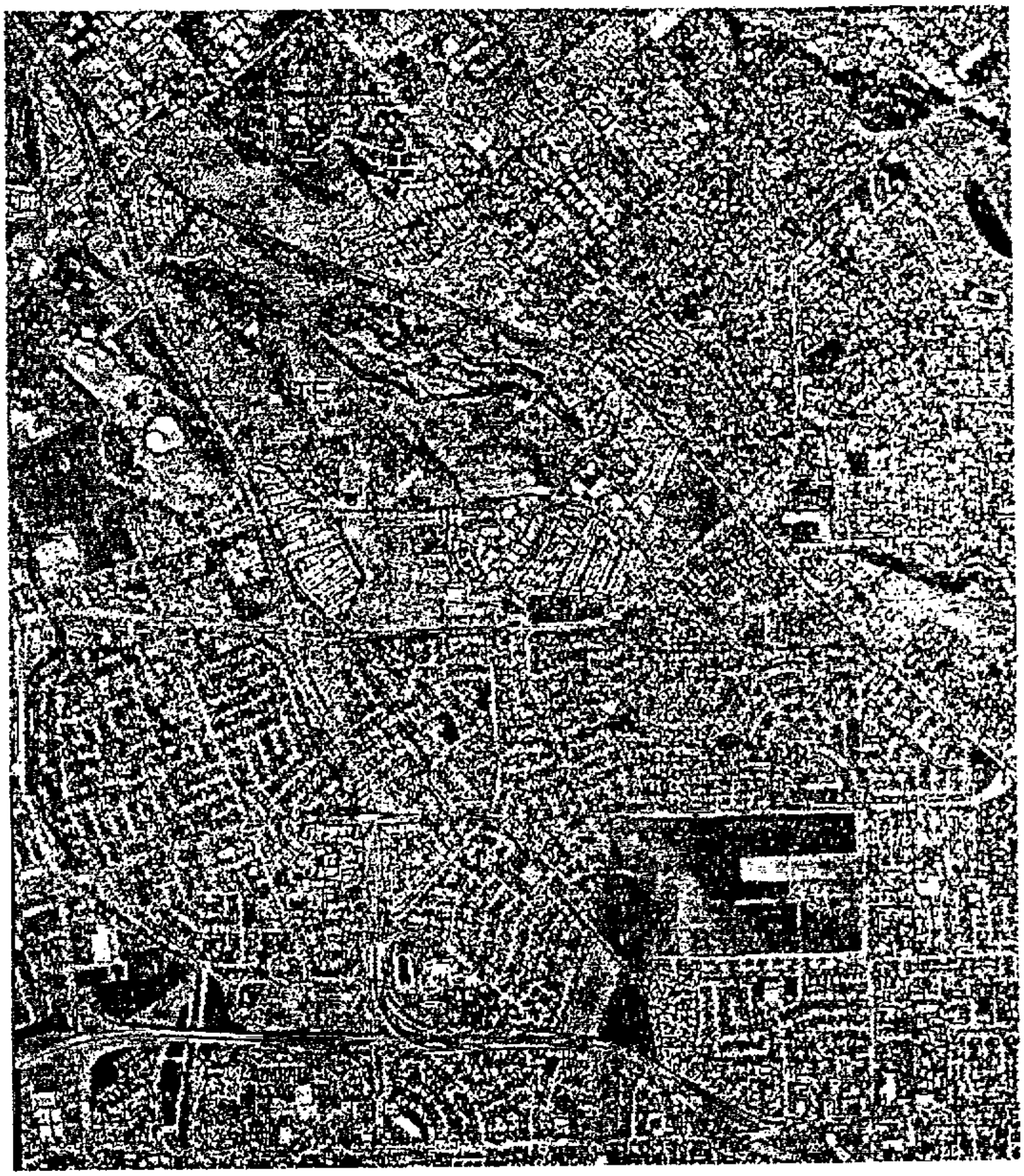
THIS MAP MAY OR MAY NOT BE A SURVEY OF THE LAND DEPICTED HEREON. IT IS NOT TO BE RELIED UPON FOR ANY PURPOSE OTHER THAN ORIENTATING ONE'S SELF AS TO THE GENERAL LOCATION OF THE PARCEL OR PARCELS OF INTEREST. FIRST AMERICAN TITLE COMPANY ASSUMES NO LIABILITY FOR LOSS OR DAMAGE RESULTING FROM RELIANCE THEREON.

COUNTY ASSESSOR — SANTA CLARA COUNTY, CALIFORNIA



SITE MAP

AQUA SCIENCE ENGINEERS, INC. Figure 2




SITE

APPENDIX B

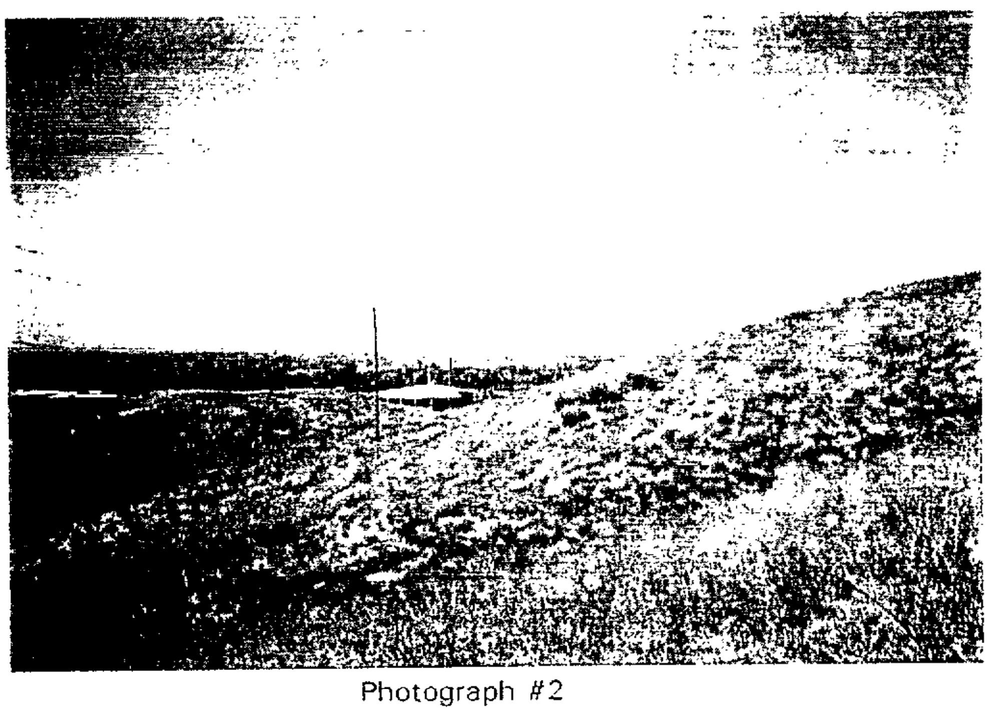
Building Permits

No pertinent data regarding permits or licenses was copied by ASE during this assessment.

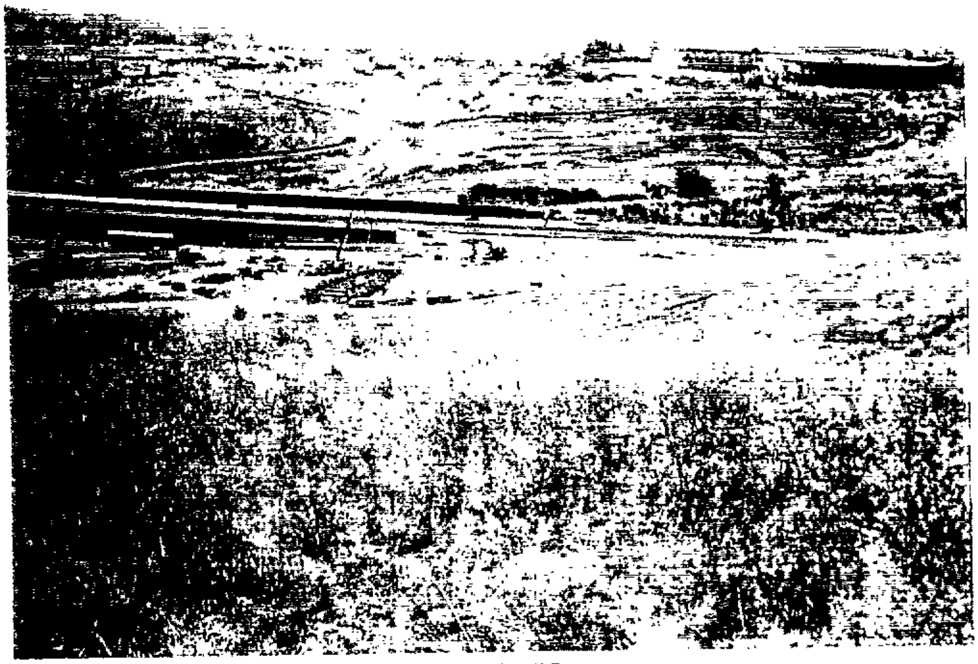
APPENDIX C

Photographs

Photograph #1
View through north of the subject site.



Photograph #2
View through northwest of the subject site.



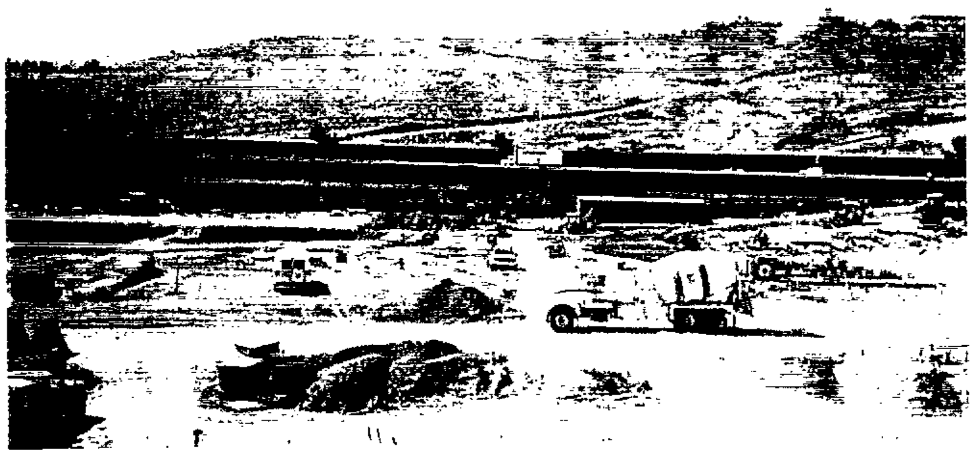
Photograph #3
View through west of the subject site.

Photograph #4
View through northeast of the subject site.

Photograph #5
View through west (off-site).

Photograph #6
View through north (off-site).

Photograph #7
View through northeast (off-site).



Photograph #8
View through southwest (off-site).

Photograph #9
View through southeast (off-site).

Photograph #10
View through south (off-site)

APPENDIX D

VISTA Report

Site Distribution Summary

Agency / Database - Type of Records			within 1/8 mile	1/8 to 1/4 mile	1/4 to 1/2 mile	1/2 to 1 mile
C) Databases searched to 1/4 mile:						
US EPA	RCRA Viol	RCRA violations/enforcement actions	0	0	-	-
US EPA	TRIS	Toxic Release Inventory database	0	0	-	-
STATE	UST/AST	Registered underground or aboveground storage tanks	0	0	-	-
D) Databases searched to 1/8 mile:						
US EPA	ERNS	Emergency Response Notification System of spills	0	-	-	-
US EPA	GNRTR	RCRA registered small or large generators of hazardous waste	1	-	-	-

This report meets the ASTM standard E-1527 for standard federal and state government database research in a Phase I environmental site assessment. A (-) indicates a distance not searched because it exceeds these ASTM search parameters.

NOTES

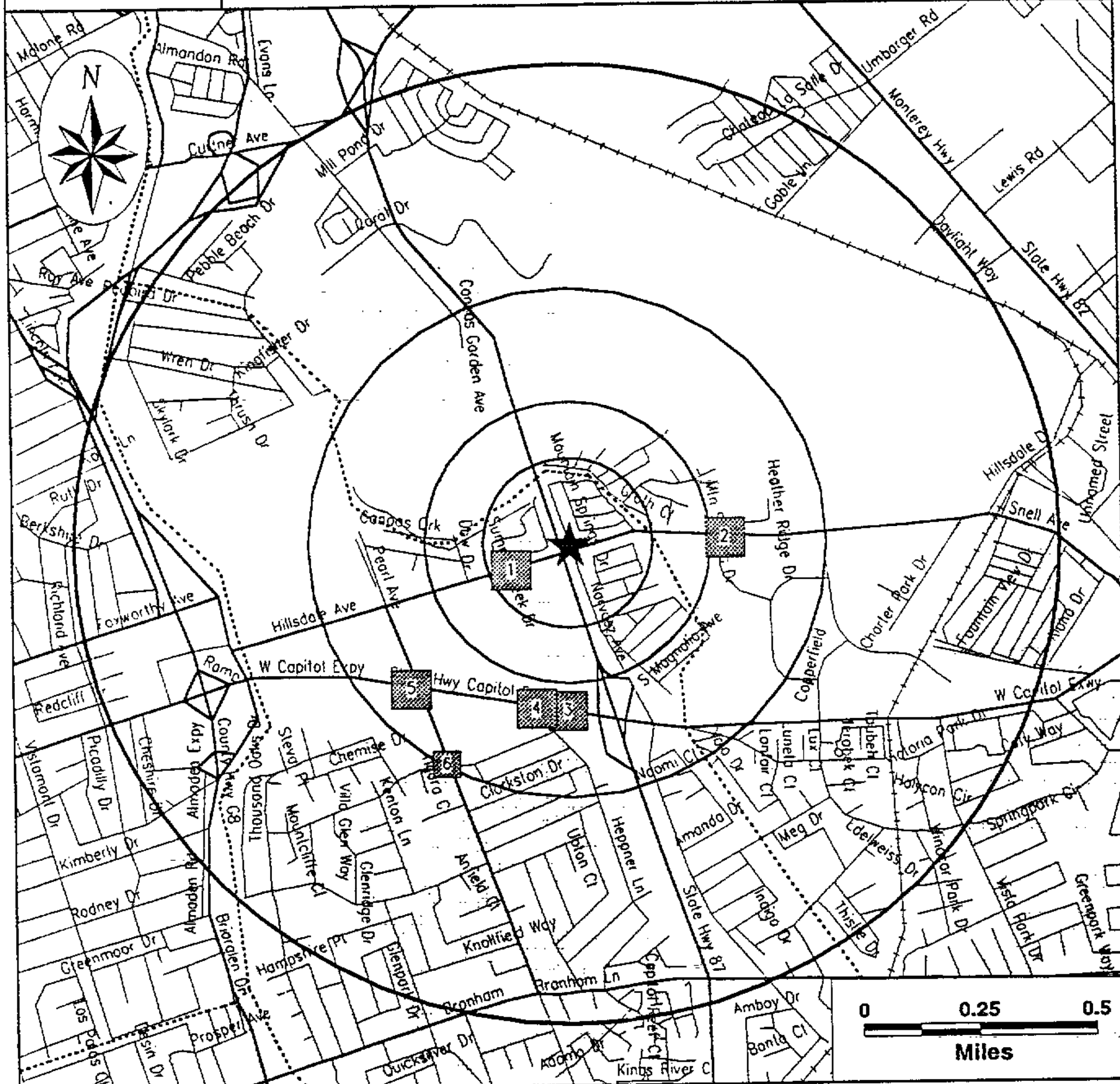
SITE ASSESSMENT PLUS REPORT

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: Not Provided Vieira Property Narvaez Ave San Jose, CA 95136 Cross Street: Hillsdale Latitude/Longitude: (37.280104, 121.863556)	Diane Schiell Aqua Science Engineers, Inc 208 W. El Pintato Danville, CA 94526

Site Distribution Summary Agency / Database - Type of Records			*within 1/8 mile*	*1/8 to 1/4 mile*	*1/4 to 1/2 mile*	*1/2 to 1 mile*
A) Databases searched to 1 mile:						
US EPA	NPL	National Priority List	0	0	0	0
US EPA	CORRACTS	RCRA Corrective Actions	0	0	0	0
STATE	SPL	State equivalent priority list	0	0	0	0
B) Databases searched to 1/2 mile:						
STATE	SCL	State equivalent CERCLIS list	0	0	0	-
US EPA	CERCLIS / NFRAP	Sites currently or formerly under review by US EPA	0	0	0	-
US EPA	TSD	RCRA permitted treatment, storage, disposal facilities	0	0	0	-
STATE REG CO	LUST	Leaking Underground Storage Tanks	2	0	12	-
STATE/ REG/CO	SWLF	Permitted as solid waste landfills, incinerators, or transfer stations	0	0	0	-
STATE	DEED RSTR	Sites with deed restrictions	0	0	0	-
REGIONAL	SOUTH BAY	Sites on South Bay Toxic List	0	0	0	-
STATE	CORTESE	State index of properties with hazardous waste	0	0	6	-
STATE	TOXIC PITS	Toxic Pits cleanup facilities	0	0	0	-
USGS/STATE	WATER WELLS	Federal and State Drinking Water Sources	0	0	0	-

SITE ASSESSMENT PLUS REPORT

Map of Sites within One Mile



Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 mi.	1/2 mi.	1/4 mi.	1/8 mi.
	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○
		NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	RCRA VIOL, TRIS, UST	ERNS, GENERATORS

- Highways and Major Roads
- Roads
- Railroads
- Rivers or Water Bodies
- Utilities

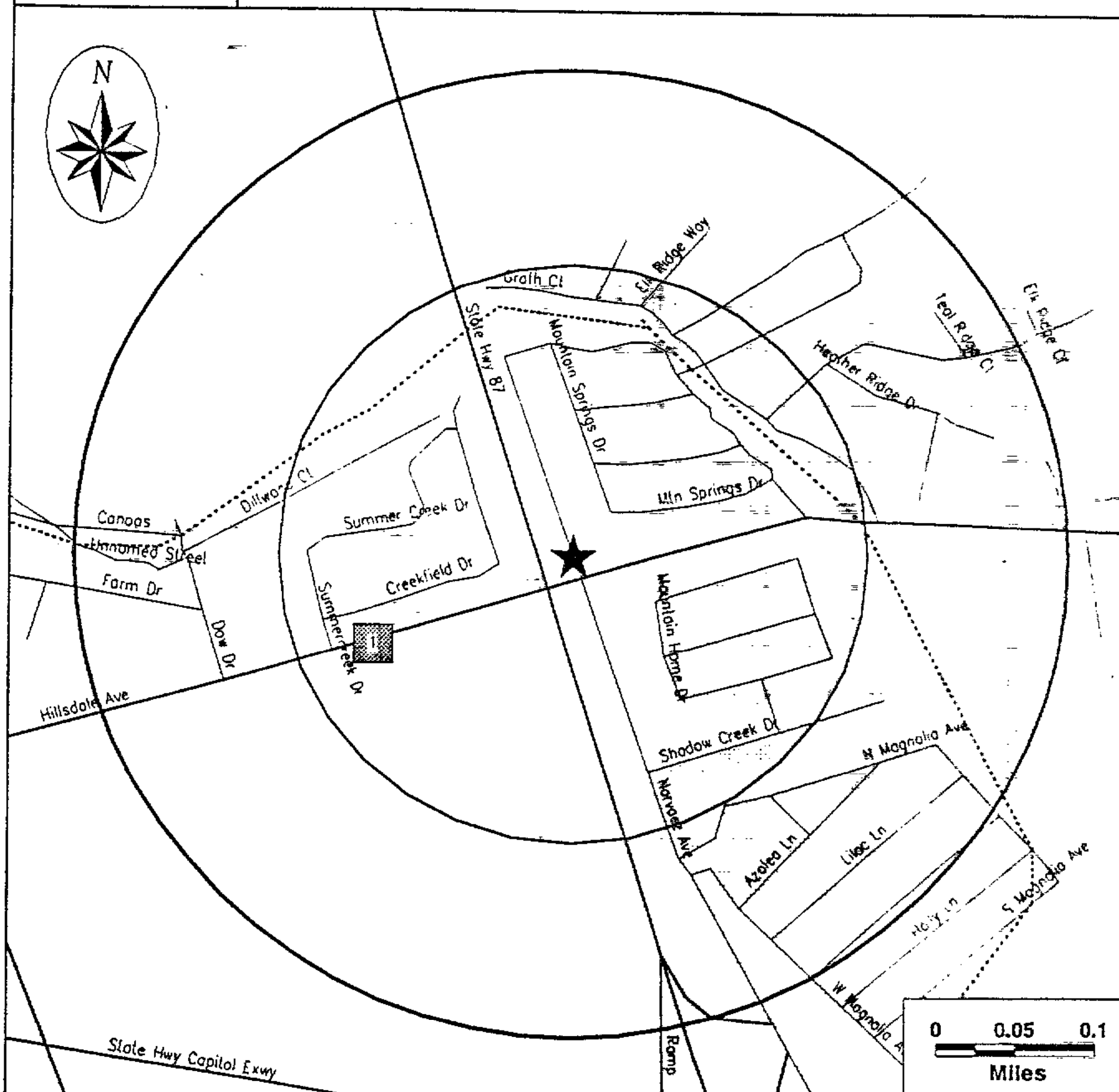
If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D.

For More Information Call VISTA Information Solutions, Inc. at **1 - 800 - 767 - 0403**
Report ID: **530601901**

Date of Report: **September 17, 1999**

SITE ASSESSMENT PLUS REPORT

Map of Sites within Quarter Mile



Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 mi.	1/2 mi.	1/4 mi.	1/8 mi.
	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○

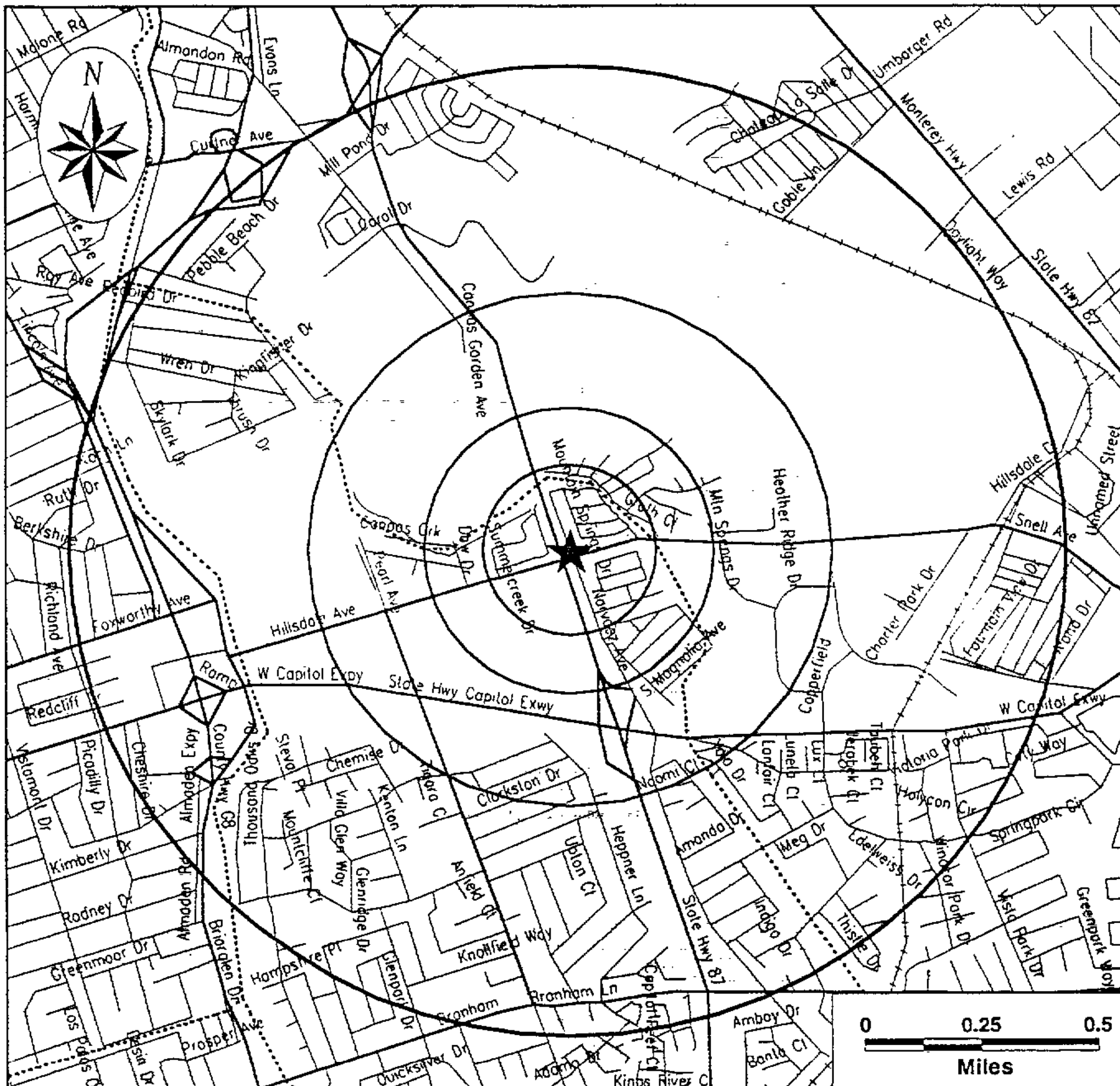
	A	B	C	D
Highways and Major Roads Roads Railroads Rivers or Water Bodies Utilities	NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	RCRA VIOL, TRIS, UST	ERNS, GENERATORS

If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D.

For More Information Call VISTA Information Solutions, Inc. at **1 - 800 - 767 - 0403**
Report ID: **530601901** Date of Report: **September 17, 1999**

SITE ASSESSMENT PLUS REPORT

Street Map



Subject Site	
★	Highways and Major Roads
	Roads
	Railroads
	Rivers or Water Bodies
	Utilities

SITE ASSESSMENT PLUS REPORT

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/8 mile)	VISTA ID / DISTANCE / DIRECTION	A			B										C			D	
			NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
1	CENTRAL COUNTY OCCUPATIONAL CTR 760 HILLSDALE AVE SAN JOSE, CA 95136	90134 0.08 MI W							X											X
1	SANTA CLARA CO REG OCCUP CENTER 760 HILLSDALE SAN JOSE, CA 95136	7291458 0.08 MI W							X											

MAP ID	SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)	VISTA ID / DISTANCE / DIRECTION	A			B										C			D	
			NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
	No Records Found																			

MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	VISTA ID / DISTANCE / DIRECTION	A			B										C			D	
			NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
2	POWELL, H L PAVING INC 508 HILLSDALE SAN JOSE, CA 95125	1244825 0.28 MI E							X									•		
2	HILLSDALE QUARRY 500 HILLSDALE AVE SAN JOSE, CA 95136	195705 0.28 MI E							X											
3	EXPRESSWAY JEEP EAGLE 740 CAPITOL EXPWY W SAN JOSE, CA 95136	4558275 0.30 MI S							X											
3	EXPRESSWAY JEEP EAGLE, INC 740 W CAPITOL EX SAN JOSE, CA 95136	15710 0.31 MI S											X					•		•

X = search criteria; • = tag-along (beyond search criteria).
For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	VISTA ID DISTANCE DIRECTION	A			B										C			D	
			NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
3	1X ALAMADEN HONDA 745 W. CAPITOL EXPRESS WAY SAN JOSE, CA 95136	*5710160* *0.31 MI* *S*							X											
3	CAPITOL HONDA 745 CAPITOL EXPWY W SAN JOSE, CA 95136	*12639571* *0.32 MI* *S*							X											
4	CAPITOL HONDA 755 W CAPITOL EX SAN JOSE, CA 95136	*3766396* *0.31 MI* *S*											X					•		•
4	ALMADEN PONTIAC 765 W. CAPITAL EXPRESS WAY SAN JOES, CA 951360000	*13987* *0.31 MI* *S*																		•
5	SHELL 898 W. CAPIITOL EXWY SAN JOSE, CA 95136	*1583690* *0.39 MI* *SW*							X											
5	CARL CHEVROLET, INC 905 W CAPITOL EX SAN JOSE, CA 95136	*4023321* *0.41 MI* *SW*											X					•		
5	CARL CHEVROLET 905 W. CAPITOL EXWY SAN JOSE, CA 95136	*70479* *0.41 MI* *SW*							X											•
5	CAPITOL FORD, INC 919 W. CAPITOL EXWY SAN JOSE, CA 95136	*3194145* *0.41 MI* *SW*							X											
5	LEWIS, BOB VOLKSWAGEN 911 W CAPITOL EX SAN JOSE, CA 95136	*4023322* *0.41 MI* *SW*											X					•		
5	CAPITOL VOLKSWAGEN 911 W. CAPITOL EXWY SAN JOSE, CA 95136	*69232* *0.41 MI* *SW*							X											
5	ALMADEN LINCOLN MERCURY IN 909 W CAPITOL EX SAN JOSE, CA 95136	*13983* *0.42 MI* *SW*							X				X					•		•
6	QUIK STOP 3695 PEARL SAN JOSE, CA 95136	*3201168* *0.49 MI* *SW*							X				X							

MAP ID	SITES IN THE SURROUNDING AREA (within 1/2 - 1 mile)	VISTA ID DISTANCE DIRECTION	A			B										C			D	
			NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
No Records Found																				

UNMAPPED SITES	VISTA ID	A			B										C			D	
		NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
CORP YARD 2222 UNIFIED WY AB SAN JOSE, CA 95125	8702661																X		
ALMADEN QUICKSILVER UNKNOWN ALMADEN HICKS RD SAN JOSE, CA 95125	1605792							X											
BARITEAUS LINEN 515 13TH SAN JOSE, CA 95125	7430161											X							
PACIFIC BELL COPERNICUS PEAK ICUS PEAK SAN JOSE, CA 95111	4497838																X		
R AND G ENVIRONMENTAL SERVICES SAN JOSE, CA	6830138								X										
KIRBY CANYON RECYCL. DISP. FACILITY 910 COYOTE CREEK GOLF DRIVE SAN JOSE, CA	12551343								X										
WDR-MARSHLAND LANDFILL 05S01W08 SAN JOSE, CA	12362037								X										

SITE ASSESSMENT PLUS REPORT

DETAILS

PROPERTY AND THE ADJACENT AREA (within 1/8 mile)

VISTA Address*:	CENTRAL COUNTY OCCUPATIONAL CTR 760 HILLSDALE AVE SAN JOSE, CA 95136	VISTA ID#: Distance/Direction: Plotted as:	90134 0.08 MI / W Point	Map ID 1

RCRA-SmGen - RCRA-Small Generator / SRC# 5896	EPA ID: CAD981637663
Agency Address:	*SAME AS ABOVE*
Generator Class:	*Generates 100 kg./month but less than 1000 kg./month of non-acutely hazardous waste*

STATE LUST - State Leaking Underground Storage Tank / SRC# 6024	EPA/Agency ID: N/A
Agency Address:	*SCC OCCUPATIONAL CTENTER 760 HILLSDALE AVE SAN JOSE, CA 95136*
Facility ID:	*07S1E33K01*
Leak Report Date:	*01/17/90*
Case Closed Date:	*07/15/94*
Substance:	*DIESEL*
Remediation Event:	*EXCAVATE AND DISPOSE*
Remediation Status:	*CASE CLOSED*
Media Affected:	*OTHER GROUND WATER*
Lead Agency:	*CRWQCB ACTIVE CASE*
Region / District:	*SAN FRANCISCO BAY RE*
Description / Comment:	*COUNTY: SANTA CLARAREVIEW DATE: 05/10/89*

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120	EPA/Agency ID: N/A
Agency Address:	*SANTA CLARA COUNTY OCCUPATIONAL CTENTER 760 HILLSDALE AVE SAN JOSE, CA*
Facility ID:	*43-1232*
Leak Cause:	*STRUCTURE FAILURE*
Leak Source:	*TANK*
Substance:	*WASTE OILDIESEL*
Media Affected:	*OTHER GROUND WATER*

VISTA Address*:	SANTA CLARA CO REG OCCUP CENTER 760 HILLSDALE SAN JOSE, CA 95136	VISTA ID#: Distance/Direction: Plotted as:	7291458 0.08 MI / W Point	Map ID 1

STATE LUST - State Leaking Underground Storage Tank / SRC# 4579	EPA/Agency ID: N/A
Agency Address:	*SANTA CLARA CO REG OCCUP CENTER 760 HILLSDALE SAN JOSE, CA 95116*
Facility ID:	*43S0348*
Leak Report Date:	*19940312*
Contamination Confirmed Date:	*000003.**

PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Wells Impacted:	0
Remediation Status:	CLOSED
Priority:	NOT ON PRIORITY LIST
Description / Comment:	TRADE SCHOOL

SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)

VISTA Address*:	POWELL, H L PAVING INC 508 HILLSDALE SAN JOSE, CA 95125	VISTA ID#: Distance/Direction: Plotted as:	1244825 0.28 MI / E Point	Map 2

STATE LUST - State Leaking Underground Storage Tank / SRC# 6024		EPA/Agency ID:	N/A
Agency Address:	HL POWELL PAVING INC 508 HILLSDALE AVE SAN JOSE, CA 95136		
Facility ID:	07S1E34E01		
Leak Report Date:	11/18/92		
Case Closed Date:	10/13/95		
Remediation Event:	NO ACTION TAKEN		
Remediation Status:	CASE CLOSED		
Media Affected:	SOIL ONLY		
Lead Agency:	LOCAL AGENCY		
Region / District:	SAN FRANCISCO BAY RE		
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 10/17/95		
STATE LUST - State Leaking Underground Storage Tank / SRC# 6120		EPA/Agency ID:	N/A
Agency Address:	HL POWELL PAVING INC 508 HILLSDALE AVE SAN JOSE, CA		
Facility ID:	43-0764		
Leak Cause:	STRUCTURE FAILURE		
Leak Source:	TANK		
Substance:	GASOLINE		
Media Affected:	SOIL ONLY		

VISTA Address*:	HILLSDALE QUARRY 500 HILLSDALE AVE SAN JOSE, CA 95136	VISTA ID#: Distance/Direction: Plotted as:	195705 0.28 MI / E Point	Map 2

STATE LUST - State Leaking Underground Storage Tank / SRC# 6024		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Facility ID:	07S1E33J01		
Leak Report Date:	07/22/86		
Site Assessment Began:	03/13/90		

SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Case Closed Date:	03/31/95
Remediation Event:	EXCAVATE AND DISPOSE
Remediation Status:	CASE CLOSED
Media Affected:	AQUIFER (MUNICIPAL USE)
Lead Agency:	LOCAL AGENCY
Region / District:	SAN FRANCISCO BAY RE
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 04/18/95

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120	EPA/Agency ID:	N/A
Agency Address:	HILLSDALE QUARRY 500 HILLSDALE AVE SAN JOSE, CA	
Facility ID:	43-0700	
Leak Cause:	STRUCTURE FAILURE	
Leak Source:	TANK	
Substance:	DIESEL	
Media Affected:	AQUIFER (MUNICIPAL USE)	

VISTA Address*:	EXPRESSWAY JEEP EAGLE 740 CAPITOL EXPWY W SAN JOSE, CA 95136	VISTA ID#:	4558275	Map ID
		Distance/Direction:	0.30 MI / S	3
		Plotted as:	Point	

STATE LUST - State Leaking Underground Storage Tank / SRC# 6024	EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE	
Facility ID:	07S1E33Q01	
Leak Report Date:	08/31/89	
Remediation Plan Date:	04/26/95	
Remediation Event:	NO ACTION TAKEN	
Remediation Status:	PRELIMINARY SITE ASSESSMENT WORKPLAN REQ	
Media Affected:	AQUIFER (MUNICIPAL USE)	
Lead Agency:	LOCAL AGENCY	
Region / District:	SAN FRANCISCO BAY RE	
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 01/10/97	

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120	EPA/Agency ID:	N/A
Agency Address:	EXPRESSWAY JEEP EAGLE 740 CAPITOL EXPWY W SAN JOSE, CA	
Facility ID:	43-0785	
Leak Cause:	STRUCTURE FAILURE	
Leak Source:	TANK	
Substance:	WASTE OIL	
Media Affected:	AQUIFER (MUNICIPAL USE)	

VISTA Address*:	EXPRESSWAY JEEP EAGLE, INC 740 W CAPITOL EX SAN JOSE, CA 95136	VISTA ID#:	15710	Map
		Distance/Direction:	0.31 MI / S	3
		Plotted as:	Point	
CORTESE / SRC# 4840		Agency ID:	43-0785	
Agency Address:	EXPRESSWAY JEEP EAGLE 740 CAPITOL SAN JOSE, CA 951360000			
List Name:	LEAKING TANK			
Site ID:	43-0785			

VISTA Address*:	1X ALAMADEN HONDA 745 W. CAPITOL EXPRESS WAY SAN JOSE, CA 95136	VISTA ID#:	5710160	Map
		Distance/Direction:	0.31 MI / S	3
		Plotted as:	Point	
STATE LUST - State Leaking Underground Storage Tank / SRC# 6120		EPA/Agency ID:	N/A	
Agency Address:	CAPITOL HONDA 745 CAPITOL EXPWY W SAN JOSE, CA			
Facility ID:	43-2076			
Leak Cause:	UNKNOWN			
Leak Source:	UNKNOWN			
Substance:	WASTE OILDIESEL			
Media Affected:	SOIL ONLY			

VISTA Address*:	CAPITOL HONDA 745 CAPITOL EXPWY W SAN JOSE, CA 95136	VISTA ID#:	12639571	Map
		Distance/Direction:	0.32 MI / S	3
		Plotted as:	Point	
STATE LUST - State Leaking Underground Storage Tank / SRC# 6024		EPA/Agency ID:	N/A	
Agency Address:	CAPITOL HONDA 745 CAPITOL EXPWY W SAN JOSE, CA 94136			
Facility ID:	07S1E33Q02			
Leak Report Date:	09/07/95			
Contamination Confirmed Date:	09/13/95			
Case Closed Date:	12/30/97			
Substance:	DIESEL			
Remediation Event:	EXCAVATE AND DISPOSE			
Remediation Status:	CASE CLOSED			
Media Affected:	SOIL ONLY			
Lead Agency:	LOCAL AGENCY			
Region / District:	SAN FRANCISCO BAY RE			
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 09/15/95			

VISTA Address*:	CAPITOL HONDA 755 W CAPITOL EX SAN JOSE, CA 95136	VISTA ID#: Distance/Direction: Plotted as:	3766396 0.31 MI / S Point	Map 4

CORTESE / SRC# 4840		Agency ID:	43-2076
Agency Address:	CAPITOL HONDA 745 CAPITOL SAN JOSE, CA		
List Name:	LEAKING TANK		
Site ID:	43-2076		

CORTESE / SRC# 4840		Agency ID:	43-2139
Agency Address:	CAPITOL HONDA 745 CAPITOL SAN JOSE, CA		
List Name:	LEAKING TANK		
Site ID:	43-2139		

VISTA Address*:	ALMADEN PONTIAC 765 W. CAPITAL EXPRESS WAY SAN JOES, CA 951360000	VISTA ID#: Distance/Direction: Plotted as:	13987 0.31 MI / S Point	Map 4

STATE LUST - State Leaking Underground Storage Tank / SRC# 6024		EPA/Agency ID:	N/A
Agency Address:	SOUTH BAY PONTIAC 765 CAPITOL EXPWY W SAN JOSE, CA 95136		
Facility ID:	07S1E33P03		
Leak Report Date:	06/22/98		
Remediation Status:	FURTHER SITE ASSESSMENT UNDERWAY		
Media Affected:	SOIL ONLY		
Lead Agency:	LOCAL AGENCY		
Region / District:	SAN FRANCISCO BAY RE		
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 10/16/98		

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120		EPA/Agency ID:	N/A
Agency Address:	SOUTH BAY PONTIAC 765 CAPITOL EXPWY W SAN JOSE, CA		
Facility ID:	43-2270		
Leak Cause:	UNKNOWN		
Leak Source:	UNKNOWN		
Substance:	GASOLINE		
Media Affected:	SOIL ONLY		

VISTA Address*:	SHELL 898 W. CAPITOL EXWY SAN JOSE, CA 95136	VISTA ID#: Distance/Direction: Plotted as:	1583690 0.39 MI / SW Point	Map 5

STATE LUST - State Leaking Underground Storage Tank / SRC# 6024		EPA/Agency ID:	N/A
Agency Address:	SHELL 898 CAPITOL EXPWY W SAN JOSE, CA 95136		
Facility ID:	07S1E33P01		
Leak Report Date:	02/12/90		
Site Assessment Began:	02/08/90		

Case Closed Date:	09/04/91
Remediation Event:	EXCAVATE AND DISPOSE
Remediation Status:	CASE CLOSED
Media Affected:	AQUIFER (MUNICIPAL USE)
Lead Agency:	CRWQCB ACTIVE CASE
Region / District:	SAN FRANCISCO BAY RE
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 09/04/91

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120		EPA/Agency ID:	N/A
Agency Address:	SHELL 898 CAPITOL EXPWY W SAN JOSE, CA		
Facility ID:	43-1333		
Leak Cause:	STRUCTURE FAILURE		
Leak Source:	TANK		
Substance:	GASOLINE		
Media Affected:	AQUIFER (MUNICIPAL USE)		

VISTA Address*:	CARL CHEVROLET, INC 905 W CAPITOL EX SAN JOSE, CA 95136	VISTA ID#: Distance/Direction: Plotted as:	4023321 0.41 MI / SW Point
CORTESE / SRC# 4840		Agency ID:	43-0252
Agency Address:	CARL CHEVROLET 905 CAPITOL SAN JOSE, CA 95136		
List Name:	LEAKING TANK		
Site ID:	43-0252		

VISTA Address*:	CARL CHEVROLET 905 W. CAPITOL EXWY SAN JOSE, CA 95136	VISTA ID#: Distance/Direction: Plotted as:	70479 0.41 MI / SW Point
STATE LUST - State Leaking Underground Storage Tank / SRC# 6024		EPA/Agency ID:	N/A
Agency Address:	CARL CHEVROLET 905 CAPITOL EXPWY W SAN JOSE, CA 95136		
Facility ID:	07S1E33P02		
Leak Report Date:	02/14/91		
Case Closed Date:	03/15/95		
Remediation Event:	NO ACTION TAKEN		
Remediation Status:	CASE CLOSED		
Media Affected:	SOIL ONLY		
Lead Agency:	LOCAL AGENCY		
Region / District:	SAN FRANCISCO BAY RE		
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 02/27/91		
STATE LUST - State Leaking Underground Storage Tank / SRC# 6120		EPA/Agency ID:	N/A
Agency Address:	CARL CHEVROLET 905 CAPITOL EXPWY W SAN JOSE, CA		
Facility ID:	43-0252		

Ma 5

Ma 5

Leak Cause:	STRUCTURE FAILURE
Leak Source:	TANK
Substance:	WASTE OIL
Media Affected:	SOIL ONLY

VISTA Address*:	CAPITOL FORD, INC 919 W. CAPITOL EXWY SAN JOSE, CA 95136	VISTA ID#:	3194145	Map 5
		Distance/Direction:	0.41 MI / SW	
		Plotted as:	Point	

STATE LUST - State Leaking Underground Storage Tank / SRC# 6024	EPA/Agency ID: N/A
Agency Address:	ALMADEN LINCOLN MERCURY 909 CAPITOL EXPWY W SAN JOSE, CA 95136
Facility ID:	07S1E33N03
Leak Report Date:	02/04/94
Remediation Event:	NO ACTION TAKEN
Remediation Status:	PRELIMINARY SITE ASSESSMENT WORKPLAN REQ
Media Affected:	UNDEFINED
Lead Agency:	LOCAL AGENCY
Region / District:	SAN FRANCISCO BAY RE
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 02/11/94

