


A P P E N D I X H

G E O T E C H N I C A L A N D G E O L O G I C  
S T U D Y





<b>TYPE OF SERVICES</b>	Geotechnical and Geologic Feasibility Review
<b>PROJECT NAME</b>	800, 804, and 806 Alameda de las Pulgas Site
<b>LOCATION</b>	800, 804, and 806 Alameda de las Pulgas San Carlos, California
<b>CLIENT</b>	Dragonfly Investments Group
<b>PROJECT NUMBER</b>	904-1-1
<b>DATE</b>	November 1, 2017



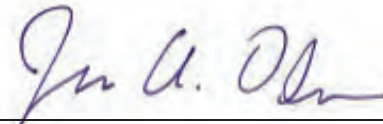
GEOTECHNICAL

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<b>Client</b>	<b>Dragonfly Investments Group</b>
<b>Client Address</b>	<b>777 Mariners Island Blvd., Suite 150 San Mateo, California</b>
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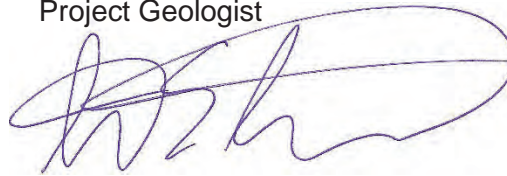
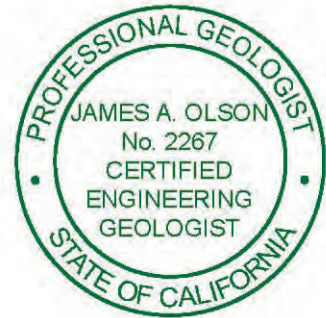
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## TABLE OF CONTENTS

<b>SECTION 1: INTRODUCTION</b> .....	<b>1</b>
1.1 Project Description .....	1
1.2 Scope of Services .....	1
1.3 Environmental Services .....	2
<b>SECTION 2: REGIONAL SETTING</b> .....	<b>2</b>
2.1 Geological Setting .....	2
2.2 Regional Seismicity .....	3
Table 1: Approximate Fault Distances .....	3
<b>SECTION 3: SITE CONDITIONS</b> .....	<b>3</b>
3.1 Site Background .....	3
3.2 Surface and Subsurface Description .....	4
<b>SECTION 4: GEOLOGIC HAZARDS</b> .....	<b>5</b>
4.1 Fault Rupture .....	5
4.2 Estimated Ground Shaking .....	5
4.3 Liquefaction Potential .....	5
4.4 Lateral Spreading .....	6
4.5 Landsliding .....	6
<b>SECTION 5: CONCLUSIONS</b> .....	<b>6</b>
5.1 Summary .....	6
5.1.1 Presence of Undocumented Fills .....	7
5.1.2 Presence of Moderately to Highly Expansive Soils and Soil Creep .....	7
5.1.3 Presence of a Tunnel .....	7
5.1.4 Potentially Difficult Excavation Within Bedrock .....	8
5.1.5 Springs .....	8
5.1.6 Differential Movement At On-grade to On-Structure Transitions .....	8

5.2 Design-Level Geological and Geotechnical Investigation-----9

**SECTION 6: EARTHWORK..... 9**

6.1 Anticipated Earthwork Measures-----9

**SECTION 7: FOUNDATIONS .....10**

7.1 Summary of Recommendations ----- 10

7.2 Seismic Design Criteria ----- 10

    Table 2: CBC Site Categorization and Site Coefficients .....11

7.3 Deep Foundations----- 11

    7.3.1 Drilled Piers.....11

    7.3.2 Lateral Capacity .....12

    7.3.3 Construction Considerations.....12

**SECTION 8: CONCRETE SLABS AND PEDESTRIAN PAVEMENTS .....12**

8.1 Interior Slabs-on-Grade ----- 12

8.2 Exterior Flatwork ----- 12

**SECTION 9: VEHICULAR PAVEMENTS .....13**

9.1 Asphalt Concrete----- 13

    Table 3: Preliminary Asphalt Concrete Pavement Recommendations, Design R-value = 5  
    .....13

**SECTION 10: RETAINING WALLS .....13**

10.1 Static Lateral Earth Pressures ----- 13

    Table 4: Recommended Lateral Earth Pressures.....14

10.2 Seismic Lateral Earth Pressures ----- 14

**SECTION 11: LIMITATIONS .....14**

**SECTION 12: REFERENCES .....16**

- FIGURE 1: VICINITY MAP**
- FIGURE 2: REGIONAL FAULT MAP**
- FIGURE 3: VICINITY GEOLOGIC MAP**
- FIGURE 4: HISTORICAL EARTHQUAKES MAP**
- FIGURE 5: SITE PLAN AND GEOLOGIC MAP**
- FIGURE 6: GEOLOGIC CROSS SECTION A-A'**
- FIGURE 7: COUNTY EARTHQUAKE LIQUEFACTION MAP**
- FIGURE 8: COUNTY LANDSLIDE MAP**
- FIGURE 9: EXISTING LANDSLIDE DISTRIBUTION**
- FIGURE 10: COUNTY PLANNING DEBRIS FLOW MAP**
- FIGURE 11: RAINFALL INDUCED LANDSLIDE AREAS**

<b>Type of Services</b>	<b>Geotechnical and Geologic Feasibility Review</b>
<b>Project Name</b>	<b>800, 804, and 806 Alameda de las Pulgas Site</b>
<b>Location</b>	<b>800, 804, and 806 Alameda de las Pulgas San Carlos, California</b>

## **SECTION 1: INTRODUCTION**

This geotechnical and geologic feasibility evaluation was prepared for the sole use of Dragonfly Investments Group for the 800, 804, and 806 Alameda de las Pulgas Feasibility in San Carlos, California (see Figure 1). The purpose of this study was to evaluate the existing surface conditions and develop an opinion regarding potential geotechnical and geologic concerns that could impact the proposed development. The preliminary recommendations contained in this report are for your forward planning, preliminary cost estimating, and preliminary project design. For our use, we were provided with a set of disclosure documents prepared by Black Mountain Properties, LLC, on May 2, 2016.

### **1.1 PROJECT DESCRIPTION**

The project will consist of single-family clustered homes on a 9- to 10-acre site. The planned development will be one to two stories, with possibly up to two stories below-grade, and of wood frame residential home construction. The location of the homes have not been selected, and the number of total units will be on the order of 60. Based on our discussions, we understand that the structures may be two stories above grade and cut into the hillsides by ½ to 2 stories below grade. Additionally, cut/fill slopes are anticipated to accommodate the grading of the building pads and roads for the development. Appurtenant parking, streets, utilities, landscaping and other improvements necessary for site development are also planned.

### **1.2 SCOPE OF SERVICES**

Our scope of services was presented in our proposal dated June 4, 2016 and consisted of file review and geotechnical and geologic site reconnaissance and review to develop a preliminary assessment of the potential presence of geotechnical and geologic hazards. Additionally, our scope of services also included engineering analysis for preliminary site grading recommendations and geotechnical design parameters for foundations, retaining structures and pavement areas for preliminary project design and cost evaluations (by others); and preparation of this feasibility report.



### 1.3 ENVIRONMENTAL SERVICES

Environmental services were not requested for this project. If environmental concerns are determined to be present during future evaluations, the project environmental consultant should review our geotechnical recommendations for compatibility with the environmental concerns.

## SECTION 2: REGIONAL SETTING

### 2.1 GEOLOGICAL SETTING

The San Francisco Peninsula is a relatively narrow band of rock at the north end of the Santa Cruz Mountains separating the Pacific Ocean from San Francisco Bay. It represents one mountain range in a series of northwesterly-aligned mountains forming the Coast Ranges geomorphic province of California that stretches from the Oregon border nearly to Point Conception. In the San Francisco Bay Area, most of the Coast Ranges have developed on a basement of tectonically mixed Cretaceous- and Jurassic-age (70 to 200 million years old) rocks of the Franciscan Complex. Locally, these basement rocks are capped by younger sedimentary and volcanic rocks. Most of the Coast Ranges are covered by younger surficial deposits that reflect geologic conditions for approximately the last million years.

Lateral and vertical movement on the many splays of the San Andreas Fault system and other secondary faults has produced the dominant northwest-oriented structural and topographic trend seen throughout the Coast Ranges today. This trend reflects the boundary between two of the Earth's major tectonic plates: the North American plate to the east and the Pacific plate to the west.

The San Andreas Fault is the dominant structure in the system, nearly spanning the length of California, and capable of producing the highest magnitude earthquakes, see Figure 2. Many other sub-parallel or branch faults within the San Andreas system are equally active and nearly as capable of generating large earthquakes. Right-lateral movement dominates these faults, but an increasingly large amount of thrust faulting resulting from compression across the system is now being identified as well.

The San Andreas Fault is located approximately 2.5 miles southwest of the site, where it trends northwesterly through Crystal Springs Reservoir. The Distances to other nearby active faults are shown in Table 1.

More locally, the site is in an area dominated by bedrock units of the Cretaceous and/or Jurassic Franciscan Complex, see Figure 3. Several regional scale geologic maps covering the area have been published of the area including those by Brabb and Pampeyan (1983), Wentworth et al. (1985) and Brabb et al. (1998) depict the same geologic unit underlying the site. Their mapping of the bedrock units is consistent with our site observations (see below). They depict the area as underlain by "Sandstone" of the Franciscan Complex.

The Franciscan Complex - Sandstone forms an extensive outcrop across the immediate area and is the only unit mapped at the subject site. Bedding within the sedimentary rock generally

trends northwest-southeast. However, dips are highly variable and slope both to the northeast and southwest. This is characteristic of tightly folded sedimentary rock.

The following geologic unit description comes from the Brabb et al. (1998). The Cretaceous and Jurassic Franciscan Complex – Sandstone is “Greenish-gray to buff, fine-to coarse-grained sandstone (greywacke), with interbedded siltstone and shale. In many places, shearing has obscured bedding relations; rock in which shale has been sheared to gouge constitutes about 10 percent of unit.”

**2.2 REGIONAL SEISMICITY**

The San Francisco Bay area is one of the most seismically active areas in the Country, see Figure 4. While seismologists cannot predict earthquake events, the U.S. Geological Survey’s Working Group on California Earthquake Probabilities 2007 estimates there is a 63 percent chance of at least one magnitude 6.7 or greater earthquake occurring in the Bay Area region between 2007 and 2036. As seen with damage in San Francisco and Oakland due to the 1989 Loma Prieta earthquake that was centered about 50 miles south of San Francisco, significant damage can occur at considerable distances. Higher levels of shaking and damage would be expected for earthquakes occurring at closer distances.

The faults considered capable of generating significant earthquakes are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The table below presents the State-considered active faults within 25 kilometers of the site.

**Table 1: Approximate Fault Distances**

Fault Name	Distance	
	(miles)	(kilometers)
San Andreas (1906)	2.5	4.0
Monte Vista-Shannon	8.4	13.6
San Gregorio	10.7	17.3

A regional fault map is presented as Figure 2, illustrating the relative distances of the site to significant fault zones. The San Andreas and San Gregorio faults are through going structures that are located to the west of the site. The closest point of these two faults to the site is noted above. The Monte Vista-Shannon fault zone is not through going. Its northern most point terminates 13.6 kilometers to the south of the site.

**SECTION 3: SITE CONDITIONS**

**3.1 SITE BACKGROUND**

Please refer to the Site Plan, Figure 5, for the following discussion. The project site is currently developed with two residential homes located at 804 and 806 Alameda de las Pulgas. 800 Alameda de las Pulgas is currently undeveloped. The upper portion of the project site is also

undeveloped. The property located at 808 Alameda de las Pulgas is not part of the subject property.

To aid in our evaluation we have reviewed 4 sets of stereo-paired aerial photographs from the years 1943, 1946, 1956 and 1982 (please refer to the References section) as well as images available on Google Earth from 1948 through 2016. The 1943 photos show the site developed with a small home located just below the current home located at 806 Alameda de las Pulgas. A small cut-fill pad was located south of the home with no associated development. Prior to 1946 a large structure, and associated grading, was constructed at 800 Alameda de las Pulgas. Between 1946 and 1956 the home at 808 Alameda de las Pulgas (not part of the subject project) and associated long driveway was built. Also during this time, a large fill slope associated with the subdivision south of the site was constructed. Prior to 1982, the two homes at 804 and 806 Alameda de las Pulgas as well as San Carlos High School, to the southwest of the site, were built. Grading for the school was extensive. Around 1990 the school was replaced by a home subdivision. At some point prior to 2002 the large structure at 800 Alameda de las Pulgas was removed.

### **3.2 SURFACE AND SUBSURFACE DESCRIPTION**

A reconnaissance of the site and immediate vicinity was performed by our Certified Engineering Geologist on June 22, 2016, for the purpose of observing existing site development, geomorphology and potential geologic hazards associated with site development. The discussion below summarizes what we observed at the site.

The subject site is located on the northeast flank of Pulgas Ridge, a knob of resistant bedrock that rises about 600 hundred feet above the surrounding terrain. The site location and the topography of the area are shown on Figure 5. This area is characterized by rolling terrain and northwest trending ridges and drainages on the peninsula segment of the Santa Cruz Mountains. The project site encompasses a “Y” shaped drainage that drains to the east. Side slopes are moderate. A general cross section of the site is presented in Figure 6.

The upper one-third of the site (rectangular area) is occupied by a gently sloping long ridge with moderate, planar side-slopes, with gradients of approximately 1.5:1 to 3:1 (horizontal to vertical). This area has not been previously developed. Minor grading at the top of the ridge exposes hard sandstone at a shallow depth. This area is vegetated with grasses and oak trees. Vegetation within the two valleys that flank the ridge is indicative of possible ephemeral springs. The valley floors are planar and may be underlain by colluvium. A minor fill wedge occupies the northern valley and a small portion of the southern valley. Residential development abuts this area to the southwest and northwest.

The lower two-thirds of the site is occupied by a single drainage. This area has been altered extensively by grading (cuts, fills and imported fills). Fill depths may be on the order of 10-15 feet. Natural side-slopes are moderate with approximate gradients of 2:1. The two existing homes are located on cut-fill pads. During our site reconnaissance, we observed cracking along the back half of the home located at 806 Alameda de las Pulgas. The deformation may be associated with fill settlement. The steep cut slope (about 1:1) located behind 804 Alameda de

las Pulgas exposes hard sandstone. An artesian spring is located in the center of this portion of the project. Additionally, we understand that the spring flows into a tunnel with a height of approximately six feet; however, there are not any maps or plans indicating the length and direction, or the possibility of there being multiple tunnels.

## **SECTION 4: GEOLOGIC HAZARDS**

### **4.1 FAULT RUPTURE**

As discussed above several significant faults are located within 25 kilometers of the site. The site is not located within a State-designated Alquist Priolo Earthquake Fault Zone. As shown in Figure 2, no known surface expression of fault traces is thought to cross the site; therefore, fault rupture hazard is not a significant geologic hazard at the site.

### **4.2 ESTIMATED GROUND SHAKING**

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. A peak ground acceleration (PGA) of 0.783 was estimated for analysis using  $F_{PGA} \times PGA$  (Equation 11.8-1) as allowed in the 2016 California Building Code.

### **4.3 LIQUEFACTION POTENTIAL**

The site is not currently mapped by the State of California, but is within a zone mapped as having a low to very low liquefaction potential by the Association of Bay Area Governments (ABAG), see Figure 7.

During strong seismic shaking, cyclically induced stresses can cause increased pore pressures within the soil matrix that can result in liquefaction triggering, soil softening due to shear stress loss, potentially significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (NCEER 1998). Limited field and laboratory data is available regarding ground deformation due to settlement; however, in clean sand layers settlement on the order of 2 to 3 percent of the liquefied layer thickness can occur. Soils most susceptible to liquefaction are loose, non-cohesive soils that are saturated and are bedded with poor drainage, such as sand and silt layers bedded with a cohesive cap.

Based on our previous experience in the area, the site is underlain by shallow Franciscan Complex Sandstone bedrock. Additionally, we anticipate ground water to be below potentially liquefiable residual soils. Based on the above, our screening of the site for liquefaction indicates a low potential for liquefaction, and is in general agreement with local mapping for the site by ABAG.

#### **4.4 LATERAL SPREADING**

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. As failure tends to propagate as block failures, it is difficult to analyze and estimate where the first tension crack will form.

As the site is underlain by shallow bedrock and in an area of low liquefaction potential, in our opinion, the potential for lateral spreading to affect the site is very low.

#### **4.5 LANDSLIDING**

Based on our surface reconnaissance, research of published and unpublished geologic maps and reports, and our review of aerial photographs, we believe there is a low potential for landslides including debris flows to impact the subject site.

The regional landslide map for San Mateo County (Brabb and Pampeyan, 1972) shows no landslides in the immediate area of the subject site. The "County Landslide Map" shows the site within an area with "few landslides" (see Figure 8). The ABAG map shows the site located within an area with "very few landslides" (see Figure 9). The slopes at the subject site do not have a morphology indicative of deep-seated landsliding. The subject ridge line is continuous and the slopes lack diverging contours. No evidence of large deep seated disturbance, such as large grabens, ground cracks, springs, etc., was observed during our field reconnaissance. We do not believe the site is underlain by a deep-seated landslide.

The San Mateo County debris flow source area map (Ellen et al., 1997) shows a very small source area adjacent the southern property line of subject property, see Figures 10 and 11. The potential source areas based on hillslope steepness and curvature, with steep swales being typical source areas. The base map for their analysis was a DEM (digital elevation model) with a grid spacing of 30 meters. As shown on the subject topographic map and confirmed during our site reconnaissance, the slope in question is relatively planar and does not concentrate runoff. In addition, the slope is relatively short and runoff from the top of the slope is controlled in storm drains located along Galsgow Lane. Therefore, in our opinion there is a low potential for this slope to generate a debris flow.

### **SECTION 5: CONCLUSIONS**

#### **5.1 SUMMARY**

From a geotechnical and geologic viewpoint, the project is feasible provided the concerns listed below are addressed in the project design. The preliminary recommendations that follow are intended for conceptual planning and preliminary design. A design-level geological and geotechnical investigation should be performed once site development plans are prepared indicating where proposed structures and roads are planned. The design-level investigation findings will be used to confirm the preliminary recommendations and develop detailed

recommendations for design and construction. Descriptions of each geotechnical concern with brief outlines of our preliminary recommendations follow the listed concerns.

- Presence of undocumented fills
- Presence of moderately to highly expansive soils and soil creep
- Presence of a tunnel
- Potential difficult excavation within bedrock
- Springs
- Differential movement at on-grade to on-structure transitions

### **5.1.1 Presence of Undocumented Fills**

As previously mentioned, we anticipate fills to be on the order of up to 10 to 15 feet in some areas. In development areas that will support roads and structures, all undocumented fills should be removed down to native soil and replaced as compacted engineered fill, unless the structures are supported on drilled pier foundations, which derive support from the underlying native soils and bedrock. For planning purposes, we recommend the residential structure be supported on drilled piers. We recommend performing detailed foundation explorations for each lot during the design-level geological and geotechnical investigation to collect site-specific data.

### **5.1.2 Presence of Moderately to Highly Expansive Soils and Soil Creep**

Previous investigations have indicated that the residual soils may have a Plasticity Index (PI) as high as 42, indicating highly to very highly expansive potential. Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried and expand and soften when wetted. Additionally, when these soils are located on hillslopes, they are subject to slope creep. If structures are underlain by expansive soils it is important that foundation systems be capable of tolerating or resisting any potentially damaging soil movements. For planning purposes, we recommend the residential structure be supported on drilled piers. In addition, it is important to limit moisture changes in the surficial soils by using positive drainage away from buildings as well as limiting landscaping watering. To mitigate the highly expansive soils and soil creep the structures should be supported on drilled piers.

### **5.1.3 Presence of a Tunnel**

As previously mentioned, a tunnel with a height of approximately six feet is currently at the site; however, there are not any maps or plans indicating the length and direction, or the possibility of there being multiple tunnels.

While drilled pier foundations are recommended on a preliminary basis for the proposed structures, the piers should not be founded in the tunnel zone. Based on our experience, the presence of a tunnel is a concern because construction of the proposed structures on or near the top of the tunnel may cause it to collapse. On similar projects, the developer has decided to not build residential units on top of tunnels and has developed plans to fill those tunnels with grout to reduce the risk of future collapse in open space areas. For this project, we understand

that it is desired to keep the tunnel intact and open to allow for water supply. This would mean the structures would have to be designed to span over the tunnel zone. During the design-level geological and geotechnical investigation we recommend that the tunnel or tunnels be mapped and measured by a surveyor, and a tunnel consultant be retained to provide advice for potential future performance of the tunnel. Cornerstone does not have expertise in evaluation of tunnels for collapse potential.

#### **5.1.4 Potentially Difficult Excavation Within Bedrock**

As the site is underlain with shallow Franciscan Complex Sandstone bedrock, we anticipate that many excavations for proposed basements and utilities will likely encounter the bedrock very early. The previous geotechnical reports indicated that several of the borings for subsurface exploration ended due to practical refusal at depths no deeper than 18 feet. Contractors should use appropriate means and methods to excavate through the bedrock. We anticipate that the upper 20 to 30 feet of the bedrock should be “rippable” with large Caterpillar or equivalent-type dozers. Drilling of piers will likely require heavy-duty drill rigs equipped with rock augers, rock core barrels or air percussion-type drill bits. Depending on the depth of the cuts anticipated for grading, we may recommend to perform seismic refraction surveys to verify bedrock “rippability.”

#### **5.1.5 Springs**

As previously mentioned, an artisan spring is located at the site. To mitigate groundwater seepage occurrences, we recommend the installation of subdrains as needed for the entire project. We recommend the installation of a subdrain system consisting of perforated pipe and permeable gravel or drain rock. If open graded drain rock is used, the rock and pipe should be entirely enclosed with a permeable geotextile fabric. Subdrains should be also be installed where seepage is observed. We recommend that a conceptual subdrain plan be prepared once grading plans have been finalized. The actual location of subdrains should be determined during the design-level geological and geotechnical investigation.

#### **5.1.6 Differential Movement At On-grade to On-Structure Transitions**

The proposed homes may have basements of up to two stories below-grade, and some of the homes and other improvements will transition from on-grade support to overlying the basements. Where the depth of soil cover overlying the basement roofs is thin or where basement walls extend to within inches of finished grade, these transition areas typically experience increased differential movement due to a variety of causes, including difficulty in achieving compaction of retaining wall backfill closest to the wall. We recommend consideration be given to where engineered fill is placed behind retaining walls extending to near finished grade, and that subslabs be included beneath flatwork that can cantilever at least 3 feet beyond the wall. If surface improvements are included that are highly sensitive to differential movement, additional measures may be necessary.

## 5.2 DESIGN-LEVEL GEOLOGICAL AND GEOTECHNICAL INVESTIGATION

The preliminary recommendations contained in this feasibility study were based on limited site development information and, a reconnaissance of the site, and review of available subsurface information and our experience in the area. This feasibility study did not include exploration of the subsurface soils, we recommend that we be retained to 1) perform a design-level geological and geotechnical investigation, once detailed site development plans are available; 2) to review the geotechnical aspects of the project structural, civil, and landscape plans and specifications, allowing sufficient time to provide the design team with any comments prior to issuing the plans for construction; and 3) be present to provide geotechnical observation and testing during earthwork and foundation construction.

## SECTION 6: EARTHWORK

### 6.1 ANTICIPATED EARTHWORK MEASURES

- On a preliminary basis, the site should be stripped of all surface vegetation, and surface and subsurface improvements with the proposed development areas. Surface vegetation and topsoil should be stripped to a sufficient depth to remove all material greater than 3 percent organic content by weight.
- As our preliminary foundation recommendations include supporting the structures on drilled foundations, existing fills may remain in place provided that the top 12 inches are reworked and compacted. Fills extending into planned pavement and flatwork areas may be left in place provided they are determined to be low risk for future distress due to differential settlement and that the upper 12 inches of fill below pavement subgrade and flatwork areas are reworked and compacted. Deeper over-excavations to remove fills may be needed depending on the results of the design-level investigation.
- The contractor is responsible for maintaining all temporary slopes and providing temporary shoring where required. Temporary shoring, bracing, and cuts/fills should be performed in accordance with the strictest government safety standards. The choice of shoring method should be left to the contractor's judgment based on experience, economic considerations and adjacent improvements such as utilities, pavements, and foundation loads. Based on anticipated site conditions, the cuts may be supported by soldier beams and tie-backs, braced excavations, soil nailing, or potentially other methods. Where shoring will extend more than about 10 feet, restrained shoring will most likely be required to limit detrimental lateral deflections and settlement behind the shoring. In addition to soil earth pressures, the shoring system will need to support adjacent loads such as construction vehicles and incidental loading, existing structure foundation loads, and street loading.
- On-site soils with an organic content less than 3 percent by weight may be reused as general fill, and should not have lumps, clods or cobble pieces larger than 6 inches in diameter. Imported and non-expansive materials should be inorganic and with a Plasticity Index (PI) of 15 or less, and not contain recycled asphalt concrete where it will be used within the proposed building areas.



- All fills, and subgrade areas where fill, slabs-on-grade, and pavements are planned, should be placed in loose lifts 8 inches thick or less and compacted in accordance with ASTM D1557 (latest version) requirements. Clayey soils should be compacted with sheepsfoot equipment and sandy/gravelly soils with vibratory equipment; open graded materials such as crushed rock should be placed in lifts no thicker than 18 inches and consolidated in place with vibratory equipment.
- All utility lines should be bedded and shaded to at least 6 inches over the top of the lines with crushed rock (<sup>3</sup>/<sub>8</sub>-inch-diameter or greater) or well-graded sand and gravel materials conforming to the pipe manufacturer's requirements. General backfill over shading materials may consist of on-site native materials provided they meet the requirements in the "Material for Fill" section.
- All permanent cut slopes in soil should have a maximum inclination of 2:1 (horizontal:vertical) for slopes up to 20 feet high; slopes greater than 20 feet should be inclined at no greater than 2.5:1 unless reviewed by our staff. All permanent cuts in competent bedrock may have a maximum inclination of 2:1. The slopes should have some form of erosion control implemented.
- Subdrains should be anticipated behind all retaining walls, beneath building slabs-on-grade and at the base of fills greater than seven feet thick.

## **SECTION 7: FOUNDATIONS**

### **7.1 SUMMARY OF RECOMMENDATIONS**

On a preliminary basis, in our opinion, the proposed structures should be supported on drilled piers provided the recommendations in the "Earthwork" section and the sections below are followed.

### **7.2 SEISMIC DESIGN CRITERIA**

The project structural design should be based on the 2016 California Building Code (CBC), which provides criteria for the seismic design of buildings in Chapter 16. The "Seismic Coefficients" used to design buildings are established based on a series of tables and figures addressing different site factors, including the soil profile in the upper 100 feet below grade and mapped spectral acceleration parameters based on distance to the controlling seismic source/fault system. Based on our experience in the area and review of local geology, the site is underlain by shallow Franciscan Complex Sandstone bedrock with typical SPT "N" values greater than 50 blows per foot within the upper 100 feet of the surface. Therefore, we have classified the site as Soil Classification C. The mapped spectral acceleration parameters  $S_s$  and  $S_1$  were calculated using the USGS computer program ••••••••, located at <http://earthquake.usgs.gov/hazards/designmaps/usdesign.php>, based on the site coordinates presented below and the site classification. The table below lists the various factors used to determine the seismic coefficients and other parameters.

**Table 2: CBC Site Categorization and Site Coefficients**

Classification/Coefficient	Design Value
Site Class	C
Site Latitude	37.496897**
Site Longitude	-122.272179**
0.2-second Period Mapped Spectral Acceleration <sup>1</sup> , $S_s$	1.999g
1-second Period Mapped Spectral Acceleration <sup>1</sup> , $S_1$	0.940g
Short-Period Site Coefficient – $F_a$	1.0
Long-Period Site Coefficient – $F_v$	1.3
0.2-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects - $S_{MS}$	1.999g
1-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects – $S_{M1}$	1.223g
0.2-second Period, Design Earthquake Spectral Response Acceleration – $S_{DS}$	1.333g
1-second Period, Design Earthquake Spectral Response Acceleration – $S_{D1}$	0.815g
Mapped MCE Geometric Mean Peak Ground Acceleration – $PGA_M$	0.783g
Site Coefficient Based on PGA and Site Class - $F_{PGA}$	1.0

<sup>1</sup>For Site Class B, 5 percent damped.

### 7.3 DEEP FOUNDATIONS

Because the residential structures may be located on the existing sloping ground and in areas of undocumented fill, we recommend all buildings and retaining walls be founded on drilled piers and designed with the preliminary parameters below.

#### 7.3.1 Drilled Piers

On a preliminary basis, the proposed structures may be supported on drilled, cast-in-place, straight-shaft friction piers with minimum diameters of 16 inches. The piers should extend to a minimum depth of between 10 and 15 feet below adjacent grade or at least 5 feet into bedrock, whichever is greater. Adjacent pier centers should be spaced at least three diameters apart, otherwise, a reduction for group effects may be required. Grade beams should span between piers and/or pier caps in accordance with structural requirements. Conventional slabs-on-grade may be used provided the subgrade soils are restrained laterally with retaining walls of grade beams and subgrade is prepared in accordance with the “Earthwork” section of this report.

The vertical capacity of the piers may be designed based on an allowable skin friction of 500 psf for combined dead plus live loads based on a factor of safety of 2.0; dead loads should not exceed two-thirds of the allowable capacities. The upper 36 inches of should be neglected. The allowable skin friction may be increased by one-third for wind and seismic loads. Frictional resistance to uplift loads may be developed along the pier shafts based on an allowable frictional resistance of 400 psf.

Total settlement of individual piers or pier groups of four or less should not exceed ½-inch to mobilize static capacities and post-construction differential settlement over a horizontal distance of 30 feet should not exceed ¼-inch due to static loads.

### **7.3.2 Lateral Capacity**

Lateral loads exerted on the piers may be resisted by a passive resistance based on an ultimate equivalent fluid pressure of 450 pcf acting against twice the projected area of piers below the pier cap or grade beam within pier groups of two or more and over two pier diameters for single piers. The lateral pressure may increase up to a maximum uniform pressure of 3,000 psf at depth. The upper 24 inches of soil should be neglected when determining lateral capacity due to sloping ground conditions. The piers should also be designed for an equivalent lateral earth pressure of 60 pcf acting in the upper 2 feet over two pier diameters to simulate soil creep on the piers. The structural engineer should apply an appropriate factor of safety to the ultimate passive pressures.

### **7.3.3 Construction Considerations**

The excavation of all drilled shafts should be observed by a Cornerstone representative to confirm the soil profile, verify that the piers extend the minimum depth into suitable materials and that the piers are constructed in accordance with our recommendations and project requirements. The drilled shafts should be straight, dry, and relatively free of loose material before reinforcing steel is installed and concrete is placed. If ground water is encountered and cannot be removed from the excavations prior to concrete placement, drilling slurry or casing may be required to stabilize the shaft and the concrete should be placed using a tremie pipe, keeping the tremie pipe below the surface of the concrete to avoid entrapment of water or drilling slurry in the concrete. The contractor should anticipate difficult drilling conditions including the use of rock coring drill bits and/or air percussion drilling bits.

## **SECTION 8: CONCRETE SLABS AND PEDESTRIAN PAVEMENTS**

### **8.1 INTERIOR SLABS-ON-GRADE**

The residual soils may have high to very high plasticity. On a preliminary basis, conventional slabs-on-grade should be supported on at least 18 to 24 inches of non-expansive fill (NEF) to reduce the potential for slab damage due to soil heave. Additional PI testing should be performed during the design level investigation.

### **8.2 EXTERIOR FLATWORK**

On a preliminary basis, exterior concrete flatwork subject to pedestrian and/or occasional light pick up loading should be at least 4 inches thick and supported on 12 inches of non-expansive fill overlying prepared subgrade. Additional PI testing should be performed during the design level investigation.

## SECTION 9: VEHICULAR PAVEMENTS

### 9.1 ASPHALT CONCRETE

The following asphalt concrete pavement recommendations tabulated below are based on the Procedure 608 of the Caltrans Highway Design Manual, estimated traffic indices for various pavement-loading conditions, and on an assumed preliminary design R-value of 5. The design R-value was chosen based on engineering judgment considering the possibly variable surface conditions. R-value testing should be performed as part of the design level investigation.

**Table 3: Preliminary Asphalt Concrete Pavement Recommendations, Design R-value = 5**

Design Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base* (inches)	Total Pavement Section Thickness (inches)
4.0	2.5	7.5	10.0
4.5	2.5	9.0	11.5
5.0	2.5	11.0	13.5
5.5	3.0	12.0	15.0
6.0	3.5	13.5	17.0
6.5	3.5	14.5	18.0

\*Caltrans Class 2 aggregate base; minimum R-value of 78

## SECTION 10: RETAINING WALLS

### 10.1 STATIC LATERAL EARTH PRESSURES

The structural design of any site retaining wall should include resistance to lateral earth pressures that develop from the soil behind the wall, any undrained water pressure, and surcharge loads acting behind the wall. On a preliminary basis, provided a drainage system is constructed behind the wall to prevent the build-up of hydrostatic pressures as discussed in the section below, we recommend that the walls be designed for the following pressures:

**Table 4: Recommended Lateral Earth Pressures**

Sloping Backfill Inclination (horizontal:vertical)	Lateral Earth Pressure*	
	Unrestrained – Cantilever Wall	Restrained – Braced Wall
Level	45 pcf	45 pcf + 8H
3:1	55 pcf	55 pcf + 8H
2½:1	60 pcf	60 pcf + 8H
2:1	65 pcf	65 pcf + 8H
1.5:1	75 pcf	75 pcf + 8H
<b>Additional Surcharge Loads</b>	1/3 of vertical loads at top of wall	1/2 of vertical loads at top of wall

\* Lateral earth pressures are based on an equivalent fluid pressure

\*\* H is the distance in feet between the bottom of footing and top of retained soil

In our opinion, garage and basement walls should be designed as restrained walls. If adequate drainage cannot be provided behind the wall, an additional equivalent fluid pressure of 40 pcf should be added to the values above for both restrained and unrestrained walls for the portion of the wall that will not have drainage. Damp proofing or waterproofing of the walls may be considered where moisture penetration and/or efflorescence are not desired.

## 10.2 SEISMIC LATERAL EARTH PRESSURES

The 2016 CBC states that lateral pressures from earthquakes should be considered in the design of basements and retaining walls. We reviewed the seismic earth pressures for the proposed basement walls using procedures generally based on the Mononobe-Okabe method. The walls may be at least 10 to 12 feet in height, and peak ground accelerations are greater than 0.40g; therefore, we checked the result of the seismic increment when added to the recommended active earth pressure against the recommended fixed wall earth pressures. On a preliminary basis, if the basement walls are restrained, or will act as restrained walls, and will be designed for 45 pcf (equivalent fluid pressure) plus a uniform earth pressure of 8H psf, based on current recommendations for seismic earth pressures (Lew et al., SEAOC 2010), it appears that active earth pressures plus a seismic increment may not exceed the fixed wall earth pressures as long as the basement walls are designed for the restrained wall earth pressures recommended above.

Our preliminary assessment of seismic lateral earth pressures is based on assumed values and other parameters. During the design-level geological geotechnical investigation, we will recalculate seismic lateral earth pressures to determine if an additional seismic increment is needed.

## SECTION 11: LIMITATIONS

This report, an instrument of professional service, has been prepared for the sole use of Dragonfly Investments Group specifically to support the design of the 800, 804, and 806 Alameda de las Pulgas Feasibility project in San Carlos, California. The opinions, conclusions,

and preliminary recommendations presented in this report have been formulated in accordance with accepted geotechnical engineering practices that exist in Northern California at the time this report was prepared. No warranty, expressed or implied, is made or should be inferred.

Preliminary recommendations in this report are based upon the soil and ground water conditions encountered during our limited subsurface exploration. Preparation of a design-level investigation is anticipated to provide additional information and refine the preliminary recommendations presented herein. If variations or unsuitable conditions are encountered during the construction phase, Cornerstone must be contacted to provide supplemental recommendations, as needed.

Dragonfly Investments Group may have provided Cornerstone with plans, reports and other documents prepared by others. Dragonfly Investments Group understands that Cornerstone reviewed and relied on the information presented in these documents and cannot be responsible for their accuracy.

Cornerstone prepared this report with the understanding that it is the responsibility of the owner or his representatives to see that the recommendations contained in this report are presented to other members of the design team and incorporated into the project plans and specifications, and that appropriate actions are taken to implement the geotechnical recommendations during construction.

Conclusions and recommendations presented in this report are valid as of the present time for the development as currently planned. Changes in the condition of the property or adjacent properties may occur with the passage of time, whether by natural processes or the acts of other persons. In addition, changes in applicable or appropriate standards may occur through legislation or the broadening of knowledge. Therefore, the conclusions and recommendations presented in this report may be invalidated, wholly or in part, by changes beyond Cornerstone's control. This report should be reviewed by Cornerstone after a period of three (3) years has elapsed from the date of this report. In addition, if the current project design is changed, then Cornerstone must review the proposed changes and provide supplemental recommendations, as needed.

An electronic transmission of this report may also have been issued. While Cornerstone has taken precautions to produce a complete and secure electronic transmission, please check the electronic transmission against the hard copy version for conformity.

Recommendations provided in this report are based on the assumption that Cornerstone will be retained to provide observation and testing services during construction to confirm that conditions are similar to that assumed for design, and to form an opinion as to whether the work has been performed in accordance with the project plans and specifications. If we are not retained for these services, Cornerstone cannot assume any responsibility for any potential claims that may arise during or after construction as a result of misuse or misinterpretation of Cornerstone's report by others. Furthermore, Cornerstone will cease to be the Geotechnical-Engineer-of-Record if we are not retained for these services.

## SECTION 12: REFERENCES

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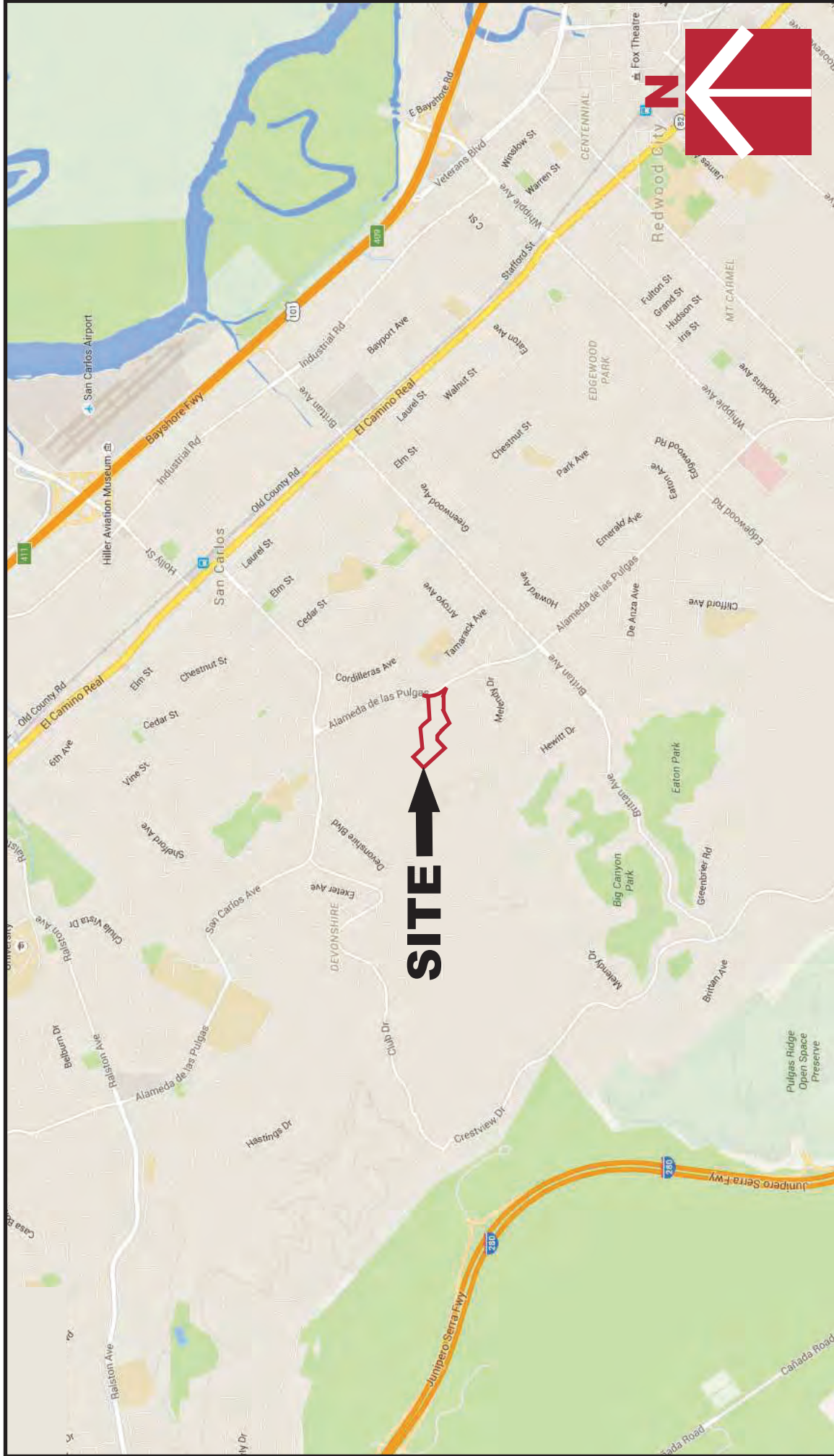
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### **Aerial Photographs**

Geomorphic features on the following aerial photographs were interpreted at the U.S. Geological Survey in Menlo Park as part of this investigation:

<u>Date</u>	<u>Flight</u>	<u>Frames</u>	<u>Scale</u>	<u>Type</u>
October 5, 1943	DDB	1B-103, 104	1:20,000	Black & White
July 29, 1946	GS-CP	2-89, 190	1:20,000	Black & White
October 8, 1956	GS-VLX	1-7, 8	1:23,600	Black & White
January 8, 1982	USGS JSS	7-21, 22	1:20,000	Black & White



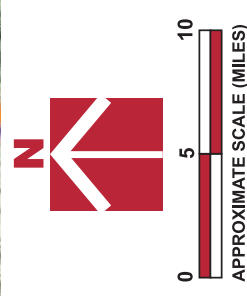
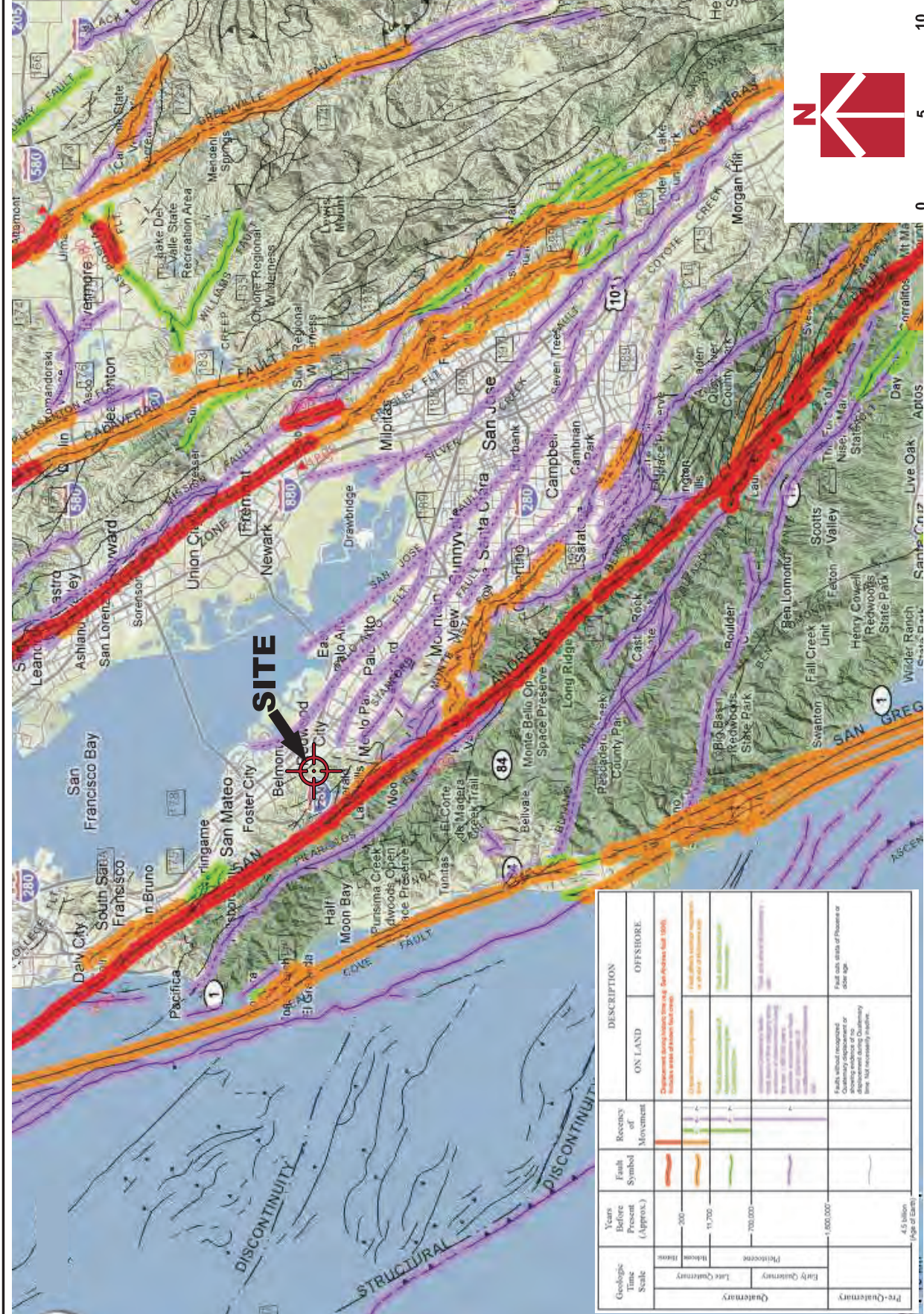
Project Number	904-1-1
Figure Number	Figure 1
Date	June 2016
Drawn By	RRN

**Vicinity Map**

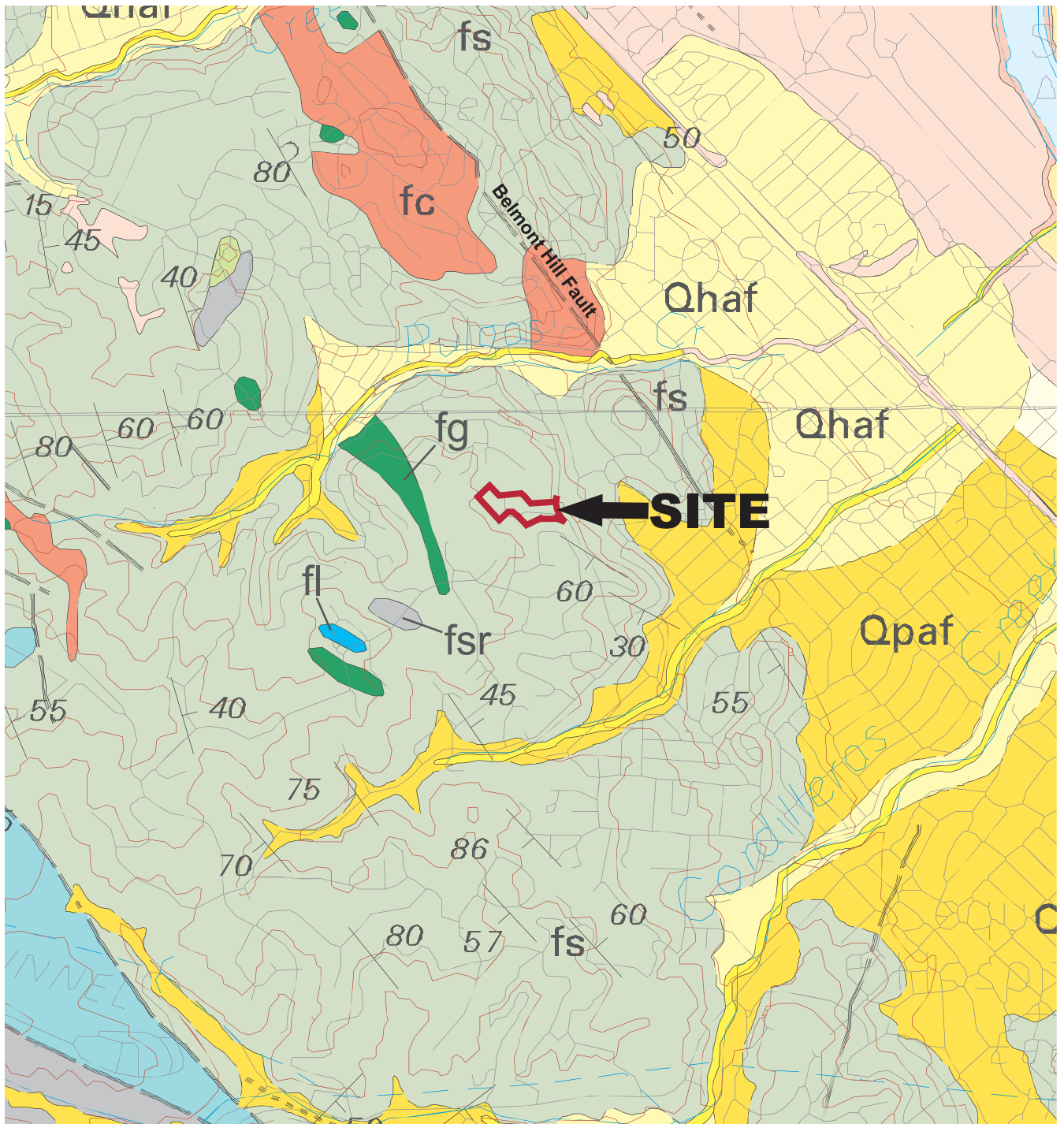
**800, 804, and 806 Alameda de las Pulgas  
San Carlos, CA**



**CORNERSTONE**  
**EARTH GROUP**



Geologic Time Scale	Years Before Present (Approx.)	Fault Symbol	Reactivity of Movement	DESCRIPTION	
				ON LAND	OFFSHORE
Quaternary	Recent	[Red line with cross-ticks]	Active	Displacement during historic time (i.e., San Andreas Fault 1906). Includes areas of historic fault creep.	
	Historic	[Orange line with cross-ticks]	Active	Active during historic time (i.e., 1800-1900).	
Pre-Quaternary	Early Quaternary	[Green line with cross-ticks]	Active	Active during early Quaternary (i.e., 10,000-40,000 years ago).	
	Pre-Quaternary	[Purple line with cross-ticks]	Active	Active during pre-Quaternary (i.e., >40,000 years ago).	Fault cuts into Pleistocene or older age.