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120	EPA/Agency ID: N/A
Agency Address:	ALMADEN LINCOLN MERCURY 909 CAPITOL EXPWY W SAN JOSE, CA
Facility ID:	43-1091
Leak Cause:	STRUCTURE FAILURE
Leak Source:	TANK
Substance:	GASOLINE
Media Affected:	UNDEFINED

VISTA Address*:	LEWIS, BOB VOLKSWAGEN 911 W CAPITOL EX SAN JOSE, CA 95136	VISTA ID#:	4023322	Map 5
		Distance/Direction:	0.41 MI / SW	
		Plotted as:	Point	

CORTESE / SRC# 4840	Agency ID: 43-0248
Agency Address:	CAPITOL VOLKSWAGEN 911 CAPITOL SAN JOSE, CA 95136
List Name:	LEAKING TANK
Site ID:	43-0248

VISTA Address*:	CAPITOL VOLKSWAGEN 911 W. CAPITOL EXWY SAN JOSE, CA 95136	VISTA ID#:	69232	Map 5
		Distance/Direction:	0.41 MI / SW	
		Plotted as:	Point	

STATE LUST - State Leaking Underground Storage Tank / SRC# 6024	EPA/Agency ID: N/A
Agency Address:	CAPITOL VOLKSWAGEN 911 CAPITOL EXPWY W SAN JOSE, CA 95136
Facility ID:	07S1E33N01
Leak Report Date:	02/25/91
Site Assessment Began:	05/11/92

SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Pollution Characterization Date:	07/27/88
Remediation Start Date:	07/27/88
Remediation Event:	EXCAVATE AND DISPOSE
Remediation Status:	FURTHER SITE ASSESSMENT UNDERWAY
Media Affected:	AQUIFER (MUNICIPAL USE)
Lead Agency:	LOCAL AGENCY
Region / District:	SAN FRANCISCO BAY RE
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 03/12/91

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120	EPA/Agency ID: N/A
Agency Address:	CAPITOL VOLKSWAGEN 911 CAPITOL EXPWY W SAN JOSE, CA
Facility ID:	43-0248
Leak Cause:	STRUCTURE FAILURE
Leak Source:	TANK
Substance:	GASOLINE
Media Affected:	AQUIFER (MUNICIPAL USE)

VISTA Address*:	ALMADEN LINCOLN MERCURY IN 909 W CAPITOL EX SAN JOSE, CA 95136	VISTA ID#:	13983	Map 5
		Distance/Direction:	0.42 MI / SW	
		Plotted as:	Point	

CORTESE / SRC# 4840	Agency ID: 43-1091
Agency Address:	ALMADEN LINCOLN MERCURY 909 CAPITOL SAN JOSE, CA 951360000
List Name:	LEAKING TANK
Site ID:	43-1091

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120	EPA/Agency ID: N/A
Agency Address:	CAPITOL FORD 919 CAPITOL EXPRESSWAY W SAN JOSE, CA
Facility ID:	43-2334
Leak Cause:	UNKNOWN
Leak Source:	UNKNOWN
Substance:	WASTE OILTRANSMISSION FLUID
Media Affected:	SOIL ONLY

VISTA Address*:	QUIK STOP 3695 PEARL SAN JOSE, CA 95136	VISTA ID#:	3201168	Map 6
		Distance/Direction:	0.49 MI / SW	
		Plotted as:	Point	

CORTESE / SRC# 4840	Agency ID: 43-1093
Agency Address:	SAME AS ABOVE
List Name:	LEAKING TANK
Site ID:	43-1093

STATE LUST - State Leaking Underground Storage Tank / SRC# 6024	EPA/Agency ID: N/A
Agency Address:	QUIK STOP 3695 PEARL AVE SAN JOSE, CA 95136
Facility ID:	08S1E04C01
Leak Report Date:	04/17/91

SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Site Assessment Began:	08/08/91
Pollution Characterization Date:	08/21/92
Remediation Event:	NO ACTION TAKEN
Remediation Status:	FURTHER SITE ASSESSMENT UNDERWAY
Media Affected:	AQUIFER (MUNICIPAL USE)
Lead Agency:	LOCAL AGENCY
Region / District:	SAN FRANCISCO BAY RE
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 04/07/99

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120	EPA/Agency ID:	N/A
Agency Address:	QUIK STOP 3695 PEARL AVE SAN JOSE, CA	
Facility ID:	43-1093	
Leak Cause:	STRUCTURE FAILURE	
Leak Source:	TANK	
Substance:	GASOLINE	
Media Affected:	AQUIFER (MUNICIPAL USE)	

SITES IN THE SURROUNDING AREA (within 1/2 - 1 mile)

No Records Found

UNMAPPED SITES

VISTA Address*:	ALMADEN QUICKSILVER UNKNOWN ALMADEN HICKS RD SAN JOSE, CA 95125	VISTA ID#:	1605792
STATE LUST - State Leaking Underground Storage Tank / SRC# 6024		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Facility ID:	43-1825		
Leak Report Date:	12/11/85		
Substance:	MISC MOTOR VEHICLE FUELS		
Remediation Event:	NO ACTION TAKEN		
Remediation Status:	NO ACTION		
Media Affected:	SOIL ONLY		
Lead Agency:	LOCAL AGENCY		
Region / District:	SAN FRANCISCO BAY RE		
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 08/07/97		
STATE LUST - State Leaking Underground Storage Tank / SRC# 6120		EPA/Agency ID:	N/A
Agency Address:	ALMADEN QUICKSILVER UNKNOWN ALMADEN HICKS RD SAN JOSE, CA		
Facility ID:	43-1825		
Leak Cause:	STRUCTURE FAILURE		
Leak Source:	TANK		
Substance:	GASOLINEMISC MOTOR VEHICLE FUELS		
Media Affected:	SOIL ONLY		

VISTA Address*:	R AND G ENVIRONMENTAL SERVICES SAN JOSE, CA	VISTA ID#:	6830438
STATE SWLF - Solid Waste Landfill / SRC# 5942		Agency ID:	43-AA-0010
Agency Address:	SAME AS ABOVE		
Facility Type:	TREATMENT PROCESSING		
Facility Status:	ACTIVE		
Permit Status:	UNPERMITTED/UNLICENSED		
County SWLF - County Solid Waste Landfill / SRC# 6130		Agency ID:	43-AA-0010
Agency Address:	SAME AS ABOVE		
Facility Type:	TREATMENT PROCESSING		
Facility Status:	ACTIVE		
Permit Status:	UNPERMITTED/UNLICENSED		

VISTA Address*:	KIRBY CANYON RECYCL. DISP. FACILITY 910 COYOTE CREEK GOLF DRIVE SAN JOSE, CA	VISTA ID#:	12551343
STATE SWLF - Solid Waste Landfill / SRC# 5942		Agency ID:	43-AN-0008
Agency Address:	SAME AS ABOVE		
Facility Type:	SOLID WASTE DISPOSAL FACILITY		
Facility Status:	ACTIVE		
Permit Status:	PERMITTED/LICENSED		

* VISTA address includes enhanced city and ZIP.

UNMAPPED SITES CONT.

VISTA Address*:	WDR-MARSHLAND LANDFILL 05S01W08 SAN JOSE, CA	VISTA ID#:	12362037
WMUDS / SRC# 5857		Agency ID:	2 438042001

Agency Address:	*SAME AS ABOVE*
Solid Waste Inventory System ID:	*43-AN-0004*
Facility Type:	*SOLID WASTE SITES-CLASS III - Landfills for nonhazardous solid wastes.*
Facility In State Board Waste Discharger System:	*NO*
Chapter 15 Facility:	*NO*
Solid Waste Assessment Test Facility:	*NO*
Toxic Pits Cleanup Act Facility:	*NO*
RCRA Facility:	*NO*
Department of Defense Facility:	*NO*
Open To Public:	*NO*
Number Of Waste Management Units:	*1*
Rank:	*NOT REPORTED*
Enforcements At Facility:	*NO*
Violations At Facility:	*NO*

SITE ASSESSMENT PLUS REPORT

DESCRIPTION OF DATABASES SEARCHED

A) DATABASES SEARCHED TO 1 MILE

NPL
SRC#: 5984

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for NPL was July, 1999.

The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specif   iteria set jointly by the US Dept of Health and Human Services and the US EPA in order to become an NPL site.

SPL
SRC#: 5949

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Calsites Database: Annual Workplan Sites was April, 1999.

The CalSites database contains information on properties (or "sites") in California where hazardous substances have been released, or where the potential for such a release exists. This database is used primarily by the Department of Toxic Substances Control to evaluate and track activities at sites that may have been affected by the release of hazardous substances. Also see SPL/SCL: Annual Work Plan (AWP) sites are cleassified as SPL and all the other sites are classified as SCL.

CORRACTS
SRC#: 5896

VISTA conducts a database search to identify all sites within 1 mile of your property
The agency release date for HWDMS/RCRIS was May, 1999.

The EPA maintains this database of RCRA facilities which are undergoing "corrective action". A "corrective action order" is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA.

B) DATABASES SEARCHED TO 1/2 MILE

CERCLIS
SRC#: 6078

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for CERCLIS was May, 1999.

The CERCLIS List contains sites which are either proposed to or on the National Priorities List(NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL. The information on each site includes a history of all pre-remedial, remedial, removal and community relations activiies or events at the site, financial funding information for the events, and unrestricted enforcement activities.

Cal Cerclis
SRC#: 2462

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Ca Cerclis w/Regional Utility Description was June, 1995.

This database is provided by the U.S. Environmental Protection Agency, Region 9. The agency may be contacted at: . These are regional utility descriptions for California CERCLIS sites.

NFRAP
SRC#: 6079

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for CERCLIS-NFRAP was May, 1999.

NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

SCL
SRC#: 5948

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Calsites Database: All Sites except Annual Workplan Sites (incl. ASPIS) was April, 1999.

The CalSites database contains information on properties (or "sites") in California where hazardous substances have been released, or where the potential for such a release exists. This database is used primarily by the Department of Toxic Substances Control to evaluate and track activities at sites that may have been affected by the release of hazardous substances. Also see SPL/SCL: Annual Work Plan (AWP) sites are cleassified as SPL and all the other sites are classified as SCL.

The CalSites database includes both known and potential sites. Two- thirds of these sites have been classified, based on available information, as needing "No Further Action" (NFA) by the Department of Toxic Substances Control. The remaining sites are in various stages of review and remediation to determine if a problem exists at the site. Several hundred sites have been remediated and are considered certified. Some of these sites may be in long term operation and maintenance.

RCRA-TSD
SRC#: 5896

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for HWDMS/RCRIS was May, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

SWLF
SRC#: 5942

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Ca Solid Waste Information System (SWIS) was April, 1999.

This database is provided by the Integrated Waste Management Board. The agency may be contacted at: 916-255-4021.

The California Solid Waste Information System (SWIS) database consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations pursuant to the Solid Waste Management and Resource Recovery Act of 1972, Government Code Section 2.66790(b). Generally, the California Integrated Waste Management Board learns of locations of disposal facilities through permit applications and from local enforcement agencies.

SWLF
SRC#: 5945

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for City of Los Angeles Landfills was April, 1999.

This database is provided by the City of Los Angeles, Environmental Affais Department. The agency may be contacted at: 213-580-1070.

WMUDS
SRC#: 5857

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Waste Management Unit Database System (WMUDS) was February, 1999.

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-892-0323. This is used for program tracking and inventory of waste management units. This system contains information from: Facility, Waste Management Unit, SWAT Program and Report Summary Information, Chapter 15 (formerly Subchapter 15); TPCA and RCRA Program Information, Closure Information; also some information from the WDS (Waste Discharge System).

The WMUDS system also accesses information from the following databases from the Waste Discharger System (WDS): Inspections, Violations, and Enforcements The sites contained in these databases are subject to the California Code of Regulations - Title 23. Waters.

LUST
SRC#: 4579

VISTA conducts a database search to identify all sites within 1/2 mile of your property
The agency release date for Region #2-North and South Bay SLIC Report was January, 1998.

This database is provided by the Regional Water Quality Control Board, Region #2. The agency may be contacted at: 510-286-1269.

LUST RG6
SRC#: 5670

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Lahontan Region LUST List was January, 1999.

This database is provided by the Lahontan Region Six South Lake Tahoe. The agency may be contacted at: 530-542-5400.

LUST RG3
SRC#: 6021

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Region #3-Central Coast Region LUST List was June, 1999.

This database is provided by the Regional Water Quality Control Board, Region #3. The agency may be contacted at: 805-542-4695.

LUST
SRC#: 6024

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Lust Information System (LUSTIS) was April, 1999.

This database is provided by the California Environmental Protection Agency. The agency may be contacted at: 916-445-6532.

LUST
SRC#: 6112

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Region #3-Central Coast Region SLIC List was July, 1999.

This database is provided by the Regional Water Quality Control Board, Region #3. The agency may be contacted at: 805-542-3399.

LUST RG2
SRC#: 6120

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Region #2-San Francisco Bay Fuel Leaks List was June, 1999.**

This database is provided by the Regional Water Quality Control Board, Region #2. The agency may be contacted at: 510-286-1269.

CORTESE
SRC#: 4840

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Cortese List-Hazardous Waste Substance Site List was April, 1998.**

This database is provided by the Office of Environmental Protection, Office of Hazardous Materials. The agency may be contacted at: 916-445-6532.

The California Governor's Office of Planning and Research annually publishes a listing of potential and confirmed hazardous waste sites throughout the State of California under Government Code Section 65962.5. This database (CORTESE) is based on input from the following: (1)CALSITES-Department of Toxic Substances Control, Abandoned Sites Program Information Systems; (2)SARA Title III Section III Toxic Chemicals Release Inventory for 1987, 1988, 1989, and 1990; (3)FINDS; (4)HWIS-Department of Toxic Substances Control, Hazardous Waste Information System. Vista has not included one time generator facilities from Cortese in our database.; (5)SWRCB-State Water Resources Control Board; (6)SWIS-Integrated Waste Management Control Board (solid waste facilities); (7)AGT25-Air Resources Board, dischargers of greater than 25 tons of criteria pollutants to the air; (8)A1025-Air Resources Board, dischargers of greater than 10 and less than 25 tons of criteria pollutants to the air; (9)LTANK-SWRCB Leaking Underground Storage Tanks; (10)UTANK-SWRCB Underground tanks reported to the SWEEPS systems; (11)IUR-Inventory Update Rule (Chemical Manufacturers); (12)WB-LF- Waste Board - Leaking Facility, site has known migration; (13)WDSE-Waste Discharge System - Enforcement Action; (14)DTSCD-Department of Toxic Substance Control Docket.

Deed Restrictions
SRC#: 1703

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Deed Restriction Properties Report was April, 1994.**

This database is provided by the Department of Health Services-Land Use and Air Assessment. The agency may be contacted at: 916-255-2014. These are voluntary deed restriction agreements with owners of property who propose building residences, schools, hospitals, or day care centers on property that is "on or within 2,000 feet of a significant disposal of hazardous waste".

California has a statutory and administrative procedure under which the California Department of Health Services (DHS) may designate real property as either a "Hazardous Waste Property" or a "Border Zone Property" pursuant to California Health Safety Code Sections 25220-25241. Hazardous Waste Property is land at which hazardous waste has been deposited, creating a significant existing or potential hazard to public health and safety. A Border Zone Property is one within 2,000 feet of a hazardous waste deposit. Property within either category is restricted in use, unless a written variance is obtained from DHS. A Hazardous Waste Property designation results in a prohibition of new uses, other than a modification or expansion of an industrial or manufacturing facility on land previously owned by the facility prior to January 1, 1981. A Border Zone Property designation results in prohibition of a variety of uses involving human habitation, hospitals, schools and day care center.

Toxic Pits
SRC#: 2229

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Summary of Toxic Pits Cleanup Facilities was February, 1995.

This database is provided by the Water Quality Control Board, Division of Loans Grants. The agency may be contacted at: 916-227-4396.

South Bay
SRC#: 1719

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for South Bay Site Management System was April, 1994.

This database is provided by the San Francisco Bay Region. The agency may be contacted at: .

Water Wells
SRC#: 5384

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for USGS WATER WELLS was March, 1998.

The Ground Water Site Inventory (GWSI) database was provided by the United States Geological Survey (USGS). The database contains information for over 1,000,000 wells and other sources of groundwater which the USGS has studied, used, or otherwise had reason to document through the course of research. The agency may be contacted at 703-648-6819.

C) DATABASES SEARCHED TO 1/4 MILE

RCRA-Viols/Enf

VISTA conducts a database search to identify all sites within 1/4 mile of your property.
The agency release date for HWDMS/RCRIS was May, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Violators are facilities which have been cited for RCRA Violations at least once since 1980. RCRA Enforcements are enforcement actions taken against RCRA violators.

UST's
SRC#: 1612

VISTA conducts a database search to identify all sites within 1/4 mile of your property.
The agency release date for Underground Storage Tank Registrations Database was January, 1994.

This database is provided by the State Water Resources Control Board, Office of Underground Storage Tanks. The agency may be contacted at: 916-227-4364; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 5495

VISTA conducts a database search to identify all sites within 1/4 mile of your property.
The agency release date for City of Mountain View Underground Storage Tank List was December, 1998.

This database is provided by the Mountain View Fire Department. The agency may be contacted at: 650-903-6378; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 5677

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for Hazmat Facilities Database, Underground Storage Tanks of Santa Clara County was January, 1999.**

This database is provided by the Santa Clara County Fire Department. The agency may be contacted at: 408-378-4010; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 5721

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Palo Alto Underground Storage Tank List was December, 1998.**

This database is provided by the City of Palo Alto Fire Department. The agency may be contacted at: 650-329-2184; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 5837

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Santa Clara Underground Storage Tanks was April, 1999.**

This database is provided by the City of Santa Clara Fire Department. The agency may be contacted at: 408-984-4109; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 5946

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for Sunnyvale City UST List was January, 1999.**

This database is provided by the City of Sunnyvale Department of Public Safety. The agency may be contacted at: 408-730-7212; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 6111

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of San Jose Underground Storage Tanks List was April, 1999.**

This database is provided by the City of San Jose Fire Department. The agency may be contacted at: 408-277-4659; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 6121

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Milpitas UST List was July, 1999.**

This database is provided by the City of Milpitas Fire Department. The agency may be contacted at: 408-942-3265; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

AST's
SRC#: 5513

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for Aboveground Storage Tank Database was December, 1998.**

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-227-4364.

TRIS
SRC#: 4946

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for TRIS was January, 1998.**

Section 313 of the Emergency Planning and Community Right-to-Know Act (also known as SARA Title III) of 1986 requires the EPA to establish an inventory of Toxic Chemicals emissions from certain facilities(Toxic Release Inventory System). Facilities subject to this reporting are required to complete a Toxic Chemical Release Form(Form R) for specified chemicals.

D) DATABASES SEARCHED TO 1/8 MILE

ERNS
SRC#: 5598

VISTA conducts a database search to identify all sites within 1/8 mile of your property. **The agency release date for was December, 1998.**

The Emergency Response Notification System (ERNS) is a national database containing records from October 1986 to the release date above and is used to collect information for reported releases of oil and hazardous substances. The database contains information from spill reports made to federal authorities including the EPA, the US Coast Guard, the National Response Center and the Department of Transportation. The ERNS hotline number is (202) 260-2342.

RCRA-LgGen
SRC#: 5896

VISTA conducts a database search to identify all sites within 1/8 mile of your property. **The agency release date for HWDMS/RCRIS was May, 1999.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

RCRA-SmGen
SRC#: 5896

VISTA conducts a database search to identify all sites within 1/8 mile of your property **The agency release date for HWDMS/RCRIS was May, 1999.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small and Very Small generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.

End of Report

APPENDIX E

Regulatory Agency/Information Source Documentation

The following agencies or organizations were contacted or visited, and information sources used regarding the subject property:

San Francisco Bay Regional Water Quality Control Board

San Jose Public Library

Santa Clara Valley Water District

Pacific Aerial Surveys

No other pertinent data was reviewed by Aqua Science Engineers, Inc. during this Phase I Environmental Site Assessment.

APPENDIX F

Statement of Qualifications

AQUA SCIENCE ENGINEERS INC., PRINCIPAL STAFF

David Schultz P.E., R.E.A.
President

B.S. Marine Biology
U.C. Berkeley

M.S. Civil Engineering
U.C. Berkeley

Registered Civil Engineer, California #38738

Registered Environmental Assessor, California #1626

CA Contractors Lic. #487000
A, HAZ, C-57

Directs field operations for all of California from the Irvine office including hazardous waste management, assessments, remediations, construction, geological investigations, engineering and regulatory compliance services.

Mr. Schultz has an 18 year background in contaminated soil, groundwater and wastewater assessment and remediation and has served as an expert witness in numerous contaminated property cases. Mr. Schultz also serves as Corporate Chief Engineer.

Gerald Sasse
Chief Executive Officer

B.S. Business Mgt.
San Diego State University

Cert. Hazmat Trans.
OSHA Compliance

Manages operations of the corporate office including administration, scheduling, cost accounting, marketing and project management

With 21 years of hands-on experience, Mr. Sasse is uniquely qualified in the environmental field by way of the chemical industry. Having been the co-owner of a chemical manufacturing company, he is familiar with the financial, investigative and remedial processes involved in chemical site cleanup.

AQUA SCIENCE ENGINEERS INC., SENIOR STAFF

Michael Marello, R.G. Vice President Sr. Geologist B.S. Geology U.C. Davis Registered Geologist, California #5339	Responsible for geoscience consulting and project management and implementation. With 12 years in the industry, Mr. Marello coordinates projects ranging from surface spill investigations to aquifer analysis and remediation. He manages investigations involving soil and groundwater contamination at commercial and industrial sites. These investigations involve site histories, preparation of sampling programs in compliance with local municipalities, and installation of groundwater monitoring wells in order to gain information regarding hydrogeologic conditions. Additionally, Mr. Marello designs site investigations, risk-based assessments and remedial action plans.
David Allen, R.E.A Sr. Project Manager, Assessor B.S. Industrial Technology San Jose State University Registered Environmental Assessor, California #06211	Responsible for coordinating phase I and II investigations involving the integration of ASE's engineering, geotechnical, drilling and field service departments. Manages risk-based assessment projects, ongoing in-situ remediation projects and industrial process engineering contracts. Mr. Allen is responsible for general content and report format for all ASE phase I environmental investigations.
Robert Kitay, R.G., R.E.A. Project Geologist, Assessor B.A. Geology California State University, Sacramento Registered Geologist, California #6586 Registered Environmental Assessor, California #05442	Mr. Kitay has over 10 years experience conducting environmental investigations at over 200 sites. Responsibilities include proposal and workplan preparation, monitoring and remedial well installation, geologic interpretations, remediation design, and investigative/remedial report preparation. Acts as liaison between client and environmental regulatory agencies. Directs drilling operations for the northern California region.

Chris Palmer, C.E.G. H.G.
Geologist, Assessor

B.A. Geology
California State University
Fresno

M.A. Geology
State University
Fresno

Registered Geologist:
California #3989
Arkansas #320
Florida #471
Pennsylvania #892

Certified Engineering
Geologist, California #1262

Registered Hydrogeologist,
California #246

Registered Environmental
Assessor, California #285

Mr. Palmer has diversified experience in environmental assessment and hydrogeologic studies in California and throughout the US. He has performed or supervised hundreds of environmental compliance investigations which include all aspects of phase I environmental assessments, phase II assessments of soil and groundwater, groundwater monitoring well design and installation, aquifer data analysis and report preparation. These projects have included military and industrial site remediations for leaking USTs, RCRA RI/FS **California** studies, landfill seismic slope stability studies, air photo review, geotechnical support for wastewater disposal design at residential and industrial developments, municipal landfill siting, hazardous waste disposal site closure plan prepaeration and expert testimony.

Mr. Palmer is experienced in regulatory negotiation and compliance for petroleum and solvent contamination and implementation of soil and groundwater remediation action plans for site closures. Mr. Palmer has provided instruction regarding hydrogeology and subsurface environmental investigations to academic, industrial and regulatory groups since 1988.

Henry Nakayama, R.E.A.
Assessor, Industrial Engineer, Chemical Engineer

B.S. Chemical Engineering
California State University, Long Beach

Registered Environmental Assessor, California #5320

ASE chief chemical engineer. Responsible for feasibility/treatability studies leading into design, construction and installation of compliance systems involving air stripping, carbon absorption, vapor extraction, thermal oxidation, wastewater treatment and flowmetering systems. Oversees sampling relating to regulatory interpretation and advises ASE project managers on acceptable methodologies of remedial action and risk assessment.

A leader in the field of bioremediation with 13 years background, Mr. Nakayama has implemented and successfully completed numerous bioremedial systems for cleaning contaminated sites. Also a highly experienced phase I environmental assessor.

Anthony Lizzi, R.E.A.
Assessor, Senior Project Manager

B.S. Specialization Geology
Concordia University, Montreal, Canada

Registered Environmental Assessor, California #7000

Mr. Lizzi is responsible for implementation and supervision of projects associated with site characterization, monitoring and documenting site remediation. Mr. Lizzi has over thirteen (13) years experience in environmental geology including three years as a mining/structural geologist for two Canadian mining companies.

Mr. Lizzi has served as a Project Manager for an EPA Superfund Landfill site in Los Angeles from 1992 to 1996. He performed multiphase site assessments as well as supervised the installation of vadose zone,leachate and ground water monitoring wells for Superfund sites.

He had implemented many aquifer pump tests in superfund and solid waste landfills. Also, he conducted detail surface and subsurface geological mapping in the mining industry.

aqua science engineers inc.

November 18, 1999

Phase I Environmental Site Assessment
A.P.N. 455-10-5 and portion of A.P.N. 455-9-49
San Jose, California
ASE Job #3579

Prepared for:

Mr. Jeffrey McMullen
Kaufman & Broad South Bay, Inc.
2201 Walnut Avenue, Suite 150
Fremont, CA 94538

Prepared by:

Aqua Science Engineers, Inc.
208 W. El Pintado Road
Danville, CA 94526

TABLE OF CONTENTS

APPENDICES

1.0 EXECUTIVE SUMMARY

Based on the visual inspection of the subject site, historical and database review, and local agency contact, no environmental concerns were noted.

On-Site

No significant environmental concerns were identified at the subject site.

ASE does not recommend any further assessment activities related to on-site conditions.

Off-Site

Based on the VISTA report and site observations, there are no off-site sources that have the potential to impact the subject site due to the distance from the subject property and to the groundwater flow direction.

ASE does not recommend any other assessment activities related to off-site conditions.

2.0 INTRODUCTION

2.1 Purpose

The objective of this Phase I Environmental Site Assessment is to identify, to the extent feasibly possible, recognized environmental conditions in connection with the subject property. This Phase I Environmental Site Assessment contains four major components (1) records review; (2) site reconnaissance; (3) interviews with regulatory agencies/property owners; (4) reporting. This Phase I Environmental Site Assessment has been prepared using the guidelines within the American Society for Testing and Materials (ASTM) Designation: E 1527-97.

2.2 Special Terms and Conditions

No special terms or conditions were made between Aqua Science Engineers, Inc. (ASE) and Mr. Jeffrey McMullen of Kaufman & Broad South Bay, Inc. This report has been produced by ASE to be within the scope of the American Society for Testing and Materials (ASTM) *Standard Practice for Environmental Assessment: Phase I Environmental Site Assessment Process* document (Designation: E 1527-97).

2.3 Limitations and Exceptions of Assessment

As noted in the ASTM E 1527-97 Standard Practice document, it is up to the environmental professional conducting the Phase I Environmental Site Assessment to determine the content of the report. Therefore, Aqua Science Engineers, Inc. (ASE), with extensive experience in conducting Phase I Environmental Site Assessments, has strategically designed this Phase I Environmental Site Assessment to provide a site-specific evaluation of the environmental conditions affecting the subject site. This report has been prepared for use solely by Mr. Jeffrey McMullen. This report shall not be relied upon by or transferred to any other party, or used for any other purpose, without the express written authorization of Mr. Jeffrey McMullen and Aqua Science Engineers, Inc.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The subject property is located north of the intersection between Hillsdale Avenue and Vista Park Drive, in the City of San Jose, in Santa Clara County, California (Figure 1). The subject site is on the parcel with Assessor Parcel Number (APN) 455-10-5 and on approximately 2.6 acres of the adjacent parcel with APN 455-9-49. The total subject site area is approximately 20.774 acres. The subject site is mostly undeveloped land, and is partially secured by fences. On the parcel with APN 455-10-5, there is an old single-story house, sheds, a camper shell, trailers, and parked cars.

The property is bound to the south and southwest by residential area, to the west by an area under development, and to the north and east by undeveloped vacant land.

On November 11, 1999, ASE representative Mr. Valentin Constantinescu conducted a site walk at the subject site.

3.2 Site and Vicinity Characteristics

The subject site occurs in a urban setting, in the City of San Jose, in the county of Santa Clara, California. The surrounding area is undeveloped land to the north and east, land under development as a residential area to the west, and residential areas to the south and southwest.

3.3 Description of Structures, Roads, and Improvements

There is an old single-story house, sheds, a camper shell, trailers, and parked cars at the subject site. There is a water well located in the eastern portion of the site. The road leading to the subject property, Hillsdale Avenue, is an asphalt paved road. This road is lightly traveled. Access to the house is via an unpaved road (see Figure 2).

3.31 Source of Potable Water

Potable water is supplied by the San Jose Water Company.

3.32 Sewage Disposal System

A septic tank exists adjacent to the house.

3.33 Solid Waste Disposal

Solid waste disposal service is supplied to the property by BFI.

3.4 Environmental Setting

3.41 Geology

Based on review of regional geologic maps (U.S. Geological Survey Professional Paper 943 "Flatland Deposits Their Geology and Engineering Properties and Their

Importance to Comprehensive Planning" by E.J. Helley and K.K. Lajoie, 1979), the subject site is underlain by the Franciscan Formation consisting of mostly well-indurated sandstone and shale which includes subordinate amounts of greenstone, chert, limestone, conglomerate, and metamorphic rocks of blueschist facies. This Formation is generally highly deformed and locally intensively sheared with hard blocks of various lithologies in a matrix of clay materials.

The subject site is located approximately 6 miles southwest of the Hayward Fault, and approximately 10 miles northeast of San Andreas Fault.

3.42 Hydrogeology

Based on review of the above mentioned Professional Paper 943, depth to ground water is greater than 20 feet below ground surface.

Based upon the site topography, ground water is expected to flow to the south.

3.5 Information Regarding Environmental Liens

None were identified during the preparation of this Phase I Environmental Site Assessment.

3.6 Current Use of Property

The property is mostly undeveloped vacant land (Photographs #1 through #4). There is an old single-story house, sheds, a camper shell, trailers, and parked cars at the subject site (Photographs #5 through #9). No odor, soil discoloration or other signs of obvious environmental impairments were noted during the site walk.

3.7 Former Uses and History of Property

Based on the aerial photographs, most of the subject site has always been undeveloped land. In the 50's, a larger structure, probably the house, and smaller structures, probably sheds, existed in the central portion of the parcel with the APN 455-10-005. A few trees existed west, south, and east of the house.

In the 60's and 70's small structures, probably sheds, appear northeast, east, and southeast of the house. The number and shape of these small structures has been changed several times. Between the mid-70's until the mid-80's a series of small structures appeared at the subject site, northeast of the house. Mr. Bertram M. Berns, the owner of the parcel with the APN 455-10-005, recalls that in those years the tenant used to grow chickens and other animals and these small structures observed on the aerial photograph are probably cages.

In the 90's no significant changes were noticed at the subject site.

3.71 Rationale

The purpose of the records review is to obtain and review records, photographs, maps and other related historical documents that will assist in the identification of recognized environmental conditions in connection with the subject property. The objective of consulting historical sources is to develop a history of the property and surrounding area. This review helps identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. The following recommended sources/databases are used to investigate the property history.

3.72 Historical Aerial Photographs Review

Aerial photographs from Pacific Aerial Surveys in Oakland were studied on November 9, 1999 by ASE representative, Mr. Valentin Constantinescu, to help determine the history of use of the site and surrounding land. Photos were available for various years between 1954 and 1999. The scale of some of the aerial photographs did not allow detailed analysis.

AV 129, dated 03-02-54

Most of the subject site is undeveloped land. A larger structure, probably the house, and smaller structures, probably sheds, exist in the central portion of the parcel with the APN 455-10-005. A few trees exist west, south, and east of the house. Off-site, immediately to the southwest, there are a few structures, apparently a house and sheds. The other adjacent areas are undeveloped land. There are orchards and vacant land far to the south and west, and residential areas far to the northeast, east, and west.

AV 385, dated 08-22-60

The subject site appears as it did in the previous photograph. Residential areas appear far to the east and northeast. There are no other significant changes in the surrounding areas.

AV 710, dated 04-25-66

There are less trees at the subject site. There are no other significant changes at the subject site. More structures appear far to the northwest (now the County Communications Center), residential areas exist far to the southwest and other structures are under construction far to the west. More industrial areas appear far to the north and residential areas appear far to the northeast and east.

AV 1006, dated 10-12-71

Small structures, probably sheds, appear east of the house. There are no significant changes in the immediate surrounding areas. More residential areas appear far to the southwest and southeast.

AV 1277, dated 10-13-76

A series of small structures appear at the subject site, northeast of the house. Mr. Bertram M. Berns, the owner of the parcel with the APN 455-10-005, recalls that in those years the tenant used to grow chickens and other animals and these small structures observed on the aerial photograph are probably cages. There appear residential areas far to the south.

AV 1905, dated 07-20-80

No significant changes at the subject site. New structures appear at the adjacent area to the west. There are more residential areas far to the south. There are no other significant changes in the surrounding areas.

AV 2485, dated 07-01-84

No significant changes at the subject site. There are now new houses far, to the southwest. There are no other significant changes in the immediate surrounding areas.

AV 3324, dated 06-28-88

There are less small structures northeast of the house. There are no other significant changes at the subject site. A building appears on the adjacent area to the southwest. There are no other significant changes in the immediate surrounding areas.

AV 4625, dated 06-02-94

There are less small structures around the house. The adjacent area to the southeast is residential and the adjacent area to the south is under construction as residential. There are no other significant changes in the immediate surrounding areas.

AV 5417, dated 06-10-97

No significant changes at the subject site. The adjacent area to the south is residential and Vista Park Drive was extended to the north and intersects Hillsdale Avenue. The adjacent area to the southwest is under construction as residential. There are no other significant changes in the immediate surrounding areas.

3.73 Historical Maps Review (Sanborne Fire Insurance and USGS).

The site vicinity area map is attached as Figure 1 in Appendix A. Sanborne Fire Insurance Maps were available for review at San Jose Public Library - Map Room, but did not cover the subject site area.

3.74 Business License Review

The City of San Jose - Business License Department indicated that no business exists at 475 Hillsdale Avenue.

3.75 Haines Criss-Cross Directory

The Haines Criss-Cross Directories dating back to 1980 were viewed by ASE at the San Jose Public Library on November 9, 1999. ASE personnel reviewed directories of other businesses to determine what type of businesses existed in the immediate surroundings areas, and to evaluate the potential for any environmental impact on the subject site. Presented below are the businesses which existed at an address and the year they started:

<u>Hillsdale Avenue</u>

#210 South Bay Circuits - 1985
#220 Santa Clara County Automobile Association - no year
#244 GW Precision - 1986
#248 Semiconductor Tooling Tech - 1987
#254 Outer Limit Amusement - 1990
#258 F & M Appliance - 1987
#260 The Ballet Centre - no year
#264 Argus Termite Control - 1984
#266 Veebur - 1987
#268 Newlock Systems - 1987
#270 MPL - 1987
#274 Ray's Gungfu - 1987
#505 Glu Lam Timbers - 1985
#545 Hillsdale Evangelical Free Church - no year

4.0 SURROUNDING PROPERTIES

4.1 Description

A general description of the usage of surrounding and/or adjoining properties is determined by the environmental professional during the site visit, through interviews or from the records review. This is performed to help identify recognized environmental concerns that may have the potential to impact the subject site.

4.11 Current Uses of Surrounding and/or Adjoining Properties

Based on the site visit, the use of the surrounding properties located to the south and southwest is residential and the property to the west is under development as a residential area. There exists a County Communications Center far to the northwest. The areas located immediately to the north and east are undeveloped.

4.12 Former Uses of Surrounding and/or Adjoining Properties

Based upon the aerial photograph review, the surrounding areas have been vacant land for decades.

In 1954, immediately to the southwest, there were a few structures, apparently a house and sheds. Orchards and vacant land existed far to the south and west, and residential areas existed far to the northeast, east, and west.

In the 60's residential areas appeared far to the southwest, east and northeast, an industrial area appeared far to the north, and more structures appeared far to the northwest (now the County Communications Center).

In the 70's residential areas appeared far to the south, southwest, and southeast.

In the 80's new structures appeared at the adjacent area to the west and more residential areas appeared far to the south and southwest. In the late 80's a building appeared at the adjacent area to the southwest.

In the mid-90's the adjacent area to the southwest was residential and in the late 90's the adjacent area to the south and southwest was residential and Vista Park Drive was extended to the north to intersect Hillsdale Avenue.

5.0 REGULATORY REVIEW

The purpose of the regulatory review is to obtain and review regulatory agency records that will assist in the identification of recognized environmental conditions in connection with the subject property and neighboring properties within a 1-mile radius. The regulatory review also includes visiting or contacting local regulatory agency representatives for interviews regarding the subject site or surrounding properties.

5.1 VISTA Report

The following information is based on a report supplied to ASE by VISTA Information Solutions, Inc. (VISTA). See Appendix E for a copy of the VISTA report and drawings.

The subject site was not listed in any of the databases searched by VISTA.

Leaking Underground Storage Tanks (LUST)

There are three (3) LUST sites listed within approximately 0.5 miles of the subject property. All these LUST sites are located downgradient or far from the site; therefore, it is unlikely that these sites would impact the subject site.

Registered underground or aboveground storage tanks (UST/AST)

There is one (1) UST/AST site within approximately 1/8 mile of the subject site. It is assumed by ASE that this site is permitted to have UST/AST at its property, and that annual inspections are made by the regulatory agencies.

No mapped sites were found by VISTA for the following databases:

NPL, CORRACTS, SPL, SCL, CERCLIS/NFRAP, TSD, SWLF, DEED RSTR, SOUTH BAY, CORTESE, TOXIC PITS, WATER WELLS, RCRA Viol, TRIS, ERNS, and GNRTR.

For an explanation of the above government records please see the executive summary of the VISTA Report.

5.2 Regional Water Quality Control Board (RWQCB)

The subject site does not appear on any of the RWQCB environmental case lists.

5.3 Santa Clara Valley Water District (SCVWD)

The subject site does not appear on any of the SCVWD environmental case lists.

5.4 City Building Department

No file exists for the subject site at the City of San Jose Building Department.

5.5 City Fire Department

No file exists for the subject site at the City of San Jose Fire Department.

6.0 SITE RECONNAISSANCE AND INTERVIEWS

6.1 Hazardous Substances/Materials Usage and Storage

None identified.

6.2 Hazardous Waste Storage, Disposal

None identified. Garbage exists throughout the subject site. Although non-hazardous, this garbage should be removed.

6.3 Underground & Aboveground Storage Tanks, Sumps, Drains

An above ground water tank of wood, now destroyed, was observed north of the house. There is a water well located in the eastern portion of the parcel with the APN 455-10-5 and a septic tank is located adjacent to the house. The water well should be destroyed under permit obtained from SCVWD and the septic tank should be closed as per local regulations.

6.4 Identification of PCBs

One pole mounted transformer was observed west of the house. No soil discoloration or other sign of leakage was observed below this transformer.

6.5 Identification of Asbestos Containing Materials (ACMs) and Lead Paint

ACMs could be present below the vinyl. No other materials suspected to contain asbestos were identified during the site inspection performed by a certified Building Inspector for Asbestos (BI #2199). The paint used could contain lead. The building should be reinspected during demolition and/or renovation activities. It is possible that areas that could not be inspected may prove to contain ACMs after demolition provides better viewing access. Samples of the paint used should be analyzed for lead prior to demolition.

6.6 Surface Staining, Distressed Vegetation

None identified.

7.0 CONCLUSIONS

7.1 Subject Site

No significant environmental concerns were identified at the subject site.

ASE does not recommend any further assessment activities related to on-site conditions.

7.2 Off-Site

Based on the VISTA report and site observations, there are no off-site sources that have the potential to impact the subject site due to the distance from the subject property and to the groundwater flow direction.

ASE does not recommend any other assessment activities related to off-site conditions.

8.0 REPORT LIMITATIONS

The findings and analysis contained in this Phase I Environmental Site Assessment report have been prepared by the professional staff of Aqua Science Engineers, Inc. (ASE) in accordance with generally accepted professional practices and from the guidance within the standard practice of ASTM E 1527-97.

Some of the information provided in this Phase I Environmental Site Assessment report is based upon personal interviews and research of available documents, records and maps held by appropriate government and private agencies. This is subject to the limitations of the historical documentation, availability and accuracy of pertinent records, and the recollection of those persons contacted and interviewed. The information contained in this report has received appropriate technical and peer review. The findings and analysis represent professional judgments and are based upon the investigations conducted and the review and interpretation of such data based on our experience and expertise according to the existing standard. No warranty or guarantee is expressed or implied. The scope of services within this Phase I Environmental Site Assessment did not include sample collection and/or analysis for hazardous materials. In addition, it did not include a property title search or evaluate radon or seismic risk.

The findings and analysis set forth in this report are strictly limited in time and scope to the date of the evaluation(s), and for the sole use of our client.

9.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL(S)

Aqua Science Engineers, Inc. appreciates the opportunity to have prepared this Phase I Environmental Site Assessment for our client. Should any questions or comments arise, please feel free to call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

REGISTERED ENVIRONMENTAL ASSESSOR
VALENTIN CONSTANTINESCU
No. 05246
Exp. 6/30/00
STATE OF CALIFORNIA

Valentin Constantinescu, R.E.A. 05246
Registered Environmental Assessor

Report Reviewed by

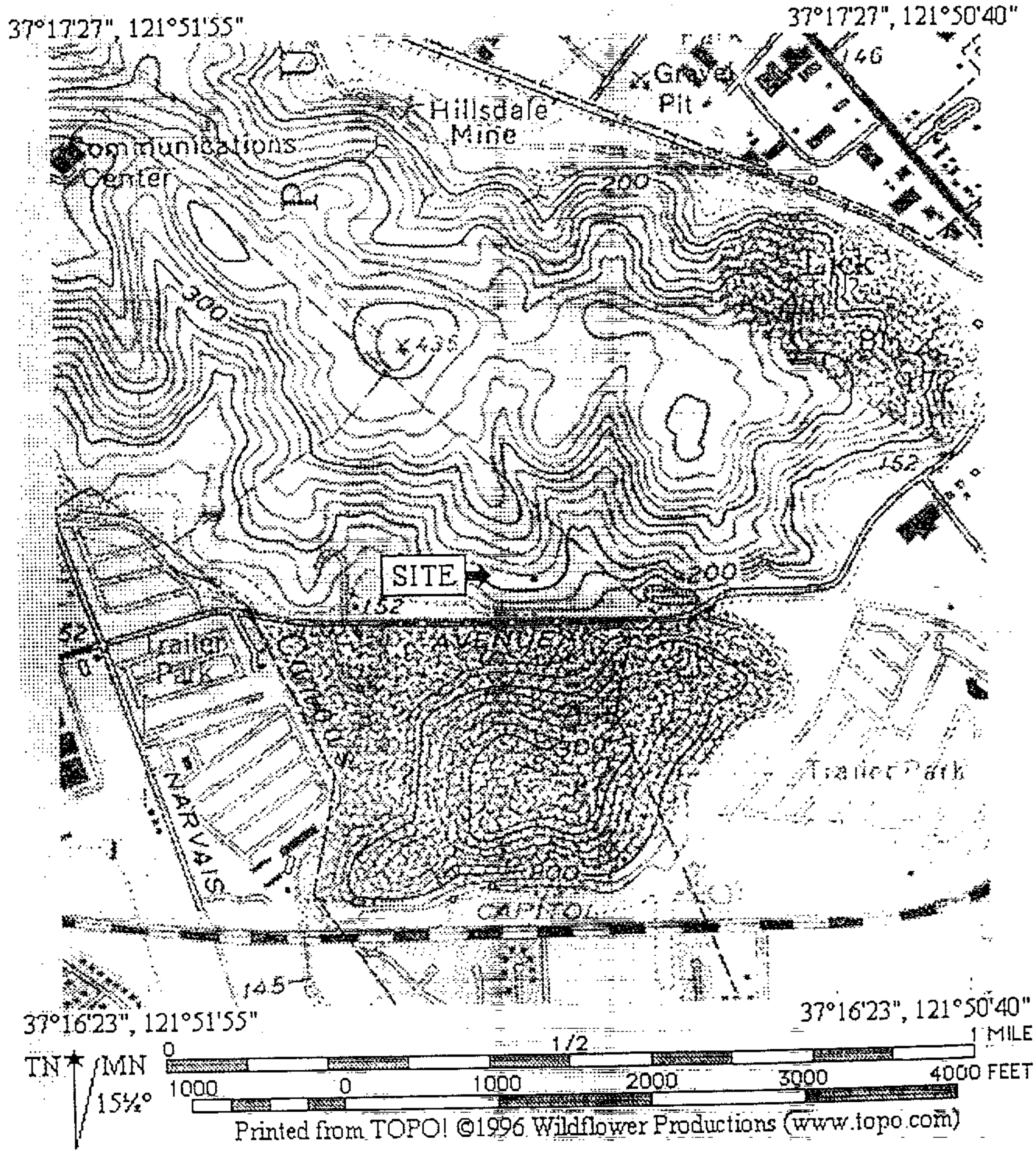
REGISTERED ENVIRONMENTAL ASSESSOR
GERALD W. SASSE
No. REA 06963
Expires 6/00
STATE OF CALIFORNIA

Gerald W. Sasse, R.E.A. 06963
Vice President

APPENDICES

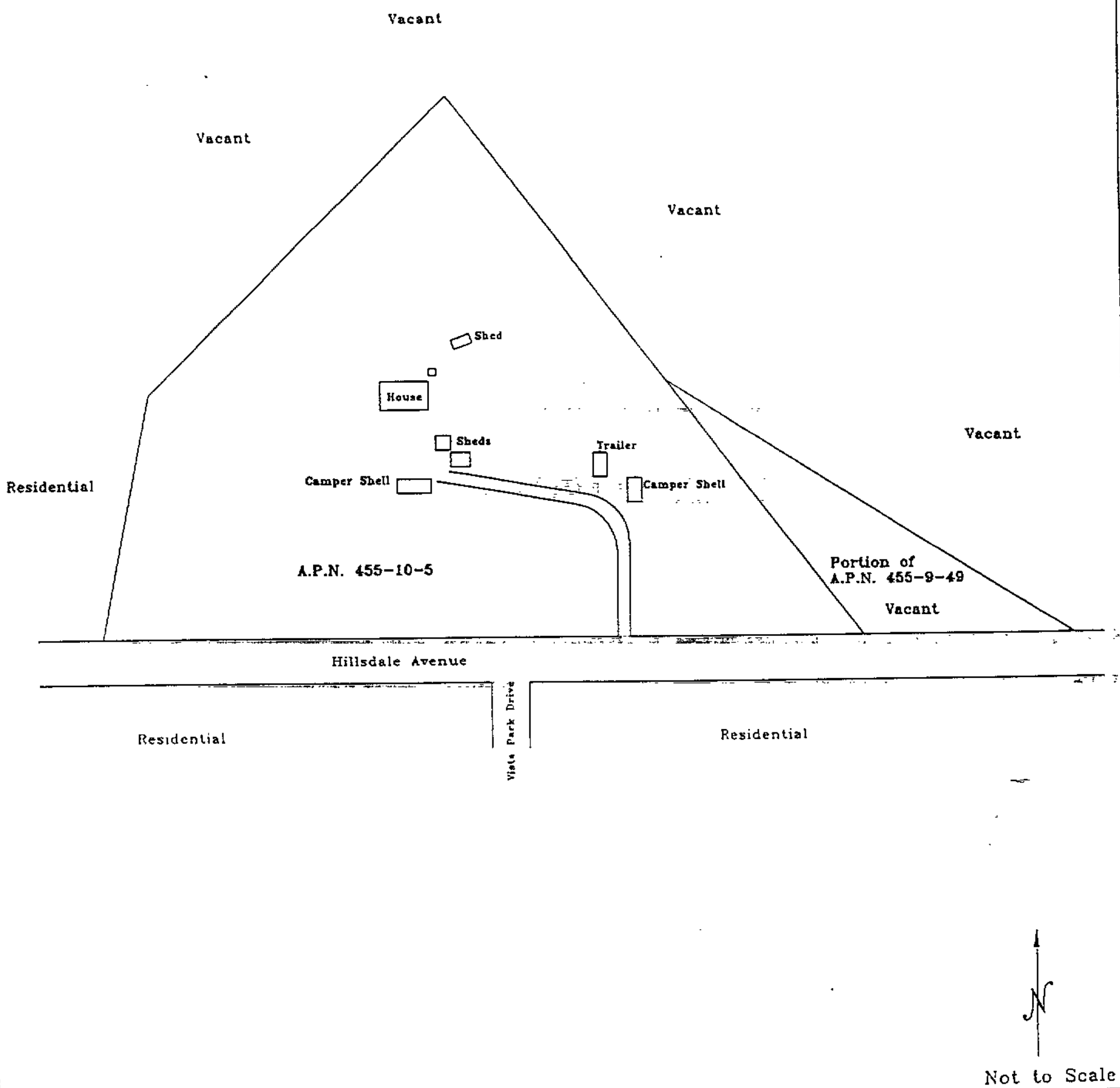
APPENDIX A

Figures



SITE LOCATION MAP

AQUA SCIENCE ENGINEERS, INC.	Figure 1



SITE MAP

A.P.N. 455-10-5 and Portion of A.P.N. 455-9-49
San Jose, California

AQUA SCIENCE ENGINEERS, INC. | Figure 2

APPENDIX B

Building Permits

No pertinent data regarding permits or licenses was copied by ASE during this assessment.

APPENDIX C

Photographs

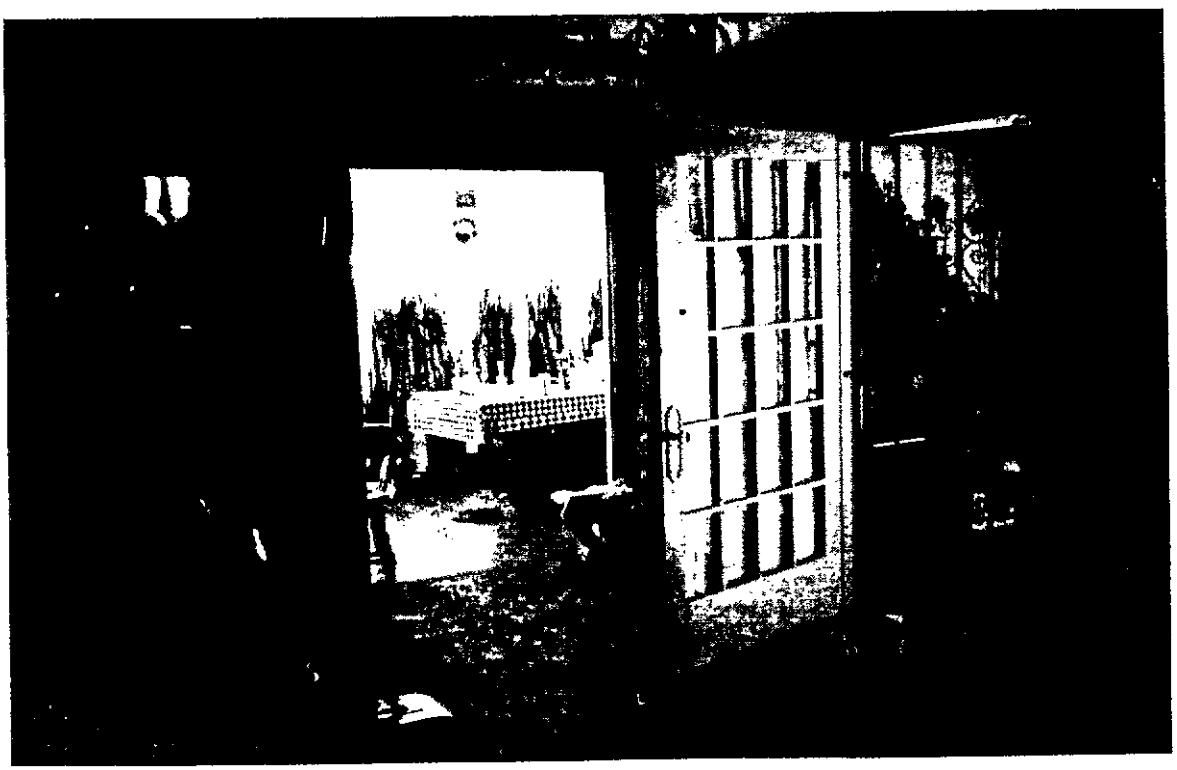
Photograph #1
View through northwest of the subject site.

Photograph #2
View through northeast of the subject site.

Photograph #3
View through north of the parcel with APN 455-9-49.

Photograph #4
View through east of the parcel with APN 455-9-49.

Photograph #5
View through south of the house.



Photograph #6
View inside the house.

Photograph #7
View through north of the sheds.

Photograph #8
View inside a shed.

Photograph #9
View through east of the subject site.

Photograph #10
Garbage at the subject site.

Photograph #11
View through west of the subject site.

Photograph #12
Above ground water tank of wood, destroyed.

Photograph #13
View through north (off-site).

Photograph #14
View through southwest (off-site).

APPENDIX D

VISTA Report

SITE ASSESSMENT PLUS REPORT

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: Not Provided HILLSDALE HILLSDALE AVE. SAN JOSE, CA Latitude/Longitude: (37.280751, 121.854993)	DIANE SCHIELL AQUA SCIENCE ENGINEERS INC 208 W EL PINTADO DANVILLE, CA 94526

Site Distribution Summary Agency / Database - Type of Records			within 1/8 mile	1/8 to 1/4 mile	1/4 to 1/2 mile	1/2 to 1 mile
A) Databases searched to 1 mile:						
US EPA	NPL	National Priority List	0	0	0	0
US EPA	CORRACTS	RCRA Corrective Actions	0	0	0	0
STATE	SPL	State equivalent priority list	0	0	0	0
B) Databases searched to 1/2 mile:						
STATE	SCL	State equivalent CERCLIS list	0	0	0	-
US EPA	CERCLIS / NFRAP	Sites currently or formerly under review by US EPA	0	0	0	-
US EPA	TSD	RCRA permitted treatment, storage, disposal facilities	0	0	0	-
STATE REG CO	LUST	Leaking Underground Storage Tanks	2	0	1	-
STATE/ REG/CO	SWLF	Permitted as solid waste landfills, incinerators, or transfer stations	0	0	0	-
STATE	DEED RSTR	Sites with deed restrictions	0	0	0	-
REGIONAL	SOUTH BAY	Sites on South Bay Toxic List	0	0	0	-
STATE	CORTESE	State index of properties with hazardous waste	0	0	0	-
STATE	TOXIC PITS	Toxic Pits cleanup facilities	0	0	0	-
USGS/STATE	WATER WELLS	Federal and State Drinking Water Sources	0	0	0	-
C) Databases searched to 1/4 mile:						
US EPA	RCRA Viol	RCRA violations/enforcement actions	0	0	-	-
US EPA	TRIS	Toxic Release Inventory database	0	0	-	-
STATE	UST/AST	Registered underground or aboveground storage tanks	1	0	-	-

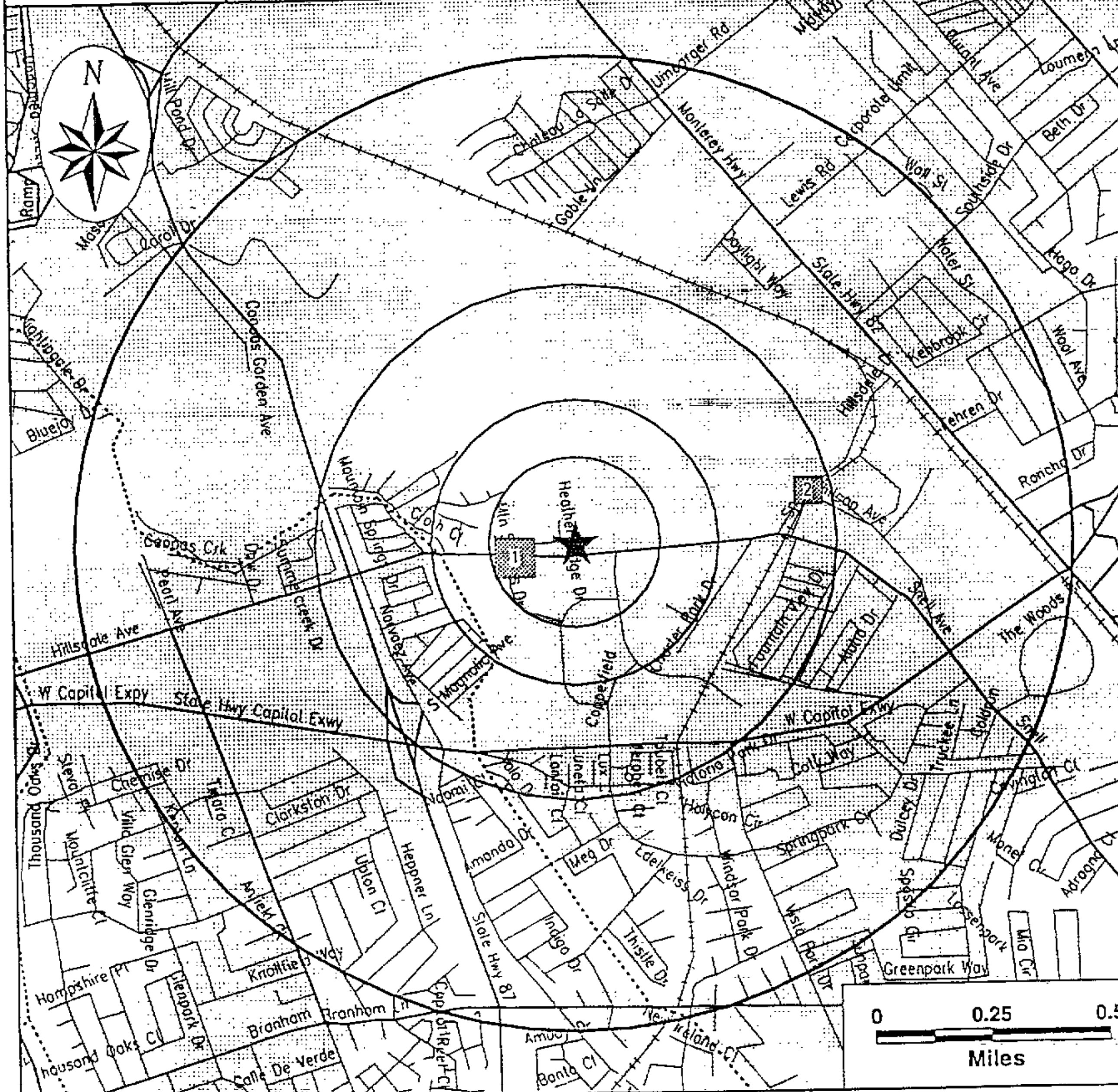
Site Distribution Summary Agency / Database - Type of Records			within 1/8 mile	1/8 to 1/4 mile	1/4 to 1/2 mile	1/2 to 1 mile
D) Databases searched to 1/8 mile:						
US EPA	ERNS	Emergency Response Notification System of spills	0	-	-	-
US EPA	GNRTR	RCRA registered small or large generators of hazardous waste	0	-	-	-

This report meets the ASTM standard E-1527 for standard federal and state government database research in a Phase I environmental site assessment. A (-) indicates a distance not searched because it exceeds these ASTM search parameters.

NOTES

SITE ASSESSMENT PLUS REPORT

Map of Sites within One Mile



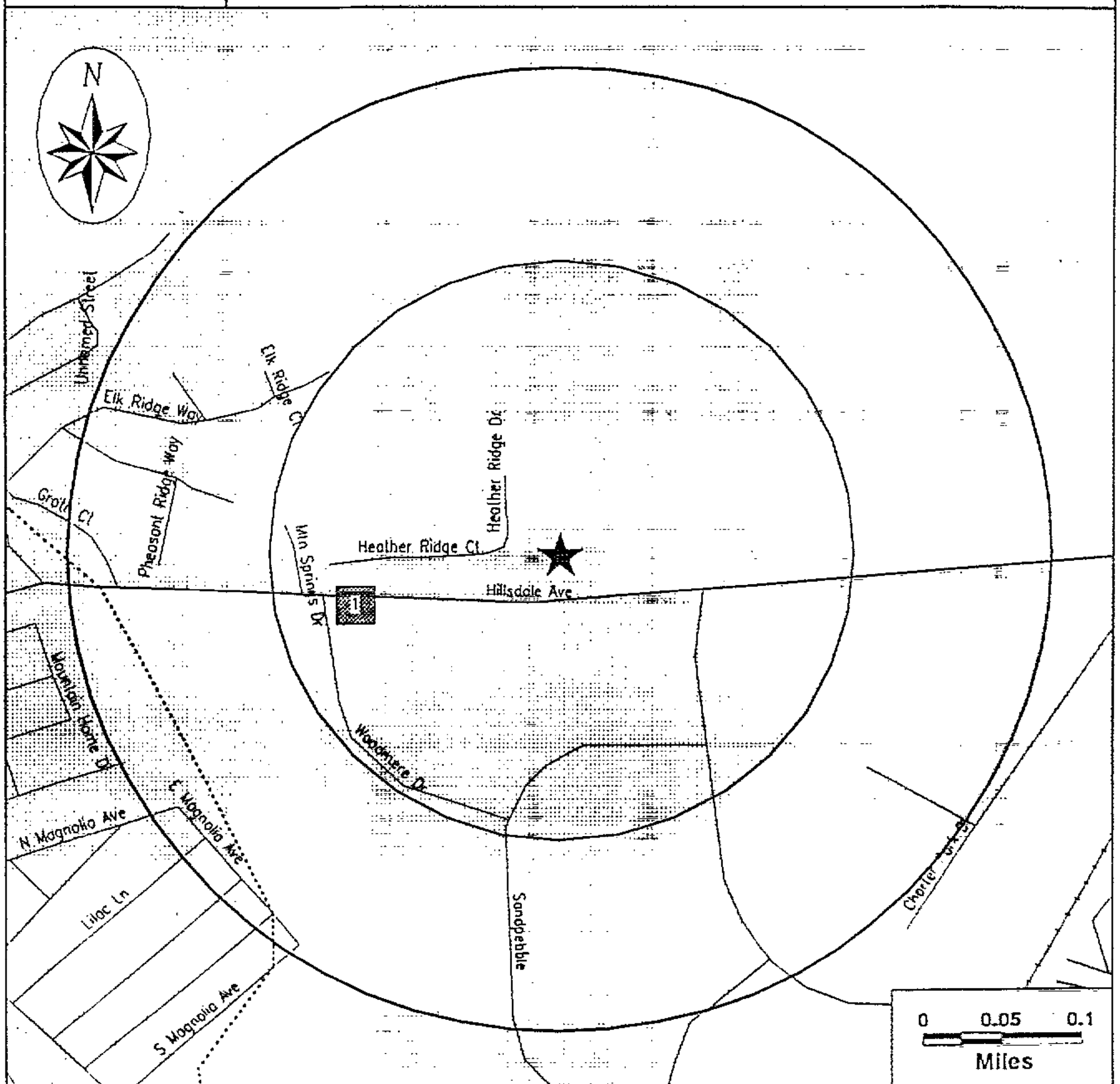
Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 mi.	1/2 mi.	1/4 mi.	1/8 mi.
	Single Sites	◆	■	▲	○
	Multiple Sites	◆	■	▲	○
		NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	RCRA VIOL, TRIS, UST	ERNS, GENERATORS

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D.

SITE ASSESSMENT PLUS REPORT

Map of Sites within Quarter Mile



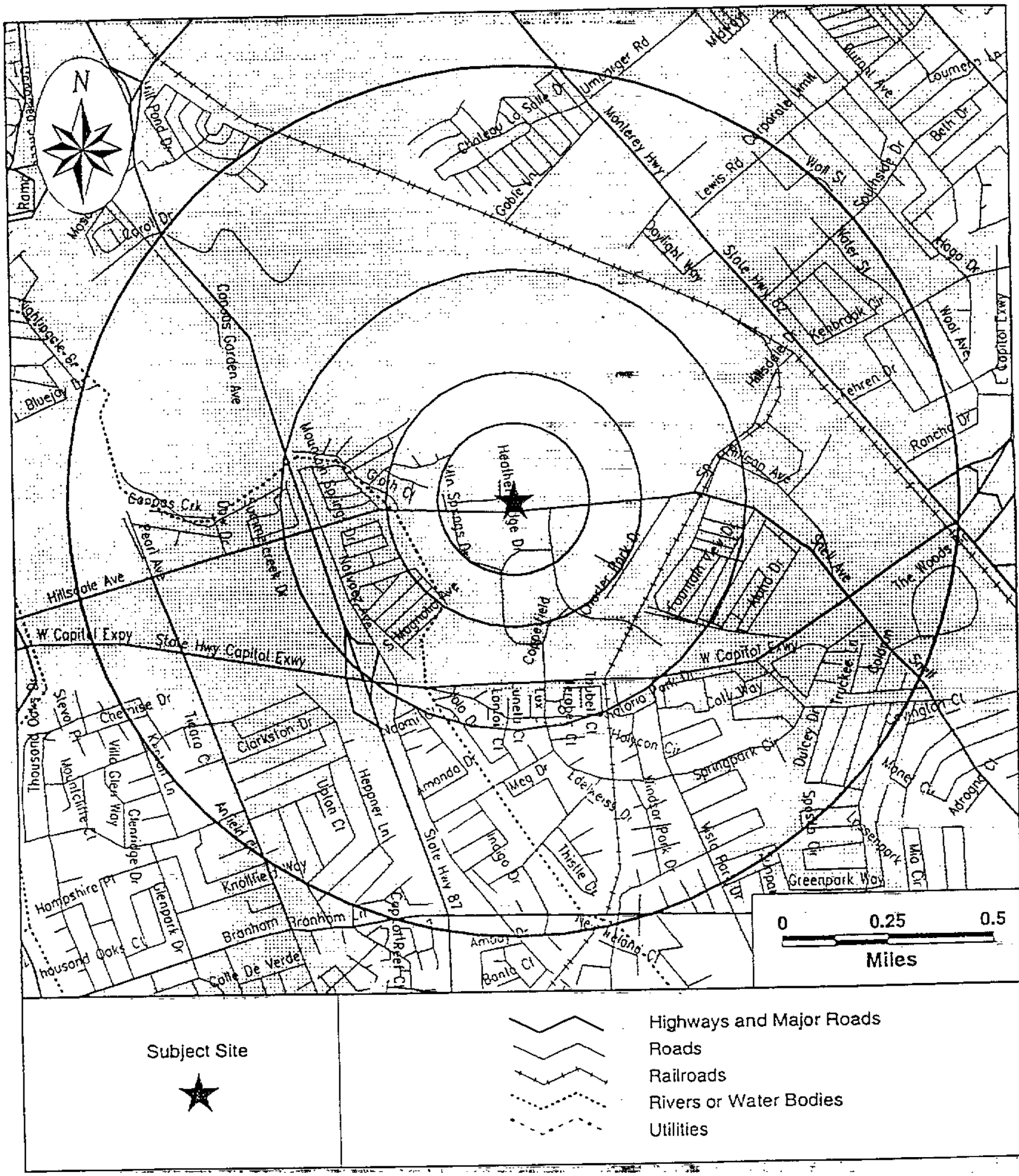
Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 mi.	1/2 mi.	1/4 mi.	1/8 mi.
	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○

Legend	A	B	C	D
Highways and Major Roads Roads Railroads Rivers or Water Bodies Utilities	NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	RCRA VIOL, TRIS, UST	ERNS, GENERATORS

If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D

SITE ASSESSMENT PLUS REPORT

Street Map



SITE ASSESSMENT PLUS REPORT

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/8 mile)	VISTA ID / DISTANCE / DIRECTION	NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
			A			B										C			D	
1	HILLSDALE QUARRY 500 HILLSDALE AVE SAN JOSE, CA 95136	195705 0.07 MI W							X											
1	POWELL, H L PAVING INC 508 HILLSDALE SAN JOSE, CA 95125	1244825 0.08 MI W							X									X		

MAP ID	SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)	VISTA ID / DISTANCE / DIRECTION	NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
			A			B										C			D	
	No Records Found																			

MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	VISTA ID / DISTANCE / DIRECTION	NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
			A			B										C			D	
2	ADELE HAEUSSIER 3408 HILLCAP DR SAN JOSE, CA 95136	12639730 0.45 MI E							X											

MAP ID	SITES IN THE SURROUNDING AREA (within 1/2 - 1 mile)	VISTA ID / DISTANCE / DIRECTION	NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
			A			B										C			D	
	No Records Found																			

X = search criteria; • = tag-along (beyond search criteria).
For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.
Report ID: 621201901 Date of Report November 10, 1999
Version 2.6.1

UNMAPPED SITES	VISTA ID	A			B										C			D	
		NPL	CORRACTS	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	DEED RSTR	SOUTH BAY	CORTESE	TOXIC PITS	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR
ALMADEN QUICKSILVER UNKNOWN ALMADEN HICKS RD SAN JOSE, CA 95125	1605792							X											
BARITEAUS LINEN 515 13TH SAN JOSE, CA 95125	7430161											X							
PACIFIC BELL COPERNICUS PEAK ICUS PEAK SAN JOSE, CA 95111	4497838																X		
KIRBY CANYON RECYCL. DISP. FACILITY 910 COYOTE CREEK GOLF DRIVE SAN JOSE, CA	12551343								X										
WDR-MARSHLAND LANDFILL 05S01W08 SAN JOSE, CA	12362037								X										
R AND G ENVIRONMENTAL SERVICES SAN JOSE, CA	6830438								X										

SITE ASSESSMENT PLUS REPORT

DETAILS

PROPERTY AND THE ADJACENT AREA (within 1/8 mile)

VISTA Address*:	HILLSDALE QUARRY 500 HILLSDALE AVE SAN JOSE, CA 95136	VISTA ID#: Distance/Direction: Plotted as:	195705 0.07 MI / W Point	Map 1

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120	EPA/Agency ID: N/A
Agency Address:	HILLSDALE QUARRY 500 HILLSDALE AVE SAN JOSE, CA
Facility ID:	43-0700
Leak Cause:	STRUCTURE FAILURE
Leak Source:	TANK
Substance:	DIESEL
Media Affected:	AQUIFER (MUNICIPAL USE)

STATE LUST - State Leaking Underground Storage Tank / SRC# 6283	EPA/Agency ID: N/A
Agency Address:	SAME AS ABOVE
Facility ID:	07S1E33J01
Leak Report Date:	07/22/86
Site Assessment Began:	03/13/90
Case Closed Date:	03/31/95
Remediation Event:	EXCAVATE AND DISPOSE
Remediation Status:	CASE CLOSED
Media Affected:	AQUIFER (MUNICIPAL USE)
Lead Agency:	LOCAL AGENCY
Region / District:	SAN FRANCISCO BAY RE
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 04/18/95

VISTA Address*:	POWELL, H L PAVING INC 508 HILLSDALE SAN JOSE, CA 95125	VISTA ID#: Distance/Direction: Plotted as:	1244825 0.08 MI / W Point	Map 1

STATE UST - State Underground Storage Tank / SRC# 1612	EPA/Agency ID: N/A
Agency Address:	POWELL, HL PAVING INC 508 HILLSDALE SAN JOSE, CA 95136
Underground Tanks:	2
Aboveground Tanks:	NOT REPORTED
Tanks Removed:	NOT REPORTED

Tank ID:	1001U	Tank Status:	CLOSED REMOVED
Tank Contents:	DIESEL	Leak Monitoring:	Agency Code ( )
Tank Age:	NOT REPORTED	Tank Piping:	BARE STEEL
Tank Size (Units):	5000 (GALLONS)	Tank Material:	BARE STEEL

PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Tank ID:	T001U	Tank Status:	CLOSED REMOVED
Tank Contents:	LEADED GAS	Leak Monitoring:	Agency Code (')
Tank Age:	NOT REPORTED	Tank Piping:	BARE STEEL
Tank Size (Units):	1000 (GALLONS)	Tank Material:	BARE STEEL

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120 | EPA/Agency ID: N/A

Agency Address:	HL POWELL PAVING INC 508 HILLSDALE AVE SAN JOSE, CA
Facility ID:	43-0764
Leak Cause:	STRUCTURE FAILURE
Leak Source:	TANK
Substance:	GASOLINE
Media Affected:	SOIL ONLY

STATE LUST - State Leaking Underground Storage Tank / SRC# 6283 | EPA/Agency ID: N/A

Agency Address:	HL POWELL PAVING INC 508 HILLSDALE AVE SAN JOSE, CA 95136
Facility ID:	07S1E34E01
Leak Report Date:	11/18/92
Case Closed Date:	10/13/95
Remediation Event:	NO ACTION TAKEN
Remediation Status:	CASE CLOSED
Media Affected:	SOIL ONLY
Lead Agency:	LOCAL AGENCY
Region / District:	SAN FRANCISCO BAY RE
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 10/17/95

SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)

VISTA Address*:	ADELE HAEUSSIER 3408 HILLCAP DR SAN JOSE, CA 95136	VISTA ID#: Distance/Direction: Plotted as:	12639730 0.45 MI / E Point	Map ID 2

STATE LUST - State Leaking Underground Storage Tank / SRC# 6120 | EPA/Agency ID: N/A

Agency Address:	ADELE HAEUSSIER 3408 HILLCAP DR SAN JOSE, CA
Facility ID:	43-0147
Leak Cause:	STRUCTURE FAILURE
Leak Source:	TANK
Substance:	GASOLINE
Media Affected:	SOIL ONLY

SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.			
STATE LUST - State Leaking Underground Storage Tank / SRC# 6283		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Facility ID:	07S1E34H01		
Leak Report Date:	01/21/88		
Site Assessment Began:	03/19/91		
Case Closed Date:	01/22/92		
Remediation Event:	EXCAVATE AND DISPOSE		
Remediation Status:	CASE CLOSED		
Media Affected:	SOIL ONLY		
Lead Agency:	LOCAL AGENCY		
Region / District:	SAN FRANCISCO BAY RE		
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 01/22/92		

SITES IN THE SURROUNDING AREA (within 1/2 - 1 mile)
No Records Found

UNMAPPED SITES

VISTA Address*:	ALMADEN QUICKSILVER UNKNOWN ALMADEN HICKS RD SAN JOSE, CA 95125	VISTA ID#:	1605792
STATE LUST - State Leaking Underground Storage Tank / SRC# 6120		EPA/Agency ID:	N/A
Agency Address:	ALMADEN QUICKSILVER UNKNOWN ALMADEN HICKS RD SAN JOSE, CA		
Facility ID:	43-1825		
Leak Cause:	STRUCTURE FAILURE		
Leak Source:	TANK		
Substance:	GASOLINEMISC MOTOR VEHICLE FUELS		
Media Affected:	SOIL ONLY		
STATE LUST - State Leaking Underground Storage Tank / SRC# 6283		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Facility ID:	43-1825		
Leak Report Date:	12/11/85		
Substance:	MISC MOTOR VEHICLE FUELS		
Remediation Event:	NO ACTION TAKEN		
Remediation Status:	NO ACTION		
Media Affected:	SOIL ONLY		
Lead Agency:	LOCAL AGENCY		
Region / District:	SAN FRANCISCO BAY RE		
Description / Comment:	COUNTY: SANTA CLARAREVIEW DATE: 08/07/97		

VISTA Address*:	KIRBY CANYON RECYCL. DISP. FACILITY 910 COYOTE CREEK GOLF DRIVE SAN JOSE, CA	VISTA ID#:	12551343
STATE SWLF - Solid Waste Landfill / SRC# 6356		Agency ID:	43-AN-0008
Agency Address:	SAME AS ABOVE		
Facility Type:	SOLID WASTE DISPOSAL FACILITY		
Facility Status:	ACTIVE		
Permit Status:	PERMITTED/LICENSED		

UNMAPPED SITES CONT.

VISTA Address*:	WDR-MARSHLAND LANDFILL 05S01W08 SAN JOSE, CA	VISTA ID#:	12362037
WMUDS / SRC# 5857		Agency ID:	2 438042001

Agency Address:	*SAME AS ABOVE*
Solid Waste Inventory System ID:	*43-AN-0004*
Facility Type:	*SOLID WASTE SITES-CLASS III - Landfills for nonhazardous solid wastes.*
Facility In State Board Waste Discharger System:	*NO*
Chapter 15 Facility:	*NO*
Solid Waste Assessment Test Facility:	*NO*
Toxic Pits Cleanup Act Facility:	*NO*
RCRA Facility:	*NO*
Department of Defense Facility:	*NO*
Open To Public:	*NO*
Number Of Waste Management Units:	*1*
Rank:	*NOT REPORTED*
Enforcements At Facility:	*NO*
Violations At Facility:	*NO*

VISTA Address*:	R AND G ENVIRONMENTAL SERVICES SAN JOSE, CA	VISTA ID#:	6830438
County SWLF - County Solid Waste Landfill / SRC# 6130		Agency ID:	43-AA-0010

Agency Address:	*SAME AS ABOVE*
Facility Type:	*TREATMENT PROCESSING*
Facility Status:	*ACTIVE*
Permit Status:	*UNPERMITTED/UNLICENSED*

STATE SWLF - Solid Waste Landfill / SRC# 6356		Agency ID:	43-AA-0010

Agency Address:	*SAME AS ABOVE*
Facility Type:	*TREATMENT PROCESSING*
Facility Status:	*ACTIVE*
Permit Status:	*UNPERMITTED/UNLICENSED*

SITE ASSESSMENT PLUS REPORT

DESCRIPTION OF DATABASES SEARCHED

A) DATABASES SEARCHED TO 1 MILE

NPL
SRC#: 6312

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for NPL was September, 1999.

The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Dept of Health and Human Services and the US EPA in order to become an NPL site.

SPL
SRC#: 6282

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Calsites Database: Annual Workplan Sites was July, 1999.

The CalSites database contains information on properties (or "sites") in California where hazardous substances have been released, or where the potential for such a release exists. This database is used primarily by the Department of Toxic Substances Control to evaluate and track activities at sites that may have been affected by the release of hazardous substances. Also see SPL/SCL: Annual Work Plan (AWP) sites are cleassified as SPL and all the other sites are classified as SCL.

CORRACTS
SRC#: 6176

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for HWDMS/RCRIS was August, 1999.

The EPA maintains this database of RCRA facilities which are undergoing "corrective action". A "corrective action order" is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA.

B) DATABASES SEARCHED TO 1/2 MILE

CERCLIS
SRC#: 6313

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for CERCLIS was August, 1999.

The CERCLIS List contains sites which are either proposed to or on the National Priorities List(NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL. The information on each site includes a history of all pre-remedial, remedial, removal and community relations activiies or events at the site, financial funding information for the events, and unrestricted enforcement activities.

Cal Cerclis
SRC#: 2462

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Ca Cerclis w/Regional Utility Description was June, 1995.**

This database is provided by the U.S. Environmental Protection Agency, Region 9. The agency may be contacted at: . These are regional utility descriptions for California CERCLIS sites.

NFRAP
SRC#: 6314

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for CERCLIS-NFRAP was August, 1999.**

NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

SCL
SRC#: 6281

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Calsites Database: All Sites except Annual Workplan Sites (incl. ASPIS) was August, 1999.**

The CalSites database contains information on properties (or "sites") in California where hazardous substances have been released, or where the potential for such a release exists. This database is used primarily by the Department of Toxic Substances Control to evaluate and track activities at sites that may have been affected by the release of hazardous substances. Also see SPL/SCL: Annual Work Plan (AWP) sites are cleassified as SPL and all the other sites are classified as SCL.

The CalSites database includes both known and potential sites. Two- thirds of these sites have been classified, based on available information, as needing "No Further Action" (NFA) by the Department of Toxic Substances Control. The remaining sites are in various stages of review and remediation to determine if a problem exists at the site. Several hundred sites have been remediated and are considered certified. Some of these sites may be in long term operation and maintenance.

RCRA-TSD
SRC#: 6176

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for HWDMS/RCRIS was August, 1999.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

SWLF
SRC#: 5945

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for City of Los Angeles Landfills was April, 1999.**

This database is provided by the City of Los Angeles, Environmental Affais Department. The agency may be contacted at: 213-580-1070.

SWLF
SRC#: 6356

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Ca Solid Waste Information System (SWIS) was September, 1999.**

This database is provided by the Integrated Waste Management Board. The agency may be contacted at: 916-255-4021.

The California Solid Waste Information System (SWIS) database consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations pursuant to the Solid Waste Management and Resource Recovery Act of 1972, Government Code Section 2.66790(b). Generally, the California Integrated Waste Management Board learns of locations of disposal facilities through permit applications and from local enforcement agencies.

WMUDS
SRC#: 5857

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Waste Management Unit Database System (WMUDS) was February, 1999.**

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-892-0323. This is used for program tracking and inventory of waste management units. This system contains information from: Facility, Waste Management Unit, SWAT Program and Report Summary Information, Chapter 15 (formerly Subchapter 15), TPCA and RCRA Program Information, Closure Information; also some information from the WDS (Waste Discharge System).

The WMUDS system also accesses information from the following databases from the Waste Discharger System (WDS): Inspections, Violations, and Enforcements. The sites contained in these databases are subject to the California Code of Regulations - Title 23. Waters.

LUST RG3
SRC#: 6021

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Region #3-Central Coast Region LUST List was June, 1999.**

This database is provided by the Regional Water Quality Control Board, Region #3. The agency may be contacted at: 805-542-4695.

LUST
SRC#: 6112

VISTA conducts a database search to identify all sites within 1/2 mile of your property. The agency release date for Region #3-Central Coast Region SLIC List was July, 1999.

This database is provided by the Regional Water Quality Control Board, Region #3. The agency may be contacted at: 805-542-3399.

LUST RG2
SRC#: 6120

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Region #2-San Francisco Bay Fuel Leaks List was June, 1999.**

This database is provided by the Regional Water Quality Control Board, Region #2. The agency may be contacted at: 510-286-1269.

LUST
SRC#: 6271

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Region #2-North and South Bay SLIC Report was July, 1999.**

This database is provided by the Regional Water Quality Control Board, Region #2. The agency may be contacted at: 510-286-1269.

LUST RG6 SRC#: 6275	VISTA conducts a database search to identify all sites within 1/2 mile of your property. The agency release date for Lahontan Region LUST List was August, 1999. This database is provided by the Lahontan Region Six South Lake Tahoe. The agency may be contacted at: 530-542-5400.
LUST SRC#: 6283	VISTA conducts a database search to identify all sites within 1/2 mile of your property. The agency release date for Lust Information System (LUSTIS) was July, 1999. This database is provided by the California Environmental Protection Agency. The agency may be contacted at: 916-445-6532.
CORTESE SRC#: 4840	VISTA conducts a database search to identify all sites within 1/2 mile of your property. The agency release date for Cortese List-Hazardous Waste Substance Site List was April, 1998. This database is provided by the Office of Environmental Protection, Office of Hazardous Materials. The agency may be contacted at: 916-445-6532. The California Governor's Office of Planning and Research annually publishes a listing of potential and confirmed hazardous waste sites throughout the State of California under Government Code Section 65962.5. This database (CORTESE) is based on input from the following: (1)CALSITES-Department of Toxic Substances Control, Abandoned Sites Program Information Systems; (2)SARA Title III Section III Toxic Chemicals Release Inventory for 1987, 1988, 1989, and 1990; (3)FINDS; (4)HWIS-Department of Toxic Substances Control, Hazardous Waste Information System. Vista has not included one time generator facilities from Cortese in our database.; (5)SWRCB-State Water Resources Control Board; (6)SWIS-Integrated Waste Management Control Board (solid waste facilities); (7)AGT25-Air Resources Board, dischargers of greater than 25 tons of criteria pollutants to the air; (8)A1025-Air Resources Board, dischargers of greater than 10 and less than 25 tons of criteria pollutants to the air; (9)LTANK-SWRCB Leaking Underground Storage Tanks; (10)UTANK-SWRCB Underground tanks reported to the SWEEPS systems; (11)IUR-Inventory Update Rule (Chemical Manufacturers); (12)WB-LF- Waste Board - Leaking Facility, site has known migration; (13)WDSE-Waste Discharge System - Enforcement Action; (14)DTSCD-Department of Toxic Substance Control Docket.

Deed Restrictions SRC#: 1703

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Deed Restriction Properties Report was April, 1994.**

This database is provided by the Department of Health Services-Land Use and Air Assessment. The agency may be contacted at: 916-255-2014. These are voluntary deed restriction agreements with owners of property who propose building residences, schools, hospitals, or day care centers on property that is "on or within 2,000 feet of a significant disposal of hazardous waste".

California has a statutory and administrative procedure under which the California Department of Health Services (DHS) may designate real property as either a "Hazardous Waste Property" or a "Border Zone Property" pursuant to California Health Safety Code Sections 25220-25241. Hazardous Waste Property is land at which hazardous waste has been deposited, creating a significant existing or pote[illegible]al hazard to public health and safety. A Border Zone Property is one within 2,000 feet of a hazardous waste deposit. Property within either category is restricted in use, unless a written variance is obtained from DHS. A Hazardous Waste Property designation results in a prohibition of new uses, other than a modification or expansion of an industrial or manufacturing facility on land previously owned by the facility prior to January 1, 1981. A Border Zone Property designation results in prohibition of a variety of uses involving human habitation, hospitals, schools and day care center.

Toxic Pits SRC#: 2229

VISTA conducts a database search to identify all sites within 1/2 mile of your property. The agency release date for Summary of Toxic Pits **Cleanup Facilities was February, 1995.**

This database is provided by the Water Quality Control Board, Division of Loans Grants. The agency may be contacted at: 916-227-4396.

South Bay SRC#: 1719

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for South Bay Site Management System was April, 1994.**

This database is provided by the San Francisco Bay Region. The agency may be contacted at: .

Water Wells SRC#: 5384

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for USGS WATER WELLS was March, 1998.**

The Ground Water Site Inventory (GWSI) database was provided by the United States Geological Survey (USGS). The database contains information for over 1,000,000 wells and other sources of groundwater which the USGS has studied, used, or otherwise had reason to document through the course of research. The agency may be contacted at 703-648-6819.