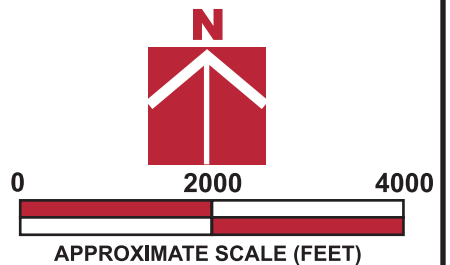


**Geologic Units**

- Qhaf** Alluvial fan and fluvial deposits (Holocene)
- Qpaf** Alluvial fan and fluvial deposits (Pleistocene)
- fc** Franciscan Complex Chert
- fs** Franciscan Complex Sandstone
- fg** Franciscan Complex Greenstone
- fsr** Sheared Rock (Melange)

**Explanation**

- Contact- dashed where approximate, dotted where concealed
- Strike and dip of bedding



Base: Geology on the Onshore Part of San Mateo County, California: Derived from the Digital Database Open-file 98-127, by Brabb et. al., 1998



**Vicinity Geologic Map**

800, 804, and 806 Alameda de las Pulgas  
San Carlos, CA

Project Number	904-1-1
Figure Number	Figure 3
Date	June 2016
Drawn By	RRN



**CORNERSTONE**  
EARTH GROUP

800, 804, and 806 Alameda de las Pulgas  
San Carlos, CA

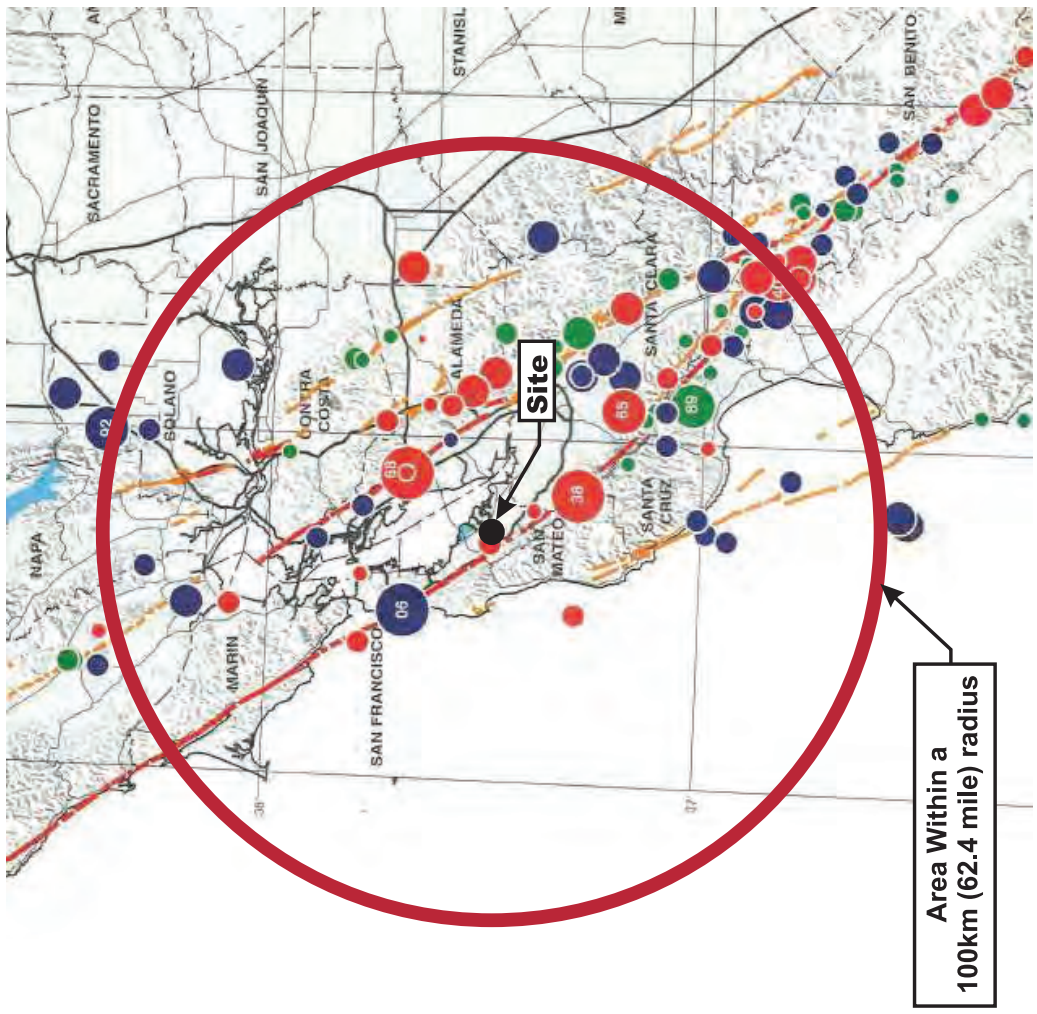
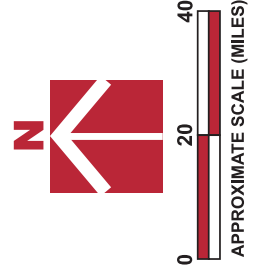
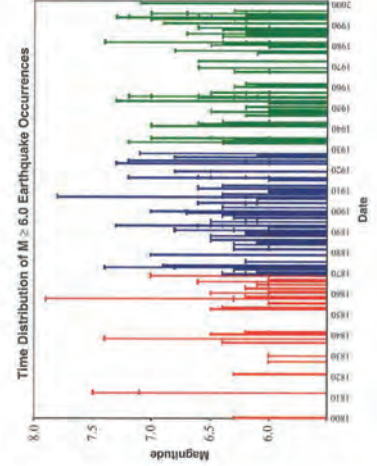
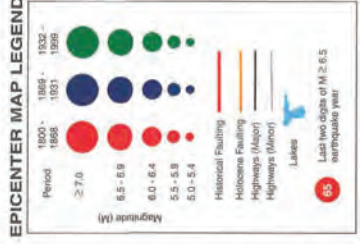
Figure Number  
Figure 4

Project Number  
904-1-1

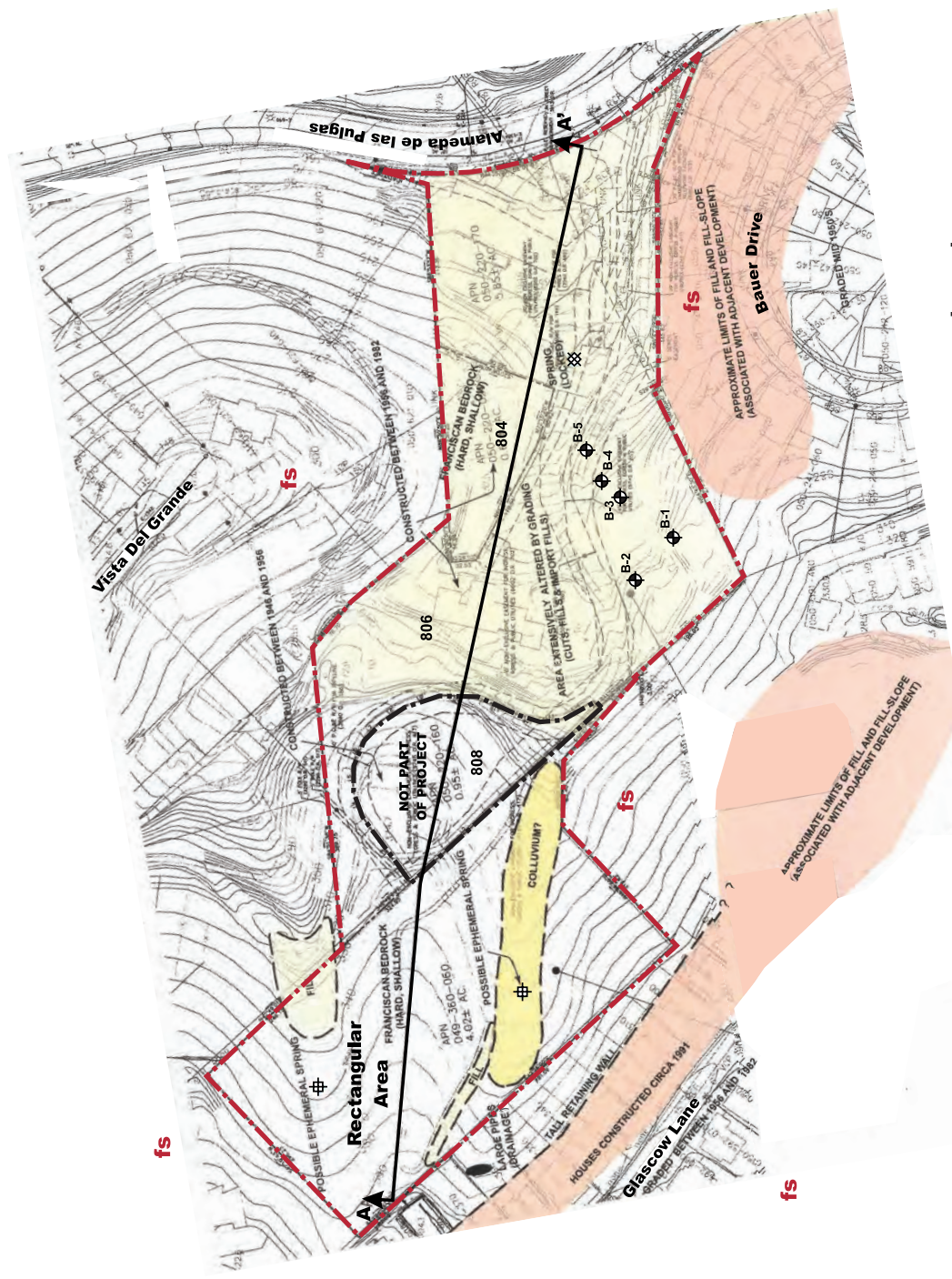
**Historical Earthquakes Map**

Date  
June 2016

Drawn By  
RRN



From: T. Toppozada & Others (2000)



**Legend**

- ◆ Approximate location of boring (B) (BAGG, 5/19/2010)
- ⊗ Approximate location of spring (locked)
- ⊕ Approximate location of possible ephemeral spring
- ↔ Approximate location of Geologic Cross Section

**Geologic Units**

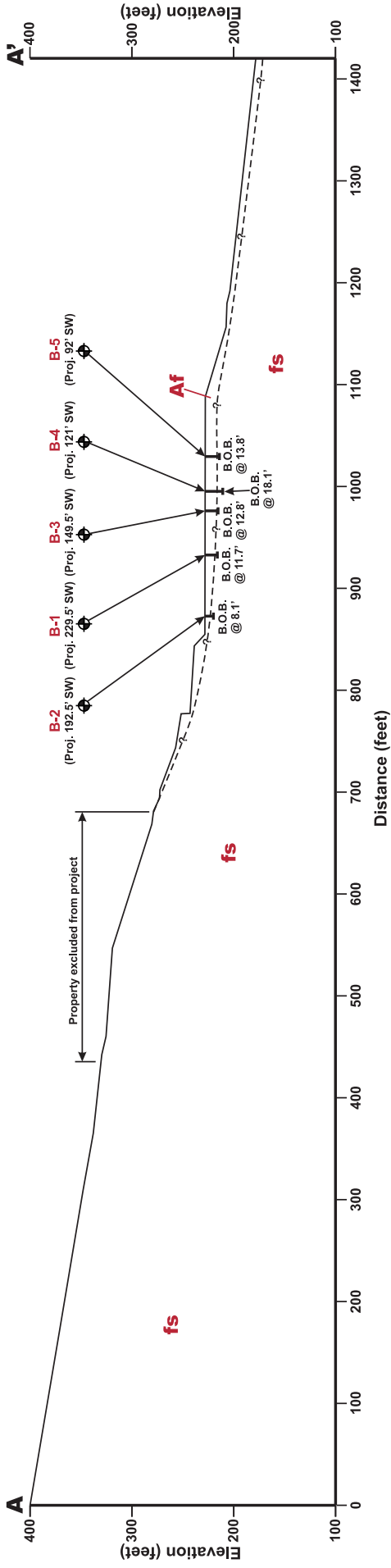
- fs** Franciscan Complex Sandstone

**Legend**

- ◆ Approximate location of boring (B) (BAGG, 5/19/2010)
- ⊗ Approximate location of spring (locked)
- ⊕ Approximate location of possible ephemeral spring
- ↔ Approximate location of Geologic Cross Section

**Scale**

0 150 300  
APPROXIMATE SCALE (FEET)

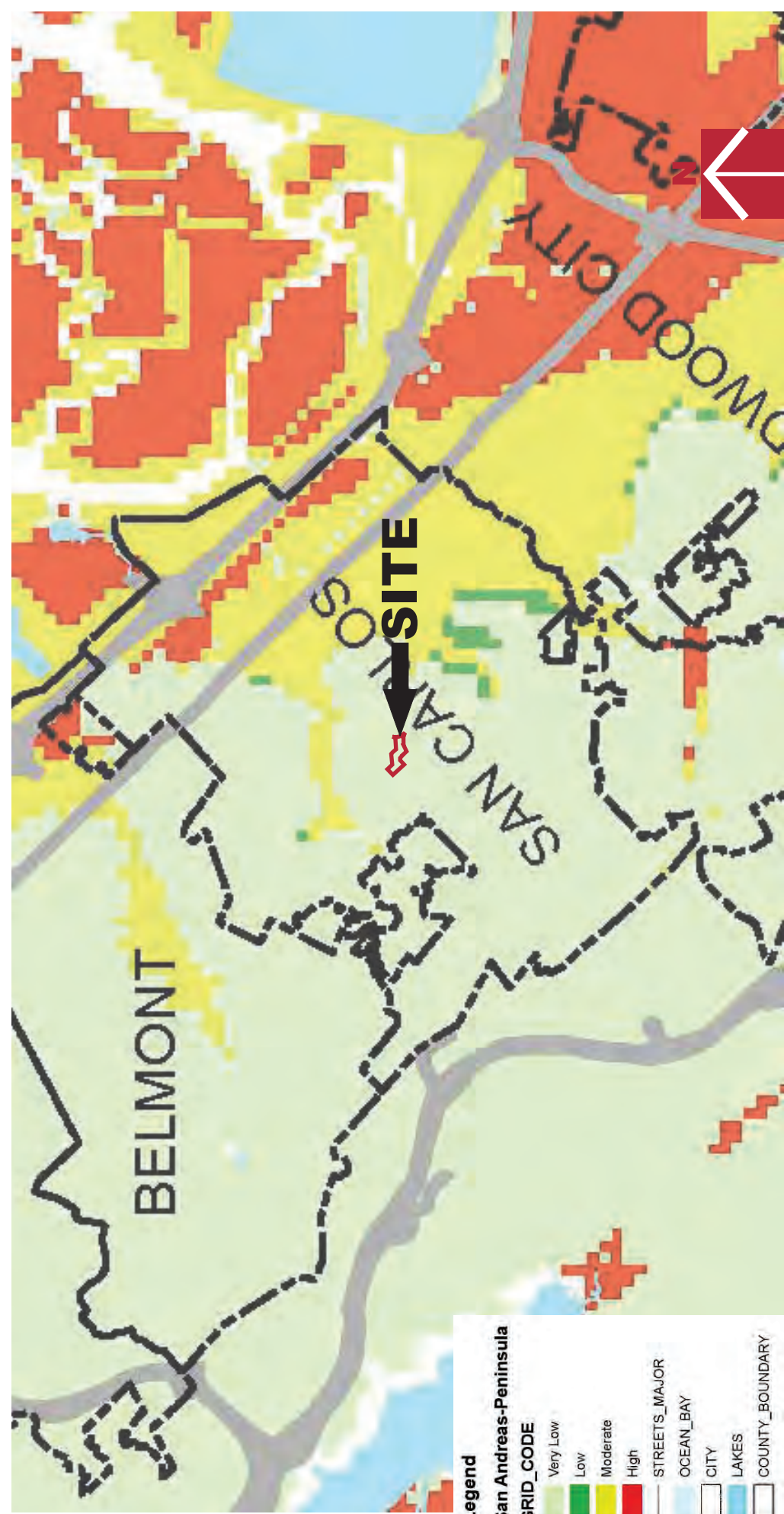


**Section A-A'**  
(View Looking East)  
1"=100' H:V

- Geologic Units**
- Af** Artificial fill
  - fs** Franciscan Complex Sandstone

- Legend**
- ◆ Approximate location of boring (B) (BAGG, 5/19/2010)
  - - - Approximate limits of fill

<b>CORNERSTONE EARTH GROUP</b>		<b>Geologic Cross Section A-A'</b>	
800, 804, and 806 Alameda de las Pulgas San Carlos, CA		Project Number	904-1-1
		Figure Number	Figure 6
Date	June 2016	Drawn By	RRN



**Legend**

**San Andreas-Peninsula**

**GRID\_CODE**

- Very Low
- Low
- Moderate
- High

STREETS\_MAJOR

OCEAN\_BAY

CITY

LAKES

COUNTY\_BOUNDARY

APPROXIMATE SCALE (FEET)

0 4000 8000

Base: San Mateo County, Earthquake Liquefaction, San Andreas Fault - Peninsula by ABAG

**County Earthquake Liquefaction Map**

**800, 804, and 806 Alameda de las Pulgas**  
**San Carlos, CA**

Project Number  
 904-1-1

Figure Number  
 Figure 7

Date  
 June 2016

Drawn By  
 RRR







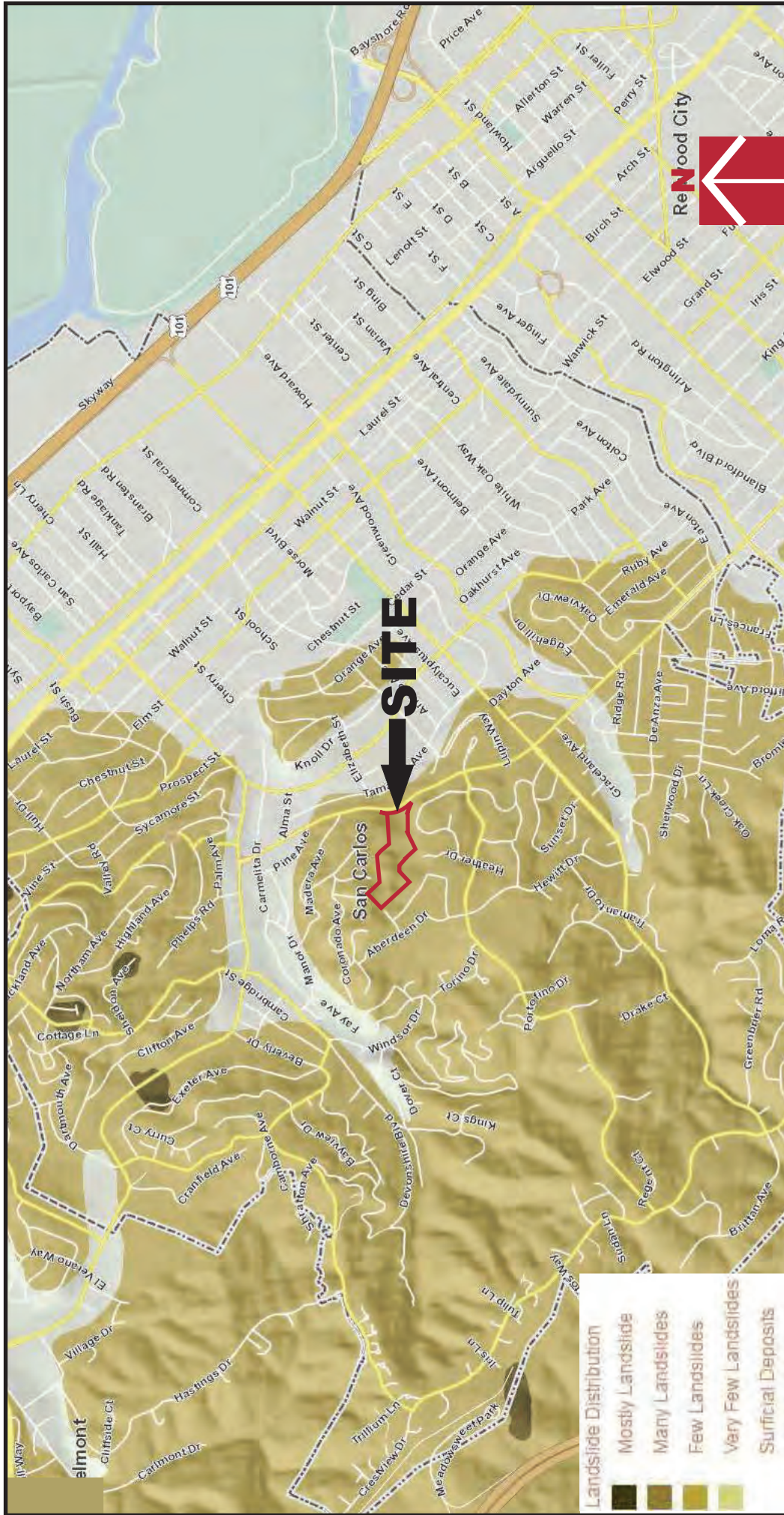
Base: San Mateo County, Existing Landslides, Data Source is USGS Open file 97-745C, 1997



**County Landslide Map**

**800, 804, and 806 Alameda de las Pulgas  
San Carlos, CA**

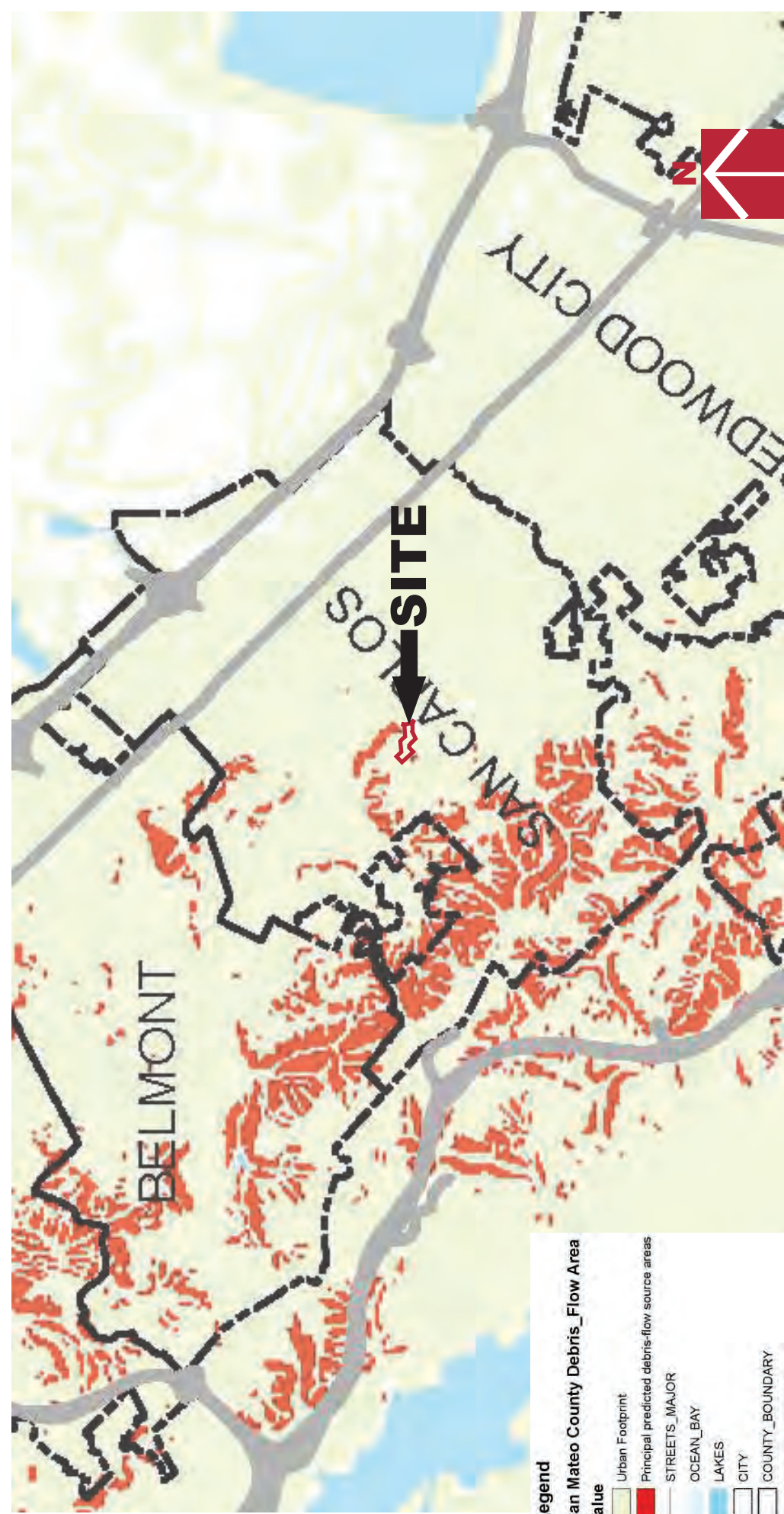
Project Number	904-1-1
Figure Number	Figure 8
Date	June 2016
Drawn By	RRN



Base: Association of Bay Area Governments, Resilience Program, Existing Landslide Distribution

<p><b>Existing Landslide Distribution</b></p> <p><b>800, 804, and 806 Alameda de las Pulgas</b> San Carlos, CA</p>	<p>Project Number</p> <p>904-1-1</p>
	<p>Figure Number</p> <p>Figure 9</p>
<p>Date</p> <p>June 2016</p>	<p>Drawn By</p> <p>RRN</p>





**Legend**

**San Mateo County Debris\_Flow Area**

<b>Value</b>		Urban Footprint
		Principal predicted debris-flow source areas
		STREETS_MAJOR
		OCEAN_BAY
		LAKES
		CITY
		COUNTY_BOUNDARY

0 4000 8000  
 APPROXIMATE SCALE (FEET)

Base: San Mateo County, Debris-Flow Source Area, Data Source is USGS Open file 97-745E, 1997

	<b>County Planning Debris Flow Map</b>	
	<b>800, 804, and 806 Alameda de las Pulgas          San Carlos, CA</b>	
Project Number 904-1-1	Figure Number Figure 10	
Date June 2016	Drawn By RRN	



Base: Association of Bay Area Governments, Resilience Program, Rainfall Induced Landslide Areas

**Rainfall Induced Landslide Areas**

**800, 804, and 806 Alameda de las Pulgas**  
**San Carlos, CA**

Project Number  
**904-1-1**

Figure Number  
**Figure 11**

Date  
June 2016

Drawn By  
RRN





# BORING LOG

Boring No. B-1

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 8-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 262 feet ±  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX	320	14.4	350	7.6	118	0		CH	FAT CLAY, dark brown, moist, very stiff, some gravel and sand, trace yellow brown mottling; color change to yellow brown at 2 feet	2 to 3-foot tall grass and weeds a surface 9.3% swell FILL
DSX	500	16.2	780	14.6	108.8	4			...color change to dark gray, trace rootlets, trace fine gravel	9.3% swell LL=55 PI=42
DSX	1000	7.9	1700	5.8	142.6	8		rock	SANDSTONE, light yellow brown, moderately to highly weathered, friable, fine grained	NATIVE 1.4% consol
						12			Practical refusal encountered at 11½ feet. Groundwater was not encountered. Boring was backfilled with neat cement grout.	
						16				
						20				
						24				



# BORING LOG

Boring No. B-2

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 8-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 252 feet ±  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX	320	11.1	235	5.0	122.9	0		SC	CLAYEY SAND, yellow brown, moist, medium dense, some gravel up to 2-inch size, trace rootlets and dark mottling	1 to 2-foot high grass and weeds at surface 7.0% swell FILL
DSX	600	12.8	350	11.5	120.7	4		rock	...very moist, medium dense to loose SANDSTONE, light yellow brown, moderately to highly weathered, friable to weak	1.8% consol NATIVE
						8		Boring was terminated at 8 feet. Groundwater was not observed. Boring was backfilled with neat cement grout.		
						12				
						16				
						20				
						24				



# BORING LOG

Boring No. B-3

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 8-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 245 feet ±  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				11.7	116.7	0		SC	ORGANICS: mostly fine wood chips, some grass and weeds, trace sandy soil	FILL
DSX	700	17.9	700	16.2	109.4	4		CL	CLAYEY SAND, yellow brown, moist, medium dense, trace gravel, trace dark mottling and rootlets; highly organic from 1/2 to 1 foot	5.5% swell
DSX	1200	8.7	1800	7.2	132.7	8		rock	LEAN CLAY, mottled dark gray and light yellow brown, sandy, with trace gravel	NATIVE
						12			SANDSTONE, yellow brown, intensely weathered, highly friable, moist	1.0 % consol
						12 1/2			...very difficult drilling below 11 1/2 feet	
						16			Boring was terminated at 12 1/2 feet	
						20			Groundwater was not encountered.	
						24			Boring was backfilled with neat cement grout.	



# BORING LOG

Boring No. B-4

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 8-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 240  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			ORGANICS: Mostly fine wood chips, some leaf/twig matter	
						4		CL	LEAN CLAY, yellow brown, moist, stiff, some silt and sand, trace gravel, trace wood chips	FILL
DSX	800	20.2	800	18.3	106.0	5				5.6% swell
						8		CH	FAT CLAY, dark gray, moist, very stiff, sandy, trace light mottling, trace rootlets (fill)	
DSX	1400	12.9	830	10.2	120.3	11				4.8% swell
						12				
						16		rock	SANDSTONE, yellow brown, intensely weathered, friable	NATIVE
						20			Practical refusal was encountered at 18 feet. No groundwater was encountered. Boring was backfilled with neat cement grout.	
						24				





# BORING LOG

Boring No. B-5

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 6-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 230 feet ±  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				7.2	121.5	0		SM	ASPHALTIC CONCRETE (± 5 inch thick)	FILL
DSX	500	13.3	340	8.5	117.6	4		SC	SILTY SAND, yellow brown, moist, medium dense, trace gravel and clay lumps, some roots, trace dark mottling	2.6% swell
				8.4	126.0	8			CLAYEY SAND, gray brown with yellow brown mottling, trace fine gravel and rootlets	
DSX	1100	10.9	1300	8.0	129.6	8		rock	SANDSTONE, light yellow brown, intensely weathered, friable, fine grained.	1.0% consol NATIVE
DSX	2000	9.7	2300	7.0	133.4	8				1.3% consol
DSX	4000	8.7	4710			8				1.5% consol
						12				
						16				
						20				
						24				
						13 1/2			Practical refusal was encountered 13 1/2 feet	



A P P E N D I X I

PHASE I ENVIRONMENTAL SITE  
ASSESSMENTS





APPENDIX I1:  
PHASE I ENVIRONMENTAL SITE  
ASSESSMENT: BLACK MOUNTAIN

.....



## PHASE I ENVIRONMENTAL SITE ASSESSMENT (FINAL) Black Mountain

Parcel Nos. 049-360-060, 050-220-170, and 050-220-020  
San Carlos, California 94070  
San Mateo County

Prepared for:  
**Dragonfly Investments Group**  
777 Mariners Island, Suite 150  
San Mateo, California 94404

Contact: Mr. Robert Bernstein

Prepared by:  
**FirstCarbon Solutions**  
1350 Treat Boulevard, Suite 380  
Walnut Creek, CA 94597  
707-318-2348

Contact: Mary Bean

Report Date: July 1, 2016

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**Table of Contents**

**Executive Summary..... 2**

**Introduction..... 5**

**Site Location and Description ..... 5**

**Physical Setting ..... 7**

**Site Reconnaissance and Observation ..... 7**

**Adjoining Properties ..... 11**

**Regulatory Records Review ..... 12**

**Information and Interviews from Local Agencies and Site Contact..... 15**

**Historical Use Information Review ..... 18**

**Conclusions and Recommendations ..... 23**

**Limitations..... 25**

**Appendix A: Parcel Map and Aerial Site Plan**

**Appendix B: Street Map and Topographic Map**

**Appendix C: Site Photographs**

**Appendix D: Historical Aerial Photographs and Topographic Maps**

**Appendix E: Wetlands Map**

**Appendix F: Sanborn Fire Insurance Abstract**

**Appendix G: City Directories**

**Appendix H: EDR/FirstSearch Government Database Report**

**Appendix I: Questionnaires and Supporting Documents**



July 1, 2016

Mr. Robert Bernstein  
Dragonfly Investments Group  
777 Mariners Island, Suite 150  
San Mateo, California 94404

**Subject: PHASE I ENVIRONMENTAL SITE ASSESSMENT (FINAL)**  
**Black Mountain**  
**Parcel Nos. 049-360-060, 050-220-170, and 050-220-020**  
**San Carlos, California 94070**  
**San Mateo County**

Dear Mr. Bernstein:

FirstCarbon Solutions (FCS) has completed a Phase I Environmental Site Assessment (ESA) for the above referenced site in substantial compliance with the scope and limitations of the American Society of Testing Materials (ASTM), Standard Practices for ESAs: The Phase I ESA Process, Designation E1527-13. For the purpose of this report the land area associated with the entire Dragonfly Investments Group facility (the focus of this report) is referred to as the Property, Subject Property, and Site.

## Executive Summary

We have performed a Phase I Environmental Site Assessment of the Subject Property, San Mateo County Assessor's Parcel Numbers (APNs) 049-360-060, 050-220-170, and 050-220-020, located on the west side of Alameda De Las Pulgas in the City of San Carlos, San Mateo County, California in substantial conformance with the scope and limitations of ASTM Standard E-1527-13. The Subject Property, owned by Black Mountain Properties, is occupied by an approximately 10.5-acre residential and open space property consisting of two single-family residences, paved driveway and parking areas, landscaped areas, open space areas, and a fresh water spring. 804 Alameda De Las Pulgas (built in 1958) is associated with APN 050-220-020 and 806 Alameda De Las Pulgas (built in 1960) is associated with APN 050-220-170. According to the Assessor's Office, no street address was identified with APN 049-360-060 which is associated with an open space/vacant hillside parcel located in the western portion of the Subject Property and occupied by mature trees, grasses and shrubs. An approximately 1-acre single-family residential property associated with 808 Alameda De Las Pulgas (APN 050-220-160) is located in the western-central portion of the Subject Property and is excluded from this assessment. According to Property Owner Mr. Joseph Bullock, historically the eastern portion of the Property was occupied by the Black Mountain Spring Water Company bottling plant from approximately 1940 until approximately 2000.

Based on a site reconnaissance and a review of physiographic, historical and regulatory information, there is no evidence of recognized environmental conditions (as defined by ASTM standards) in connection with the Property except the following:

- According to Property Owner Mr. Joseph Bullock, one approximately 4,000-gallon gasoline underground storage tank, used to fuel the water company's delivery trucks and vans, was removed from the eastern portion of the Property (APN 050-220-170) in the 1970s or early 1980s. Mr. Bullock indicated that the UST was removed and disposed of and that the area was cleaned up by removing soils from the Property. The removal and disposal of the UST and soils was performed by a tank removal company. Mr. Bullock was not sure of the exact quantity of soils removed but indicated that no groundwater was impacted and that the soil cleanup was relatively easy. Subsequently, a small aboveground storage tank (unknown quantity) was utilized for a few years, however, as the AST was small and not convenient for use, fueling operations moved to a card lock fueling system in downtown San Carlos. Mr. Bullock indicated that he was not aware of any spills or clean up associated with the former aboveground tank. The former UST and AST were located on the right side near the southernmost gate entrance to the water bottling plant. Mr. Bullock was not able to provide FCS with any documentation regarding the former on-site gasoline storage tanks.

The Subject Property is not listed on any environmental regulatory databases including bulk storage tank databases or databases indicative of contamination such as the leaking underground storage tank list or the inventory of Hazardous Waste Sites. FCS contacted the San Carlos Building Division, Redwood City Fire Department San Carlos Division, Bay Area Air Quality Management District, and San Mateo County Environmental Health Department concerning fuel tanks associated with the Property and none of these agencies had any records on file. FCS also reviewed the California Environmental Protection Agency, State Water Resources Control Board (SWRCB), GeoTracker regulated facilities database for files related to possible recognized environmental conditions for the Property. No records for the Property are listed in the State GeoTracker database or in the SWRCB's historical database.

**Based on the lack of fuel tank closure documentation, it is unknown to what extent, if any, that testing was completed to determine whether soils and/or groundwater at the Property have been impacted. Therefore, FCS believes it prudent that soil sampling and testing be performed to determine if the Property has been impacted by former on-site fuel tanks. Once the analysis has been completed, the results would verify that contaminated soils above action levels are/are not present.**

In addition, the following business environmental risks (BERs) were identified which warrant mention:

- Property Owner Mr. Bullock stated in the Property Representative Questionnaire that "fill dirt was brought on and placed in the flat on the right side heading downhill, behind gate next to 806 and road improvements on the 1st 100 yards on lower road which was engineered and compacted with [oversight] by BKF". This fill area is located in the central southern portion of

the Subject Property. FCS reviewed a provided report titled “Geotechnical Engineering Investigation, Proposed Offhaul and Embankment Site, East Of Bullock Residence Site, Alameda De Las Pulgas, San Carlos, California” dated June 16, 2010, prepared by BVGG Engineers on behalf of Black Mountain Development, LLC. According to the BVGG report, “The embankment fill area is underlain by roughly 6 to 12 feet of undocumented fill which is underlain by a foot or so of colluvium, which in turn is underlain by sandstone bedrock. The undocumented fill consisted of mostly fat clay with some lean clay and a little sandy soil.”

**As the on-site fill is from an unknown source, FCS believes it prudent that soil sampling and testing be performed. Once the analysis has been completed, the results would verify that contaminated soils above action levels are/are not present.**

- Based on information obtained from the historical records review, the on-site single-family residences at 804 and 806 Alameda De Las Pulgas were constructed at a time when asbestos-containing materials (ACM) and lead-based paints (LBP) were commonly used in building materials. Based on this information, there is a potential that ACMs and LBP are present within these onsite structures. As these structures appeared in good condition at the time of the site visit, no further action is recommended at this time other than maintaining these suspect materials in good condition under an Asbestos and Lead Paint Operations and Maintenance (O&M) Program. In the event that building maintenance, renovation, or demolition activities require the removal or disturbance of the suspect ACM and LBP, the materials should be characterized for asbestos and lead by a reliable method. All activities involving ACM and LBP should be conducted in accordance with governmental regulations.

## Introduction

The purpose of this Phase I ESA was to identify recognized environmental conditions associated with the Property. To achieve this objective, the Phase I ESA included visual observations of the Property and observations of the surrounding properties, a visual survey for suspect asbestos-containing materials/debris piles/lead-based paint, limited historical land use review, review of regulatory database listings, and reviews of readily available geologic and hydrogeologic data. This report represents a summary of these findings. A parcel map, aerial site plan, current street and topographic maps, historical aerial photos and topographic maps, site photographs, Sanborn Map abstract, City Directory abstract, Wetlands Map, regulatory database report, and Questionnaire are included as attachments to this report.

FCS visually observed the Property on June 17, 2016 to identify potential sources or indications of chemical contamination such as underground storage tanks (USTs), aboveground storage tanks (ASTs), polychlorinated biphenyls (PCBs), chemicals and hazardous waste materials, areas with surficial staining or distressed vegetation, and visual evidence of asbestos containing materials (ACMs) and/or lead-based paint. Lands immediately adjacent to the Property were visually inspected for possible sources of contamination or environmental impairment, which could migrate to the Property via surface water runoff, groundwater transport, and other pathways. FCS conducted a regulatory records review, reviewed historical aerial photographs, historical maps, building permits (upon availability), and contacted regulatory agency personnel.

## Site Location and Description

The Property (APNs 049-360-060, 050-220-170, and 050-220-020) is located on the west side of Alameda De Las Pulgas in the City of San Carlos, San Mateo County, California and is bounded on the north and west by residential land uses, bounded on the east by Alameda De Las Pulgas followed by residential and institutional (St. Charles School) land uses, and bounded on the south by residential land uses and an open space lot. The Property is accessible via Alameda De Las Pulgas. For the purpose of this report, the land area associated with APNs 049-360-060, 050-220-170, and 050-220-020 (the focus of this report) is referred to as the Property, Subject Property, and Site. The Property is located in Section 14 of Township 5S and Range 4W of the Mt. Diablo Base and Meridian, as depicted on the United States Geological Survey (USGS) 7.5-Minute *Woodside, CA* Topographic Quadrangle (see Appendices). The Property, marked in red in the aerial photograph below, is located on a hillside with slight to steep gradients descending generally toward the east.



The Subject Property, owned by Black Mountain Properties, is occupied by an approximately 10.5-acre residential and open space property consisting of two single-family residences, paved driveway and parking areas, landscaped areas, open space areas, and a fresh water spring. 804 Alameda De Las Pulgas (built in 1958) is associated with APN 050-220-020 and 806 Alameda De Las Pulgas (built in 1960) is associated with APN 050-220-170. According to the Assessor's Office, no street address was identified with APN 049-360-060 which is associated with an open space/vacant hillside parcel located in the western portion of the Subject Property and occupied by mature trees, grasses and shrubs. An approximately 1-acre single-family residential property associated with 808 Alameda De Las Pulgas (APN 050-220-160) is located in the western-central portion of the Subject Property and is excluded from this assessment. According to Property Owner Mr. Joseph Bullock, historically the eastern portion of the Property was occupied by the Black Mountain Spring Water Company bottling plant from approximately 1940 until approximately 2000.

## Physical Setting

Based on the USGS *Woodside, CA* topographic quadrangle, the Property has an average elevation of approximately 230 feet above mean sea level (amsl), with a slight to steep gradients generally descending toward the east. Storm water runoff is expected to flow off the Property toward the east. According to the U.S. Geological Survey, *Geologic Map of California (2012)*, the Property is underlain by Franciscan Complex, unit 1 (Coast Ranges) consisting of Cretaceous and Jurassic sandstone with smaller amounts of shale, chert, limestone, and conglomerate; includes Franciscan *mélange*, except where separated.

Based on information from local groundwater monitoring reports, FCS estimates ground water to be approximately 20 feet below the ground surface in the easternmost portion of the Property and at least 30 feet below the ground surface in the western portion of the Property. Under natural, undisturbed conditions, shallow groundwater flow generally follows the topography of the land surface. Based on this information, the topography suggests that groundwater flow across the site is in an easterly direction. Therefore, areas located west of the Property are considered upgradient. However, actual groundwater flow direction is often locally influenced by factors such as rainfall, geologic structure, seasonal fluctuations, soil and bedrock geology, production wells, and other factors beyond the scope of this study. The actual groundwater flow direction under the site can be accurately determined only by installing groundwater monitoring wells, which was beyond this scope of this project.

## Site Reconnaissance and Observation

On June 2, 2016, FCS personnel conducted a site reconnaissance of the Property. The site reconnaissance is documented in the site photographs (see Appendices). During the site visit, the FCS representative was unaccompanied at the Property. In addition, a walk along the perimeter of the Property and a drive around roads in the immediate area were conducted. At the time of the site inspection, the weather was overcast with a temperature of approximately 80° Fahrenheit.

The purpose of the site reconnaissance was to visually and physically observe the Property and adjoining properties for conditions indicating an existing release, past release, or threatened release of any hazardous substances or petroleum products into structures of the site, or into soil and/or groundwater beneath the site. This would include any evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage/handling.

## Underground Storage Tanks (USTs)/Aboveground Storage Tanks (ASTs)

According to Property Owner Mr. Joseph Bullock, one approximately 4,000-gallon gasoline underground storage tank, used to fuel the water company's delivery trucks and vans, was removed from the eastern portion of the Property (APN 050-220-170) in the 1970s or early 1980s. Mr. Bullock indicated that the UST was removed and disposed of and that the area was cleaned up by removing soils from the Property. The removal and disposal of the UST and soils was performed by a tank removal company. Mr. Bullock

was not sure of the exact quantity of soils removed but indicated that no groundwater was impacted and that the soil cleanup was relatively easy. Subsequently, a small aboveground storage tank (unknown quantity) was utilized for a few years, however, as the AST was small and not convenient for use, fueling operations moved to a card lock fueling system in downtown San Carlos. Mr. Bullock indicated that he was not aware of any spills or clean up associated with the former aboveground tank. The former UST and AST were located on the right side near the southernmost gate entrance to the water bottling plant. Mr. Bullock was not able to provide FCS with any documentation regarding the former on-site gasoline storage tanks.

The Subject Property is not listed on any environmental regulatory databases including bulk storage tank databases or databases indicative of contamination such as the leaking underground storage tank list or the inventory of Hazardous Waste Sites. FCS contacted the San Carlos Building Division, Redwood City Fire Department San Carlos Division, Bay Area Air Quality Management District, and San Mateo County Environmental Health Department concerning fuel tanks associated with the Property and none of these agencies had any records on file. FCS also reviewed the California Environmental Protection Agency, State Water Resources Control Board (SWRCB), GeoTracker regulated facilities database for files related to possible recognized environmental conditions for the Property. No records for the Property are listed in the State GeoTracker database or in the SWRCB's historical database.

**Based on the lack of fuel tank closure documentation, it is unknown to what extent, if any, that testing was completed to determine whether soils and/or groundwater at the Property have been impacted. Therefore, FCS believes it prudent that soil sampling and testing be performed to determine if the Property has been impacted by former on-site fuel tanks. Once the analysis has been completed, the results would verify that contaminated soils above action levels are/are not present.**

### Leaking Underground Storage Tanks (LUSTs)

No evidence for the presence of leaking underground storage tanks on or immediately upgradient of the Property was observed during the site reconnaissance.

### Dry Cleaners

No dry cleaning activity was observed on or immediately upgradient of the Property during the site reconnaissance.

### Landfills and Soil Piles

No evidence of soil piles was observed on or immediately upgradient of the Property during the site reconnaissance.

Property Owner Mr. Bullock stated in the Property Representative Questionnaire that "fill dirt was brought on and placed in the flat on the right side heading downhill, behind gate next to 806 and road improvements on the 1st 100 yards on lower road which was engineered and compacted with [oversight] by BKF". This fill area is located in the central southern portion of the Subject Property.

FCS reviewed a provided report titled “Geotechnical Engineering Investigation, Proposed Offhaul and Embankment Site, East Of Bullock Residence Site, Alameda De Las Pulgas, San Carlos, California” dated June 16, 2010, prepared by BVGG Engineers on behalf of Black Mountain Development, LLC. According to the BVGG report, “The embankment fill area is underlain by roughly 6 to 12 feet of undocumented fill which is underlain by a foot or so of colluvium, which in turn is underlain by sandstone bedrock. The undocumented fill consisted of mostly fat clay with some lean clay and a little sandy soil.”

**As the on-site fill is from an unknown source, FCS believes it prudent that soil sampling and testing be performed. Once the analysis has been completed, the results would verify that contaminated soils above action levels are/are not present.**

### **Polychlorinated Biphenyls (PCBs)**

No leaking or stained equipment that would have the potential to contain PCBs (e.g., transformers, capacitors, light ballasts, hydraulic equipment) was observed on or adjacent to the Property during the site reconnaissance.

### **Waste Management and Chemical Handling**

No drums or containers of hazardous materials/substances, evidence of hazardous waste storage or disposal, or petroleum products were observed on or upgradient of the Property during the site visit.

### **Asbestos-Containing Materials (ACMs) and Lead-Based Paint (LBP)**

Based on information obtained from the historical records review, the on-site single-family residences at 804 and 806 Alameda De Las Pulgas were constructed at a time when asbestos-containing materials (ACM) and lead-based paints (LBP) were commonly used in building materials. Based on this information, there is a potential that ACMs and LBP are present within these onsite structures. As these structures appeared in good condition at the time of the site visit, no further action is recommended at this time other than maintaining these suspect materials in good condition under an Asbestos and Lead Paint Operations and Maintenance (O&M) Program. In the event that building maintenance, renovation, or demolition activities require the removal or disturbance of the suspect ACM and LBP, the materials should be characterized for asbestos and lead by a reliable method. All activities involving ACM and LBP should be conducted in accordance with governmental regulations.

### **Underground Oil or Gas Pipelines**

No markers indicating the presence of oil or gas pipelines was observed were observed on or adjacent to the Property during the site reconnaissance.

### **Stained Soil or Asphalt Patches**

No stained soil or asphalt patches were observed within or adjacent to the Property during the site reconnaissance.



### **Demolition Debris**

No evidence of demolition debris was observed on the Property during the site reconnaissance.

### **Pits, Ponds, or Lagoons**

No pits, ponds, or lagoons were observed within the Property during the site reconnaissance. A fresh water spring is located in the eastern portion of the Property. This spring has been used historically by Black Mountain Water Company for bottling purposes. No evidence of contamination was observed at the spring during the site visit.

### **Radon**

Radon gas is a naturally occurring radioactive gas that is invisible and odorless. It forms from the radioactive decay of small amounts of uranium and thorium naturally present in rocks and soils, so some radon exists in all rocks and soils. Because radon is a gas, it can easily move through soil and cracks in building slabs or basement walls and concentrate in a building's indoor air. According to the government database Federal EPA Radon Zone for San Mateo County (<http://www.city-data.com/radon-zones/California/California.html>), San Mateo County is located in Zone 2 and is listed as moderate Potential: counties that have a predicted average indoor radon screening level between 2 and 4 pCi/L. 83 radon tests have taken place in sites located within the Property's zip code of 94070 and only 5 tests came back positive for radon levels of 4 picoCuries per liter or above, which is the state of California's recommended action level. Based on this information, the presence of on-site radon levels above California's recommended action level is unlikely.

### **Clarifiers or Sumps**

No clarifiers or sumps were observed or noted within or next to the Property during the site reconnaissance.

### **Air Emissions**

No air emissions were observed or noted to be emanating from the Property during the site reconnaissance.

### **Flood Zone**

According to the Federal Emergency Management Agency, *Flood Insurance Rate Map of San Mateo County California and Incorporated Areas*, Map Number 06081C0282E Effective Date October 16, 2012, the Property is located within Zone X (flood hazard areas determined to be outside the 0.2% annual chance floodplain).

### **Wetlands Designation**

According to a review of the U.S. fish and Wildlife Service National Wetlands Inventory Mapper as viewed on <http://www.fws.gov/wetlands/Data/Mapper.html>, no wetlands are located on or immediately adjacent to the Property.

### **Pesticides/Herbicides**

No pesticides or herbicides were observed being stored or used within the Property at the time of the site reconnaissance.

### **On-site containers**

No containers or drums were observed or noted on or adjacent to the Property during the site reconnaissance.

## **Adjoining Properties**

FCS observed lands adjoining to the Property to identify environmental concerns. The Property is bordered to the north by residential land uses. The Property is bordered to the east by Alameda De Las Pulgas followed by residential land uses and St. Charles School. The Property is bordered to the south by residential and open space land uses. The Property is bordered to the west by residential land uses.

FCS conducted a reconnaissance of the adjoining properties to evaluate the potential for off-site impacts. These would include evidence of improper chemical storage or usage, surface staining or leakage, distressed vegetation, or evidence of dumping. A visual inspection from the public right-of-way did not reveal any issues of concern.

## Regulatory Records Review

FCS reviewed available databases from federal and state regulatory agencies to identify use, generation, storage, treatment and/or disposal of hazardous materials and chemicals or release incidents of such materials, which may have impacted the Property. The regulatory databases were provided to FCS from EDR. The EDR FirstSearch Report is included in the Appendix C. The environmental and regulatory databases that were included in this review follow the ASTM standard E1527-13 guidelines.

- Federal National Priorities Listing (NPL) Sites
- Federal Delisted NPL Sites
- Comprehensive Environmental Response Compensation And Liability Information System List (CERCLIS)
- Federal CERCLIS: No Further Remedial Action Planned (NFRAP) Site List
- Federal Resource Conservation And Recovery Act (RCRA) Generator's List
- Federal RCRA Non-CORRACTS TSD Facilities List
- Federal RCRA CORRACTS Facilities List
- Federal RCRA Treatment, Storage And Disposal Facilities (TSDF's) List
- Federal Institutional Control/Engineering Control (IC/EC) Registries
- Federal Emergency Response Notification System (ERNS) List
- State And Tribal Lists Of *Hazardous Waste Sites* Identified For Investigation Or Remediation:
  - State-And Tribal-Equivalent NPL
  - State-And Tribal-Equivalent CERCLIS
  - State-And Tribal-*Landfill* And/or *Solid* Waste Disposal Site Lists
  - State-And Tribal-Leaking Storage Tanks Lists
  - State And Tribal Registered Storage Tank Lists
  - State And Tribal *Institutional Control/Engineering Control* Registries
  - State And Tribal Voluntary Cleanup Sites
  - State And Tribal Brownfield Sites

The date of the most recent database update and a plotted map of the aforementioned listings, if any, depicting their location relative to the Property is included in the Appendices of this report.

Information obtained from the FirstSearch Report indicated that the Property has not been included on any institutional/engineering control databases that track activity and use limitations on properties.

## Subject Property

The Subject Property was identified in the FirstSearch Report with a listing on the HAZNET database.

### **HAZNET**

This data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. The HAZNET database only contains information about types and quantities of wastes that are generated and not information pertaining to release events.

The Property is identified as Carol Scarioni at 800 Alameda De Las Pulgas. According to the HAZNET database, 1.85 tons of "Asbestos Containing Waste" was removed from the property in 1996. This listing is likely related to renovation/demolition activities at the Property. No violations were identified and the Property was not identified on any regulatory databases that report releases or contamination conditions. Of note, Carol Scarioni is identified in the City Directory Abstract as occupying 806 Alameda De Las Pulgas in 2003. Based on the lack of reported violations, this listing is not suspected to be a significant environmental concern to the Property.

## Adjoining and Surrounding Area Properties

### **HAZNET**

This data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. The HAZNET database only contains information about types and quantities of wastes that are generated and not information pertaining to release events.

The HAZNET database identified 25 surrounding area sites within the search radius. None of these facilities were identified on any regulatory databases that report releases or contamination conditions. Based on the lack of reported violations, these listings are not suspected to be of a significant environmental concern to the Property.

**RCRA CORRACTS**

RCRA COR ACT: - Corrective Action Report. CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

The CORRACTS database identified 1 surrounding area site within the search radius. This site is located approximately 0.96-mile downgradient and a significant distance from the Property. Based on the distance and downgradient location, this listing is not suspected to be of a significant environmental concern to the Property.

**State Tribal CERCLIS: EnviroStor**

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

The EnviroStor database identified 3 surrounding area sites within the search radius. These sites are located at least 0.44-mile downgradient/cross-gradient and a significant distance from the Property. Based on the distance and hydraulic locations, these listings are not suspected to be of a significant environmental concern to the Property.

**LUST/SLIC**

Leaking Underground Storage Tanks/Spills, Leaks, Investigations and Cleanups (SLIC) Records

The LUST list is an inventory of reported spills and leaks, both active and inactive maintained by the various California Regional Water Quality Control Boards. It includes stationary and non-stationary source spills reported to state and federal agencies, including remediated and contaminated leaking UST sites. SLIC records, which are maintained by the various Regional Water Quality Control Boards, document unauthorized discharges from spills and leaks from sources other than UST and other regulated sites.

Four facilities were listed in the LUST/SLIC database and all are located at least 0.22-mile and a significant distance from the Property. All four sites are identified as having a regulatory status of "Case Closed". A Case Closed status is granted to those sites that do not exhibit levels of contamination requiring clean-up, have been remediated to the satisfaction of the lead regulatory agency, or are not suspected to

represent a significant threat to human health or the environment. Therefore, it is unlikely that contamination originating at sites with a Case Closed status have had a significant negative environmental impact on the Property.

Based on the regulatory status, distance, and/or hydraulic location, none of the sites listed in the LUST/SLIC database are suspected of having had a negative impact on the Property and do not represent a recognized environmental condition for the Property.

### **Orphan Sites**

One facility is listed as an unmapped or nongeocoded site in the FirstSearch report. This orphan site cannot be plotted due to errors or missing information in the regulatory records. FCS reviewed the available information for this orphan facility and determined that it does not represent a recognized environmental condition for the Property based on its location of approximately 0.24-mile away from the Property and its Case Closed regulatory status.

The regulatory records review has revealed no evidence of recognized environmental conditions in connection with the Property.

## **Information and Interviews from Local Agencies and Site Contact**

### **City of San Carlos Building Division**

FCS contacted the City of San Carlos Building Division to obtain information for the Property. According to Mr. Daniel Kulda of the Building Division, no original building records were on file for the Subject Property due to a “data loss” experienced by the Building Division. Mr. Kulda referred FCS to the San Mateo County Assessor’s office for information concerning building permits.

### **San Mateo County Assessor’s Office**

FCS contacted the San Mateo County Assessor’s Office to obtain information for the Property. According to Assessor’s office personnel, the residence associated with 804 Alameda De Las Pulgas (APN 050-220-020) was built in 1958 and the residence associated with 806 Alameda De Las Pulgas (APN 050-220-170) was built in 1960. Assessor’s Office personnel stated that no specific address is associated with APN 049-560-060.

### **Redwood City Fire Department, San Carlos Division**

FCS contacted the Redwood City Fire Department, San Carlos Division for files related to possible recognized environmental conditions for The Property. According to Ms. Teresa Maluia of the Fire Department, no records are on file for the Subject Property.

### **San Mateo County Environmental Health Department**

FCS reviewed Subject Property records on file at the San Mateo County Environmental Health Department (EHD). According to Ms. Jean De Tar of the Health Department, no records are on file for the Subject Property.

### **California Environmental Protection Agency, State Water Resources Control Board, Geo Tracker regulated facilities database**

FCS reviewed the California Environmental Protection Agency, State Water Resources Control Board (SWRCB), GeoTracker regulated facilities database for files related to possible recognized environmental conditions for the Property. No records for the Property are listed in the State GeoTracker database. According to Ms. Melinda Wong of the SWRCB, no historical records are on file for the Subject Property.

### **Adjoining Properties (former)**

According to the State Water Resources Control Board (SWRCB), GeoTracker regulated facilities database, former San Carlos High School is identified as a LUST Cleanup Site. Based on information obtained during the historical records review, the USTs at this site were located at least 500 feet south of the Subject Property. According to GeoTracker, this facility reported a release of “waste oil / motor / hydraulic / lubricating” that affected the soil only, and the regulatory status is listed as “Completed – Case Closed as of 7 / 23 / 2003. Former San Carlos High School was demolished in 1988 and the former athletic fields were converted into Highlands Park; the former school site was redeveloped into a residential subdivision in the late 1980s/early 1990s.

A Case Closed status is granted to those sites that do not exhibit levels of contamination requiring clean-up, have been remediated to the satisfaction of the lead regulatory agency, or are not suspected to represent a significant threat to human health or the environment. Therefore, it is unlikely that contamination originating at sites with a Case Closed status have had a significant negative environmental impact on the Property.

Based on the regulatory status, the former San Carlos High School site listed in the State Water Resources Control Board (SWRCB), GeoTracker regulated facilities database is not suspected of having had a negative impact on the Property and does not represent a recognized environmental condition for the Property.

### **State of California, Department of Toxic Substances Control (DTSC) EnviroStor database**

FCS reviewed the Department of Toxic Substances Control (DTSC) EnviroStor database for files related to possible environmental concerns for the Property and adjoining properties. No records for the Property or any adjoining properties are listed in the State EnviroStor database.

## Bay Area Air Quality Management District (AQMD)

FCS has submitted a records request with the Bay Area Air Quality Management District (AQMD) in order to discover any records on file for the Property. According to Mr. David Garrison of the AQMD, no records are on file for the Subject Property.

## Site Contact Interview

FCS received a completed Property Representative and User Questionnaires from Property Owner Mr. Joseph Bullock (See Appendices). No evidence of recognized environmental conditions was discovered by reviewing the Questionnaires and subsequent follow up questions except the following:

According to Property Owner Mr. Joseph Bullock, one approximately 4,000-gallon gasoline underground storage tank, used to fuel the water company's delivery trucks and vans, was removed from the eastern portion of the Property (APN 050-220-170) in the 1970s or early 1980s. Mr. Bullock indicated that the UST was removed and disposed of and that the area was cleaned up by removing soils from the Property. The removal and disposal of the UST and soils was performed by a tank removal company. Mr. Bullock was not sure of the exact quantity of soils removed but indicated that no groundwater was impacted and that the soil cleanup was relatively easy. Subsequently, a small aboveground storage tank (unknown quantity) was utilized for a few years, however, as the AST was small and not convenient for use, fueling operations moved to a card lock fueling system in downtown San Carlos. Mr. Bullock indicated that he was not aware of any spills or clean up associated with the former aboveground tank. The former UST and AST were located on the right side near the southernmost gate entrance to the water bottling plant. Mr. Bullock was not able to provide FCS with any documentation regarding the former on-site gasoline storage tanks.

Mr. Bullock stated that former on-site tenant Cap Snap Seal Inc. occupied the Property for a short time and manufactured plastic water bottle caps. The manufacturing process involved melting small pellets of plastic into cap form. Mr. Bullock stated that the on-site operations were all food grade activities and FDA (Food and Drug Administration) approved. According to the Black Mountain Properties website, the original patent for Cap Snap was filed in 1964, with modified patents filed in 1967 and 1968; Cap Snap Seal Inc. occupied the Alameda Property until 1973. Of note, Cap Snap Seal Inc. is listed in the City Directory Abstract as occupying 800 Alameda De Las Pulgas in 1970 and 1977.

In addition, Mr. Bullock stated in the Property Representative Questionnaire that "fill dirt was brought on and placed in the flat on the right side heading downhill, behind gate next to 806 and road improvements on the 1st 100 yards on lower road which was engineered and compacted with [oversight] by BKF". This fill area is located in the central southern portion of the Subject Property.

## Former Site Contact Interview

FCS was unable to obtain contact information for the previous Property owner for the purposes of conducting an interview regarding whether any recognized or potential recognized environmental conditions were associated with the Property during their ownership.



## Previous Environmental Reports

FCS reviewed numerous documents provided by Dragonfly Investments Group concerning the Subject Property including geotechnical investigations, surveys, preliminary construction documents, and deeds. In addition, FCS reviewed a report titled “Draft Initial Environmental Study & Mitigated Negative Declaration, 800 Alameda De Las Pulgas” dated March 2010 and prepared by Willdan Engineering on behalf of City of San Carlos. No recognized environmental conditions were discovered during the review of the provided documents except the following:

FCS reviewed a provided report titled “Geotechnical Engineering Investigation, Proposed Offhaul and Embankment Site, East Of Bullock Residence Site, Alameda De Las Pulgas, San Carlos, California” dated June 16, 2010, prepared by BVGG Engineers on behalf of Black Mountain Development, LLC. According to the BVGG report, “The embankment fill area is underlain by roughly 6 to 12 feet of undocumented fill which is underlain by a foot or so of colluvium, which in turn is underlain by sandstone bedrock. The undocumented fill consisted of mostly fat clay with some lean clay and a little sandy soil.”

**As the on-site fill is from an unknown source, FCS believes it prudent that soil sampling and testing be performed. Once the analysis has been completed, the results would verify that contaminated soils above action levels are/are not present.**

## Historical Use Information Review

### Aerial Photographs and Topographic Maps

FCS reviewed historical aerial photographs and historical topographic maps provided by EDR/FirstSearch for information pertaining to possible environmental concerns for the Property, adjoining properties, and surrounding properties for the following years:

- |      |   |
|------|---|
| 1902 | Due to the small scale of this map, accurate property boundaries are not feasible (USGS 30-Minute <i>Santa Cruz, CA</i> ).  |
| 1940 | The Property is depicted as vacant with an intermittent stream running west to east. All adjoining properties are depicted as vacant. Alameda De Las Pulgas borders the Property to the east. The surrounding vicinity is depicted with improved roads and residential areas (USGS 15-Minute <i>Hawthorne Bay, CA</i> ).  |
| 1946 | The western portion of the Property appears as vacant hillsides with no structures. A small residential structure is located in the central portion and a commercial building. A commercial building, most likely the Black Mountain Spring Water bottling plant building, is located in the easternmost portion of the Property. Alameda De Las Pulgas is located adjacent to the east of the property in its historical configuration. The adjoining properties to the north appear as vacant hillsides followed by residential land uses. The adjoining properties to the east appear as vacant hillsides followed by residential land |

uses. The adjoining properties to the south appear as vacant hillsides followed by a water tank and residential land uses. The adjoining properties to the west appear as vacant hillsides followed by residential land uses. The surrounding area appears as mostly as open space and residential land uses (EDR Aerial Collection).

- 1948 The Property appears in similar land use as the previous photo with the exception of an unpaved driveway/access road running west from Alameda De Las Pulgas then winding north through the Property and connecting with a road located north of the Property. All adjoining properties appeared in similar land uses as the previous aerial photograph. The surrounding vicinity appear in similar land uses as the previous aerial photograph with increases in residential land uses (EDR Aerial Collection).
- 1953 The Property is depicted with a structure in the easternmost portion, in the vicinity of the former on-site water bottling plant; an improved road runs from Alameda De Las Pulgas west and then north through the Property; two residential structures are located in the central portion of the Property in the vicinity of the on-site residences at 806 and 808 Alameda De Las Pulgas. Improved roads and residential areas are depicted to the north. St. Charles School is depicted to the east followed by lands shaded red representing highly urbanized built-up areas. Vacant hillsides are depicted to the south and west. The surrounding areas to the north, east, and southeast are shaded red representing highly urbanized built-up areas with residential areas depicted further to the south and west (USGS 7.5-Minute *Woodside, CA*).
- 1956 The Property's water bottling plant building appears to have expanded. The residence at 808 Alameda De Las Pulgas is now located in the center of the Property. Adjoining properties to the north appear with a large building and residential lots. The adjoining properties to the east appear as St. Charles School and residential land uses. The adjoining properties to the south appear as residential areas undergoing grading and development. The adjoining properties to the west appear as vacant hillsides followed by residential land uses. The surrounding area appears with open space, residential, commercial, and institutional land uses (EDR Aerial Collection).
- 1961 The Property is depicted in similar land use as the previous topographic map with the additional depiction of a structure in the vicinity of the on-site residence at 804 Alameda De Las Pulgas. An improved road runs from Alameda De Las Pulgas west and then terminates in the northern portion of the Property. Improved roads and residential areas are depicted to the north and west. St. Charles School is depicted to the east followed by lands shaded red representing highly urbanized built-up areas. Former San Carlos High School is depicted to the south and west. The surrounding areas to the north, east, and south are shaded red representing highly urbanized built-up areas with residential areas depicted further west (USGS 15-Minute *Half Moon Bay, CA*).