C) DATABASES SEARCHED TO 1/4 MILE

RCRA-Viols/Enf VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for HWDMS/RCRIS was August, 1999.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Violators are facilities which have been cited for RCRA Violations at least once since 1980. RCRA Enforcements are enforcement actions taken against RCRA violators.

UST's SRC#: 1612 VISTA conducts a database search to identify all sites within 1/4 mile of your property **The agency release date for Underground Storage Tank Registrations Database was January, 1994.**

This database is provided by the State Water Resources Control Board, Office of Underground Storage Tanks. The agency may be contacted at: 916-227-4364; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's SRC#: 5495 VISTA conducts a database search to identify all sites within 1/4 mile of your property **The agency release date for City of Mountain View Underground Storage Tank List was December, 1998.**

This database is provided by the Mountain View Fire Department. The agency may be contacted at: 650-903-6378; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's SRC#: 5946 VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for Sunnyvale City UST List was January, 1999.**

This database is provided by the City of Sunnyvale Department of Public Safety. The agency may be contacted at: 408-730-7212; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's SRC#: 6111 VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of San Jose Underground Storage Tanks List was April, 1999.**

This database is provided by the City of San Jose Fire Department. The agency may be contacted at: 408-277-4659; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's SRC#: 6121 VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Milpitas UST List was July, 1999.**

This database is provided by the City of Milpitas Fire Department. The agency may be contacted at: 408-942-3265; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 6245

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Santa Clara Underground Storage Tanks was July, 1999.**

This database is provided by the City of Santa Clara, Fire Department. The agency may be contacted at: 408-984-4109; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 6251

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Palo Alto Underground Storage Tank List was June, 1999.**

This database is provided by the City of Palo Alto Fire Department. The agency may be contacted at: 650-329-2184; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 6256

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for Hazmat Facilities Database, Underground Storage Tanks of Santa Clara County was July, 1999.**

This database is provided by the Santa Clara County Fire Department. The agency may be contacted at: 408-378-4010; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

AST's
SRC#: 5513

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for Aboveground Storage Tank Database was December, 1998.**

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-227-4364.

TRIS
SRC#: 4946

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for TRIS was January, 1998.**

Section 313 of the Emergency Planning and Community Right-to-Know Act (also known as SARA Title III) of 1986 requires the EPA to establish an inventory of Toxic Chemicals emissions from certain facilities(Toxic Release Inventory System). Facilities subject to this reporting are required to complete a Toxic Chemical Release Form(Form R) for specified chemicals.

D) DATABASES SEARCHED TO 1/8 MILE

ERNS
SRC#: 6181

VISTA conducts a database search to identify all sites within 1/8 mile of your property. **The agency release date for was August, 1999.**

The Emergency Response Notification System (ERNS) is a national database containing records from October 1986 to the release date above and is used to collect information for reported releases of oil and hazardous substances. The database contains information from spill reports made to federal authorities including the EPA, the US Coast Guard, the National Response Center and the Department of Transportation. The ERNS hotline number is (202) 260-2342.

RCRA-LgGen **SRC#: 6176**	VISTA conducts a database search to identify all sites within 1/8 mile of your property. **The agency release date for HWDMS/RCRIS was August, 1999.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

RCRA-SmGen **SRC#: 6176**	VISTA conducts a database search to identify all sites within 1/8 mile of your property. **The agency release date for HWDMS/RCRIS was August, 1999.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small and Very Small generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.

End of Report

APPENDIX E

Regulatory Agency/Information Source Documentation

The following agencies or organizations were contacted or visited, and information sources used regarding the subject property:

San Francisco Bay Regional Water Quality Control Board

San Jose Public Library

City of San Jose Building Department

Santa Clara Valley Water District

City of San Jose Fire Department

Pacific Aerial Surveys

No other pertinent data was reviewed by Aqua Science Engineers, Inc. during this Phase I Environmental Site Assessment.

APPENDIX F

Statement of Qualifications

AQUA SCIENCE ENGINEERS INC., PRINCIPAL STAFF

David Schultz P.E., R.E.A.
President

B.S. Marine Biology
U.C. Berkeley

M.S. Civil Engineering
U.C. Berkeley

Registered Civil Engineer, California #38738

Registered Environmental Assessor, California #1626

CA Contractors Lic. #487000
A, HAZ, C-57

Directs field operations for all of California from the Irvine office including hazardous waste management, assessments, remediations, construction, geological investigations, engineering and regulatory compliance services.

Mr. Schultz has an 18 year background in contaminated soil, groundwater and wastewater assessment and remediation and has served as an expert witness in numerous contaminated property cases. Mr. Schultz also serves as Corporate Chief Engineer.

Gerald Sasse
Chief Executive Officer

B.S. Business Mgt.
San Diego State University

Cert. Hazmat Trans.
OSHA Compliance

Manages operations of the corporate office including administration, scheduling, cost accounting, marketing and project management.

With 21 years of hands-on experience, Mr. Sasse is uniquely qualified in the environmental field by way of the chemical industry. Having been the co-owner of a chemical manufacturing company, he is familiar with the financial, investigative and remedial processes involved in chemical site cleanup.

AQUA SCIENCE ENGINEERS INC., SENIOR STAFF

Michael Marello, R.G.
Vice President
Sr. Geologist

B.S. Geology
U.C. Davis

Registered Geologist,
California #5339

Responsible for geoscience consulting and project management and implementation. With 12 years in the industry, Mr. Marello coordinates projects ranging from surface spill investigations to aquifer analysis and remediation. He manages investigations involving soil and groundwater contamination at commercial and industrial sites. These investigations involve site histories, preparation of sampling programs in compliance with local municipalities, and installation of groundwater monitoring wells in order to gain information regarding hydrogeologic conditions. Additionally, Mr. Marello designs site investigations, risk-based assessments and remedial action plans.

David Allen, R.E.A
Sr. Project Manager, Assessor
Industrial Technology
San Jose State University
Registered Environmental
Assessor, California #06211

Responsible for coordinating phase I and II investigations involving the integration of ASE's B.S. engineering, geotechnical, drilling and field service departments. Manages risk-based assessment projects, ongoing in-situ remediation projects and industrial process engineering contracts.

Mr. Allen is responsible for general content and report format for all ASE phase I environmental investigations.

Robert Kitay, R.G., R.E.A.
Project Geologist, Assessor
B.A. Geology
California State University,
Sacramento

Registered Geologist,
California #6586

Registered Environmental
Assessor, California #05442

Mr. Kitay has over 10 years experience conducting environmental investigations at over 200 sites. Responsibilities include proposal and workplan preparation, monitoring and remedial well installation, geologic interpretations, remediation design, and investigative/remedial report preparation. Acts as liaison between client and environmental regulatory agencies. Directs drilling operations for the northern California region.

Chris Palmer, C.E.G. H.G.
Geologist, Assessor

B.A. Geology
California State University
Fresno

M.A. Geology
State University
Fresno

Registered Geologist:
California #3989
Arkansas #320
Florida #471
Pennsylvania #892

Certified Engineering
Geologist, California #1262

Registered Hydrogeologist,
California #246

Registered Environmental
Assessor, California #285

Mr. Palmer has diversified experience in environmental assessment and hydrogeologic studies in California and throughout the US. He has performed or supervised hundreds of environmental compliance investigations which include all aspects of phase I environmental assessments, phase II assessments of soil and groundwater, groundwater monitoring well design and installation, aquifer data analysis and report preparation. These projects have included military and industrial site remediations for leaking USTs, RCRA RI/FS California studies, landfill seismic slope stability studies, air photo review, geotechnical support for wastewater disposal design at residential and industrial developments, municipal landfill siting, hazardous waste disposal site closure plan prepaeration and expert testimony.

Mr. Palmer is experienced in regulatory negotiation and compliance for petroleum and solvent contamination and implementation of soil and groundwater remediation action plans for site closures. Mr. Palmer has provided instruction regarding hydrogeology and subsurface environmental investigations to academic, industrial and regulatory groups since 1988.

Henry Nakayama, R.E.A.
Assessor, Industrial Engineer, Chemical Engineer

B.S. Chemical Engineering
California State University, Long Beach

Registered Environmental Assessor, California #5320

ASE chief chemical engineer. Responsible for feasibility/treatability studies leading into design, construction and installation of compliance systems involving air stripping, carbon absorption, vapor extraction, thermal oxidation, wastewater treatment and flowmetering systems. Oversees sampling relating to regulatory interpretation and advises ASE project managers on acceptable methodologies of remedial action and risk assessment.

A leader in the field of bioremediation with 13 years background, Mr. Nakayama has implemented and successfully completed numerous bioremedial systems for cleaning contaminated sites. Also a highly experienced phase I environmental assessor.

Anthony Lizzi, R.E.A.
Assessor, Senior Project Manager

B.S. Specialization Geology
Concordia University, Montreal, Canada

Registered Environmental Assessor, California #7000

Mr. Lizzi is responsible for implementation and supervision of projects associated with site characterization, monitoring and documenting site remediation. Mr. Lizzi has over thirteen (13) years experience in environmental geology including three years as a mining/structural geologist for two Canadian mining companies.

Mr. Lizzi has served as a Project Manager for an EPA Superfund Landfill site in Los Angeles from 1992 to 1996. He performed multiphase site assessments as well as supervised the installation of vadose zone, leachate and ground water monitoring wells for Superfund sites.

He had implemented many aquifer pump tests in superfund and solid waste landfills. Also, he conducted detail surface and subsurface geological mapping in the mining industry.

APPENDIX E

TRANSPORTATION IMPACT ANALYSIS

PREPARED BY
HEXAGON TRANSPORTATION CONSULTANTS, INC.

AUGUST 30, 2000

Communications Hill
K&B Residential Development

Transportation Impact Analysis

Prepared for:

David J. Powers and Associates

Prepared by:

Hexagon Transportation Consultants, Inc.

August 30, 2000

Communications Hill
K&B Residential Development

Transportation Impact Analysis

Prepared for:

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Prepared by:

Hexagon Transportation Consultants, Inc.

August 30, 2000

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Executive Summary

This report presents the results of the traffic impact analysis conducted for the Communications Hill residential development in San Jose, California. The project site is located east of SR 87 along the southern portion of Communications Hill, north of Hillsdale Avenue and east of Narvaez Avenue. The site is currently vacant. The project as proposed would contain 765 single family attached residential dwelling units. Access to the site will be provided via Narvaez Avenue, a project entrance at the intersection of Vistapark Drive and Hillsdale Avenue, two right-turn only driveways on Hillsdale Avenue on either side of Vista Park Drive, and the roadway just west of Vistapark Drive via two connections to the Lancaster Gate neighborhood.

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of San Jose and the Congestion Management Program (CMP) of Santa Clara County. The study included an analysis of AM and PM peak-hour traffic conditions for 16 signalized intersections, 1 unsignalized intersection, 2 intersections where signalization is planned, and 5 freeway segments.

Project Trip Generation

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the development the applicable trip generation rates. On the basis of the trip generation rates recommended by the City of San Jose, it is estimated that the project would generate 5,738 daily trips, with 574 trips occurring during the AM peak hour and 574 occurring during the PM peak hour. Using the specified inbound/outbound splits, the project would produce 201 inbound trips and 373 outbound trips during the AM peak hour and 373 inbound and 201 outbound trips during the PM peak hour. The trip distribution pattern for the proposed project was estimated based on existing travel patterns in the area and the locations of complementary land uses.

Project Impacts

Intersection Impacts

The results of the intersection level of service analysis show that one of the signalized study intersections would be impacted by the project according to City of San Jose and CMP level of service standards. The project would have a significant impact at the following signalized intersection:

SR 87 southbound ramps and Capitol Expressway

Freeway Impacts

The results of the CMP freeway level of service analysis show that three of the freeway segments analyzed would be impacted by the project according to county CMP level of service standards for freeways. The project would have a significant impact on the following freeway segments:

SR 87 northbound, Curtner Avenue to Almaden Expressway (AM peak hour)
SR 87 northbound, Almaden Expressway to Alma Avenue (AM peak hour)
SR 87 southbound, I-280 to Alma Avenue (PM peak hour)

Mitigation Measures

Measures have been recommended that would satisfactorily mitigate the project impact described above. Presented below are the recommended mitigation measures and the impacts they would mitigate.

SR 87 southbound ramps and Capitol Expressway. Convert the eastbound exclusive right-turn lane to a shared through/right-turn lane. This improvement can be made by restriping the eastbound approach. With the added capacity of the additional eastbound through lane, the minimum green time for that approach can be reduced from 85 second to 78 seconds, and the minimum green time for the westbound approach can be reduced to 92 seconds. The resulting level of service, during the PM peak hour, with the improvements would be LOS E with 46.1 seconds of average delay.

Freeway Segments. It is not feasible for any single development to pay for improvements to freeway segments, such as adding additional lanes, to add capacity to accommodate additional demand generated by project traffic. There is a Measure A/B project planned for SR 87 that will add HOV lanes in each direction, upgrading the freeway to a six-lane facility (2 mixed flow lanes and 1 HOV lane in each direction). However, it is unlikely that this freeway upgrade will be completed before the project is completed, therefore, this improvement cannot be considered as mitigation.

Other Transportation Issues

Unsignalized Intersections

The results of the peak-hour volume signal warrant checks show that the Caltrans peak-hour volume signal warrant would not be satisfied under project conditions at the unsignalized study intersection

Intersection Operations

The intersection operations analysis, based on the TRAFFIX level of service methodology, indicates that the following intersections would have inadequate storage capacity to accommodate estimated maximum vehicle queues:

Almaden Expressway and Foxworthy Avenue (WBL)
Narvaez Avenue and Capitol Expressway (EBL)
Narvaez Avenue and Hillsdale Avenue (EBL)

Recommended Improvements

Almaden Expressway and Foxworthy Avenue. Extend the existing westbound left-turn pocket to the maximum available length. This improvement can be made by restriping the westbound approach and may require some curb and sidewalk removal, depending on the length of the extension. Project trips account for only a portion of the traffic added to this intersection, therefore, the project should pay a fair share toward the cost of this improvement.

Narvaez Avenue and Capitol Expressway. Extend each of the existing eastbound left-turn lanes 45 feet. This improvement will require modifications to the existing raised median island. Project trips account for only a portion of the traffic added to this intersection, therefore, the project should pay a fair share toward the cost of this improvement.

Narvaez Avenue and Hillsdale Avenue. Lengthen the future eastbound left-turn lane from 150 feet to 180 feet. Since project traffic will account for a portion of the traffic added to this intersection, the project should pay a fair share toward the cost of this improvement.

Site Access and On-Site Circulation

The evaluation of the proposed site access and circulation for the project shows that the access point on Hillsdale Avenue should be designated as the main entrance to the project, with the Narvaez Avenue access acting only as a secondary entrance. Appropriate measures should be taken to ensure that the Hillsdale access point serves as the main entrance to the project.

Horizontal and vertical sight distance issues may arise as a result of roadway alignment and the hilly terrain of the project site. Any future on-site traffic control devices should be selected and located such that sight distance problems are alleviated.

Other Transportation Modes

The evaluation of bicycle, transit, and pedestrian facilities showed that demand for such facilities would increase with the construction of the project. New and unimproved streets in the area will be designed to standard City of San Jose widths to safely accommodate bicycle traffic. Sidewalks will also be built on new and unimproved streets. Hillsdale Avenue currently has several sections where the street is not widened to the planned width and no sidewalks are available. The sections are mainly under the SR 87 overpass and east of SR 87. As part of the Rubino residential development, the section of Hillsdale Avenue from SR 87 to Canoas Creek will be widened to four lanes and sidewalks will be constructed. The remaining section along the project frontage should have sidewalks installed by the project.

Transit service exists along Hillsdale Avenue that is not within a reasonable walking distance to future housing on the project site. The project would create demand for local bus service that would not be met by existing service. Therefore, as Communications Hill builds out, it may be desired to extend a bus route into the development.

Table ES-1

Intersection Level of Service Summary

	Peak Hour	Count Date	Existing Avg. Delay	Existing LOS	Background Avg. Delay	Background LOS	Project Avg. Delay	Project LOS	Project Inc. in Crit. Delay	Project Inc. in Crit. V/C	Mitigated Avg. Delay	Mitigated LOS	Future Avg. Delay	Future LOS
Capitol Expwy and Monterey Rd (N)*	AM	3/22/00	9.3	B	13.7	B	14.0	B	0.3	0.007			14.4	B
	PM	3/22/00	10.3	B	11.9	B	12.2	B	0.0	0.000			12.2	B
Capitol Expwy and Monterey Rd (S)*	AM	3/22/00	25.8	D	29.2	D	31.0	D	2.4	0.013			37.3	D
	PM	3/22/00	8.7	B	9.2	B	9.4	B	0.2	0.002			9.5	B
Pearl Ave and Capitol Expwy*	AM	5/10/00	46.4	E	34.2	D	34.3	D	0.1	0.009			35.3	D
	PM	5/11/00	25.8	D	25.5	D	25.5	D	0.0	0.010			25.9	D
SR 85 SB off-ramp and Almaden Plaza	AM	5/25/00	4.6	A	4.6	A	4.6	A	0.0	0.000			4.6	A
	PM	[illegible]/25/00	8.5	B	8.7	B	8.7	B	0.0	0.001			8.8	B
Narvaez Ave and SR 87 NB ramps	AM	5/31/00	9.5	B	11.8	B	12.5	B	5.1	0.219			12.6	B
	PM	5/31/00	9.4	B	9.7	B	10.7	B	1.5	0.038			10.9	B
Pearl Ave and Hillsdale Ave	AM	6/1/00	18.6	C	18.4	C	18.7	C	0.5	0.005			18.8	C
	PM	6/1/00	14.5	B	17.5	C	17.8	C	0.7	0.045			17.9	C
Almaden Expwy and Foxworthy Ave/a/	AM	5/23/00	15.2	C	25.3	D	29.6	D	5.7	0.041			32.2	D
	PM	5/23/00	16.9	C	21.1	C	22.6	C	1.0	0.011			22.9	C
Almaden Expwy and Branham Ln*	AM	6/14/00	75.3	F	76.9	F	77.7	F	1.8	0.003			94.5	F
	PM	3/14/00	42.7	E	43.9	E	43.9	E	0.0	0.002			46.0	E
Almaden Expwy and Blossom Hill Rd*	AM	6/15/00	42.6	E	43.7	E	43.8	E	0.4	0.003			47.3	E
	PM	3/15/00	122.6	F	145.5	F	146.4	F	-0.3	0.002			168.9	F
Almaden Expwy and Cherry Ave	AM	5/24/00	18.6	C	19.0	C	19.0	C	0.1	0.002			19.6	C
	PM	5/24/00	24.5	C	33.0	D	33.1	D	0.1	0.002			101.9	F
Almaden Expwy and SR 85 (N)*	AM	6/15/00	5.4	B	5.7	B	5.7	B	0.0	0.002			5.8	B
	PM	10/1/98	18.2	C	20.4	C	20.4	C	0.1	0.007			23.0	C
Almaden Exwpy and SR 85 (S)*	AM	6/14/00	14.2	C	14.9	B	14.8	B	-0.1	0.003			15.1	C
	PM	10/1/98	167.5	F	173.1	F	172.5	F	-0.5	0.001			198.7	F
Copperfield Dr and Capitol Expwy	AM	5/18/00	7.0	B	7.7	B	7.7	B	0.0	0.000			7.8	B
	PM	5/18/00	9.5	B	10.0	B	10.0	B	0.0	0.001			10.1	B
Narvaez Ave and Capitol Expwy	AM	6/9/00	25.2	D	25.5	D	29.9	D	5.2	0.088			30.7	D
	PM	3/8/00	28.0	D	28.3	D	30.0	D	5.2	0.051			30.4	D
Vista Park Dr and Capitol Expwy	AM	5/23/00	16.7	C	17.5	C	17.6	C	0.0	0.000			18.0	C
	PM	5/23/00	18.0	C	20.2	C	20.5	C	0.7	0.011			21.0	C
SR 87 SB ramps and Capitol Expwy*/b/	AM	5/11/00	22.4	C	23.4	C	25.1	D	25.4	0.032	25.3	D	25.3	D
	PM	3/21/00	35.5	D	47.8	E	71.7	F	33.5	0.052	46.1	E	82.3	F
Snell Ave and Capitol Expwy*	AM	6/8/00	32.5	D	33.9	D	33.9	D	0.0	0.006			34.5	D
	PM	3/21/00	27.1	D	25.7	D	25.7	D	0.0	0.006			26.1	D
Hillsdale Avenue and Narvez Avenue	AM	8/26/99	--	--	21.2	C	24.2	C	1.5	0.194			24.3	C
	PM	8/26/99	--	--	21.5	C	24.4	C	2.6	0.176			24.4	C
Old Almaden Rd and Foxworthy Avenue/a/	AM	12/18/96	--	--	16.2	C	16.8	C	0.0	0.000			17.2	C
	PM	12/18/96	--	--	10.8	B	9.9	B	-0.8	0.030			10.3	B

/a/ Background and project conditions include planned improvements.

/b/ The PM TRAFFIX coding was adjusted to get TRAFFIX to calculate an accurate level of service and intersection delay value.

Shading indicates significant impact

* Denotes CMP intersection

Table ES-2
Freeway Segment Levels of Service - Project Conditions

				Existing + Project Trips					Project Trips	
Freeway	Segment	Direction	Peak Hour	Ave. Speed/a/	# of Lanes	Volume/a/	Density	LOS	Volume	% Capacity
SR 87	SR 85 to Capitol Expwy	NB	AM	65	2	2,155	16.6	C	25	0.5%
			PM	60	2	3,677	30.6	D	47	1.0%
SR 87	Capitol Expwy to Curtner Avenue	NB	AM	60	2	3,373	28.1	D	113	2.5%
			PM	60	2	3,000	25.0	D	60	1.3%
SR 87	Curtner Avenue to Almaden Expwy	NB	AM	25	2	3,503	70.1	**F**	**113**	**2.5%**
			PM	60	2	2,770	23.1	C	60	1.3%
SR 87	Almaden Expwy to Alma Av	NB	AM	25	2	3,268	65.3	**F**	**113**	**2.5%**
			PM	50	2	4,410	44.1	D	60	1.3%
SR 87	Alma Av to I-280	NB	AM	60	2	4,243	35.4	D	113	2.5%
			PM	60	2	3,530	29.4	D	60	1.3%
SR 87	I-280 to Alma Avenue	SB	AM	65	2	2,520	19.4	C	60	1.4%
			PM	10	2	2,583	129.2	**F**	**113**	**2.6%**
SR 87	Alma Avenue to Almaden Expwy	SB	AM	65	2	2,230	17.2	C	60	1.4%
			PM	60	2	4,113	34.3	D	113	2.6%
SR 87	Almaden Expwy to Curtner Avenue	SB	AM	65	2	950	7.3	A	60	1.4%
			PM	60	2	2,663	22.2	C	113	2.6%
SR 87	Curtner Avenue to Capitol Exwpy	SB	AM	65	2	1,760	13.5	B	60	1.4%
			PM	60	2	3,293	27.4	D	113	2.5%
SR 87	Capitol Expwy to SR 85	SB	AM	65	2	827	6.4	A	47	1.0%
			PM	60	2	2,215	18.5	C	25	0.5%

/a/ Source: Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 1998.

1. Introduction

This report presents the results of the traffic impact analysis conducted for the Communications Hill residential development in San Jose, California. The project site is located east of SR 87 along the southern portion of Communications Hill, north of Hillsdale Avenue and east of Narvaez Avenue. The site is currently vacant. The project as proposed would contain 765 single family attached residential dwelling units. Access to the site will be provided via Narvaez Avenue, a project entrance at the intersection of Vistapark Drive and Hillsdale Avenue, two right-turn only driveways on Hillsdale Avenue on either side of Vista Park Drive, and the roadway just west of Vistapark Drive via two connections to the Lancaster Gate neighborhood. The project site and the surrounding study area are shown on Figure 1. The project site plan is shown on Figure 2.

Scope of Study

This study was conducted for the purpose of identifying the potential traffic impacts related to the proposed development. The impacts of the project were evaluated following the standards and methodologies set forth by the City of San Jose and the Santa Clara Valley Transportation Authority (VTA). The VTA administers the county Congestion Management Program (CMP). The traffic analysis is based on peak-hour levels of service for signalized intersections and freeway segments. The traffic analysis also includes an evaluation of peak-hour signal warrants for unsignalized intersections and a peak-hour vehicle queuing analysis for selected locations. The study intersections and freeway segments are identified below.

Study Intersections

Capitol Expressway and Monterey Road (N)*
Capitol Expressway and Monterey Road (S)*
Pearl Avenue and Capitol Expressway*
Narvaez Avenue and Capitol Expressway
Pearl Avenue/Foxworthy Avenue and Hillsdale Avenue

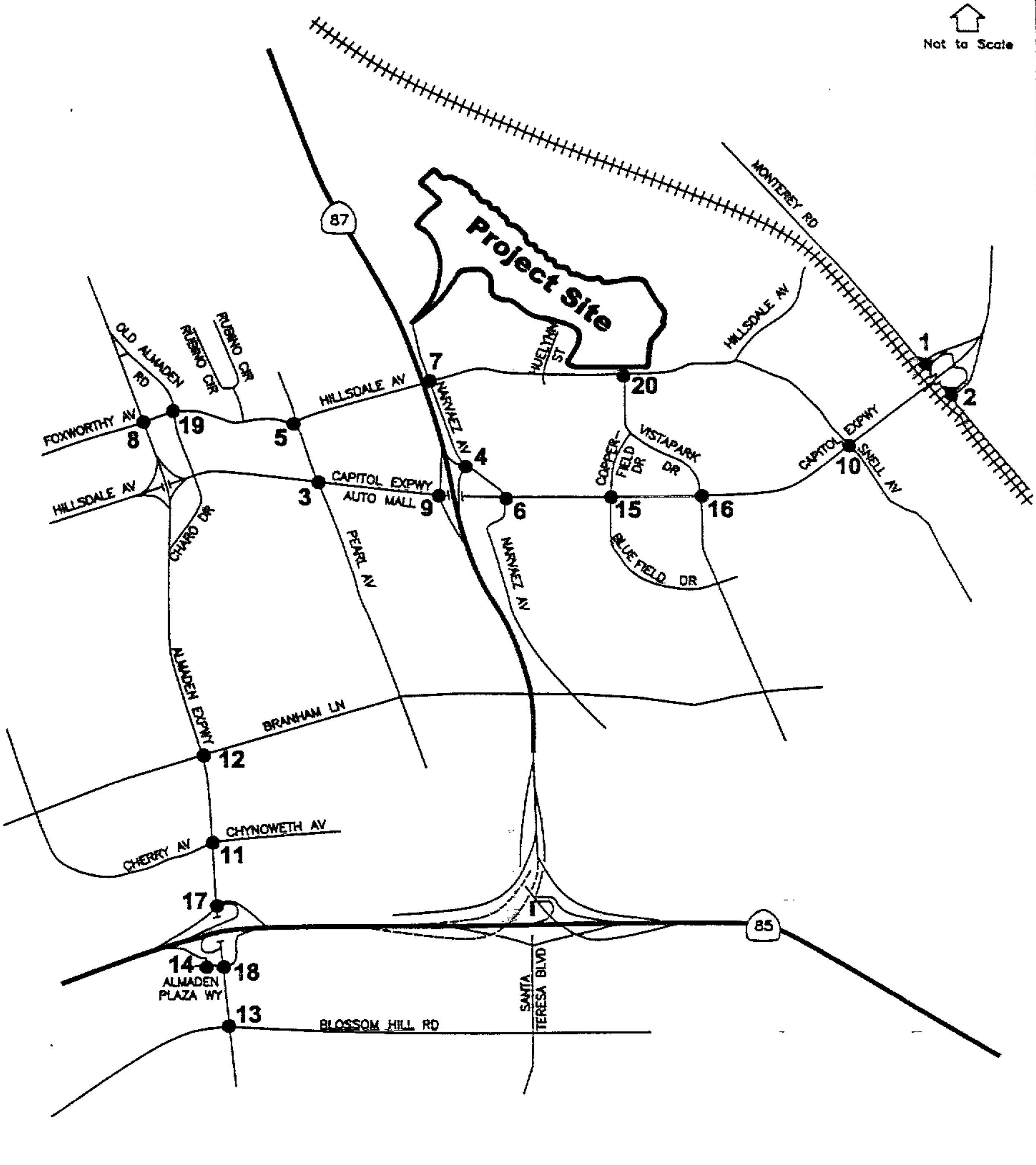

Figure 1

SITE LOCATION AND STUDY INTERSECTIONS

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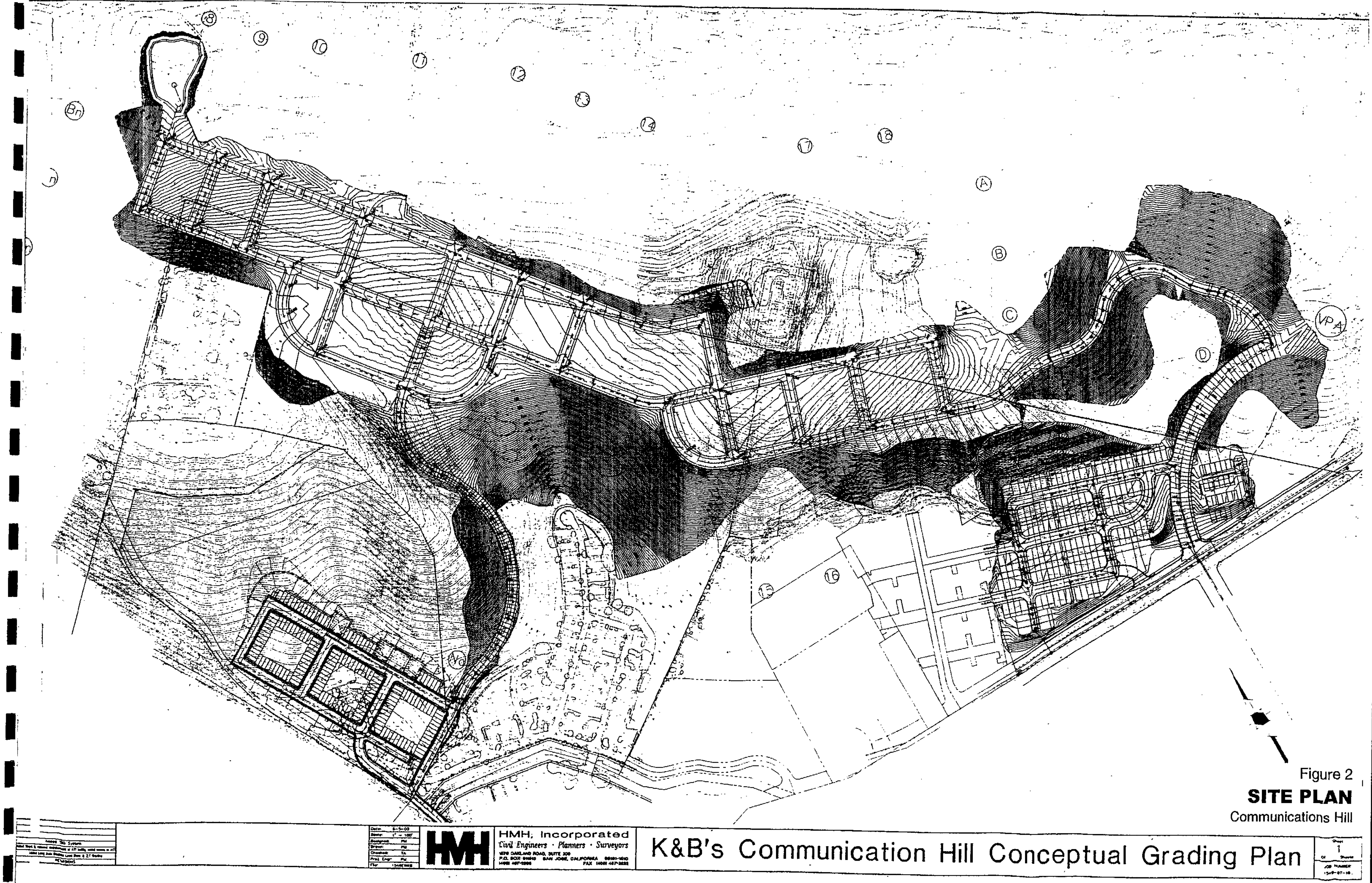

Figure 2
SITE PLAN
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Narvaez Avenue and Hillsdale Avenue (signalization planned)
Almaden Expressway and Foxworthy Avenue
SR 87 southbound ramps and Capitol Expressway*
Snell Avenue and Capitol Expressway*
Almaden Expressway and Cherry Avenue
Almaden Expressway and Branham Lane*
Almaden Expressway and Blossom Hill Road*
SR 85 southbound off-ramp and Almaden Plaza Way
Copperfield Drive and Capitol Expressway
Vistapark Drive and Capitol Expressway
Almaden Expressway and SR 85 northbound ramps*
Almaden Expressway and SR 85 southbound on-ramp/Almaden Plaza Way*
Old Almaden Road and Foxworthy Avenue (signalization planned)
Vistapark Drive/Future Project Entrance and Hillsdale Avenue (unsignalized)

CMP intersections are denoted with an asterisk (*).

Study Freeway Segments

SR 87, from SR 85 to Capitol Expressway
SR 87, from Capitol Expressway to Curtner Avenue
SR 87, from Curtner Avenue to Almaden Expressway
SR 87, from Almaden Expressway to Alma Avenue
SR 87, from Alma Avenue to I-280

In summary, the study includes an analysis of 16 signalized intersections, 1 unsignalized intersection, 2 intersections were signalization is planned, and 5 freeway segments in the vicinity of the project site. The nine CMP intersections were evaluated against the standards of both the City of San Jose and the County CMP. The intersections of Narvaez Avenue and Hillsdale Avenue and Old Almaden Road and Foxworthy Avenue were analyzed as signalized intersections. Peak-hour signal warrants were examined for the one unsignalized intersection.

Traffic conditions at the intersections and on the freeway segments were analyzed for the weekday AM and PM peak hours of traffic. The AM peak hour of traffic is generally between 7:00 and 9:00 AM, and the PM peak hour is typically between 4:00 and 6:00 PM. It is during these periods that the most congested traffic conditions occur on an average day.

Traffic conditions were evaluated for the following scenarios:

Scenario 1: *Existing Conditions.* Existing traffic volumes were obtained from recent traffic counts.

Scenario 2 *Background Conditions.* Background traffic volumes were estimated by adding to existing peak-hour volumes the projected volumes from approved but not yet completed developments. The latter component is contained in the City of San Jose Approved Trips Inventory (ATI). Background conditions include a reassignment of existing traffic due to the completion of the Foxworthy Avenue bridge.

Scenario 3 *Project Conditions.* Future traffic volumes with the project (hereafter called *project traffic volumes*) were estimated by adding to background traffic volumes the additional traffic generated by the project. Project conditions were evaluated relative to background conditions in order to determine potential project impacts.

Scenario 4 *Future Growth Conditions.* Traffic volumes under future growth conditions were estimated by applying a growth factor to existing volumes, adding trips from approved developments, and adding project trips. This scenario is evaluated in fulfillment of CMP requirements.

Methodology

This section presents the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

Data Requirements

The data required for the analysis were obtained from new traffic counts, previous traffic studies, the City of San Jose, and the CMP annual Monitoring Report. The following data were collected from these sources:

- existing traffic volumes
- lane configurations
- signal timing and phasing (for signalized intersections only)
- average speed (for freeway segments only)

Analysis Methodologies and Level of Service Standards

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The various analysis methods are described below.

City of San Jose Signalized Intersections

All of the signalized study intersections are located in the City of San Jose and are therefore subject to the City of San Jose Level of Service standards. The City of San Jose level of service methodology is TRAFFIX, which is based on the *Highway Capacity Manual* (HCM) method for signalized intersections. TRAFFIX evaluates signalized intersection operations on the basis of average delay time for all vehicles at the intersection. Since TRAFFIX is also the CMP-designated intersection level of service methodology, the City of San Jose methodology employs the CMP default values for the analysis parameters. The City of San Jose level of service standard for signalized intersections is LOS D or better. The correlation between average delay and level of service is shown in Table 1.

CMP Intersections

Since TRAFFIX is the designated level of service methodology for both the CMP and the City of San Jose, the CMP study intersections are not analyzed separately, but rather are among the City of San Jose signalized study intersections analyzed using TRAFFIX. The only difference between the San Jose and CMP analyses is that project impacts are determined on the basis of different level of service standards – the CMP level of service standard for signalized intersections is LOS E or better.

Table 1
Intersection Level of Service Definitions Based on Delay

Level of Service	Description	Average Stopped Delay Per Vehicle (Sec.)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	Less than 5.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	5.1 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	15.1 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	25.1 to 40.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	40.1 to 60.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 60.0

Source: Transportation Research Board, Highway Capacity Manual, Special Report 209 (Washington, D.C., 1985), pp. 9-4, 5.

Freeway Segments

As prescribed in the CMP technical guidelines, the level of service for freeway segments is estimated based on vehicle density. Density is calculated by the following formula:

$$D = V / (N*S)$$

where:

D = density, in vehicles per mile per lane (vpmpl)
V = peak hour volume, in vehicles per hour (vph)
N = number of travel lanes
S = average travel speed, in miles per hour (mph)

The vehicle density on a segment is correlated to level of service as shown in Table 2. The CMP requires that mixed-flow lanes and auxiliary lanes be analyzed separately from HOV (carpool) lanes. The CMP specifies that a capacity of 2,300 vehicles per hour per lane (vphpl) be used for segments six lanes or wider in both directions and a capacity of 2,200 vphpl be used for segments four lanes wide in both directions. The CMP defines an acceptable level of service for freeway segments as LOS E or better.

Table 2
Freeway Segment Level of Service Definitions Based on Density

Level of Service	Density (vehicles/mile/lane)
A	< 10.0
B	10.1 - 16.0
C	16.1 - 24.0
D	24.1 - 46.0
E	46.1 - 55.0
F	> 55

Unsignalized Intersections

For unsignalized intersections an assessment is made of the need for signalization of the intersection. This assessment is made on the basis of the Peak-hour Volume Signal Warrant, Warrant #11 described in the Caltrans *Traffic Manual*. This method makes no evaluation of intersection level of service, but simply provides an indication whether peak-hour traffic volumes are, or would be, sufficient to justify installation of a traffic signal.

Intersection Operations

The operations analysis is based on vehicle queuing for high-demand turning movements at intersections. The basis of the analysis is as follows: (1) the TRAFFIX intersection analysis software is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 20 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future storage requirements at intersections.

Report Organization

The remainder of this report is divided into five chapters. Chapter 2 describes existing conditions in terms of the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 presents the intersection and freeway operations under background conditions. Chapter 4 describes the method used to estimate project traffic and its impact on the transportation system and describes the recommended mitigation measures. Chapter 5 discusses the traffic conditions resulting from additional future growth. Chapter 6 presents the conclusions of the traffic impact analysis.

2.
Existing Conditions

This chapter describes the existing conditions for all the major transportation facilities in the vicinity of the site, including the roadway network, transit service, and bicycle and pedestrian facilities.

Existing Roadway Network

Regional access to the project site is provided via SR 87 and Monterey Road (SR 82). These facilities are described below.

SR 87 is a four-lane freeway that is aligned in a north-south orientation. SR 87 begins at its interchange with SR 85 and extends northward to Taylor Street where it becomes a non-grade separated facility and changes designation to Guadalupe Expressway. Access to the project site is provided by ramps at Capitol Expressway and at Narvaez Avenue.

Monterey Road (SR 82) is a six-lane major arterial that is oriented in a north-south direction. Monterey Road extends southward into Morgan Hill and northward into San Francisco. Access to the site is provided via Capitol Expressway.

Local access to the site is provided by Almaden Expressway, Capitol Expressway, Foxworthy Avenue, Hillsdale Avenue, Narvaez Avenue, Pearl Avenue, and Snell Avenue. These roadways are described below.

Almaden Expressway is a six-lane north-south major arterial. Almaden Expressway begins just south of downtown San Jose and extends southward into the Almaden Valley where it terminates at Harry Road. Access to the site is provided via Foxworthy Avenue.

Capitol Expressway is a six-lane major arterial that is aligned in an east-west orientation. Capitol Expressway begins at its interchange with I-680 in east San Jose, where it changes designation from San Antonio Street, and extends to the south and west where it changes designation to Hillsdale Avenue at

Almaden Expressway. Access to the site is provided via Vistapark Drive, Narvaez Avenue, and Pearl Avenue.

Foxworthy Avenue is a two-lane collector that begins at Bascom Avenue and extends eastward to Old Almaden Road where it currently terminates. Foxworthy Avenue begins again at Guadalupe River and extends to Pearl Avenue. A bridge on Foxworthy Avenue spanning the Guadalupe River is currently under construction. Access to the site is provided via Hillsdale Avenue.

Hillsdale Avenue is currently a two-lane local street that is aligned in an east-west orientation. Hillsdale Avenue begins at Pearl Avenue and extends eastward beyond Snell Avenue terminating just west of the railroad tracks. Access to Hillsdale Avenue is provided via Narvaez Avenue and direct access to the site will be provided by project entrances at the intersection of Vistapark Drive and Hillsdale Avenue, on Hillsdale Avenue on either side of Vista Park Drive, and on Hillsdale Avenue west of Vistapark Drive via the Lancaster Gate neighborhood connection. Hillsdale Avenue is designated in the City of San Jose General Plan to be a four-lane arterial.

Narvaez Avenue is a two-lane collector that begins at the Helzer residential development east of SR 87 and extends southward beyond Branham Lane where it terminates at Calpella Drive. Direct access to the site is provided via a project entrance at the termination point of Narvaez Avenue.

Pearl Avenue is a four-lane north-south collector that begins at Hillsdale Avenue and extends southward to Chynoweth Avenue where it terminates. Access to the site is provided via Hillsdale Avenue.

Snell Avenue is a four-lane collector that begins south of Santa Teresa Boulevard and extends northward to Hillsdale Avenue where it terminates. Access to the site is provided via Capitol Expressway and Hillsdale Avenue.

Existing Bicycle and Pedestrian Facilities

There are a number of county-designated bikeways within the vicinity of the project site. Bike lanes are provided on Cherry Avenue (between Curtner Avenue and Almaden Expressway), on Capitol Expressway (between Pearl Avenue and US 101), and on Narvaez Avenue (north of Branham Lane).

A bike path is provided along the east side of SR 87 between Oakdridge Mall and the Tamien CalTrain/Light Rail Station. The bike lanes on Narvaez Avenue are part of this bike path. This bike path is also available for use by pedestrians. Bike lockers and bike racks are provided at the Curtner, Capitol, and Branham LRT stations. The existing bicycle facilities within the study area are shown on Figure 3.

Pedestrian facilities in the project area consist primarily of sidewalks along the streets in most residential and commercial areas, as well as the aforementioned bike/pedestrian path. Sidewalks are found along virtually all previously-described local roadways in the study area and along the local residential streets and collectors near the site, with the exception of portions of Hillsdale Avenue. The portions of Hillsdale Avenue without existing sidewalks are along the project frontage, under the SR 87 overpass, and just east of SR 87 on the south side. However, sidewalks are currently being constructed from the SR 87 overpass to Canoas Creek as part of the Rubino project's conditioned improvements.

Existing Transit Service

Existing transit service to the study area is provided by the VTA. These are described below and shown on Figure 4.

VTA Transit Service

Bus Service

The study area is served directly by two local buses. The 37 line provides service between Monterey Road & Senter Road and Bascom Avenue & Camden Avenue via Monterey Road, Capitol Expressway, Narvaez Avenue, Hillsdale Avenue, and Pearl Avenue, with 30-minute headways during commute hours. The 70 line provides service between the Capitol LRT Station and Milpitas via Capitol Expressway, with 15-minute headways during commute hours. The nearest bus stop to the project site is on the 37 line and is located on Hillsdale Avenue just west of SR 87.

Light Rail Transit (LRT) Service

There is one LRT station located near the project site. The Capitol LRT station is situated on the Guadalupe Corridor LRT line and is located near the SR 87/Capitol Expressway interchange. The Capitol LRT station Park & Ride lots are accessible from Narvaez Avenue both north and south of Capitol Expressway. The Guadalupe Corridor LRT line provides service on 10-minute headways during commute and midday hours. It provides service between the Santa Teresa LRT station and the Baypointe LRT station, where transfers to Mountain View are available.

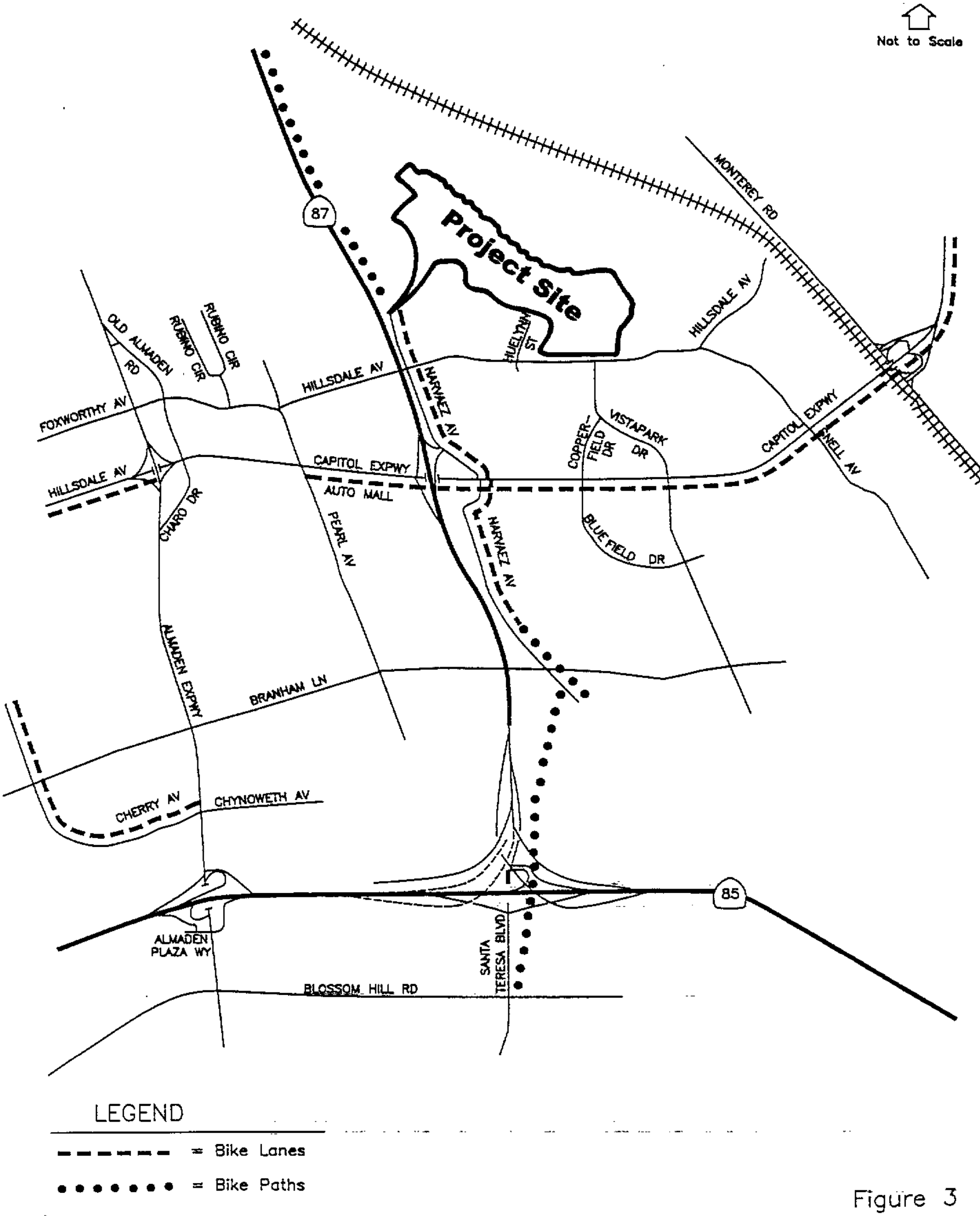

Figure 3

EXISTING BICYCLE FACILITIES

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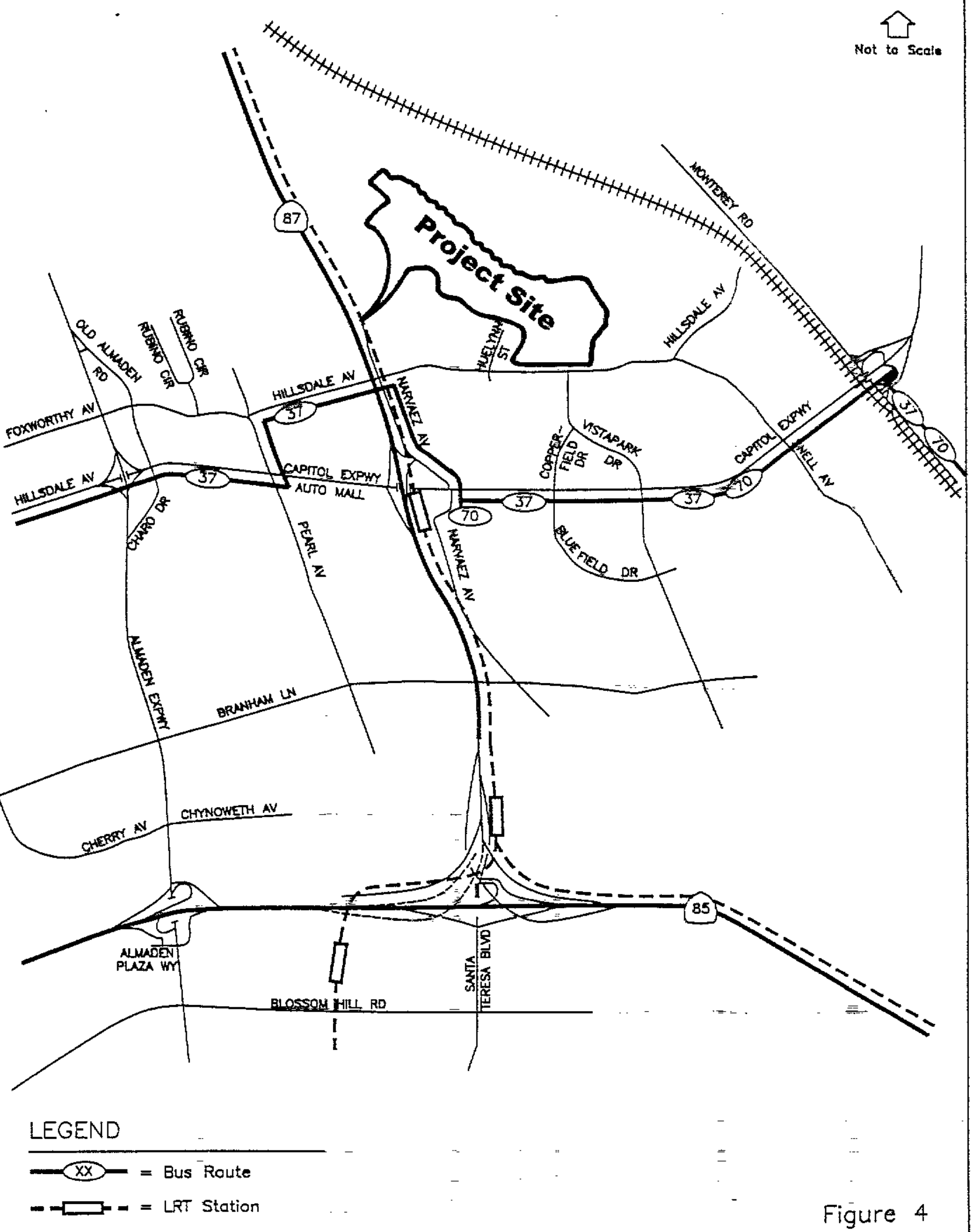

Figure 4

EXISTING TRANSIT SERVICE

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Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were provided by city staff and confirmed by observations in the field. The existing intersection lane configurations are shown on Figure 5.

Existing Traffic Volumes

Existing peak-hour traffic volumes were obtained from the City of San Jose and supplemented with manual turning-movement counts at intersections where counts were either unavailable or outdated (more than one year old). The existing peak-hour intersection volumes are shown on Figure 6. The traffic count data are included in Appendix A.

Existing Intersection Levels of Service

City of San Jose Intersection Analysis

The results of the level of service analysis under existing conditions are summarized in Table 3. The results show that four of the signalized study intersections currently operate at an unacceptable LOS E or F.

Pearl Avenue and Capitol Expressway
Almaden Expressway and Branham Lane
Almaden Expressway and Blossom Hill Road
Almaden Expressway and SR 85 (S)/Almaden Plaza Way

All other signalized study intersections currently operate at an acceptable LOS D or better, according to City of San Jose standards. The level of service calculation sheets are included in Appendix D.

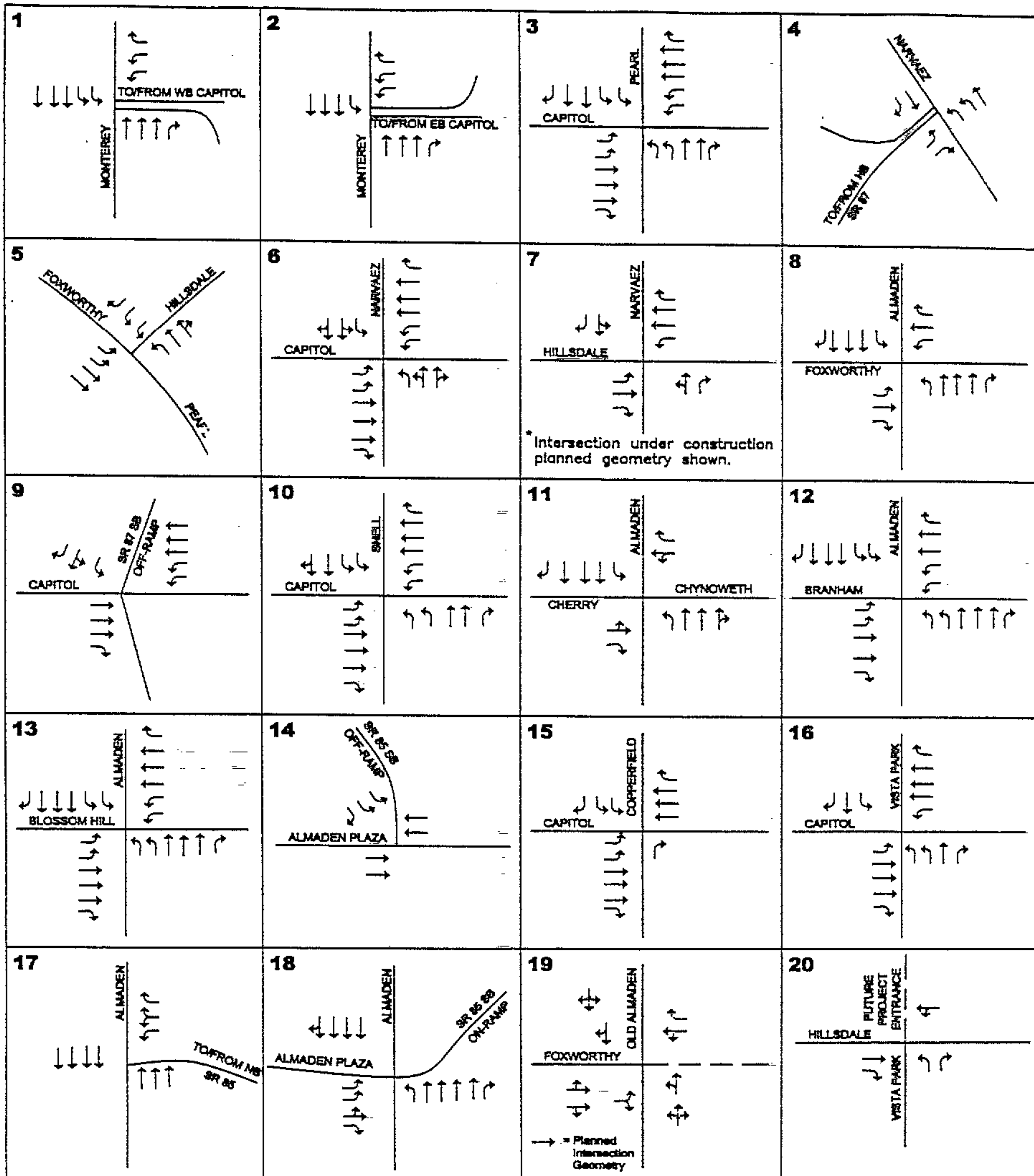

Figure 5

EXISTING LANE GEOMETRY

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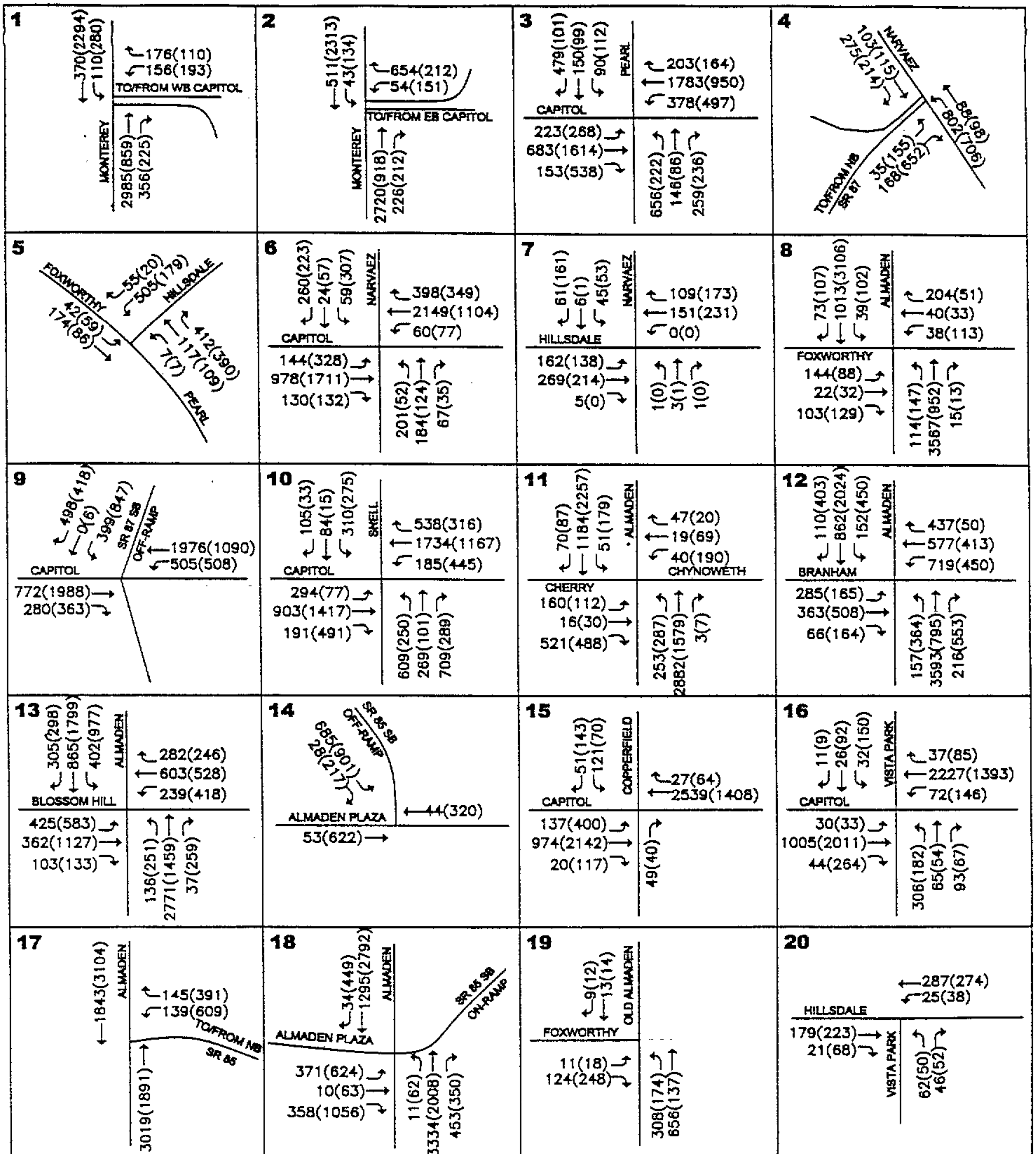

Legend

XX(XX) = AM(PM) peak hour volumes

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Figure 6

EXISTING TRAFFIC VOLUMES

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Table 3
Existing Intersection Levels of Service

Intersection	Peak Hour	Count Date	Avg. Delay	LOS
Capitol Expwy and Monterey Rd (N)*	AM	3/22/00	9.3	B
	PM	3/22/00	10.3	B
Capitol Expwy and Monterey Rd (S)*	AM	3/22/00	25.8	D
	PM	3/22/00	8.7	B
Pearl Ave and Capitol Expwy*	AM	5/10/00	46.4	E
	PM	5/11/00	25.8	D
SR 85 SB off-ramp and Almaden Plaza	AM	5/25/00	4.6	A
	PM	5/25/00	8.5	B
Narvaez Ave and SR 87 NB ramps	AM	5/31/00	9.5	B
	PM	5/31/00	9.4	B
Pearl Ave and Hillsdale Ave	AM	6/1/00	18.6	C
	PM	6/1/00	14.5	B
Almaden Expwy and Foxworthy Ave/a/	AM	5/23/00	15.2	C
	PM	5/23/00	16.9	C
Almaden Expwy and Branham Ln*	AM	6/14/00	75.3	F
	PM	3/14/00	42.7	E
Almaden Expwy and Blossom Hill Rd*	AM	6/15/00	42.6	E
	PM	3/15/00	122.6	F
Almaden Expwy and Cherry Ave	AM	5/24/00	18.6	C
	PM	5/24/00	24.5	C
Almaden Expwy and SR 85 (N)*	AM	6/15/00	5.4	B
	PM	10/1/98	18.2	C
Almaden Exwpy and SR 85 (S)*	AM	6/14/00	14.2	C
	PM	10/1/98	167.5	F
Copperfield Dr and Capitol Expwy	AM	5/18/00	7.0	B
	PM	5/18/00	9.5	B
Narvaez Ave and Capitol Expwy	AM	6/9/00	25.2	D
	PM	3/8/00	28.0	D
Vista Park Dr and Capitol Expwy	AM	5/23/00	16.7	C
	PM	5/23/00	18.0	C
SR 87 SB ramps and Capitol Expwy*/b/	AM	5/11/00	22.4	C
	PM	3/21/00	35.5	D
Snell Ave and Capitol Expwy*	AM	6/8/00	32.5	D
	PM	3/21/00	27.1	D
Hillsdale Avenue and Narvez Avenue	AM	8/26/99	14.6	B
	PM	8/26/99	15.0	B

/a/ Background and project conditions include planned improvements.
/b/ The PM TRAFFIX coding was adjusted to get TRAFFIX to calculate an accurate level of service and intersection delay value.
* Denotes CMP intersection

CMP Intersection Analysis

The level of service results for the CMP intersections under existing conditions are summarized in Table 3. The results show that three of the CMP study intersections currently operate at an unacceptable LOS F during at least one of the peak hours.

Almaden Expressway and Branham Lane
Almaden Expressway and Blossom Hill Road
Almaden Expressway and SR 85 (S)/Almaden Plaza Way

Existing Signal Warrants

Peak-hour signal warrants (*Caltrans Traffic Manual*, Chapter 9, Warrant 11) were checked for the one currently unsignalized intersections to determine whether signalization would be justified on the basis of existing peak-hour volumes. The analysis showed that the unsignalized study intersection does not meet the peak-hour volume warrant. This is mainly due to the fact that the roadway network in the area is not completely built as ultimately planned by the City. Therefore, this intersection will have low traffic volumes until the improvements to the roadway network are completed. The signal warrant analysis sheets are included in Appendix E.

Existing Freeway Levels of Service

Traffic volumes for the subject freeway segments were obtained from the CMP Annual Monitoring Report.

The results of the freeway level of service analysis are summarized in Table 4. The results show that three of the directional freeway segments analyzed currently operate at an unacceptable LOS F during at least one of the peak hours:

SR 87 northbound, Curtner Avenue to Almaden Expressway (AM peak hour)
SR 87 northbound, Almaden Expressway to Alma Avenue (AM peak hour)
SR 87 southbound, I-280 to Alma Avenue (PM peak hour)

All other analyzed freeway segments operate at LOS E or better during the AM and PM peak hours.

Observed Existing Traffic Conditions

Traffic conditions were observed in the field in order to identify existing operational deficiencies and to confirm the accuracy of calculated levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to intersection level of service, and (2) to identify any locations where the level of service calculation does not accurately reflect level of service in the field.

The key field observation results are discussed below. The following intersections were judged to be operating at LOS D during the PM peak hour, which by definition means that the critical movements

Table 4
Freeway Segment Levels of Service - Existing Conditions

Freeway	Segment	Direction	Peak Hour	Ave. Speed/a/	# of Lanes	Volume/a/	Density	LOS
SR 87	SR 85 to Capitol Expwy	NB	AM	65	2	2,130	16.4	C
			PM	60	2	3,630	30.3	D
SR 87	Capitol Expwy to Curtner Avenue	NB	AM	60	2	3,260	27.2	D
			PM	60	2	2,940	24.5	D
SR 87	Curtner Avenue to Almaden Expwy	NB	AM	25	2	3,390	67.8	F
			PM	60	2	2,710	22.6	C
SR 87	Almaden Expwy to Alma Av	NB	AM	25	2	3,150	63.0	F
			PM	50	2	4,350	43.5	D
SR 87	Alma Av to I-280	NB	AM	60	2	4,130	34.4	D
			PM	60	2	3,470	28.9	D
SR 87	I-280 to Alma Avenue	SB	AM	65	2	2,460	18.9	C
			PM	10	2	2,470	123.5	F
SR 87	Alma Avenue to Almaden Expwy	SB	AM	65	2	2,170	16.7	C
			PM	60	2	4,000	33.3	D
SR 87	Almaden Expwy to Curtner Avenue	SB	AM	65	2	890	6.8	A
			PM	60	2	2,550	21.3	C
SR 87	Curtner Avenue to Capitol Exwpy	SB	AM	65	2	1,700	13.1	B
			PM	60	2	3,180	26.5	D
SR 87	Capitol Expwy to SR 85	SB	AM	65	2	780	6.0	A
			PM	60	2	2,190	18.3	C

/a/ Source: Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 1998.

consistently had a fairly dense traffic stream: Almaden Expressway/Cherry Avenue and Almaden Expressway/Blossom Hill Road.

There were some operational problems observed at these intersections, not related to the observed LOS. At Almaden Expressway/Cherry Avenue, the split phase operation on Cherry Avenue was seen to be inefficient. Most cars turned left. Also, the free-right from eastbound Cherry Avenue to southbound Almaden Expressway seemed dangerous. There are driveways immediately past the intersection, and cars southbound on Almaden must make a very fast lane change to access the driveways.

At Almaden Expressway/Blossom Hill Road it appeared that Blossom Hill was not synchronized with the signal at the entrance to the Almaden Plaza shopping center. During the PM peak hour, there were several instances when the westbound approach had a green light at Almaden but a red light at the shopping center, which reduced the through traffic flow on Blossom Hill Road. Also, there were times when the eastbound approach had a green light at Blossom Hill but no traffic went through because of a red light at the shopping center.

The intersection of Narvaez Avenue and Capitol Expressway experiences significant congestion during the AM peak hour due to the metering light on the northbound 87 on-ramp from Narvaez Avenue. The metering light causes a northbound queue on Narvaez Avenue that backs up to Capitol Expressway. As a result, westbound traffic (specifically the rightmost lanes) and eastbound left-turns on Capitol Expressway have their flow restricted, which causes long queues to form on Capitol Expressway.

The intersection of Narvaez Avenue and SR 87 northbound ramps experiences significant congestion during the AM peak hour due to the metering light on the northbound 87 on-ramp, as discussed above. The calculated level of service for this intersection during the AM peak hour is LOS B. However, due to the ramp metering, actual vehicle delays are much higher than those associated with LOS B conditions, and the northbound queue does not clear on every cycle.

TRAFFIX level of service calculations for the intersection of SR 87 southbound ramps and Capitol Expressway during the PM peak hour show that this intersection operates at LOS F with 81.9 seconds of average delay and a volume-to-capacity (V/C) ratio of 0.887. However, field observations revealed that this intersection operates at LOS D or better. The discrepancy in calculated versus actual level of service is mainly due to the coding in the TRAFFIX database for this intersection. The default saturation flows cause TRAFFIX to calculate worse delays than are actually present. Furthermore, the arrival type for the off-ramp traffic is incorrectly specified, which results in an overestimate of the delay. The average delay during the PM peak hour was measured in the field as a means for calibrating the TRAFFIX database. The average stopped delay was calculated based on the procedure described in the *Highway Capacity Manual*. The result of the field calculation is an average intersection stopped delay of 33.6 seconds per vehicle. This delay was measured in late June 2000. To compensate for possible reduced traffic volumes in the summer, coding in the TRAFFIX network (PM only) for this intersection was adjusted to yield an average delay of 35.5 seconds per vehicle, rather than the 33.6 seconds that was measured.

The signal timing was observed to be quite inefficient. Long queues were observed every cycle on the SR 87 southbound off-ramp while westbound Capitol Expressway had no queues. Also, Capitol Expressway receives 100 seconds of green time every cycle, however, only 80 seconds is usable. For 20 seconds, there is no traffic moving on westbound Capitol because traffic is stopped by a red signal at Narvaez Avenue. If the 20 seconds were reallocated to the southbound off-ramp, the queue on the off-ramp would be significantly reduced, and the signal progression on Capitol Expressway would be unaffected. Alternately, the cycle length could be reduced by 20 seconds while still maintaining the same amount of green time for the southbound off-ramp. This would make the intersection cycle faster and would benefit Capitol Expressway.

3.
Background Conditions

This chapter describes background traffic conditions. Background conditions are defined as conditions just prior to completion of the proposed development. Traffic volumes for background conditions comprise volumes from existing traffic counts plus traffic generated by other approved developments in the vicinity of the site. This chapter describes the planned intersection and roadway improvements, the procedure used to determine background traffic volumes and the resulting traffic conditions.

Background Roadway Network

There are several intersection and roadway improvements that are assumed under background conditions. The intersection improvements are either part of the City of San Jose Capital Improvement Program (CIP) or have been mandated by the city as a condition of future development to be funded by the developer. The improvements are described below.

Intersection Improvements

Narvaez Avenue and Hillsdale Avenue. The improvements at this intersection consist of signalizing the intersection and building it out to include lanes for all movements. The planned lane geometry is as follows. Northbound: one right-turn lane and one shared through/left-turn lane. Eastbound: One shared through/right-turn lane, one through lane, and one left-turn lane. Southbound: One shared right/through/left-turn lane. Westbound: One right-turn lane, two through lanes, and one left-turn lane. These improvements include adding curb, gutter, and sidewalk on Hillsdale Avenue under SR 87. (Developer funded).

Old Almaden Road and Foxworthy Avenue. The improvement at this intersection consists of signalizing the intersection and adding a fourth leg (east approach) with the construction of the Foxworthy bridge over Guadalupe River. The planned lane geometry for the east approach is one right-turn lane and one shared through/left-turn lane. The planned lane geometry for the west approach is one shared through/right-turn lane and one shared through/left-turn lane. (Improvements funded by Rubino, under construction by City of San Jose).

Almaden Expressway and Foxworthy Avenue. The improvements at this intersection consist of modifying the east approach to include one left-turn lane and one right-turn lane and removing the westbound through lane. Furthermore, a second eastbound departing lane will be added to the east approach. These improvements will involve modifications to the existing raised right-turn islands on the east leg of the intersection. Foxworthy Avenue, east of Almaden Expressway, will have one westbound and two eastbound travel lanes. The north and south legs of the intersections will also be modified. A second southbound left-turn lane will be added and the existing southbound exclusive right-turn lane will be converted to a shared through/right-turn lane. The rightmost northbound travel lane and the northbound exclusive right-turn lane will be converted into a single shared through/right-turn lane. (Developer funded, to be built by the City of San Jose).

Roadway Improvements

Foxworthy Avenue Bridge. A bridge over Guadalupe River will connect the portion of Foxworthy Avenue west of the river to the section on the east side of the river. With this roadway network change, the travel patterns in the area will change slightly. For this reason, background traffic was reassigned as discussed below. This improvement is currently under construction by the City of San Jose.

Hillsdale Avenue. When the Foxworthy Avenue bridge is constructed, Hillsdale Avenue will be widened to four lanes, as specified in the City of San Jose General Plan, from the SR 87 overcrossing to Canoas Creek. This improvement is currently under construction.

Background Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities under background conditions were assumed to remain unchanged from existing conditions.

Background Transit Service

Transit service under background conditions was assumed to remain unchanged from existing conditions.

Background Intersection Lane Configurations

The intersection lane configurations under background conditions were assumed to be the same as described under existing conditions except with the addition of the planned improvements described above.

Background Traffic Volumes

Background peak-hour traffic volumes were calculated by adding to existing volumes the estimated traffic from approved but not yet constructed developments. The added traffic from approved but not yet constructed developments were provided by the city in the form of the Approved Trips Inventory (ATI).

Foxworthy Bridge Reassignment

With the construction of the Foxworthy Avenue bridge over Guadalupe River, traffic patterns in the area will change slightly. The primary change will result from a new link to Almaden Expressway from the developed areas on Hillsdale Avenue east of SR 87. The Foxworthy Avenue extension (from Guadalupe River to Pearl Avenue) was built with the Rubino residential development. Also part of the Rubino development was the removal of Hillsdale Avenue between Old Almaden Road and Pearl Avenue. This section of Hillsdale Avenue was used, in the past, as the primary connecting link between Almaden Expressway and the developed areas on Hillsdale Avenue east of SR 87. With the Foxworthy Avenue bridge in place, the link will be reestablished.

The reassignment is based on traffic patterns that existed when Hillsdale Avenue was still connected to Old Almaden Road. The primary intersection affected by the reassignment is Pearl Avenue/Foxworthy Avenue and Hillsdale Avenue. The volume shown for this intersection under background conditions is based on a December 1996 count (when Hillsdale was still connected to Old Almaden) with the addition of approved trips, including all Rubino traffic. Also affected by the reassignment is the southbound right-turn at Pearl Avenue and Capitol Expressway. This volume was reduced because traffic from Hillsdale Avenue will no longer have to use Capitol Expressway to access Almaden Expressway when the Foxworthy Bridge is in place. The volume summary tables contained in Appendix C list all reassignments of existing traffic due to the Foxworthy Bridge on the "Redist. of Existing" line.

Background traffic volumes are shown on Figure 7. The ATI are included in Appendix B.

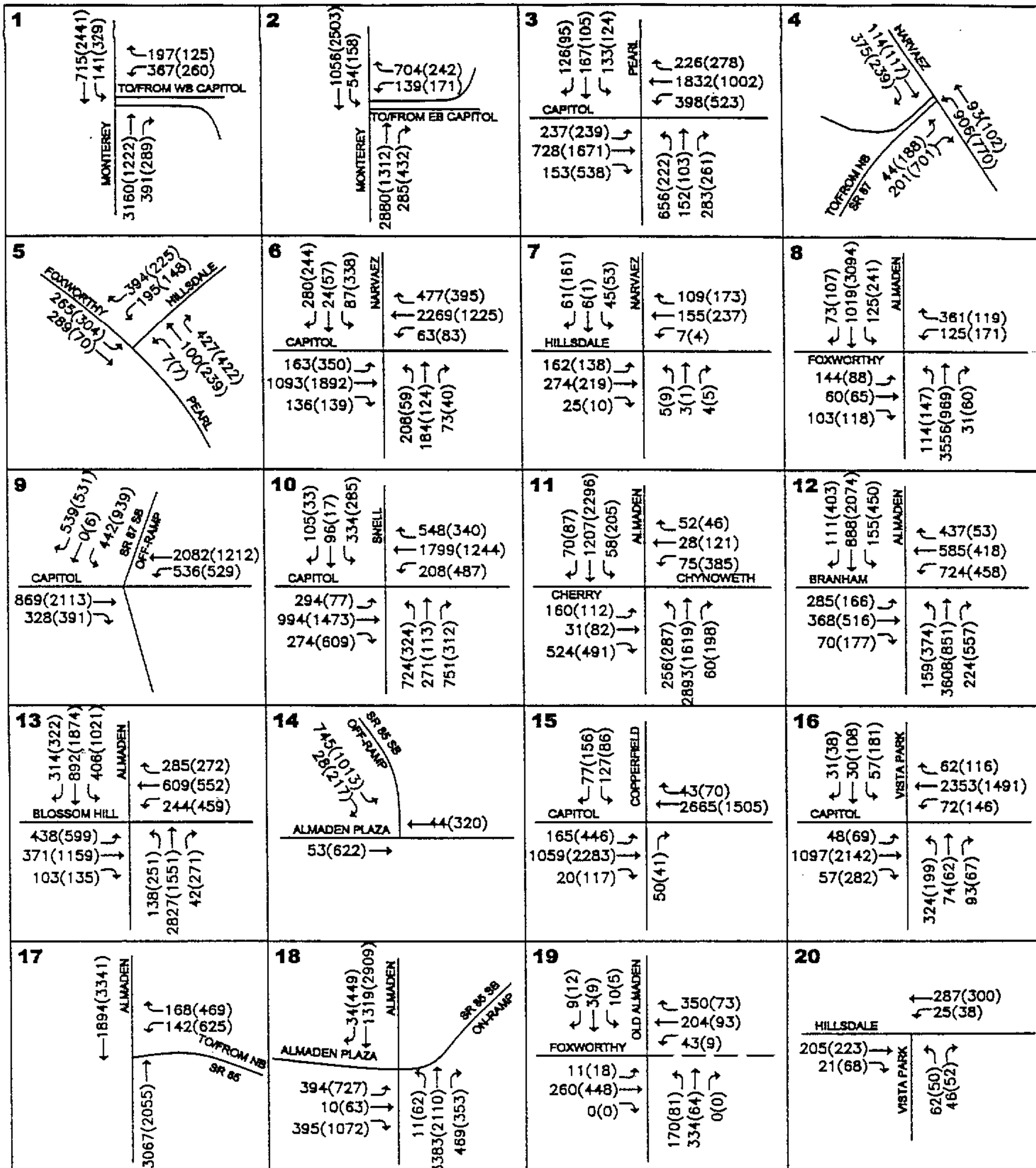
Background Intersection Levels of Service

City of San Jose Intersection Analysis

The results of the intersection level of service analysis under background conditions are summarized in Table 5. The results show that the same four intersections that operate at LOS E or F under existing conditions would also operate at LOS E or F under background conditions.

Almaden Expressway and Branham Lane
Almaden Expressway and Blossom Hill Road
Almaden Expressway and SR 85 (S)/Almaden Plaza Way
SR 87 southbound ramps and Capitol Expressway

The level of service calculation sheets are included in Appendix D.



Legend

XX(XX) = AM(PM) peak hour volumes

Figure 7

BACKGROUND TRAFFIC VOLUMES

Communications Hill

Hexagon Transportation Consultants, Inc.

Table 5
Background Intersection Levels of Service

Intersection	Peak Hour	Count Date	Existing Avg. Delay	Existing LOS	Background Avg. Delay	Background LOS
Capitol Expwy and Monterey Rd (N)*	AM	3/22/00	9.3	B	13.7	B
	PM	3/22/00	10.3	B	11.9	B
Capitol Expwy and Monterey Rd (S)*	AM	3/22/00	25.8	D	29.2	D
	PM	3/22/00	8.7	B	9.2	B
Pearl Ave and Capitol Expwy*	AM	5/10/00	46.4	E	34.2	D
	PM	5/11/00	25.8	D	25.5	D
SR 85 SB off-ramp and Almaden Plaza	AM	5/25/00	4.6	A	4.6	A
	PM	5/25/00	8.5	B	8.7	B
Narvaez Ave and SR 87 NB ramps	AM	5/31/00	9.5	B	11.8	B
	PM	5/31/00	9.4	B	9.7	B
Pearl Ave and Hillsdale Ave	AM	6/1/00	18.6	C	18.4	C
	PM	6/1/00	14.5	B	17.5	C
Almaden Expwy and Foxworthy Ave/a/	AM	5/23/00	15.2	C	25.3	D
	PM	5/23/00	16.9	C	21.1	C
Almaden Expwy and Branham Ln*	AM	6/14/00	75.3	F	76.9	F
	PM	3/14/00	42.7	E	43.9	E
Almaden Expwy and Blossom Hill Rd*	AM	6/15/00	42.6	E	43.7	E
	PM	3/15/00	122.6	F	145.5	F
Almaden Expwy and Cherry Ave	AM	5/24/00	18.6	C	19.0	C
	PM	5/24/00	24.5	C	33.0	D
Almaden Expwy and SR 85 (N)*	AM	6/15/00	5.4	B	5.7	B
	PM	10/1/98	18.2	C	20.4	C
Almaden Exwpy and SR 85 (S)*	AM	6/14/00	14.2	C	14.9	B
	PM	10/1/98	167.5	F	173.1	F
Copperfield Dr and Capitol Expwy	AM	5/18/00	7.0	B	7.7	B
	PM	5/18/00	9.5	B	10.0	B
Narvaez Ave and Capitol Expwy	AM	6/9/00	25.2	D	25.5	D
	PM	3/8/00	28.0	D	28.3	D
Vista Park Dr and Capitol Expwy	AM	5/23/00	16.7	C	17.5	C
	PM	5/23/00	18.0	C	20.2	C
SR 87 SB ramps and Capitol Expwy*/b/	AM	5/11/00	22.4	C	23.4	C
	PM	3/21/00	35.5	D	47.8	E
Snell Ave and Capitol Expwy*	AM	6/8/00	32.5	D	33.9	D
	PM	3/21/00	27.1	D	25.7	D
Hillsdale Avenue and Narvez Avenue	AM	8/26/99	--	--	21.2	C
	PM	8/26/99	--	--	21.5	C
Old Almaden Rd and Foxworthy Avenue/a/	PM	12/18/96	--	--	16.2	C
	PM	12/18/96	--	--	10.8	B

/a/ Background and project conditions include planned improvements.
/b/ The PM TRAFFIX coding was adjusted to get TRAFFIX to calculate an accurate level of service and intersection delay value.
* Denotes CMP intersection

CMP Intersection Analysis

The level of service results for the CMP intersections under background conditions are summarized in Table 5. The results show that the same three CMP intersections that operate at LOS F under existing conditions would also operate at LOS F under background conditions.

Almaden Expressway and Branham Lane
Almaden Expressway and Blossom Hill Road
Almaden Expressway and SR 85 (S)/Almaden Plaza Way

Background Signal Warrants

Peak-hour signal warrants were checked for the one unsignalized intersection to determine whether signalization would be justified on the basis of background peak-hour volumes. The analysis showed that the peak-hour volume warrant would not be satisfied at the unsignalized study intersection. The signal warrant analysis sheets are included in Appendix E.

Background Freeway Segment Levels of Service

The analysis of freeway segment level of service is not required for background conditions, per the City of San Jose and CMP requirements.

4.
Project Impacts and Mitigation Measures

This chapter describes project traffic conditions, significant project impacts, and measures that are recommended to mitigate project impacts. Included are descriptions of the significance criteria that define an impact, estimates of project-generated traffic, identification of the impacts, and descriptions of the mitigation measures. Project conditions are represented by background traffic conditions with the addition of project-related transportation improvements and traffic generated by the project.

Significant Impact Criteria

Significance criteria are used to establish what constitutes an impact. For this analysis there are two sets of relevant criteria for impacts on intersections and freeways. These are based on: (1) the City of San Jose (CSJ) Level of Service standards and (2) the CMP Level of Service standards.

City of San Jose Definition of Significant Intersection Impacts

The project is said to create a significant adverse impact on traffic conditions at a signalized intersection in the City of San Jose if for either peak-hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under project conditions, or
2. The level of service at the intersection is an unacceptable LOS E or F under background conditions and the addition of project trips causes both the critical-movement delay at the intersection to increase by four or more seconds and the demand-to-capacity ratio (V/C) to increase by .01 or more.

An exception to this rule applies when the addition of project traffic reduces the amount of average stopped delay for critical movements (i.e.) the change in average stopped delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by .01 or more.

A significant impact by City of San Jose standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection level of service to background conditions or better.

CMP Definition of Significant Intersection Impacts

The definition of a significant impact at a CMP intersection is the same as for the City of San Jose, except that the CMP standard for acceptable level of service at a CMP intersection is LOS E or better. A significant impact by CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection conditions to LOS E or better.

CMP Definition of Significant Freeway Segment Impacts

A project is said to create a significant adverse impact on traffic conditions on a CMP freeway segment if for either peak-hour:

1. The level of service on the freeway segment is an unacceptable LOS F under project conditions, and

2. The number of project trips on that segment constitutes at least one percent of capacity on that segment.

A significant impact by CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore freeway conditions to LOS E or better.

Future Roadway Network Under Project Conditions

With the exception of project-sponsored roadway and intersection improvements, it is assumed in this analysis that the future near-term roadway network under project conditions would be the same as described under future background conditions. The project-sponsored improvements are described below.

Vistapark Drive and Hillsdale Avenue. The north leg of this intersection will be constructed to serve as an entrance point to the project site.

Project Entrance on Narvaez Avenue. A second project entrance will be constructed at Narvaez Avenue just south of the Helzer residential development.

Connection to the Lancaster Gate Neighborhood. Two connections will be made to the Lancaster Gate neighborhood from the project area west of Vistapark Drive fronting Hillsdale Avenue. This will allow for an alternate access point to the group of units at the base of the hill west of Vistapark Drive. These units also will have access to the main entrance off Vistapark Drive and via a right-turn only driveway to Hillsdale Avenue.

Intersection Lane Configurations Under Project Conditions

The intersection lane configurations under project conditions were assumed to be the same as described under future background conditions except with the addition of the project-sponsored improvements described above.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described further in the following sections.

Trip Generation

Through empirical research, data have been collected that correlate to common land uses their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development.

The magnitude of traffic added to the roadway system by a particular development is estimated by multiplying the applicable trip generation rates to the size of the development. The recommended trip generation rates for use in the City of San Jose are detailed in *Interim Guidelines for Traffic Impact Analysis of Land Use Developments*, 1994. On the basis of these rates, it is estimated that the project would generate 5,738 daily trips, with 574 trips occurring during the AM peak hour and 574 occurring during the PM peak hour. Using the specified inbound/outbound splits, the project would produce 201 inbound trips and 373 outbound trips during the AM peak hour and 373 inbound and 201 outbound trips during the PM peak hour. The project trip generation estimates are presented in Table 6.