- 1968 The Property is depicted in similar land use as the previous topographic map. Adjoining properties and surrounding areas are depicted by lands shaded red representing highly urbanized built-up areas. Former San Carlos High School is depicted to the south and west (USGS 7.5-Minute *Woodside, CA*).
- 1968 Residences at 804 and 806 Alameda De Las Pulgas now appear at the Property. The water bottling plant appears in the eastern portion of the Property. Residential land uses have been completed to the south of the Property along with San Carlos High School to the south and west. The surrounding area appears with open space, residential, commercial, and institutional land uses (EDR Aerial Collection).
- 1973 The Property, all adjoining properties, and surrounding vicinity are depicted in similar land uses as the previous topographic map (USGS 7.5-Minute *Woodside, CA*).
- 1974 The Property, all adjoining properties, and surrounding vicinity appear in similar land uses as the previous aerial photograph (EDR Aerial Collection).
- 1982 The Property, all adjoining properties, and surrounding vicinity appear in similar land uses as the previous aerial photograph (EDR Aerial Collection).
- 1993 The Property, all adjoining properties, and surrounding vicinity appear in similar land uses as the previous aerial photograph with the exception of San Carlos High School which has been demolished and replaced by a residential subdivision (EDR Aerial Collection).
- 1994 The Property, all adjoining properties, and surrounding vicinity are depicted in similar land uses as the previous topographic map with two exceptions: the water bottling plant building appears larger and San Carlos High School is no longer in place (USGS 7.5-Minute *Woodside, CA*).
- 1997 The Property, all adjoining properties, and surrounding vicinity are depicted in similar land uses as the previous topographic map (USGS 7.5-Minute *Woodside, CA*).
- 1998 As this aerial photograph is somewhat blurry, it is unclear as to the extent of water bottling plant operations in the eastern portion of the Property. The central and western portions of the Property, all adjoining properties, and the surrounding area appear in similar land uses as the previous aerial photograph (EDR Aerial Collection).
- 2005 The Property appears in similar land uses as today with the exception of a small area occupied by rows of trees (a possible family orchard) in the western portion of the Property; no water bottling plant are located on-site and the former water bottling area appears as a vacant area covered with grasses and shrubs. All adjoining properties and the surrounding area appear in similar land uses as today (EDR Aerial Collection).

- 2009            The Property, all adjoining properties, and the surrounding area appear in similar land uses as today. A cleared area and depression in the location of the present day on-site location of the storm water drain can be seen in the eastern portion of the Property (EDR Aerial Collection).
- 2010            The Property, all adjoining properties, and the surrounding area appear in similar land uses as today (EDR Aerial Collection).
- 2012            No individual structures are depicted. All streets appear in present day configurations (USGS 7.5-Minute *Woodside, CA*).
- 2012            The Property, all adjoining properties, and the surrounding area appear in similar land uses as today (EDR Aerial Collection).

No recognized environmental conditions were discovered for the Property by reviewing the available historical aerial photographs and topographic maps.

**Sanborn Fire Maps**

FCS reviewed Sanborn Fire Insurance Maps for information pertaining to possible environmental concerns for the Property and surrounding properties; no coverage was available (See Appendices).

**Oil and Gas Fields**

Based on the oil and gas well maps of the California Division of Oil, Gas, & Geothermal Resources, no production wells are shown on or adjacent to the Property.

**Vapor Intrusion Condition (VIC)**

As the Property and adjoining properties are not identified in any regulatory databases indicating a release or spill, a vapor intrusion condition does not exist in connection with the Property.

**City Directories**

FCS reviewed historical city directory information provided by EDR/FirstSearch for information pertaining to possible environmental concerns for the Property and surrounding properties. The city directory abstract dated back to 1970. The following listings were identified for the Property within the city directory abstract (See Appendices):

- 1970            800 Alameda De Las Pulgas - Black Mountain Spring Water & Cap Snap Seal Inc.
- 804 Alameda De Las Pulgas - Residential listing.
- 806 Alameda De Las Pulgas - No listing.

1977	800 Alameda De Las Pulgas - Cap Snap Seal Inc. 804 Alameda De Las Pulgas - No listing. 806 Alameda De Las Pulgas - No listing.
1980	800 Alameda De Las Pulgas - Cap Snap Seal Inc. 804 Alameda De Las Pulgas - No listing. 806 Alameda De Las Pulgas - No listing.
1985	800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - No listing. 806 Alameda De Las Pulgas - No listing.
1990	800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - No listing. 806 Alameda De Las Pulgas - No listing.
1995	800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - No listing. 806 Alameda De Las Pulgas - No listing.
1999	800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - Residential listing. 806 Alameda De Las Pulgas - Occupant unknown.
2003	800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - Residential listing. 806 Alameda De Las Pulgas - Residential listing.
2008	800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - Residential listing. 806 Alameda De Las Pulgas - No listing.
2013	800 Alameda De Las Pulgas- Therma Source. 804 Alameda De Las Pulgas - Residential listing. 806 Alameda De Las Pulgas - Residential listing.

### Historical Data Gaps

During the historical research process of the preparation of this report, there were no gaps exceeding five years in which FCS was unable to ascertain the probable on-site land use.

## Conclusions and Recommendations

We have performed a Phase I Environmental Site Assessment of San Mateo County Assessor's Parcel Numbers (APNs) 049-360-060, 050-220-170, and 050-220-020 located on the west side of Alameda De Las Pulgas in San Carlos, California 94070 in substantial conformance with the scope and limitations of ASTM Standard E-1527-13.

Based on a site reconnaissance and a review of physiographic, historical and regulatory information, there is no evidence of recognized environmental conditions (as defined by ASTM standards) in connection with the Property except the following:

- According to Property Owner Mr. Joseph Bullock, one approximately 4,000-gallon gasoline underground storage tank, used to fuel the water company's delivery trucks and vans, was removed from the eastern portion of the Property (APN 050-220-170) in the 1970s or early 1980s. Mr. Bullock indicated that the UST was removed and disposed of and that the area was cleaned up by removing soils from the Property. The removal and disposal of the UST and soils was performed by a tank removal company. Mr. Bullock was not sure of the exact quantity of soils removed but indicated that no groundwater was impacted and that the soil cleanup was relatively easy. Subsequently, a small aboveground storage tank (unknown quantity) was utilized for a few years, however, as the AST was small and not convenient for use, fueling operations moved to a card lock fueling system in downtown San Carlos. Mr. Bullock indicated that he was not aware of any spills or clean up associated with the former aboveground tank. The former UST and AST were located on the right side near the southernmost gate entrance to the water bottling plant. Mr. Bullock was not able to provide FCS with any documentation regarding the former on-site gasoline storage tanks.

The Subject Property is not listed on any environmental regulatory databases including bulk storage tank databases or databases indicative of contamination such as the leaking underground storage tank list or the inventory of Hazardous Waste Sites. FCS contacted the San Carlos Building Division, Redwood City Fire Department San Carlos Division, Bay Area Air Quality Management District, and San Mateo County Environmental Health Department concerning fuel tanks associated with the Property and none of these agencies had any records on file. FCS also reviewed the California Environmental Protection Agency, State Water Resources Control Board (SWRCB), GeoTracker regulated facilities database for files related to possible recognized environmental conditions for the Property. No records for the Property are listed in the State GeoTracker database or in the SWRCB's historical database.

**Based on the lack of fuel tank closure documentation, it is unknown to what extent, if any, that testing was completed to determine whether soils and/or groundwater at the Property have been impacted. Therefore, FCS believes it prudent that soil sampling and testing be performed to determine if the Property has been impacted by former on-site fuel tanks. Once the analysis has been completed, the results would verify that contaminated soils above action levels are/are not present.**

In addition, the following business environmental risks (BERs) were identified which warrant mention:

- Property Owner Mr. Bullock stated in the Property Representative Questionnaire that “fill dirt was brought on and placed in the flat on the right side heading downhill, behind gate next to 806 and road improvements on the 1st 100 yards on lower road which was engineered and compacted with [oversight] by BKF”. This fill area is located in the central southern portion of the Subject Property. FCS reviewed a provided report titled “Geotechnical Engineering Investigation, Proposed Offhaul and Embankment Site, East Of Bullock Residence Site, Alameda De Las Pulgas, San Carlos, California” dated June 16, 2010, prepared by BVGG Engineers on behalf of Black Mountain Development, LLC. According to the BVGG report, “The embankment fill area is underlain by roughly 6 to 12 feet of undocumented fill which is underlain by a foot or so of colluvium, which in turn is underlain by sandstone bedrock. The undocumented fill consisted of mostly fat clay with some lean clay and a little sandy soil.”

**As the on-site fill is from an unknown source, FCS believes it prudent that soil sampling and testing be performed. Once the analysis has been completed, the results would verify that contaminated soils above action levels are/are not present.**

- Based on information obtained from the historical records review, the on-site single-family residences at 804 and 806 Alameda De Las Pulgas were constructed at a time when asbestos-containing materials (ACM) and lead-based paints (LBP) were commonly used in building materials. Based on this information, there is a potential that ACMs and LBP are present within these onsite structures. As these structures appeared in good condition at the time of the site visit, no further action is recommended at this time other than maintaining these suspect materials in good condition under an Asbestos and Lead Paint Operations and Maintenance (O&M) Program. In the event that building maintenance, renovation, or demolition activities require the removal or disturbance of the suspect ACM and LBP, the materials should be characterized for asbestos and lead by a reliable method. All activities involving ACM and LBP should be conducted in accordance with governmental regulations.

## Resources Consulted

- California Division of Oil, Gas, and Geothermal Resources;
- USGS Topographic Maps; California Division of Mines and Geology Maps;
- EDR FirstSearch Report;
- EDR Sanborn Fire Maps Collection;
- EDR City Directory Abstract;
- U.S. Fish and Wildlife Service, National Wetlands Inventory;
- FEMA Flood Map Service Center;
- Federal EPA Radon Zone for San Mateo County (<http://www.city-data.com/radon-zones/California/California.html>)

## Agencies Contacted

- City of San Carlos Building Division;
- Redwood City Fire Department, San Carlos Division;
- San Mateo County Environmental Health Department;
- San Mateo County Assessor's Office;
- California Environmental Protection Agency;
- State Water Resources Control Board;
- State of California, Department of Toxic Substances Control
- Bay Area Air Quality Management District

## Limitations

The professional opinions contained in this report are based solely on the laws, regulations, and technical data known to FCS at the time of report preparation. The conclusions of this assessment rely on reasonably obtainable information from site reconnaissance, interviews with on-site personnel and public officials, and public records. No warranty is made regarding the accuracy of the publicly documented information or the opinions of officials or personnel consulted for the study. All known information has been disclosed and a good-faith effort has been made to consult pertinent sources.

It should be noted that all environmental assessments are inherently limited in the sense that conclusions are drawn, and recommendations developed, from information obtained from limited research and site evaluation. Subsurface conditions were not investigated as part of this study and may differ from the conditions implied by visual observations. Additionally, the passage of time may result in a change in environmental characteristics at this site and on surrounding properties.

This report does not warrant against future operations, activities, or conditions that may occur. This report is not a regulatory compliance audit. A regulatory compliance audit of the tenant operation would analyze compliance of the operation with regulatory requirements and accepted industry practices. The scope of the Phase I ESA focused on the likelihood or potential presence of recognized



environmental conditions at the Subject Property, according to ASTM standards. Contents of on-site containers were not inspected; however, detailed information regarding container contents was not provided by the tenant operator.

This study is not intended to assess or otherwise determine if any soil contamination, waste emplacement, or groundwater contamination exists on the Subject Property. This investigation has been based only upon prior site history, previous documentation, and observable conditions. Existing hazardous materials and contaminants can escape detection using these methods. If the results of this study suggest that it is possible that hazardous materials contamination exists at the Subject Property, then further investigation (regulatory file review, subsurface testing) may be necessary to make a definite assessment. Our conclusions regarding the potential environmental impact from off-site facilities near the Subject Property are based on readily available information from the environmental databases and the assumed groundwater flow direction. A detailed file review of each facility was beyond the scope of work.

We appreciate the opportunity to be of service to the Dragonfly Investments Group, for this project and look forward to working with you on future assignments. In the interim, if you should have any further questions, please contact Mary Bean at 707-318-2348 or by e-mail at [sargo@fcs-intl.com](mailto:sargo@fcs-intl.com).

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental professional as defined in Section 312.10 of 40 CFR 312 and I have the specific qualifications based on education, training, and experience to assess a Property of the nature, history, and setting of the Subject Property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

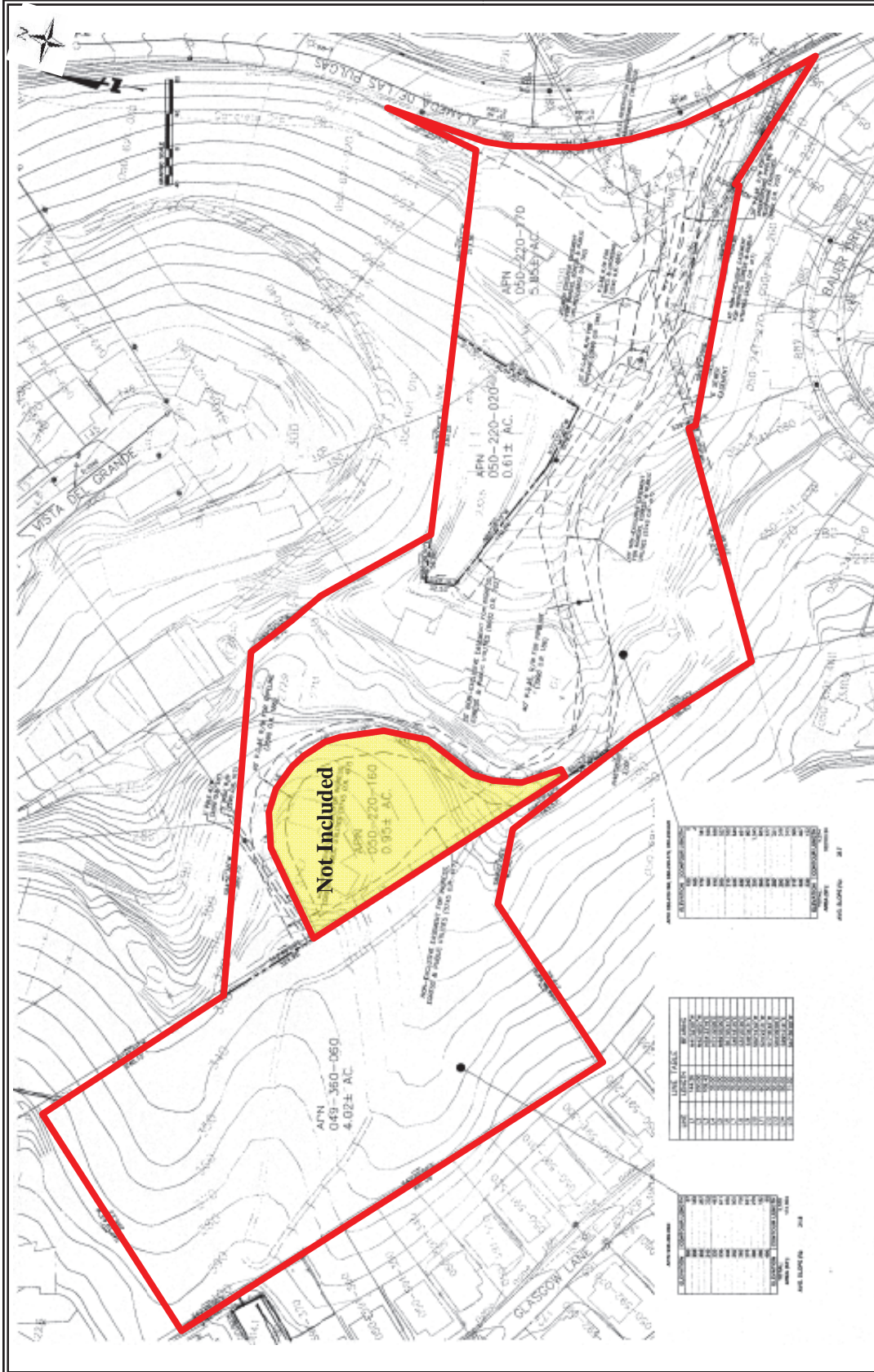
Sincerely,



Jeff Randle, Environmental Professional  
**FirstCarbon Solutions**  
1350 Treat Boulevard, Suite 380  
Walnut Creek, CA 94597

Enc: Appendix A: Parcel Map and Aerial Site Plan  
Appendix B: Street Map and Topographic Map  
Appendix C: Site Photographs  
Appendix D: Historical Aerial Photographs and Topographic Maps  
Appendix E: Wetlands Map  
Appendix F: Sanborn Fire Insurance Abstract  
Appendix G: City Directories  
Appendix H: EDR/FirstSearch Government Database Report  
Appendix I: Questionnaires and Supporting Documents

**Appendix A:  
Parcel Map and Aerial Site Plan**



PARCEL MAP

Black Mountain  
 Alameda De Las Pulgas  
 San Carlos, California 94070



Boundaries are approximate.  
 Not to scale.



**Legend**

- Property Boundary —
- Presumed groundwater flow direction ↑

**SITE PLAN**

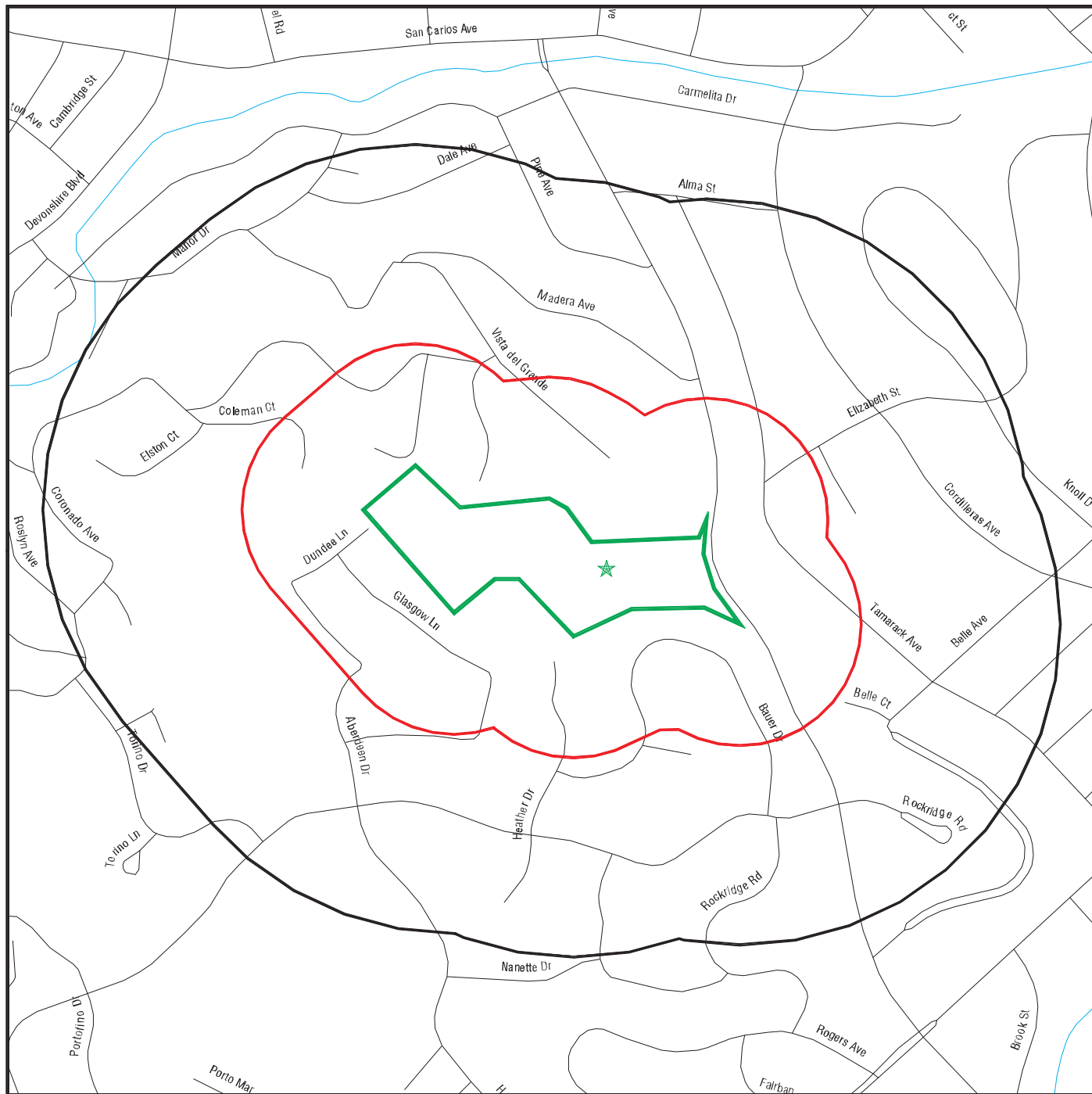


Black Mountain  
 Alameda De Las Pulgas  
 San Carlos, California 94070





Boundaries are approximate.  
 Not to scale.

**Appendix B:  
Street Map and Topographic Map**

806 ALAMEDA SAN CARLOS, CA 94070



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

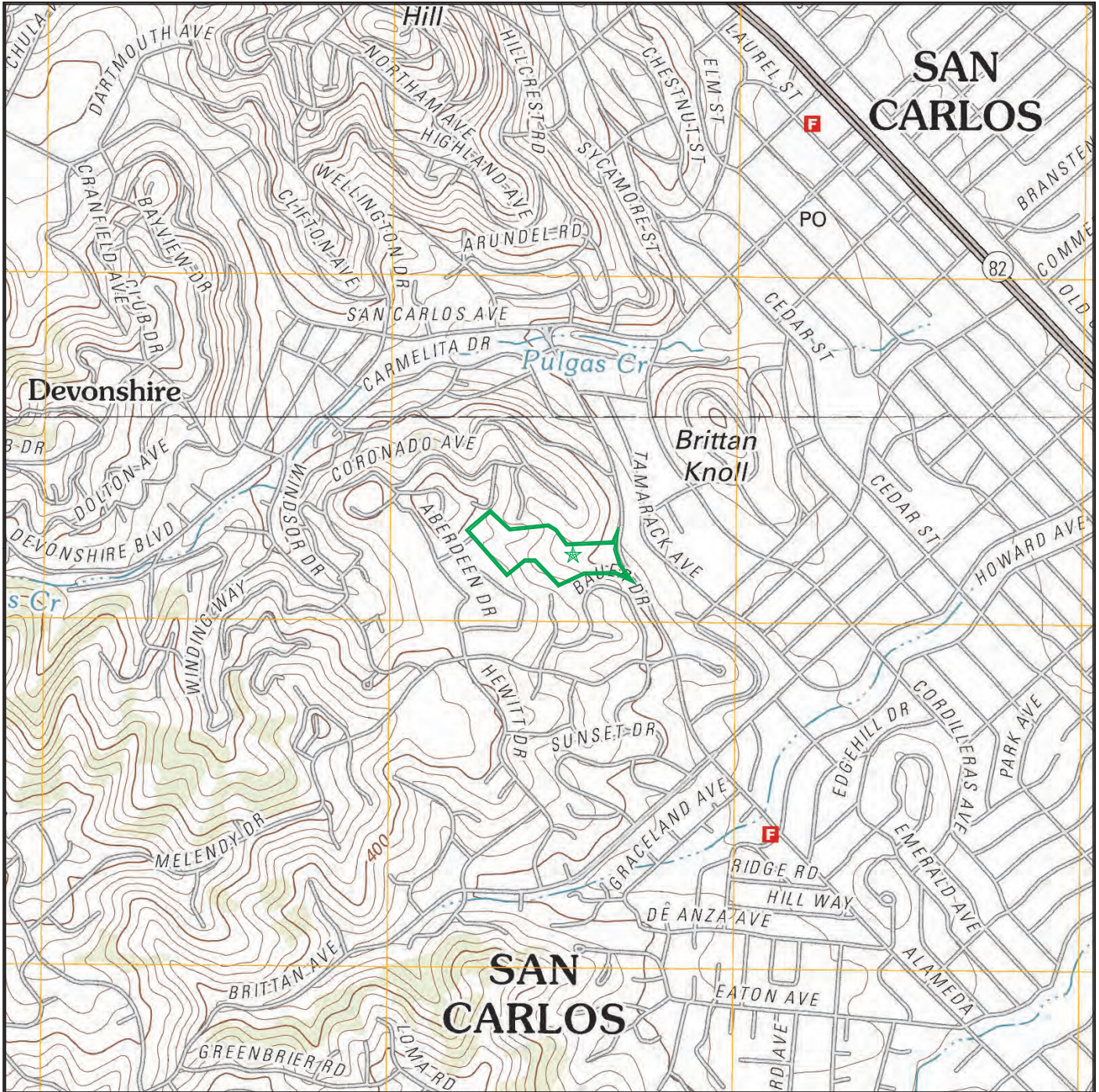
-  **Target Property (Latitude: 37.496363 Longitude: 122.269973)**
-  **Identified Sites**
-  **Indian Reservations BIA**
-  **National Priority List Sites**

# Site location Map

Topo: 0.75 Mile Radius



806 ALAMEDA SAN CARLOS, CA 94070







Map Image Position: TP  
Map Reference Code & Name: 5640628 Woodside  
Map State(s): CA  
Version Date: 2012  
Map Image Position: NW  
Map Reference Code & Name: 5640626 San Mateo  
Map State(s): CA  
Version Date: 2012

**Appendix C:  
Site Photographs**



**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**

	
<p>View west across Alameda De Las Pulgas toward Subject Property</p>	<p>View west across former on-site Black Mountain Spring Water plant area toward on-site fresh water spring location</p>
	
<p>View north across former on-site Black Mountain Spring Water plant area</p>	<p>View east across former on-site Black Mountain Spring Water plant area toward Alameda De Las Pulgas</p>

**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**



View south toward fresh water spring access



View west toward fresh water spring access




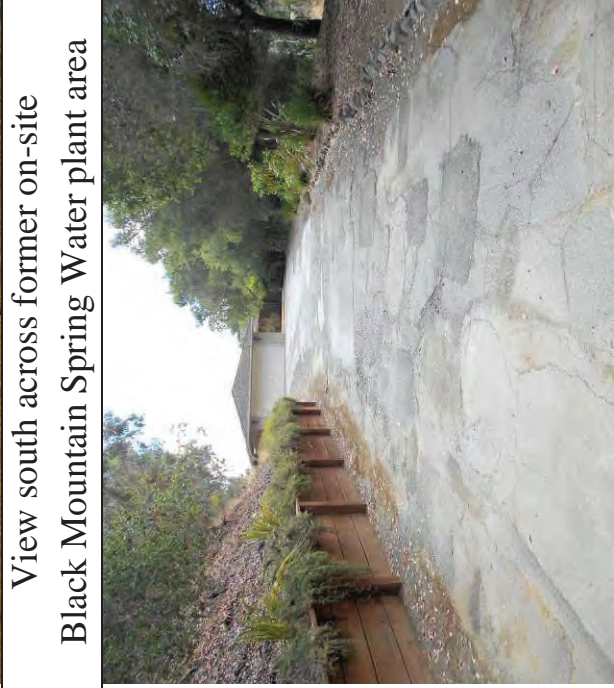


View of fresh water spring



Close view of fresh water spring access door

**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**

 <p>View toward approximate location of former on-site 4,000-gallon gasoline underground storage tank</p>	 <p>View south across former on-site Black Mountain Spring Water plant area</p>
 <p>View east toward 804 Alameda De Las Pulgas</p>	 <p>View of driveway leading to 804 Alameda De Las Pulgas</p>

**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**



View west toward 804 Alameda De Las Pulgas



View southeast from 804 Alameda De Las Pulgas across former Black Mountain Spring Water plant area



View of 804 Alameda De Las Pulgas interior



View of 804 Alameda De Las Pulgas interior

**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**



View of driveway leading to 806 Alameda De Las Pulgas



View northeast toward 806 Alameda De Las Pulgas



View south toward 806 Alameda De Las Pulgas



View northeast toward 806 Alameda De Las Pulgas

**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**



View west toward 806 Alameda De Las Pulgas



View northwest toward 806 Alameda De Las Pulgas



View of 806 Alameda De Las Pulgas interior



View of 806 Alameda De Las Pulgas interior

**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**

	 <p>View of 806 Alameda De Las Pulgas garden area on south side of residence</p>	 <p>View of 806 Alameda De Las Pulgas garden area on south side of residence</p>
	 <p>View east-southeast across the northern-central portion of the Property</p>	 <p>View northwest across the northern portion of the Property</p>

**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**





	
<p>View southeast across the northern portion of the Property</p>	<p>View east across the northern portion of the Property</p>
	
<p>View southeast along the northwest Property line</p>	<p>View west across the northern portion of the Property</p>



**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**

	
<p>View south across the northern portion of the Property toward adjoining residences located along Glasgow Lane</p>	<p>View east toward 808 Alameda De Las Pulgas located within the overall Subject Property parent parcel</p>
	
<p>View east toward adjoining St. Charles School property located across Alameda De Las Pulgas at 850 Tamarack Ave.</p>	<p>View west along Property driveway and area of imported fill</p>

**Phase I Site Photos: Black Mountain - Alameda De Las Pulgas, San Carlos, California**

		
	<p>View southwest toward adjoining residences located along Bauer Drive</p>	<p>View north toward adjoining residential properties</p>
		
	<p>View south along Alameda De Las Pulgas</p>	<p>View north along Alameda De Las Pulgas</p>

**Appendix D:**  
**Historical Aerial Photographs and Topographic Maps**



Black Mountain

806 Alameda

San Carlos, CA 94070

Inquiry Number: 4637606.8

June 08, 2016

## The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Aerial Photo Decade Package

06/08/16

**Site Name:**

Black Mountain  
806 Alameda  
San Carlos, CA 94070  
EDR Inquiry # 4637606.8

**Client Name:**

Env. Assessment Specialists  
71 San Marino Ave  
Ventura, CA 93003-0000  
Contact: FCS



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

## Search Results:

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1998	1"=500'	Flight Date: January, 01 1998	USGS
1993	1"=500'	Acquisition Date: October, 30 1991	USGS/DOQQ
1982	1"=500'	Flight Date: July, 08 1982	USDA
1974	1"=500'	Flight Date: June, 26 1974	USGS
1968	1"=500'	Flight Date: June, 14 1968	USGS
1956	1"=500'	Flight Date: September, 08 1956	USGS
1948	1"=500'	Flight Date: September, 26 1948	USDA
1946	1"=500'	Flight Date: July, 29 1946	USGS

**When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.**

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INQUIRY #: 4637606.8

YEAR: 2012

— = 500'





INQUIRY #: 4637606.8

YEAR: 2010

—= 500'





INQUIRY #: 4637606.8

YEAR: 2009

— = 500'







INQUIRY #: 4637606.8

YEAR: 2005

— = 500'



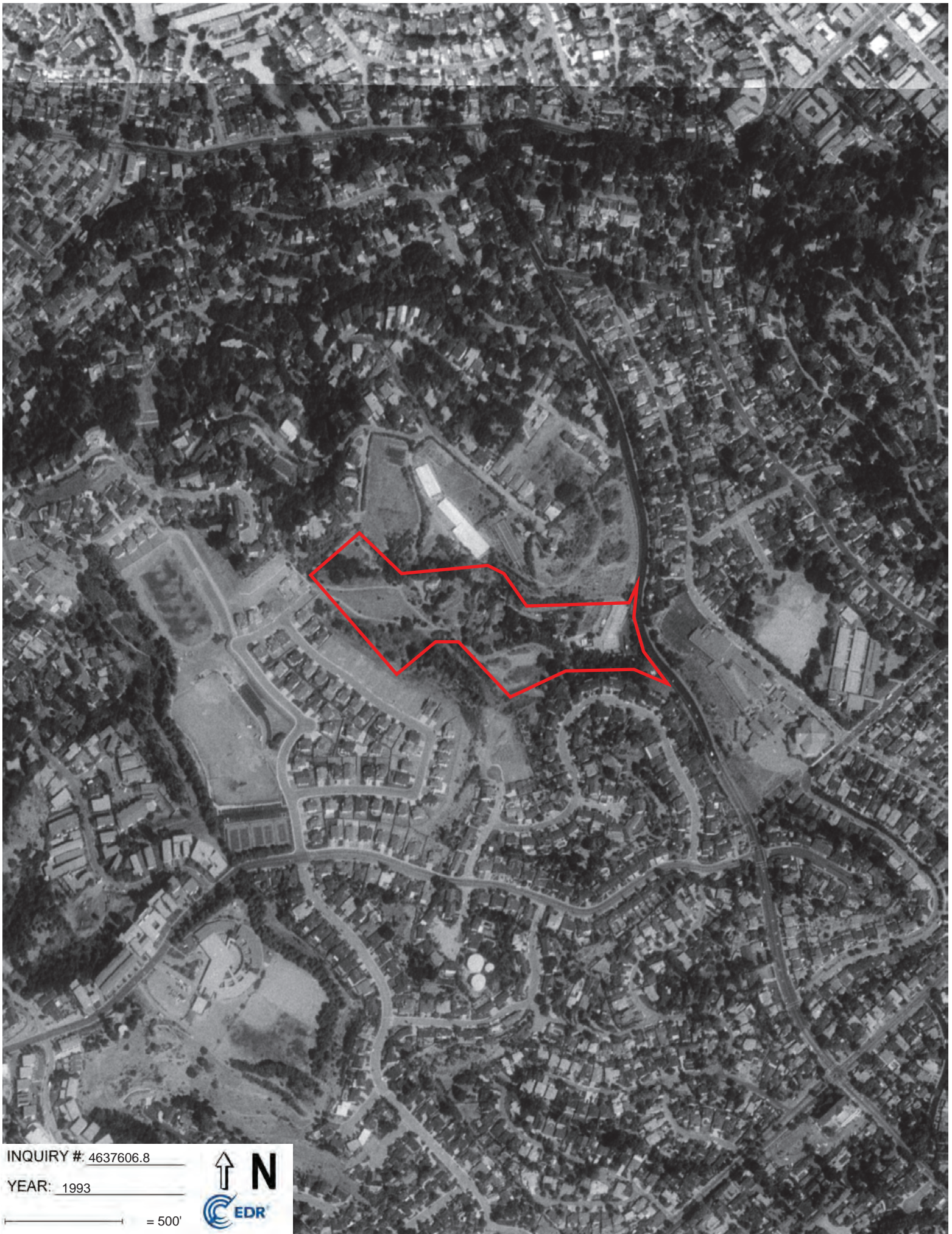


INQUIRY #: 4637606.8

YEAR: 1998

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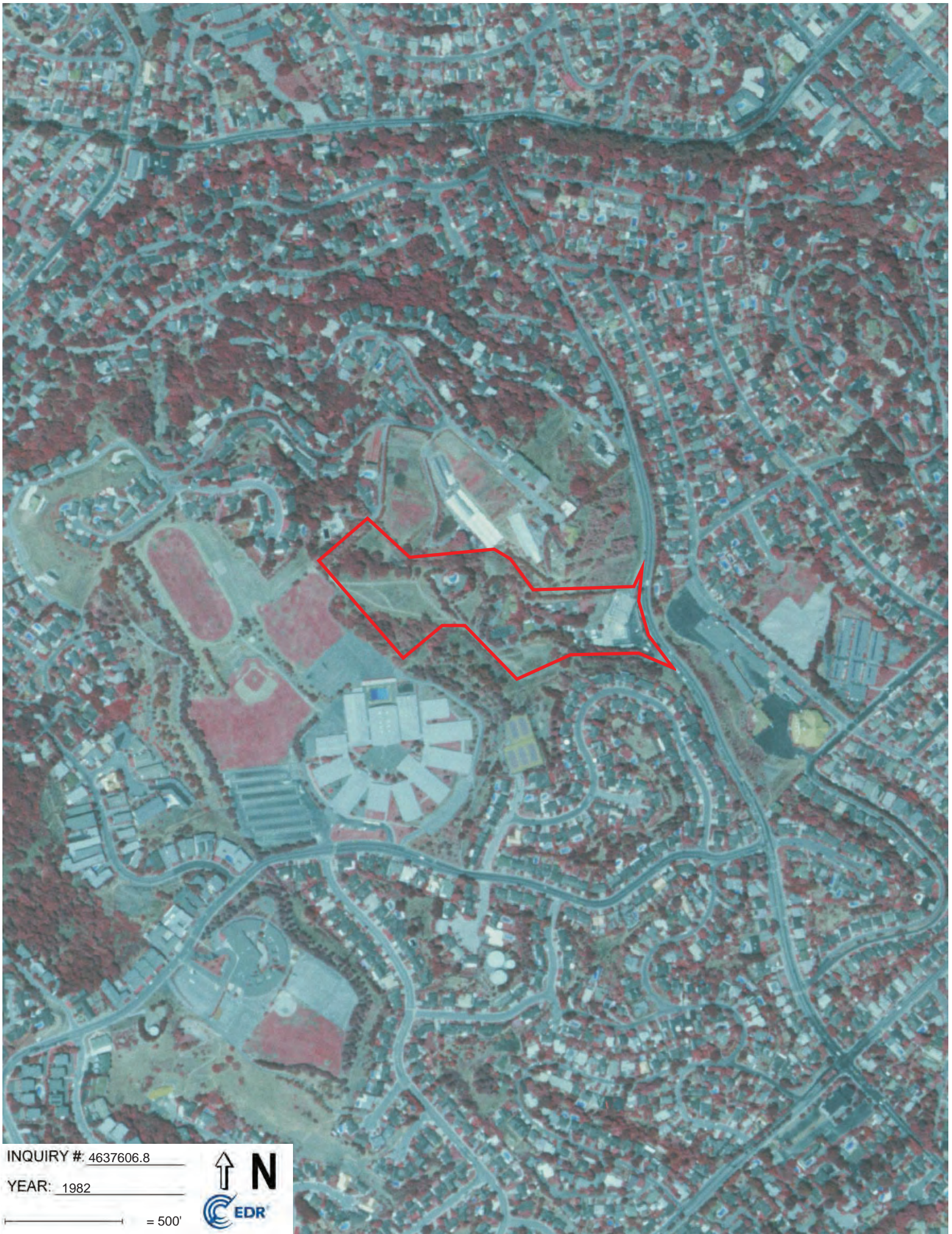


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YEAR: 1993

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YEAR: 1982

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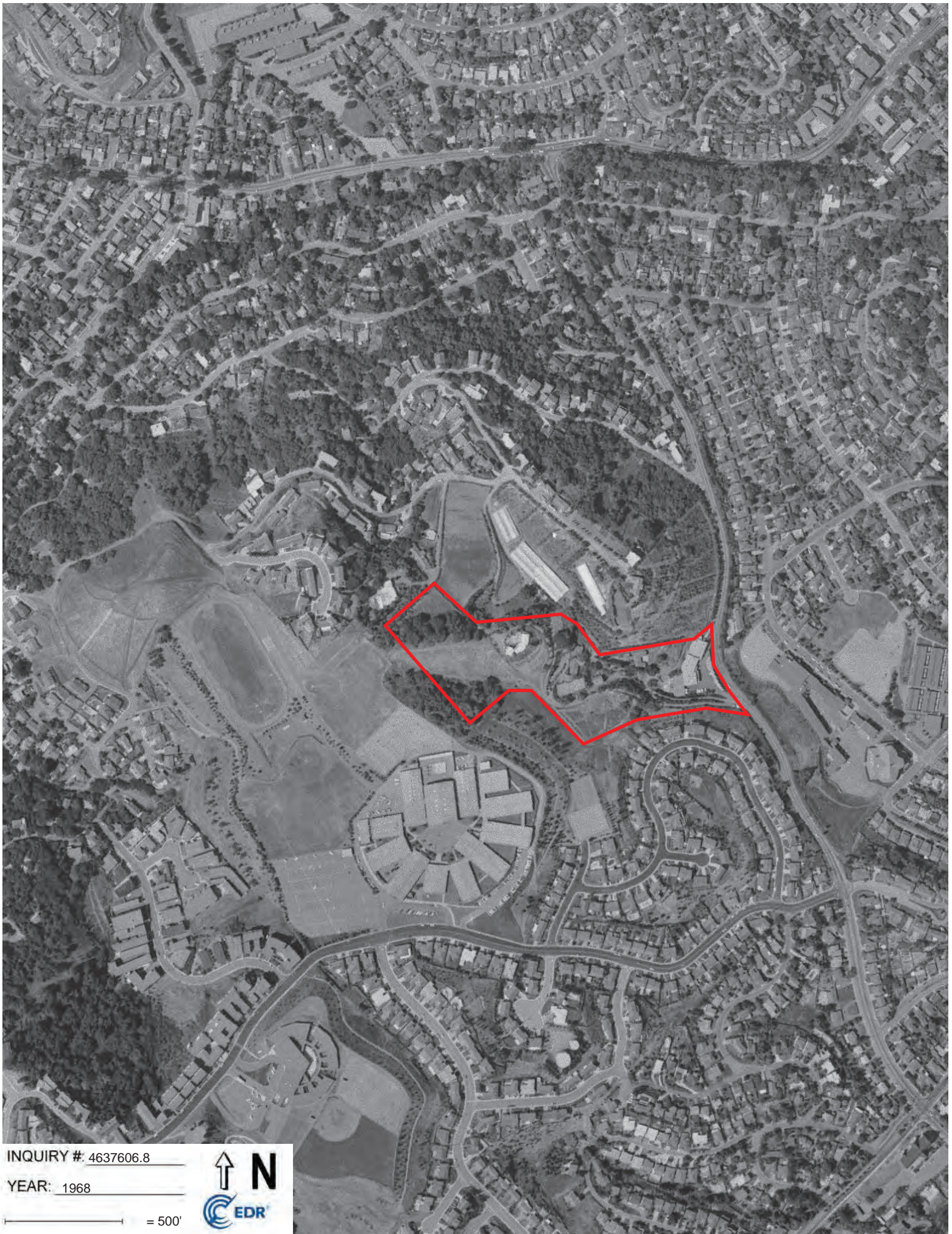


INQUIRY #: 4637606.8

YEAR: 1974

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INQUIRY #: 4637606.8

YEAR: 1968

— = 500'





INQUIRY # 4637606.8

YEAR: 1956

— = 500'





INQUIRY # 4637606.8

YEAR: 1948

— = 500'







INQUIRY # 4637606.8

YEAR: 1946

— = 500'



Black Mountain

806 Alameda

San Carlos, CA 94070

Inquiry Number: 4637606.4

June 06, 2016

# EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Historical Topo Map Report

06/06/16

**Site Name:**

Black Mountain  
806 Alameda  
San Carlos, CA 94070  
EDR Inquiry # 4637606.4

**Client Name:**

Env. Assessment Specialists  
71 San Marino Ave  
Ventura, CA 93003-0000  
Contact: FCS



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Env. Assessment Specialists were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

**Search Results:****Coordinates:**

<b>P.O.#</b>	NA	<b>Latitude:</b>	37.496363 37° 29' 47" North
<b>Project:</b>	Black Mountain	<b>Longitude:</b>	-122.269973 -122° 16' 12" West
		<b>UTM Zone:</b>	Zone 10 North
		<b>UTM X Meters:</b>	564530.73
		<b>UTM Y Meters:</b>	4150188.10
		<b>Elevation:</b>	221.05' above sea level

**Maps Provided:**

2012                      1902  
1997  
1993, 1994, 1996  
1973  
1968  
1959, 1961  
1953, 1956  
1939, 1940, 1943

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## Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### 2012 Source Sheets



Woodside  
2012  
7.5-minute, 24000



San Mateo  
2012  
7.5-minute, 24000



Palo Alto  
2012  
7.5-minute, 24000



Redwood Point  
2012  
7.5-minute, 24000

### 1997 Source Sheets



San Mateo  
1997  
7.5-minute, 24000  
Aerial Photo Revised 1997



Woodside  
1997  
7.5-minute, 24000  
Photo Inspected 1997  
Aerial Photo Revised 1991

### 1993, 1994, 1996 Source Sheets



San Mateo  
1993  
7.5-minute, 24000  
Aerial Photo Revised 1993



Woodside  
1994  
7.5-minute, 24000  
Aerial Photo Revised 1991  
Edited 1994



Palo Alto  
1994  
7.5-minute, 24000  
Aerial Photo Revised 1991  
Edited 1994

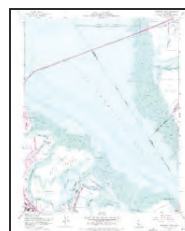


Redwood Point  
1996  
7.5-minute, 24000  
Aerial Photo Revised 1993  
Edited 1996

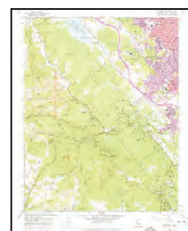
### 1973 Source Sheets



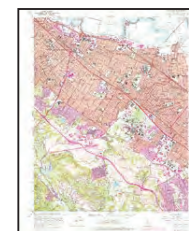
San Mateo  
1973  
7.5-minute, 24000  
Photo Revised 1973  
Aerial Photo Revised 1973



Redwood Point  
1973  
7.5-minute, 24000  
Photo Revised 1973  
Aerial Photo Revised 1973



Woodside  
1973  
7.5-minute, 24000  
Photo Revised 1973  
Aerial Photo Revised 1973



Palo Alto  
1973  
7.5-minute, 24000  
Photo Revised 1973  
Aerial Photo Revised 1973

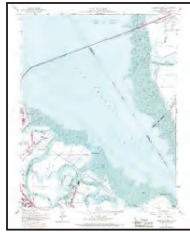
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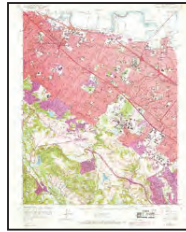
### 1968 Source Sheets



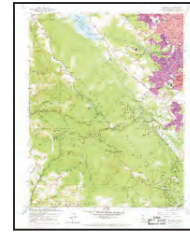
San Mateo  
1968  
7.5-minute, 24000  
Photo Revised 1968  
Aerial Photo Revised 1968



Redwood Point  
1968  
7.5-minute, 24000  
Photo Revised 1968  
Aerial Photo Revised 1968



Palo Alto  
1968  
7.5-minute, 24000  
Photo Revised 1968  
Aerial Photo Revised 1968



Woodside  
1968  
7.5-minute, 24000  
Photo Revised 1968  
Aerial Photo Revised 1968

### 1959, 1961 Source Sheets



Hayward  
1959  
15-minute, 62500  
Aerial Photo Revised 1958

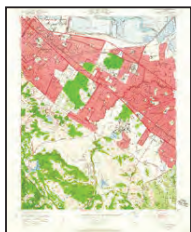


Palo Alto  
1961  
15-minute, 62500

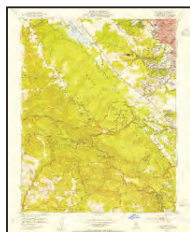


Half Moon Bay  
1961  
15-minute, 62500

### 1953, 1956 Source Sheets



Palo Alto  
1953  
7.5-minute, 24000  
Aerial Photo Revised 1948



Woodside  
1953  
7.5-minute, 24000  
Aerial Photo Revised 1948



San Mateo  
1956  
7.5-minute, 24000  
Aerial Photo Revised 1946

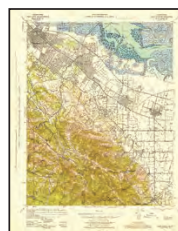
### 1939, 1940, 1943 Source Sheets



San Mateo  
1939  
15-minute, 62500  
Aerial Photo Revised 1939



Halfmoon Bay  
1940  
15-minute, 62500  
Aerial Photo Revised 1939



Palo Alto  
1943  
15-minute, 62500  
Aerial Photo Revised 1940

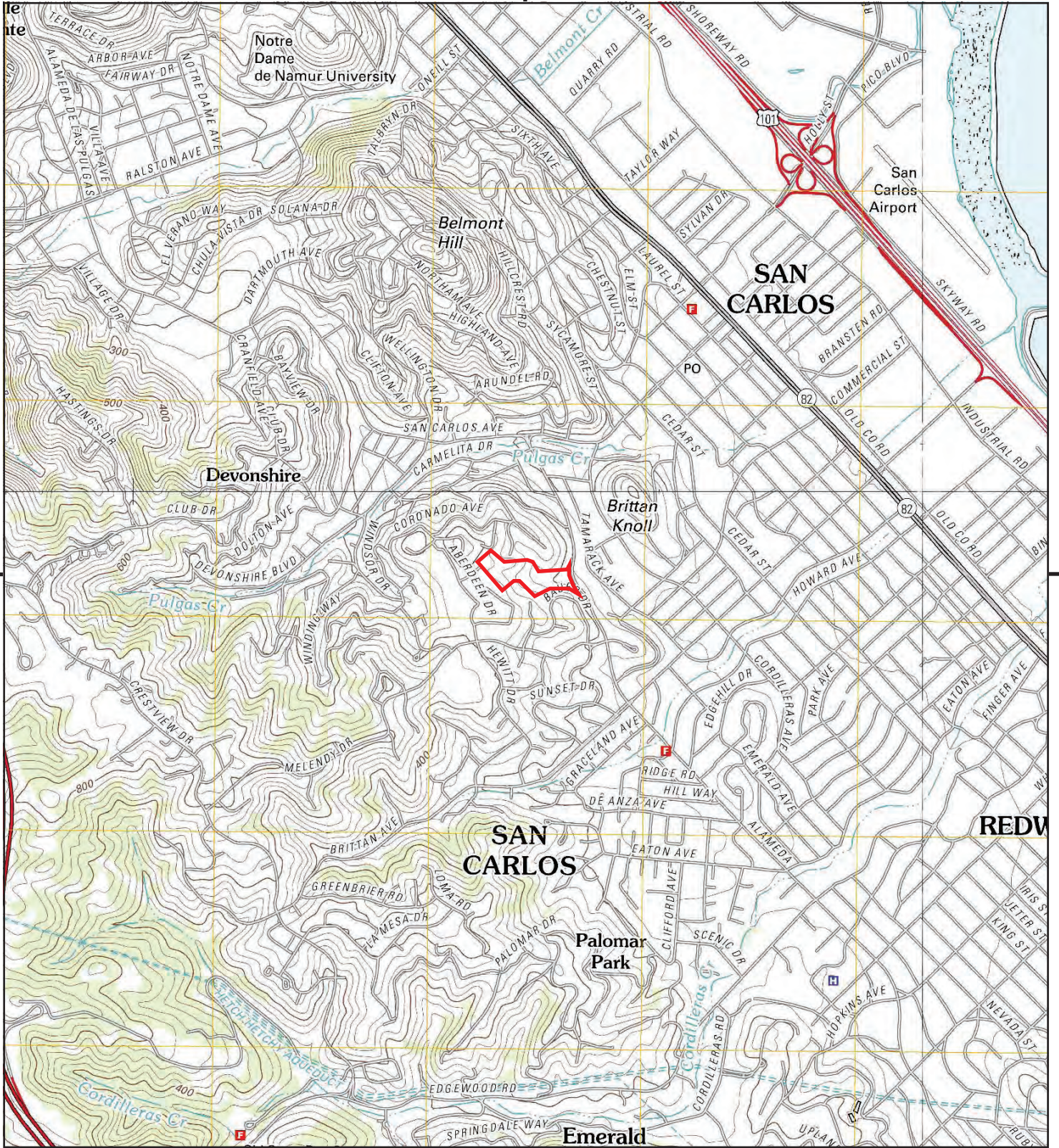
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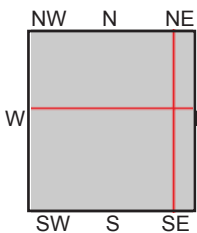
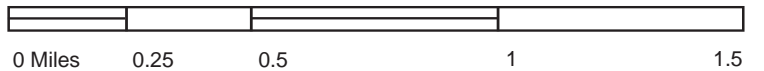
### **1902 Source Sheets**



Santa Cruz  
1902  
30-minute, 125000



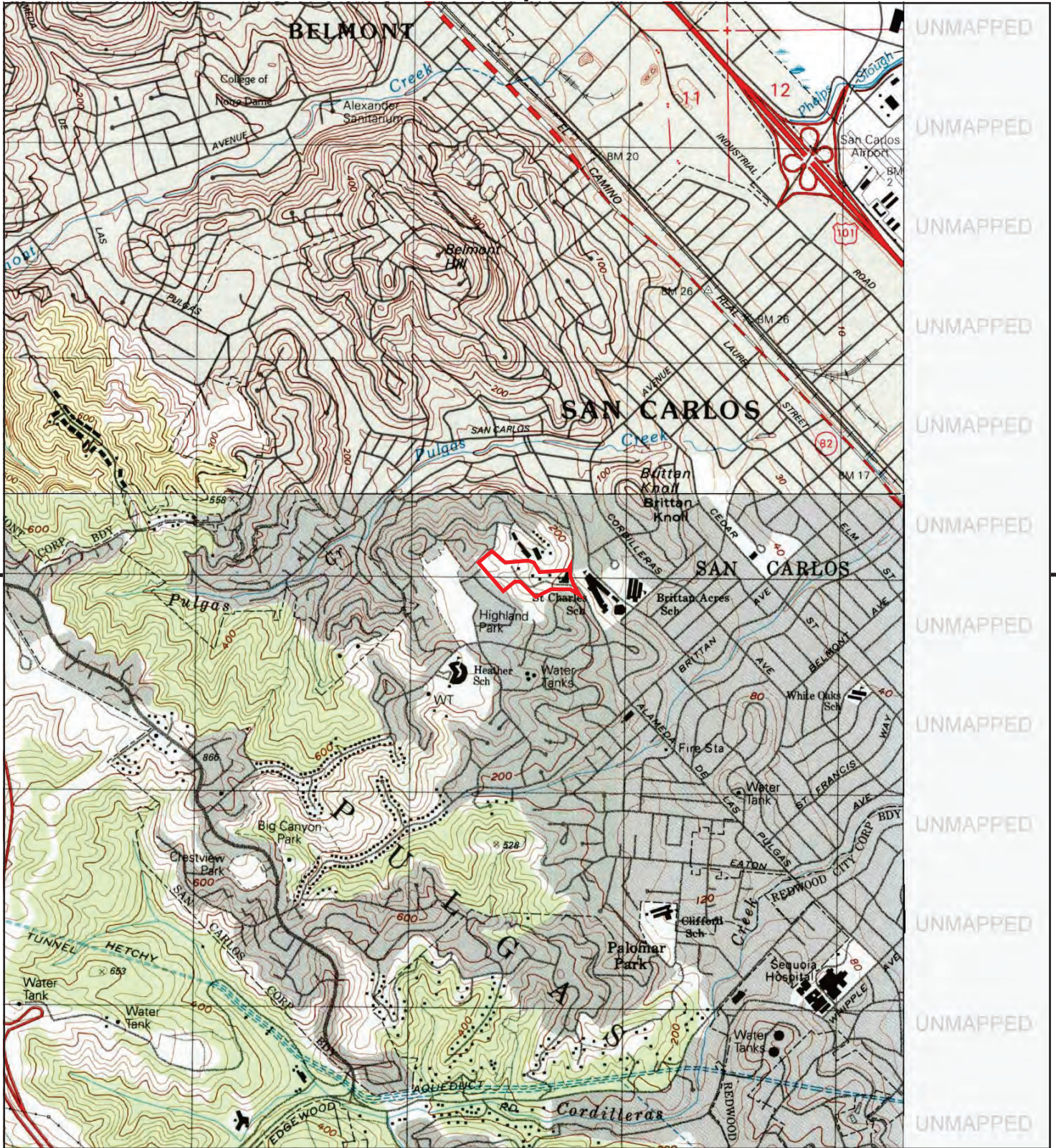
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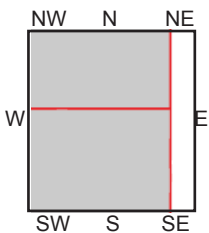
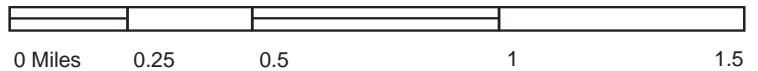
TP, Woodside, 2012, 7.5-minute  
 NE, Redwood Point, 2012, 7.5-minute  
 SE, Palo Alto, 2012, 7.5-minute  
 NW, San Mateo, 2012, 7.5-minute

**SITE NAME:** Black Mountain  
**ADDRESS:** 806 Alameda  
 San Carlos, CA 94070  
**CLIENT:** Env. Assessment Specialists





This report includes information from the following map sheet(s).