Trip Distribution

The trip distribution pattern for the proposed project was estimated based on existing travel patterns on the surrounding roadway system and the locations of complementary land uses. The trip distribution pattern is shown graphically on Figure 8.

Trip Assignment

The peak-hour trips generated by the proposed development were assigned to the roadway system in accordance with the trip distribution pattern discussed above. Figure 9 shows the project trip assignment.

Table 6

Trip Generation Estimates for Communications Hill Residential Development

				AM Peak Hour				PM Peak Hour			
Land Use	Size	Daily Rate/a/	Daily Trips	Peak-Hour Rate	In	Out	Total	Peak-Hour Rate	In	Out	Total
Single Family Attached	765 units	7.5	5,738	0.10	201	373	574	0.10	373	201	574

/a/ Per Unit

Source: City of San Jose Interim Guidelines for Traffic Impact Analysis for Land Developments, "Common Vehicular Trip Generation rates for the San Jose Area," March 1994

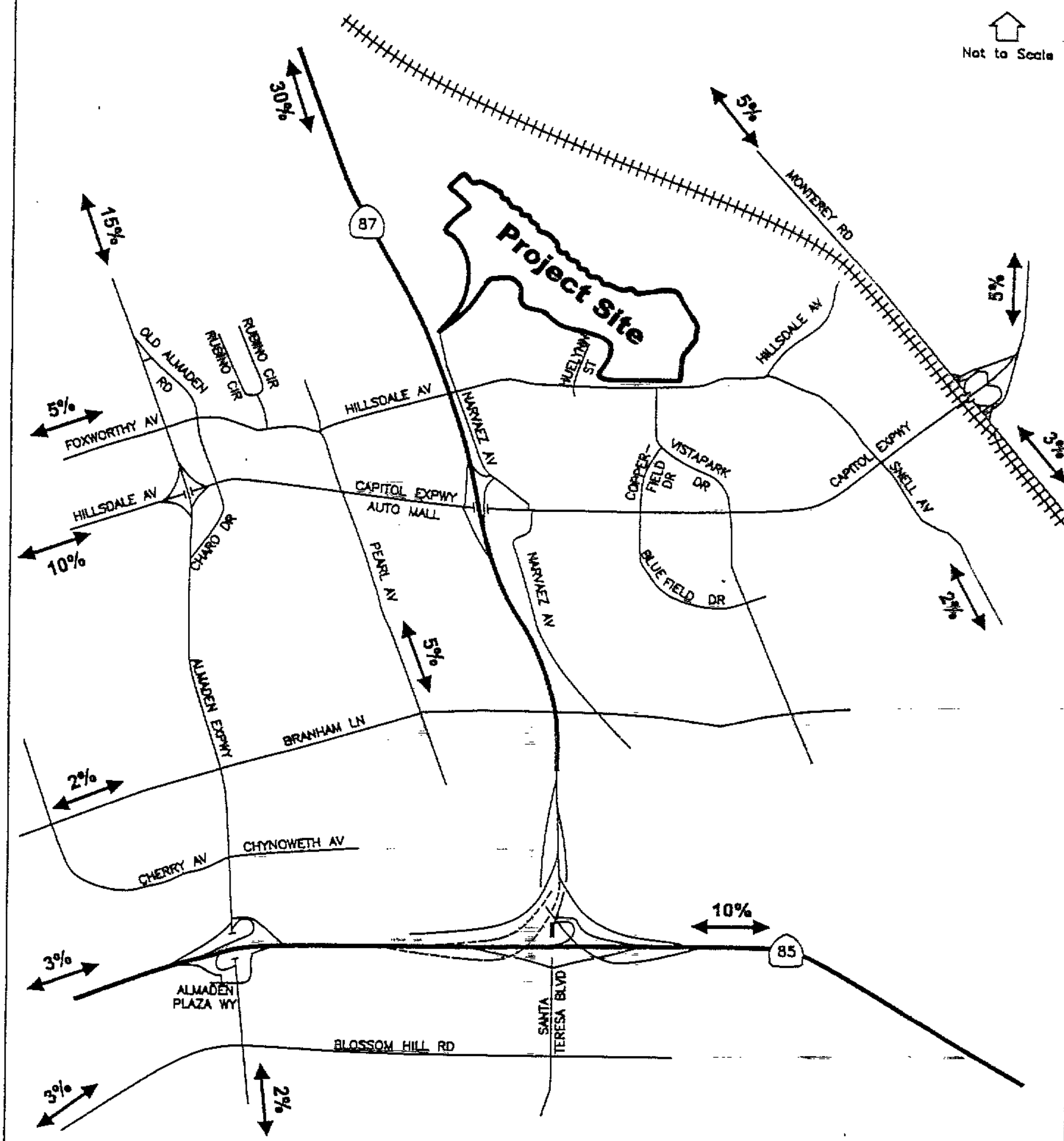
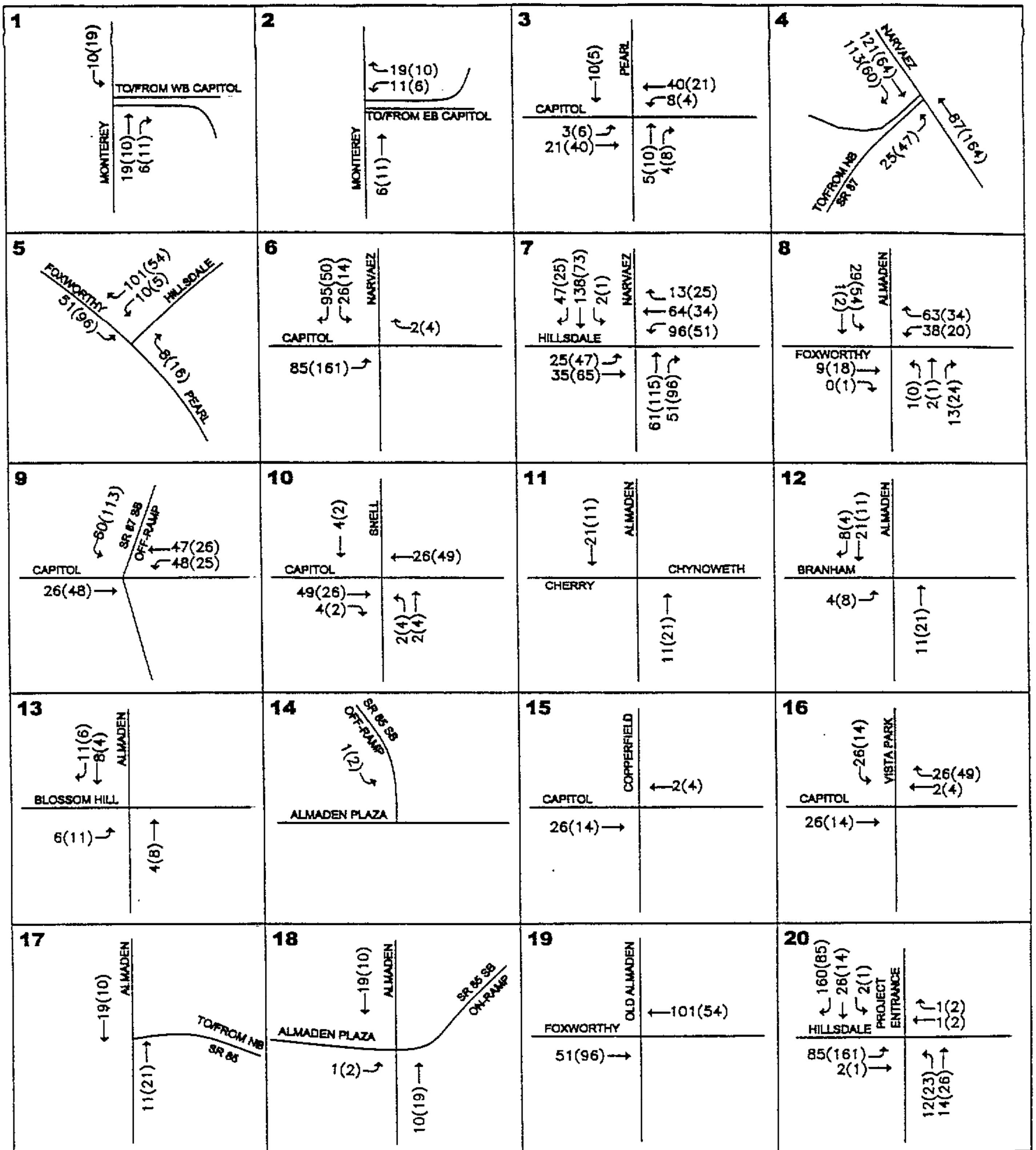


Figure 8

PROJECT TRIP DISTRIBUTION

Communications Hill

Hexagon Transportation Consultants, Inc.



Legend

XX(XX) = AM(PM) peak hour volumes

Figure 9

PROJECT TRIP ASSIGNMENT

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Communications Hill

Project Traffic Volumes

Project trips, as represented in the above project trip assignment, were added to future background traffic volumes to obtain background plus project traffic volumes. Background traffic volumes plus project trips are typically referred to simply as *project traffic volumes*; this is contrasted with the term *project trips*, which is used to signify the traffic that is produced specifically by the project. The project traffic volumes are shown graphically on Figure 10. Traffic volumes for all components of traffic are tabulated in Appendix C.

Project Intersection Analysis

The results of the level of service analysis under project conditions are summarized in Table 7. The results show that of the four signalized intersections projected to operate at LOS E or F, the following intersection would be significantly impacted by the project according to the City of San Jose definition of impacts:

SR 87 southbound ramps and Capitol Expressway

This intersection also would be impacted according to the CMP definition of significant impacts.

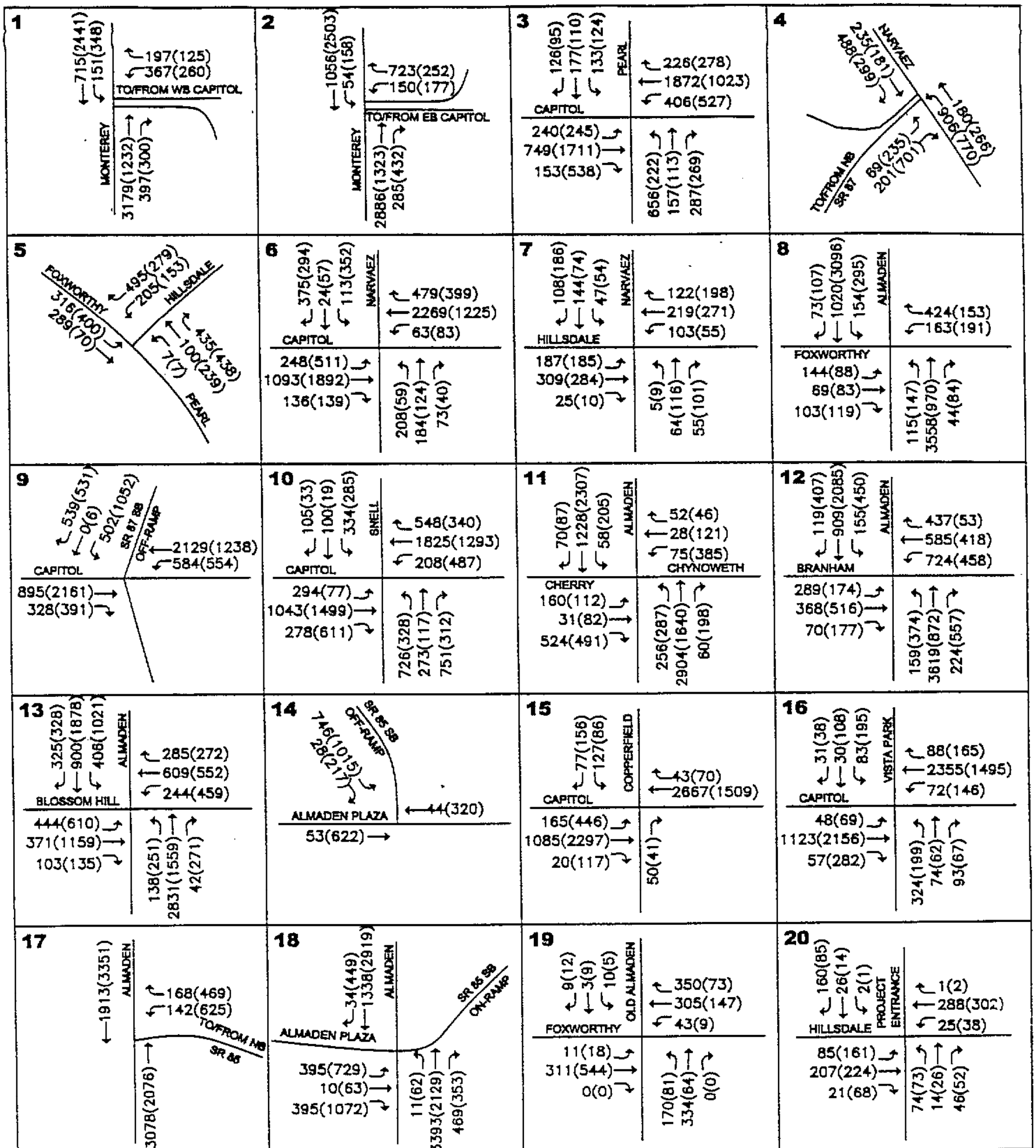
Intersection Impacts and Mitigation Measures

Described below is the intersection impact and recommended mitigation measures.

SR 87 southbound ramps and Capitol Expressway

Impact: Level of service would be LOS E under background conditions and the addition of project traffic would cause the level of service to degrade to LOS F. This constitutes a significant impact by CSJ and CMP standards.

Mitigation Measure. Convert the eastbound exclusive right-turn lane to a shared through/right-turn lane. This improvement can be made by restriping the eastbound approach. The fourth eastbound through lane would flow into the existing curb lane under the SR 87 overcrossing, which transitions to an exclusive right-turn lane at Narvaez Avenue. With the added capacity of the additional eastbound lane, the minimum green time for that approach can be reduced from 85 second to 78 seconds and the minimum green time for the westbound approach can be reduced to 92 seconds. With the implementation of these improvements, level of service would be improved to better than background conditions (LOS E with 46.1 seconds of average delay).



Legend

XX(XX) = AM(PM) peak hour volumes

Figure 10

PROJECT TRAFFIC VOLUMES

Communications Hill

Hexagon Transportation Consultants, Inc.

Table 7
Project Intersection Levels of Service

Intersection	Peak Hour	Peak Hour	Background Avg. Delay	Background LOS	Project Avg. Delay	Project LOS	Project Inc. in Crit. Delay	Project Inc. in Crit. V/C	Mitigated Avg. Delay	Mitigated LOS
Capitol Expwy and Monterey Rd (N)*	AM	3/22/00	13.7	B	14.0	B	0.3	0.007		
	PM	3/22/00	11.9	B	12.2	B	0.0	0.000		
Capitol Expwy and Monterey Rd (S)*	AM	3/22/00	29.2	D	31.0	D	2.4	0.013		
	PM	3/22/00	9.2	B	9.4	B	0.2	0.002		
Pearl Ave and Capitol Expwy*	AM	5/10/00	34.2	D	34.3	D	0.1	0.009		
	PM	5/11/00	25.5	D	25.5	D	0.0	0.010		
SR 85 SB off-ramp and Almaden Plaza	AM	5/25/00	4.6	A	4.6	A	0.0	0.000		
	PM	5/25/00	8.7	B	8.7	B	0.0	0.001		
Narvaez Ave and SR 87 NB ramps	AM	5/31/00	11.8	B	12.5	B	5.1	0.219		
	PM	5/31/00	9.7	B	10.7	B	1.5	0.038		
Pearl Ave and Hillsdale Ave	AM	6/1/00	18.4	C	18.7	C	0.5	0.005		
	PM	6/1/00	17.5	C	17.8	C	0.7	0.045		
Almaden Expwy and Foxworthy Ave/a/	AM	5/23/00	25.3	D	29.6	D	5.7	0.041		
	PM	5/23/00	21.1	C	22.6	C	1.0	0.011		
Almaden Expwy and Branham Ln*	AM	6/14/00	76.9	F	77.7	F	1.8	0.003		
	PM	3/14/00	43.9	E	43.9	E	0.0	0.002		
Almaden Expwy and Blossom Hill Rd*	AM	6/15/00	43.7	E	43.8	E	0.4	0.003		
	PM	3/15/00	145.5	F	146.4	F	-0.3	0.002		
Almaden Expwy and Cherry Ave	AM	5/24/00	19.0	C	19.0	C	0.1	0.002		
	PM	5/24/00	33.0	D	33.1	D	0.1	0.002		
Almaden Expwy and SR 85 (N)*	AM	6/15/00	5.7	B	5.7	B	0.0	0.002		
	PM	10/1/98	20.4	C	20.4	C	0.1	0.007		
Almaden Exwpy and SR 85 (S)*	AM	6/14/00	14.9	B	14.8	B	-0.1	0.003		
	PM	10/1/98	173.1	F	172.5	F	-0.5	0.001		
Copperfield Dr and Capitol Expwy	AM	5/18/00	7.7	B	7.7	B	0.0	0.000		
	PM	5/18/00	10.0	B	10.0	B	0.0	0.001		
Narvaez Ave and Capitol Expwy	AM	6/9/00	25.5	D	29.9	D	**5.2**	**0.088**		
	PM	3/8/00	28.3	D	30.0	D	**5.2**	**0.051**		
Vista Park Dr and Capitol Expwy	AM	5/23/00	17.5	C	17.6	C	0.0	0.000		
	PM	5/23/00	20.2	C	20.5	C	0.7	0.011		
SR 87 SB ramps and Capitol Expwy*/b/	AM	5/11/00	23.4	C	25.1	D	25.4	0.032	25.3	D
	PM	3/21/00	47.8	E	**71.7**	**F**	**33.5**	**0.052**	46.1	E
Snell Ave and Capitol Expwy*	AM	6/8/00	33.9	D	33.9	D	0.0	0.006		
	PM	3/21/00	25.7	D	25.7	D	0.0	0.006		
Hillsdale Avenue and Narvez Avenue	AM	8/26/99	21.2	C	24.2	C	1.5	0.194		
	PM	8/26/99	21.5	C	24.4	C	2.6	0.176		
Old Almaden Rd and Foxworthy Avenue/a/	AM	12/18/96	16.2	C	16.8	C	0.0	0.000		
	PM	12/18/96	10.8	B	9.9	B	-0.8	0.030		

/a/ Background and project conditions include planned improvements.
/b/ The PM TRAFFIX coding was adjusted to get TRAFFIX to calculate an accurate level of service and intersection delay value.
Bold denotes significant impact
* Denotes CMP intersection

Project Freeway Segment Analysis

Project traffic volumes on freeway segments were calculated by adding to existing freeway volumes the estimated project trips on freeway segments. The results of the analysis are summarized in Table 8. The results show that of the three directional freeway segments projected to operate at LOS F, all would be impacted by the project according to the CMP definition of freeway impacts:

SR 87 northbound, Curtner Avenue to Almaden Expressway (AM peak hour)
SR 87 northbound, Almaden Expressway to Alma Avenue (AM peak hour)
SR 87 southbound, I-280 to Alma Avenue (PM peak hour)

The ramp meter on the northbound SR 87 on-ramp from Narvaez Avenue causes excessive queues to back up onto Narvaez Avenue that extend as far back as Capitol Expressway. This in mainly due to insufficient capacity on the freeway to accommodate existing traffic demand. The project will add traffic to this ramp during the AM peak hour, which will likely increase the length of the queue on Narvaez Avenue. However, all of the project traffic will be coming from the north, whereas, the existing queue extends to the south. Furthermore, motorist will only tolerate a certain level of delay, at which point, they will find alternate routes to the freeway or travel at different times. This means that the queue length on Narvaez will not extend much further than it already does under existing conditions.

There is a Measure A/B project planned for SR 87 that will add HOV lanes in each direction, upgrading the freeway to a six-lane facility (2 mixed flow lanes and 1 HOV lane in each direction). While the addition of HOV lanes on SR 87 will help alleviate traffic congestion on SR 87, including increased congestion resulting from the project, it is unlikely that this freeway upgrade will be completed before the project is completed. Furthermore, because the addition of HOV lanes on SR 87 is a regional transportation project, the City of San Jose cannot ensure that these freeway improvements will be implemented. For these reasons, this is considered a significant unavoidable impact.

Other Transportation Issues

Signal Warrant Analysis

Peak-hour signal warrants were checked for the one unsignalized intersection to determine whether signalization would be justified on the basis of project peak-hour volumes. The analysis showed that the peak-hour volume warrant would not be satisfied at the unsignalized study intersection. The results of the signal warrant analysis are summarized in Table 9. The signal warrant analysis sheets are included in Appendix E.

Table 8
Freeway Segment Levels of Service - Project Conditions

				Existing + Project Trips					Project Trips	
Freeway	Segment	Direction	Peak Hour	Ave. Speed/a/	# of Lanes	Volume/a/	Density	LOS	Volume	% Capacity
SR 87	SR 85 to Capitol Expwy	NB	AM	65	2	2,155	16.6	C	25	0.5%
			PM	60	2	3,677	30.6	D	47	1.0%
SR 87	Capitol Expwy to Curtner Avenue	NB	AM	60	2	3,373	28.1	D	113	2.5%
			PM	60	2	3,000	25.0	D	60	1.3%
SR 87	Curtner Avenue to Almaden Expwy	NB	AM	25	2	3,503	70.1	F	**113**	**2.5%**
			PM	60	2	2,770	23.1	C	60	1.3%
SR 87	Almaden Expwy to Alma Av	NB	AM	25	2	3,263	65.3	F	**113**	**2.5%**
			PM	50	2	4,410	44.1	D	60	1.3%
SR 87	Alma Av to I-280	NB	AM	60	2	4,243	35.4	D	113	2.5%
			PM	60	2	3,530	29.4	D	60	1.3%
SR 87	I-280 to Alma Avenue	SB	AM	65	2	2,520	19.4	C	60	1.4%
			PM	10	2	2,583	129.2	F	**113**	**2.6%**
SR 87	Alma Avenue to Almaden Expwy	SB	AM	65	2	2,230	17.2	C	60	1.4%
			PM	60	2	4,113	34.3	D	113	2.6%
SR 87	Almaden Expwy to Curtner Avenue	SB	AM	65	2	950	7.3	A	60	1.4%
			PM	60	2	2,663	22.2	C	113	2.6%
SR 87	Curtner Avenue to Capitol Exwpy	SB	AM	65	2	1,760	13.5	B	60	1.4%
			PM	60	2	3,293	27.4	D	113	2.5%
SR 87	Capitol Expwy to SR 85	SB	AM	65	2	827	6.4	A	47	1.0%
			PM	60	2	2,215	18.5	C	25	0.5%

/a/ Source: Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 1998.

Table 9
Signal Warrant Analysis Summary

	Peak Hour	Count Date	Existing Warrant Met?	Background Warrant Met?	Project Conditions Warrant Met?	Project Conditions LOS
Vistapark Dr/Proj. Ent. and Hillsdale Ave	AM	6/20/00	NO	NO	NO	C
	PM	6/20/00	NO	NO	NO	C

Note: Reported LOS is based on existing or planned intersection geometry with signalization.

Intersection Operations Analysis

The analysis of project intersection level of service was supplemented with an analysis of intersection *operations* for selected unsignalized and signalized intersections. The operations analysis is based on vehicle queuing for high-demand turning movements at intersections. The basis of the analysis is as follows: (1) the TRAFFIX intersection analysis software is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 20 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future storage requirements at intersections.

The analysis indicated that the estimated maximum vehicle queues for some of the high-demand movements would exceed the existing or planned vehicle storage capacity under project conditions. The following intersections would have inadequate storage capacity under project conditions:

Almaden Expressway and Foxworthy Avenue (WBL)
Narvaez Avenue and Capitol Expressway (EBL)
Narvaez Avenue and Hillsdale Avenue (EBL)

The intersection of Narvaez Avenue and Hillsdale Avenue is currently under construction. The planned length of the eastbound left-turn pocket is 150 feet. The operational analysis indicates that the eastbound left-turn lane should be designed to be at least 180 feet long.

The TRAFFIX queue estimates and a tabulated summary of the findings are provided in Table 10.

Field observations revealed that the TRAFFIX software overestimates the queue lengths at the intersection of SR 87 southbound ramps and Capitol Expressway. The queue lengths observed in the field are well below the capacity of each of the movements. The additional vehicles in queue added by the project would not cause the queues to grow beyond the capacity of the movements. Therefore, the project would not cause any operational problems at this intersection.

Table 10
Turn-Pocket Storage Analysis

			Project Conditions				
Intersection	Peak Hour	Mvmt.	Existing # Lanes	Total Existing Storage ft.	Vehicle Queue[1]	Total Required Storage ft.[2]	Comments
Almaden Expwy and Foxworthy Ave	PM	WBL	1	155	16	320	Lengthen pocket to 320'.
	PM	SBL	1	550	23	460	Adequate storage provided.
Pearl Ave and Hillsdale Ave/Foxworthy Ave	AM	WBL	2	305	8	160	Adequate storage provided.
	PM	SBL	2	410	16	320	Adequate storage provided.
Narvaez Ave and Hillsdale Ave	PM	EBL	1	150	9	180	Lengthen pocket to 180'.
Vistapark Dr/Proj. Ent. And Hillsdale Ave	PM	EBL	--	--	7	140	Design pocket to provide at least 140 feet of storage.
	PM	NBL	1	395	4	80	Adequate storage provided.
Pearl Ave and Capitol Expwy	AM	EBL	2	380	19	380	Adequate storage provided.
SR 87 NB ramps and Narvaez Ave	PM	EBL	1	275	8	160	Adequate storage provided.
Narvaez Ave and Capitol Expwy	PM	SBL	2	380	27	540	Shared though/left can queue back to 87 off-ramp
	PM	EBL	2	595	34	680	Lengthen each pocket 45 feet.
Vistapark Dr and Capitol Expwy	PM	SBL	1	300	14	280	Adequate storage provided.
	PM	EBL	1	135	6	120	Adequate storage provided.

Note: Vehicle queue calculations based on signalized intersection conditions.
1 'In # of vehicles, based on design vehicle queue calculated by TRAFFIX.
2 Calculated based on TRAFFIX output as follows: ((Design Veh. Queue x Ave length of veh. (20')/number of lanes).

Recommended Improvements

Almaden Expressway and Foxworthy Avenue. Extend the existing westbound left-turn pocket to the maximum available length. This improvement can be made by restriping the westbound approach and may require some curb and sidewalk removal, depending on the length of the extension. Project trips account for only a portion of the traffic added to this intersection, therefore, the project should pay a fair share toward the cost of this improvement.

Narvaez Avenue and Capitol Expressway. Extend each of the existing eastbound left-turn lanes 45 feet. This improvement will require modifications to the existing raised median island. Project trips account for only a portion of the traffic added to this intersection, therefore, the project should pay a fair share toward the cost of this improvement.

Narvaez Avenue and Hillsdale Avenue. Lengthen the future eastbound left-turn lane from 150 feet to 180 feet. Since project traffic will account for a portion of the traffic added to this intersection, the project should pay a fair share toward the cost of this improvement.

Site Access and On-Site Circulation

The site plan shows two access roads leading to the project site, one from Narvaez Avenue and the other from Hillsdale Avenue. In addition, there will be two right-turn only driveways on Hillsdale Avenue: one just east of Vistapark Drive that serves the small group of units at the base of the hill (east of Vistapark Drive) and one to serve the larger group of units at the base of the hill (west of Vistapark Drive). This group of units also will have access to the road intersecting Hillsdale Avenue west of Vistapark Drive via two connections to the existing Lancaster Gate neighborhood. Both groups of units at the base of the hill will also have access to the main project access road (Vistapark Drive). The Narvaez Avenue access road has a right-of-way (ROW) of approximately 45 feet and leads through the southern portion of the Helzer residential development fronting a row of houses. This access road is narrow and has a steep grade (approximately 14% at the steepest point) and should be designated as a secondary entrance to the project.

The main access road has a 90-foot ROW and begins at the intersection of Vistapark Drive and Hillsdale Avenue and leads up the hill making a 90-degree turn where it becomes a narrower road (50-foot ROW) leading to the project. The main (90-foot ROW) access road will eventually continue from where it terminates, at the 90-degree bend, and lead over the hill eventually connecting to Curtner Avenue as Communications Hill builds out. With the extension of the main access road, the 90-degree bend will become a "T" intersection. The main access road has a grade of 12% at the steepest point. The access on Hillsdale Avenue should be designated as the primary access point to the project site. Appropriate measures should be taken to ensure that the Hillsdale Avenue access point serves as the main project entrance.

The layout of the on-site roadways appears to provide adequate circulation within the site. However, several on-site intersections are located adjacent to curves in the street. These locations may pose horizontal sight distance issues, depending on building setbacks and the height of any obstructing objects. Furthermore, because of the hilly terrain upon which the project is located, there may be some vertical sight distance issues as well. Any future traffic control devices should be selected and located such that sight distance problems do not create any safety concerns. These improvements should be coordinated with the City of San Jose.

Bicycle and Pedestrian Circulation

The evaluation of bicycle, transit, and pedestrian facilities showed that demand for such facilities would increase with the construction of the project. New and unimproved streets in the area will be designed to standard City of San Jose widths to safely accommodate bicycle traffic. Sidewalks will also be built on new and unimproved streets. Hillsdale Avenue currently has several sections where the street is not widened to the planned width and no sidewalks are available. The sections are mainly under the SR 87 overpass and east of SR 87. As part of the Rubino residential development, the section of Hillsdale Avenue from SR 87 to Canoas Creek will be widened to four lanes and sidewalks will be constructed. These improvements are currently under construction. The remaining section along the project frontage should have sidewalks installed by the project.

Transit Service

There are currently two bus routes that operate in the project area. However, due to the projects unique location, hilly terrain would have to be negotiated by any persons wishing to walk from the project site to the nearest bus stop. Therefore, the project would create demand for local bus service that would not be met by existing service. Therefore, as Communications Hill builds out, it may be desirable to extend a bus route into the development or within reasonable walking distance of the project site.

5.
Future Growth Conditions

This chapter presents a summary of the traffic conditions that would occur under future growth conditions. The purpose of analyzing future growth conditions is to assess the traffic conditions that would occur at the time that the proposed development becomes occupied. For this analysis, the assumed occupancy date is June 2002. The analysis of future growth conditions is required by the CMP and includes an analysis of level of service for CMP intersections only.

Roadway Network Under Future Growth Conditions

All of the roadway improvements that were assumed to be completed under project conditions were also included under future growth conditions. However, future growth conditions do not include implementation of the project mitigation measures. Thus, the intersection lane configurations under future growth conditions were assumed to be the same as described under project conditions.

Future Growth Traffic Volumes

Traffic volumes under future growth conditions were estimated by applying to the existing volumes an annual growth rate of two percent, then adding the trips from approved developments and the project trips.

Intersection Levels of Service Under Future Growth Conditions

CMP Intersection Analysis

The level of service results for the CMP intersections under future growth conditions are summarized in Table 11. The results show that four of the CMP study intersections would operate at LOS F during at least one of the peak hours under future growth conditions. The future growth traffic volumes and the intersection level of service calculations are included in Appendix D.

Table 11
CMP Intersection Levels of Service Under Future Growth Conditions

Intersection	Peak Hour	Count Date	Avg. Delay	LOS
Capitol Expwy and Monterey Rd (N)*	AM	36607	14.4	B
	PM	36607	12.2	B
Capitol Expwy and Monterey Rd (S)*	AM	3/22/00	37.3	D
	PM	3/22/00	9.5	B
Pearl Ave and Capitol Expwy*	AM	5/10/00	35.3	D
	PM	5/11/00	25.9	D
Almaden Expwy and Branham Ln*	AM	5/25/00	94.5	F
	PM	5/25/00	46.0	E
Almaden Expwy and Blossom Hill Rd*	AM	5/31/00	47.3	E
	PM	5/31/00	168.9	F
Almaden Expwy and SR 85 (N)*	AM	6/15/00	5.8	B
	PM	10/1/98	23.0	C
Almaden Exwpy and SR 85 (S)*	AM	6/14/00	15.1	C
	PM	10/1/98	198.7	F
SR 87 SB ramps and Capitol Expwy*/b/	AM	5/11/00	25.3	D
	PM	3/21/00	82.3	F
Snell Ave and Capitol Expwy*	AM	6/8/00	34.5	D
	PM	3/21/00	26.1	D

/a/ Background and project conditions include planned improvements.
/b/ The PM TRAFFIX coding was adjusted to get TRAFFIX to calculate an accurate level of service and intersection delay value.
* Denotes CMP intersection

6. Conclusions

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of San Jose and the Congestion Management Program (CMP) of Santa Clara County. The study included the analysis of AM and PM peak-hour traffic conditions for 16 signalized intersections, 1 unsignalized intersection, 2 intersections were signalization is planned, and 5 freeway segments.

The impacts of the project on intersections and freeways were identified on the basis of the City of San Jose (CSJ) Level of Service standards and the CMP Level of Service standards.

Project Impacts

Listed below are the transportation facilities that would be impacted by the project and the criteria by which the impacts were determined to occur:

SR 87 southbound ramps and Capitol Expressway – CSJ LOS, CMP LOS
SR 87 northbound, Curtner Avenue to Almaden Expressway – CMP LOS
SR 87 northbound, Almaden Expressway to Alma Avenue – CMP FWY LOS
SR 87 southbound, I-280 to Alma Avenue – CMP FWY LOS

Mitigation Measures

The following measures have been recommended to mitigate the project impacts:

SR 87 southbound ramps and Capitol Expressway. Convert the eastbound exclusive right-turn lane to a shared through/right-turn lane. This improvement can be made by restriping the eastbound approach. With the added capacity of the additional eastbound lane, the minimum green time for that approach can be reduced from 85 second to 78 seconds and the minimum green time for the westbound approach can be reduced to 92 seconds.

Freeway Segments. It is not feasible for any single development to pay for improvements to freeway segments, such as adding additional lanes, to add capacity to accommodate additional demand generated by project traffic. There is a Measure A/B project planned for SR 87 that will add HOV lanes in each direction, upgrading the freeway to a six-lane facility (2 mixed flow lanes and 1 HOV lane in each direction). However, it is unlikely that this freeway upgrade will be completed before the project is completed, therefore, this improvement cannot be considered as mitigation.

3091
Intersection Name: Capitol Expwy & Monterey (N)
Peak Hour: AM
Date of Analysis: 6/20/00
Scenario:
Count Date: 3/22/2000
(SJ) Growth Factor: 0.003
Future Growth % Per Year: 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	370	110	175	0	156	356	2985	0	0	0	0
Redist. of existing												
Approved Trips	0	345	31	21	0	211	35	175	0	0	0	0
Redist. of App Trips												
Background Volumes	0	715	141	197	0	367	391	3160	0	0	0	0
Project Trips	0	0	10	0	0	0	6	19	0	0	0	0
Project Conditions	0	715	151	197	0	367	397	3179	0	0	0	0
Future Growth Conditions	0	730	155	204	0	373	411	3298	0	0	0	0

3092
Intersection Name: Capitol Expwy & Monterey (S)
Peak Hour: AM
Date of Analysis: 6/20/00
Scenario:
Count Date: 3/22/2000
(SJ) Growth Factor: 0.003
Future Growth % Per Year: 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	511	43	654	0	54	226	2720	0	0	0	0
Redist. of existing												
Approved Trips	0	545	11	50	0	85	59	160	0	0	0	0
Redist. of App Trips												
Background Volumes	0	1056	54	704	0	139	285	2880	0	0	0	0
Project Trips	0	0	0	19	0	11	0	6	0	0	0	0
Project Conditions	0	1056	54	723	0	150	285	2886	0	0	0	0
Future Growth Conditions	0	1076	56	749	0	152	294	2995	0	0	0	0

3120

Intersection Name:	Pearl Ave	& Capitol Expwy	
Peak Hour:	AM	Date of Analysis:	6/20/00
Scenario:		Count Date:	5/10/2000
(SJ) Growth Factor:	0.003	Future Growth % Per Year:	0.020
(SJ) Number of Months:	0.0	Number of Years to Buildout:	2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	479	150	90	203	1783	378	259	146	656	153	683	223
Redist. of existing	-330											
Exist. Rubino Trips (60% o	-69	0	0	0	0	0	0	0	0	0	0	0
Approved Trips	46	17	43	23	49	20	24	6	0	0	45	14
Redist. of App Trips												
Background Volumes	126	167	133	226	1832	398	283	152	656	153	728	237
Project Trips	0	10	0	0	40	8	4	5	0	0	21	3
Project Conditions	126	177	133	226	1872	406	287	157	656	153	749	240
Future Growth Conditions	145	183	137	234	1943	421	297	163	682	159	776	249

3208

Intersection Name:	Narvaez Av	& SR 87 NB ramps	
Peak Hour:	AM	Date of Analysis:	6/20/00
Scenario:		Count Date:	5/31/00
(SJ) Growth Factor:	0.003	Future Growth % Per Year:	0.020
(SJ) Number of Months:	0.0	Number of Years to Buildout:	2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	275	103	0	0	0	0	0	88	802	168	0	35
Redist. of existing												
Approved Trips	100	11	0	0	0	0	0	5	104	33	0	9
Redist. of App Trips												
Background Volumes	375	114	0	0	0	0	0	93	906	201	0	44
Project Trips	113	121	0	0	0	0	0	87	0	0	0	25
Project Conditions	488	235	0	0	0	0	0	180	906	201	0	69
Future Growth Conditions	499	239	0	0	0	0	0	184	938	208	0	70

3587

Intersection Name:	Pearl Ave	& Hillsdale Ave	
Peak Hour:	AM	Date of Analysis:	6/20/00
Scenario:		Count Date:	6/1/00
(SJ) Growth Factor:	0.003	Future Growth % Per Year:	0.020
(SJ) Number of Months:	0.0	Number of Years to Buildout:	2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing (6/1/00 count) without Foxworthy open	0	174	42	55	0	505	412	117	7	0	0	0
Existing (12/11/96 count) with Foxworthy open	0	160	110	384	0	174	412	100	7	0	0	0
Existing Rubino Trips (60% occ.)		75	84	0	0	0	0	0	0	0	0	0
Approved Trips	0	54	71	10	0	21	15	0	0	0	0	0
Redist. of App Trips												
Background Volumes	0	289	265	394	0	195	427	100	7	0	0	0
Project Trips	0	0	51	101	0	10	8	0	0	0	0	0
Project Conditions	0	289	316	495	0	205	435	100	7	0	0	0
Future Growth Conditions	0	295	320	510	0	212	451	104	7	0	0	0

=existing (12/11/96 count) + existing Rubino traffic + approved trips

5711

Intersection Name:	Narvaez Ave	& Capitol Expwy	
Peak Hour:	AM	Date of Analysis:	6/20/00
Scenario:		Count Date:	6/9/2000
(SJ) Growth Factor:	0.003	Future Growth % Per Year:	0.020
(SJ) Number of Months:	0.0	Number of Years to Buildout:	2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	260	24	59	398	2149	60	67	184	201	130	978	144
Redist. of existing												
Approved Trips	20	0	28	79	120	3	6	0	7	6	115	19
Redist. of App Trips												
Background Volumes	280	24	87	477	2269	63	73	184	208	136	1093	163
Project Trips	95	0	26	2	0	0	0	0	0	0	0	85
Project Conditions	375	24	113	479	2269	63	73	184	208	136	1093	248
Future Growth Conditions	385	25	115	495	2355	65	76	191	216	141	1132	254

3849

Intersection Name: Narvaez & Hillsdale

Peak Hour: AM — Date of Analysis: 6/20/00

Scenario: — Count Date: 8/26/99

(SJ) Growth Factor: 0.003 — Future Growth % Per Year: 0.020

(SJ) Number of Months: 0.0 — Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	61	6	45	109	151	0	1	3	1	5	269	162
Redist. of existing												
Approved Trips	0	0	0	0	4	7	3	0	4	20	5	0
Redist. of App Trips												
Background Volumes	61	6	45	109	155	7	4	3	5	25	274	162
Project Trips	47	138	2	13	64	96	51	61	0	0	35	25
Project Conditions	108	144	47	122	219	103	55	64	5	25	309	187
Future Growth Conditions	110	144	49	126	225	103	55	64	5	25	320	193

5506

Intersection Name: Almaden & Foxworthy

Peak Hour: AM — Date of Analysis: 6/20/00

Scenario: — Count Date: 5/23/00

(SJ) Growth Factor: 0.003 — Future Growth % Per Year: 0.020

(SJ) Number of Months. 0.0 — Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	73	1013	39	204	40	38	15	3567	114	103	22	1[illegible]
Redist. of existing			82	129	-40	49	16				38	
Existing Rubino Trips (60% occ.)		0	0	17	0	23	0	-17	0	0	0	0
Approved Trips	0	6	4	11	0	15	0	6	0	0	0	0
Redist. of App Trips												
Background Volumes	73	1019	125	361	0	125	31	3556	114	103	60	144
Project Trips	0	1	29	63	0	38	13	2	1	0	9	0
Project Conditions	73	1020	154	424	0	163	44	3558	115	103	69	144
Future Growth Conditions	76	1061	156	432	0	165	45	3701	120	107	70	150

5713
Intersection Name: SR 87 & Capitol Expwy.
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0
Date of Analysis: 6/20/00
Count Date: 5/11/2000
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	498	0	399	0	1976	505	0	0	0	280	772	0
Redist. of existing												
Approved Trips	41	0	43	0	106	31	0	0	0	48	97	0
Redist. of App Trips												
Background Volumes	539	0	442	0	2082	536	0	0	0	328	869	0
Project Trips	0	0	60	0	47	48	0	0	0	0	26	0
Project Conditions	539	0	502	0	2129	584	0	0	0	328	895	0
Future Growth Conditions	559	0	518	0	2208	604	0	0	0	339	926	0

5715
Intersection Name: Snell Ave & Capitol Expwy
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0
Date of Analysis: 6/20/00
Count Date: 6/8/00
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	105	84	310	538	1734	185	709	269	609	191	903	294
Redist. of existing												
Approved Trips	0	12	24	10	65	23	42	2	115	83	91	0
Redist. of App Trips												
Background Volumes	105	96	334	548	1799	208	751	271	724	274	994	294
Project Trips	0	4	0	0	26	0	0	2	2	4	49	0
Project Conditions	105	100	334	548	1825	208	751	273	726	278	1043	294
Future Growth Conditions	109	103	346	570	1894	215	779	284	750	286	1079	306

5521

Intersection Name:	Almaden Exwpy & Cherry Ave		
Peak Hour:	AM	Date of Analysis:	6/20/00
Scenario:		Count Date:	5/24/00
(SJ) Growth Factor:	0.003	Future Growth % Per Year:	0.020
(SJ) Number of Months:	0.0	Number of Years to Buildout:	2.0

Scenario:	North Approach RT	TH	LT	East Approach RT	TH	LT	South Approach RT	TH	LT	West Approach RT	TH	LT
Existing	70	1184	51	47	19	40	3	2882	253	521	16	160
Redist. of existing												
Approved Trips	0	23	7	5	9	35	57	11	3	3	15	0
Redist. of App Trips												
Background Volumes	70	1207	58	52	28	75	60	2893	256	524	31	160
Project Trips	0	21	0	0	0	0	0	11	0	0	0	0
Project Conditions	70	1228	58	52	28	75	60	2904	256	524	31	160
Future Growth Conditions	73	1275	60	54	29	77	60	3019	266	545	32	166

5512

Intersection Name:	Almaden Expwy & Branham Ln		
Peak Hour:	AM	Date of Analysis:	6/20/00
Scenario:		Count Date:	6/14/00
(SJ) Growth Factor:	0.003	Future Growth % Per Year:	0.020
(SJ) Number of Months:	0.0	Number of Years to Buildout:	2.0