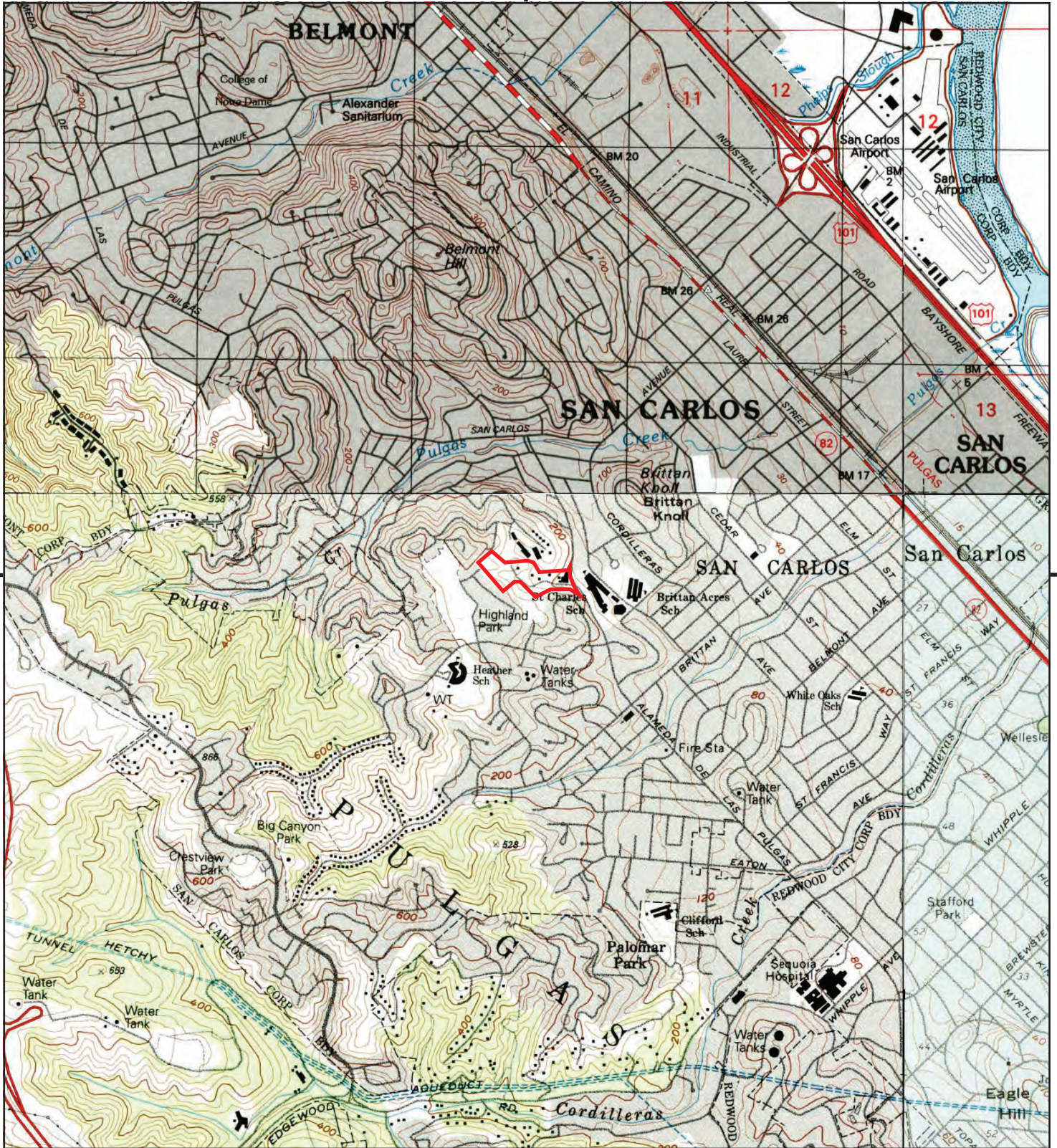


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 NW, San Mateo, 1997, 7.5-minute

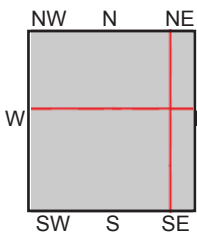
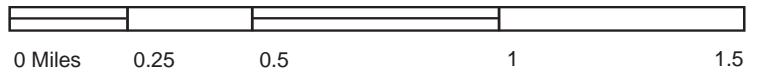
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 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists







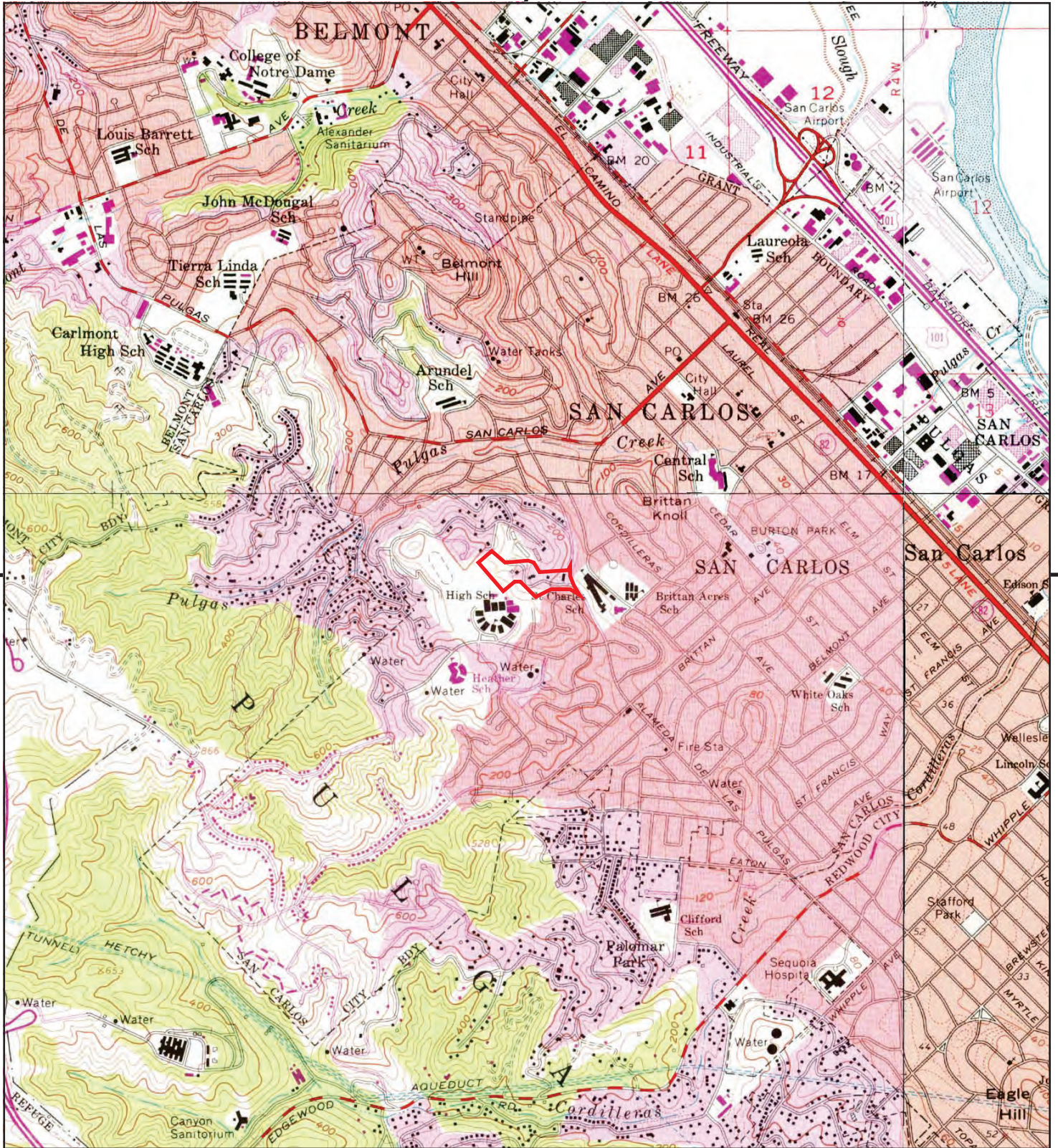
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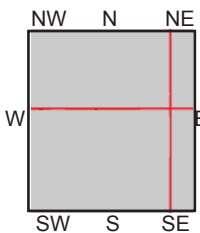
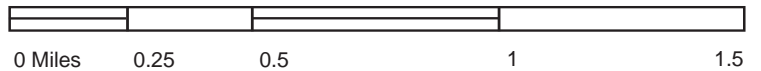
TP, Woodside, 1994, 7.5-minute  
 NE, Redwood Point, 1996, 7.5-minute  
 SE, Palo Alto, 1994, 7.5-minute  
 NW, San Mateo, 1993, 7.5-minute

**SITE NAME:** Black Mountain  
**ADDRESS:** 806 Alameda  
 San Carlos, CA 94070  
**CLIENT:** Env. Assessment Specialists





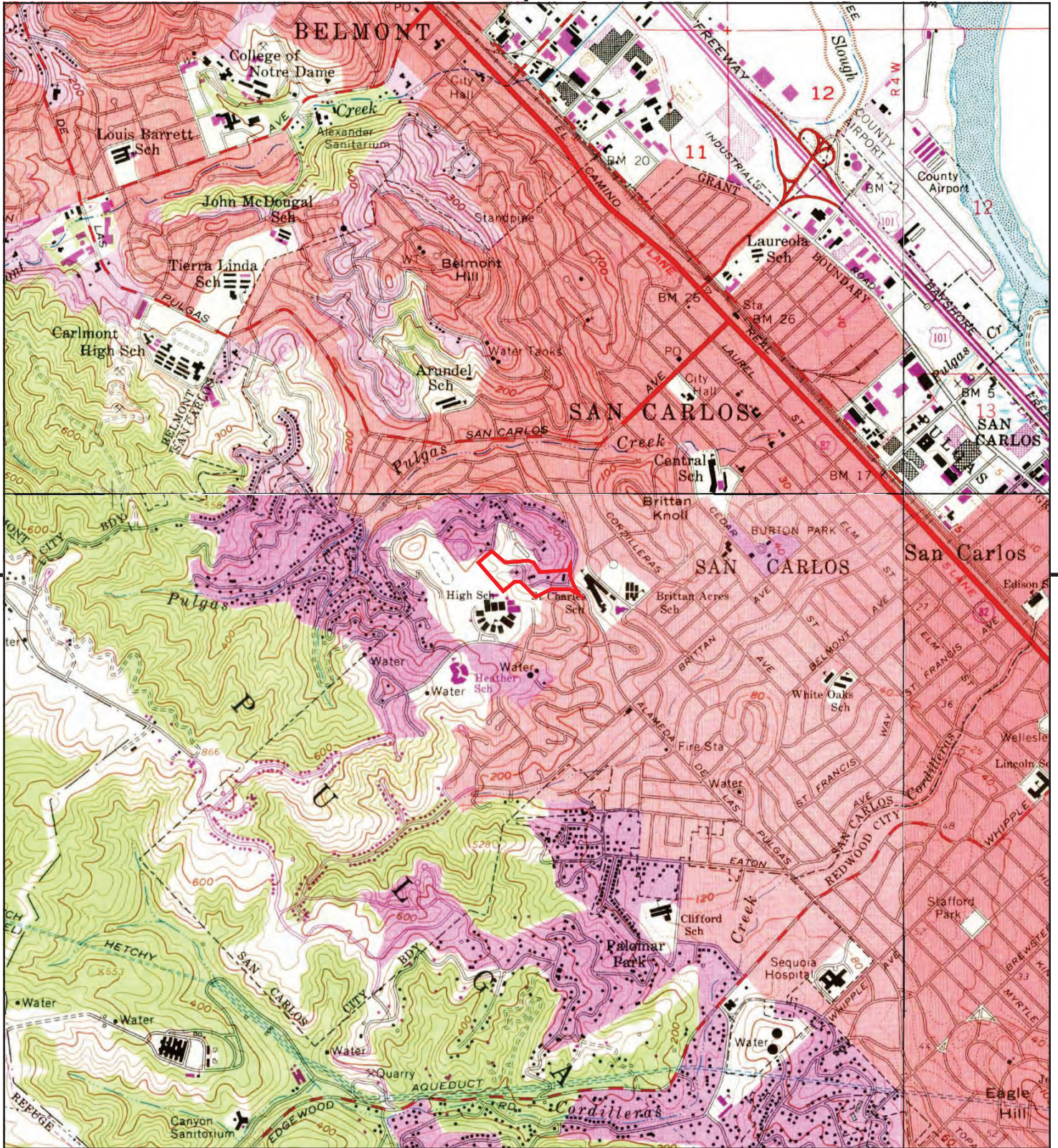
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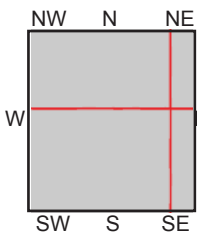
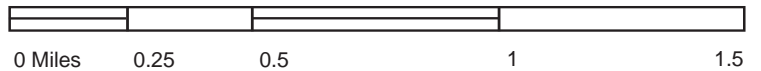
TP, Woodside, 1973, 7.5-minute  
 NE, Redwood Point, 1973, 7.5-minute  
 SE, Palo Alto, 1973, 7.5-minute  
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SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





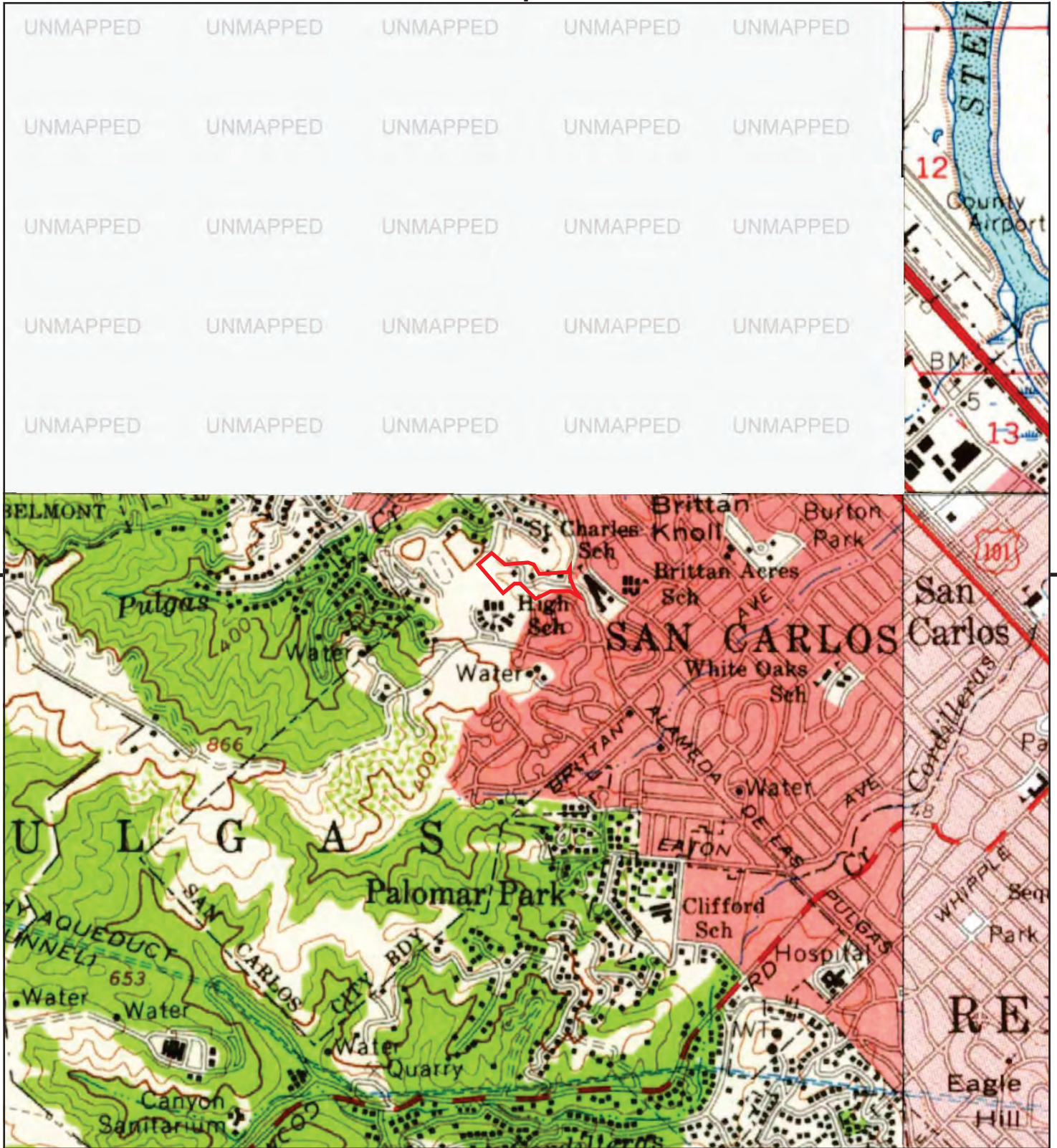
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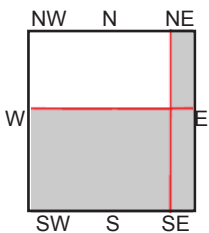
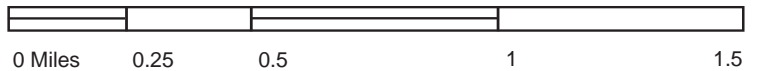
TP, Woodside, 1968, 7.5-minute  
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SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





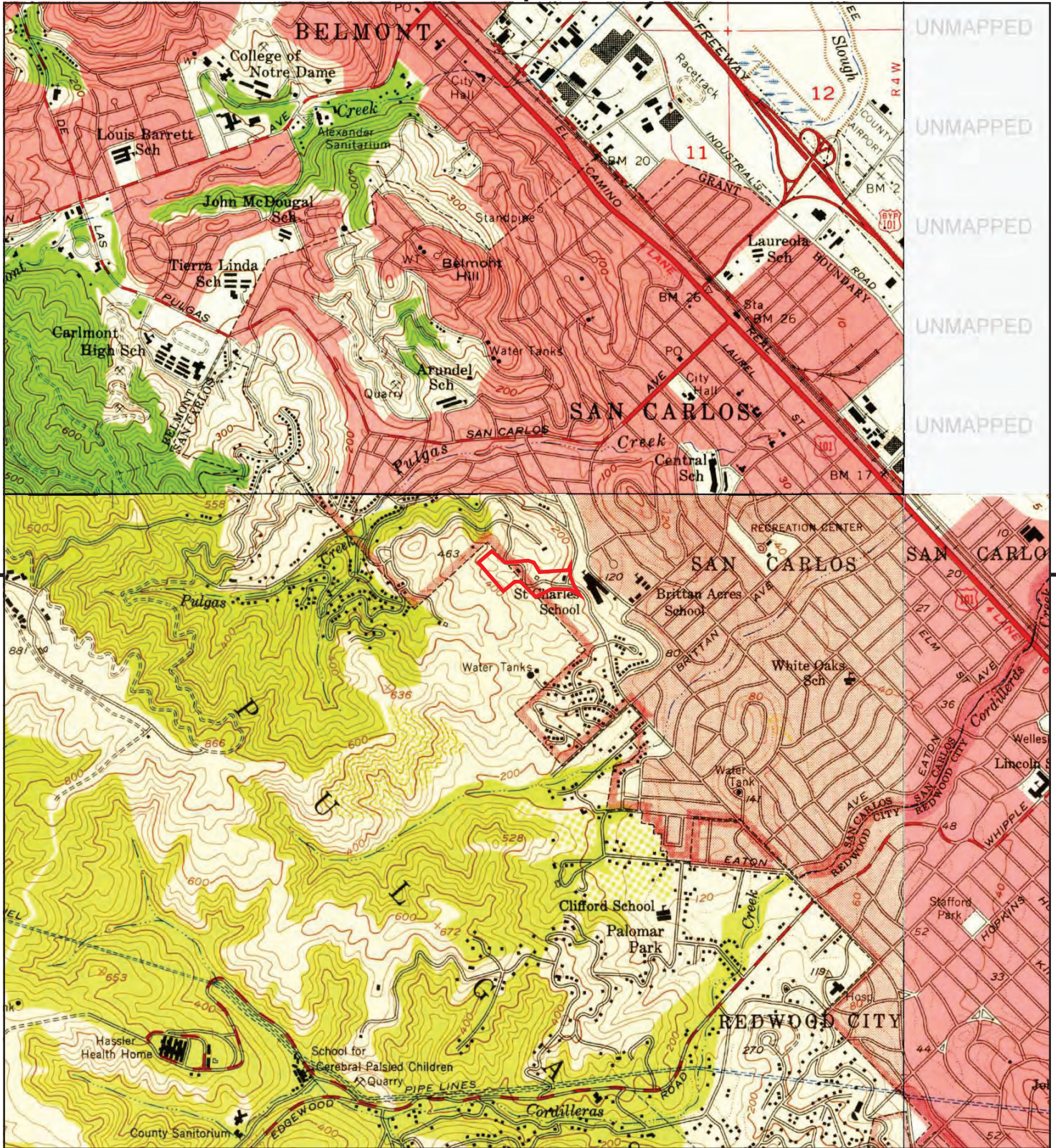
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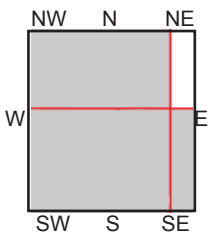
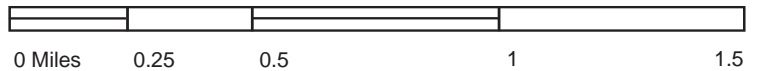
TP, Half Moon Bay, 1961, 15-minute  
 NE, Hayward, 1959, 15-minute  
 SE, Palo Alto, 1961, 15-minute

SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





This report includes information from the following map sheet(s).



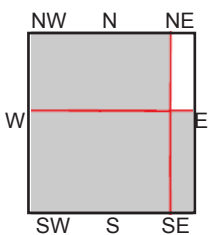
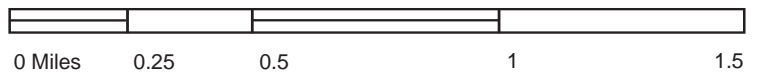
TP, Woodside, 1953, 7.5-minute  
 SE, Palo Alto, 1953, 7.5-minute  
 NW, San Mateo, 1956, 7.5-minute

SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





This report includes information from the following map sheet(s).



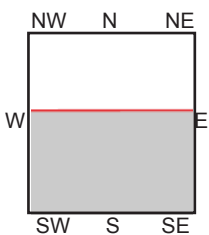
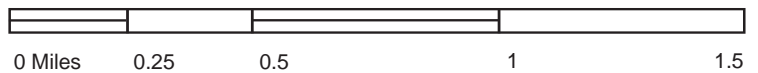
TP, Halfmoon Bay, 1940, 15-minute  
 SE, Palo Alto, 1943, 15-minute  
 NW, San Mateo, 1939, 15-minute

SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





This report includes information from the following map sheet(s).



TP, Santa Cruz, 1902, 30-minute

SITE NAME: Black Mountain  
ADDRESS: 806 Alameda  
San Carlos, CA 94070  
CLIENT: Env. Assessment Specialists



**Appendix E:  
Wetlands Map**





U.S. Fish and Wildlife Service

# National Wetlands Inventory

Black Mountain

Jun 22, 2016



## Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

**Appendix F:  
Sanborn Fire Insurance Abstract**



Black Mountain

806 Alameda

San Carlos, CA 94070

Inquiry Number: 4637606.3

June 06, 2016

## Certified Sanborn® Map Report



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Shelton, CT 06484  
Toll Free: 800.352.0050  
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# Certified Sanborn® Map Report

06/06/16

**Site Name:**

Black Mountain  
806 Alameda  
San Carlos, CA 94070  
EDR Inquiry # 4637606.3

**Client Name:**

Env. Assessment Specialists  
71 San Marino Ave  
Ventura, CA 93003-0000  
Contact: FCS



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## Certified Sanborn Results:

**Certification #** 15E4-4DD6-ACCA

**PO #** NA

**Project** Black Mountain

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Sanborn® Library search results

Certification #: 15E4-4DD6-ACCA

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- Library of Congress
- University Publications of America
- EDR Private Collection

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**Appendix G:  
City Directories**

**Black Mountain**

806 Alameda  
San Carlos, CA 94070

Inquiry Number: 4637606.9  
June 07, 2016

# The EDR-City Directory Image Report

## TABLE OF CONTENTS

### SECTION

Executive Summary

Findings

City Directory Images

*Thank you for your business.*  
Please contact EDR at 1-800-352-0050  
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## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2008	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2003	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1999	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1995	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1990	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1985	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1980	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1977	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1970	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory

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## FINDINGS

### TARGET PROPERTY STREET

806 Alameda  
San Carlos, CA 94070

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
-------------	-----------------	---------------

### ALAMEDA

2013	pg A1	Cole Information Services
2008	pg A2	Cole Information Services
2003	pg A3	Cole Information Services
1999	pg A4	Cole Information Services
1995	pg A5	Cole Information Services

### ALAMEDA (ALAMEDA DE LAS PULGAS)

1990	pg A6	Haines Criss-Cross Directory
1985	pg A7	Haines Criss-Cross Directory
1980	pg A8	Haines Criss-Cross Directory
1977	pg A9	Haines Criss-Cross Directory
1970	pg A10	Haines Criss-Cross Directory

## FINDINGS

### CROSS STREETS

No Cross Streets Identified

## **City Directory Images**

**ALAMEDA 2013**

446	RAPHAEL CARDET
546	JAMES GETTINS
552	ANDREW FRISCH
558	FREDRIC HOLLE
564	ALI CASARETTO
570	CHRISTOPHER NORTON
576	NICHOLAS ZALABAK
588	DANIEL YOUNG
596	DONNA KOPEC
622	ANTHEA LOUIE
628	TIFFANY VIRUEL
642	TINA CRABTREE
650	MICHAEL BYRNES
656	BRENNEN MCKENZIE
668	STEPHEN COTTON
804	ANTHONY BULLOCK
806	HOWARD HUTTO
887	CHARMAINE HOPE
924	ANDREW EATON
930	OCCUPANT UNKNOWN
935	E HINOJOSA
942	STEPHEN RAVANO
947	RYAN LEWIS
948	ROBERT HARPER
953	OCCUPANT UNKNOWN
954	CHARLOTTE LYON
959	OCCUPANT UNKNOWN
960	JEFF WALIKONIS
965	MADHURA KUMAR
974	SAJJAD MASUD
977	JOHN FOLLETT
984	CHARLES HUANG
990	RONALD SCRO
1006	CHARLES PARKER

**ALAMEDA 2008**

446	RAPHAEL CARDET
546	MICHAEL JANSON
552	ANDREW FRISCH
558	FREDRIC HOLLE
564	EUGENE CASARETTO
570	JENNIFER NORTON
575	RICHARD ALHONA
576	DOROTHIE FIGUERADO
588	DANIEL YOUNG
596	DONNA KOPEC
622	BEVERLY COMPTON
628	HERMINGHAUS PLUMBING
	KIM HERMINGHAUS
642	TINA CRABTREE
650	OCCUPANT UNKNOWN
656	BRENNEN MCKENZIE
668	JENNIFER WISHNOFF
688	JERRY SNYDER
804	STEVEN DAHLEN
887	LIANNE HOPE
924	MERRIL SMITH
930	OCCUPANT UNKNOWN
935	CHRISTOPHER HESIK
942	OCCUPANT UNKNOWN
947	RYAN LEWIS
948	BETTY HARPER
953	KRISTI FRANK
954	CHARLOTTE LYON
959	RAYMOND GOODWIN
960	JEFF WALIKONIS
965	CHRISTOPHER ROSSETTO
973	HARRY MCDANIEL
974	PAMELA ANDOR
977	OCCUPANT UNKNOWN
984	LILIAN ORTIZ
990	RONALD SCRO
1005	UNITED STUDIOS OF SELF DEFENSE
1006	ODIN AMADOR
	ODIN AMADOR CORP

**ALAMEDA 2003**

446	RAPHAEL CARDET
546	LINDA GLISSON
552	ANDREW FRISCH
558	OCCUPANT UNKNOWN
564	BARBARA CASARETTO
575	RICHARD ALHONA
576	CARA COBURN
588	DANIEL YOUNG
596	DONNA KOPEC
622	BEVERLY COMPTON
628	HERMINGHAUS PLUMBING
	KIM HERMINGHAUS
642	TINA CRABTREE
650	CHARLES WARTCHOW
656	MAHER NEJAD
668	ERIC DRABKIN
688	JERRY SNYDER
804	DAVID ALLEN
806	CAROL SCARIONI
924	MERRIL SMITH
930	RICHARD BERGHELLA
935	CHRIS HESIK
942	MEGAN MAHAR
947	RYAN LEWIS
948	WILLIAM KELLIHER
953	RICHARD WELLMAN
959	RAYMOND GOODWIN
960	JEFF WALIKONIS
965	OCCUPANT UNKNOWN
973	OCCUPANT UNKNOWN
974	PAMELA ANDOR
977	ROBERTO TOMASSETTI
984	MARIO SIMONSON
990	RONALD SCRO
1006	OCCUPANT UNKNOWN
	ODIN AMADOR CORP

## ALAMEDA 1999

401	MICHAEL GILLESPIE
446	RAPHAEL CARDET
546	MICHAEL JANSON
552	ANDREW FRISCH
	OCCUPANT UNKNOWN
558	FREDRIC HOLLE
564	EUGENE CASARETTO
570	OCCUPANT UNKNOWN
575	RICHARD ALHONA
576	DAVID FINCH
	OCCUPANT UNKNOWN
588	DANIEL YOUNG
596	DONNA KOPEC
622	BEVERLY COMPTON
628	KIM HERMINGHAUS
642	TINA CRABTREE
650	OCCUPANT UNKNOWN
656	OCCUPANT UNKNOWN
668	ERIC DRABKIN
688	JERRY SNYDER
804	STEVEN DAHLEN
806	OCCUPANT UNKNOWN
887	CHARMAINE HOPE
924	ANDREW EATON
930	ABBY BERGHELLA
935	CHRISTOPHER HESIK
	OCCUPANT UNKNOWN
942	OCCUPANT UNKNOWN
	ROBERT RAVANO
947	RYAN LEWIS
948	OCCUPANT UNKNOWN
953	KRISTI YIM
	OCCUPANT UNKNOWN
954	SETH CASINI
959	RAYMOND GOODWIN
960	JEFF WALIKONIS
965	CHRISTOPHER ROSSETTO
	OCCUPANT UNKNOWN
973	HARRY MCDANIEL
974	PATRICK MCHUGH
977	JOHN FOLLETT
	OCCUPANT UNKNOWN
984	LILIAN ORTIZ
	OCCUPANT UNKNOWN
990	RONALD SCRO
1006	ERIC AMADOR
	OCCUPANT UNKNOWN

**ALAMEDA 1995**

546	OCCUPANT UNKNOWNN
552	FRISCH, ANDREW
564	OCCUPANT UNKNOWNN
570	STANLEY, RICHARD L
576	OCCUPANT UNKNOWNN
588	GAGNON, DONALD
622	COMPTON, B A
628	HERMINGHAUS, KIM F
642	LAMERDIN, WILLIAM J
650	MOTT, JAMES M
656	LUNSFORD, E M
668	OCCUPANT UNKNOWNN
808	OCCUPANT UNKNOWNN
887	HOPE, NORMAN A
924	SMITH, MERRIL N
935	OCCUPANT UNKNOWNN
942	SULINSKI, MARY C
947	BERGERON, NICOLE
948	HARPER, BETTY L
953	RICKLEFFS, EDNA A
954	CASINI, SETH S
960	WALIKONIS, JEFF
965	WOODS, DAVID
973	MCDANIEL, HARRY R
974	ANDOR, PAMELA A
977	DEWEESE, ROBBIE J
984	ANDREOZZI, ROBERT P
990	SCRO, RONALD
1006	OCCUPANT UNKNOWNN



## ALAMEDA (ALAMEDA DE LAS PULGAS) 1990

ALAMEDA DE LAS  
PULGAS 94070 SAN  
CARLOS

446	XXXX	00
546	XXXX	00
552	★SCANDIA CNCRTE PMPG	591-3754 9
564	XXXX	00
575	XXXX	00
576	XXXX	00
588	GAGNON Donald J	591-7770 2
622	XXXX	00
642	XXXX	00
656	XXXX	00
800	XXXX	00
924	SMITH Merrill N	591-1638
930	XXXX	00
947	XXXX	00
953	RICKLEFFS Edna A	591-2033
954	XXXX	00
959	GOODWIN Raymond	593-4485
960	AMADIO B	591-9961 1
965	XXXX	00
973	XXXX	00
977	LARKEY R J	591-1769 +0
990	XXXX	00
1011	VANHAUSER Gordon	591-1382
1012	XXXX	00
1017	GELLER Warren	591-4662
1018	XXXX	00
1022	SEWELL Garland R	591-6735
1023	XXXX	00
1030	KNIGHT C L	592-4873
1106	★TRINITY PRSBY CH	593-8226
	★TRINITY PRSBY NRSRY	593-0770

## ALAMEDA (ALAMEDA DE LAS PULGAS) 1985

# ALAMEDA DE LAS PULGAS

## 94070 SAN CARLOS

446	XXXX	00	
546	XXXX	00	
552	JAKOBSEN ARNE	591-3754	
564	C R CLEANING SERV	595-0385	2
575	XXXX	00	
576	BRYAN JOHN D	595-4859	4
588	GAGNON DONALD J	591-7770	2
596	KOPEC F G	591-7562	
808	KILLIAN BONNIE	595-3910	4
924	SMITH MERRIL N	591-1638	
930	XXXX	00	
947	XXXX	00	
953	RICKLEFFS HERBERT	591-2033	
954	HANTKE M	592-1580	3
959	GOODWIN RAYMOND	593-4485	
960	AMADIO B	591-9961	1
965	BARRON JOSEPH R	595-8905	4
973	XXXX	00	
977	XXXX	00	
990	REISS STEVEN	591-6192	2
1011	VANHAUSER GORDEN C	591-1382	
1012	XXXX	00	
1017	GELLER WARREN	591-4662	
1018	XXXX	00	
1022	SEWELL GARLAND R	591-6735	
1023	XXXX	00	
1030	KNIGHT C L	592-4873	
1106	TRINITY PRSBY CH	593-8226	
	TRINITY PRSBY NRSRY	593-0770	

## ALAMEDA (ALAMEDA DE LAS PULGAS) 1980

ALAMEDA DE LAS PULGAS  
94070 SAN CARLOS

446	TIXEL REINHARD C	593-8538	
546	XXXX	00	
552	JAKOBSEN ARNE	591-3754	3
575	SILBER ALLAN	593-0828	
576	XXXX	00	
596	KOPEC F G	591-7562	
622	MUSSO LOUIS SR	593-0181	
642	XXXX	00	
656	XXXX	00	
800★	<b>CAP SNAP SEAL INC</b>	<b>593-9538</b>	
804	XXXX	00	
808	XXXX	00	
924	SMITH MERRIL N	591-1638	
930	URAD BARBARA	593-1293	8
	URAD CHUCK	593-0620	8
935	FORBES CURTIS C	592-0160	
947	XXXX	00	
953	RICKLEFFS HERBERT	591-2033	2
954	XXXX	00	
959	GOODWIN RAYMOND	593-4485	
960	XXXX	00	
973	MCDANIEL HARRY R	593-0445	2
977	PETERSON AUBREY H	591-8843	
984	ANDREOZZI ROBERT P	593-9475	
990	XXXX	00	
1011	VANHAUSER GORDON C	591-1382	
1012	XXXX	00	
1017	GELLER WARREN	591-4662	
1018	XXXX	00	
1022	SEWELL GARLAND R	591-6735	
1023	XXXX	00	
1030	KNIGHT C L	592-4873	2
1106★	<b>TRINITY PRSBY CH</b>	<b>593-8226</b>	4
★	<b>TRINITY PRSBY NRSRY</b>	<b>593-0770</b>	

## ALAMEDA (ALAMEDA DE LAS PULGAS) 1977

ALAMEDA DE LAS PULGAS 94070

SAN CARLOS

446	TIXEL REINHARD C	593-8538	
546	XXXX	00	
552	JAKOBSEN ARNE	591-3754	3
575	SILBER ALLAN	593-0828	
576	XXXX	00	
596	KOPEC F G	591-7562	
622	MUSSO LOUIS SR	593-0181	
642	VANHEES THOMAS J	593-3396	
656	XXXX	00	
800*	CAP SNAP SEAL INC	593-9538	
804	XXXX	00	
808	XXXX	00	
924	SMITH MERRIL N	591-1638	
930	XXXX	00	
935	FORBES CURTIS C	592-0160	
947	MANRY L M	593-5565	3
953	RICKLEFFS HERBERT	591-2033	2
954	XXXX	00	
959	GOODWIN RAYMOND	593-4485	
960	XXXX	00	
973	MCDANIEL HARRY R	593-0445	2
977	PETERSON AUBREY H	591-8843	
984	ANDREOZZI ROBERT P	593-9475	
1011	VANHAUSER GORDON C	591-1382	
1012	XXXX	00	
1017	GELLER WARREN	591-4662	
1018	XXXX	00	
1022	SEWELL GARLAND R	591-6735	

## ALAMEDA (ALAMEDA DE LAS PULGAS) 1970

ALAMEDA DE LAS PULGAS 94070

SAN CARLOS

446	TIXEL REINHARD C	593-8538
546	PIAZZALE BEN	593-6307
552	QUARTAROLI PETER	593-8945
558	WITHERS K W	593-9096
575	SILBER ALLAN	593-0828
576	GILMORE ALICE M	591-6029
596	KOPEC F G	591-7562
622	MUSSO LOUIS SR	593-0181
642	VANHEES THOS J	593-3396
656	STEED G R	591-1943
666	OLIVERIO THOS	591-3231
800*	BLACK MNTN SPG WATR	322-8638
	*BLCK MNTN SPRNG WTR	591-9437
	*CAP SNAP SEAL INC	593-9538
804	DICKMAN JOHN C	593-8606
808	SCARIONI RUSSELL D	591-4076
924	SMITH MERRIL N	591-1638
930	GARCIA JOS	592-2516
935	FORBES CURTIS C	592-0160
947	MACDONALD LORNE	593-9988
953	RICKLEFFS HERBERT	591-2033
954	AIELLO JAS A	593-8626
959	GOODWIN RAYMOND	593-4485
960	PHILLIPS WARNER	593-4527
965	SMITH BARBARA M	591-9137
	SMITH GEO G	591-9137
973	MCDANIEL HARRY R	593-0445
977	FIGONE LOUIS A	591-1591
	PETERSON AUBREY H	591-8843
984	ANDREOZZI ROBT P	593-9475
1011	VANHAUSER GORDON C	591-1382
1012	WILLIAMS D J	593-0406
1017	GELLER WARREN	591-4662
1018	SIEFERMAN P MRS	592-3794
1022	SEWELL GARLAND R	591-6735
1023	FERNANDEZ HENRY G	593-9737
1106*	CLAPHAM ROBERT C	593-5749
	*PRESBYTRN TRINTY CH	593-5749
	*TRINITY PRESBY CH	593-5749
	*TRINITY PRSBY NRSRY	593-0770

**Appendix H:  
EDR/FirstSearch Government Database Report**

**Black Mountain**

806 Alameda

San Carlos, CA 94070

Inquiry Number: 04637606.2r

June 06, 2016

# FirstSearch Report

## Search Summary Report

**TARGET SITE      806 ALAMEDA  
SAN CARLOS, CA 94070**

Category	Sel	Site	1/8	1/4	1/2	> 1/2	ZIP	TOTALS
<i>NPL</i>	Y	0	0	0	0	0	0	0
<i>NPL Delisted</i>	Y	0	0	0	0	0	0	0
<i>CERCLIS</i>	Y	0	0	0	0	-	0	0
<i>NFRAP</i>	Y	0	0	0	0	-	0	0
<i>RCRA COR ACT</i>	Y	0	0	0	0	1	0	1
<i>RCRA TSD</i>	Y	0	0	0	0	-	0	0
<i>RCRA GEN</i>	Y	0	0	0	-	-	0	0
<i>Federal IC / EC</i>	Y	0	0	0	0	-	0	0
<i>ERNS</i>	Y	0	-	-	-	-	0	0
<i>State/Tribal NPL</i>	Y	0	0	0	0	0	0	0
<i>State/Tribal CERCLIS</i>	Y	0	0	0	1	2	0	3
<i>State/Tribal SWL</i>	Y	0	0	0	0	-	0	0
<i>State/Tribal LTANKS</i>	Y	0	0	2	1	-	1	4
<i>State/Tribal Tanks</i>	Y	0	0	0	-	-	0	0
<i>State/Tribal VCP</i>	Y	0	0	0	0	-	0	0
<i>US Brownfields</i>	Y	0	0	0	0	-	0	0
<i>Other SWF</i>	Y	0	0	0	0	-	0	0
<i>Other Haz Sites</i>	Y	0	0	0	-	-	0	0
<i>Other Tanks</i>	Y	0	0	0	-	-	0	0
<i>Local Land Records</i>	Y	0	0	0	0	-	0	0
<i>Spills</i>	Y	0	-	-	-	-	0	0
<i>Other</i>	Y	0	8	18	-	-	0	26
- Totals --		0	8	20	2	3	1	34

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## Search Summary Report

**TARGET SITE: 806 ALAMEDA  
SAN CARLOS, CA 94070**

Category	Database	Update	Radius	Site	1/8	1/4	1/2	> 1/2	ZIP	TOTALS
<b>NPL</b>	NPL	03/07/2016	1.000	0	0	0	0	0	0	0
	Proposed NPL	03/07/2016	1.000	0	0	0	0	0	0	0
<b>NPL Delisted</b>	Delisted NPL	03/07/2016	1.000	0	0	0	0	0	0	0
<b>CERCLIS</b>	SEMS	03/07/2016	0.500	0	0	0	0	-	0	0
<b>NFRAP</b>	SEMS-ARCHIVE	03/07/2016	0.500	0	0	0	0	-	0	0
<b>RCRA COR ACT</b>	CORRACTS	12/09/2015	1.000	0	0	0	0	1	0	1
<b>RCRA TSD</b>	RCRA-TSDF	12/09/2015	0.500	0	0	0	0	-	0	0
<b>RCRA GEN</b>	RCRA-LQG	12/09/2015	0.250	0	0	0	-	-	0	0
	RCRA-SQG	12/09/2015	0.250	0	0	0	-	-	0	0
	RCRA-CESQG	12/09/2015	0.250	0	0	0	-	-	0	0
<b>Federal IC / EC</b>	US ENG CONTROLS	09/10/2015	0.500	0	0	0	0	-	0	0
	US INST CONTROL	09/10/2015	0.500	0	0	0	0	-	0	0
<b>ERNS</b>	ERNS	03/28/2016	TP	0	-	-	-	-	0	0
<b>State/Tribal NPL</b>	RESPONSE	02/01/2016	1.000	0	0	0	0	0	0	0
<b>State/Tribal CERCLIS</b>	ENVIROSTOR	02/01/2016	1.000	0	0	0	1	2	0	3
<b>State/Tribal SWL</b>	SWF/LF	02/15/2016	0.500	0	0	0	0	-	0	0
<b>State/Tribal LTANKS</b>	LUST	03/14/2016	0.500	0	0	2	1	-	1	4
	INDIAN LUST	10/27/2015	0.500	0	0	0	0	-	0	0
	SLIC	03/14/2016	0.500	0	0	0	0	-	0	0
<b>State/Tribal Tanks</b>	UST	03/14/2016	0.250	0	0	0	-	-	0	0
	AST	08/01/2009	0.250	0	0	0	-	-	0	0
	INDIAN UST	10/20/2015	0.250	0	0	0	-	-	0	0
<b>State/Tribal VCP</b>	VCP	02/01/2016	0.500	0	0	0	0	-	0	0
<b>US Brownfields</b>	US BROWNFIELDS	12/22/2015	0.500	0	0	0	0	-	0	0

## Search Summary Report

**TARGET SITE: 806 ALAMEDA  
SAN CARLOS, CA 94070**

Category	Database	Update	Radius	Site	1/8	1/4	1/2	> 1/2	ZIP	TOTALS
<b>Other SWF</b>	WMUDS/SWAT	04/01/2000	0.500	0	0	0	0	-	0	0
<b>Other Haz Sites</b>	SCH	02/01/2016	0.250	0	0	0	-	-	0	0
	US CDL	02/18/2016	TP	0	-	-	-	-	0	0
<b>Other Tanks</b>	SWEEPS UST	06/01/1994	0.250	0	0	0	-	-	0	0
	CA FID UST	10/31/1994	0.250	0	0	0	-	-	0	0
<b>Local Land Records</b>	DEED	03/07/2016	0.500	0	0	0	0	-	0	0
<b>Spills</b>	HMIRS	06/24/2015	TP	0	-	-	-	-	0	0
	CHMIRS	12/16/2015	TP	0	-	-	-	-	0	0
	SPILLS 90	06/06/2012	TP	0	-	-	-	-	0	0
<b>Other</b>	RCRA NonGen / NLR	12/09/2015	0.250	0	0	0	-	-	0	0
	TSCA	12/31/2012	TP	0	-	-	-	-	0	0
	TRIS	12/31/2014	TP	0	-	-	-	-	0	0
	SSTS	12/31/2009	TP	0	-	-	-	-	0	0
	RAATS	04/17/1995	TP	0	-	-	-	-	0	0
	PRP	10/25/2013	TP	0	-	-	-	-	0	0
	PADS	07/01/2014	TP	0	-	-	-	-	0	0
	ICIS	01/23/2015	TP	0	-	-	-	-	0	0
	FTTS	04/09/2009	TP	0	-	-	-	-	0	0
	MLTS	03/07/2016	TP	0	-	-	-	-	0	0
	RADINFO	07/07/2015	TP	0	-	-	-	-	0	0
	INDIAN RESERV	12/31/2005	1.000	0	0	0	0	0	0	0
	US AIRS	10/20/2015	TP	0	-	-	-	-	0	0
	FINDS	07/20/2015	TP	0	-	-	-	-	0	0
	Cortese	03/28/2016	0.500	0	0	0	0	-	0	0
	CUPA Listings		0.250	0	0	0	-	-	0	0
	HAZNET	12/31/2014	0.250	0	8	18	-	-	0	26
WDS	06/19/2007	TP	0	-	-	-	-	0	0	
<b>- Totals --</b>				<b>0</b>	<b>8</b>	<b>20</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>34</b>

# Site Information Report

**Request Date:** JUNE 6, 2016  
**Request Name:** FCS

**Search Type:** COORD  
**Job Number:** NA

**Target Site:** 806 ALAMEDA  
SAN CARLOS, CA 94070

## Site Location

	<u>Degrees (Decimal)</u>	<u>Degrees (Min/Sec)</u>	<u>UTMs</u>
Longitude:	122.269973	122.2699730 - 122° 16' 11.90"	Easting: 564532.3
Latitude:	37.496363	37.4963630 - 37° 29' 46.90"	Northing: 4149983.8
Elevation:	218 ft. above sea level		Zone: Zone 10

## Demographics

<b>Sites:</b> 33	<b>Non-Geocoded:</b> 1	<b>Population:</b> N/A		
<b>RADON</b>				
Federal EPA Radon Zone for SAN MATEO County: 2				
Note: Zone 1 indoor average level > 4 pCi/L. : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L. : Zone 3 indoor average level < 2 pCi/L.				
Federal Area Radon Information for Zip Code: 94070				
Number of sites tested: 4				
<u>Area</u>	<u>Average Activity</u>	<u>% &lt;4 pCi/L</u>	<u>% 4-20 pCi/L</u>	<u>% &gt;20 pCi/L</u>
Living Area - 1st Floor	0.650 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported
Federal Area Radon Information for SAN MATEO COUNTY, CA				
Number of sites tested: 32				
<u>Area</u>	<u>Average Activity</u>	<u>% &lt;4 pCi/L</u>	<u>% 4-20 pCi/L</u>	<u>% &gt;20 pCi/L</u>
Living Area - 1st Floor	0.594 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.000 pCi/L	100%	0%	0%
Basement	3.133 pCi/L	67%	33%	0%

# Site Information Report

## RADON

State Database: CA Radon

### Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94070	88	5

# Target Site Summary Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

TOTAL: 34

GEOCODED: 33

NON GEOCODED: 1

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
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No sites found for target address

## Sites Summary Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

TOTAL: 34

GEOCODED: 33

NON GEOCODED: 1

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
1	HAZNET --CAC000761400	CAROL SCARIONI	800 ALAMEDA DE LOS POGAS SAN CARLOS, CA 94070	0.00 East	- 49	1
2	HAZNET --CAC002692526	STEPHEN COTTRELL	804 TAMARACK AVE SAN CARLOS, CA 94070	0.04 ENE	- 84	2
3	HAZNET --CAC002795949	RYAN BRAUNSTEIN	860 BAUER DR SAN CARLOS, CA 94070	0.07 SSE	+ 82	3
4	HAZNET --CAC002596777	SAINT CHARLES SCHOOL	850 TAMARACK AVE SAN CARLOS, CA 94070	0.07 East	- 100	4
5	HAZNET --CAC002609721	VIKI BAKER	155 VISTA DEL GRANDE SAN CARLOS, CA 94070	0.09 NNW	+ 111	5
6	HAZNET --CAC002750867	ROBERT SETO	813 BAUER DR SAN CARLOS, CA 94070	0.11 South	+ 85	6
A7	HAZNET --CAC002655573	ARCHDIOSEASE OF SAN FRANCISCO	880 TAMARACK AVE SAN CARLOS, CA 94070	0.12 ESE	- 116	7
A8	HAZNET --CAC002310505	ST CHARLES CHURCH RECTIERY	880 TAMARACK BLVD SAN CARLOS, CA 94010	0.12 ESE	- 116	8
B9	HAZNET --CAC002681311	SHARON CARROLL	890 HEATHER DR SAN CARLOS, CA 94070	0.16 SSW	+ 77	9
B10	HAZNET --CAC001446048	FERNANDO THE NEAT	886 HEATHER SAN CARLOS, CA 94070	0.17 SSW	+ 76	10
B11	HAZNET --CAC001251640	ROBISON PREZIOSO INC	878 HEATHER DRIVE SAN CARLOS, CA 94070	0.17 SSW	+ 75	11
B12	HAZNET --CAP000081653	CA WATER SVC CO MPS BEVERLY	878 HEATHER NEXT TO SAN CARLOS, CA 94070	0.17 SSW	+ 75	12

# Sites Summary Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

TOTAL: 34

GEOCODED: 33

NON GEOCODED: 1

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
C13	HAZNET --CAC002779905	RUTH BENNETT	2405 MELENDY DR SAN CARLOS, CA 94070	0.18 SSE	+ 14	13
C14	HAZNET --CAC002744987	VIKAS CHINNAN	2416 MELENDY DR SAN CARLOS, CA 94070	0.18 SSE	+ 19	14
C15	HAZNET --CAC002787509	GARY BEERY	2425 MELENDY DR SAN CARLOS, CA 94070	0.19 SSE	+ 23	15
D16	HAZNET --CAC002676718	ALLEN PORTER	217 ROCKRIDGE RD SAN CARLOS, CA 94070	0.19 SE	- 45	16
D17	HAZNET --CAC002743601	ADAM DAWES	227 ROCKRIDGE RD SAN CARLOS, CA 94070	0.20 SE	- 46	17
18	HAZNET --CAC002710159	CHRISTIN HINOJOSA KIRSCHENBAUM	935 ALAMEDA SAN CARLOS, CA 94070	0.20 SE	- 55	18
E19	HAZNET --CAC002574506	SAN CARLOS-USD	2000 BELLE AVE SAN CARLOS, CA 94070	0.21 East	- 132	19
E20	HAZNET --CAC002613225	SCUSD-BRITTANY ACRES SCHOOL	2000 BELLE AVE SAN CARLOS, CA 94070	0.21 East	- 132	20
E21	HAZNET --CAC002605296	SAN CARLOS-USD	2000 BELLE AVE SAN CARLOS, CA 94070	0.21 East	- 132	21
F22	HAZNET --CAC002669196	CRAIG OSTRANDER	760 KNOLL DR SAN CARLOS, CA 94070	0.22 NE	- 66	24
F23	HAZNET --CAC002778197	LISA GABET	762 KNOLL DR SAN CARLOS, CA 94070	0.22 NE	- 66	25
G24	LUST --T0608100983 --Completed - Case Closed	PRIVATE RESIDENCE	PRIVATE RESIDENCE SAN CARLOS, CA 94070	0.22 NNW	- 87	26

# Sites Summary Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

TOTAL: 34

GEOCODED: 33

NON GEOCODED: 1

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
25	HAZNET --CAC002693800	FRED MELNIKOFF	368 CAPRINO WAY UNIT B SAN CARLOS, CA 94070	0.22 WSW	+ 61	32
F26	HAZNET --CAC002759302	JEFF WEIDELL	755 KNOLL DR SAN CARLOS, CA 94070	0.23 NE	- 60	33
G27	HAZNET --CAC001399952	STEWART ALSOP	115 DALE AVE SAN CARLOS, CA 94070	0.24 NNW	- 100	34
G28	LUST --T0608100983 --9- Case Closed --778064	ALSOP RESIDENCE	115 DALE SAN CARLOS, CA 94070	0.24 NNW	- 100	35
29	LUST --T0608101016 --T0608101016 --7/23/2003 --Case Closed --9- Case Closed --Completed - Case Closed *Additional key fields are available in the Map Findings section	SAN CARLOS HIGH SCHOOL, FORMER	2800 MELENDY SAN CARLOS, CA 94070	0.40 SW	+ 335	36
30	ENVIROSTOR --60002247 --Active	CENTRAL MIDDLE SCHOOL/ARROYO B	757 CEDAR STREET SAN CARLOS, CA 94070	0.44 NE	- 166	39
31	ENVIROSTOR --41360063 --80001594 --Inactive - Needs Evaluation	GTE LENKURT INC	1105 COUNTY ROAD SAN CARLOS, CA 94070	0.96 ENE	- 202	41
31	CORRACTS --CAD009118605	GTE LENKURT INC	1105 COUNTY ROAD SAN CARLOS, CA 94070	0.96 ENE	- 202	47
32	ENVIROSTOR --60002281 --Active	TIERRA LINDA CAMPUS PROJECT	750 DARTMOUTH AVENUE SAN CARLOS, CA 94070	0.98 NW	- 7	48



# Sites Summary Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

TOTAL: 34

GEOCODED: 33

NON GEOCODED: 1

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
	LUST --4/21/1997 --Case Closed	DILLINGHAM RES	15 HIDDEN VALLEY WOODSIDE, CA 94062	NON GC	N/A	N/A

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112843406      **DIST/DIR:** 0.003 East      **ELEVATION:** 169      **MAP ID:** 1

**NAME:** CAROL SCARIONI

**Rev:** 12/31/2014

**ADDRESS:** 800 ALAMEDA DE LOS POGAS  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC000761400

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112843406

Year: 1996

GEPAID: CAC000761400

Contact: CAROL SCARIONI

Telephone: 0000000000

Mailing Name: Not reported

Mailing Address: 806 ALAMEDA DE LOS POGAS

Mailing City,St,Zip: SAN CARLOS, CA 940700000

Gen County: Not reported

TSD EPA ID: CAL000027741

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Disposal, Land Fill

Tons: 1.8541

Cat Decode: Asbestos containing waste

Method Decode: Disposal, Land Fill

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S113778881      **DIST/DIR:** 0.042 ENE      **ELEVATION:** 134      **MAP ID:** 2

**NAME:** STEPHEN COTTRELL      **Rev:** 12/31/2014  
**ADDRESS:** 804 TAMARACK AVE      **ID/Status:** CAC002692526  
SAN CARLOS, CA 94070  
SAN MATEO  
**SOURCE:** CA California Environmental Protection Agency

HAZNET:  
envid: S113778881  
Year: 2012  
GEPaid: CAC002692526  
Contact: STEPHEN COTTRELL  
Telephone: 6503392101  
Mailing Name: Not reported  
Mailing Address: 804 TAMARACK AVE  
Mailing City,St,Zip: SAN CARLOS, CA 94070  
Gen County: San Mateo  
TSD EPA ID: CAD982042475  
TSD County: Solano  
Waste Category: Not reported  
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)  
Tons: 0.4  
Cat Decode: Not reported  
Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)  
Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S118228868      **DIST/DIR:** 0.066 SSE      **ELEVATION:** 300      **MAP ID:** 3

**NAME:** RYAN BRAUNSTEIN

**Rev:** 12/31/2014

**ADDRESS:** 860 BAUER DR  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002795949

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S118228868

Year: 2014

GEPAID: CAC002795949

Contact: RYAN BRAUNSTEIN

Telephone: 4157944767

Mailing Name: Not reported

Mailing Address: 860 BAUER DR

Mailing City,St,Zip: SAN CARLOS, CA 94070

Gen County: San Mateo

TSD EPA ID: CAD981382732

TSD County: Alameda

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.23

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112949266      **DIST/DIR:** 0.070 East      **ELEVATION:** 118      **MAP ID:** 4

**NAME:** SAINT CHARLES SCHOOL

**Rev:** 12/31/2014

**ADDRESS:** 850 TAMARACK AVE  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002596777

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112949266

Year: 2005

GEPAID: CAC002596777

Contact: STEVE CALPAKOFF

Telephone: 4156145561

Mailing Name: Not reported

Mailing Address: 1 PETER YORKE WAY

Mailing City,St,Zip: SAN FRANCISCO, CA 941096602

Gen County: Not reported

TSD EPA ID: CAD981382732

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Disposal, Land Fill

Tons: 1.68

Cat Decode: Asbestos containing waste

Method Decode: Disposal, Land Fill

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112957188      **DIST/DIR:** 0.092 NNW      **ELEVATION:** 329      **MAP ID:** 5

**NAME:** VIKI BAKER

**Rev:** 12/31/2014

**ADDRESS:** 155 VISTA DEL GRANDE  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002609721

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112957188

Year: 2006

GEPAID: CAC002609721

Contact: GOODY SEIF

Telephone: 5109671786

Mailing Name: Not reported

Mailing Address: 444 N BONHILL RD

Mailing City,St,Zip: LOS ANGELES, CA 900492324

Gen County: Not reported

TSD EPA ID: CAT000646117

TSD County: Not reported

Waste Category: Other organic solids

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 29.49

Cat Decode: Other organic solids

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S117305932      **DIST/DIR:** 0.106 South      **ELEVATION:** 303      **MAP ID:** 6

**NAME:** ROBERT SETO

**Rev:** 12/31/2014

**ADDRESS:** 813 BAUER DR  
SAN CARLOS, CA 94070  
41

**ID/Status:** CAC002750867

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S117305932

Year: 2013

GEPAID: CAC002750867

Contact: ROBERT SETO

Telephone: 6505923460

Mailing Name: Not reported

Mailing Address: 813 BAUER DR

Mailing City,St,Zip: SAN CARLOS, CA 940703613

Gen County: San Mateo

TSD EPA ID: CAD982042475

TSD County: Solano

Waste Category: Not reported

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Not reported

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: Not reported

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S113461502      **DIST/DIR:** 0.116 ESE      **ELEVATION:** 102      **MAP ID:** A7

**NAME:** ARCHDIOSEASE OF SAN FRANCISCO

**Rev:** 12/31/2014

**ADDRESS:** 880 TAMARACK AVE  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002655573

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S113461502

Year: 2010

GEPAID: CAC002655573

Contact: BILL PORTMAN

Telephone: 6506927878

Mailing Name: Not reported

Mailing Address: 1301 POST ST STE 102

Mailing City,St,Zip: SAN FRANCISCO, CA 94109

Gen County: Not reported

TSD EPA ID: CAD981382732

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 4.4

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo



# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112911135      **DIST/DIR:** 0.116 ESE      **ELEVATION:** 102      **MAP ID:** A8

**NAME:** ST CHARLES CHURCH RECTIERY

**Rev:** 12/31/2014

**ADDRESS:** 880 TAMARACK BLVD  
SAN CARLOS, CA 94010  
SAN MATEO

**ID/Status:** CAC002310505

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112911135

Year: 2001

GEPAID: CAC002310505

Contact: JERRY HUGHES

Telephone: 5103468800

Mailing Name: Not reported

Mailing Address: 1595 MISSION ST

Mailing City,St,Zip: SOUTH SAN FRANCISCO, CA 940800000

Gen County: Not reported

TSD EPA ID: CAL000190080

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Disposal, Land Fill

Tons: 1.68

Cat Decode: Asbestos containing waste

Method Decode: Disposal, Land Fill

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112997525      **DIST/DIR:** 0.164 SSW      **ELEVATION:** 295      **MAP ID:** B9

**NAME:** SHARON CARROLL

**Rev:** 12/31/2014

**ADDRESS:** 890 HEATHER DR  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002681311

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112997525

Year: 2011

GEPAID: CAC002681311

Contact: SHARON CARROLL

Telephone: 6505338704

Mailing Name: Not reported

Mailing Address: 890 HEATHER DR

Mailing City,St,Zip: SAN CARLOS, CA 940703618

Gen County: Not reported

TSD EPA ID: CAD981382732

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 1.2

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112892336      **DIST/DIR:** 0.166 SSW      **ELEVATION:** 294      **MAP ID:** B10

**NAME:** FERNANDO THE NEAT

**Rev:** 12/31/2014

**ADDRESS:** 886 HEATHER  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC001446048

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112892336

Year: 2002

GEPAID: CAC001446048

Contact: RAY BONNETT

Telephone: --

Mailing Name: Not reported

Mailing Address: 886 HEATHER

Mailing City,St,Zip: SAN CARLOS, CA 940700000

Gen County: Not reported

TSD EPA ID: CAD008252405

TSD County: Not reported

Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)

Disposal Method: Recycler

Tons: 0.1

Cat Decode: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)

Method Decode: Recycler

Facility County: San Mateo

envid: S112892336

Year: 2001

GEPAID: CAC001446048

Contact: RAY BONNETT

Telephone: --

Mailing Name: Not reported

Mailing Address: 886 HEATHER

Mailing City,St,Zip: SAN CARLOS, CA 940700000

Gen County: Not reported

TSD EPA ID: CAD008252405

TSD County: Not reported

Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)

Disposal Method: Recycler

Tons: 0.2

Cat Decode: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)

Method Decode: Recycler

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112877960      **DIST/DIR:** 0.171 SSW      **ELEVATION:** 293      **MAP ID:** B11

**NAME:** ROBISON PREZIOSO INC

**Rev:** 12/31/2014

**ADDRESS:** 878 HEATHER DRIVE  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC001251640

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112877960

Year: 1997

GEPAID: CAC001251640

Contact: CORPORATION

Telephone: 0000000000

Mailing Name: Not reported

Mailing Address: 3195 PARK RD #A&B

Mailing City,St,Zip: BENICIA, CA 945100000

Gen County: Not reported

TSD EPA ID: CAD008252405

TSD County: Not reported

Waste Category: Paint sludge

Disposal Method: Recycler

Tons: .2293

Cat Decode: Paint sludge

Method Decode: Recycler

Facility County: San Mateo

envid: S112877960

Year: 1997

GEPAID: CAC001251640

Contact: CORPORATION

Telephone: 0000000000

Mailing Name: Not reported

Mailing Address: 3195 PARK RD #A&B

Mailing City,St,Zip: BENICIA, CA 945100000

Gen County: Not reported

TSD EPA ID: CAD008252405

TSD County: Not reported

Waste Category: Off-specification, aged or surplus organics

Disposal Method: Recycler

Tons: .4587

Cat Decode: Off-specification, aged or surplus organics

Method Decode: Recycler

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S113170793      **DIST/DIR:** 0.171 SSW      **ELEVATION:** 293      **MAP ID:** B12

**NAME:** CA WATER SVC CO MPS BEVERLY

**Rev:** 12/31/2014

**ADDRESS:** 878 HEATHER NEXT TO  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAP000081653

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S113170793

Year: 2000

GEPAID: CAP000081653

Contact: --

Telephone: 4083678299

Mailing Name: Not reported

Mailing Address: 878 HEATHER NEXT TO

Mailing City,St,Zip: SAN CARLOS, CA 940700000

Gen County: Not reported

TSD EPA ID: AZD009015389

TSD County: Not reported

Waste Category: Other organic solids

Disposal Method: Treatment, Incineration

Tons: 0.04

Cat Decode: Other organic solids

Method Decode: Treatment, Incineration

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S118217525      **DIST/DIR:** 0.182 SSE      **ELEVATION:** 232      **MAP ID:** C13

**NAME:** RUTH BENNETT

**Rev:** 12/31/2014

**ADDRESS:** 2405 MELENDY DR  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002779905

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S118217525

Year: 2014

GEPAID: CAC002779905

Contact: RUTH BENNETT

Telephone: 6502248313

Mailing Name: Not reported

Mailing Address: 2405 MELENDY DR

Mailing City,St,Zip: SAN CARLOS, CA 940703621

Gen County: San Mateo

TSD EPA ID: CAD981382732

TSD County: Alameda

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S117301749      **DIST/DIR:** 0.183 SSE      **ELEVATION:** 237      **MAP ID:** C14

**NAME:** VIKAS CHINNAN

**Rev:** 12/31/2014

**ADDRESS:** 2416 MELENDY DR  
SAN CARLOS, CA 94070  
41

**ID/Status:** CAC002744987

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S117301749

Year: 2013

GEPAID: CAC002744987

Contact: VIKAS CHINNAN

Telephone: 4158507530

Mailing Name: Not reported

Mailing Address: 2416 MELENDY DR

Mailing City,St,Zip: SAN CARLOS, CA 940703623

Gen County: San Mateo

TSD EPA ID: CAD981382732

TSD County: Alameda

Waste Category: Not reported

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Not reported

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: Not reported

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S118223396      **DIST/DIR:** 0.192 SSE      **ELEVATION:** 241      **MAP ID:** C15

**NAME:** GARY BEERY

**Rev:** 12/31/2014

**ADDRESS:** 2425 MELENDY DR  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002787509

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S118223396

Year: 2014

GEPAID: CAC002787509

Contact: GARY BEERY

Telephone: 6502648158

Mailing Name: Not reported

Mailing Address: 2425 MELENDY DR

Mailing City,St,Zip: SAN CARLOS, CA 940703621

Gen County: San Mateo

TSD EPA ID: CAD981382732

TSD County: Alameda

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.69

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo



# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112994043      **DIST/DIR:** 0.193 SE      **ELEVATION:** 173      **MAP ID:** D16

**NAME:** ALLEN PORTER

**Rev:** 12/31/2014

**ADDRESS:** 217 ROCKRIDGE RD  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002676718

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112994043

Year: 2011

GEPAID: CAC002676718

Contact: ALLEN PORTER

Telephone: 6505936433

Mailing Name: Not reported

Mailing Address: 217 ROCKRIDGE RD

Mailing City,St,Zip: SAN CARLOS, CA 94070

Gen County: Not reported

TSD EPA ID: CAD982042475

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.8

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S117300832      **DIST/DIR:** 0.199 SE      **ELEVATION:** 172      **MAP ID:** D17

**NAME:** ADAM DAWES

**Rev:** 12/31/2014

**ADDRESS:** 227 ROCKRIDGE RD  
SAN CARLOS, CA 94070  
41

**ID/Status:** CAC002743601

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S117300832

Year: 2013

GEPAID: CAC002743601

Contact: ADAM DAWES

Telephone: 6502268260

Mailing Name: Not reported

Mailing Address: 227 ROCKRIDGE RD

Mailing City,St,Zip: SAN CARLOS, CA 940703705

Gen County: San Mateo

TSD EPA ID: CAD981382732

TSD County: Alameda

Waste Category: Not reported

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Not reported

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: Not reported

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S113791885      **DIST/DIR:** 0.203 SE      **ELEVATION:** 163      **MAP ID:** 18

**NAME:** CHRISTIN HINOJOSA KIRSCHENBAUM

**Rev:** 12/31/2014

**ADDRESS:** 935 ALAMEDA  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002710159

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S113791885

Year: 2012

GEPAID: CAC002710159

Contact: CHRISTIN HINOJOSA KIRSCHENBAUM

Telephone: 8472262082

Mailing Name: Not reported

Mailing Address: 935 ALAMEDA

Mailing City,St,Zip: SAN CARLOS, CA 940703741

Gen County: San Mateo

TSD EPA ID: CAD982042475

TSD County: Solano

Waste Category: Not reported

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Not reported

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112935634      **DIST/DIR:** 0.213 East      **ELEVATION:** 86      **MAP ID:** E19

**NAME:** SAN CARLOS-USD

**Rev:** 12/31/2014

**ADDRESS:** 2000 BELLE AVE  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002574506

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112935634

Year: 2004

GEPAID: CAC002574506

Contact: MARTY FUENTES

Telephone: 6505087330

Mailing Name: Not reported

Mailing Address: 826 CHESTNUT ST

Mailing City,St,Zip: SAN CARLOS, CA 94070

Gen County: Not reported

TSD EPA ID: CAD028409019

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Transfer Station

Tons: 0.12

Cat Decode: Asbestos containing waste

Method Decode: Transfer Station

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112959299      **DIST/DIR:** 0.213 East      **ELEVATION:** 86      **MAP ID:** E20

**NAME:** SCUSD-BRITTANY ACRES SCHOOL      **Rev:** 12/31/2014  
**ADDRESS:** 2000 BELLE AVE      **ID/Status:** CAC002613225  
SAN CARLOS, CA 94070  
SAN MATEO  
**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112959299  
Year: 2007  
GEPaid: CAC002613225  
Contact: RON LITTLE  
Telephone: 6505087300  
Mailing Name: Not reported  
Mailing Address: 826 CHESTNUT ST  
Mailing City,St,Zip: SAN CARLOS, CA 94070  
Gen County: Not reported  
TSD EPA ID: CAT000646117  
TSD County: Not reported  
Waste Category: Solids or sludges with halogenated organic compounds >= 1,000 Mg./L  
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)  
Tons: 0.11  
Cat Decode: Solids or sludges with halogenated organic compounds >= 1,000 Mg./L  
Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)  
Facility County: San Mateo

envid: S112959299  
Year: 2007  
GEPaid: CAC002613225  
Contact: RON LITTLE  
Telephone: 6505087300  
Mailing Name: Not reported  
Mailing Address: 826 CHESTNUT ST  
Mailing City,St,Zip: SAN CARLOS, CA 94070  
Gen County: Not reported  
TSD EPA ID: CAD028409019  
TSD County: Not reported  
Waste Category: Asbestos containing waste  
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery  
(H010-H129) Or (H131-H135)  
Tons: 0.28  
Cat Decode: Asbestos containing waste  
Method Decode: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery  
(H010-H129) Or (H131-H135)  
Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112954500      **DIST/DIR:** 0.213 East      **ELEVATION:** 86      **MAP ID:** E21

**NAME:** SAN CARLOS-USD      **Rev:** 12/31/2014  
**ADDRESS:** 2000 BELLE AVE      **ID/Status:** CAC002605296  
SAN CARLOS, CA 94070  
SAN MATEO  
**SOURCE:** CA California Environmental Protection Agency

HAZNET:  
envid: S112954500  
Year: 2006  
GEPAID: CAC002605296  
Contact: RON LITTLE  
Telephone: 6505087300  
Mailing Name: Not reported  
Mailing Address: 826 CHESTNUT ST  
Mailing City,St,Zip: SAN CARLOS, CA 94070  
Gen County: Not reported  
TSD EPA ID: CAD028409019  
TSD County: Not reported  
Waste Category: Asbestos containing waste  
Disposal Method: Transfer Station  
Tons: 0.63  
Cat Decode: Asbestos containing waste  
Method Decode: Transfer Station  
Facility County: San Mateo

envid: S112954500  
Year: 2006  
GEPAID: CAC002605296  
Contact: RON LITTLE  
Telephone: 6505087300  
Mailing Name: Not reported  
Mailing Address: 826 CHESTNUT ST  
Mailing City,St,Zip: SAN CARLOS, CA 94070  
Gen County: Not reported  
TSD EPA ID: CAD028409019  
TSD County: Not reported  
Waste Category: Other organic solids  
Disposal Method: Transfer Station  
Tons: 0.02  
Cat Decode: Other organic solids  
Method Decode: Transfer Station  
Facility County: San Mateo

envid: S112954500  
Year: 2006  
GEPAID: CAC002605296  
Contact: RON LITTLE  
Telephone: 6505087300  
Mailing Name: Not reported  
Mailing Address: 826 CHESTNUT ST

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112954500      **DIST/DIR:** 0.213 East      **ELEVATION:** 86      **MAP ID:** E21

**NAME:** SAN CARLOS-USD      **Rev:** 12/31/2014  
**ADDRESS:** 2000 BELLE AVE      **ID/Status:** CAC002605296  
SAN CARLOS, CA 94070  
SAN MATEO  
**SOURCE:** CA California Environmental Protection Agency

Mailing City,St,Zip: SAN CARLOS, CA 94070  
Gen County: Not reported  
TSD EPA ID: CAT000646117  
TSD County: Not reported  
Waste Category: Solids or sludges with halogenated organic compounds >= 1,000 Mg./L  
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)  
Tons: 0.27  
Cat Decode: Solids or sludges with halogenated organic compounds >= 1,000 Mg./L  
Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)  
Facility County: San Mateo

envid: S112954500  
Year: 2006  
GEPaid: CAC002605296  
Contact: RON LITTLE  
Telephone: 6505087300  
Mailing Name: Not reported  
Mailing Address: 826 CHESTNUT ST  
Mailing City,St,Zip: SAN CARLOS, CA 94070  
Gen County: Not reported  
TSD EPA ID: CAT000646117  
TSD County: Not reported  
Waste Category: Polychlorinated biphenyls and material containing PCBs  
Disposal Method: Disposal, Land Fill  
Tons: 0.16  
Cat Decode: Polychlorinated biphenyls and material containing PCBs  
Method Decode: Disposal, Land Fill  
Facility County: San Mateo

envid: S112954500  
Year: 2006  
GEPaid: CAC002605296  
Contact: RON LITTLE  
Telephone: 6505087300  
Mailing Name: Not reported  
Mailing Address: 826 CHESTNUT ST  
Mailing City,St,Zip: SAN CARLOS, CA 94070  
Gen County: Not reported  
TSD EPA ID: CAD982042475  
TSD County: Not reported  
Waste Category: Asbestos containing waste  
Disposal Method: Disposal, Land Fill  
Tons: 2.52

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112954500      **DIST/DIR:** 0.213 East      **ELEVATION:** 86      **MAP ID:** E21

**NAME:** SAN CARLOS-USD

**Rev:** 12/31/2014

**ADDRESS:** 2000 BELLE AVE  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002605296

**SOURCE:** CA California Environmental Protection Agency

Cat Decode: Asbestos containing waste  
Method Decode: Disposal, Land Fill  
Facility County: San Mateo

[Click this hyperlink](#) while viewing on your computer to access additional CA\_HAZNET: detail in the EDR Site Report.



# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112988214      **DIST/DIR:** 0.218 NE      **ELEVATION:** 152      **MAP ID:** F22

**NAME:** CRAIG OSTRANDER

**Rev:** 12/31/2014

**ADDRESS:** 760 KNOLL DR  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002669196

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112988214

Year: 2011

GEPAID: CAC002669196

Contact: CRAIG OSTRANDER

Telephone: 6508680453

Mailing Name: Not reported

Mailing Address: 760 KNOLL DR

Mailing City,St,Zip: SAN CARLOS, CA 940702941

Gen County: Not reported

TSD EPA ID: CAD981382732

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S118216146      **DIST/DIR:** 0.218 NE      **ELEVATION:** 152      **MAP ID:** F23

**NAME:** LISA GABET

**Rev:** 12/31/2014

**ADDRESS:** 762 KNOLL DR  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002778197

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S118216146

Year: 2014

GEPAID: CAC002778197

Contact: LISA GABET

Telephone: 6505920873

Mailing Name: Not reported

Mailing Address: 762 KNOLL DR

Mailing City,St,Zip: SAN CARLOS, CA 94070

Gen County: San Mateo

TSD EPA ID: CAD981382732

TSD County: Alameda

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.220 NNW      **ELEVATION:** 131      **MAP ID:** G24

**NAME:** PRIVATE RESIDENCE      **Rev:** 03/14/2016  
**ADDRESS:** PRIVATE RESIDENCE      ID/Status: T0608100983  
SAN CARLOS, CA 94070      ID/Status: Completed - Case Closed  
SAN MATEO  
**SOURCE:** CA State Water Resources Control Board

LUST:  
Region: STATE  
Global Id: T0608100983  
Latitude: 37.5006816665686  
Longitude: -122.271890938282  
Case Type: LUST Cleanup Site  
Status: Completed - Case Closed  
Status Date: 01/28/1998  
Lead Agency: SAN MATEO COUNTY LOP  
Case Worker: MM  
Local Agency: SAN MATEO COUNTY LOP  
RB Case Number: 41-1072  
LOC Case Number: 778064  
File Location: Local Agency  
Potential Media Affect: Other Groundwater (uses other than drinking water)  
Potential Contaminants of Concern: Diesel  
Site History: Extracted from Kodiak Consulting's July 5, 2005 SITE CONCEPTUAL MODEL AND CASE CLOSURE SUMMARY ARGUMENT, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report. The site is located in San Carlos, California on the south side of Dale Avenue, between Manor Drive and Pine Avenue. The site is approximately 0.75 mile and 1.2 miles southwest of El Camino Real and State Highway 101, respectively. Site elevation is approximately 140 feet above mean sea level. The site consists of a 0.459 acre property; Assessors Parcel Number 049-373-080. The property is currently owned by Robert and Sandy Yolland. The site is a single family residence and is within a residentially zoned area of San Carlos. The topography slopes gently onsite to the north toward Pulgas Creek, and ascends steeply behind the residence. The ground elevation difference is less than two feet between MW-1 and B-4 as measured by North State Environmental in 1999. 1998 UST Removal Activities In January 1998, SEMCO removed one 1,000-gallon single-walled steel heating oil underground storage tank (UST) and associated product piping from the site. Approximately 120 gallons of residual product were pumped from the tank prior to removal. Small holes were noted in the bottom of the tank at the south end. Soil samples collected beneath the UST at approximately 7.5 feet below grade (fbg) contained up to 13,000 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as diesel (TPH-D). Benzene was not detected. A small amount of water was observed in the UST excavation, suspected to be rainwater or irrigation water. Sheen was observed on the surface of the water. The excavation was backfilled with imported silty gravelly sand fill from 2.5 to 8 fbg. A composite soil sample

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## LUST

EDR ID: S110655254      DIST/DIR: 0.220 NNW      ELEVATION: 131      MAP ID: G24

**NAME:** PRIVATE RESIDENCE  
**ADDRESS:** PRIVATE RESIDENCE  
SAN CARLOS, CA 94070  
SAN MATEO

**Rev:** 03/14/2016  
ID/Status: T0608100983  
ID/Status: Completed - Case Closed

**SOURCE:** CA State Water Resources Control Board

was collected from the excavated soil from the UST removal and analyzed for TPH-D and benzene. The sample contained 59 mg/kg TPH-D and <0.005 mg/kg benzene. In addition, the UST removal soil sample containing the highest TPH-D concentration was analyzed for reactivity, corrosivity, ignitibility (RCI), and aquatic toxicity using rainbow trout. The results showed the soil to be non-hazardous, and subsequently the excavated soil was approved for used as backfill from 2.5 fbg to surface grade. 1998 Soil and Groundwater Investigation On March 3, 1998 SEMCO advanced one soil boring (B1) to 22 fbg to evaluate the hydrocarbon content in soil and groundwater beneath the former UST. Soil samples collected from the boring at 11, 15, 20, and 22 fbg contained up to 6,900 mg/kg TPH-D (20 fbg, capillary fringe zone) and <0.02 mg/kg benzene). The groundwater sample collected at 15 fbg in B1 contained 120 micrograms per liter ("g/l) TPH-D, but benzene was not detected (<0.5 "g/l benzene). Fluorene (13 "g/l) and phenanthrene (17 "g/l) were the polynuclear aromatic hydrocarbons (PAHs) detected, typical constituents of heating oil. Trace free-phase hydrocarbons (<0.01 foot) were observed in the groundwater sample. 1999 Soil and Groundwater Investigation Based on the 1998 subsurface investigation, additional characterization was required by the GPP. During March, April and June 1999, SEMCO advanced four soil borings (B2 through B5) to a maximum of 24 fbg around the perimeter of the former UST. Temporary casing was placed in the borings and surveyed. Based on these measurements, the groundwater gradient was calculated to flow to the southeast. Subsequently, SEMCO converted boring B5, downgradient of the former UST, to a 2-inch-diameter groundwater monitoring well. The locations of the borings and monitoring well are shown in Figure 1. Soil samples were collected from three of the borings (B5/MW-1 was not sampled due to it proximity to B2). The soil samples show that the heating oil was present beneath the former UST to the groundwater table at around 20 fbg, but decreased with depth from 1,700 mg/Kg at 11 fbg to 590 mg/Kg at 15 fbg. BTEX was not detected or was insignificant. The sample from B-4 at 23 fbg also contained 0.25 mg/Kg fluorene and 0.45mg/Kg phenanthrene, but represents a saturated soil sample. Grab groundwater samples collected from borings B2 through B4 contained up to 900 "g/L TPH-D (B2) and 2 "g/L benzene (B2). The groundwater sample collected from MW-1 contained 1,100 "g/L TPH-D and <0.5 "g/L benzene. No MTBE was detected. August 2002 Door-To-Door Well Survey Kodiak personnel performed a door-to-door well survey on August 22, 2002 of properties located within a 300 feet of the subject site property boundary. The survey was not performed directly behind the property to the south, as theses properties are located at least 100 feet upslope of the subject site. Four wells were reported, of which two of the wells were reported to

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.220 NNW      **ELEVATION:** 131      **MAP ID:** G24

**NAME:** PRIVATE RESIDENCE      **Rev:** 03/14/2016  
**ADDRESS:** PRIVATE RESIDENCE      ID/Status: T0608100983  
SAN CARLOS, CA 94070      ID/Status: Completed - Case Closed  
SAN MATEO  
**SOURCE:** CA State Water Resources Control Board

be filled or covered up and never used. The owners at 2108 Carmelita Drive reported a cistern, 1.5 feet in diameter and 8 feet deep, made of brick/clay. The cistern was believed to be installed approximately 100 years ago, for the purpose of farm irrigation, and is no longer in use. The owners at 2124 Carmelita Drive also reported a well that is six inches in diameter and 20 feet deep, and is made of brick/clay. It is used for landscaping purposes, albeit rarely.

[Click here to access the California GeoTracker records for this facility:](#)

**Contact:**

Global Id: T0608100983  
Contact Type: Regional Board Caseworker  
Contact Name: Regional Water Board  
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)  
Address: 1515 CLAY ST SUITE 1400  
City: OAKLAND  
Email: Not reported  
Phone Number: Not reported

Global Id: T0608100983  
Contact Type: Local Agency Caseworker  
Contact Name: MARC MULLANEY  
Organization Name: SAN MATEO COUNTY LOP  
Address: 2000 ALAMEDA DE LAS PULGAS  
City: SAN MATEO  
Email: mmullaney@smcgov.org  
Phone Number: 6503726289

**Status History:**

Global Id: T0608100983  
Status: Completed - Case Closed  
Status Date: 01/28/1998

Global Id: T0608100983  
Status: Open - Case Begin Date  
Status Date: 01/28/1998

Global Id: T0608100983  
Status: Open - Site Assessment  
Status Date: 01/28/1998

**Regulatory Activities:**

Global Id: T0608100983

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.220 NNW      **ELEVATION:** 131      **MAP ID:** G24

**NAME:** PRIVATE RESIDENCE      **Rev:** 03/14/2016  
**ADDRESS:** PRIVATE RESIDENCE      ID/Status: T0608100983  
SAN CARLOS, CA 94070      ID/Status: Completed - Case Closed  
SAN MATEO  
**SOURCE:** CA State Water Resources Control Board

Action Type: RESPONSE  
Date: 05/12/2011  
Action: Electronic Reporting Submittal Due

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 09/07/2007  
Action: Soil and Water Investigation Workplan

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 08/13/2010  
Action: Electronic Reporting Submittal Due

Global Id: T0608100983  
Action Type: Other  
Date: 01/28/1998  
Action: Leak Discovery

Global Id: T0608100983  
Action Type: Other  
Date: 01/28/1998  
Action: Leak Reported

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 07/27/2009  
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 07/13/2010  
Action: Staff Letter - #20100713 email

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 07/06/2005  
Action: Request for Closure

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 06/15/2007  
Action: Monitoring Report - Annually

Global Id: T0608100983

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.220 NNW      **ELEVATION:** 131      **MAP ID:** G24

**NAME:** PRIVATE RESIDENCE      **Rev:** 03/14/2016  
**ADDRESS:** PRIVATE RESIDENCE      ID/Status: T0608100983  
SAN CARLOS, CA 94070      ID/Status: Completed - Case Closed  
SAN MATEO  
**SOURCE:** CA State Water Resources Control Board

Action Type: ENFORCEMENT  
Date: 04/12/2011  
Action: Staff Letter - #20110412

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 04/07/2005  
Action: Staff Letter - #20050407

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 02/05/1998  
Action: Notice of Responsibility - #1

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 05/15/2007  
Action: Staff Letter - #20070515B

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 05/15/2007  
Action: Staff Letter - #20070515A

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 12/03/2010  
Action: Well Installation Report - Regulator Responded

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 07/14/2009  
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 05/25/2011  
Action: Closure/No Further Action Letter - #20110525

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 04/06/2011  
Action: Staff Letter - #20110406

Global Id: T0608100983

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.220 NNW      **ELEVATION:** 131      **MAP ID:** G24

**NAME:** PRIVATE RESIDENCE

**Rev:** 03/14/2016

**ADDRESS:** PRIVATE RESIDENCE  
SAN CARLOS, CA 94070  
SAN MATEO

ID/Status: T0608100983  
ID/Status: Completed - Case Closed

**SOURCE:** CA State Water Resources Control Board

Action Type: ENFORCEMENT  
Date: 07/13/2010  
Action: Staff Letter - #20100713

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 07/07/2009  
Action: Staff Letter - #20070707

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 03/01/2011  
Action: Staff Letter - #20110301



# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S113779859      **DIST/DIR:** 0.224 WSW      **ELEVATION:** 279      **MAP ID:** 25

**NAME:** FRED MELNIKOFF

**Rev:** 12/31/2014

**ADDRESS:** 368 CAPRINO WAY UNIT B  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002693800

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S113779859

Year: 2012

GEPAID: CAC002693800

Contact: FRED MELNIKOFF

Telephone: 6505332327

Mailing Name: Not reported

Mailing Address: 368 CAPRINO WAY UNIT B

Mailing City,St,Zip: SAN CARLOS, CA 940702832

Gen County: San Mateo

TSD EPA ID: CAD981382732

TSD County: Alameda

Waste Category: Not reported

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Not reported

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S118200725      **DIST/DIR:** 0.226 NE      **ELEVATION:** 158      **MAP ID:** F26

**NAME:** JEFF WEIDELL

**Rev:** 12/31/2014

**ADDRESS:** 755 KNOLL DR  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002759302

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S118200725

Year: 2014

GEPAID: CAC002759302

Contact: JEFF WEIDELL

Telephone: 6504540068

Mailing Name: Not reported

Mailing Address: 755 KNOLL DR

Mailing City,St,Zip: SAN CARLOS, CA 94070

Gen County: San Mateo

TSD EPA ID: CAD982444481

TSD County: San Bernardino

Waste Category: Household waste

Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery  
(H010-H129) Or (H131-H135)

Tons: 0.05

Cat Decode: Household waste

Method Decode: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery  
(H010-H129) Or (H131-H135)

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112888143      **DIST/DIR:** 0.240 NNW      **ELEVATION:** 118      **MAP ID:** G27

**NAME:** STEWART ALSOP

**Rev:** 12/31/2014

**ADDRESS:** 115 DALE AVE  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC001399952

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112888143

Year: 1998

GEPAID: CAC001399952

Contact: STEWART ALSOP

Telephone: 0000000000

Mailing Name: Not reported

Mailing Address: 115 DALE AVE

Mailing City,St,Zip: SAN CARLOS, CA 940700000

Gen County: Not reported

TSD EPA ID: CAL000161743

TSD County: Not reported

Waste Category: Unspecified oil-containing waste

Disposal Method: Transfer Station

Tons: .7506

Cat Decode: Unspecified oil-containing waste

Method Decode: Transfer Station

Facility County: San Mateo

envid: S112888143

Year: 1998

GEPAID: CAC001399952

Contact: STEWART ALSOP

Telephone: 0000000000

Mailing Name: Not reported

Mailing Address: 115 DALE AVE

Mailing City,St,Zip: SAN CARLOS, CA 940700000

Gen County: Not reported

TSD EPA ID: CAD009466392

TSD County: Not reported

Waste Category: Other empty containers 30 gallons or more

Disposal Method: Recycler

Tons: .5000

Cat Decode: Other empty containers 30 gallons or more

Method Decode: Recycler

Facility County: San Mateo

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## LUST

**EDR ID:** S103893713      **DIST/DIR:** 0.240 NNW      **ELEVATION:** 118      **MAP ID:** G28

**NAME:** ALSOP RESIDENCE

**Rev:** 03/14/2016

**ADDRESS:** 115 DALE

ID/Status: T0608100983

SAN CARLOS, CA 94070

ID/Status: 9- Case Closed

SAN MATEO

ID/Status: 778064

**SOURCE:** CA State Water Resources Control Board

### SAN MATEO CO. LUST:

Region: SAN MATEO

Facility ID: 778064

Facility Status: 9- Case Closed

Global ID: T0608100983

APN Number: 049373080

Case Type: SAN MATEO CO. LUST

EDR Link ID: SAN MATEO CO. LUST

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## LUST

**EDR ID:** S103396265      **DIST/DIR:** 0.404 SW      **ELEVATION:** 553      **MAP ID:** 29

<b>NAME:</b> SAN CARLOS HIGH SCHOOL, FORMER	<b>Rev:</b> 03/14/2016
<b>ADDRESS:</b> 2800 MELENDY	ID/Status: T0608101016
SAN CARLOS, CA 94070	ID/Status: T0608101016
SAN MATEO	ID/Status: 7/23/2003
<b>SOURCE:</b> CA State Water Resources Control Board	ID/Status: Case Closed
	ID/Status: 9- Case Closed

LUST:  
Region: STATE  
Global Id: T0608101016  
Latitude: 37.4917993  
Longitude: -122.276666  
Case Type: LUST Cleanup Site  
Status: Completed - Case Closed  
Status Date: 07/23/2003  
Lead Agency: SAN MATEO COUNTY LOP  
Case Worker: MM  
Local Agency: SAN MATEO COUNTY LOP  
RB Case Number: 41-1106  
LOC Case Number: 770062  
File Location: Local Agency Warehouse  
Potential Media Affect: Soil  
Potential Contaminants of Concern: Waste Oil / Motor / Hydraulic / Lubricating  
Site History: Not reported

[Click here to access the California GeoTracker records for this facility:](#)

Contact:  
Global Id: T0608101016  
Contact Type: Regional Board Caseworker  
Contact Name: Regional Water Board  
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)  
Address: 1515 CLAY ST SUITE 1400  
City: OAKLAND  
Email: Not reported  
Phone Number: Not reported

Global Id: T0608101016  
Contact Type: Local Agency Caseworker  
Contact Name: MARC MULLANEY  
Organization Name: SAN MATEO COUNTY LOP  
Address: 2000 ALAMEDA DE LAS PULGAS  
City: SAN MATEO  
Email: mmullaney@smcgov.org  
Phone Number: 6503726289

Status History:  
Global Id: T0608101016  
Status: Completed - Case Closed  
Status Date: 07/23/2003

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## LUST

**EDR ID:** S103396265      **DIST/DIR:** 0.404 SW      **ELEVATION:** 553      **MAP ID:** 29

**NAME:** SAN CARLOS HIGH SCHOOL, FORMER      **Rev:** 03/14/2016  
**ADDRESS:** 2800 MELENDY      ID/Status: T0608101016  
SAN CARLOS, CA 94070      ID/Status: T0608101016  
SAN MATEO      ID/Status: 7/23/2003  
**SOURCE:** CA State Water Resources Control Board      ID/Status: Case Closed  
ID/Status: 9- Case Closed

Global Id: T0608101016  
Status: Open - Case Begin Date  
Status Date: 12/11/1997

Global Id: T0608101016  
Status: Open - Verification Monitoring  
Status Date: 12/11/1997

Regulatory Activities:  
Global Id: T0608101016  
Action Type: Other  
Date: 12/11/1997  
Action: Leak Reported

Global Id: T0608101016  
Action Type: ENFORCEMENT  
Date: 12/11/1997  
Action: Notice of Responsibility - #1

Global Id: T0608101016  
Action Type: ENFORCEMENT  
Date: 07/23/2003  
Action: Closure/No Further Action Letter - #2

LUST REG 2:  
Region: 2  
Facility Id: Not reported  
Facility Status: Case Closed  
Case Number: 770062  
How Discovered: OM  
Leak Cause: Unknown  
Leak Source: Unknown  
Date Leak Confirmed: Not reported  
Oversight Program: LUST  
Prelim. Site Assessment Wokplan Submitted: Not reported  
Preliminary Site Assessment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: 1/1/1965

SAN MATEO CO. LUST:

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S103396265      **DIST/DIR:** 0.404 SW      **ELEVATION:** 553      **MAP ID:** 29

**NAME:** SAN CARLOS HIGH SCHOOL, FORMER  
**ADDRESS:** 2800 MELENDY  
SAN CARLOS, CA 94070  
SAN MATEO  
**SOURCE:** CA State Water Resources Control Board

**Rev:** 03/14/2016  
ID/Status: T0608101016  
ID/Status: T0608101016  
ID/Status: 7/23/2003  
ID/Status: Case Closed  
ID/Status: 9- Case Closed

Region: SAN MATEO  
Facility ID: 770062  
Facility Status: 9- Case Closed  
Global ID: T0608101016  
APN Number: Not reported  
Case Type: SAN MATEO CO. LUST  
EDR Link ID: SAN MATEO CO. LUST

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** S118353731      **DIST/DIR:** 0.441 NE      **ELEVATION:** 52      **MAP ID:** 30

**NAME:** CENTRAL MIDDLE SCHOOL/ARROYO BRIDGE SCHOOL      **Rev:** 02/01/2016  
**ADDRESS:** 757 CEDAR STREET      ID/Status: 60002247  
SAN CARLOS, CA 94070      ID/Status: Active  
SAN MATEO  
**SOURCE:** CA Department of Toxic Substances Control

ENVIROSTOR:  
Facility ID: 60002247  
Status: Active  
Status Date: 10/06/2015  
Site Code: 204278  
Site Type: School Investigation  
Site Type Detailed: School  
Acres: 9  
NPL: NO  
Regulatory Agencies: SMBRP  
Lead Agency: SMBRP  
Program Manager: Craig Sanchez  
Supervisor: Jose Salcedo  
Division Branch: Northern California Schools & Santa Susana  
Assembly: , 22  
Senate: , 13  
Special Program: Not reported  
Restricted Use: NO  
Site Mgmt Req: NONE SPECIFIED  
Funding: School District  
Latitude: 37.50072  
Longitude: -122.2621  
APN: 050-141-350  
Past Use: NONE SPECIFIED  
Potential COC: NONE SPECIFIED  
Confirmed COC: NONE SPECIFIED  
Potential Description: NONE SPECIFIED  
Alias Name: 050-141-350  
Alias Type: APN  
Alias Name: 204278  
Alias Type: Project Code (Site Code)  
Alias Name: 60002247  
Alias Type: Envirostor ID Number

Completed Info:  
Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Phase 1  
Completed Date: 10/14/2015  
Comments: Not reported

Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported

- Continued on next page -



# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** S118353731      **DIST/DIR:** 0.441 NE      **ELEVATION:** 52      **MAP ID:** 30

**NAME:** CENTRAL MIDDLE SCHOOL/ARROYO BRIDGE SCHOOL      **Rev:** 02/01/2016  
**ADDRESS:** 757 CEDAR STREET      ID/Status: 60002247  
SAN CARLOS, CA 94070      ID/Status: Active  
SAN MATEO  
**SOURCE:** CA Department of Toxic Substances Control

Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** 1000122171      **DIST/DIR:** 0.963 ENE      **ELEVATION:** 16      **MAP ID:** 31

**NAME:** GTE LENKURT INC      **Rev:** 02/01/2016  
**ADDRESS:** 1105 COUNTY ROAD      ID/Status: 41360063  
SAN CARLOS, CA 94070      ID/Status: 80001594  
SAN MATEO      ID/Status: Inactive - Needs Evaluation  
**SOURCE:** CA Department of Toxic Substances Control

### ENVIROSTOR:

Facility ID: 41360063  
Status: Inactive - Needs Evaluation  
Status Date: 10/31/2006  
Site Code: 200405  
Site Type: Evaluation  
Site Type Detailed: Evaluation  
Acres: 10  
NPL: NO  
Regulatory Agencies: SMBRP, RWQCB 2 - San Francisco Bay  
Lead Agency: SMBRP  
Program Manager: Not reported  
Supervisor: Julie Pettijohn  
Division Branch: Cleanup Berkeley  
Assembly: 22  
Senate: 13  
Special Program: Not reported  
Restricted Use: NO  
Site Mgmt Req: NONE SPECIFIED  
Funding: Responsible Party  
Latitude: 37.50111  
Longitude: -122.2502  
APN: 046-171-150, 046-171-160, 046-171-170, 046-171-180, 112-260-010, 112-260-020, 112-260-030, 112-260-070, 112-260-080, 112-260-090, 112-260-100, 112-260-110, 112-260-120, 112-260-130, 112-260-150, 112-260-160, 112-260-170, 112-260-180, 112-260-190, 112-260-200, 112-260-220, 112-260-230, 112-280-010, 112-280-020, 112-280-030, 112-280-040, 112-280-050, 112-280-060, 112-280-070, 112-280-080, 112-280-090, 112-280-100, 112-280-110, 112-280-120, 112-280-130, 112-280-140, 112-280-150, 112-280-160, 112-280-170, 112-280-180, 112-280-190, 112-280-200, 112-420-010, 112-420-020, 112-420-030, 112-420-040, 112-420-050, 112-420-060, 112-420-070, 112-420-080, 112-420-090, 112-420-100, 112-420-110, 112-420-120, 112-420-130, 112-420-140, 112-420-150, 112-420-160, 112-420-170, 112-420-180  
Past Use: MANUFACTURING - ELECTRONIC  
Potential COC: Benzene Tetrachloroethylene (PCE Trichloroethylene (TCE 1,1,2-Trichloroethane  
Confirmed COC: 1,1,2-Trichloroethane Tetrachloroethylene (PCE Trichloroethylene (TCE Benzene  
Potential Description: OTH, SV  
Alias Name: 046-171-150  
Alias Type: APN  
Alias Name: 046-171-160  
Alias Type: APN

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** 1000122171      **DIST/DIR:** 0.963 ENE      **ELEVATION:** 16      **MAP ID:** 31

**NAME:** GTE LENKURT INC

**Rev:** 02/01/2016

**ADDRESS:** 1105 COUNTY ROAD  
SAN CARLOS, CA 94070  
SAN MATEO

ID/Status: 41360063  
ID/Status: 80001594  
ID/Status: Inactive - Needs Evaluation

**SOURCE:** CA Department of Toxic Substances Control

Alias Name: 046-171-170  
Alias Type: APN  
Alias Name: 046-171-180  
Alias Type: APN  
Alias Name: 112-260-010  
Alias Type: APN  
Alias Name: 112-260-020  
Alias Type: APN  
Alias Name: 112-260-030  
Alias Type: APN  
Alias Name: 112-260-070  
Alias Type: APN  
Alias Name: 112-260-080  
Alias Type: APN  
Alias Name: 112-260-090  
Alias Type: APN  
Alias Name: 112-260-100  
Alias Type: APN  
Alias Name: 112-260-110  
Alias Type: APN  
Alias Name: 112-260-120  
Alias Type: APN  
Alias Name: 112-260-130  
Alias Type: APN  
Alias Name: 112-260-150  
Alias Type: APN  
Alias Name: 112-260-160  
Alias Type: APN  
Alias Name: 112-260-170  
Alias Type: APN  
Alias Name: 112-260-180  
Alias Type: APN  
Alias Name: 112-260-190  
Alias Type: APN  
Alias Name: 112-260-200  
Alias Type: APN  
Alias Name: 112-260-220  
Alias Type: APN  
Alias Name: 112-260-230  
Alias Type: APN  
Alias Name: 112-280-010  
Alias Type: APN  
Alias Name: 112-280-020  
Alias Type: APN  
Alias Name: 112-280-030

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** 1000122171      **DIST/DIR:** 0.963 ENE      **ELEVATION:** 16      **MAP ID:** 31

**NAME:** GTE LENKURT INC

**Rev:** 02/01/2016

**ADDRESS:** 1105 COUNTY ROAD  
SAN CARLOS, CA 94070  
SAN MATEO

ID/Status: 41360063  
ID/Status: 80001594  
ID/Status: Inactive - Needs Evaluation

**SOURCE:** CA Department of Toxic Substances Control

Alias Type: APN  
Alias Name: 112-280-040  
Alias Type: APN  
Alias Name: 112-280-050  
Alias Type: APN  
Alias Name: 112-280-060  
Alias Type: APN  
Alias Name: 112-280-070  
Alias Type: APN  
Alias Name: 112-280-080  
Alias Type: APN  
Alias Name: 112-280-090  
Alias Type: APN  
Alias Name: 112-280-100  
Alias Type: APN  
Alias Name: 112-280-110  
Alias Type: APN  
Alias Name: 112-280-120  
Alias Type: APN  
Alias Name: 112-280-130  
Alias Type: APN  
Alias Name: 112-280-140  
Alias Type: APN  
Alias Name: 112-280-150  
Alias Type: APN  
Alias Name: 112-280-160  
Alias Type: APN  
Alias Name: 112-280-170  
Alias Type: APN  
Alias Name: 112-280-180  
Alias Type: APN  
Alias Name: 112-280-190  
Alias Type: APN  
Alias Name: 112-280-200  
Alias Type: APN  
Alias Name: 112-420-010  
Alias Type: APN  
Alias Name: 112-420-020  
Alias Type: APN  
Alias Name: 112-420-030  
Alias Type: APN  
Alias Name: 112-420-040  
Alias Type: APN  
Alias Name: 112-420-050  
Alias Type: APN

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** 1000122171      **DIST/DIR:** 0.963 ENE      **ELEVATION:** 16      **MAP ID:** 31

**NAME:** GTE LENKURT INC      **Rev:** 02/01/2016  
**ADDRESS:** 1105 COUNTY ROAD      ID/Status: 41360063  
SAN CARLOS, CA 94070      ID/Status: 80001594  
SAN MATEO      ID/Status: Inactive - Needs Evaluation  
**SOURCE:** CA Department of Toxic Substances Control

Alias Name: 112-420-060  
Alias Type: APN  
Alias Name: 112-420-070  
Alias Type: APN  
Alias Name: 112-420-080  
Alias Type: APN  
Alias Name: 112-420-090  
Alias Type: APN  
Alias Name: 112-420-100  
Alias Type: APN  
Alias Name: 112-420-110  
Alias Type: APN  
Alias Name: 112-420-120  
Alias Type: APN  
Alias Name: 112-420-130  
Alias Type: APN  
Alias Name: 112-420-140  
Alias Type: APN  
Alias Name: 112-420-150  
Alias Type: APN  
Alias Name: 112-420-160  
Alias Type: APN  
Alias Name: 112-420-170  
Alias Type: APN  
Alias Name: 112-420-180  
Alias Type: APN  
Alias Name: T0608191590  
Alias Type: GeoTracker Global ID  
Alias Name: 200405  
Alias Type: Project Code (Site Code)  
Alias Name: 41360063  
Alias Type: Envirostor ID Number

Completed Info:  
Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Certification  
Completed Date: 11/01/1983  
Comments: Certified closure of the Site.

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: \* Discovery  
Completed Date: 08/01/1980  
Comments: Not reported

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** 1000122171      **DIST/DIR:** 0.963 ENE      **ELEVATION:** 16      **MAP ID:** 31

**NAME:** GTE LENKURT INC      **Rev:** 02/01/2016  
**ADDRESS:** 1105 COUNTY ROAD      ID/Status: 41360063  
SAN CARLOS, CA 94070      ID/Status: 80001594  
SAN MATEO      ID/Status: Inactive - Needs Evaluation  
**SOURCE:** CA Department of Toxic Substances Control

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Removal Action Completion Report  
Completed Date: 09/07/1983  
Comments: Fifty-five gallon drums and 13 above-ground storage tanks were decontaminated, inspected, and removed from the facility as part of closure activities. GTE Lenkurt submitted a Closure Report dated September 7, 1983.

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 11/01/2006  
Comments: Site screening found that residual VOCs in groundwater and soil vapor on western half of property presented acceptable risk from potential groundwater extraction and soil vapor intrusion exposure pathways. No data was available for eastern half of property. Preliminary Endangerment Assessment recommended for site.

Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported

Facility ID: 80001594  
Status: Inactive - Needs Evaluation  
Status Date: 06/29/2009  
Site Code: Not reported  
Site Type: Corrective Action  
Site Type Detailed: Corrective Action  
Acres: 1  
NPL: NO  
Regulatory Agencies: SMBRP  
Lead Agency: WM  
Program Manager: Robert Boggs  
Supervisor: Julie Pettijohn  
Division Branch: Cleanup Berkeley  
Assembly: 22  
Senate: 13  
Special Program: Not reported

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** 1000122171      **DIST/DIR:** 0.963 ENE      **ELEVATION:** 16      **MAP ID:** 31

**NAME:** GTE LENKURT INC      **Rev:** 02/01/2016  
**ADDRESS:** 1105 COUNTY ROAD      ID/Status: 41360063  
SAN CARLOS, CA 94070      ID/Status: 80001594  
SAN MATEO      ID/Status: Inactive - Needs Evaluation  
**SOURCE:** CA Department of Toxic Substances Control

Restricted Use: NO  
Site Mgmt Req: NONE SPECIFIED  
Funding: Not reported  
Latitude: 37.49993  
Longitude: -122.2510  
APN: NONE SPECIFIED  
Past Use: NONE SPECIFIED  
Potential COC: NONE SPECIFIED  
Confirmed COC: NONE SPECIFIED  
Potential Description: NONE SPECIFIED  
Alias Name: CAD009118605  
Alias Type: EPA Identification Number  
Alias Name: 110008260817  
Alias Type: EPA (FRS #)  
Alias Name: 80001594  
Alias Type: Envirostor ID Number

Completed Info:  
Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Interim Measures Questionnaire  
Completed Date: 03/13/1992  
Comments: Not reported

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Preliminary Assessment Report  
Completed Date: 09/23/1991  
Comments: Not reported

Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## CORRACTS

**EDR ID:** 1000122171      **DIST/DIR:** 0.963 ENE      **ELEVATION:** 16      **MAP ID:** 31

**NAME:** GTE LENKURT INC      **Rev:** 12/09/2015  
**ADDRESS:** 1105 COUNTY ROAD      **ID/Status:** CAD009118605  
SAN CARLOS, CA 94070  
SAN MATEO  
**SOURCE:** US EPA

### CORRACTS:

EPA ID: CAD009118605  
EPA Region: 09  
Area Name: ENTIRE FACILITY  
Actual Date: 19920313  
Action: CA075LO - CA Prioritization, Facility or area was assigned a low  
corrective action priority  
NAICS Code(s): 3342  
Communications Equipment Manufacturing  
Original schedule date: Not reported  
Schedule end date: Not reported

EPA ID: CAD009118605  
EPA Region: 09  
Area Name: ENTIRE FACILITY  
Actual Date: 19910923  
Action: CA075LO - CA Prioritization, Facility or area was assigned a low  
corrective action priority  
NAICS Code(s): 3342  
Communications Equipment Manufacturing  
Original schedule date: Not reported  
Schedule end date: Not reported



# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** S112968597      **DIST/DIR:** 0.982 NW      **ELEVATION:** 211      **MAP ID:** 32

**NAME:** TIERRA LINDA CAMPUS PROJECT      **Rev:** 02/01/2016  
**ADDRESS:** 750 DARTMOUTH AVENUE      ID/Status: 60002281  
SAN CARLOS, CA 94070      ID/Status: Active  
SAN MATEO  
**SOURCE:** CA Department of Toxic Substances Control

ENVIROSTOR:  
Facility ID: 60002281  
Status: Active  
Status Date: 12/08/2015  
Site Code: 204281  
Site Type: School Investigation  
Site Type Detailed: School  
Acres: 20  
NPL: NO  
Regulatory Agencies: SMBRP  
Lead Agency: SMBRP  
Program Manager: Craig Sanchez  
Supervisor: Jose Salcedo  
Division Branch: Northern California Schools & Santa Susana  
Assembly: , 22  
Senate: , 13  
Special Program: Not reported  
Restricted Use: NO  
Site Mgmt Req: NONE SPECIFIED  
Funding: School District  
Latitude: 37.50846  
Longitude: -122.2864  
APN: 045-072-020  
Past Use: NONE SPECIFIED  
Potential COC: NONE SPECIFIED  
Confirmed COC: NONE SPECIFIED  
Potential Description: NONE SPECIFIED  
Alias Name: 045-072-020  
Alias Type: APN  
Alias Name: 204281  
Alias Type: Project Code (Site Code)  
Alias Name: 60002281  
Alias Type: Envirostor ID Number

Completed Info:  
Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Phase 1  
Completed Date: 12/28/2015  
Comments: Not reported

Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported

- Continued on next page -

# Site Detail Report

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** S112968597      **DIST/DIR:** 0.982 NW      **ELEVATION:** 211      **MAP ID:** 32

**NAME:** TIERRA LINDA CAMPUS PROJECT

**Rev:** 02/01/2016

**ADDRESS:** 750 DARTMOUTH AVENUE  
SAN CARLOS, CA 94070  
SAN MATEO

ID/Status: 60002281  
ID/Status: Active

**SOURCE:** CA Department of Toxic Substances Control

Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported

## Database Descriptions

NPL: NPL National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices. NPL - National Priority List Proposed NPL - Proposed National Priority List Sites.

NPL Delisted: Delisted NPL The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Delisted NPL - National Priority List Deletions

CERCLIS: SEMS SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL. SEMS - Superfund Enterprise Management System

NFRAP: SEMS-ARCHIVE SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site. SEMS-ARCHIVE - Superfund Enterprise Management System Archive

RCRA COR ACT: CORRACTS CORRACTS identifies hazardous waste handlers with RCRA corrective action activity. CORRACTS - Corrective Action Report

RCRA TSD: RCRA-TSDF RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste. RCRA-TSDF - RCRA - Treatment, Storage and Disposal

RCRA GEN: RCRA-LQG RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. RCRA-LQG - RCRA - Large Quantity Generators RCRA-SQG - RCRA - Small Quantity Generators. RCRA-CESQG - RCRA - Conditionally Exempt Small Quantity Generators.

Federal IC / EC: US ENG CONTROLS A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. US ENG CONTROLS - Engineering Controls Sites List US INST CONTROL - Sites with Institutional Controls.

## Database Descriptions

ERNS: ERNS Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances. ERNS - Emergency Response Notification System

State/Tribal NPL: RESPONSE Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. RESPONSE - State Response Sites

State/Tribal CERCLIS: ENVIROSTOR The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. ENVIROSTOR - EnviroStor Database

State/Tribal SWL: SWF/LF (SWIS) Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites. SWF/LF (SWIS) - Solid Waste Information System

State/Tribal LTANKS: LUST REG 5 LUST REG 4 - Underground Storage Tank Leak List. NAPA CO. LUST - Sites With Reported Contamination. LUST REG 8 - Leaking Underground Storage Tanks. LUST REG 2 - Fuel Leak List. ORANGE CO. LUST - List of Underground Storage Tank Cleanups. LUST REG 6V - Leaking Underground Storage Tank Case Listing. SAN FRANCISCO CO. LUST - Local Oversight Facilities. LUST - Geotracker's Leaking Underground Fuel Tank Report. RIVERSIDE CO. LUST - Listing of Underground Tank Cleanup Sites. LUST REG 6L - Leaking Underground Storage Tank Case Listing. SAN DIEGO CO. SAM - Environmental Case Listing. LUST REG 3 - Leaking Underground Storage Tank Database. LUST REG 9 - Leaking Underground Storage Tank Report. LUST REG 1 - Active Toxic Site Investigation. VENTURA CO. LUST - Listing of Underground Tank Cleanup Sites. LUST SANTA CLARA - LOP Listing. SONOMA CO. LUST - Leaking Underground Storage Tank Sites. SOLANO CO. LUST - Leaking Underground Storage Tanks. SAN MATEO CO. LUST - Fuel Leak List. LUST REG 7 - Leaking Underground Storage Tank Case Listing. A listing of leaking underground storage tank sites located in Solano county. LUST REG 7 - Leaking Underground Storage Tanks INDIAN LUST R1 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R9 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R6 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R10 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R7 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R5 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R8 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R4 - Leaking Underground Storage Tanks on Indian Land. SLIC - Statewide SLIC Cases. SLIC REG 1 - Active Toxic Site Investigations. SLIC REG 2 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 3 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 4 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 5 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 6V - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 6L - SLIC Sites. SLIC REG 7 - SLIC List. SLIC REG 8 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 9 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. Sacramento Co. CS - Toxic Site Clean-Up List.

State/Tribal Tanks: UST Active UST facilities gathered from the local regulatory agencies UST - Active UST Facilities AST - Aboveground Petroleum Storage Tank Facilities. INDIAN UST R4 - Underground Storage Tanks on Indian Land. INDIAN UST R10 - Underground Storage Tanks on Indian Land. INDIAN UST R5 - Underground Storage Tanks on Indian Land. INDIAN UST R7 - Underground Storage Tanks on Indian Land. INDIAN UST R6 - Underground Storage Tanks on Indian Land. INDIAN UST R1 - Underground Storage Tanks on Indian Land. INDIAN UST R9 - Underground Storage Tanks on Indian Land. INDIAN UST R8 - Underground Storage Tanks on Indian Land.

## Database Descriptions

State/Tribal VCP: VCP Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs. VCP - Voluntary Cleanup Program Properties

US Brownfields: US BROWNFIELDS Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs. US BROWNFIELDS - A Listing of Brownfields Sites

Other SWF: LOS ANGELES CO. LF SAN DIEGO CO. LF - Solid Waste Facilities. WMUDS/SWAT - Waste Management Unit Database. VENTURA CO. LF - Inventory of Illegal Abandoned and Inactive Sites. CA LA LF - City of Los Angeles Landfills. Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites. CA LA LF - Inventory of Illegal Abandoned and Inactive Sites

Other Haz Sites: SCH This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose. SCH - School Property Evaluation Program SAN DIEGO CO. HMMD - Hazardous Materials Management Division Database. US CDL - Clandestine Drug Labs.

Other Tanks: SWEEPS UST Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list. SWEEPS UST - SWEEPS UST Listing ALAMEDA CO. UST - Underground Tanks. KERN CO. UST - Underground Storage Tank Sites & Tank Listing. MARIN CO. UST - Underground Storage Tank Sites. NAPA CO. UST - Closed and Operating Underground Storage Tank Sites. ORANGE CO. UST - List of Underground Storage Tank Facilities. RIVERSIDE CO. UST - Underground Storage Tank List. SAN FRANCISCO CO. UST - Underground Storage Tank Information. SOLANO CO. UST - Underground Storage Tanks. SUTTER CO. UST - Underground Storage Tanks. VENTURA CO. UST - Underground Tank Closed Sites List. YOLO CO. UST - Underground Storage Tank Comprehensive Facility Report. EL SEGUNDO UST - City of El Segundo Underground Storage Tank. LONG BEACH UST - City of Long Beach Underground Storage Tank. UST SAN JOAQUIN - San Joaquin Co. UST. TORRANCE UST - City of Torrance Underground Storage Tank. UST MENDOCINO - Mendocino County UST Database. CA FID UST - Facility Inventory Database.

Local Land Records: DEED Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners. DEED - Deed Restriction Listing

Spills: HMIRS Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT. HMIRS - Hazardous Materials Information Reporting System CHMIRS - California Hazardous Material Incident Report System. Orange Co. Industrial Site - List of Industrial Site Cleanups. SPILLS 90 - SPILLS90 data from FirstSearch.

## Database Descriptions

Other: RCRA NonGen / NLR RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste. RCRA NonGen / NLR - RCRA - Non Generators / No Longer Regulated FEDLAND - Federal and Indian Lands. TSCA - Toxic Substances Control Act. TRIS - Toxic Chemical Release Inventory System. SSTS - Section 7 Tracking Systems. RAATS - RCRA Administrative Action Tracking System. PRP - Potentially Responsible Parties. PADS - PCB Activity Database System. ICIS - Integrated Compliance Information System. FTTS - FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act). FTTS INSP - FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act). MLTS - Material Licensing Tracking System. RADINFO - Radiation Information Database. BRS - Biennial Reporting System. INDIAN RESERV - Indian Reservations. US AIRS (AFS) - Aerometric Information Retrieval System Facility Subsystem (AFS). US AIRS MINOR - Air Facility System Data. FINDS - Facility Index System/Facility Registry System. CORTESE - "Cortese" Hazardous Waste & Substances Sites List. CUPA - CUPA Resources List. CUPA AMADOR - CUPA Facility List. CUPA BUTTE - CUPA Facility Listing. CUPA CALVERAS - CUPA Facility Listing. CUPA COLUSA - CUPA Facility List. CUPA DEL NORTE - CUPA Facility List. CUPA EL DORADO - CUPA Facility List. CUPA FRESNO - CUPA Resources List. CUPA HUMBOLDT - CUPA Facility List. CUPA IMPERIAL - CUPA Facility List. CUPA INYO - CUPA Facility List. CUPA KINGS - CUPA Facility List. CUPA LAKE - CUPA Facility List. CUPA MADERA - CUPA Facility List. CUPA MERCED - CUPA Facility List. CUPA MONO - CUPA Facility List. CUPA MONTEREY - CUPA Facility Listing. CUPA NEVADA - CUPA Facility List. CUPA SAN LUIS OBISPO - CUPA Facility List. CUPA SANTA BARBARA - CUPA Facility Listing. CUPA SANTA CLARA - CUPA Facility List. CUPA SANTA CRUZ - CUPA Facility List. CUPA SHASTA - CUPA Facility List. CUPA SONOMA - CUPA Facility List. CUPA TUOLUMNE - CUPA Facility List. CUPA YUBA - CUPA Facility List. HAZNET - Facility and Manifest Data. Sacramento Co. ML - Master Hazardous Materials Facility List. San Bern. Co. Permit - Hazardous Material Permits. LA Co. Site Mitigation - Site Mitigation List. WDS - Waste Discharge System.