Scenario:	North Approach RT	TH	LT	East Approach RT	TH	LT	South Approach RT	TH	LT	West Approach RT	TH	LT
Existing	110	862	152	437	577	719	216	3593	157	66	363	285
Redist. of existing												
Approved Trips	1	26	3	0	8	5	8	15	2	4	5	0
Redist. of App Trips												
Background Volumes	111	888	155	437	585	724	224	3608	159	70	368	285
Project Trips	8	21	0	0	0	0	0	11	0	0	0	4
Project Conditions	119	909	155	437	585	724	224	3619	159	70	368	289
Future Growth Conditions	123	943	161	454	608	753	233	3763	165	73	383	300

5513
Intersection Name: Almaden Expwy & Blossom Hill Rd
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0
Date of Analysis: 6/20/00
Count Date: 6/15/00
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	305	865	402	282	603	239	37	2771	136	103	362	425
Redist. of existing												
Approved Trips	9	27	4	3	6	5	5	56	2	0	9	13
Redist. of App Trips												
Background Volumes	314	892	406	285	609	244	42	2827	138	103	371	438
Project Trips	11	8	0	0	0	0	0	4	0	0	0	6
Project Conditions	325	900	406	285	609	244	42	2831	138	103	371	444
Future Growth Conditions	337	935	422	296	633	254	43	2942	143	107	385	461

3201
Intersection Name: SR 85 SB off-ramp & Almaden Plaza
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0
Date of Analysis: 6/20/00
Count Date: 5/25/00
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	28	0	685	0	44	0	0	0	0	0	53	0
Redist. of existing												
Approved Trips	0	0	60	0	0	0	0	0	0	0	0	0
Redist. of App Trips												
Background Volumes	28	0	745	0	44	0	0	0	0	0	53	0
Project Trips	0	0	1	0	0	0	0	0	0	0	0	0
Project Conditions	28	0	746	0	44	0	0	0	0	0	53	0
Future Growth Conditions	29	0	773	0	46	0	0	0	0	0	55	0

5708

Intersection Name: Copperfield Drive & Capitol Expressway
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 5/18/00
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	51	0	121	27	2539	0	49	0	0	20	974	137
Redist. of existing												
Approved Trips	26	0	6	16	126	0	1	0	0	0	85	28
Redist. of App Trips												
Background Volumes	77	0	127	43	2665	0	50	0	0	20	1059	165
Project Trips	0	0	0	0	2	0	0	0	0	0	26	0
Project Conditions	77	0	127	43	2667	0	50	0	0	20	1085	165
Future Growth Conditions	79	0	132	44	2769	0	52	0	0	21	1124	170

5712

Intersection Name: Vistapark Drive & Capitol Expressway
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 5/23/00
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	11	26	32	37	2227	72	93	65	306	44	1005	30
Redist. of existing												
Approved Trips	20	4	25	25	126	0	0	9	18	13	92	18
Redist. of App Trips												
Background Volumes	31	30	57	62	2353	72	93	74	324	57	1097	48
Project Trips	0	0	26	26	2	0	0	0	0	0	26	0
Project Conditions	31	30	83	88	2355	72	93	74	324	57	1123	48
Future Growth Conditions	31	31	84	89	2444	75	97	77	336	59	1163	49

5522
Intersection Name: Almaden Expwy & SR 85 (N)
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 6/15/00
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

Scenario:	North Approach RT	North Approach TH	North Approach LT	East Approach RT	East Approach TH	East Approach LT	South Approach RT	South Approach TH	South Approach LT	West Approach RT	West Approach TH	West Approach LT
Existing	0	1843	0	145	0	139	0	3019	0	0	0	0
Redist. of existing												
Approved Trips	0	51	0	23	0	3	0	48	0	0	0	0
Redist. of App Trips												
Background Volumes	0	1894	0	168	0	142	0	3067	0	0	0	0
Project Trips	2	19	0	0	0	0	0	11	0	0	0	0
Project Conditions	2	1913	0	168	0	142	0	3078	0	0	0	0
Future Growth Conditions	2	1987	0	174	0	148	0	3199	0	0	0	0

5523
Intersection Name: Almaden Expwy & SR 85 (S)/Almaden Plaza
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 6/14/00
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

Scenario:	North Approach RT	North Approach TH	North Approach LT	East Approach RT	East Approach TH	East Approach LT	South Approach RT	South Approach TH	South Approach LT	West Approach RT	West Approach TH	West Approach LT
Existing	34	1295	0	0	0	0	453	3334	11	358	10	371
Redist. of existing												
Approved Trips	0	24	0	0	0	0	16	49	0	37	0	23
Redist. of App Trips												
Background Volumes	34	1319	0	0	0	0	469	3383	11	395	10	394
Project Trips	0	19	0	0	0	0	0	10	0	0	0	1
Project Conditions	34	1338	0	0	0	0	469	3393	11	395	10	395
Future Growth Conditions	35	1390	0	0	0	0	487	3526	11	409	10	410

5737

Intersection Name: Old Almaden Rd & Foxworthy Ave
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 12/18/96
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	9	13	0	0	0	0	0	656	308	124	0	11
Redist. of existing		-10	10	322	138	24	0	-322	-138	-124	260	0
Existing Rubino Trips (60% occ.)		0	0	17	40	12	0	0	0	0	0	0
Approved Trips (40% of Rubino)		0	0	11	26	7	0	0	0	0	0	0
Redist. of App Trips												
Background Volumes	9	3	10	350	204	43	0	334	170	0	260	11
Project Trips	0	0	0	0	101	0	0	0	0	0	51	0
Project Conditions	9	3	10	350	305	43	0	334	170	0	311	11
Future Growth Conditions	9	4	10	350	305	43	0	360	182	5	311	11

5727

Intersection Name: Vistapark Dr/Proj. En & Hillsdale Ave.
Peak Hour: AM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 6/20/00
Future Growth % Per Year: 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	0	0	0	287	25	46	0	62	21	179	0
Redist. of existing												
Approved Trips	0	0	0	0	0	0	0	0	0	0	26	0
Redist. of App Trips												
Background Volumes	0	0	0	0	287	25	46	0	62	21	205	0
Project Trips	160	26	2	1	1	0	0	14	12	0	2	85
Project Conditions	160	26	2	1	288	25	46	14	74	21	207	85
Future Growth Conditions	160	26	2	1	299	26	48	14	76	22	214	85

3091
Intersection Name: Capitol Expwy & Monterey (N)
Peak Hour: PM
Date of Analysis: 6/20/00
Scenario:
Count Date: 3/22/2000
(SJ) Growth Factor: 0.003
Future Growth % Per Year 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	2294	280	110	0	193	225	859	0	0	0	0
Redist. of existing												
Approved Trips	0	147	49	15	0	67	64	363	0	0	0	0
Redist. of App Trips												
Background Volumes	0	2441	329	125	0	260	289	1222	0	0	0	0
Project Trips	0	0	19	0	0	0	11	10	0	0	0	0
Project Conditions	0	2441	348	125	0	260	300	1232	0	0	0	0
Future Growth Conditions	0	2533	359	129	0	268	309	1266	0	0	0	0

3092
Intersection Name: Capitol Expwy & Monterey (S)
Peak Hour: PM
Date of Analysis: 6/20/00
Scenario:
Count Date: 3/22/2000
(SJ) Growth Factor: 0.003
Future Growth % Per Year 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	2313	134	212	0	151	212	918	0	0	0	0
Redist. of existing												
Approved Trips	0	190	24	30	0	20	220	394	0	0	0	0
Redist. of App Trips												
Background Volumes	0	2503	158	242	0	171	432	1312	0	0	0	0
Project Trips	0	0	0	10	0	6	0	11	0	0	0	0
Project Conditions	0	2503	158	252	0	177	432	1323	0	0	0	0
Future Growth Conditions	0	2596	163	260	0	183	440	1360	0	0	0	0

3120
Intersection Name: Pearl Ave & Capitol Expwy
Peak Hour: PM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0
Date of Analysis: 6/20/00
Count Date: 5/11/2000
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	101	99	112	164	950	497	236	86	222	538	1614	268
Redist. of existing	-20											
Existing Rubino Trips (60% occ.)		0	0	0	0	0	0	0	0	0	0	-67
Approved Trips	14	6	12	114	52	26	25	17	0	0	57	38
Redist. of App Trips												
Background Volumes	95	105	124	278	1002	523	261	103	222	538	1671	239
Project Trips	0	5	0	0	21	4	8	10	0	0	40	6
Project Conditions	95	110	124	278	1023	527	269	113	222	538	1711	245
Future Growth Conditions	99	114	128	285	1061	547	278	116	231	560	1776	256

3208
Intersection Name: Narvaez Av & SR 87 NB ramps
Peak Hour: PM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0
Date of Analysis: 6/20/00
Count Date: 5/31/00
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	214	115	0	0	0	0	0	98	706	652	0	155
Redist. of existing												
Approved Trips	25	2	0	0	0	0	0	4	64	49	0	33
Redist. of App Trips												
Background Volumes	239	117	0	0	0	0	0	102	770	701	0	188
Project Trips	60	64	0	0	0	0	0	164	0	0	0	47
Project Conditions	299	181	0	0	0	0	0	266	770	701	0	235
Future Growth Conditions	308	186	0	0	0	0	0	270	798	727	0	241

3587
Intersection Name: Pearl Ave & Hillsdale Ave
Peak Hour: PM
Date of Analysis: 6/20/00
Scenario:
Count Date: 6/1/00
(SJ) Growth Factor: 0.003
Future Growth % Per Year 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing (6/1/00 count) without Foxworthy open	0	86	59	20	0	179	390	109	7	0	0	0
Existing (12/11/96 count) with Foxworthy open		54	288	129	0	139	390	45	7	0	0	0
Existing Rubino Trips (60% occ.)		0	0	38	0	0	0	117	0	0	0	0
Approved Trips	0	16	16	58	0	9	32	77	0	0	0	0
Redist. of App Trips												
Background Volumes	0	70	304	225	0	148	422	239	7 0.	0	0	0
Project Trips	0	0	96	54	0	5	16	0	0	0	0	0
Project Conditions	0	70	400	279	0	153	438	239	7	0	0	0
Future Growth Conditions	0	72	412	284	0	159	454	241	7	0	0	0

=existing (12/11/96 count) + existing Rubino traffic + approved trips

5711
Intersection Name: Narvaez Ave & Capitol Expwy
Peak Hour: PM
Date of Analysis: 6/20/00
Scenario:
Count Date: 3/8/2000
(SJ) Growth Factor: 0.003
Future Growth % Per Year 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	223	57	307	349	1104	77	35	124	52	132	1711	328
Redist. of existing												
Approved Trips	21	0	31	46	121	6	5	0	7	7	181	22
Redist. of App Trips												
Background Volumes	244	57	338	395	1225	83	40	124	59	139	1892	350
Project Trips	50	0	14	4	0	0	0	0	0	0	0	161
Project Conditions	294	57	352	399	1225	83	40	124	59	139	1892	511
Future Growth Conditions	303	59	364	413	1269	86	41	129	61	144	1960	524

3849
Intersection Name: Narvaez & Hillsdale
Peak Hour: PM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 8/26/99
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	161	1	53	173	231	0	0	1	0	0	214	138
Redist. of existing												
Approved Trips	0	0	0	0	6	4	5	0	9	10	5	0
Redist. of App Trips												
Background Volumes	161	1	53	173	237	4	5	1	9	10	219	138
Project Trips	25	73	1	25	34	51	96	115	0	0	65	47
Project Conditions	186	74	54	198	271	55	101	116	9	10	284	185
Future Growth Conditions	192	74	56	205	280	55	101	116	9	10	293	191

5506
Intersection Name: Almaden & Foxworthy
Peak Hour: PM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 5/23/00
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	107	3106	102	51	33	113	13	952	147	129	32	88
Redist. of existing			75	68	-33	58	10				15	
Existing Rubino Trips (60% occ.)		-33	33	0	0	0	23	0	0	-11	11	0
Approved Trips	0	21	31	0	0	0	14	17	0	0	7	0
Redist. of App Trips												
Background Volumes	107	3094	241	119	0	171	60	969	147	118	65	88
Project Trips	0	2	54	34	0	20	24	1	0	1	18	0
Project Conditions	107	3096	295	153	0	191	84	970	147	119	83	88
Future Growth Conditions	111	3220	299	155	0	196	85	1008	153	124	84	92

5713
Intersection Name: SR 87 & Capitol Expwy.
Peak Hour: PM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0
Date of Analysis: 6/20/00
Count Date: 3/21/2000
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	418	6	847	0	1090	508	0	0	0	363	1988	0
Redist. of existing												
Approved Trips	113	0	92	0	122	21	0	0	0	28	125	0
Redist. of App Trips												
Background Volumes	531	6	939	0	1212	529	0	0	0	391	2113	0
Project Trips	0	0	113	0	26	25	0	0	0	0	48	0
Project Conditions	531	6	1052	0	1238	554	0	0	0	391	2161	0
Future Growth Conditions	548	6	1086	0	1282	574	0	0	0	406	2241	0

5715
Intersection Name: Snell Ave & Capitol Expwy
Peak Hour: PM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0
Date of Analysis: 6/20/00
Count Date: 3/21/2000
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	33	15	275	316	1167	445	289	101	250	491	1417	77
Redist. of existing												
Approved Trips	0	2	10	24	77	42	23	12	74	118	56	0
Redist. of App Trips												
Background Volumes	33	17	285	340	1244	487	312	113	324	609	1473	77
Project Trips	0	2	0	0	49	0	0	4	4	2	26	0
Project Conditions	33	19	285	340	1293	487	312	117	328	611	1499	77
Future Growth Conditions	34	20	296	353	1340	505	324	121	338	631	1556	80

5521

Intersection Name:	Almaden Exwpy	& Cherry Ave	
Peak Hour:	PM	Date of Analysis:	6/20/00
Scenario:		Count Date:	5/24/00
(SJ) Growth Factor:	0.003	Future Growth % Per Year	0.020
(SJ) Number of Months:	0.0	Number of Years to Buildout:	2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	87	2257	179	20	69	190	7	1579	287	488	30	112
Redist. of existing												
Approved Trips	0	39	26	26	52	195	191	40	0	3	52	0
Redist. of App Trips												
Background Volumes	87	2296	205	46	121	385	198	1619	287	491	82	112
Project Trips	0	11	0	0	0	0	0	21	0	0	0	0
Project Conditions	87	2307	205	46	121	385	198	1640	287	491	82	112
Future Growth Conditions	90	2397	212	47	124	393	198	1703	298	511	83	116

5512

Intersection Name:	Almaden Expwy	& Branham Ln	
Peak Hour:	PM	Date of Analysis:	6/20/00
Scenario:		Count Date:	3/14/2000
(SJ) Growth Factor:	0.003	Future Growth % Per Year	0.020
(SJ) Number of Months:	0.0	Number of Years to Buildout:	2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	403	2024	450	50	413	450	553	795	364	164	508	165
Redist. of existing												
Approved Trips	0	50	0	3	5	8	4	56	10	13	8	1
Redist. of App Trips												
Background Volumes	403	2074	450	53	418	458	557	851	374	177	516	166
Project Trips	4	11	0	0	0	0	0	21	0	0	0	8
Project Conditions	407	2085	450	53	418	458	557	872	374	177	516	174
Future Growth Conditions	423	2166	468	55	435	476	579	904	389	184	536	181

5513
Intersection Name: Almaden Expwy & Blossom Hill Rd
Peak Hour: PM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 3/15/2000
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	298	1799	977	246	528	418	259	1459	251	133	1127	583
Redist. of existing												
Approved Trips	24	75	44	26	24	41	12	92	0	2	32	16
Redist. of App Trips												
Background Volumes	322	1874	1021	272	552	459	271	1551	251	135	1159	599
Project Trips	6	4	0	0	0	0	0	8	0	0	0	11
Project Conditions	328	1878	1021	272	552	459	271	1559	251	135	1159	610
Future Growth Conditions	340	1950	1060	282	573	476	281	1617	261	140	1204	633

3201
Intersection Name: SR 85 SB off-ramp & Almaden Plaza
Peak Hour: PM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 5/25/00
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	217	0	901	0	320	0	0	0	0	0	622	0
Redist. of existing												
Approved Trips	0	0	112	0	0	0	0	0	0	0	0	0
Redist. of App Trips												
Background Volumes	217	0	1013	0	320	0	0	0	0	0	622	0
Project Trips	0	0	2	0	0	0	0	0	0	0	0	0
Project Conditions	217	0	1015	0	320	0	0	0	0	0	622	0
Future Growth Conditions	226	0	1051	0	333	0	0	0	0	0	647	0

5708

Intersection Name: Copperfield Drive & Capitol Expressway
Peak Hour: PM
Scenario:
(SJ) Growth Factor: 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 5/18/00
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	143	0	70	64	1408	0	40	0	0	117	2142	400
Redist. of existing												
Approved Trips	13	0	16	6	97	0	1	0	0	0	141	46
Redist. of App Trips												
Background Volumes	156	0	86	70	1505	0	41	0	0	117	2283	446
Project Trips	0	0	0	0	4	0	0	0	0	0	14	0
Project Conditions	156	0	86	70	1509	0	41	0	0	117	2297	446
Future Growth Conditions	162	0	89	73	1565	0	43	0	0	122	2383	462

5712

Intersection Name: Vistapark Drive & Capitol Expressway
Peak Hour: PM
Scenario:
(SJ) Growth Factor 0.003
(SJ) Number of Months: 0.0

Date of Analysis: 6/20/00
Count Date: 5/23/00
Future Growth % Per Year 0.020
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	9	92	150	65	1393	146	67	54	182	264	2011	33
Redist. of existing												
Approved Trips	29	16	31	31	98	0	0	8	17	18	131	36
Redist. of App Trips												
Background Volumes	38	108	181	116	1491	146	67	62	199	282	2142	69
Project Trips	0	0	14	49	4	0	0	0	0	0	14	0
Project Conditions	38	108	195	165	1495	146	67	62	199	282	2156	69
Future Growth Conditions	38	112	201	168	1551	152	70	64	206	293	2236	70

5522
Intersection Name: Almaden Expwy & SR 85 (N)
Peak Hour: PM
Date of Analysis: 6/20/00
Scenario:
Count Date: 10/1/98
(SJ) Growth Factor: 0.003
Future Growth % Per Year 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	3104	0	0	0	0	0	1891	0	391		609
Redist. of existing												
Approved Trips	0	237	0	78	0	16	0	164	0	0	0	0
Redist. of App Trips												
Background Volumes	0	3341	0	78	0	16	0	2055	0	391	0	609
Project Trips	1	10	0	0	0	0	0	21	0	0	0	0
Project Conditions	1	3351	0	78	0	16	0	2076	0	391	0	609
Future Growth Conditions	1	3475	0	78	0	16	0	2152	0	407	0	633

5523
Intersection Name: Almaden Expwy & SR 85 (S)/Almaden Plaza
Peak Hour: PM
Date of Analysis: 6/20/00
Scenario:
Count Date: 10/1/98
(SJ) Growth Factor: 0.003
Future Growth % Per Year 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements											
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	449	2792	0	0	0	0	350	2008	62	1056	63	624
Redist. of existing												
Approved Trips	0	117	0	0	0	0	3	102	0	16	0	103
Redist. of App Trips												
Background Volumes	449	2909	0	0	0	0	353	2110	62	1072	63	727
Project Trips	0	10	0	0	0	0	0	19	0	0	0	2
Project Conditions	449	2919	0	0	0	0	353	2129	62	1072	63	729
Future Growth Conditions	467	3031	0	0	0	0	367	2209	64	1114	66	754

5737
Intersection Name: Old Almaden Rd & Foxworthy Ave
Peak Hour: PM
Scenario:
Date of Analysis: 6/20/00
Count Date: 12/18/96
(SJ) Growth Factor: 0.003
Future Growth % Per Year 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements												
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	12	14	0	0	0	0	0	137	174	248	0	18
Redist. of existing	0	-5	5	73	93	9	0	-73	-93	-248	338	0
Existing Rubino Trips (60% occ.)		0	0	0	0	0	0	0	0	0	66	0
Approved Trips (40% of Rubino)		0	0	0	0	0	0	0	0	0	44	0
Redist. of App Trips												
Background Volumes	12	9	5	73	93	9	0	64	81	0	448	18
Project Trips	0	0	0	0	54	0	0	0	0	0	96	0
Project Conditions	12	9	5	73	147	9	0	64	81	0	544	18
Future Growth Conditions	12	10	5	73	147	9	0	69	88	10	544	19

5727
Intersection Name: Vistapark Dr/Proj. En & Hillsdale Ave.
Peak Hour: PM
Scenario:
Date of Analysis: 6/20/00
Count Date: 6/20/00
(SJ) Growth Factor: 0.003
Future Growth % Per Year 0.020
(SJ) Number of Months: 0.0
Number of Years to Buildout: 2.0

	Movements												
	North Approach			East Approach			South Approach			West Approach		
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	0	0	0	274	38	52	0	50	68	223	0
Redist. of existing												
Approved Trips	0	0	0	0	26	0	0	0	0	0	0	0
Redist. of App Trips												
Background Volumes	0	0	0	0	300	38	52	0	50	68	223	0
Project Trips	85	14	1	2	2	0	0	26	23	0	1	161
Project Conditions	85	14	1	2	302	38	52	26	73	68	224	161
Future Growth Conditions	85	14	1	2	313	40	54	26	75	71	233	161

Appendix D

Level of Service Calculations

ADDENDUM TO APPENDIX D
OF AUGUST 15, 2000 TECH.
APPENDICES.

Communications Hill
765 Dwelling Units

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

Intersection		Existing (AM)				Background (AM)				Project (AM)						Future (AM)			
		LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#3091	CAPITOL EXPWY/MONTEREY (N)	B	9.3	0.649	8.7	B-	13.7	0.763	15.8	B	14.0	0.770	+0.007	16.1	+0.3	B	14.4	0.796	16.7
#3092	CAPITOL EXPWY/MONTEREY (S)	D	25.8	0.908	29.8	D	29.2	0.968	36.5	D	31.0	0.981	+0.013	39.0	+2.4	D-	37.3	1.017	47.7
#3120	CAPITOL/PEARL	E	46.4	0.936	54.0	D	34.2	0.732	35.8	D	34.3	0.740	+0.009	35.9	+0.1	D	35.3	0.778	37.5
#3201	85/ALMADEN PLAZA	A	4.6	0.218	4.0	A	4.6	0.301	4.1	A	4.6	0.302	+0.000	4.1	+0.0	A	4.6	0.313	4.1
#3208	87/NARVAEZ	B	9.5	0.372	8.3	B	11.8	0.422	8.8	B	12.5	0.641	+0.219	13.8	+5.1	B	12.6	0.660	14.0
#3587	HILLSDALE/PEARL (FUT)	C	18.6	0.286	17.6	C	18.4	0.275	17.9	C	18.7	0.281	+0.005	18.5	+0.5	C	18.8	0.291	18.6
#3849	HILLSDALE/NARVAEZ (FUT)					C	21.2	0.228	23.5	C-	24.2	0.422	+0.194	25.0	+1.5	C-	24.3	0.430	25.1
#5506	ALMADEN/FOXWORTHY	C	15.2	0.781	11.4	D+	25.3	0.891	24.1	D	29.6	0.932	+0.041	29.8	+5.7	D	32.2	0.963	33.3
#5512	ALMADEN/BRANHAM	F	76.3	1.096	89.8	F	76.9	1.100	91.7	F	77.7	1.104	+0.003	93.5	+1.8	F	94.5	1.147	117.9
#5513	ALMADEN/BLOSSOM HILL	E	42.6	0.916	46.7	E+	43.7	0.933	48.5	E+	43.8	0.936	+0.003	48.9	+0.4	E	47.3	0.972	54.1
#5521	ALMADEN/CHERRY	C	18.6	0.741	14.1	C	19.0	0.759	14.4	C	19.0	0.761	+0.002	14.5	+0.1	C	19.6	0.790	15.2
#5522	85/ALMADEN (N)	B	5.4	0.607	7.5	B+	5.7	0.618	8.0	B+	5.7	0.620	+0.002	8.0	+0.0	B+	5.8	0.644	8.2
#5523	85/ALMADEN (S)	C	14.2	0.274	17.8	B-	14.9	0.282	18.2	B-	14.8	0.285	+0.003	18.2	-0.1	C+	15.1	0.296	18.2
#5708	COPPERFIELD/CAPITOL	B	7.0	0.585	8.5	B	7.7	0.800	9.4	B	7.7	0.801	+0.000	9.4	+0.0	B	7.8	0.823	9.6
#5711	CAPITOL/NARVAEZ	D	25.2	0.687	31.8	D+	25.6	0.731	32.4	D	29.9	0.819	+0.088	37.7	+5.2	D	30.7	0.845	38.9
#5712	VISTA PARK/CAPITOL	C	16.7	0.584	16.8	C	17.5	0.607	17.7	C	17.6	0.608	+0.000	17.7	0.0	C	18.0	0.630	18.1
#5713	87/CAPITOL	C	22.4	0.528	15.8	C-	23.4	0.585	16.7	D+	26.1	0.587	+0.032	42.2	+25.4	D+	26.3	0.619	18.4
#5716	CAPITOL/SHELL	D	32.5	0.703	33.8	D	33.9	0.755	35.7	D	33.8	0.761	+0.006	35.8	+0.0	D	34.6	0.788	36.7
#5737	Old Almaden/Foxworthy					C+	16.2	0.546	15.8	C+	16.8	0.545	+0.000	15.8	+0.0	C	17.2	0.589	15.9

Communications Hill
765 Dwelling Units

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

Intersection		Existing (PM) LOS	Existing Avg Del (sec)	Existing Crit V/C	Existing Avg Crit Del (sec)	Background (PM) LOS	Background Avg Del (sec)	Background Crit V/C	Background Avg Crit Del (sec)	Project (PM) LOS	Project Avg Del (sec)	Project Crit V/C	Project Crit V/C Change	Project Avg Crit Del (sec)	Project Avg Crit Del Change	Future (PM) LOS	Future Avg Del (sec)	Future Crit V/C	Future Avg Crit Del (sec)
#3091	CAPITOL EXPWY/MONTEREY (N)	B	10.3	0.496	6.4	B	11.9	0.546	8.1	B	12.2	0.546	+0.000	8.1	+0.0	B	12.2	0.566	8.2
#3092	CAPITOL EXPWY/MONTEREY (S)	B	8.7	0.485	5.1	B	9.2	0.527	5.5	B	9.4	0.529	+0.002	5.7	+0.2	B	9.5	0.549	5.8
#3120	CAPITOL/PEARL	D	25.8	0.584	29.2	D+	25.5	0.606	29.5	D+	25.5	0.616	+0.010	29.5	+0.0	D+	25.9	0.640	30.0
#3201	85/ALMADEN PLAZA	B	8.5	0.596	8.6	B	8.7	0.589	8.7	B	8.7	0.590	+0.001	8.7	+0.0	B	8.8	0.612	8.9
#3208	87/NARVAEZ	B	9.4	0.490	8.8	B	9.7	0.523	8.9	B	10.7	0.561	+0.038	10.5	+1.5	B	10.9	0.581	10.6
#3587	HILLSDALE/PEARL (FUT)	B	14.5	0.273	14.2	C	17.5	0.381	18.4	C	17.8	0.426	+0.045	19.1	+0.7	C	17.9	0.441	19.1
#3849	HILLSDALE/NARVAEZ (FUT)					C	21.5	0.304	24.1	C-	24.4	0.481	+0.176	28.8	+2.6	C-	24.4	0.493	26.9
#5506	ALMADEN/FOXWORTHY	C	18.9	0.730	14.8	C	21.1	0.644	18.2	C	22.6	0.656	+0.011	19.3	+1.0	C	22.9	0.681	19.7
#5512	ALMADEN/BRANHAM	E	42.7	0.804	39.7	E+	43.9	0.831	42.5	E+	43.9	0.833	+0.002	42.5	+0.0	E	46.0	0.866	45.9
#5513	ALMADEN/BLOSSOM HILL	F	123.6	0.961	183.3	F	145.5	1.013	224.8	F	146.4	1.014	+0.002	224.4	-0.3	F	168.9	1.053	262.4
#5521	ALMADEN/CHERRY	C	24.5	0.717	24.2	D	33.0	0.901	39.0	D	33.1	0.903	+0.002	39.1	+0.1	F	101.9	0.757	25.2
#5522	85/ALMADEN (N)	C	18.2	0.641	23.1	C	20.4	0.705	26.2	C	20.4	0.713	+0.007	26.2	+0.1	C	23.0	0.739	29.8
#5523	85/ALMADEN (S)	F	161.5	1.090	269.3	F	173.1	1.116	281.7	F	172.5	1.118	+0.001	281.1	-0.5	F	198.7	1.181	326.0
#5708	COPPERFIELD/CAPITOL	B	9.5	0.425	17.6	B	10.0	0.464	18.5	B	10.0	0.465	+0.001	18.5	-0.0	B	10.1	0.482	18.6
#5711	CAPITOL/NARVAEZ	D	28.0	0.526	33.6	D	28.3	0.577	33.8	D	30.0	0.827	+0.051	39.0	+5.2	D	30.4	0.647	39.3
#5712	VISTA PARK/CAPITOL	C	18.0	0.598	21.0	C	20.2	0.647	22.4	C	20.5	0.658	+0.011	23.1	+0.7	C	21.0	0.682	23.6
#5713	87/CAPITOL	D	35.5	0.776	48.0	E	47.8	0.834	66.2	F	71.7	0.886	+0.052	99.7	+33.5	F	62.3	0.911	114.9
#5715	CAPITOL/SNELL	D	27.1	0.373	21.6	D+	25.7	0.581	32.0	D+	25.7	0.588	+0.008	32.0	+0.0	D+	26.1	0.609	32.4
#5737	Old Almaden/Foxworthy					B	10.8	0.239	11.3	B	9.9	0.269	+0.030	10.5	-0.8	B	10.3	0.280	10.9

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Background (AM)

Intersection #3849: HILLSDALE/NARVAEZ (FUT)

Signal=Split/Rights=Overlap
Final Vol: 61 6*** 45
Lanes: 0 0 11 0 0

Signal=Protect Rights=Overlap

Final Vol:	Lanes:
162***	1
	0
274	1
	1
25	0

Vol Cnt Date: 8/26/99
Cycle Time (sec): 105
Loss Time (sec): 12
Critical V/C: 0.228
Avg Crit Del (sec/veh): 23.5
Avg Delay (sec/veh): 21.2
LOS: C

Signal=Protect Rights=Overlap

Lanes:	Final Vol:
1	109
0	
2	155***
0	
1	7

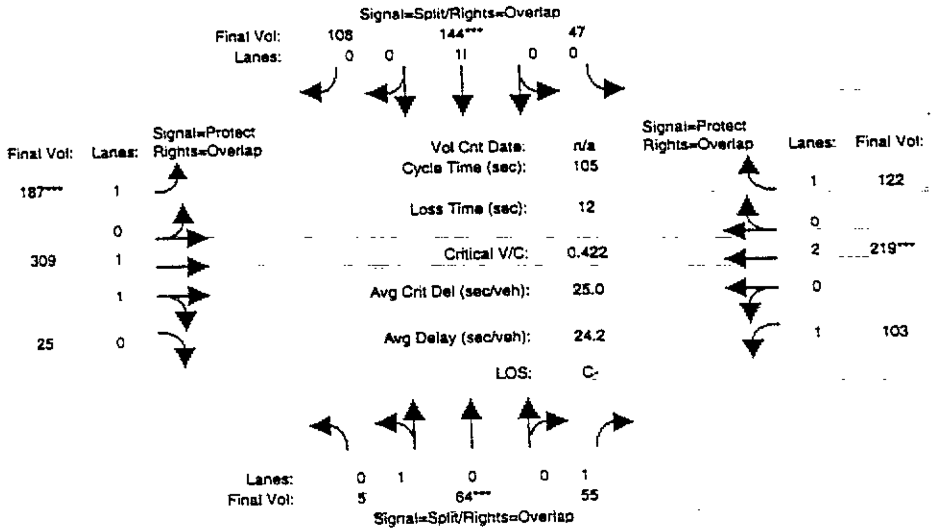
Lanes: 0 1 0 0 1
Final Vol: 5 3*** 4
Signal=Split/Rights=Overlap

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 26 Aug 1999 <<												
Base Vol:	5	3	4	45	6	61	162	274	25	7	155	109
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	3	4	45	6	61	162	274	25	7	155	109
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	3	4	45	6	61	162	274	25	7	155	109
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	5	3	4	45	6	61	162	274	25	7	155	109
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	3	4	45	6	61	162	274	25	7	155	109
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	5	3	4	45	6	61	162	274	25	7	155	109
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	0.97	1.03	1.00	0.97	1.06	0.97
Lanes:	0.62	0.38	1.00	0.40	0.05	0.55	1.00	1.83	0.17	1.00	2.00	1.00
Final Sat.:	1125	675	1750	703	94	953	1750	3390	309	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.06	0.06	0.06	0.09	0.08	0.08	0.00	0.04	0.06
Crit Moves:		****			****		****				****	
Green Time:	10.0	10.0	33.1	26.9	26.9	65.8	38.9	33.0	43.0	23.1	17.2	44.1
Volume/Cap:	0.05	0.05	0.01	0.25	0.25	0.10	0.25	0.26	0.20	0.02	0.25	0.15
Delay/Veh:	32.8	32.8	18.8	23.6	23.6	5.9	17.5	20.4	15.1	24.4	29.2	14.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.8	32.8	18.8	23.6	23.6	5.9	17.5	20.4	15.1	24.4	29.2	14.3
DesignQueue:	0	0	0	2	0	1	6	11	1	0	8	4

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Project (AM)

Intersection #3849: HILLSDALE/NARVAEZ (FUT)

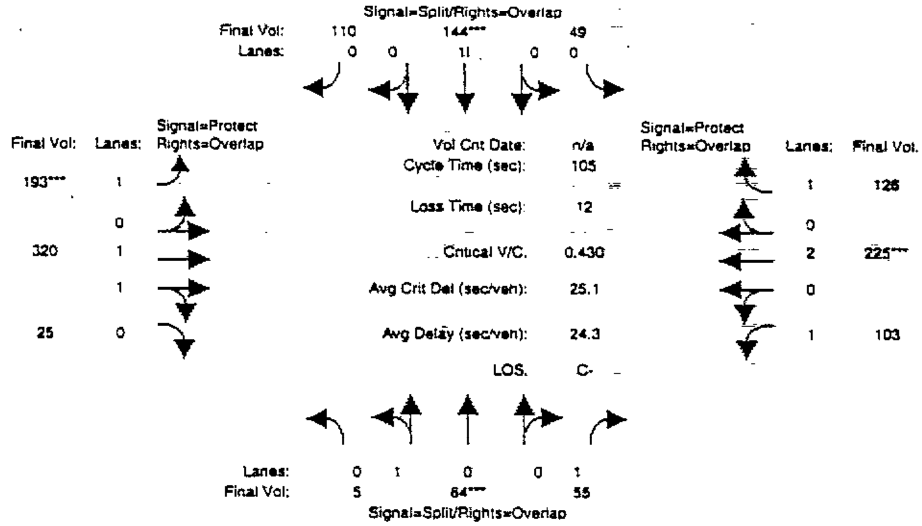


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	5	3	4	45	6	61	162	274	25	7	155	109
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	3	4	45	6	61	162	274	25	7	155	109
Added Vol:	0	61	51	2	138	47	25	35	0	96	64	13
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	64	55	47	144	108	187	309	25	103	219	122
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	5	64	55	47	144	108	187	309	25	103	219	122
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	64	55	47	144	108	187	309	25	103	219	122
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	5	64	55	47	144	108	187	309	25	103	219	122
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	0.97	1.03	1.00	0.97	1.06	0.97
Lanes:	0.07	0.93	1.00	0.16	0.48	0.36	1.00	1.85	0.15	1.00	2.00	1.00
Final Sat.:	130	1670	1750	275	843	632	1750	3423	277	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.04	0.04	0.03	0.17	0.17	0.17	0.11	0.09	0.09	0.06	0.06	0.07
Crit Moves:		****			****		****				****	
Green Time:	10.0	10.0	26.8	42.3	42.3	68.7	26.4	23.9	33.9	16.8	14.3	56.6
Volume/Cap:	0.40	0.40	0.12	0.42	0.42	0.26	0.42	0.40	0.28	0.37	0.42	0.13
Delay/Veh:	34.8	34.8	22.9	17.4	17.4	5.8	25.4	26.3	20.1	30.3	32.0	9.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.8	34.8	22.9	17.4	17.4	5.8	25.4	26.3	20.1	30.3	32.0	9.1
DesignQueue:	0	3	2	2	5	2	8	14	1	5	11	3

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Future (AM)

Intersection #3849: HILLSDALE/NARVAEZ (FUT)

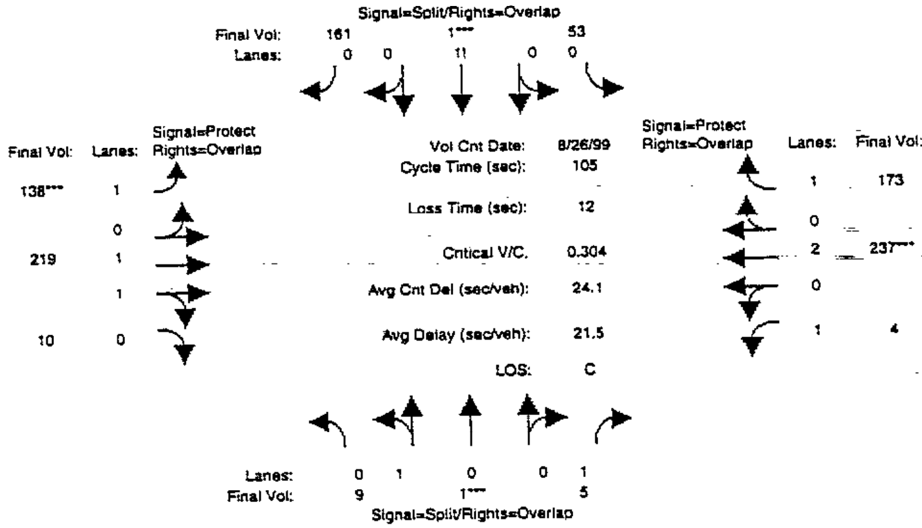


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	5	64	55	49	144	110	193	320	25	103	225	126
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	64	55	49	144	110	193	320	25	103	225	126
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Other Proj.:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	64	55	49	144	110	193	320	25	103	225	126
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	5	64	55	49	144	110	193	320	25	103	225	126
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	64	55	49	144	110	193	320	25	103	225	126
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	5	64	55	49	144	110	193	320	25	103	225	126
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	0.97	1.03	1.00	0.97	1.06	0.97
Lanes:	0.07	0.93	1.00	0.16	0.48	0.36	1.00	1.85	0.15	1.00	2.00	1.00
Final Sat.:	130	1670	1750	283	832	635	1750	3432	268	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.04	0.04	0.03	0.17	0.17	0.17	0.11	0.09	0.09	0.06	0.06	0.07
Crit Moves:		****			****		****				****	
Green Time:	10.0	10.0	26.9	41.9	41.9	68.7	26.7	24.2	34.2	16.9	14.3	56.3
Volume/Cap:	0.40	0.40	0.12	0.43	0.43	0.26	0.43	0.41	0.29	0.37	0.43	0.13
Delay/Veh:	34.8	34.8	22.8	17.7	17.7	5.8	25.4	26.3	20.1	30.2	32.0	9.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.8	34.8	22.8	17.7	17.7	5.8	25.4	26.3	20.1	30.2	32.0	9.3
DesignQueue:	0	3	2	2	5	2	9	15	1	5	12	3

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Background (PM)

Intersection #3849: HILLSDALE/NARVAEZ (FUT)



Approach:	North Bound L	North Bound T	North Bound R	South Bound L	South Bound T	South Bound R	East Bound L	East Bound T	East Bound R	West Bound L	West Bound T	West Bound R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 26 Aug 1999 <<												
Base Vol:	9	1	5	53	1	161	138	219	10	4	237	173
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	1	5	53	1	161	138	219	10	4	237	173
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	1	5	53	1	161	138	219	10	4	237	173
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	9	1	5	53	1	161	138	219	10	4	237	173
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	1	5	53	1	161	138	219	10	4	237	173
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	9	1	5	53	1	161	138	219	10	4	237	173
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	0.97	1.03	1.00	0.97	1.06	0.97
Lanes:	0.90	0.10	1.00	0.24	0.01	0.75	1.00	1.91	0.09	1.00	2.00	1.00
Final Sat.:	1620	180	1750	431	8	1310	1750	3538	162	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.00	0.12	0.12	0.12	0.08	0.06	0.06	0.00	0.06	0.10
Crit Moves:		****			****		****				****	
Green Time:	10.0	10.0	28.3	38.6	38.6	63.4	24.8	26.1	36.1	18.3	19.6	58.2
Volume/Cap:	0.06	0.06	0.01	0.33	0.33	0.20	0.33	0.25	0.18	0.01	0.33	0.18
Delay/Veh:	32.8	32.8	21.4	18.3	18.3	7.2	25.5	24.0	18.3	27.3	28.3	8.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.8	32.8	21.4	18.3	18.3	7.2	25.5	24.0	18.3	27.3	28.3	8.8
DesignQueue:	0	0	0	2	0	4	6	10	0	0	11	5

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Project (PM)

Intersection #3849: HILLSDALE/NARVAEZ (FUT)

Signal=Split/Rights=Overlap
Final Vol: 186 74*** 54
Lanes: 0 0 1 0 0

Signal=Protect Rights=Overlap

Final Vol:	Lanes:
185***	1
	0
284	1
	1
10	0

Vol Cnt Date: n/a
Cycle Time (sec): 105
Loss Time (sec): 12
Critical V/C: 0.481
Avg Crit Del (sec/veh): 26.8
Avg Delay (sec/veh): 24.4
LOS: C

Signal=Protect Rights=Overlap

Lanes:	Final Vol:
1	198
0	
2	271***
0	
1	55

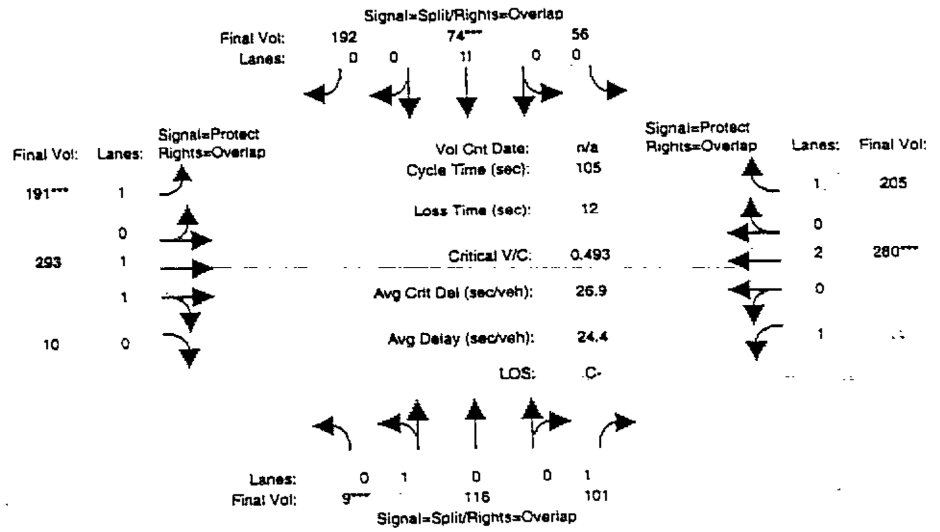
Lanes: 0 1 0 0 1
Final Vol: 9*** 116 101
Signal=Split/Rights=Overlap