## Database Sources

NPL: EPA

Updated Quarterly

NPL Delisted: EPA

Updated Quarterly

CERCLIS: EPA

Updated Quarterly

NFRAP: EPA

Updated Quarterly

RCRA COR ACT: EPA

Updated Quarterly

RCRA TSD: Environmental Protection Agency

Updated Quarterly

RCRA GEN: Environmental Protection Agency

Updated Quarterly

Federal IC / EC: Environmental Protection Agency

Varies

ERNS: National Response Center, United States Coast Guard

Updated Annually

State/Tribal NPL: Department of Toxic Substances Control

Updated Quarterly

State/Tribal CERCLIS: Department of Toxic Substances Control

Updated Quarterly

State/Tribal SWL: Department of Resources Recycling and Recovery

Updated Quarterly

State/Tribal LTANKS: California Regional Water Quality Control Board Central Valley Region (5)

No Update Planned

## Database Sources

State/Tribal Tanks: SWRCB

Updated Semi-Annually

State/Tribal VCP: Department of Toxic Substances Control

Updated Quarterly

US Brownfields: Environmental Protection Agency

Updated Semi-Annually

Other SWF: La County Department of Public Works

Varies

Other Haz Sites: Department of Toxic Substances Control

Updated Quarterly

Other Tanks: State Water Resources Control Board

No Update Planned

Local Land Records: DTSC and SWRCB

Updated Semi-Annually

Spills: U.S. Department of Transportation

Updated Annually

Other: Environmental Protection Agency

Varies



# Street Name Report for Streets near the Target Property

Target Property: 806 ALAMEDA  
SAN CARLOS, CA 94070

JOB: NA

Street Name	Dist/Dir	Street Name	Dist/Dir
Aberdeen Dr	0.20 WSW		
Alameda	0.08 East		
Bauer Ct	0.14 SSE		
Bauer Dr	0.07 SSE		
Belle Ct	0.21 ESE		
Cordilleras Ave	0.24 NE		
Coronado Ave	0.19 NNW		
Dundee Ln	0.19 West		
Elizabeth St	0.14 ENE		
Glasgow Ln	0.12 SW		
Heather Dr	0.08 SSW		
Madera Ave	0.16 NNE		
Melendy Dr	0.21 South		
Pine Ave	0.24 North		
Rockridge Rd	0.23 SE		
Rutherford Ave	0.19 ENE		
Sunset Dr	0.22 South		
Tamarack Ave	0.13 ENE		
Vista del Grande	0.09 North		

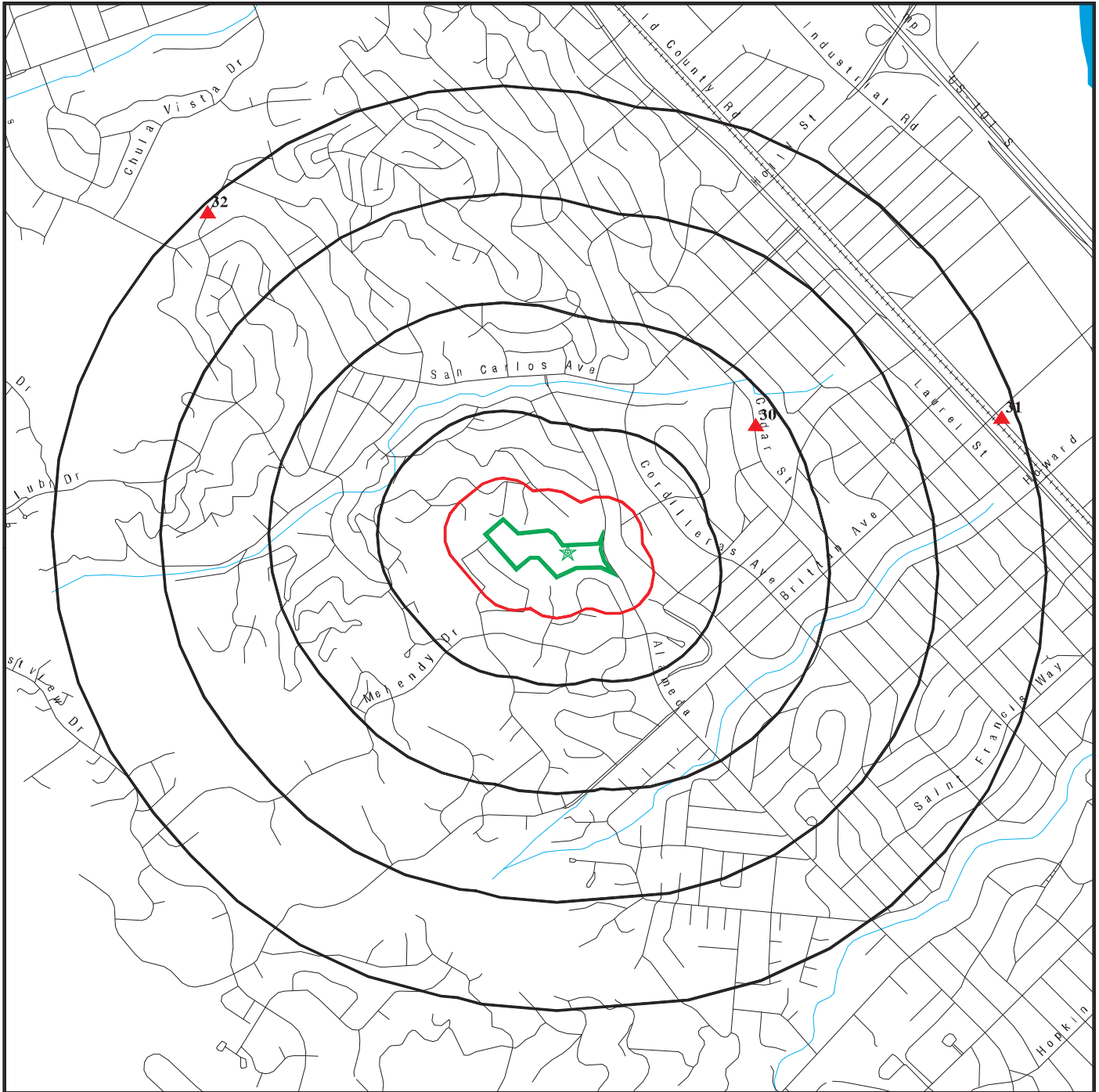
# Environmental FirstSearch

1.000 Mile Radius

ASTM MAP: NPL, RCACOR, STATES Sites



806 ALAMEDA SAN CARLOS, CA 94070



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

★ Target Property (Latitude: 37.496363 Longitude: 122.269973)

▲ Identified Sites

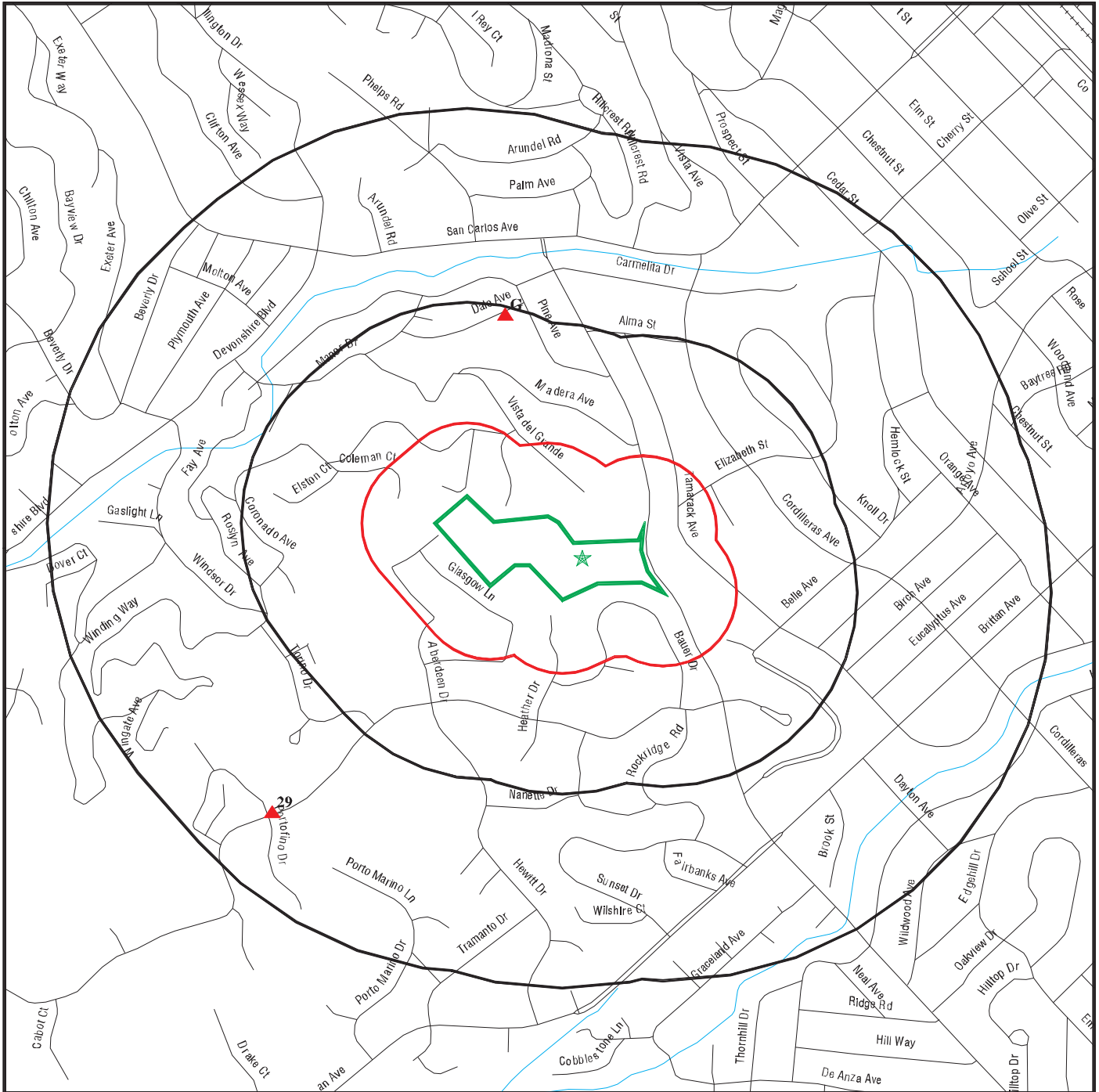
Indian Reservations BIA

National Priority List Sites

**Environmental FirstSearch**  
 0.500 Mile Radius  
 ASTM MAP: CERCLIS, RCRATSD, LUST, SWL



806 ALAMEDA SAN CARLOS, CA 94070



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

- ★ Target Property (Latitude: 37.496363 Longitude: 122.269973)
- ▲ Identified Sites
- ▨ Indian Reservations BIA
- ☒ National Priority List Sites

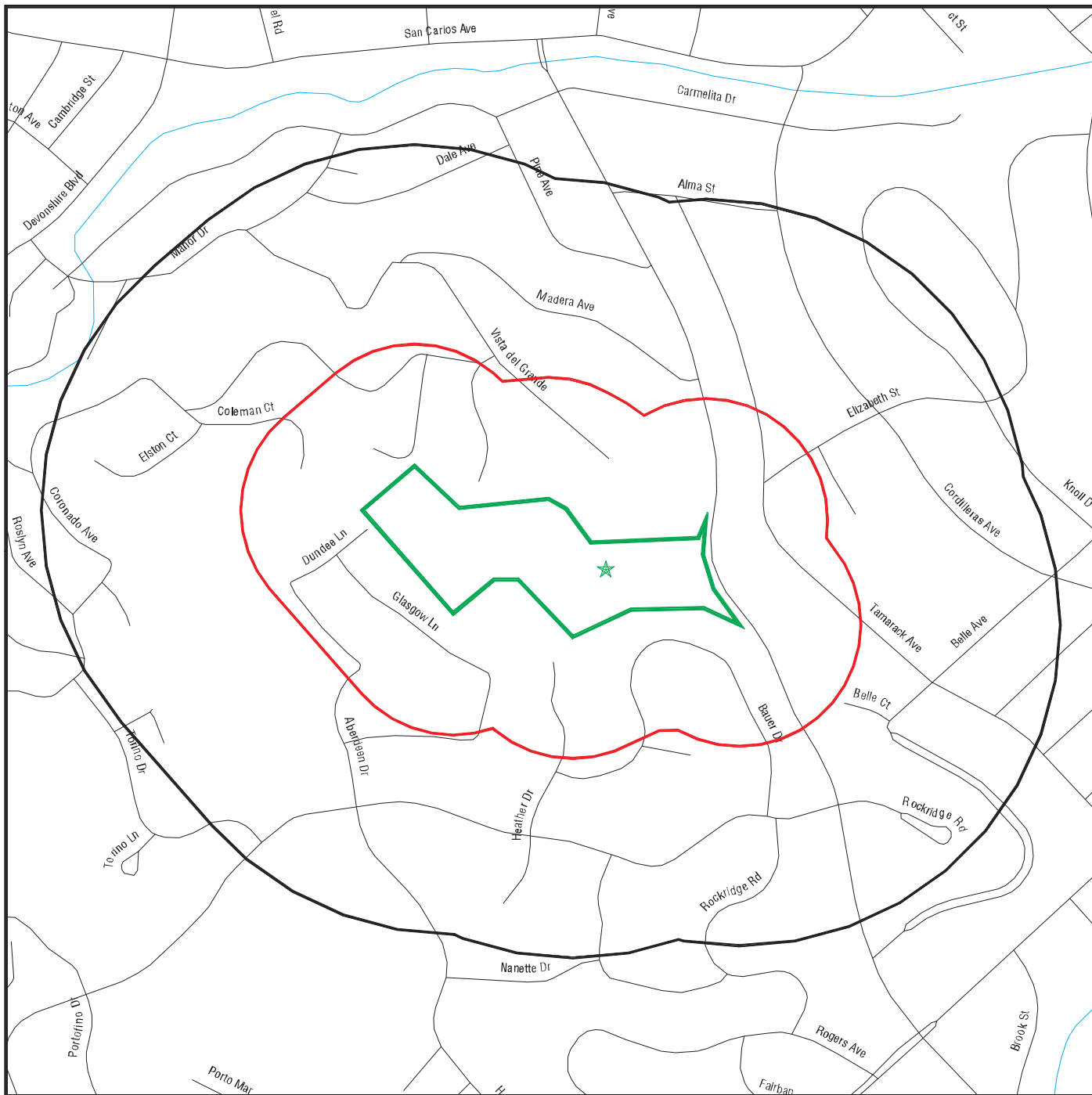
# Environmental FirstSearch

0.25 Mile Radius



ASTM MAP: RCRAGEN, ERNS, UST, FED IC/EC, METH LABS



806 ALAMEDA SAN CARLOS, CA 94070



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

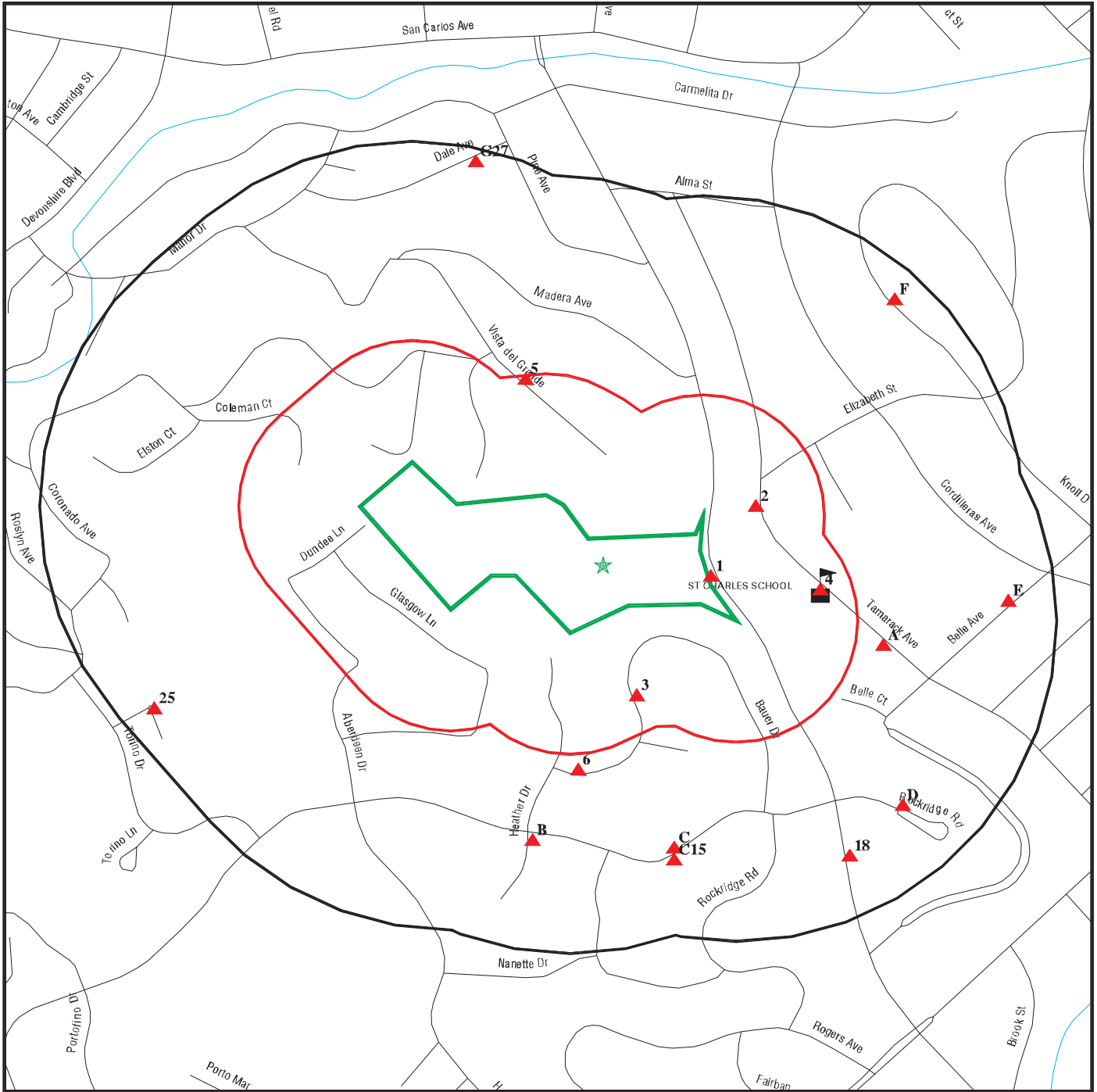
-  **Target Property (Latitude: 37.496363 Longitude: 122.269973)**
-  **Identified Sites**
-  **Indian Reservations BIA**
-  **National Priority List Sites**

# Environmental FirstSearch

0.25 Mile Radius  
Non ASTM Map, Spills, FINDS



806 ALAMEDA SAN CARLOS, CA 94070



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

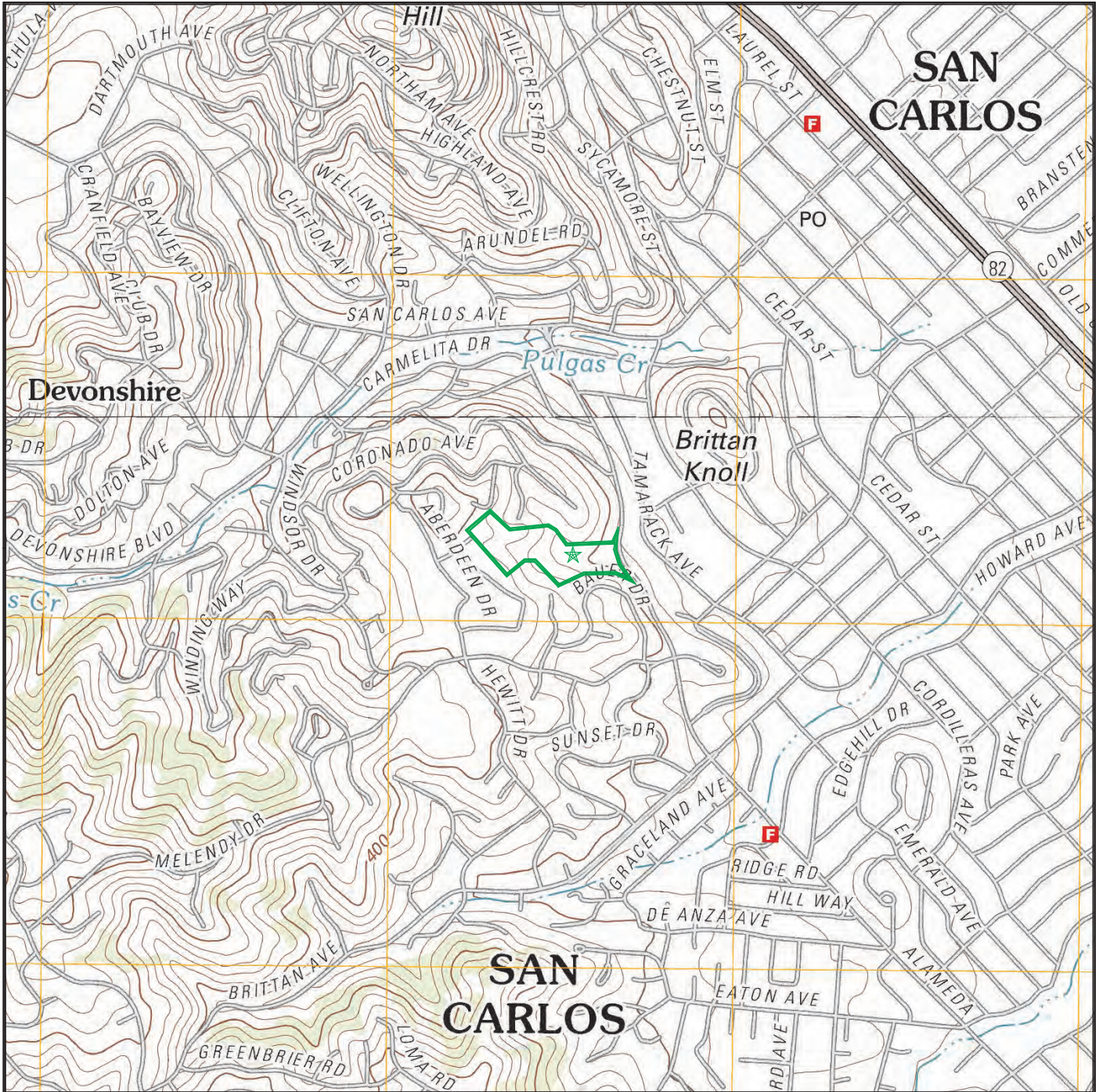
- ★ Target Property (Latitude: 37.496363 Longitude: 122.269973)
- ▲ Identified Sites
- Sensitive Receptors
- National Priority List Sites
- Indian Reservations BIA

# Site location Map

Topo: 0.75 Mile Radius



806 ALAMEDA SAN CARLOS, CA 94070



Map Image Position: TP  
Map Reference Code & Name: 5640628 Woodside  
Map State(s): CA  
Version Date: 2012  
Map Image Position: NW  
Map Reference Code & Name: 5640626 San Mateo  
Map State(s): CA  
Version Date: 2012

**Appendix I:**  
**Questionnaires and Supporting Documents**

PHASE I ENVIRONMENTAL SITE ASSESSMENT PROCESS

USER QUESTIONNAIRE

**Black Mountain Property, 806 Alameda De Las Pulgas, San Carlos, California 94070**

**INTRODUCTION:** In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the “Brownfields Amendments”), the user must provide the following information (if available) to the environmental professional. Failure to provide this information could result in a determination that “all appropriate inquiry” is not complete.

**(1.) Environmental cleanup liens that are filed or recorded against the site.**

Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law? Yes \_\_\_\_\_ No

**(2.) Activity and land use limitations that are in place on the site or that have been filed or recorded in a registry.**

Are you aware of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? Yes \_\_\_\_\_ No

**(3.) Specialized knowledge or experience of the person seeking to qualify for the LLP.**

As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? Yes \_\_\_\_\_ No

**(4.) Relationship of the purchase price to the fair market value of the property if it were not contaminated.**

Does the purchase price being paid for this property reasonably reflect the fair market value of the property?  Yes If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property? Yes \_\_\_\_\_ No \_\_\_\_\_

**(5.) Commonly known or reasonably ascertainable information about the property.**

Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

(a.) Do you know the past uses of the property? Yes \_\_\_\_\_ No

(b.) Do you know of specific chemicals that are present or once were present at the property? Yes \_\_\_\_\_ No

(c.) Do you know of spills or other chemical releases that have taken place at the property? Yes \_\_\_\_\_ No

(d.) Do you know of any environmental cleanups that have taken place at the property? Yes \_\_\_\_\_ No

**(6.) The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.**

As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property? Yes \_\_\_\_\_ No

*Landowner Liability Protections, or LLPs, is the term used to describe the three types of potential defenses to Superfund liability in EPA’s Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability (“Common Elements” Guide) issued on March 6, 2003.*

Questionnaire Completed By: Name Joseph J. Bullock III Date: June 20, 2016



PHASE I ENVIRONMENTAL SITE ASSESSMENT PROPERTY REPRESENTATIVE QUESTIONNAIRE

**Black Mountain Property  
806 Alameda De Las Pulgas,  
San Carlos, California 94070**

<u>Question</u>	<u>Response</u>			<u>If yes, provide description</u>
1a. Is the <i>property</i> used for an industrial use?	Yes	<input checked="" type="checkbox"/> No	Unk	
1b. Is any <i>adjoining property</i> used for an industrial use?	Yes	<input checked="" type="checkbox"/> No	Unk	
2a. Did you observe evidence or do you have any prior knowledge that the <i>property</i> has been used for an industrial use in the past?	Yes	<input checked="" type="checkbox"/> No	Unk	
2b. Did you observe evidence or do you have any prior knowledge that any <i>adjoining property</i> has been used for an industrial use in the past?	Yes	<input checked="" type="checkbox"/> No	Unk	
3a. Is the <i>property</i> used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	Yes	<input checked="" type="checkbox"/> No	Unk	
3b. Is any <i>adjoining property</i> used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	Yes	<input checked="" type="checkbox"/> No	Unk	
4a. Did you observe evidence or do you have any prior knowledge that the <i>property</i> has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	Yes	<input checked="" type="checkbox"/> No	Unk	
4b. Did you observe evidence or do you have any prior knowledge that any <i>adjoining property</i> has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	Yes	<input checked="" type="checkbox"/> No	Unk	

Question	Response			If yes, provide description
5a. Are there currently any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of >5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the <i>property</i> or at the facility?	Yes	No	Unk	
5b. Did you observe evidence or do you have any prior knowledge that there have been previously any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of >5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the <i>property</i> or at the facility?	Yes	No	Unk	
6a. Are there currently any industrial <i>drums</i> (typically 55 gal (208 L)) or sacks of chemicals located on the <i>property</i> or at the facility?	Yes	No	Unk	
6b. Did you observe evidence or do you have any prior knowledge that there have been previously any industrial <i>drums</i> (typically 55 gal (208 L)) or sacks of chemicals located on the <i>property</i> or at the facility?	Yes	No	Unk	
7a. Did you observe evidence or do you have any prior knowledge that <i>fill dirt</i> has been brought onto the <i>property</i> that originated from a contaminated site?	Yes	No	Unk	
7b. Did you observe evidence or do you have any prior knowledge that <i>fill dirt</i> has been brought onto the <i>property</i> that is of an unknown origin?	Yes	No	Unk	Fill dirt was brought on and placed in the flat on the right side heading downhill, behind gate next to 806 and road improvements on the 1 <sup>st</sup> 100 yards on lower road which was engineered and compacted with oversite by BKF.
8a. Are there currently any <i>pits, ponds, or lagoons</i> located on the <i>property</i> in connection with waste treatment or waste disposal?	Yes	No	Unk	
8b. Did you observe evidence or do you have any prior knowledge that there have been previously, any <i>pits, ponds, or lagoons</i> located on the <i>property</i> in connection with waste treatment or waste disposal?	Yes	No	Unk	
9a. Is there currently any stained soil on the <i>property</i> ?	Yes	No	Unk	

Question	Response			If yes, provide description
9b. Did you observe evidence or do you have any prior knowledge that there has been previously, any stained soil on the <i>property</i> ?	Yes	No	Unk	
10a. Are there currently any registered or unregistered storage tanks (above or underground) located on the <i>property</i> ?	Yes	No	Unk	
10b. Did you observe evidence or do you have any prior knowledge that there have been previously, any registered or unregistered storage tanks (above or underground) located on the <i>property</i> ?	Yes	No	Unk	Gasoline fuel tank at former water plant was properly decommissioned and removed when plant was closed.
11a. Are there currently any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the <i>property</i> or adjacent to any structure located on the <i>property</i> ?	Yes	No	Unk	
11b. Did you observe evidence or do you have any prior knowledge that there have been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the <i>property</i> or adjacent to any structure located on the <i>property</i> ?	Yes	No	Unk	
12a. Is there currently evidence of leaks, spills or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the <i>property</i> ?	Yes	No	Unk	
12b. Did you observe evidence or do you have any prior knowledge that there have been previously any leaks, spills or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the <i>property</i> ?	Yes	No	Unk	
13a. If the <i>property</i> is served by a private well or non-public water system, is there evidence or do you have prior knowledge that contaminants have been identified in the well or system that exceed guidelines applicable to the water system?	Yes	No	Unk	
13b. If the property is served by a private well or non-pubic water system, is there evidence or do you have prior knowledge that the well has been designated as contaminated by any government environmental/health agency?	Yes	No	Unk	

Question	Response			If yes, provide description
14. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> have any knowledge of <i>environmental liens</i> or governmental notification relating to past or recurrent violations of environmental laws with respect to the <i>property</i> or any facility located on the <i>property</i> ?	Yes	No	Unk	
15a. Has the <i>owner</i> or <i>occupant</i> of the <i>property</i> been informed of the past existence of hazardous substances of <i>petroleum products</i> with respect to the <i>property</i> or any facility located on the <i>property</i> ?	Yes	No	Unk	Previously described in 10.b
15b. Has the <i>owner</i> or <i>occupant</i> of the <i>property</i> been informed of the current existence of hazardous substances of <i>petroleum products</i> with respect to the <i>property</i> or any facility located on the <i>property</i> ?	Yes	No	Unk	
15c. Has the <i>owner</i> or <i>occupant</i> of the <i>property</i> been informed of the past existence of environmental violations with respect to the <i>property</i> or any facility located on the <i>property</i> ?	Yes	No	Unk	
15d. Has the <i>owner</i> or <i>occupant</i> of the <i>property</i> been informed of the current existence of environmental violations with respect to the <i>property</i> or any facility located on the <i>property</i> ?	Yes	No	Unk	
16. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> have any knowledge of any <i>environmental site assessment</i> of the <i>property</i> or facility that indicated the presence of <i>hazardous substances</i> or <i>petroleum products</i> on, or contaminations of, the <i>property</i> or recommended further assessment of the <i>property</i> ?	Yes	No	Unk	
17. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any <i>hazardous substance</i> or <i>petroleum products</i> involving the <i>property</i> by any <i>owner</i> or <i>occupant</i> of the <i>property</i> ?	Yes	No	Unk	
18a. Does the <i>property</i> discharge <i>wastewater</i> (not including sanitary waste or storm water) onto or adjacent to the <i>property</i> and/or into a storm water system?	Yes	No	Unk	

<u>Question</u>	<u>Response</u>			<u>If yes, provide description</u>
18b. Does the <i>property</i> discharge waste water (not including sanitary waste or storm water) onto or adjacent to the <i>property</i> and/or into a sanitary sewer system?	Yes	<input checked="" type="checkbox"/> No	Unk	
19. Did you observe evidence or do you have any prior knowledge that any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials have been dumped above grade, buried and/or burned on the <i>property</i> ?	Yes	<input checked="" type="checkbox"/> No	Unk	
20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?	Yes	<input checked="" type="checkbox"/> No	Unk	

End of Property Representative Questionnaire.

The Property Representative Questionnaire answers were provided by:

Name: Joseph J. Bullock, III

Title: Chairman / CEO

Firm: Black Mountain Properties, LLC

Phone number: 650.595.8452

Date: June 15, 2016

Relationship to the Property/Project: Owner

Number of years with the Property/Project: Since childhood

From: [Steve J Mitchell](#)  
To: [Jeff Randle](#)  
Subject: RE: Black Mountain Property - Unknown Hole  
Date: Thursday, June 23, 2016 11:38:25 AM

---

Hi Jeff,  
Will do.

Please see Joe's answers to your questions late yesterday.

- What are the dates of operation concerning the on-site water plant? **Company was started in about 1940 on Alameda, closed about 2000 on Alameda.**
- What was the size of the former gasoline underground storage tank (UST)? **About 4000 gallons I think.**
- Location of the gasoline UST? **As you enter driveway it would be on your right side by gate post.**
- Installation and removal dates of the gasoline UST? **Back in the 80's**
- Was any soil/water testing completed upon removal of the UST? **Yes and it was cleaned up and above ground tank was used from that point on for a few years and then we went to a card lock system down town San Carlos. Remember, we were a water company and everything had to be clean and FDA approved.**
- Name of the company who removed the UST? **Do not remember.**
- Do you have any documentation concerning the installation/removal of the UST? **I am sure there was, but do not know where to find it now.**

Regards,  
Steve



Steven J. Mitchell  
Chief Operations Officer

Black Mountain Properties, LLC  
975 Industrial Road, Suite A  
San Carlos, CA 94070

Office: 650.595.8452 Ext .104  
Fax: 650.412.0796  
Cell: 650.281.3315  
[www.BlackMountainProperties.com](http://www.BlackMountainProperties.com)

---

From: [Steve J Mitchell](#)  
To: [Jeff Randle](#)  
Subject: Re: Black Mountain Property - Unknown Hole  
Date: Saturday, June 25, 2016 5:07:39 PM

---

Hi Jeff,

Please see Joe Bullock's answers to your last set of questions regarding the UST at the Alameda property inserted in **red** font below.

- Just to be clear, the former gasoline UST was removed and not closed in place? **The tank was taken out of the ground and disposed of.**
- Were contaminated soils removed from the Property after the UST was decommissioned? If so, any idea of how many tons? **Soil was removed and disposed of. Joe is not sure what the quantity of soil was. The removal of the tank was done by a tank removal company that performed this type of work.**
- If any contamination, was groundwater impacted? **No ground water was impacted. Joe recalls it was a very easy cleanup.**
- Any idea of the approximate size of the Aboveground fuel tank used after the UST was decommissioned? **Joe does not remember the size of the tank. It was small and really not worth it to use. The water company started a card lock system down town in San Carlos at one of the stations. It was easier that way.**
- Were the UST and AST used for fueling delivery trucks? **Yes, for trucks and delivery vans. Just regular gas was used.**

Regards,  
Steve

---

From: [Steve J Mitchell](#)  
To: [Jeff Randle](#)  
Subject: RE: Black Mountain Property - a few more follow-up questions please  
Date: Monday, June 27, 2016 11:12:29 AM

---

Hi Jeff,

Please see Joe's answers to your most recent questions.

Thank you very much; again I really appreciate your time and Mr. Bullocks time. Again, to clarify in case we can't come up with any documents from the regulatory agencies a few more questions please ...

- Is there a ballpark date as to when the Aboveground storage tank (AST) was removed? Mid 1980s/Early 1990s? **Joe believes sometime in the 70's or early 80's**
- Was any secondary containment associated with the aboveground tank? **Joe recalls that the tank that was pulled out of the ground was a wrapped tank but they didn't have leak detection on the gas pumps or tanks back then.**
- Any noted spills/clean up associated with the aboveground tank? **No, not that Joe was aware of.**
- Were the fuel tanks located near the gate of the main, southernmost driveway (the driveway that branches off leading to the residences)? Or the northernmost driveway?
- Were Cap Snap Seal Inc. products manufactured on-site? If so what kinds of chemicals, if any, and how were they stored? **Yes, for a short time. All food grade stuff, That was approved by the FDA. Plastic used to make The bottle caps. It came in a small pellet form that was FDA approved.**

Regards,

Steve



Steven J. Mitchell  
Chief Operations Officer

Black Mountain Properties, LLC  
975 Industrial Road, Suite A  
San Carlos, CA 94070

Office: 650.595.8452 Ext .104  
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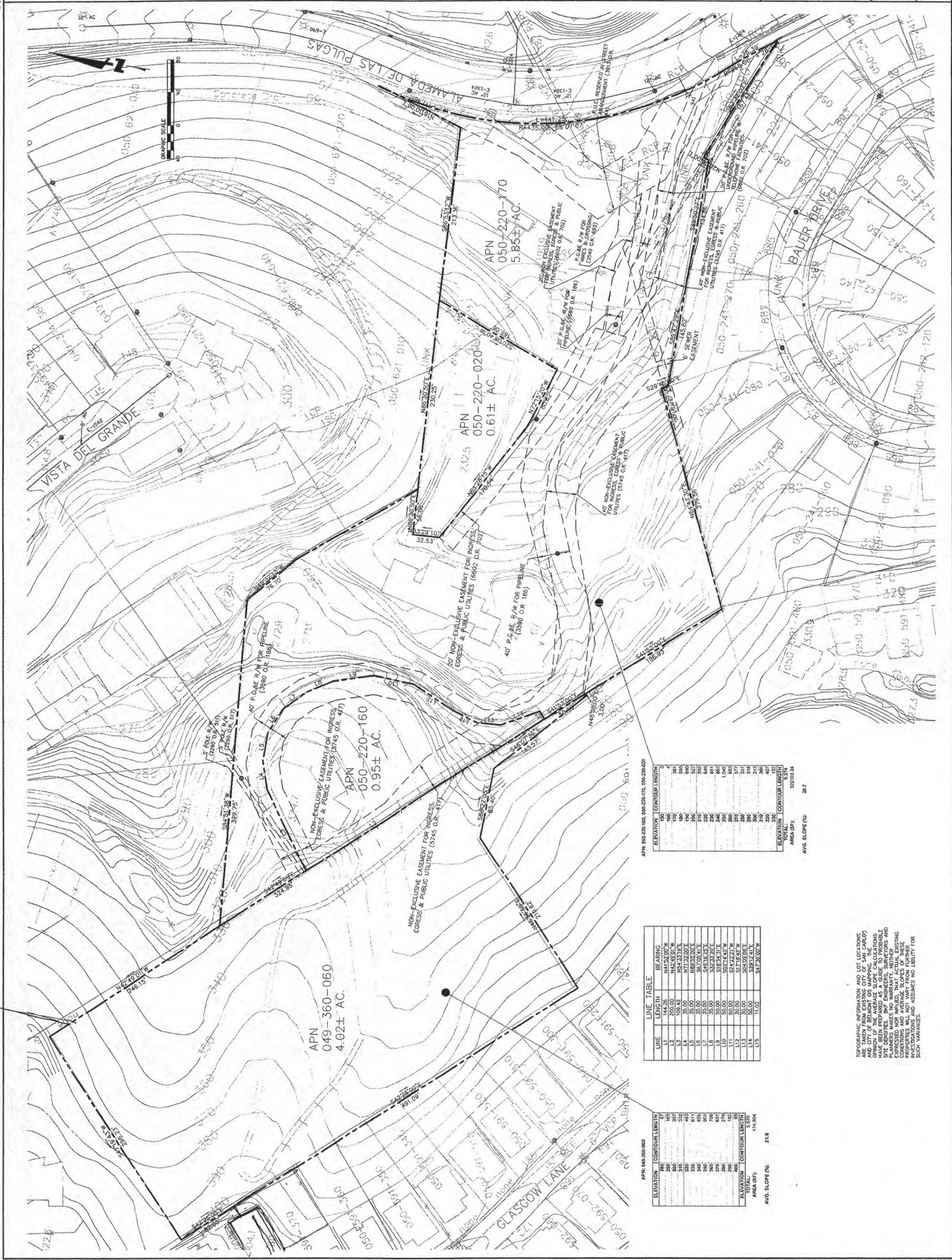
255 SHORELINE DR  
 REDWOOD CITY, CA 94065  
 650-482-6300  
 650-482-6399 (fax)

CALIFORNIA

ENGINEERING (SURVEYORS) PLANNERS

BLACK MOUNTAIN PROPERTIES  
 804, 808, 808 ALAMEDA DE LAS PULGAS  
 SAN MATEO

SAN CARLOS



APN 050-220-170, 050-220-170, 050-220-020

ELEVATION	COUNTOUR LENGTH
150	34
160	34
170	34
180	34
190	34
200	34
210	34
220	34
230	34
240	34
250	34
260	34
270	34
280	34
290	34
300	34
310	34
320	34
330	34
340	34
350	34
360	34
370	34
380	34
390	34
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410	34
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760	34
770	34
780	34
790	34
800	34
810	34
820	34
830	34
840	34
850	34
860	34
870	34
880	34
890	34
900	34
910	34
920	34
930	34
940	34
950	34
960	34
970	34
980	34
990	34
1000	34
TOTAL	3520.00
AREA (SF)	3520.00
AVG. SLOPE (%)	28.7

APN 049-360-060

LINE	LENGTH	BEARING
L1	200.00	N45°45'00"W
L2	100.00	N45°45'00"W
L3	100.00	N45°45'00"W
L4	100.00	N45°45'00"W
L5	100.00	N45°45'00"W
L6	100.00	N45°45'00"W
L7	100.00	N45°45'00"W
L8	100.00	N45°45'00"W
L9	100.00	N45°45'00"W
L10	100.00	N45°45'00"W
L11	100.00	N45°45'00"W
L12	100.00	N45°45'00"W
L13	100.00	N45°45'00"W
L14	100.00	N45°45'00"W
L15	100.00	N45°45'00"W
TOTAL	1400.00	
AREA (SF)	1400.00	
AVG. SLOPE (%)	21.8	

TOPOGRAPHIC INFORMATION AND LOT LINES ARE SHOWN FOR REFERENCE ONLY. THIS MAP AND CITY OF BERKELEY'S MAPPING AND RECORDS DIVISION HAS BEEN PREPARED AS A GUIDE TO PROVIDE PLANNERS WITH AN INDICATION OF THE GENERAL CONDITIONS AND AVERAGE SLOPES OF THESE AREAS. INVESTIGATORS SHOULD ASSUME NO LIABILITY FOR SUCH VARIANCES.



## REPORT

**GEOTECHNICAL ENGINEERING INVESTIGATION  
PROPOSED OFFHAUL AND EMBANKMENT SITE  
EAST OF BULLOCK RESIDENCE SITE  
ALAMEDA DE LAS PULGAS  
SAN CARLOS, CALIFORNIA**

Prepared for

**BLACK MOUNTAIN DEVELOPMENT, LLC**

By

**BVGG**  
**ENGINEERS**

Copyright © June 2010

June 16, 2010

BAGG Job No: BLACK-02-00

Mr. Joe Bullock  
c/o Black Mountain Development, LLC  
975 Industrial Road, Suite A  
San Carlos, California 94070

Attention: Mr. Steven J. Mitchell

**Geotechnical Engineering Investigation**  
Proposed Offhaul and Embankment Site  
East of Bullock Residence Site  
Alameda de Las Pulgas  
San Carlos, California

Dear Mr. Mitchell:

Per your request, this letter presents the results of our geotechnical engineering investigation for the proposed offhaul and fill embankment project located east of the Bullock Residence site in San Carlos, California. The subject project will consist of constructing an embankment on sloping terrain located about 600 feet east and downslope of the planned Bullock residence project, southeast of Coronado Road as shown on the attached Plate 1, Vicinity Map.

## **PROJECT DESCRIPTION**

The planned embankment is expected to contain about 1,000 cubic yards of offhaul material generated from the grading of the Bullock residence site. The embankment will be constructed on a moderately sloping 30,000 ± square foot area and will have a thickness varying from 0 to about 8 feet as indicated on the attached Plate 2, Site Plan. The embankment will have an average gradient of about 8H:1V (horizontal:vertical) with localized areas up to 2H:1V in gradient. Scattered mulch, wood chips, and other organics presently strewn across the embankment site with varying thickness will be stripped and stockpiled adjacent to the new embankment or hauled offsite. No plans other than the currently planned embankment fill are available, however, we understand that it may be desired to utilize the site for future development.

► [www.baggengineers.com](http://www.baggengineers.com)

► phone: 650.852.9133 ► fax: 650.852.9138 ► [info@baggengineers.com](mailto:info@baggengineers.com)  
847 West Maude Avenue, Sunnyvale, California 94085-2911

Our geotechnical engineering services were performed in conformance with BAGG Proposal (No. 10-204). The purpose and scope of our services are discussed below followed by our findings, conclusions, and recommendations.

#### **PURPOSE AND SCOPE OF SERVICES**

The purpose of our services has been to conduct appropriate geotechnical research and reviews, and explore the soil and bedrock conditions at the site to evaluate the slope stability characteristics of the completed embankment and develop geotechnical engineering criteria for the design and construction of the embankment. We accomplished this by drilling 5 soil borings to practical refusal at depths ranging from about 8 to 18 feet deep. Four of the borings were drilled within the planned embankment area, and one was drilled on the existing driveway located along the northeast side of the embankment area as shown on that attached Plate 2, Site Plan. The borings were advanced with a 4-wheel drive truck-mounted drill rig. Soil samples were taken at 3 to 5 foot vertical intervals and tested in our laboratory for shear strength, and other properties as judged appropriate. The borings were backfilled with neat cement grout per standard protocol. Information obtained from these tasks was then used to perform engineering analyses required to develop conclusions, opinions, and recommendations regarding:

- existing soil and groundwater conditions and their potential impact on the project, including loose, soft, or expansive soils, and the depth, type, and consistency of existing fill materials beneath the site;
- recommendations for site grading and embankment construction, including depth to stable material, and allowable slope gradients;
- estimated residual settlements left in existing fill(s), if any, and remedial treatment for existing undocumented fills or potentially unstable soils as deemed appropriate.
- general provisions for the proper control of drainage at the site.

Based on our understanding of the proposed project, the scope of our services consisted of the following specific tasks:

- Research and review pertinent geotechnical and geological maps and reports relevant to the site area, local soil conditions, and the geologic and seismic history of the site and vicinity.
- Visit the site, mark the boring locations, contact Underground Service Alert 72 hours prior to the field investigation. Obtain a drilling permit from San Mateo County Environmental Health Department.
- Drill five exploratory borings at the site with a 4-wheel drive truck-mounted drilling rig to practical refusal at depths ranging from 8 to 18 feet. The exploration was directed by one of our engineers, who also maintained a continuous log of the materials encountered, and collected soil and bedrock samples for laboratory testing. When completed, the borings were sealed with neat cement grout per standard protocol.
- Perform laboratory testing of selected samples of the soils in order to evaluate their engineering characteristics. Tests included direct shear, Atterberg Limits testing, and moisture/density measurements, as judged appropriate.
- Based on information obtained from the above tasks, perform slope stability and other engineering analyses to develop conclusions, opinions, and recommendations oriented toward the above purposes of our investigation.
- Prepare six copies of a letter report summarizing our findings and including a vicinity map, site plan, boring logs, laboratory test results, and slope stability results, as well as our conclusions, opinions, and recommendations for design and construction of the planned embankment.

#### **SITE DESCRIPTION**

The embankment site is irregular in shape with an average length of about 230 feet northeast to southwest and width of about 130 feet. The site has an average gradient, draining to the northeast, of about 7½H:1V, and has localized areas that are as steep as 2½H:1V and 14 feet high. About half the site is covered with wood chips and mulch type materials, over a foot in

thickness in some areas, and the remaining areas are covered mostly with scattered grasses up to 2 feet high. Existing driveways, labeled upper and lower on the attached Plate 11, Cross Section 1-1', are situated along the downhill (northeast) side of the embankment site, and provided access to the Bullock residence site to the east and other properties north and northwest of the site. The northeast edge of the upper driveway is situated on top of a 20 foot high, approximately 1½H:1V slope which drains downslope to the lower driveway. The relatively steep slope has a sparse growth of grass, with clayey sand type soil with traces of rock and brick fragments exposed at the surface; the slope is planted with numerous mature eucalyptus trees. Localized longitudinal cracking was observed on the upper driveway along the northeast side of the site.

Based on a preliminary review of *Geology of the Onshore Part of San Mateo County, California: A digital Database by E.E. Brabb, R.W. Graymer, and D.L. Jones, U.S. Department of the Interior, U.S. Geological Survey, Open File Report 98-137*, the site is underlain with sandstone described as follows:

"Greenish gray to buff, fine to coarse-grained sandstone (greywacke), with interbedded siltstone and shale. Siltstone and shale interbeds constitute less than 20 percent of unit, but in places form sequences as much as several tens of meters thick. In many places, shearing has obscured bedding relations; rock in which shale has been sheared to gouge constitutes about 10 percent of unit. Gouge is concentrated in zones that are commonly less than 30 m wide but in place may be as much as 150 m wide. Total thickness of unit is unknown but is probably at least many hundreds of meters."

## SEISMIC SETTING

The subject site is located in the San Francisco Bay Area, one of the most seismically active urban areas of the world. At least eight major earthquake faults are distributed throughout the San Francisco Bay Area. These northwesterly-trending faults have generated 14 earthquakes of magnitude (M) 6.0 or greater in the region during historical times. The San Andreas fault, which generated the magnitude 7.9 (Mw) San Francisco Earthquake of 1906, is located about

2.6 miles (4.2 km) southwest of the project site. The Monte Vista Shannon Fault is situated about 3.7 miles (6.0 km) to the southeast and also has a potential for producing significant ground shaking at the site. Other known active faults capable of producing significant ground shaking at the site include the San Gregorio and Hayward faults located about 11 miles (18 km) southwest and 16 miles (26 km) northeast of the site, respectively.

Modeled shaking intensity maps (ABAG, 2003) for a magnitude 7.2 to 7.9 on the San Andreas fault indicate that a "Very Strong" shaking severity (Modified Mercalli Intensity VIII) with resulting "Moderate Damage" would likely occur at the site during such events. Seismic events on the Monte Vista Shannon fault and other more distant faults such as the San Gregorio and Hayward faults are expected to have lesser effects. The distances to the major active faults from the project site, the potential moment magnitudes, and their expected shaking intensities for each fault are listed on the following Table 1.

**TABLE 1**  
 Significant Earthquake Scenarios

Fault	Approximate Distance to the Site (kilometers)	Potential Moment Magnitude ( $M_w$ )	Shaking Intensity <sup>3</sup>
San Andreas (Entire)	4.2	7.9 <sup>3</sup>	VIII – Very Strong
San Andreas (Peninsula Segment)	4.2	7.2 <sup>3</sup>	VIII – Very Strong
Monte Vista Shannon	6.0	6.8 <sup>2</sup>	VI – Moderate
San Gregorio	18	7.2 <sup>3</sup>	VI – Moderate
Hayward	26	6.8 <sup>3</sup>	VI – Moderate

1. Association of Bay Area Governments, 2003
2. Working Group on Northern California Earthquake Potential, 1996
3. Working Group on California Earthquake Probabilities, 2003

### SUBSURFACE CONDITONS

The embankment fill area is underlain by roughly 6 to 12 feet of undocumented fill which is underlain by a foot or so of colluvium, which in turn is underlain by sandstone bedrock. The undocumented fill consisted of mostly fat clay with some lean clay and a little sandy soil. Sandy fill, about 4 feet of silty sand underlain by 5 feet of clayey sand), was underlain by sandstone bedrock at boring B-5 drilled on the upper driveway. The remaining areas were observed to contain mostly fat and lean clay material for the fill. The sandstone was very dense and hard as it could only be penetrated with the drill rig not more than 4 feet before refusal conditions were encountered.

### SLOPE STABILITY ANALYSIS

Slope stability analysis was performed utilizing Cross Section 1-1' as shown on the attached Plate 2, Site Plan, under static and seismic conditions. Saturated direct shear testing was performed to help establish the strength of the bedrock, undocumented fill, and slope wash (colluvial) soils as shown on the boring logs. Based on the results of these tests, the strength parameters for the undocumented fill, bedrock, and slope wash were estimated as presented in the following table. Minor amounts of colluvial soil were present between the fill and underlying bedrock, and were given the same strength characteristics as the fill which consisted of very similar clayey soil material. Based on our observations of a bulk sample of the sandstone material from the Bullock Residence site to the east, and our experience, we conservatively estimated a 35 degree angle of internal friction, 0 psf cohesion for the exported bedrock material when compacted to a minimum 90 percent relative compaction.

**TABLE 3**  
**SUMMARY OF SLOPE STABILITY ANALYSIS RESULTS**

Material	Moist Unit Weight (pcf)	Angle of Internal Friction (degrees)	Cohesion (psf)
Sandstone	145	40	600
Undocumented Fill and Colluvium (slope wash)	130	26	0
Engineered Fill	135	35	0



Groundwater was not encountered in any of the borings advanced to a maximum refusal depth of 18 feet with relatively dry soil and shallow bedrock conditions throughout the site. Based on the observed conditions, we noted that an acre or so of runoff for undeveloped sloping terrain above site; therefore, the groundwater table was conservatively assumed to be at a depth of 5 feet below the ground surface.

The relative stability of the site slopes was evaluated with the conventional method of limit equilibrium stability analysis. The method calculates factors of safety against sliding using circular arc failure surfaces. The computer program PCSTABL developed by Purdue University in 1988, was used to perform the stability analysis. Our analysis used the Bishop Method, which is based on vertical equilibrium of the individual slices, into which the soil mass above the failure surface is divided, and on overall moment equilibrium. Various trial failure surfaces are analyzed in this manner until a minimum factor of safety is obtained. Based on the noted soils and bedrock strength parameters, assumed groundwater depth of about 5 feet, and the geometry shown on Plate 13, the results of our slope stability analyses yielded a static safety factor of 1.99 (without significant remedial grading). The results of this static stability analysis is presented on Plate 14.

#### **SEISMIC SLOPE STABILITY ANALYSIS**

Earthquake Engineering Research Institute has developed a screen analysis procedure for seismic slope stability (Stewart, Blake, and Hollingsworth, 2003), that takes into account local variations in the seismicity as presented by the earthquake magnitude, as well as the distance from the fault that most significantly contribute to the ground motion hazard at the site. The screen procedure is based on a statistical relationship previously developed by Bray and Rathji (1998) between seismic slope displacement ( $u$ ), peak amplitude of shaking in the slide mass ( $k_{max}$ ), significant duration of shaking ( $D_{5-95}$ ), and the ratio of slope resistance to peak demand ( $k_y/k_{max}$ , where  $k_y$  is the yield acceleration, or the horizontal acceleration required to reduce the safety factor to unity). A tolerable seismic slope displacement ( $u$ ) for an area that

would support a habitable structure is generally about 5 cm. A displacement of 15 cm is generally acceptable for undeveloped areas or non-habitable structures. The screen is formulated to separate sites expected to undergo small to negligible slope deformation from sites where larger and more damaging slope movements are likely. A safety factor of 1 is the minimum required for passing the screen. The slope screening procedure is outlined in the publication titled *Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Landslide Hazards in California*, prepared by Southern California Earthquake Center (SCEC) and dated June 2002.

Using the slope screen procedure, a pseudo-static coefficient of 0.26g was estimated to represent a 5 cm slope deformation, and a value of 0.20g was estimated to represent the 15 cm displacement. The results of our analyses yielded a seismic safety factor of 1.00 for the 0.20g (15 cm displacement) case as shown on the attached Plate 15; however, a 0.90 safety factor was obtained using the 0.26g (5 cm displacement) case. Based on these results, the embankment could be constructed without significant remedial treatment provided no future developments are planned on the embankment area. We re-analyzed the stability of the site with a buttress fill, about 15 to 20 feet deep with a minimum 20 foot width at the base, constructed adjacent to the uphill side of the upper driveway as shown on Plate 13. The revised analysis resulted in acceptable static and seismic safety factors of 2.43 and 1.07, respectively, assuming the buttress is constructed of compacted sandstone spoils from the Bullock residence site. The results of these analyses are presented on Plates 16 and 17. A discussion of the recommended remedial grading for the project is presented below.

#### **REMEDIAL GRADING**

The extent of remedial grading for the project will be dictated by the intended future use of the embankment fill area. If a future development is desired at the site, then a buttress fill that extends through the existing fill and into the underlying bedrock will be necessary. If no future development is desired or if only non-habitable structures are planned, then the buttress fill

may be reduced to a relatively shallow, narrower base key founded in stiff existing fill material. The extent of the overexcavations for these two options is shown on the attached Plate 13.

The grading procedures listed below should be followed in areas to receive fill, pavements, concrete slabs, or flatwork:

- Following cleaning and grubbing, strip the site surface of organic material and stockpile the strippings for later disposal at an off-site location or for use in landscaping areas only. The depth of stripping may be as deep as 2 feet and should be verified by the soil engineer in the field.
- In general, fill slopes should be designed and constructed at a maximum gradient of 2:1 (horizontal to vertical) when sandstone spoils are used, and 3:1 if on-site clayey soil is used. Fill slopes should be constructed by overfilling and cutting the slope back to final grades. "Track walking" of a slope to achieve compaction is not an acceptable procedure for slope construction.
- The finish slope and finish graded surfaces should be protected from erosion by planting deep-rooted fast-growing vegetation or by installing erosion control fabric. Erosion control should be the responsibility of the contractor performing the work.
- If it is desired to develop the embankment fill area in the future, the lower portion of the embankment should be initiated on a base key excavated at least 20 feet wide and at least 1 foot into the undisturbed bedrock as approved by the Geotechnical Engineer as shown on Plate 13. The estimated depth of excavation for the base key is on the order of about 10 to 15 feet below the existing ground surface. Subsequent benches should be 8 feet wide or wider, cut into the existing fill and sloped into the hillside 2 percent or more. Existing fill, uphill of the base key, may remain in-place subject to approval by this office. If excessive organics, over-size debris, and/or loose material are encountered, then recommendations for additional overexcavation of the existing fill will be made by this office at that time. Benches that support subdrains should slope into the hillside 5 percent or more. The vertical faces associated with slope benches above the toe keys should be no more than 3 to 5 feet high and should be excavated into competent material as approved in the field by this office.

- A subdrain should be included along the heel of the base key as shown on the attached Plate 13. Additionally, a subdrain should be included within the top 10 feet of the embankment fill on the uphill side. The subdrain should consist of a minimum 4-inch diameter perforated pipe (holes facing down) surrounded by a minimum 1-foot wide by 3-foot high envelope of ¾-inch drainrock encapsulated in filter fabric (Mirafi 140N or approved equivalent). Filter fabric may be omitted if Caltrans Class 2 permeable material is used in lieu of the ¾-inch drain rock. The subdrain should drain via gravity flow to an underground solid pipe which connects to an approved discharge point.
- Excavated surfaces that will receive engineered fill should be scarified to depths of 6 to 8 inches, moisture conditioned to not less than optimum moisture content, and compacted to a minimum of 90 percent relative compaction based on the ASTM D1557 laboratory test method. Further over-excavate as necessary any area still containing weak and/or yielding (pumping) soils, as determined in the field by the Geotechnical Engineer.
- Place fill more or less horizontally on the over-excavated surfaces in uniformly moisture conditioned and compacted lifts not exceeding 8 inches in loose thickness. Rocks or cobbles larger than 4 inches in maximum dimensions should not be allowed to remain within the foundation areas, unless they can be crushed in-place by the construction equipment.

The on-site soils are generally suitable for use as structural fill provided they are mixed with sandstone surplus from the Bullock site at a ratio of no more than 1 part clayey soil to 1 part sandstone spoils; however, the backfill of the keyways should consist entirely of compacted sandstone spoils.

It must be the Contractor's responsibility to select equipment and procedures that will accomplish the grading as described above. The Contractor must also organize his work in such a manner that one of our field representatives can observe and test the grading operations, including clearing, excavation, compaction of fill and backfill, and compaction of subgrades.

The grading contractor should also have the subdrain pipe surveyed so that an as-built subdrain plan can be drafted and made available for future developments. This will enable future excavations, (ie, pier drilling, utility trenching, basement excavations, etc.) to be planned and performed in a manner that does not damage the subdrain.

## **CLOSURE**


This letter report has been prepared in accordance with generally-accepted engineering practices for the strict use of Black Mountain Development, LLC., and other professionals associated with the specific project described in this report. The recommendations presented in this report are based on our understanding of the proposed construction as described herein, and upon soil conditions encountered in the exploratory borings drilled at the site, and available geologic literature.

The conclusions and recommendations presented in this report are based on 5 widely spaced borings, limited laboratory testing, and a review of available geotechnical and geologic literature pertaining to the project site. It is not uncommon for unanticipated conditions to be encountered during site earthwork operations. The recommendations contained in this report are therefore contingent upon the review of the final grading, drainage, and improvement plans by this office, and upon geotechnical observation and testing by BAGG of all pertinent aspects of site stripping and grading operations.


Subsurface conditions and standards of practice change with time. Therefore, we should be consulted to update this report, if the construction does not commence within 18 months from the date this report is submitted. Additionally, the recommendations of this report are only valid for the proposed project described herein. If the proposed project is modified, our recommendations should be reviewed and approved or modified by this office in writing.

We trust this report provides you with the information required at this time. Please do not hesitate to contact us if you have questions or comments.

Very truly yours,  
**BAGG Engineers**

  
Michael G. Matusich  
Project Engineer  
CE 62536, Exp. 12/31/10



  
Jason Van Zwol *For*  
Chief Engineer

MGM/as/jvz/sd  
Distribution: 6 copies to addressee

**Attachments:**

- |              |                                     |
|--------------|-------------------------------------|
| Plate 1      | Vicinity Map                        |
| Plate 2      | Site Plan                           |
| Plate 3      | Unified Soil Classification System  |
| Plate 4      | Soil Terminology                    |
| Plate 5      | Rock Terminology                    |
| Plate 6      | Boring Log Notes                    |
| Plate 7      | Key to Symbols                      |
| Plates 8-12  | Boring Logs                         |
| Plate 13     | Cross Section 1-1'                  |
| Plates 14-17 | Results of Slope Stability Analyses |



**PROPOSED OFFHAUL/EMBANKMENT SITE  
EAST OF BULLOCK RESIDENCE SITE  
ALAMEDA DE LAS PULGAS  
SAN CARLOS, CALIFORNIA**

**VICINITY MAP**

DATE:  
June 2010

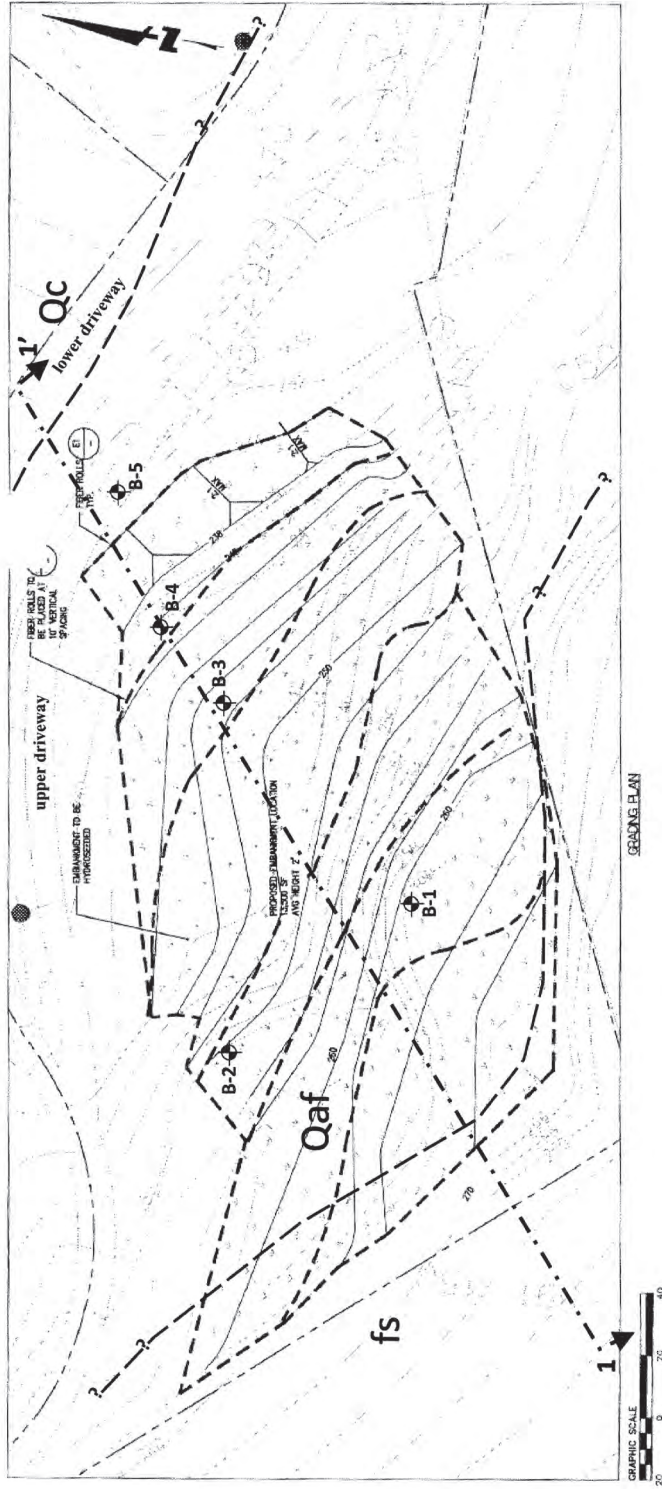
JOB NUMBER:  
BLACK-02-00

PLATE  
1

**Qaf** Fill, mostly fat clay (CH), some lean clay (CL), and some clayey and silty sands (SC and SM)

**fs** Greywacke sandstone locally interbedded with siltstone and shale

**Qc** Colluvial or slope wash material, mostly fine grained CL to CH type material (contains patches of fill)



☛ BORING LOCATIONS (BAGG, May 19, 2010)

---?--- GEOLOGIC CONTACT; dashed where approximate; queried where uncertain

▲ CROSS SECTION; used in Plate 13 to illustrate remedial grading recommendations; and Plates 14 through 17 for slope stability analyses

NOTE: Locations are approximate

Base Map: ARNN GORDON GREINER, INC.

**PROPOSED OFFHAUL/EMBANKMENT SITE  
EAST OF BULLOCK RESIDENCE SITE  
ALAMEDA DE LAS PULGAS  
SAN CARLOS, CALIFORNIA**

**SITE PLAN**

JOB NO.  
BLACK-02-00

SCALE:  
1' = 40"

DATE:  
June 2010

PLATE  
2



**COARSE-GRAINED SOILS**

LESS THAN 50% FINES\*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
GW	Well graded gravel Well graded gravel with sand	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size
GP	Poorly graded gravel Poorly graded gravel with sand	
GM	Silty gravel Silty gravel with sand	
GC	Clayey gravel Clayey gravel with sand	
SW	Well graded sand Well graded sand with gravel	SANDS More than half of coarse fraction is smaller than No. 4 sieve size
SP	Poorly graded sand Poorly graded sand with gravel	
SM	Silty sand Silty sand with gravel	
SC	Clayey sand Clayey sand with gravel	

**FINE-GRAINED SOILS**

MORE THAN 50% FINES\*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
CL	Lean clay Sandy lean clay with gravel	SILTS AND CLAYS liquid limit less than 50
ML	Silt Sandy silt with gravel	
OL	Organic clay Sandy organic clay with gravel	
CH	Fat clay Sandy fat clay with gravel	SILTS AND CLAYS liquid limit more than 50
MH	Elastic silt Sandy elastic silt with gravel	
OH	Organic clay Sandy organic clay with gravel	
PT	Peat Highly organic silt	HIGHLY ORGANIC SOIL

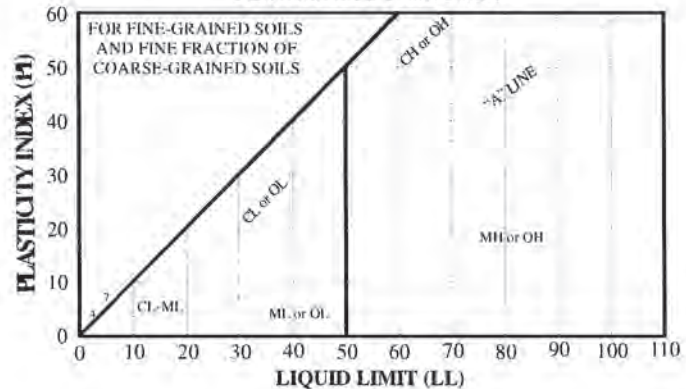
NOTE: Coarse-grained soils receive dual symbols if:  
 (1) their fines are CL-ML (e.g. SC-SM or GC-GM) or  
 (2) they contain 5-12% fines (e.g. SW-SM, GP-GC, etc.)

NOTE: Fine-grained soils receive dual symbols if their limits in the hatched zone on the Plasticity Chart (L-M)

**SOIL SIZES**

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 in.
COBBLES	3 in. to 12 in.
GRAVEL	No. 4 to 3 in.
Coarse	¾ in to 3 in.
Fine	No. 4 to ¾ in.
SAND	No. 200 to No.4
Coarse	No. 10 to No. 4
Medium	No. 40 to No. 10
Fine	No. 200 to No. 40
*FINES:	BELOW No. 200

**PLASTICITY CHART**



NOTE: Classification is based on the portion of a sample that passes the 3-inch sieve.

Reference: ASTM D 2487-06, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

**GENERAL NOTES:** The tables list 30 out of a possible 110 Group Names, all of which are assigned to unique proportions of constituent soils. Flow charts in ASTM D 2487-06 aid assignment of the Group Names. Some general rules for fine grained soils are: less than 15% sand or gravel is not mentioned; 15% to 25% sand or gravel is termed "with sand" or "with gravel", and 30% to 49% sand or gravel is termed "sandy" or "gravelly". Some general rules for coarse-grained soils are: uniformly-graded or gap-graded soils are "Poorly" graded (SP or GP); 15% or more sand or gravel is termed "with sand" or "with gravel", 15% to 25% clay and silt is termed clayey and silty and any cobbles or boulders are termed "with cobbles" or "with boulders".

**UNIFIED SOIL CLASSIFICATION SYSTEM**

**SOIL TYPES (Ref 1)**

<b>Boulders:</b>	particles of rock that will not pass a 12-inch screen.
<b>Cobbles:</b>	particles of rock that will pass a 12-inch screen, but not a 3-inch sieve.
<b>Gravel:</b>	particles of rock that will pass a 3-inch sieve, but not a #4 sieve.
<b>Sand:</b>	particles of rock that will pass a #4 sieve, but not a #200 sieve.
<b>Silt:</b>	soil that will pass a #200 sieve, that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry.
<b>Clay:</b>	soil that will pass a #200 sieve, that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when dry.

**MOISTURE AND DENSITY**

<b>Moisture Condition:</b>	an observational term; dry, moist, wet, or saturated.
<b>Moisture Content:</b>	the weight of water in a sample divided by the weight of dry soil in the soil sample, expressed as a percentage.
<b>Dry Density:</b>	the pounds of dry soil in a cubic foot of soil.

**DESCRIPTORS OF CONSISTENCY (Ref 3)**

<b>Liquid Limit:</b>	the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.
<b>Plastic Limit:</b>	the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.
<b>Plasticity Index:</b>	the difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

**MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Ref's 2 & 3)**

<b>Very Soft</b>	N=0-1*	C=0-250 psf	Squeezes between fingers
<b>Soft</b>	N=2-4	C=250-500 psf	Easily molded by finger pressure
<b>Medium Stiff</b>	N=5-8	C=500-1000 psf	Molded by strong finger pressure
<b>Stiff</b>	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
<b>Very stiff</b>	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
<b>Hard</b>	N>30	C>4000 psf	Dented slightly by a pencil point

\*N=blows per foot in the Standard Penetration Test. In cohesive soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 1.2 to get N (Ref 4).

**MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS, AND SILTS) (Ref's 2 & 3)**

<b>Very Loose</b>	N=0-4**	RD=0-30	Easily push a ½-inch reinforcing rod by hand
<b>Loose</b>	N=5-10	RD=30-50	Push a ½-inch reinforcing rod by hand
<b>Medium Dense</b>	N=11-30	RD=50-70	Easily drive a ½-inch reinforcing rod
<b>Dense</b>	N=31-50	RD=70-90	Drive a ½-inch reinforcing rod 1 foot
<b>Very Dense</b>	N>50	RD=90-100	Drive a ½-inch reinforcing rod a few inches

\*\*N=Blows per foot in the Standard Penetration Test. In granular soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 2 to get N (Ref 4).

XX

- Ref 1: ASTM Designation: D 2487-06, **Standard Classification of Soils for Engineering Purposes** (Unified Soil Classification System).
- Ref 2: Terzaghi, Karl, and Peck, Ralph B., **Soil Mechanics in Engineering Practice**, John Wiley & Sons, New York, 2nd Ed., 1967, pp. 30, 341, and 347.
- Ref 3: Sowers, George F., **Introductory Soil Mechanics and Foundations: Geotechnical Engineering**, Macmillan Publishing Company, New York, 4th Ed., 1979, pp. 80, 81, and 312.
- Ref 4: Lowe, John III, and Zaccheo, Phillip F., **Subsurface Explorations and Sampling**, Chapter 1 in "Foundation Engineering Handbook," Hsai-Yang Fang, Editor, Van Nostrand Reinhold Company, New York, 2<sup>nd</sup> Ed, 1991, p. 39.

**SOIL TERMINOLOGY**



**GENERAL NOTES FOR BORING LOGS:**

The boring logs are intended for use only in conjunction with the text, and for only the purposes the text outlines for our services. The Plate "Soil Terminology" defines common terms used on the boring logs.

The plate "Unified Soil Classification System," illustrates the method used to classify the soils. The soils were visually classified in the field; the classifications were modified by visual examination of samples in the laboratory, supported, where indicated on the logs, by tests of liquid limit, plasticity index, and/or gradation. In addition to the interpretations for sample classification, there are interpretations of where stratum changes occur between samples, where gradational changes substantively occur, and where minor changes within a stratum are significant enough to log.

There may be variations in subsurface conditions between borings. Soil characteristics change with variations in moisture content, with exchange of ions, with loosening and densifying, and for other reasons. Groundwater levels change with seasons, with pumping, from leaks, and for other reasons. Thus boring logs depict interpretations of subsurface conditions only at the locations indicated, and only on the date(s) noted.

**SPECIAL FIELD NOTES FOR THIS REPORT:**

1. The borings were drilled on May 19, 2010 with a 17-ton 4-wheel drive drill rig using 8-inch diameter hollow stem augers. The rig has maximum pull-down and pull-up forces of 4,000 and 6,500 pounds, respectively, and a maximum torque of 3,200 ft-lbs. The drill cuttings were left on site and the borings were backfilled with neat cement grout upon the completion of drilling.
2. The boring locations were approximately located by pacing from known points on the site, as shown on Plate 2, Site Plan. The boring elevations were estimated from the site topographic map.
3. The soils' Group Names [e.g. SANDY LEAN CLAY] and Group Symbols [e.g. (CL)] were determined or estimated per ASTM D 2487-06, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System, see Plate 3). Other soil and bedrock engineering terms used on the boring log are defined on Plate 4, Soil Terminology, and on Plate 5, Rock Terminology.
4. The "Blow Count" Column on the boring logs indicates the number of blows required to drive the sampler below the bottom of the boring, and the blow counts given are for each 6 inches of sampler penetration. The samples from the boring were driven with a 140-pound hammer.
5. Groundwater was not encountered in the borings drilled for this investigation. Groundwater levels tend to fluctuate seasonally.
6. The symbol "DSX" denotes a direct shear test on an undisturbed sample at artificially increased moisture content. The tabulated strength values on the boring logs are yield point values, or the strength measured when the material begins to deform plastically.
7. The symbol "LL" and "PI" denotes Liquid Limit and Plasticity Index.

**BORING LOG NOTES**



## KEY TO SYMBOLS

Symbol Description

### Strata symbols



High plasticity (fat) clay



Sandstone



Clayey sand



Organics



Lean clay



Paving



Silty sand

### Soil Samplers



Modified California Sampler:  
2.375" ID by 3" OD, split-barrel  
sampler driven w/ 140-pound  
hammer falling 30" (ASTM D 3550-01)



Standard Penetration Test:  
1 3/8" ID by 2" OD, split-spoon  
sampler driven with 140-pound  
hammer falling 30" (ASTM D 1586-99)

### Line Types



Denotes a sudden, or well  
identified strata change



Denotes a gradual, or poorly  
identified strata change

DSX

Denotes direct shear test performed on a sample  
that had been submerged in water (ASTM D2166-  
06)

Symbol Description

LL Denotes Liquid Limit per ASTM D4318-05

PL Denotes Plastic Limit per ASTM D4318-05

PI Denotes Plasticity Index per ASTM D4318-05



# BORING LOG

Boring No. B-1

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 8-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 262 feet ±  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX	320	14.4	350	7.6	118	0		CH	FAT CLAY, dark brown, moist, very stiff, some gravel and sand, trace yellow brown mottling; color change to yellow brown at 2 feet	2 to 3-foot tall grass and weeds a surface 9.3% swell FILL
DSX	500	16.2	780	14.6	108.8	4			...color change to dark gray, trace rootlets, trace fine gravel	9.3% swell LL=55 PI=42
DSX	1000	7.9	1700	5.8	142.6	8		rock	SANDSTONE, light yellow brown, moderately to highly weathered, friable, fine grained	NATIVE 1.4% consol
						12			Practical refusal encountered at 11½ feet. Groundwater was not encountered. Boring was backfilled with neat cement grout.	
						16				
						20				
						24				



# BORING LOG

Boring No. B-2

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 8-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 252 feet ±  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX	320	11.1	235	5.0	122.9	0		SC	CLAYEY SAND, yellow brown, moist, medium dense, some gravel up to 2-inch size, trace rootlets and dark mottling	1 to 2-foot high grass and weeds at surface 7.0% swell FILL
DSX	600	12.8	350	11.5	120.7	4			...very moist, medium dense to loose	1.8% consol
						8		rock	SANDSTONE, light yellow brown, moderately to highly weathered, friable to weak	NATIVE
						12			Boring was terminated at 8 feet. Groundwater was not observed. Boring was backfilled with neat cement grout.	
						16				
						20				
						24				



# BORING LOG

Boring No. B-3

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 8-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 245 feet ±  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				11.7	116.7	0		SC	ORGANICS: mostly fine wood chips, some grass and weeds, trace sandy soil	FILL
DSX	700	17.9	700	16.2	109.4	4		CL	CLAYEY SAND, yellow brown, moist, medium dense, trace gravel, trace dark mottling and rootlets; highly organic from 1/2 to 1 foot	5.5% swell
DSX	1200	8.7	1800	7.2	132.7	8		rock	SANDSTONE, yellow brown, intensely weathered, highly friable, moist	NATIVE 1.0 % consol
						12			...very difficult drilling below 11 1/2 feet	
						16			Boring was terminated at 12 1/2 feet Groundwater was not encountered. Boring was backfilled with neat cement grout.	
						20				
						24				





# BORING LOG

Boring No. B-4

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 8-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 240  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			ORGANICS: Mostly fine wood chips, some leaf/twig matter	
						4		CL	LEAN CLAY, yellow brown, moist, stiff, some silt and sand, trace gravel, trace wood chips	FILL
DSX	800	20.2	800	18.3	106.0	5 11 15				5.6% swell
						8		CH	FAT CLAY, dark gray, moist, very stiff, sandy, trace light mottling, trace rootlets (fill)	
DSX	1400	12.9	830	10.2	120.3	11 22 30				4.8% swell
						16		rock	SANDSTONE, yellow brown, intensely weathered, friable	NATIVE
						20			Practical refusal was encountered at 18 feet. No groundwater was encountered. Boring was backfilled with neat cement grout.	
						24				



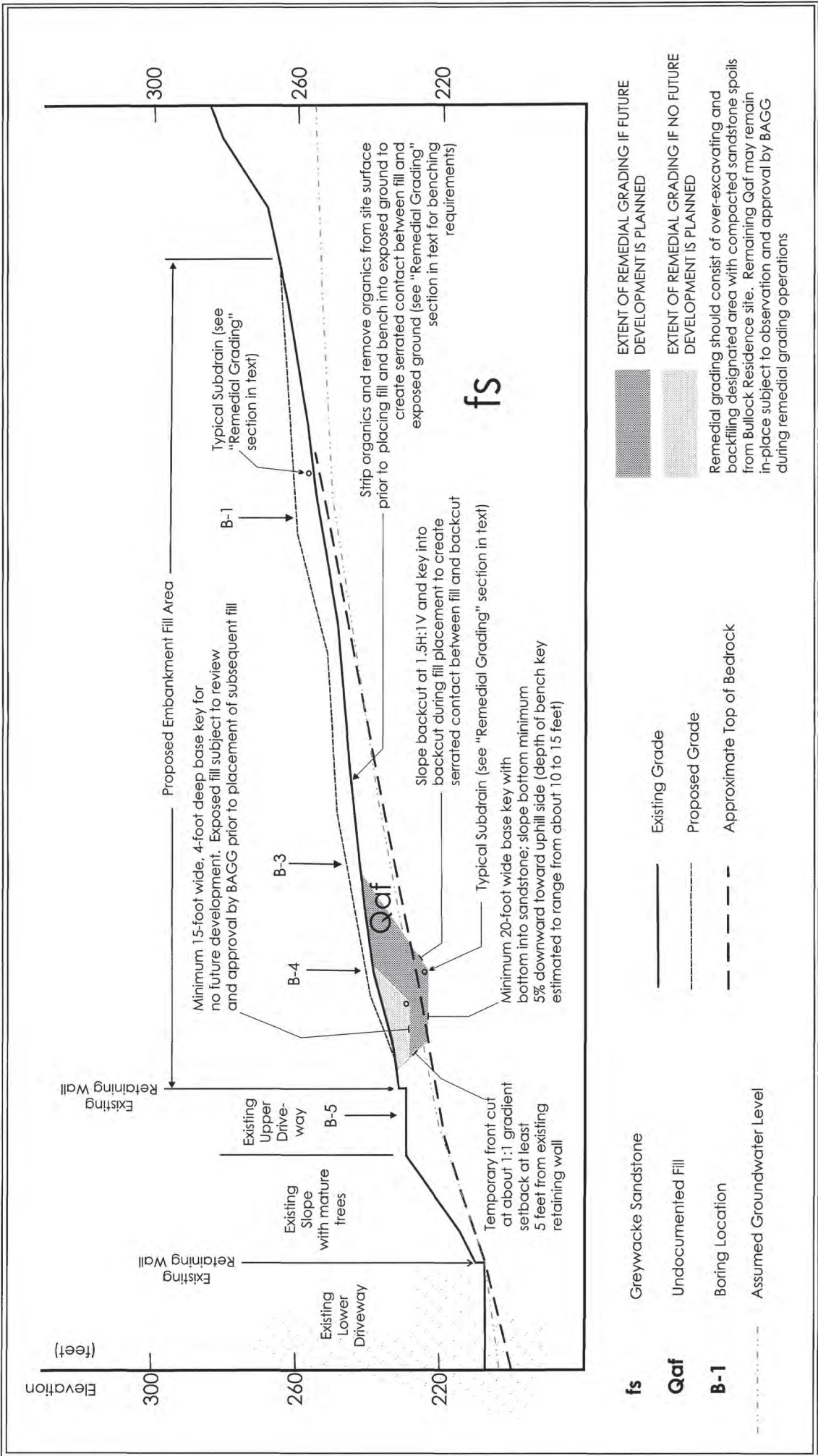
# BORING LOG

Boring No. B-5

**JOB NAME:** Bullock Residence Embankment/Offhaul Site  
**CLIENT:** Black Mountain Properties, LLC  
**LOCATION:** East of Bullock Residence Site  
**DRILLER:** Exploration Geoservices, Inc.  
**DRILL METHOD:** 6-inch diameter Hollow Stem Auger

**JOB NO.:** BLACK-02-00  
**DATE DRILLED:** 5/19/10  
**ELEVATION:** 230 feet ±  
**LOGGED BY:** MM  
**CHECKED BY:**

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				7.2	121.5	0		SM	ASPHALTIC CONCRETE (± 5 inch thick)	FILL
DSX	500	13.3	340	8.5	117.6	4		SC	SILTY SAND, yellow brown, moist, medium dense, trace gravel and clay lumps, some roots, trace dark mottling	2.6% swell
				8.4	126.0	8			CLAYEY SAND, gray brown with yellow brown mottling, trace fine gravel and rootlets	
DSX	1100	10.9	1300	8.0	129.6	8		rock	SANDSTONE, light yellow brown, intensely weathered, friable, fine grained.	1.0% consol NATIVE
DSX	2000	9.7	2300	7.0	133.4	8				1.3% consol
DSX	4000	8.7	4710			8				1.5% consol
						12				
						16				
						20				
						24				
						13 1/2			Practical refusal was encountered 13 1/2 feet	



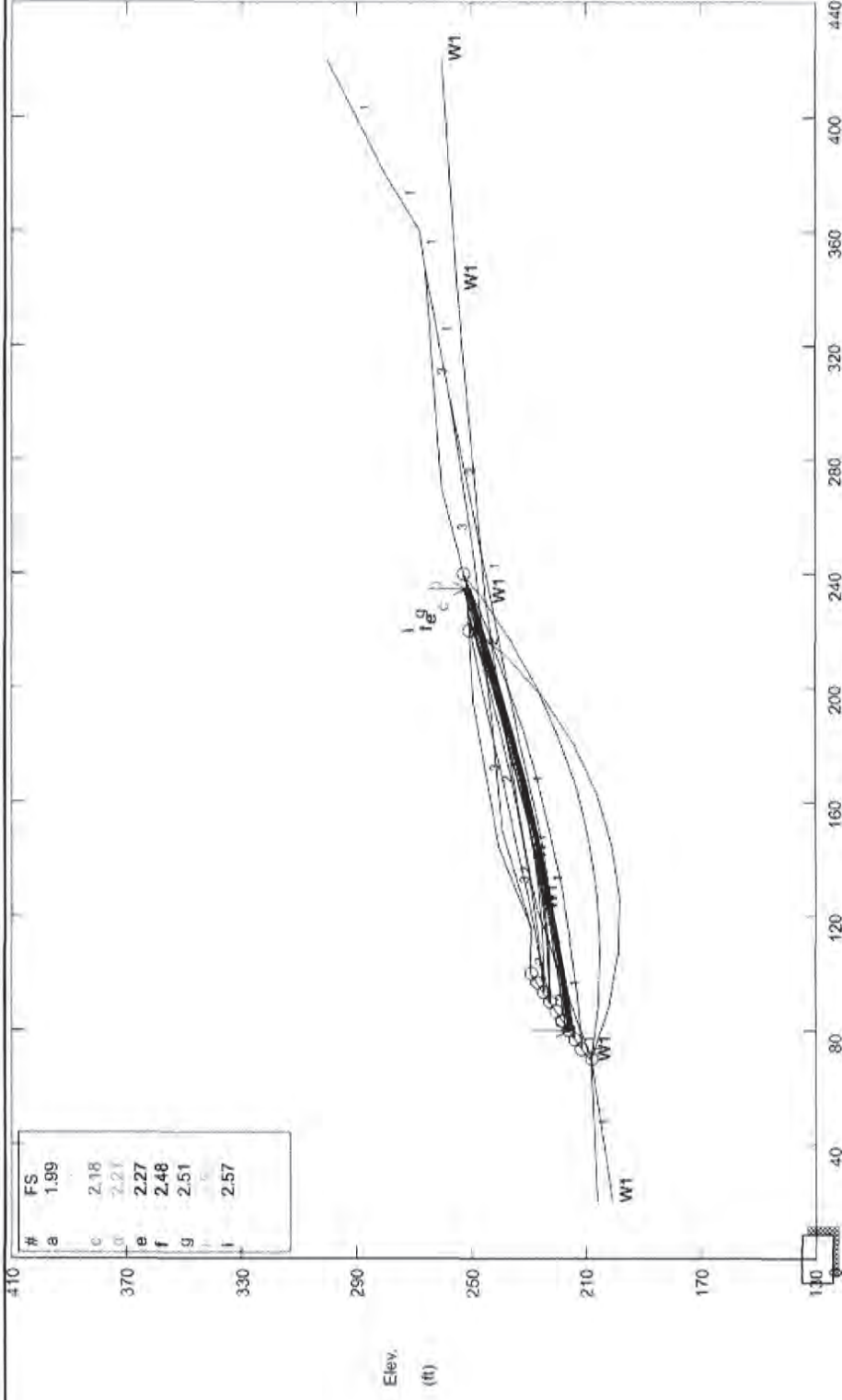
**PROPOSED OFFHAUL/EMBANKMENT SITE**  
**EAST OF BULLOCK RESIDENCE SITE**  
**ALAMEDA DE LAS PULGAS**  
**SAN CARLOS, CALIFORNIA**

**BAGG ENGINEERS**

**CROSS SECTION 1-1'**

JOB NO. BLACK-02-00	SCALE as indicated	DATE June 2010	PLATE 13
------------------------	-----------------------	-------------------	-------------

**NOTES:**  
Over-excavated spoils may be mixed with sandstone spoils and used as engineered fill outside of the over-excavation provided they are free of excessive organics and rock fragments greater than 4 inches largest dimension.  
Organic Shippings may be stockpiled on upper portion of slope (uphill of B-1) once grading has been completed. Recommendations may require adjustment based on actual subsurface conditions exposed during site grading operations.



STABLEH FSmin=1.99 X-Axis(ft)

Soil Type No./Label	Total UnitWt. (pcf)	Saturated UnitWt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1 fs	130	130	0	40	0	0	W1
2 Oat(u)	130	130	0	26	0	0	W1
3 Oat(e)	130	130	0	35	0	0	W1

**EXPORT/EMBANKMENT SITE  
EAST OF BULLOCK RESIDENCE  
CORONADO AVENUE  
SAN CARLOS, CALIFORNIA**

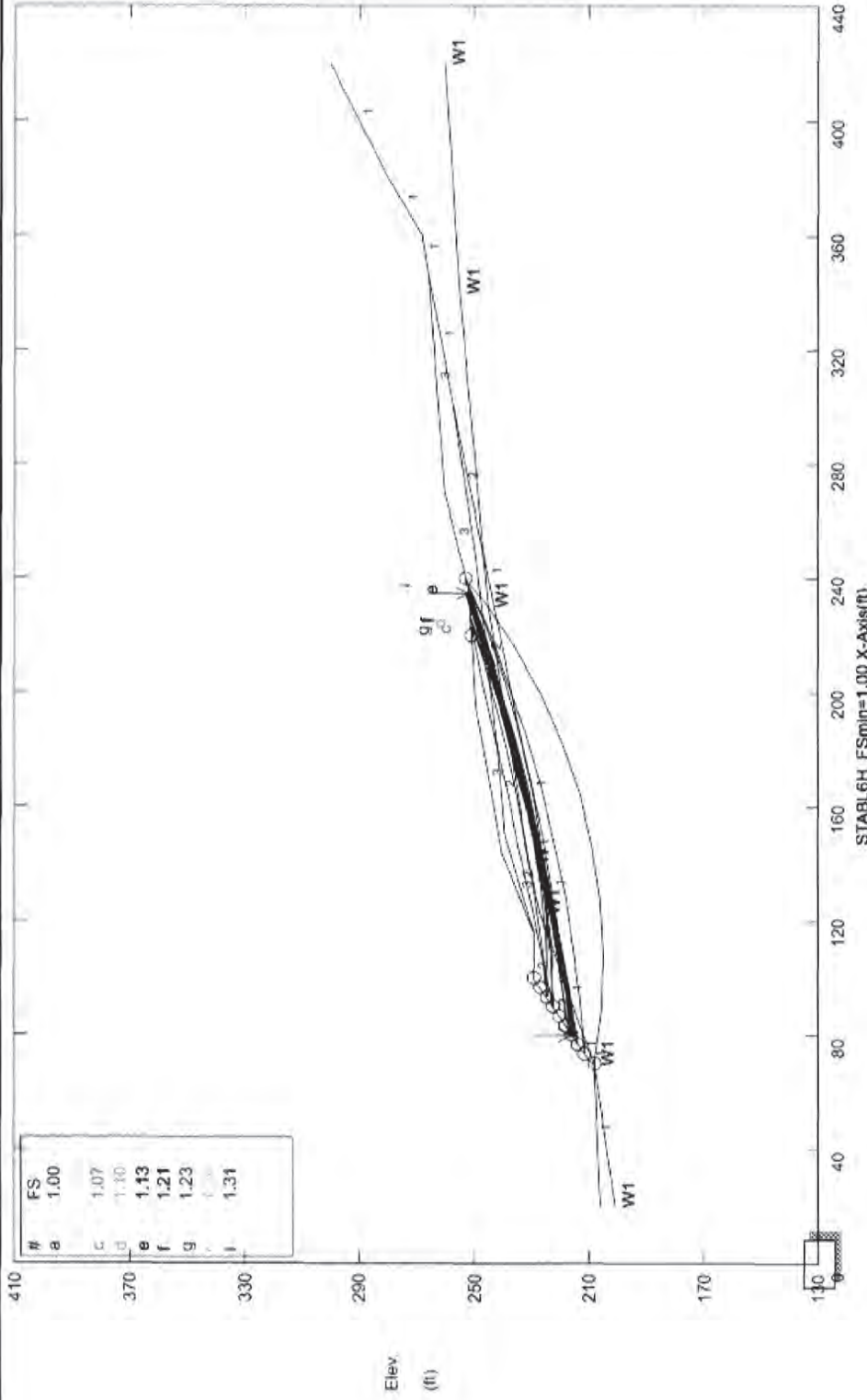


**RESULTS OF STATIC SLOPE STABILITY  
ANALYSIS (un-fixed)**

DATE:  
JUNE 2010

JOB NUMBER:  
BLACK-02-00

PLATE 14



Soil Type No. Label	Total UnitWt. (pcf)	Saturated UnitWt. (pcf)	cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1 fs	130	130	0	40	0	0	W1
2 Qa(f(u)	130	130	0	26	0	0	W1
3 Qa(f(e)	130	130	0	35	0	0	W1

**RESULTS OF SEISMIC SLOPE STABILITY ANALYSIS (k=0.20g)**

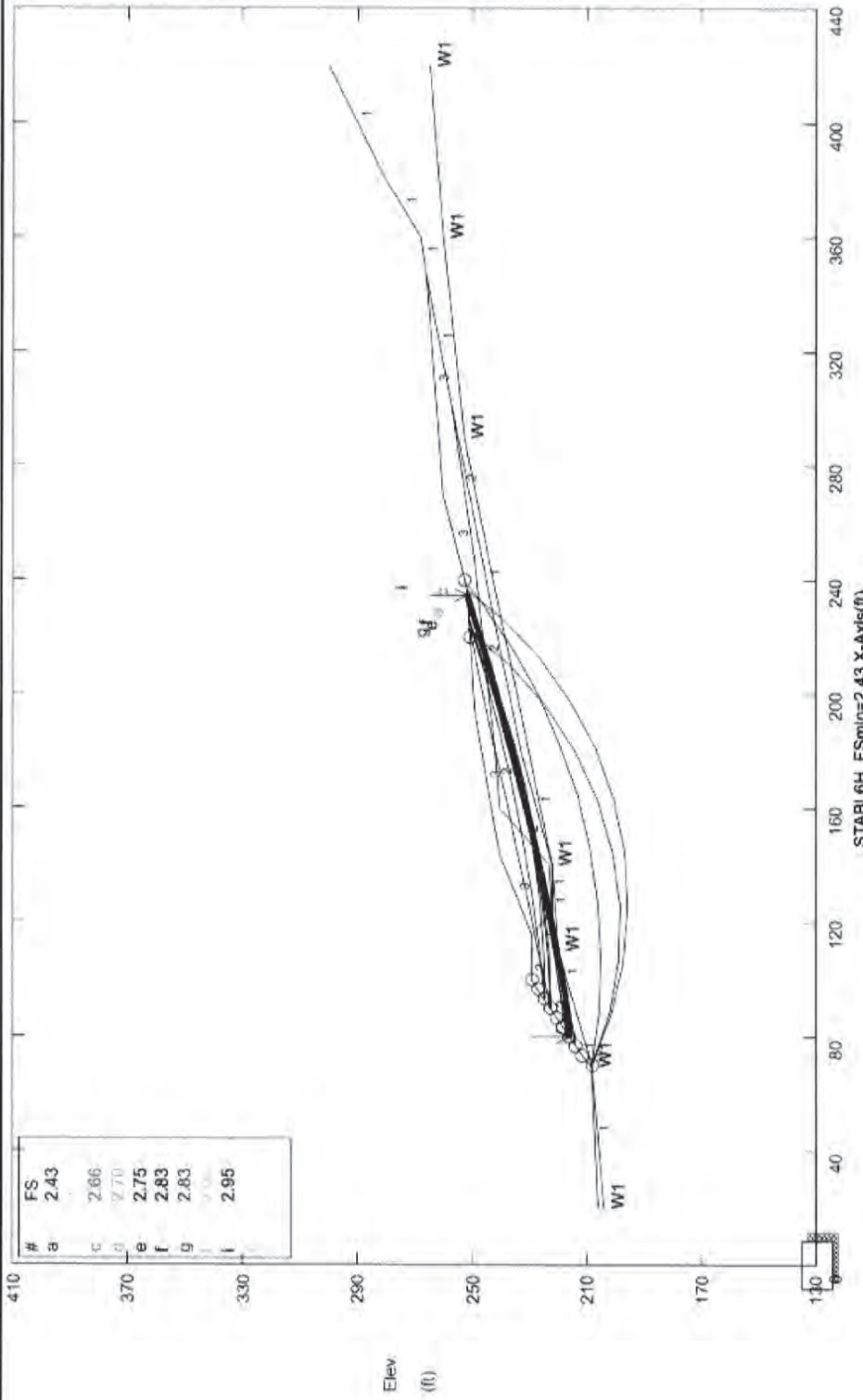
DATE: JUNE 2010

JOB NUMBER: BLACK-02-00

PLATE 15



**EXPORT/EMBANKMENT SITE EAST OF BULLOCK RESIDENCE ALAMEDA DE LAS PULGAS SAN CARLOS, CALIFORNIA**



#	FS
a	2.43
c	2.66
d	2.70
e	2.75
f	2.83
g	2.83
i	2.95

Soil Type No./Label	Total UnitWt. (pcf)	Saturated UnitWt. (pcf)	cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1 fs	130	130	0	40	0	0	W1
2 Qa(fu)	130	130	0	26	0	0	W1
3 Qa(e)	130	130	0	35	0	0	W1

**EXPORT/EMBANKMENT SITE  
EAST OF BULLOCK RESIDENCE  
ALAMEDA DE LAS PULGAS  
SAN CARLOS, CALIFORNIA**



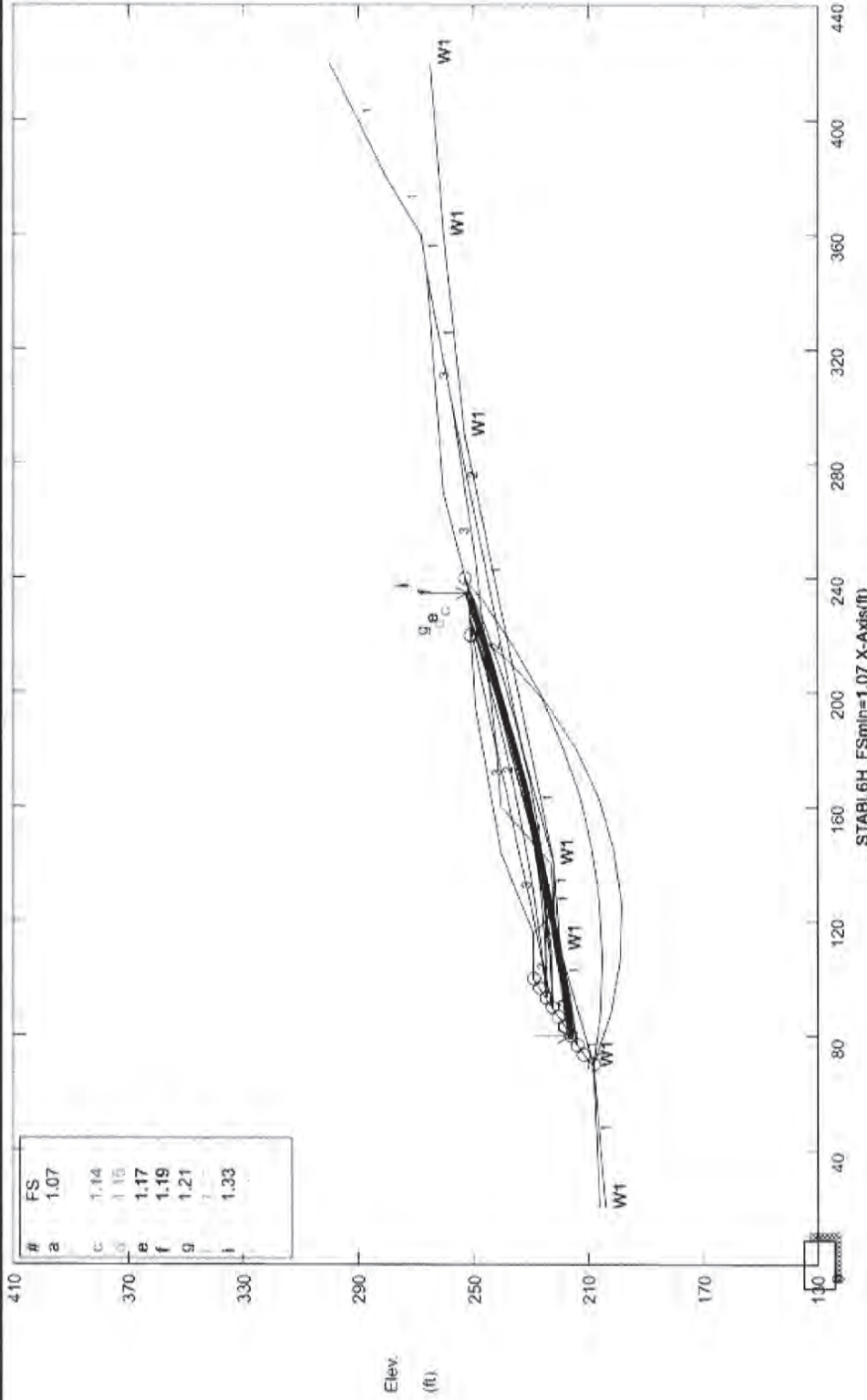
**RESULTS OF STATIC SLOPE STABILITY  
ANALYSIS (WITH REMEDIAL GRADING)**

DATE: JUNE 2010

JOB NUMBER:  
BLACK-02-00

PLATE 16

#	FS
a	1.07
c	1.14
e	1.17
f	1.19
g	1.21
i	1.33



Soil Type No. Label	Total UnitWt. (pcf)	Saturated UnitWt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1 fs	130	130	0	40	0	0	W1
2 Qa1(u)	130	130	0	26	0	0	W1
3 Qa1(e)	130	130	0	35	0	0	W1

**EXPORT/EMBANKMENT SITE  
EAST OF BULLOCK RESIDENCE  
ALAMEDA DE LAS PULGAS  
SAN CARLOS, CALIFORNIA**



**RESULTS OF SEISMIC SLOPE STABILITY  
ANALYSIS (k=0.26g)**

DATE:  
JUNE 2010

JOB NUMBER:  
BLACK-02-00

PLATE 17



# HEALTH SERVICES AGENCY

July 23, 2003

Jack Aiello  
San Carlos Building Department  
600 Elm Street  
San Carlos, CA 94070

**SUBJECT: BUILDING DEPARTMENT NOTIFICATION FOR CASE CLOSURE OF SITE #770062, ONE 500 GALLON WASTE OIL UST AT FORMER SAN CARLOS HIGH SCHOOL, 2800 MELENDY DRIVE, SAN CARLOS, CALIFORNIA**

Dear Mr. Aiello:

The enclosed case closure letter is a result of intensive review by San Mateo County Groundwater Protection Program (GPP) staff. San Mateo GPP staff have determined that the water quality objectives of the San Francisco Bay Regional Water Quality Control Board have been satisfied. However, should any change in use of the property or development of the subject site occur which may impact these soils or groundwater, city building departments must notify the Environmental Health Division for approval pursuant to Government Code Section 65850.2. County oversight costs for management of contaminated soil or groundwater will be billed directly to the current property owner.

Should you have questions, you may reach me at (650) 599-1641. Thank you for your cooperation.

Sincerely,

Patrick Ledesma  
Hazardous Materials Specialist  
Groundwater Protection Program

Enclosure

cc: Mr. Bruce Rollin, Sequoia Unified School District, 480 James Avenue, Redwood City, CA 94062

## PUBLIC HEALTH AND ENVIRONMENTAL PROTECTION DIVISION

Board of Supervisors: Mark Church • Rose Jacobs Gibson • Richard S. Gordon • Jerry Hill • Michael D. Nevin • Health Services Director: Margaret Taylor

455 County Center • Redwood City, CA 94063 • PHONE 650.363.4305 • TDD 650.573.3206 • FAX 650.363.7882

<http://www.smhealth.org>





# HEALTH SERVICES AGENCY

July 23, 2003

Mr. Bruce Rollin  
Sequoia Unified School District  
480 James Avenue  
Redwood City, CA 94062

**SUBJECT: CASE CLOSURE OF SITE #770062, ONE 500 GALLON WASTE OIL UST AT FORMER SAN CARLOS HIGH SCHOOL, 2800 MELENDY DRIVE, SAN CARLOS, CALIFORNIA**

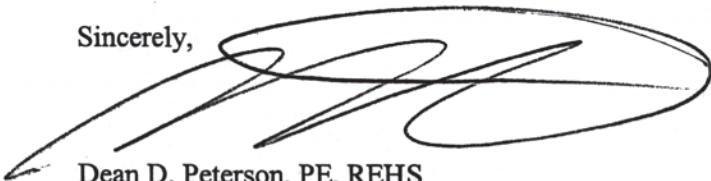
Dear Mr. Rollin:

This letter confirms the completion of site investigation and corrective action for the underground storage tank(s) formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank(s) are greatly appreciated.

Based on the information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivision (a) and (b) or Section 25299-37 of the Health and Safety code and with corrective action regulations adopted pursuant to Section 25299.77 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,



Dean D. Peterson, PE, REHS  
Director, Environmental Health

cc: RWQCB  
SWRCB

## PUBLIC HEALTH AND ENVIRONMENTAL PROTECTION DIVISION

Board of Supervisors: Mark Church • Rose Jacobs Gibson • Richard S. Gordon • Jerry Hill • Michael D. Nevin • Health Services Director: Margaret Taylor

455 County Center • Redwood City, CA 94063 • PHONE 650.363.4305 • TDD 650.573.3206 • FAX 650.363.7882

<http://www.smhealth.org>

**SAN MATEO COUNTY CASE CLOSURE SUMMARY  
LEAKING UNDERGROUND FUEL STORAGE TANKS PROGRAM**

**I. AGENCY INFORMATION**

455 County Center, Redwood City, CA 94063  
 County Project Manager: Patrick Ledesma  
 Title: Haz-Mat Specialist  
 Telephone Number: 650-599-1641

**II. CASE INFORMATION**

Site Name: Former San Carlos High School  
 Site Address: 2800 Melendy  
 San Carlos, Ca 94070

LUSTIS Case #: N/A	Local Case #: 770062	RWB CASE #: 41-1106
Record ID #: 1604	URF Filing Date:	APN: 050-180-010

**Responsible Party Information**

Name	Address	Phone #
Sequoia Unified School District Attention: Bruce Rollin	480 James Avenue Redwood City, CA 94062	(650) 369-1411 X2241

**Tank Information**

Tank #	Size in Gallons	Contents	REMOVED	Date
1	500	Waste Oil	No Records	

**III. RELEASE AND SITE CHARACTERIZATION INFORMATION**

Cause and Type of Release: *Unknown*  
 Site Characterization Complete? *Yes*  
 Date Approved by Oversight Agency: *April 2002*  
 Number of Monitoring wells Installed: *0*  
 Proper screened interval?  
 Highest GW depth BGS:  
 Flow Direction:  
 Most sensitive GW use: *potential municipal/agricultural as specified in Basin Plan*  
 Are Drinking Water affected? *No*      Aquifer Name:  
 Is Surface Water Affected? *No*      Nearest/Affected SW:  
 Off-Site Beneficial use Impacts (Location): *None*  
 Report(s) on File? *Yes*      Where is it filed? *SMCo*

Maximum Documented Contaminant Concentrations - Before and After Cleanup

Contaminant	SOIL (PPM)		GROUNDWATER (PPB)	
	Before	After	Before	After
TPH-gasoline	NA	NA	NA	NA
TPH-diesel	NA	NA	NA	NA
MtBE	NA	NA	NA	NA
Benzene	NA	NA	NA	NA
Toluene	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA
Xylenes	NA	NA	NA	NA

IV. CLOSURE


Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? <i>Yes</i>
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? <i>Yes</i>
Does corrective action protect public health for current land use? <i>Yes</i>
Site Management Requirements: <i>See Comments Below</i>
Should corrective action be reviewed if land use changes? <i>No</i>
Monitoring Wells to be Decommissioned? <i>0</i> Number Decommissioned: Number Retained:
List Enforcement Actions Taken: <i>None</i>
List Enforcement Action Rescinded: <i>None</i>

V. RWQCB Notification

<i>Date Submitted to RWQCB:</i>	<i>RB Response:</i>
<i>RB Staff:</i> Nancy Katyl	<i>Title:</i> Water Resource Control Engineer

**Comments:**

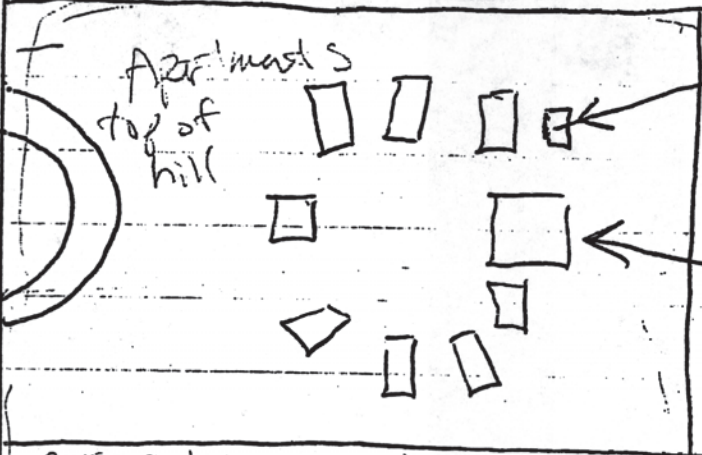
Since an unknown amount of hydrocarbon-impacted soil and possibly impacted groundwater remains in the subsurface at the site, the City of San Carlos Building Department has been notified that should excavation or development of the property be proposed that may encounter impacted soil or groundwater, San Mateo County Environmental Health Division must be notified as required by Government Code Section 65850.2.2.

  
\_\_\_\_\_  
Dean D. Peterson, Director, Environmental Health

7/3/03  
\_\_\_\_\_  
Date



TORINO

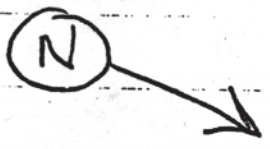


500 GALLON WASTE OIL TANK

FORMER SITE OF SAN CARLOS HIGH SCH

MELINDY

Park & tennis courts



ALAMEDA DE LAS PULGAS

EL CAMINO REAL

SAN CARLOS AVE

Hwy 101

APPENDIX 12:  
PHASE I ENVIRONMENTAL SITE  
ASSESSMENT: BROTHER'S  
PROPERTY

.....





## PHASE I ENVIRONMENTAL SITE ASSESSMENT (FINAL) Brother's Property

Parcel No. 050-220-160  
San Carlos, California 94070  
San Mateo County

Prepared for:  
**Dragonfly Investments Group**  
777 Mariners Island, Suite 150  
San Mateo, California 94404

Contact: Mr. Robert Bernstein

Prepared by:  
**FirstCarbon Solutions**  
1350 Treat Boulevard, Suite 380  
Walnut Creek, CA 94597  
707-318-2348

Contact: Mary Bean

Report Date: August 29, 2016

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WITHOUT PRIOR APPROVAL

**Table of Contents**

Executive Summary..... 2

Introduction..... 4

Site Location and Description ..... 4

Physical Setting ..... 5

Site Reconnaissance and Observation ..... 6

Adjoining Properties ..... 9

Regulatory Records Review ..... 10

Information and Interviews from Local Agencies and Site Contact..... 12

Historical Use Information Review ..... 14

Conclusions and Recommendations ..... 18

Limitations..... 20

Appendix A: Parcel Map and Aerial Site Plan

Appendix B: Street Map and Topographic Map

Appendix C: Site Photographs

Appendix D: Historical Aerial Photographs and Topographic Maps

Appendix E: Wetlands Map

Appendix F: Sanborn Fire Insurance Abstract

Appendix G: City Directories

Appendix H: EDR/FirstSearch Government Database Report

Appendix I: Questionnaires and Supporting Documents

August 29, 2016

Mr. Robert Bernstein  
Dragonfly Investments Group  
777 Mariners Island, Suite 150  
San Mateo, California 94404

**Subject: PHASE I ENVIRONMENTAL SITE ASSESSMENT (FINAL)**  
**Brother's Property**  
**Parcel No. 050-220-160**  
**San Carlos, California 94070**  
**San Mateo County**

Dear Mr. Bernstein:

FirstCarbon Solutions (FCS) has completed a Phase I Environmental Site Assessment (ESA) for the above referenced site in substantial compliance with the scope and limitations of the American Society of Testing Materials (ASTM), Standard Practices for ESAs: The Phase I ESA Process, Designation E1527-13. For the purpose of this report the land area associated with the entire Dragonfly Investments Group facility (the focus of this report) is referred to as the Property, Subject Property, and Site.

## Executive Summary

We have performed a Phase I Environmental Site Assessment of the Subject Property, San Mateo County Assessor's Parcel Number (APN) 050-220-160, located approximately 750 feet west of Alameda De Las Pulgas in the City of San Carlos, San Mateo County, California in substantial conformance with the scope and limitations of ASTM Standard E-1527-13. The Subject Property, located at 808 Alameda De Las Pulgas and owned by Black Mountain Properties, is occupied by an approximately 0.95-acre residential property consisting of one single-family residence, a two-car garage, a swimming pool, paved driveway and parking areas, landscaped areas, a vacant hillside area, and an outbuilding.

Based on a site reconnaissance and a review of physiographic, historical and regulatory information, there is no evidence of recognized environmental conditions (as defined by ASTM standards) in connection with the Property except the following:

The following business environmental risks (BERs) were identified which warrant mention:

- Based on information obtained from the historical records review, the on-site single-family residence, garage, and outbuilding were constructed in 1954 at a time when asbestos-containing materials (ACMs) and lead-based paints (LBPs) were commonly used in building materials. Based on this information, there is a potential that ACMs and LBPs are present within these onsite structures. As the on-site residential and garage structures appeared in good condition at the

time of the site visit, no further action is recommended at this time other than maintaining these suspect materials in good condition under an Asbestos and Lead Paint Operations and Maintenance (O&M) Program. In addition, FCS observed extensive areas of peeling and flaking paint on the exterior of the on-site outbuilding located in the northern portion of the Subject Property. Paint chips were observed on the ground surface adjacent to the outbuilding's western exterior door. In the event that building maintenance, renovation, or demolition activities require the removal or disturbance of the suspect ACM and LBP, these materials should be characterized for asbestos and lead by a reliable method. All activities involving ACM and LBP should be conducted in accordance with governmental regulations.

- No evidence of demolition debris was observed on the Property during the site reconnaissance except the following: five large insulation panels in poor condition were observed being stored on the north side of the on-site outbuilding (See Site Photos in Appendices). As the age of the insulation panels is unknown, there is a potential that the panels may contain asbestos. In the event that building maintenance, renovation, or demolition activities require the removal or disturbance of the suspect ACMs, the materials should be characterized for asbestos by a reliable method. All activities involving ACMs should be conducted in accordance with governmental regulations.

In addition, the following observations warrant mention:

- Numerous bottles of household cleaning chemicals, stored in their original containers, and numerous cans of household paint, in sizes ranging from 1-quart to 1-gallon, were located in the northern portion of the outbuilding. No significantly stained containers or surfaces were observed during the site visit. Disposal of these items should be conducted in accordance with governmental regulations.

## Introduction

The purpose of this Phase I ESA was to identify recognized environmental conditions associated with the Property. To achieve this objective, the Phase I ESA included visual observations of the Property and observations of the surrounding properties, a visual survey for suspect asbestos-containing materials/debris piles/lead-based paint, limited historical land use review, review of regulatory database listings, and reviews of readily available geologic and hydrogeologic data. This report represents a summary of these findings. A parcel map, aerial site plan, current street and topographic maps, historical aerial photos and topographic maps, site photographs, Sanborn Map abstract, City Directory abstract, Wetlands Map, regulatory database report, and Questionnaire are included as attachments to this report.

FCS visually observed the Property on June 17, 2016 to identify potential sources or indications of chemical contamination such as underground storage tanks (USTs), aboveground storage tanks (ASTs), polychlorinated biphenyls (PCBs), chemicals and hazardous waste materials, areas with surficial staining or distressed vegetation, and visual evidence of asbestos containing materials (ACMs) and/or lead-based paint. Lands immediately adjacent to the Property were visually inspected for possible sources of contamination or environmental impairment, which could migrate to the Property via surface water runoff, groundwater transport, and other pathways. FCS conducted a regulatory records review, reviewed historical aerial photographs, historical maps, building permits (upon availability), and contacted regulatory agency personnel.

## Site Location and Description

The Property (APN 050-220-160) is located approximately 750 feet west of Alameda De Las Pulgas in the City of San Carlos, San Mateo County, California and is bounded on the north and east by residential land uses, bounded on the south by an open space lot, and bounded on the west by a vacant parcel. The Property is accessible via Alameda De Las Pulgas. For the purpose of this report, the land area associated with APN 050-220-160 (the focus of this report) is referred to as the Property, Subject Property, and Site. The Property is located in Section 14 of Township 5S and Range 4W of the Mt. Diablo Base and Meridian, as depicted on the United States Geological Survey (USGS) 7.5-Minute *Woodside, CA* Topographic Quadrangle (see Appendices). The Property, marked in red in the aerial photograph below, is located on a hillside with steep gradients descending toward the north, east, south, and southwest. The on-site single-family residence, garage, swimming pool, and outbuilding are located on an area that has been graded level.



The Subject Property, located at 808 Alameda De Las Pulgas and owned by Black Mountain Properties, is occupied by an approximately 0.95-acre residential property consisting of one single-family residence, a two-car garage, a swimming pool, paved driveway and parking areas, landscaped areas, a vacant hillside area, and an outbuilding.

## Physical Setting

Based on the USGS *Woodside, CA* topographic quadrangle, the Property has an average elevation of approximately 325 feet above mean sea level (amsl), with a steep gradients descending toward the north, east, south, and southwest. Storm water runoff is expected to flow off the Property toward the north, east, south, and southwest. According to the U.S. Geological Survey, Geologic Map of California (2012), the Property is underlain by Franciscan Complex, unit 1 (Coast Ranges) consisting of Cretaceous and Jurassic sandstone with smaller amounts of shale, chert, limestone, and conglomerate; includes Franciscan mélangé, except where separated.