Approach:	North Bound L	T	R	South Bound L	T	R	East Bound L	T	R	West Bound L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	9	1	5	53	1	161	138	219	10	4	237	173
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	1	5	53	1	161	138	219	10	4	237	173
Added Vol:	0	115	96	1	73	25	47	65	0	51	34	25
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	116	101	54	74	186	185	284	10	55	271	198
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	9	116	101	54	74	186	185	284	10	55	271	198
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	116	101	54	74	186	185	284	10	55	271	198
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	9	116	101	54	74	186	185	284	10	55	271	198
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	0.97	1.03	1.00	0.97	1.06	0.97
Lanes:	0.07	0.93	1.00	0.17	0.24	0.59	1.00	1.93	0.07	1.00	2.00	1.00
Final Sat.:	130	1670	1750	301	412	1037	1750	3574	126	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.06	0.18	0.18	0.18	0.11	0.08	0.08	0.03	0.07	0.11
Crit Moves:	****				****		****				****	
Green Time:	15.2	15.2	31.1	39.2	39.2	62.3	23.1	22.7	37.9	15.9	15.6	54.8
Volume/Cap:	0.48	0.48	0.19	0.48	0.48	0.30	0.48	0.37	0.22	0.21	0.48	0.22
Delay/Veh:	32.5	32.5	21.0	19.6	19.6	8.1	27.9	26.7	17.7	29.7	31.7	10.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.5	32.5	21.0	19.6	19.6	8.1	27.9	26.7	17.7	29.7	31.7	10.3
DesignQueue:	0	6	4	2	3	5	9	13	0	3	14	6

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Future (PM)

Intersection #3849: HILLSDALE/NARVAEZ (FUT)



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	9	116	101	56	74	192	191	293	10	55	280	205
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	116	101	56	74	192	191	293	10	55	280	205
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Other Proj.:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	116	101	56	74	192	191	293	10	55	280	205
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	9	116	101	56	74	192	191	293	10	55	280	205
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	116	101	56	74	192	191	293	10	55	280	205
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	9	116	101	56	74	192	191	293	10	55	280	205
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	0.97	1.03	1.00	0.97	1.06	0.97
Lanes:	0.07	0.93	1.00	0.17	0.23	0.60	1.00	1.93	0.07	1.00	2.00	1.00
Final Sat.:	130	1670	1750	304	402	1043	1750	3578	122	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.06	0.18	0.18	0.18	0.11	0.08	0.08	0.03	0.07	0.12
Crit Moves:	****				****		****				****	
Green Time:	14.8	14.8	30.9	39.2	39.2	62.5	23.3	22.9	37.7	16.0	15.7	54.9
Volume/Cap:	0.49	0.49	0.20	0.49	0.49	0.31	0.49	0.38	0.23	0.21	0.49	0.22
Delay/Veh:	32.9	32.9	21.1	19.7	19.7	8.1	28.0	26.7	17.9	29.6	31.7	10.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.9	32.9	21.1	19.7	19.7	8.1	28.0	26.7	17.9	29.6	31.7	10.3
DesignQueue:	0	6	4	2	3	5	9	14	0	3	14	6

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Existing (AM)

Intersection #5506: ALMADEN/FOXWORTHY

Signal=Protect/Rights=Include
Final Vol: 73 1013 39***
Lanes: 1 0 3 0 1

Signal=Permit
Rights=Overlap
Final Vol: Lanes:
144 1
0
22 1
0
103 1

Vol Cnt Date: 5/23/00
Cycle Time (sec): 182
Loss Time (sec): 9
Critical V/C: 0.781
Avg Crit Del (sec/veh): 11.4
Avg Delay (sec/veh): 15.2
LOS: C

Signal=Permit
Rights=Overlap
Lanes: Final Vol:
1 204***
0
1 40
0
1 38

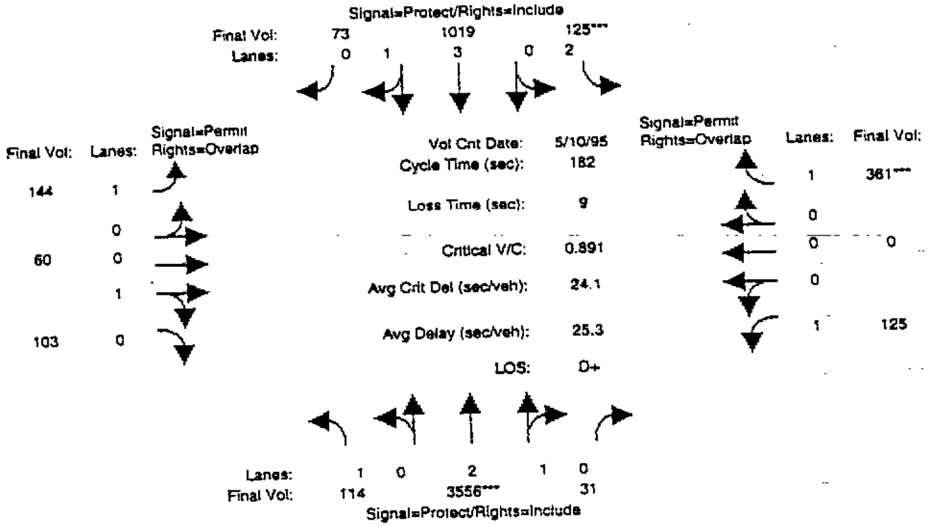
Lanes: 1 0 3 0 1
Final Vol: 114 3567*** 15
Signal=Protect/Rights=Include

Approach:	North Bound L	T	R	South Bound L	T	R	East Bound L	T	R	West Bound L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Volume Module: >> Count Date: 23 May 2000 << 0.902												
Base Vol:	114	3567	15	39	1013	73	144	22	103	38	40	204
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	114	3567	15	39	1013	73	144	22	103	38	40	204
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	114	3567	15	39	1013	73	144	22	103	38	40	204
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	114	3567	15	39	1013	73	144	22	103	38	40	204
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	114	3567	15	39	1013	73	144	22	103	38	40	204
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	114	3567	15	39	1013	73	144	22	103	38	40	204
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.97	1.06	0.97	0.97	1.06	0.97	0.97	1.06	0.97	0.97	1.06	0.97
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1750	1900	1750	1750	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.63	0.01	0.02	0.18	0.04	0.08	0.01	0.06	0.02	0.02	0.12
Crit Moves:		****		****								****
Green/Cycle:	0.23	0.81	0.81	0.04	0.62	0.62	0.10	0.10	0.33	0.10	0.10	0.14
Volume/Cap:	0.29	0.77	0.01	0.58	0.29	0.07	0.81	0.11	0.18	0.21	0.21	0.83
Delay/Veh:	44.2	7.2	2.5	73.6	12.1	10.3	77.1	56.5	33.1	57.2	57.2	72.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.2	7.2	2.5	73.6	12.1	10.3	77.1	56.5	33.1	57.2	57.2	72.5
DesignQueue:	9	82	0	4	41	3	13	2	7	3	4	18

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Background (AM)

Intersection #5506: ALMADEN/FOXWORTHY

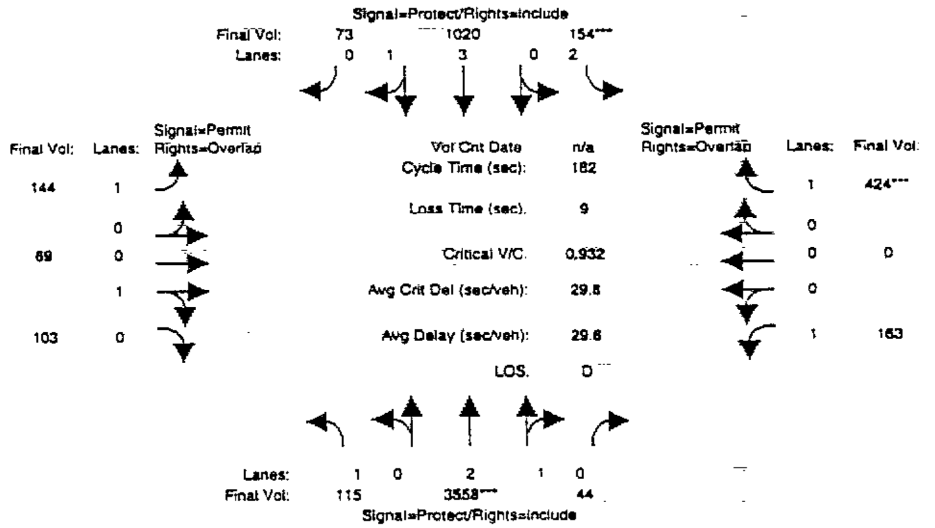


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	0	10
Volume Module: >> Count Date: 10 May 1995 << 0.902												
Base Vol:	114	3556	31	125	1019	73	144	60	103	125	0	361
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	114	3556	31	125	1019	73	144	60	103	125	0	361
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	114	3556	31	125	1019	73	144	60	103	125	0	361
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	114	3556	31	125	1019	73	144	60	103	125	0	361
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	114	3556	31	125	1019	73	144	60	103	125	0	361
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	114	3556	31	125	1019	73	144	60	103	125	0	361
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.97	1.04	1.00	0.88	1.04	1.00	0.97	1.00	1.00	0.97	1.06	0.97
Lanes:	1.00	2.97	0.03	2.00	3.72	0.28	1.00	0.37	0.63	1.00	0.00	1.00
Final Sat.:	1750	5552	48	3150	6998	501	1750	663	1137	1750	0	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.64	0.64	0.04	0.15	0.15	0.08	0.09	0.09	0.07	0.00	0.21
Crit Moves:		****		****								****
Green Time:	43.0	131	130.9	8.1	96.0	96.0	34.0	34.0	77.0	34.0	0.0	42.1
Volume/Cap:	0.28	0.89	0.89	0.89	0.28	0.28	0.44	0.48	0.21	0.38	0.00	0.89
Delay/Veh:	43.3	17.3	17.3	97.0	18.1	18.1	50.4	51.1	25.3	49.6	0.0	66.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	43.3	17.3	17.3	97.0	18.1	18.1	50.4	51.1	25.3	49.6	0.0	66.3
DesignQueue:	9	121	1	12	51	4	12	5	6	10	0	30

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Project (AM)

Intersection #5506: ALMADEN/FOXWORTHY



Approach:	North Bound L	T	R	South Bound L	T	R	East Bound L	T	R	West Bound L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	0	10
Volume Module:												
Base Vol:	114	3556	31	125	1019	73	144	60	103	125	0	161
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	114	3556	31	125	1019	73	144	60	103	125	0	161
Added Vol:	1	2	13	29	1	0	0	9	0	38	0	63
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	115	3558	44	154	1020	73	144	69	103	163	0	424
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	115	3558	44	154	1020	73	144	69	103	163	0	424
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	115	3558	44	154	1020	73	144	69	103	163	0	424
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	115	3558	44	154	1020	73	144	69	103	163	0	424
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.97	1.04	1.00	0.88	1.04	1.00	0.97	1.00	1.00	0.97	1.06	0.97
Lanes:	1.00	2.96	0.04	2.00	3.72	0.28	1.00	0.40	0.60	1.00	0.00	1.00
Final Sat.:	1750	5532	68	3150	6998	501	1750	722	1078	1750	0	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.64	0.64	0.05	0.15	0.15	0.08	0.10	0.10	0.09	0.00	0.24
Crit Moves:		****		****								****
Green Time:	42.0	126	125.7	9.6	93.2	93.2	37.8	37.8	79.8	37.8	0.0	47.3
Volume/Cap:	0.28	0.93	0.93	0.93	0.28	0.28	0.40	0.46	0.22	0.45	0.00	0.93
Delay/Veh:	43.9	22.2	22.2	101.2	19.3	19.3	47.7	48.7	24.1	48.5	0.0	68.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	43.9	22.2	22.2	101.2	19.3	19.3	47.7	48.7	24.1	48.5	0.0	68.7
DesignQueue:	9	134	2	15	52	4	12	6	6	13	0	34

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Future (AM)

Intersection #5506: ALMADEN/FOXWORTHY

Signal=Protect/Rights=Include
Final Vol: 76 1061 156***
Lanes: 0 1 3 0 2

Final Vol: Lanes: Signal=Permit Rights=Overlap
150 1
0
70 0
1
107 0

Vol Cnt Date: n/a
Cycle Time (sec): 182
Loss Time (sec): 9
Critical V/C: 0.963
Avg Crit Del (sec/veh): 33.3
Avg Delay (sec/veh): 32.2
LOS: D

Signal=Permit Rights=Overlap Lanes: Final Vol:
1 432***
0
0 0
0
1 165

Lanes: 1 0 2 1 0
Final Vol: 120 3701*** 45
Signal=Protect/Rights=Include

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	0	10
Volume Module:												
Base Vol:	120	3701	45	156	1061	76	150	70	107	165	0	432
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	120	3701	45	156	1061	76	150	70	107	165	0	432
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Other Proj.:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	120	3701	45	156	1061	76	150	70	107	165	0	432
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	120	3701	45	156	1061	76	150	70	107	165	0	432
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	120	3701	45	156	1061	76	150	70	107	165	0	432
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	120	3701	45	156	1061	76	150	70	107	165	0	432
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.97	1.04	1.00	0.88	1.04	1.00	0.97	1.00	1.00	0.97	1.06	0.97
Lanes:	1.00	2.96	0.04	2.00	3.72	0.28	1.00	0.40	0.60	1.00	0.00	1.00
Final Sat.:	1750	5533	67	3150	6998	501	1750	712	1088	1750	0	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.67	0.67	0.05	0.15	0.15	0.09	0.10	0.10	0.09	0.00	0.25
Crit Moves:		****		****								****
Green Time:	42.3	126	126.4	9.4	93.5	93.5	37.3	37.3	79.5	37.3	0.0	46.6
Volume/Cap:	0.30	0.96	0.96	0.96	0.30	0.30	0.42	0.48	0.22	0.46	0.00	0.96
Delay/Veh:	43.9	25.3	25.3	109.5	19.3	19.3	48.3	49.3	24.3	49.0	0.0	75.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	43.9	25.3	25.3	109.5	19.3	19.3	48.3	49.3	24.3	49.0	0.0	75.3
DesignQueue:	9	138	2	15	54	4	12	6	6	14	0	35

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Existing (PM)

Intersection #5506: ALMADEN/FOXWORTHY

Signal=Protect/Rights=Include
Final Vol: 107 3106*** 102
Lanes: 1 0 3 0 1

Signal=Permit Rights=Overlap (West approach)
Final Vol: Lanes:
88 1
0
32 1
0
129 1

Vol Cnt Date: 5/23/00
Cycle Time (sec): 182
Loss Time (sec): 9
Critical V/C: 0.730
Avg Crit Del (sec/veh): 14.8
Avg Delay (sec/veh): 16.9
LOS: C

Signal=Permit Rights=Overlap (East approach)
Lanes: Final Vol:
1 51
0
1 33
0
1 113***

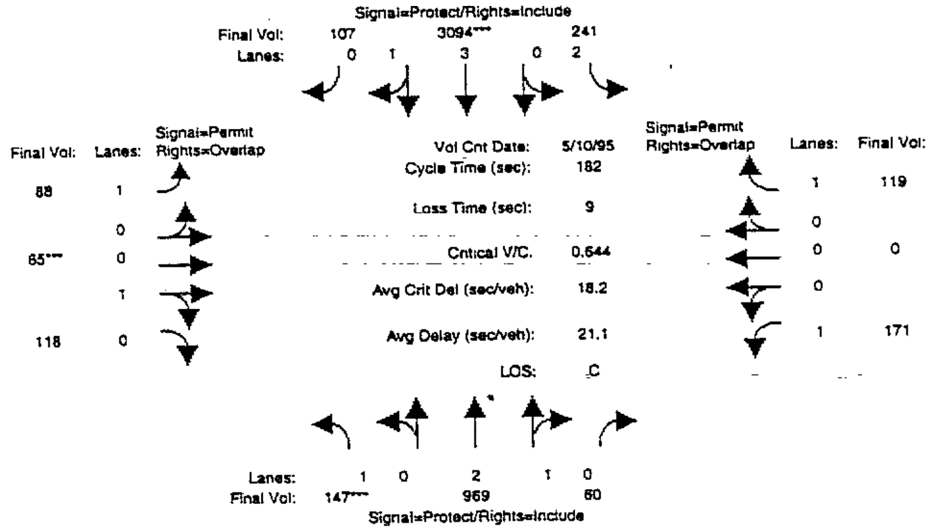
Lanes: 1 0 3 0 1
Final Vol: 147*** 952 13
Signal=Protect/Rights=Include

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Volume Module: >> Count Date: 23 May 2000 <<												
Base Vol:	147	952	13	102	3106	107	88	32	129	113	33	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	147	952	13	102	3106	107	88	32	129	113	33	51
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	147	952	13	102	3106	107	88	32	129	113	33	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	147	952	13	102	3106	107	88	32	129	113	33	51
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	147	952	13	102	3106	107	88	32	129	113	33	51
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	147	952	13	102	3106	107	88	32	129	113	33	51
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.97	1.06	0.97	0.97	1.06	0.97	0.97	1.06	0.97	0.97	1.06	0.97
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1750	1900	1750	1750	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.08	0.17	0.01	0.06	0.54	0.06	0.05	0.02	0.07	0.06	0.02	0.03
Crit Moves:	****				****					****		
Green/Cycle:	0.12	0.64	0.64	0.22	0.75	0.75	0.09	0.09	0.20	0.09	0.09	0.31
Volume/Cap:	0.73	0.26	0.01	0.26	0.73	0.08	0.57	0.19	0.36	0.73	0.20	0.09
Delay/Veh:	67.6	10.8	9.1	44.4	10.2	4.7	64.0	58.5	47.6	72.0	58.6	33.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	67.6	10.8	9.1	44.4	10.2	4.7	64.0	58.5	47.6	72.0	58.6	33.8
DesignQueue:	13	36	0	8	93	3	8	3	11	11	3	4

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Background (PM)

Intersection #5506: ALMADEN/FOXWORTHY

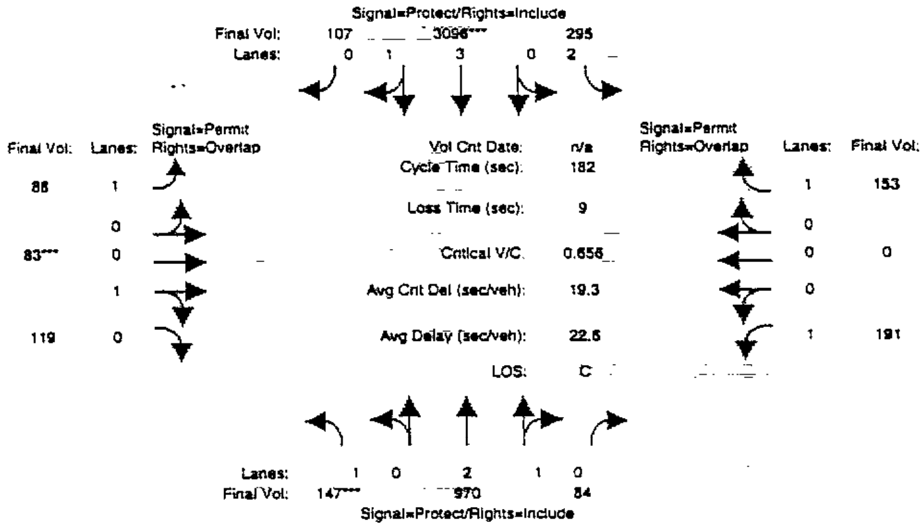


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	0	10
Volume Module: >> Count Date: 10 May 1995 <<												
Base Vol:	147	969	60	241	3094	107	88	65	118	171	0	119
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	147	969	60	241	3094	107	88	65	118	171	0	119
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	147	969	60	241	3094	107	88	65	118	171	0	119
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	147	969	60	241	3094	107	88	65	118	171	0	119
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	147	969	60	241	3094	107	88	65	118	171	0	119
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	147	969	60	241	3094	107	88	65	118	171	0	119
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.97	1.04	1.00	0.88	1.04	1.00	0.97	1.00	1.00	0.97	1.00	0.97
Lanes:	1.00	2.82	0.18	2.00	3.86	0.14	1.00	0.36	0.64	1.00	0.00	1.00
Final Sat.:	1750	5273	327	3150	7249	251	1750	639	1161	1750	0	1750
Capacity Analysis Module:												
Vol/Sat:	0.08	0.18	0.18	0.08	0.43	0.43	0.05	0.10	0.10	0.10	0.00	0.07
Crit Moves:	****				****			****				
Green Time:	23.7	102	101.9	42.4	121	120.6	28.7	28.7	52.4	28.7	0.0	71.1
Volume/Cap:	0.64	0.33	0.33	0.33	0.64	0.64	0.32	0.64	0.35	0.62	0.00	0.17
Delay/Veh:	61.3	16.4	16.4	44.2	14.0	14.0	51.9	58.0	39.2	57.3	0.0	27.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	61.3	16.4	16.4	44.2	14.0	14.0	51.9	58.0	39.2	57.3	0.0	27.6
DesignQueue:	13	45	3	19	119	4	8	6	9	15	0	7

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Project (PM)

Intersection #5506: ALMADEN/FOXWORTHY

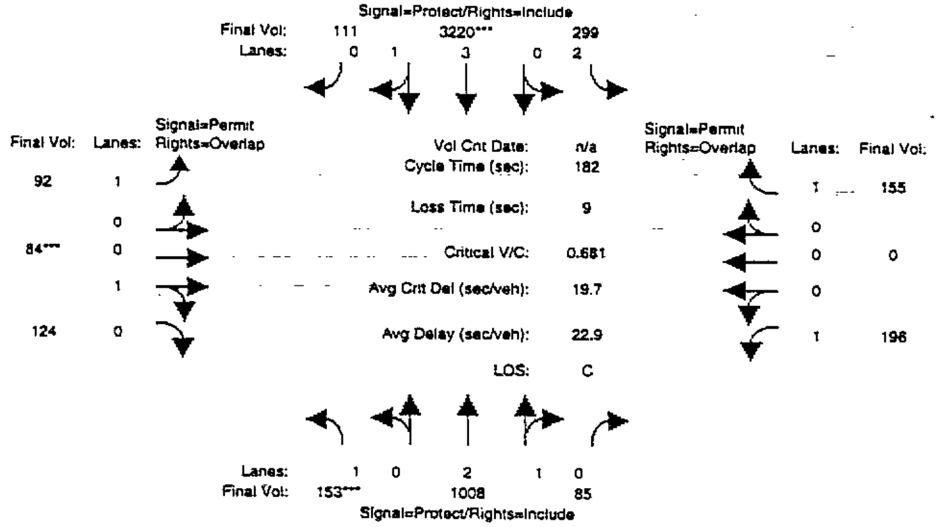


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	0	10
Volume Module:												
Base Vol:	147	969	60	241	3094	107	88	65	118	171	0	119
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	147	969	60	241	3094	107	88	65	118	171	0	119
Added Vol:	0	1	24	54	2	0	0	18	1	20	0	34
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	147	970	84	295	3096	107	88	83	119	191	0	153
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	147	970	84	295	3096	107	88	83	119	191	0	153
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	147	970	84	295	3096	107	88	83	119	191	0	153
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	147	970	84	295	3096	107	88	83	119	191	0	153
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.97	1.04	1.00	0.88	1.04	1.00	0.97	1.00	1.00	0.97	1.06	0.97
Lanes:	1.00	2.75	0.25	2.00	3.86	0.14	1.00	0.41	0.59	1.00	0.00	1.00
Final Sat.:	1750	5153	446	3150	7249	251	1750	740	1060	1750	0	1750
Capacity Analysis Module:												
Vol/Sat:	0.08	0.19	0.19	0.09	0.43	0.43	0.05	0.11	0.11	0.11	0.00	0.09
Crit Moves:	****				****			****				
Green Time:	23.3	94.7	94.7	47.1	119	118.5	31.1	31.1	54.5	31.1	0.0	78.3
Volume/Cap:	0.66	0.36	0.36	0.36	0.66	0.66	0.29	0.66	0.38	0.64	0.00	0.20
Delay/Veh:	62.0	19.6	19.6	42.0	14.9	14.9	50.2	57.0	38.5	56.5	0.0	24.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	62.0	19.6	19.6	42.0	14.9	14.9	50.2	57.0	38.5	56.5	0.0	24.6
DesignQueue:	13	49	4	23	123	4	7	7	9	16	0	9

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Future (PM)

Intersection #5506: ALMADEN/FOXWORTHY

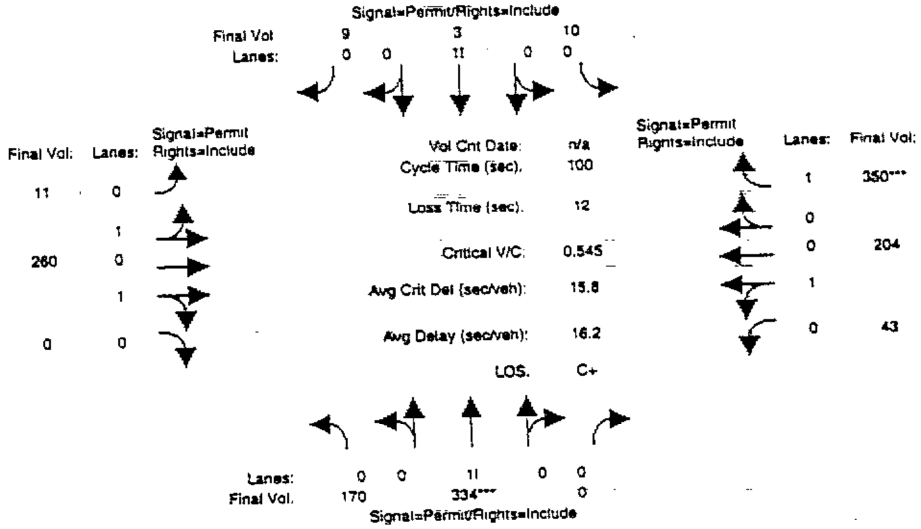


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	0	10
Volume Module:												
Base Vol:	153	1008	85	299	3220	111	92	84	124	196	0	155
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	153	1008	85	299	3220	111	92	84	124	196	0	155
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Other Proj.:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	153	1008	85	299	3220	111	92	84	124	196	0	155
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	153	1008	85	299	3220	111	92	84	124	196	0	155
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	153	1008	85	299	3220	111	92	84	124	196	0	155
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	153	1008	85	299	3220	111	92	84	124	196	0	155
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.97	1.04	1.00	0.88	1.04	1.00	0.97	1.00	1.00	0.97	1.06	0.97
Lanes:	1.00	2.76	0.24	2.00	3.86	0.14	1.00	0.40	0.60	1.00	0.00	1.00
Final Sat.:	1750	5164	435	3150	7250	250	1750	727	1073	1750	0	1750
Capacity Analysis Module:												
Vol/Sat:	0.09	0.20	0.20	0.09	0.44	0.44	0.05	0.12	0.12	0.11	0.00	0.09
Crit Moves:	****				****			****				
Green Time:	23.4	95.6	95.6	46.5	119	118.7	30.9	30.9	54.3	30.9	0.0	77.4
Volume/Cap:	0.68	0.37	0.37	0.37	0.68	0.68	0.31	0.68	0.39	0.66	0.00	0.21
Delay/Veh:	63.1	19.4	19.4	42.5	15.3	15.3	50.5	58.0	38.8	57.4	0.0	25.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	63.1	19.4	19.4	42.5	15.3	15.3	50.5	58.0	38.8	57.4	0.0	25.1
DesignQueue:	14	51	4	23	128	4	8	7	9	17	0	9

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Background (AM)

Intersection #5737: Old Almaden/Foxworthy

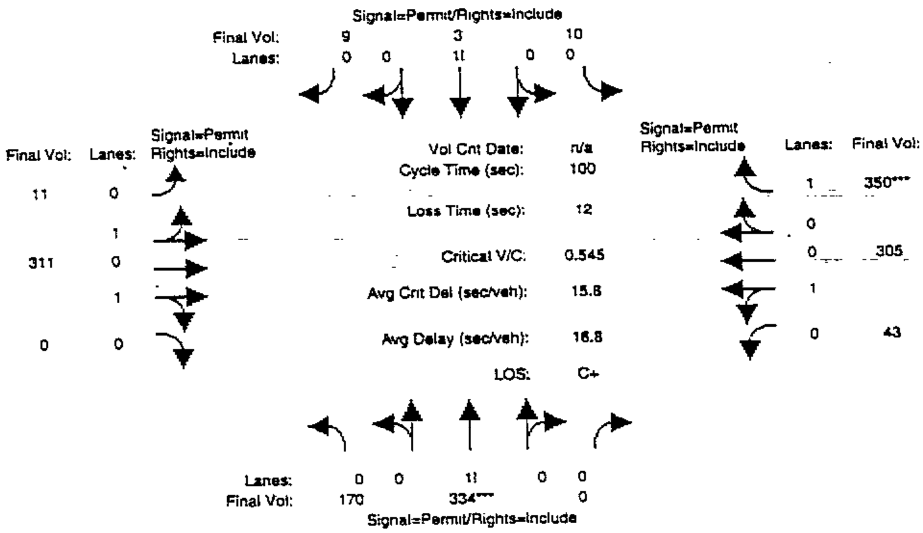


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	0	7	10	10	10	10	0	10	10	10
Volume Module:												
Base Vol:	170	334	0	10	3	9	11	260	0	43	204	350
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	170	334	0	10	3	9	11	260	0	43	204	350
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	170	334	0	10	3	9	11	260	0	43	204	350
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	170	334	0	10	3	9	11	260	0	43	204	350
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	170	334	0	10	3	9	11	260	0	43	204	350
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	170	334	0	10	3	9	11	260	0	43	204	350
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Lanes:	0.34	0.66	0.00	0.45	0.14	0.41	0.08	1.92	0.00	0.17	0.83	1.00
Final Sat.:	607	1193	0	795	239	716	146	3454	0	313	1487	1750
Capacity Analysis Module:												
Vol/Sat:	0.28	0.28	0.00	0.01	0.01	0.01	0.08	0.08	0.00	0.14	0.14	0.20
Crit Moves:		****										****
Green Time:	51.3	51.3	0.0	51.3	51.3	51.3	36.7	36.7	0.0	36.7	36.7	36.7
Volume/Cap:	0.55	0.55	0.00	0.02	0.02	0.02	0.21	0.21	0.00	0.37	0.37	0.55
Delay/Veh:	13.0	13.0	0.0	9.1	9.1	9.1	16.5	16.5	0.0	17.8	17.8	19.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	13.0	13.0	0.0	9.1	9.1	9.1	16.5	16.5	0.0	17.8	17.8	19.8
DesignQueue:	5	10	0	0	0	0	0	9	0	2	7	13

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Project (AM)

Intersection #5737: Old Almaden/Foxworthy

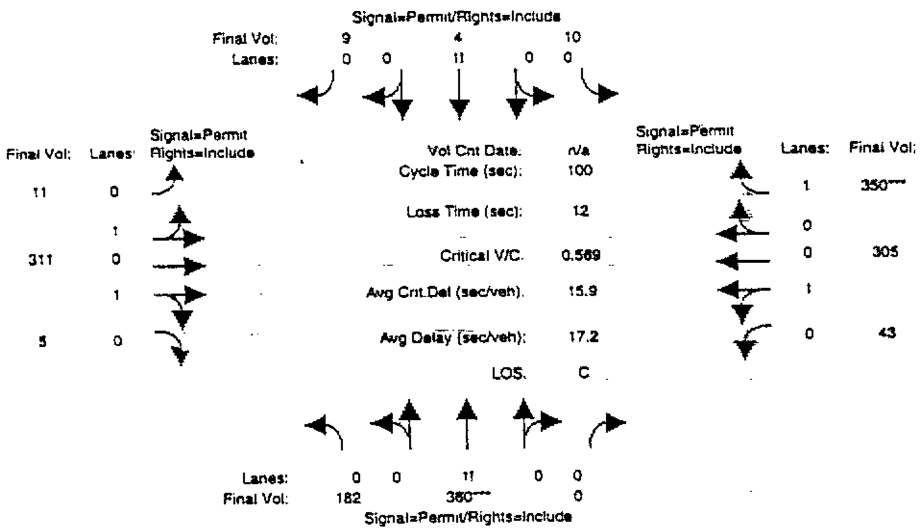


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	0	7	10	10	10	10	0	10	10	10
Volume Module:												
Base Vol:	170	334	0	10	3	9	11	260	0	43	204	350
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	170	334	0	10	3	9	11	260	0	43	204	350
Added Vol:	0	0	0	0	0	0	0	51	0	0	101	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	170	334	0	10	3	9	11	311	0	43	305	350
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	170	334	0	10	3	9	11	311	0	43	305	350
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	170	334	0	10	3	9	11	311	0	43	305	350
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	170	334	0	10	3	9	11	311	0	43	305	350
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Lanes:	0.34	0.66	0.00	0.45	0.14	0.41	0.07	1.93	0.00	0.12	0.88	1.00
Final Sat.:	607	1193	0	795	239	716	123	3477	0	222	1578	1750
Capacity Analysis Module:												
Vol/Sat:	0.28	0.28	0.00	0.01	0.01	0.01	0.09	0.09	0.00	0.19	0.19	0.20
Crit Moves:		****										****
Green Time:	51.3	51.3	0.0	51.3	51.3	51.3	36.7	36.7	0.0	36.7	36.7	36.7
Volume/Cap:	0.55	0.55	0.00	0.02	0.02	0.02	0.24	0.24	0.00	0.53	0.53	0.55
Delay/Veh:	13.0	13.0	0.0	9.1	9.1	9.1	16.8	16.8	0.0	19.5	19.5	19.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	13.0	13.0	0.0	9.1	9.1	9.1	16.8	16.8	0.0	19.5	19.5	19.8
DesignQueue:	5	10	0	0	0	0	0	11	0	2	11	13

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Future (AM)

Intersection #5737: Old Almaden/Foxworthy

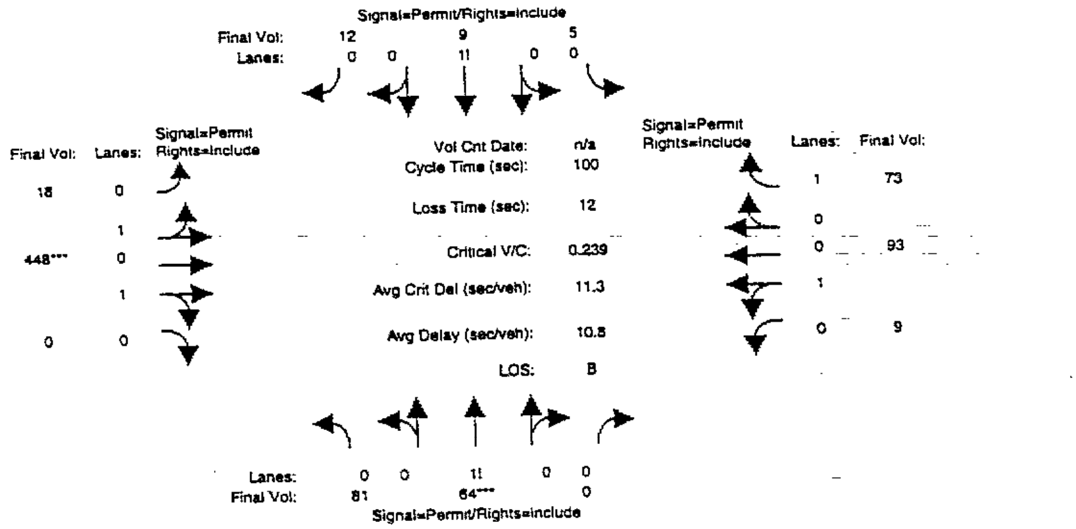


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	0	7	10	10	10	10	10	10	10	10
Volume Module:												
Base Vol:	182	360	0	10	4	9	11	311	5	43	305	350
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	182	360	0	10	4	9	11	311	5	43	305	350
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Other Proj.:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	182	360	0	10	4	9	11	311	5	43	305	350
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	182	360	0	10	4	9	11	311	5	43	305	350
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	182	360	0	10	4	9	11	311	5	43	305	350
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	182	360	0	10	4	9	11	311	5	43	305	350
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	0.97
Lanes:	0.34	0.66	0.00	0.44	0.17	0.39	0.07	1.90	0.03	0.12	0.88	1.00
Final Sat.:	604	1196	0	761	304	685	121	3424	55	222	1578	1750
Capacity Analysis Module:												
Vol/Sat:	0.30	0.30	0.00	0.01	0.01	0.01	0.09	0.09	0.09	0.19	0.19	0.20
Crit Moves:		****										****
Green Time:	52.9	52.9	0.0	52.9	52.9	52.9	35.1	35.1	35.1	35.1	35.1	35.1
Volume/Cap:	0.57	0.57	0.00	0.02	0.02	0.02	0.26	0.26	0.26	0.55	0.55	0.57
Delay/Veh:	12.7	12.7	0.0	8.6	8.6	8.6	17.6	17.6	17.6	20.6	20.6	20.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.7	12.7	0.0	8.6	8.6	8.6	17.6	17.6	17.6	20.6	20.6	20.9
DesignQueue:	5	10	0	0	0	0	0	11	0	2	12	13

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Background (PM)

Intersection #5737: Old Almaden/Foxworthy



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	0	7	10	10	7	10	0	7	10	10
Volume Module:												
Base Vol:	81	64	0	5	9	12	18	448	0	9	93	73
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	81	64	0	5	9	12	18	448	0	9	93	73
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	81	64	0	5	9	12	18	448	0	9	93	73
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	81	64	0	5	9	12	18	448	0	9	93	73
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	81	64	0	5	9	12	18	448	0	9	93	73
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	81	64	0	5	9	12	18	448	0	9	93	73
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Lanes:	0.56	0.44	0.00	0.19	0.35	0.46	0.08	1.92	0.00	0.09	0.91	1.00
Final Sat.:	1006	794	0	337	606	808	139	3461	0	159	1641	1750
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.00	0.01	0.01	0.01	0.13	0.13	0.00	0.06	0.06	0.04
Crit Moves:		****						****				
Green Time:	33.8	33.8	0.0	33.8	33.8	33.8	54.2	54.2	0.0	54.2	54.2	54.2
Volume/Cap:	0.24	0.24	0.00	0.04	0.04	0.04	0.24	0.24	0.00	0.10	0.10	0.08
Delay/Veh:	18.2	18.2	0.0	16.9	16.9	16.9	9.2	9.2	0.0	8.4	8.4	8.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.2	18.2	0.0	16.9	16.9	16.9	9.2	9.2	0.0	8.4	8.4	8.3
DesignQueue:	3	2	0	0	0	0	0	12	0	0	2	2

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Project (PM)

Intersection #5737: Old Almaden/Foxworthy

Signal=Permit/Rights=Include
Final Vol: 12 9 5
Lanes: 0 0 11 0 0

Final Vol:	Lanes:	Signal=Permit Rights=Include			Signal=Permit Rights=Include	Lanes:	Final Vol:
18	0		Vol Cnt Date:	n/a		1	73
	1		Cycle Time (sec):	100		0	
544***	0		Loss Time (sec):	12		0	147
	1		Critical V/C:	0.269		1	
0	0		Avg Crit Del (sec/veh):	10.5		0	9
			Avg Delay (sec/veh):	9.9			
			LOS:	B			

Lanes: 0 0 11 0 0
Final Vol: 81 64*** 0
Signal=Permit/Rights=Include

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	0	7	10	10	7	10	0	7	10	10
Volume Module:												
Base Vol:	81	64	0	5	9	12	18	448	0	9	93	73
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	81	64	0	5	9	12	18	448	0	9	93	73
Added Vol:	0	0	0	0	0	0	0	96	0	0	54	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	81	64	0	5	9	12	18	544	0	9	147	73
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	81	64	0	5	9	12	18	544	0	9	147	73
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	81	64	0	5	9	12	18	544	0	9	147	73
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	81	64	0	5	9	12	18	544	0	9	147	73
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Lanes:	0.56	0.44	0.00	0.19	0.35	0.46	0.06	1.94	0.00	0.06	0.94	1.00
Final Sat.:	1006	794	0	337	606	808	115	3485	0	104	1696	1750
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.00	0.01	0.01	0.01	0.16	0.16	0.00	0.09	0.09	0.04
Crit Moves:		****						****				
Green Time:	30.0	30.0	0.0	30.0	30.0	30.0	58.0	58.0	0.0	58.0	58.0	58.0
Volume/Cap:	0.27	0.27	0.00	0.05	0.05	0.05	0.27	0.27	0.00	0.15	0.15	0.07
Delay/Veh:	20.3	20.3	0.0	18.9	18.9	18.9	7.9	7.9	0.0	7.3	7.3	7.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	20.3	20.3	0.0	18.9	18.9	18.9	7.9	7.9	0.0	7.3	7.3	7.0
DesignQueue:	3	3	0	0	0	0	0	13	0	0	4	2

Communications Hill
765 Dwelling Units

Level Of Service Computation Report
1985 HCM Operations (Future Volume Alternative)
Future (PM)

Intersection #5737: Old Almaden/Foxworthy

Signal=Permit/Rights=Include
Final Vol: 12 10 5
Lanes: 0 0 11 0 0

Signal=Permit Rights=Include
Final Vol: Lanes:
19 0
1
544*** 0
1
10 0

Vol Cnt Date: n/a
Cycle Time (sec): 100
Loss Time (sec): 12
Critical V/C: 0.280
Avg Crit Del (sec/veh): 10.9
Avg Delay (sec/veh): 10.3
LOS: B

Signal=Permit Rights=Include
Lanes: Final Vol:
1 73
0
0 147
1
0 9

Lanes: 0 0 11 0 0
Final Vol: 88 69*** 0
Signal=Permit/Rights=Include

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	0	7	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	88	69	0	5	10	12	19	544	10	9	147	73
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	88	69	0	5	10	12	19	544	10	9	147	73
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Other Proj.:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	88	69	0	5	10	12	19	544	10	9	147	73
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	88	69	0	5	10	12	19	544	10	9	147	73
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	88	69	0	5	10	12	19	544	10	9	147	73
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	88	69	0	5	10	12	19	544	10	9	147	73
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	0.97	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	0.97
Lanes:	0.56	0.44	0.00	0.19	0.37	0.44	0.07	1.90	0.03	0.06	0.94	1.00
Final Sat.:	1009	791	0	324	648	778	119	3418	63	104	1696	1750
Capacity Analysis Module:												
Vol/Sat:	0.09	0.09	0.00	0.02	0.02	0.02	0.16	0.16	0.16	0.09	0.09	0.04
Crit Moves:		****						****				
Green Time:	31.2	31.2	0.0	31.2	31.2	31.2	56.8	56.8	56.8	56.8	56.8	56.8
Volume/Cap:	0.28	0.28	0.00	0.05	0.05	0.05	0.28	0.28	0.28	0.15	0.15	0.07
Delay/Veh:	19.8	19.8	0.0	18.3	18.3	18.3	8.4	8.4	8.4	7.8	7.8	7.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ProgAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.8	19.8	0.0	18.3	18.3	18.3	8.4	8.4	8.4	7.8	7.8	7.4
DesignQueue:	3	3	0	0	0	0	0	14	0	0	4	2