Based on information from local groundwater monitoring reports, FCS estimates ground water to be at least 100 feet below the ground surface in the northwestern portion of the Property and at least 20 feet below the ground surface in the southeastern portion of the Property. Under natural, undisturbed conditions, shallow groundwater flow generally follows the topography of the land surface. Based on this information, the topography suggests that groundwater flow across the site is in an easterly direction. Therefore, areas located west of the Property are considered upgradient. However, actual groundwater flow direction is often locally influenced by factors such as rainfall, geologic structure,

seasonal fluctuations, soil and bedrock geology, production wells, and other factors beyond the scope of this study. The actual groundwater flow direction under the site can be accurately determined only by installing groundwater monitoring wells, which was beyond this scope of this project.

## Site Reconnaissance and Observation

On August 22, 2016, FCS personnel conducted a site reconnaissance of the Property. The site reconnaissance is documented in the site photographs (see Appendices). During the site visit, the FCS representative was unaccompanied at the Property. In addition, a walk along the perimeter of the Property and a drive around roads in the immediate area were conducted. At the time of the site inspection, the weather was clear with a temperature of approximately 75° Fahrenheit.

The purpose of the site reconnaissance was to visually and physically observe the Property and adjoining properties for conditions indicating an existing release, past release, or threatened release of any hazardous substances or petroleum products into structures of the site, or into soil and/or groundwater beneath the site. This would include any evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage/handling.

### Underground Storage Tanks (USTs)/Aboveground Storage Tanks (ASTs)

The Subject Property is not listed on any environmental regulatory databases including bulk storage tank databases or databases indicative of contamination such as the leaking underground storage tank list or the inventory of Hazardous Waste Sites. FCS contacted the San Carlos Building Division, Redwood City Fire Department San Carlos Division, Bay Area Air Quality Management District, and San Mateo County Environmental Health Department concerning fuel tanks associated with the Property and none of these agencies had any records on file. FCS also reviewed the California Environmental Protection Agency, State Water Resources Control Board (SWRCB), GeoTracker regulated facilities database for files related to possible recognized environmental conditions for the Property. No records for the Property are listed in the State GeoTracker database or in the SWRCB's historical database.

Concerning the on-site single-family residence, no evidence for the presence of heating oil USTs/ASTs was discovered during the site visit or historical records review. Based on the age of the on-site residence, the use of heating oil is unlikely.

### Leaking Underground Storage Tanks (LUSTs)

No evidence for the presence of leaking underground storage tanks on or immediately upgradient of the Property was observed during the site reconnaissance.

### Dry Cleaners

No dry cleaning activity was observed on or immediately upgradient of the Property during the site reconnaissance.

### **Landfills and Soil Piles**

No evidence of soil piles was observed on or immediately upgradient of the Property during the site reconnaissance.

### **Polychlorinated Biphenyls (PCBs)**

No leaking or stained equipment that would have the potential to contain PCBs (e.g., transformers, capacitors, light ballasts, hydraulic equipment) was observed on or adjacent to the Property during the site reconnaissance.

### **Waste Management and Chemical Handling**

No drums or containers of hazardous materials/substances, evidence of hazardous waste storage or disposal, or petroleum products were observed on or upgradient of the Property during the site visit.

### **Asbestos-Containing Materials (ACMs) and Lead-Based Paint (LBP)**

Based on information obtained from the historical records review, the on-site single-family residence, garage, and outbuilding were constructed in 1954 at a time when asbestos-containing materials (ACMs) and lead-based paints (LBPs) were commonly used in building materials. Based on this information, there is a potential that ACMs and LBPs are present within these onsite structures. As the on-site residential and garage structures appeared in good condition at the time of the site visit, no further action is recommended at this time other than maintaining these suspect materials in good condition under an Asbestos and Lead Paint Operations and Maintenance (O&M) Program. In addition, FCS observed extensive areas of peeling and flaking paint on the exterior of the on-site outbuilding located in the northern portion of the Subject Property. Paint chips were observed on the ground surface adjacent to the outbuilding's western exterior door. In the event that building maintenance, renovation, or demolition activities require the removal or disturbance of the suspect ACM and LBP, these materials should be characterized for asbestos and lead by a reliable method. All activities involving ACM and LBP should be conducted in accordance with governmental regulations.

### **Underground Oil or Gas Pipelines**

No markers indicating the presence of oil or gas pipelines was observed were observed on or adjacent to the Property during the site reconnaissance.

### **Stained Soil or Asphalt Patches**

No stained soil or asphalt patches were observed within or adjacent to the Property during the site reconnaissance.

### **Demolition Debris**

No evidence of demolition debris was observed on the Property during the site reconnaissance except the following: five large insulation panels in poor condition were observed being stored on the north side



of the on-site outbuilding (See Site Photos in Appendices). As the age of the insulation panels is unknown, there is a potential that the panels may contain asbestos. In the event that building maintenance, renovation, or demolition activities require the removal or disturbance of the suspect ACMs, the materials should be characterized for asbestos by a reliable method. All activities involving ACMs should be conducted in accordance with governmental regulations.

### **Pits, Ponds, and Lagoons**

No pits, ponds, or lagoons were observed within the Property during the site reconnaissance.

### **Radon**

Radon gas is a naturally occurring radioactive gas that is invisible and odorless. It forms from the radioactive decay of small amounts of uranium and thorium naturally present in rocks and soils, so some radon exists in all rocks and soils. Because radon is a gas, it can easily move through soil and cracks in building slabs or basement walls and concentrate in a building's indoor air. According to the government database Federal EPA Radon Zone for San Mateo County (<http://www.city-data.com/radon-zones/California/California.html>), San Mateo County is located in Zone 2 and is listed as moderate Potential: counties that have a predicted average indoor radon screening level between 2 and 4 pCi/L. 83 radon tests have taken place in sites located within the Property's zip code of 94070 and only 5 tests came back positive for radon levels of 4 picoCuries per liter or above, which is the state of California's recommended action level. Based on this information, the presence of on-site radon levels above California's recommended action level is unlikely.

### **Clarifiers or Sumps**

No clarifiers or sumps were observed or noted within or next to the Property during the site reconnaissance.

### **Air Emissions**

No air emissions were observed or noted to be emanating from the Property during the site reconnaissance.

### **Flood Zone**

According to the Federal Emergency Management Agency, *Flood Insurance Rate Map of San Mateo County California and Incorporated Areas*, Map Number 06081C0282E Effective Date October 16, 2012, the Property is located within Zone X (flood hazard areas determined to be outside the 0.2% annual chance floodplain).

### Wetlands Designation

According to a review of the U.S. Fish and Wildlife Service National Wetlands Inventory Mapper as viewed on <http://www.fws.gov/wetlands/Data/Mapper.html>, no wetlands are located on or immediately adjacent to the Property.

### Pesticides/Herbicides

No pesticides or herbicides in significant quantities were observed being stored or used within the Property at the time of the site reconnaissance.

### On-site containers

No containers or drums were observed or noted on or adjacent to the Property during the site reconnaissance. Numerous bottles of household cleaning chemicals, stored in their original containers, and numerous cans of household paint, in sizes ranging from 1-quart to 1-gallon, were located in the northern portion of the outbuilding. No significantly stained containers or surfaces were observed during the site visit. Disposal of these items should be conducted in accordance with governmental regulations.

## Adjoining Properties

FCS observed lands adjoining to the Property to identify environmental concerns. The Property is bordered to the north by residential land uses. The Property is bordered to the east by single-family residences located at 806 and 804 Alameda De Las Pulgas. The Property is bordered to the south by vacant lot and open space land uses followed by residential land uses. The Property is bordered to the west by a vacant lot followed by residential land uses.

FCS conducted a reconnaissance of the adjoining properties to evaluate the potential for off-site impacts. These would include evidence of improper chemical storage or usage, surface staining or leakage, distressed vegetation, or evidence of dumping. A visual inspection from the public right-of-way did not reveal any issues of concern.

## Regulatory Records Review

FCS reviewed available databases from federal and state regulatory agencies to identify use, generation, storage, treatment and/or disposal of hazardous materials and chemicals or release incidents of such materials, which may have impacted the Property. The regulatory databases were provided to FCS from EDR. The EDR FirstSearch Report is included in the Appendix C. The environmental and regulatory databases that were included in this review follow the ASTM standard E1527-13 guidelines.

- Federal National Priorities Listing (NPL) Sites
- Federal Delisted NPL Sites
- Comprehensive Environmental Response Compensation And Liability Information System List (CERCLIS)
- Federal CERCLIS: No Further Remedial Action Planned (NFRAP) Site List
- Federal Resource Conservation And Recovery Act (RCRA) Generator's List
- Federal RCRA Non-CORRACTS TSD Facilities List
- Federal RCRA CORRACTS Facilities List
- Federal RCRA Treatment, Storage And Disposal Facilities (TSDF's) List
- Federal Institutional Control/Engineering Control (IC/EC) Registries
- Federal Emergency Response Notification System (ERNS) List
- State And Tribal Lists Of *Hazardous Waste Sites* Identified For Investigation Or Remediation:
  - State-And Tribal-Equivalent NPL
  - State-And Tribal-Equivalent CERCLIS
  - State-And Tribal-*Landfill* And/or *Solid* Waste Disposal Site Lists
  - State-And Tribal-Leaking Storage Tanks Lists
  - State And Tribal Registered Storage Tank Lists
  - State And Tribal *Institutional Control/Engineering Control* Registries
  - State And Tribal Voluntary Cleanup Sites
  - State And Tribal Brownfield Sites

The date of the most recent database update and a plotted map of the aforementioned listings, if any, depicting their location relative to the Property is included in the Appendices of this report.

Information obtained from the FirstSearch Report indicated that the Property has not been included on any institutional/engineering control databases that track activity and use limitations on properties.

### Subject Property

The Subject Property address of 808 Alameda De Las Pulgas was not identified in the FirstSearch Report.

### Adjoining and Surrounding Area Properties

#### **HAZNET**

This data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. The HAZNET database only contains information about types and quantities of wastes that are generated and not information pertaining to release events.

One adjoining Property is identified as Carol Scarioni at 800 Alameda De Las Pulgas. According to the HAZNET database, 1.85 tons of “Asbestos Containing Waste” was removed from the property in 1996. This listing is likely related to renovation/demolition activities at the Property. No violations were identified and the Property was not identified on any regulatory databases that report releases or contamination conditions. Of note, Carol Scarioni is identified in the City Directory Abstract as occupying 806 Alameda De Las Pulgas in 2003. Based on the lack of reported violations, this listing is not suspected to be a significant environmental concern to the Property.

The HAZNET database identified 8 additional surrounding area sites within the search radius. None of these facilities were identified on any regulatory databases that report releases or contamination conditions. Based on the lack of reported violations, these listings are not suspected to be of a significant environmental concern to the Property.

#### **State Tribal CERCLIS: EnviroStor**

The Department of Toxic Substances Control’s (DTSC’s) Site Mitigation and Brownfields Reuse Program’s (SMBRP’s) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

The EnviroStor database identified 1 surrounding area site within the search radius. This site is located approximately 0.56-mile cross-gradient and a significant distance from the Property. Based on the

distance and hydraulic location, this listing is not suspected to be of a significant environmental concern to the Property.

### **LUST/SLIC**

Leaking Underground Storage Tanks/Spills, Leaks, Investigations and Cleanups (SLIC) Records

The LUST list is an inventory of reported spills and leaks, both active and inactive maintained by the various California Regional Water Quality Control Boards. It includes stationary and non-stationary source spills reported to state and federal agencies, including remediated and contaminated leaking UST sites. SLIC records, which are maintained by the various Regional Water Quality Control Boards, document unauthorized discharges from spills and leaks from sources other than UST and other regulated sites.

Three facilities were listed in the LUST/SLIC database and all are located at least 0.25-mile and a significant distance from the Property. All three sites are identified as having a regulatory status of “Case Closed”. A Case Closed status is granted to those sites that do not exhibit levels of contamination requiring clean-up, have been remediated to the satisfaction of the lead regulatory agency, or are not suspected to represent a significant threat to human health or the environment. Therefore, it is unlikely that contamination originating at sites with a Case Closed status have had a significant negative environmental impact on the Property.

Based on the regulatory status, distance, and/or hydraulic location, none of the sites listed in the LUST/SLIC database are suspected of having had a negative impact on the Property and do not represent a recognized environmental condition for the Property.

### **Orphan Sites**

No facilities are listed as unmapped or nongeocoded sites in the FirstSearch report.

The regulatory records review has revealed no evidence of recognized environmental conditions in connection with the Property.

## **Information and Interviews from Local Agencies and Site Contact**

### **City of San Carlos Building Division**

FCS contacted the City of San Carlos Building Division to obtain information for the Property. According to Mr. Daniel Kulda of the Building Division, no original building records were on file for the Subject Property due to a “data loss” experienced by the Building Division. Mr. Kulda referred FCS to the San Mateo County Assessor’s office for information concerning building permits.

### **San Mateo County Assessor's Office**

FCS contacted the San Mateo County Assessor's Office to obtain information for the Property. According to Assessor's office personnel, the residence associated with 808 Alameda De Las Pulgas (APN 050-220-160) was built in 1954.

### **Redwood City Fire Department, San Carlos Division**

FCS contacted the Redwood City Fire Department, San Carlos Division for files related to possible recognized environmental conditions for The Property. According to Ms. Teresa Maluia of the Fire Department, no records are on file for the Subject Property.

### **San Mateo County Environmental Health Department**

FCS reviewed Subject Property records on file at the San Mateo County Environmental Health Department (EHD). According to Ms. Jean De Tar of the Health Department, no records are on file for the Subject Property.

### **California Environmental Protection Agency, State Water Resources Control Board, Geo Tracker regulated facilities database**

FCS reviewed the California Environmental Protection Agency, State Water Resources Control Board (SWRCB), GeoTracker regulated facilities database for files related to possible recognized environmental conditions for the Property. No records for the Property are listed in the State GeoTracker database. According to Ms. Melinda Wong of the SWRCB, no historical records are on file for the Subject Property or any adjoining properties.

### **State of California, Department of Toxic Substances Control (DTSC) EnviroStor database**

FCS reviewed the Department of Toxic Substances Control (DTSC) EnviroStor database for files related to possible environmental concerns for the Property and adjoining properties. No records for the Property or any adjoining properties are listed in the State EnviroStor database.

### **Bay Area Air Quality Management District (AQMD)**

FCS has submitted a records request with the Bay Area Air Quality Management District (AQMD) in order to discover any records on file for the Property. According to Mr. David Garrison of the AQMD, no records are on file for the Subject Property.

### **Site Contact Interview**

FCS received a completed User Questionnaire (See Appendices). No evidence of recognized environmental conditions was discovered by reviewing the User Questionnaire.

### Former Site Contact Interview

FCS was unable to obtain contact information for the previous Property owner for the purposes of conducting an interview regarding whether any recognized or potential recognized environmental conditions were associated with the Property during their ownership.

### Previous Environmental Reports

FCS reviewed numerous documents provided by Dragonfly Investments Group concerning the Subject. No recognized environmental conditions were discovered during the review of the provided documents.

## Historical Use Information Review

### Aerial Photographs and Topographic Maps

FCS reviewed historical aerial photographs and historical topographic maps provided by EDR/FirstSearch for information pertaining to possible environmental concerns for the Property, adjoining properties, and surrounding properties for the following years:

- 1902            Due to the small scale of this map, accurate property boundaries are not feasible (USGS 30-Minute *Santa Cruz, CA*).
  
- 1940            The Property is depicted as vacant with an intermittent stream running west to east located to the south. All adjoining properties are depicted as vacant. Alameda De Las Pulgas is depicted to the east. The surrounding vicinity is depicted with improved roads and residential areas (USGS 15-Minute *Hawthorne Bay, CA*).
  
- 1946            The Property appears as vacant hillsides with no structures. A small residential structure is located. The adjoining properties to the north appear as vacant hillsides followed by residential land uses. The adjoining properties to the east appear as vacant hillsides including small structures. The adjoining properties to the south appear as vacant hillsides followed by a water tank and residential land uses. The adjoining properties to the west appear as vacant hillsides followed by residential land uses. The surrounding area appears as mostly as open space and residential land uses (EDR Aerial Collection).
  
- 1948            The Property appears in similar land use as the previous photo with the exception of an unpaved driveway/access road running west from Alameda De Las Pulgas then winding north along the eastern portion of the Property and connecting with a road located north of the Property. All adjoining properties appeared in similar land uses as the previous aerial photograph. The surrounding vicinity appeared in similar land uses as the previous aerial photograph with increases in residential land uses (EDR Aerial Collection).

- 1953 The Property is depicted with a dwelling in the location of the on-site residence. One residential structure is located in the vicinity of the on-site residence at 806 Alameda De Las Pulgas to the east. Improved roads and residential areas are depicted to the north. Vacant hillsides are depicted to the south and west. The surrounding areas to the north, east, and southeast are shaded red representing highly urbanized built-up areas with residential areas depicted further to the south and west (USGS 7.5-Minute *Woodside, CA*).
- 1956 The Property appears in similar land use as today. Adjoining properties to the northeast appear with a large building and residential lots. The adjoining properties to the east appear as residential land uses. The adjoining properties to the south appear as vacant land then residential areas undergoing grading and development. The adjoining properties to the west appear as vacant hillsides followed by residential land uses. The surrounding area appears with open space, residential, commercial, and institutional land uses (EDR Aerial Collection).
- 1961 The Property is depicted in similar land use as the previous topographic map with the additional depiction of a structure in the vicinity of the on-site residence at 804 Alameda De Las Pulgas. An improved road runs from Alameda De Las Pulgas west and then terminates in the northern portion of the Property. Improved roads and residential areas are depicted to the north and west. St. Charles School is depicted to the east followed by lands shaded red representing highly urbanized built-up areas. Former San Carlos High School is depicted to the south and west. The surrounding areas to the north, east, and south are shaded red representing highly urbanized built-up areas with residential areas depicted further west (USGS 15-Minute *Half Moon Bay, CA*).
- 1968 The Property is depicted in similar land use as the previous topographic map. Adjoining properties to the north and west are depicted as vacant land then residential land uses. Adjoining properties to the east are depicted as residential and surrounding areas to the east are depicted by lands shaded red representing highly urbanized built-up areas. Former San Carlos High School is depicted further to the south and southwest (USGS 7.5-Minute *Woodside, CA*).
- 1968 Residences at 804 and 806 Alameda De Las Pulgas now appear east the Property. The Black Mountain water bottling plant appears further to the east. Residential land uses have been completed to the southeast of the Property along with San Carlos High School to the south and southwest. The surrounding area appears with open space, residential, commercial, and institutional land uses (EDR Aerial Collection).
- 1973 The Property, all adjoining properties, and surrounding vicinity are depicted in similar land uses as the previous topographic map (USGS 7.5-Minute *Woodside, CA*).



- 1974            The Property, all adjoining properties, and surrounding vicinity appear in similar land uses as the previous aerial photograph (EDR Aerial Collection).
  
- 1982            The Property, all adjoining properties, and surrounding vicinity appear in similar land uses as the previous aerial photograph (EDR Aerial Collection).
  
- 1993            The Property, all adjoining properties, and surrounding vicinity appear in similar land uses as the previous aerial photograph with the exception of San Carlos High School which has been demolished and replaced by a residential subdivision (EDR Aerial Collection).
  
- 1994            The Property, all adjoining properties, and surrounding vicinity are depicted in similar land uses as the previous topographic map with two exceptions: the water bottling plant building to the east appears larger and San Carlos High School is no longer in place (USGS 7.5-Minute *Woodside, CA*).
  
- 1997            The Property, all adjoining properties, and surrounding vicinity are depicted in similar land uses as the previous topographic map (USGS 7.5-Minute *Woodside, CA*).
  
- 1998            As this aerial photograph is somewhat blurry, however, the Property appears in similar land uses as today. All adjoining properties and the surrounding area appear in similar land uses as the previous aerial photograph (EDR Aerial Collection).
  
- 2005            The Property appears in similar land uses as today. A small area occupied by rows of trees (a possible family orchard) is located to the west. No water bottling plant is located further to the east and the former water bottling area appears as a vacant area covered with grasses and shrubs. All adjoining properties and the surrounding area appear in similar land uses as today (EDR Aerial Collection).
  
- 2009            The Property, all adjoining properties, and the surrounding area appear in similar land uses as today (EDR Aerial Collection).
  
- 2010            The Property, all adjoining properties, and the surrounding area appear in similar land uses as today (EDR Aerial Collection).
  
- 2012            No individual structures are depicted. All streets appear in present day configurations (USGS 7.5-Minute *Woodside, CA*).
  
- 2012            The Property, all adjoining properties, and the surrounding area appear in similar land uses as today (EDR Aerial Collection).

No recognized environmental conditions were discovered for the Property by reviewing the available historical aerial photographs and topographic maps.

### Sanborn Fire Maps

FCS reviewed Sanborn Fire Insurance Maps for information pertaining to possible environmental concerns for the Property and surrounding properties; no coverage was available (See Appendices).

### Oil and Gas Fields

Based on the oil and gas well maps of the California Division of Oil, Gas, & Geothermal Resources, no production wells are shown on or adjacent to the Property.

### Vapor Intrusion Condition (VIC)

As the Property and adjoining properties are not identified in any regulatory databases indicating a release or spill, a vapor intrusion condition does not exist in connection with the Property.

### City Directories

FCS reviewed historical city directory information provided by EDR/FirstSearch for information pertaining to possible environmental concerns for the Property and surrounding properties. The city directory abstract dated back to 1970. The following listings were identified for the Property (in bold type) and adjoining properties within the city directory abstract (See Appendices):

1970	<b>808 Alameda De Las Pulgas – Russell Scarioni.</b> 800 Alameda De Las Pulgas - Black Mountain Spring Water & Cap Snap Seal Inc. 804 Alameda De Las Pulgas - Residential listing. 806 Alameda De Las Pulgas - No listing.
1977	<b>808 Alameda De Las Pulgas – No listing.</b> 800 Alameda De Las Pulgas - Cap Snap Seal Inc. 804 Alameda De Las Pulgas - No listing. 806 Alameda De Las Pulgas - No listing.
1980	<b>808 Alameda De Las Pulgas – No listing.</b> 800 Alameda De Las Pulgas - Cap Snap Seal Inc. 804 Alameda De Las Pulgas - No listing. 806 Alameda De Las Pulgas - No listing.
1985	<b>808 Alameda De Las Pulgas – Bonnie Killian.</b> 800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - No listing. 806 Alameda De Las Pulgas - No listing.
1990	<b>808 Alameda De Las Pulgas – No listing.</b> 800 Alameda De Las Pulgas - No listing.

	804 Alameda De Las Pulgas - No listing.
	806 Alameda De Las Pulgas - No listing.
1995	<b>808 Alameda De Las Pulgas – Occupant Unknown.</b> 800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - No listing. 806 Alameda De Las Pulgas - No listing.
1999	<b>808 Alameda De Las Pulgas – No listing.</b> 800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - Residential listing. 806 Alameda De Las Pulgas - Occupant unknown.
2003	<b>808 Alameda De Las Pulgas – No listing.</b> 800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - Residential listing. 806 Alameda De Las Pulgas - Residential listing.
2008	<b>808 Alameda De Las Pulgas – No listing.</b> 800 Alameda De Las Pulgas - No listing. 804 Alameda De Las Pulgas - Residential listing. 806 Alameda De Las Pulgas - No listing.
2013	<b>808 Alameda De Las Pulgas – No listing.</b> 800 Alameda De Las Pulgas- Therma Source. 804 Alameda De Las Pulgas - Residential listing. 806 Alameda De Las Pulgas - Residential listing.

### Historical Data Gaps

During the historical research process of the preparation of this report, there were no gaps exceeding five years in which FCS was unable to ascertain the probable on-site land use.

## Conclusions and Recommendations

We have performed a Phase I Environmental Site Assessment of the Subject Property, San Mateo County Assessor’s Parcel Number (APN) 050-220-160, located approximately 750 feet west of Alameda De Las Pulgas in the City of San Carlos, San Mateo County, California in substantial conformance with the scope and limitations of ASTM Standard E-1527-13.

Based on a site reconnaissance and a review of physiographic, historical and regulatory information, there is no evidence of recognized environmental conditions (as defined by ASTM standards) in connection with the Property except the following:

The following business environmental risks (BERs) were identified which warrant mention:

- Based on information obtained from the historical records review, the on-site single-family residence, garage, and outbuilding were constructed in 1954 at a time when asbestos-containing materials (ACMs) and lead-based paints (LBPs) were commonly used in building materials. Based on this information, there is a potential that ACMs and LBPs are present within these onsite structures. As the on-site residential and garage structures appeared in good condition at the time of the site visit, no further action is recommended at this time other than maintaining these suspect materials in good condition under an Asbestos and Lead Paint Operations and Maintenance (O&M) Program. In addition, FCS observed extensive areas of peeling and flaking paint on the exterior of the on-site outbuilding located in the northern portion of the Subject Property. Paint chips were observed on the ground surface adjacent to the outbuilding's western exterior door. In the event that building maintenance, renovation, or demolition activities require the removal or disturbance of the suspect ACM and LBP, these materials should be characterized for asbestos and lead by a reliable method. All activities involving ACM and LBP should be conducted in accordance with governmental regulations.
- No evidence of demolition debris was observed on the Property during the site reconnaissance except the following: five large insulation panels in poor condition were observed being stored on the north side of the on-site outbuilding (See Site Photos in Appendices). As the age of the insulation panels is unknown, there is a potential that the panels may contain asbestos. In the event that building maintenance, renovation, or demolition activities require the removal or disturbance of the suspect ACMs, the materials should be characterized for asbestos by a reliable method. All activities involving ACMs should be conducted in accordance with governmental regulations.

In addition, the following observations warrant mention:

- Numerous bottles of household cleaning chemicals, stored in their original containers, and numerous cans of household paint, in sizes ranging from 1-quart to 1-gallon, were located in the northern portion of the outbuilding. No significantly stained containers or surfaces were observed during the site visit. Disposal of these items should be conducted in accordance with governmental regulations.

## Resources Consulted

- California Division of Oil, Gas, and Geothermal Resources;
- USGS Topographic Maps; California Division of Mines and Geology Maps;
- EDR FirstSearch Report;
- EDR Sanborn Fire Maps Collection;
- EDR City Directory Abstract;
- U.S. Fish and Wildlife Service, National Wetlands Inventory;
- FEMA Flood Map Service Center;
- Federal EPA Radon Zone for San Mateo County (<http://www.city-data.com/radon-zones/California/California.html>)

## Agencies Contacted

- City of San Carlos Building Division;
- Redwood City Fire Department, San Carlos Division;
- San Mateo County Environmental Health Department;
- San Mateo County Assessor's Office;
- California Environmental Protection Agency;
- State Water Resources Control Board;
- State of California, Department of Toxic Substances Control
- Bay Area Air Quality Management District

## Limitations

The professional opinions contained in this report are based solely on the laws, regulations, and technical data known to FCS at the time of report preparation. The conclusions of this assessment rely on reasonably obtainable information from site reconnaissance, interviews with on-site personnel and public officials, and public records. No warranty is made regarding the accuracy of the publicly documented information or the opinions of officials or personnel consulted for the study. All known information has been disclosed and a good-faith effort has been made to consult pertinent sources.

It should be noted that all environmental assessments are inherently limited in the sense that conclusions are drawn, and recommendations developed, from information obtained from limited research and site evaluation. Subsurface conditions were not investigated as part of this study and may differ from the conditions implied by visual observations. Additionally, the passage of time may result in a change in environmental characteristics at this site and on surrounding properties.

This report does not warrant against future operations, activities, or conditions that may occur. This report is not a regulatory compliance audit. A regulatory compliance audit of the tenant operation, if any, would analyze compliance of the operation with regulatory requirements and accepted industry practices. The scope of the Phase I ESA focused on the likelihood or potential presence of recognized

environmental conditions at the Subject Property, according to ASTM standards. Contents of on-site containers were not inspected; however, detailed information regarding container contents, if any, was not provided by the tenant operator/property owner representative.

This study is not intended to assess or otherwise determine if any soil contamination, waste emplacement, or groundwater contamination exists on the Subject Property. This investigation has been based only upon prior site history, previous documentation, and observable conditions. Existing hazardous materials and contaminants can escape detection using these methods. If the results of this study suggest that it is possible that hazardous materials contamination exists at the Subject Property, then further investigation (regulatory file review, subsurface testing) may be necessary to make a definite assessment. Our conclusions regarding the potential environmental impact from off-site facilities near the Subject Property are based on readily available information from the environmental databases and the assumed groundwater flow direction. A detailed file review of each facility was beyond the scope of work.

We appreciate the opportunity to be of service to the Dragonfly Investments Group, for this project and look forward to working with you on future assignments. In the interim, if you should have any further questions, please contact Mary Bean at 707-318-2348 or by e-mail at [sargo@fcs-intl.com](mailto:sargo@fcs-intl.com).

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental professional as defined in Section 312.10 of 40 CFR 312 and I have the specific qualifications based on education, training, and experience to assess a Property of the nature, history, and setting of the Subject Property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

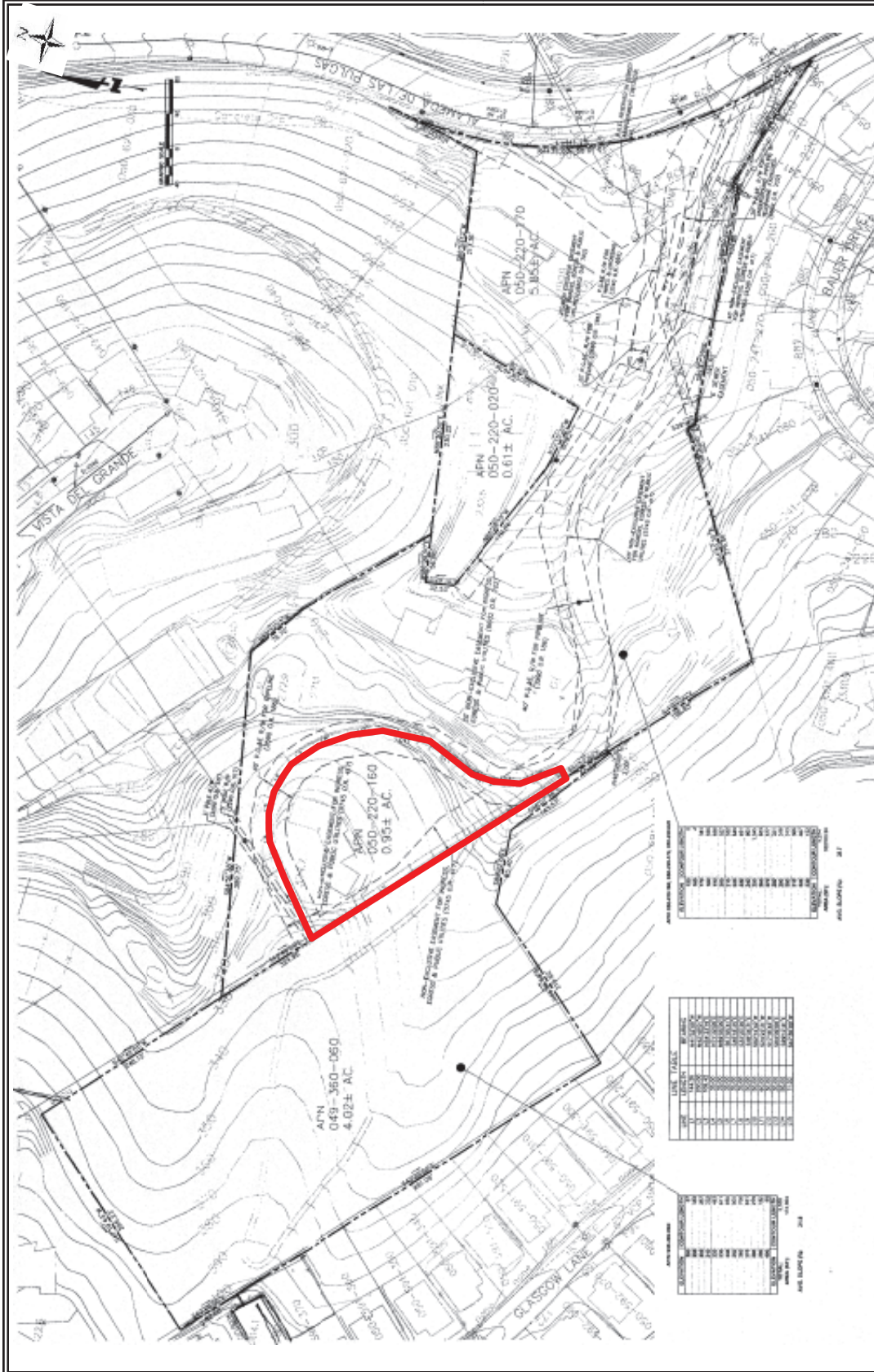
Sincerely,



Jeff Randle, Environmental Professional  
**FirstCarbon Solutions**  
1350 Treat Boulevard, Suite 380  
Walnut Creek, CA 94597

Enc: Appendix A: Parcel Map and Aerial Site Plan  
Appendix B: Street Map and Topographic Map  
Appendix C: Site Photographs  
Appendix D: Historical Aerial Photographs and Topographic Maps  
Appendix E: Wetlands Map  
Appendix F: Sanborn Fire Insurance Abstract  
Appendix G: City Directories  
Appendix H: EDR/FirstSearch Government Database Report  
Appendix I: Questionnaires and Supporting Documents

**Appendix A:  
Parcel Map and Aerial Site Plan**



PARCEL MAP

Brother's Property  
 808 Alameda De Las Pulgas  
 San Carlos, California 94070



Boundaries are approximate.  
 Not to scale.





**SITE PLAN**







Brother's Property  
 808 Alameda De Las Pulgas  
 San Carlos, California 94070

Boundaries are approximate.  
 Not to scale.

**Appendix B:  
Street Map and Topographic Map**



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

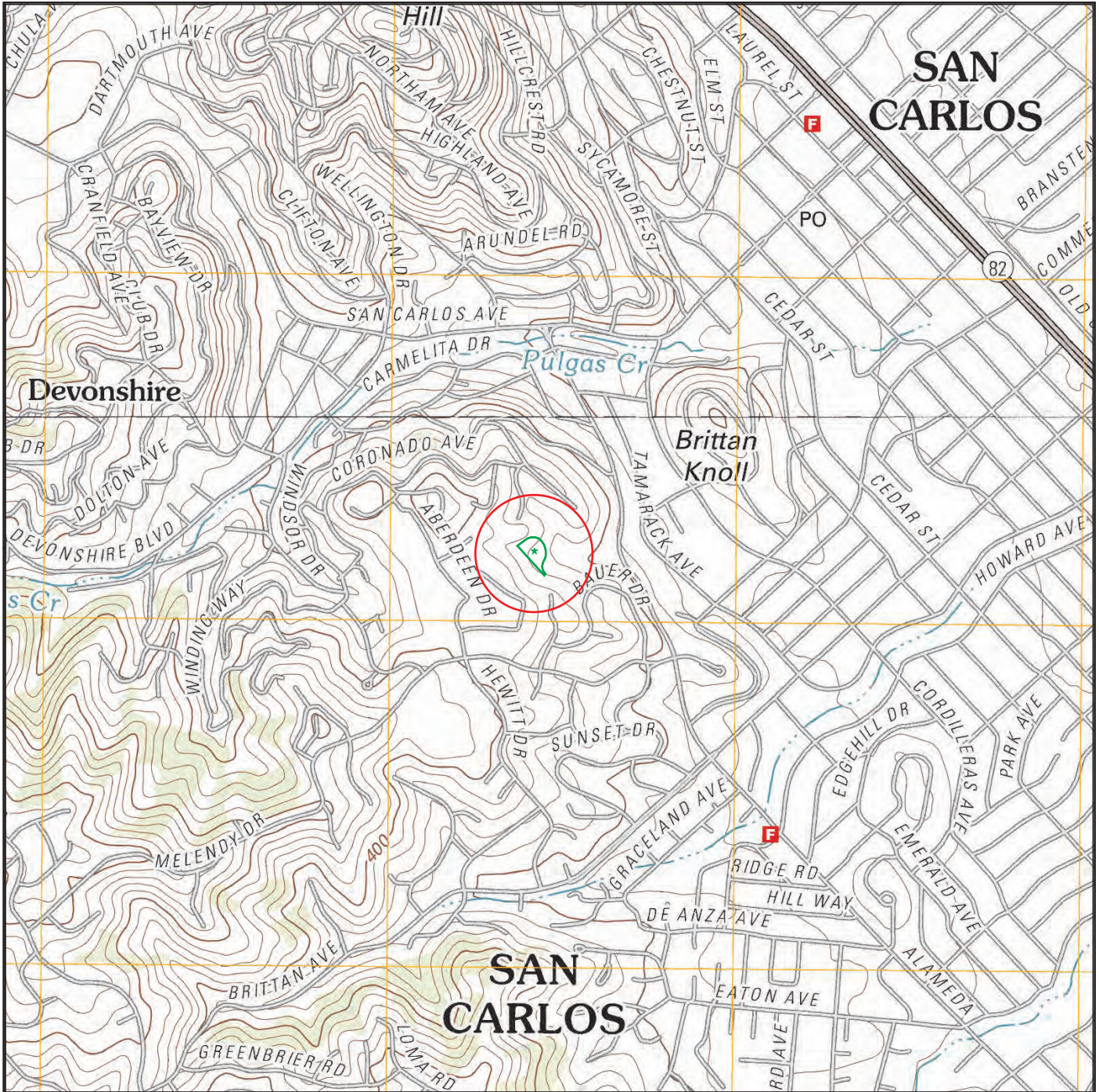
-  **Target Property (Latitude: 37.496363 Longitude: 122.269973)**
-  **Identified Sites**
-  **Indian Reservations BIA**
-  **National Priority List Sites**

# Site location Map

Topo: 0.75 Mile Radius







806 ALAMEDA SAN CARLOS, CA 94070



Map Image Position: TP  
Map Reference Code & Name: 5640628 Woodside  
Map State(s): CA  
Version Date: 2012  
Map Image Position: NW  
Map Reference Code & Name: 5640626 San Mateo  
Map State(s): CA  
Version Date: 2012

**Appendix C:  
Site Photographs**

**Phase I Site Photos: Brother's Property - 808 Alameda De Las Pulgas, San Carlos, CA**

	
<p>View of Property access driveway entrance located on West side of Alameda De Las Pulgas</p>	<p>View looking North toward Property eastern and western driveways</p>
	
<p>View looking Southeast down western driveway</p>	<p>View looking South down eastern driveway</p>

**Phase I Site Photos: Brother's Property - 808 Alameda De Las Pulgas, San Carlos, CA**



View North-northwest toward southern portion of Property



View looking East toward southwest side of garage



View Northwest toward on-site parking area



View Southeast toward pool area fence and garage

**Phase I Site Photos: Brother's Property - 808 Alameda De Las Pulgas, San Carlos, CA**



View looking Southeast toward pool yard and residence



View looking South toward pool yard and residence



View looking North-northeast toward pool yard



View looking East-northeast toward pool yard and residence



**Phase I Site Photos: Brother's Property - 808 Alameda De Las Pulgas, San Carlos, CA**



View looking Southeast toward garage



View looking Northwest toward garage



View looking East toward residence front door



View looking East-northeast along southern portion of residence

**Phase I Site Photos: Brother's Property - 808 Alameda De Las Pulgas, San Carlos, CA**



View looking Southwest along southeastern portion of residence



View looking Northwest along northeast portion of residence




View looking West along southern portion of residence







View looking Northwest toward residence back door

**Phase I Site Photos: Brother's Property - 808 Alameda De Las Pulgas, San Carlos, CA**

	
<p>View looking West toward outbuilding located in the northern portion of the Property</p>	<p>View looking North toward outbuilding including miscellaneous household items and debris</p>
	
<p>View looking East toward outbuilding including miscellaneous household items and debris</p>	<p>View looking East along North side of outbuilding</p>


**Phase I Site Photos: Brother's Property - 808 Alameda De Las Pulgas, San Carlos, CA**

	
<p>View looking South toward miscellaneous household items and debris stored adjacent to outbuilding</p>	<p>View looking East toward paints and cleaning chemicals stored in northern portion of outbuilding</p>
	
<p>View looking East toward peeling paint on western outbuilding door</p>	<p>View looking East toward peeling paint at base of western outbuilding door; paint chips are also located on soil</p>

**Phase I Site Photos: Brother's Property - 808 Alameda De Las Pulgas, San Carlos, CA**

	
<p>View looking Southwest toward miscellaneous household items and debris stored underneath outbuilding</p>	<p>View looking West toward demolition debris including insulation panels stored on north side of outbuilding</p>
	
<p>View looking West-northwest toward Property hill slope and residence</p>	<p>View looking West-southwest toward Property hill slope</p>

**Phase I Site Photos: Brother's Property - 808 Alameda De Las Pulgas, San Carlos, CA**

			View looking East toward adjoining properties
			View looking South toward adjoining properties

**Appendix D:**  
**Historical Aerial Photographs and Topographic Maps**



Black Mountain

806 Alameda

San Carlos, CA 94070

Inquiry Number: 4637606.8

June 08, 2016

## The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)



# EDR Aerial Photo Decade Package

06/08/16

**Site Name:**

Black Mountain  
806 Alameda  
San Carlos, CA 94070  
EDR Inquiry # 4637606.8

**Client Name:**

Env. Assessment Specialists  
71 San Marino Ave  
Ventura, CA 93003-0000  
Contact: FCS



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

**Search Results:**

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1998	1"=500'	Flight Date: January, 01 1998	USGS
1993	1"=500'	Acquisition Date: October, 30 1991	USGS/DOQQ
1982	1"=500'	Flight Date: July, 08 1982	USDA
1974	1"=500'	Flight Date: June, 26 1974	USGS
1968	1"=500'	Flight Date: June, 14 1968	USGS
1956	1"=500'	Flight Date: September, 08 1956	USGS
1948	1"=500'	Flight Date: September, 26 1948	USDA
1946	1"=500'	Flight Date: July, 29 1946	USGS

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INQUIRY #: 4637606.8

YEAR: 2012

— = 500'





INQUIRY #: 4637606.8

YEAR: 2010

— = 500'





INQUIRY #: 4637606.8

YEAR: 2009

— = 500'





INQUIRY #: 4637606.8

YEAR: 2005

— = 500'





INQUIRY #: 4637606.8

YEAR: 1998

— = 500'



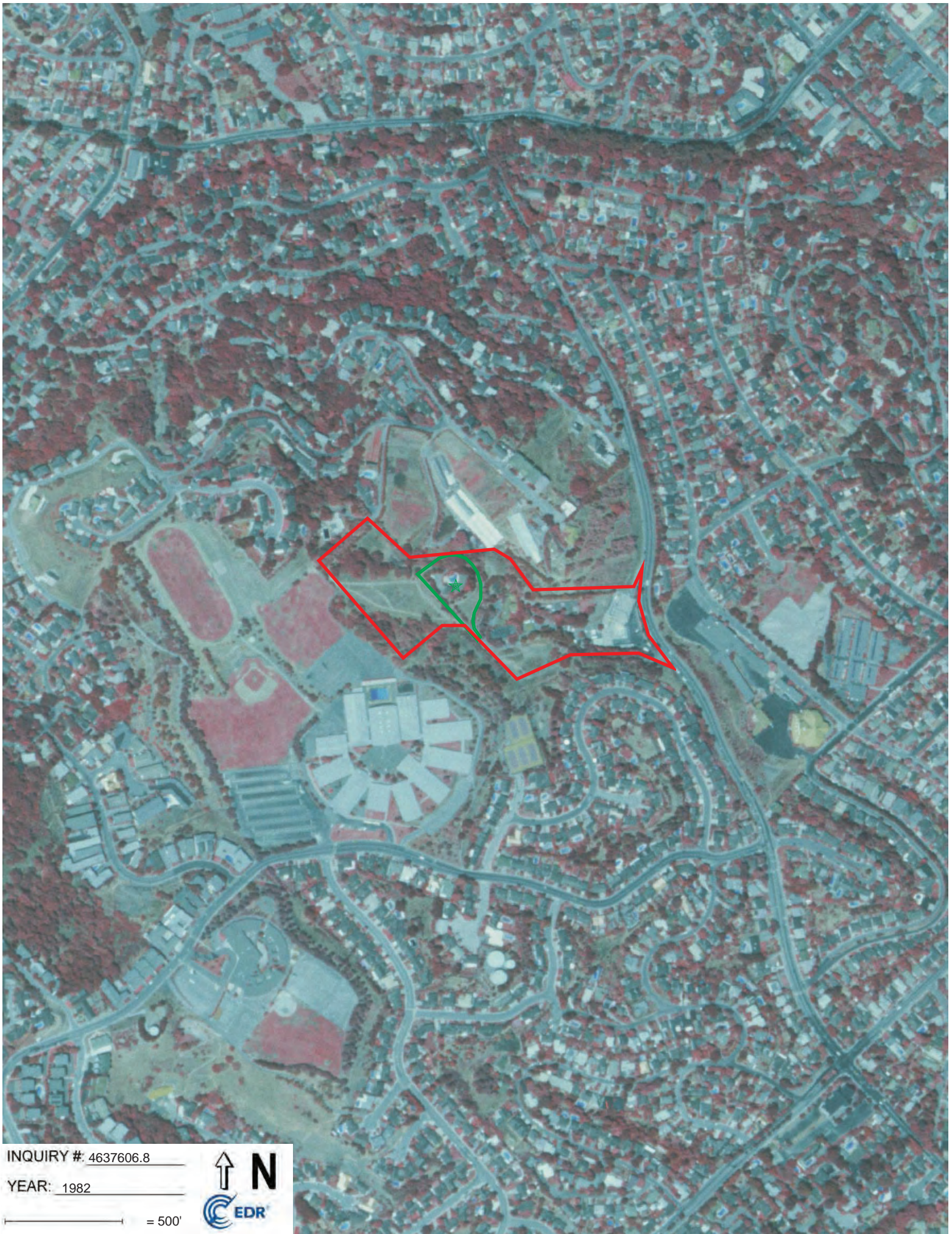


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YEAR: 1993

— = 500'





INQUIRY #: 4637606.8

YEAR: 1982

— = 500'





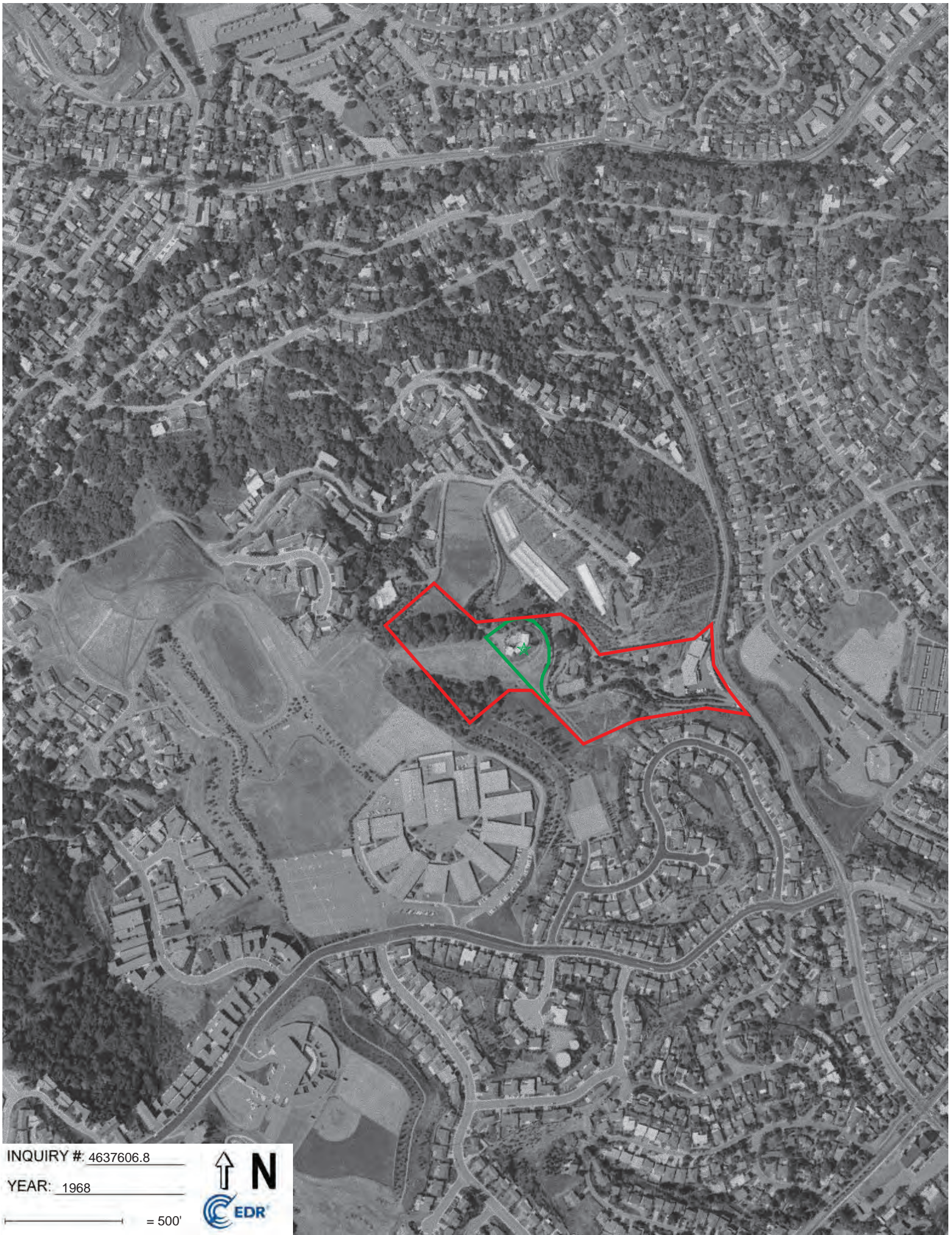


INQUIRY #: 4637606.8

YEAR: 1974

— = 500'





INQUIRY #: 4637606.8

YEAR: 1968

— = 500'





INQUIRY # 4637606.8

YEAR: 1956

— = 500'



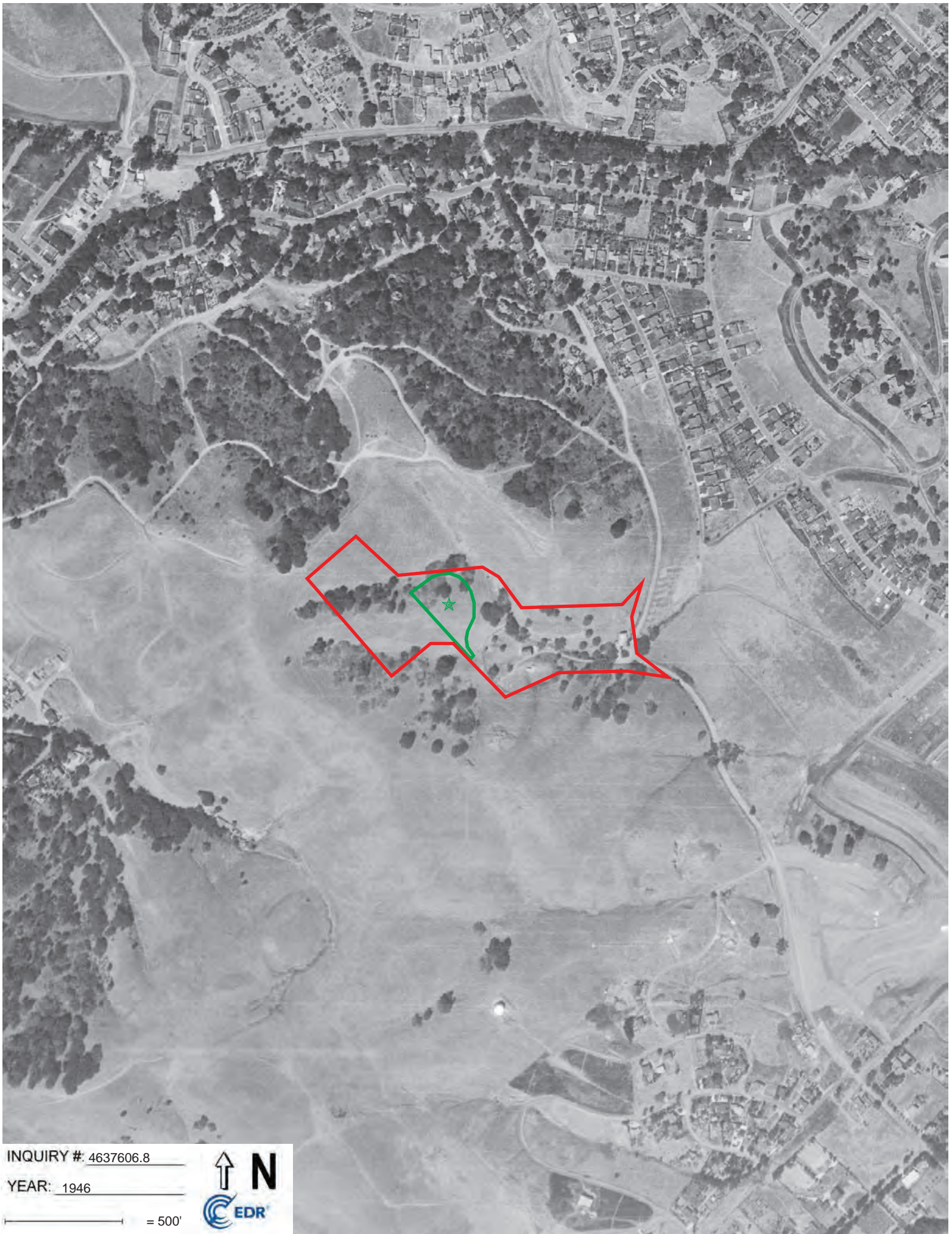


INQUIRY # 4637606.8

YEAR: 1948

— = 500'





INQUIRY #: 4637606.8

YEAR: 1946

— = 500'



Black Mountain

806 Alameda

San Carlos, CA 94070

Inquiry Number: 4637606.4

June 06, 2016

# EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Historical Topo Map Report

06/06/16

**Site Name:**

Black Mountain  
806 Alameda  
San Carlos, CA 94070  
EDR Inquiry # 4637606.4

**Client Name:**

Env. Assessment Specialists  
71 San Marino Ave  
Ventura, CA 93003-0000  
Contact: FCS



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Env. Assessment Specialists were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

**Search Results:****Coordinates:**

<b>P.O.#</b>	NA	<b>Latitude:</b>	37.496363 37° 29' 47" North
<b>Project:</b>	Black Mountain	<b>Longitude:</b>	-122.269973 -122° 16' 12" West
		<b>UTM Zone:</b>	Zone 10 North
		<b>UTM X Meters:</b>	564530.73
		<b>UTM Y Meters:</b>	4150188.10
		<b>Elevation:</b>	221.05' above sea level

**Maps Provided:**

2012                      1902  
1997  
1993, 1994, 1996  
1973  
1968  
1959, 1961  
1953, 1956  
1939, 1940, 1943

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## Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### 2012 Source Sheets



Woodside  
2012  
7.5-minute, 24000



San Mateo  
2012  
7.5-minute, 24000



Palo Alto  
2012  
7.5-minute, 24000



Redwood Point  
2012  
7.5-minute, 24000

### 1997 Source Sheets



San Mateo  
1997  
7.5-minute, 24000  
Aerial Photo Revised 1997



Woodside  
1997  
7.5-minute, 24000  
Photo Inspected 1997  
Aerial Photo Revised 1991

### 1993, 1994, 1996 Source Sheets



San Mateo  
1993  
7.5-minute, 24000  
Aerial Photo Revised 1993



Woodside  
1994  
7.5-minute, 24000  
Aerial Photo Revised 1991  
Edited 1994



Palo Alto  
1994  
7.5-minute, 24000  
Aerial Photo Revised 1991  
Edited 1994

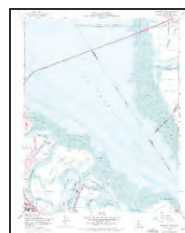


Redwood Point  
1996  
7.5-minute, 24000  
Aerial Photo Revised 1993  
Edited 1996

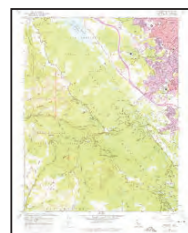
### 1973 Source Sheets



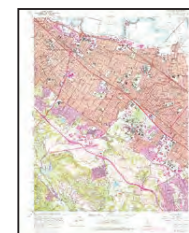
San Mateo  
1973  
7.5-minute, 24000  
Photo Revised 1973  
Aerial Photo Revised 1973



Redwood Point  
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7.5-minute, 24000  
Photo Revised 1973  
Aerial Photo Revised 1973



Woodside  
1973  
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Photo Revised 1973  
Aerial Photo Revised 1973



Palo Alto  
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Photo Revised 1973  
Aerial Photo Revised 1973



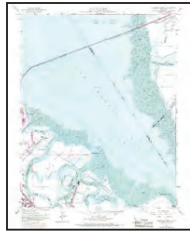
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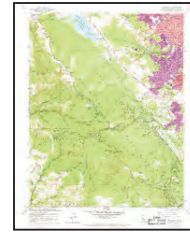
San Mateo  
1968  
7.5-minute, 24000  
Photo Revised 1968  
Aerial Photo Revised 1968



Redwood Point  
1968  
7.5-minute, 24000  
Photo Revised 1968  
Aerial Photo Revised 1968



Palo Alto  
1968  
7.5-minute, 24000  
Photo Revised 1968  
Aerial Photo Revised 1968



Woodside  
1968  
7.5-minute, 24000  
Photo Revised 1968  
Aerial Photo Revised 1968

### 1959, 1961 Source Sheets



Hayward  
1959  
15-minute, 62500  
Aerial Photo Revised 1958

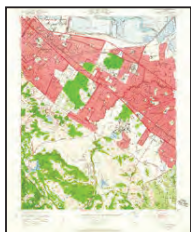


Palo Alto  
1961  
15-minute, 62500

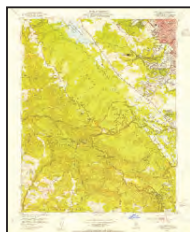


Half Moon Bay  
1961  
15-minute, 62500

### 1953, 1956 Source Sheets



Palo Alto  
1953  
7.5-minute, 24000  
Aerial Photo Revised 1948



Woodside  
1953  
7.5-minute, 24000  
Aerial Photo Revised 1948



San Mateo  
1956  
7.5-minute, 24000  
Aerial Photo Revised 1946

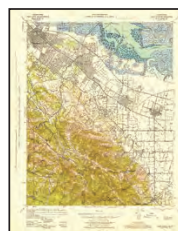
### 1939, 1940, 1943 Source Sheets



San Mateo  
1939  
15-minute, 62500  
Aerial Photo Revised 1939



Halfmoon Bay  
1940  
15-minute, 62500  
Aerial Photo Revised 1939



Palo Alto  
1943  
15-minute, 62500  
Aerial Photo Revised 1940

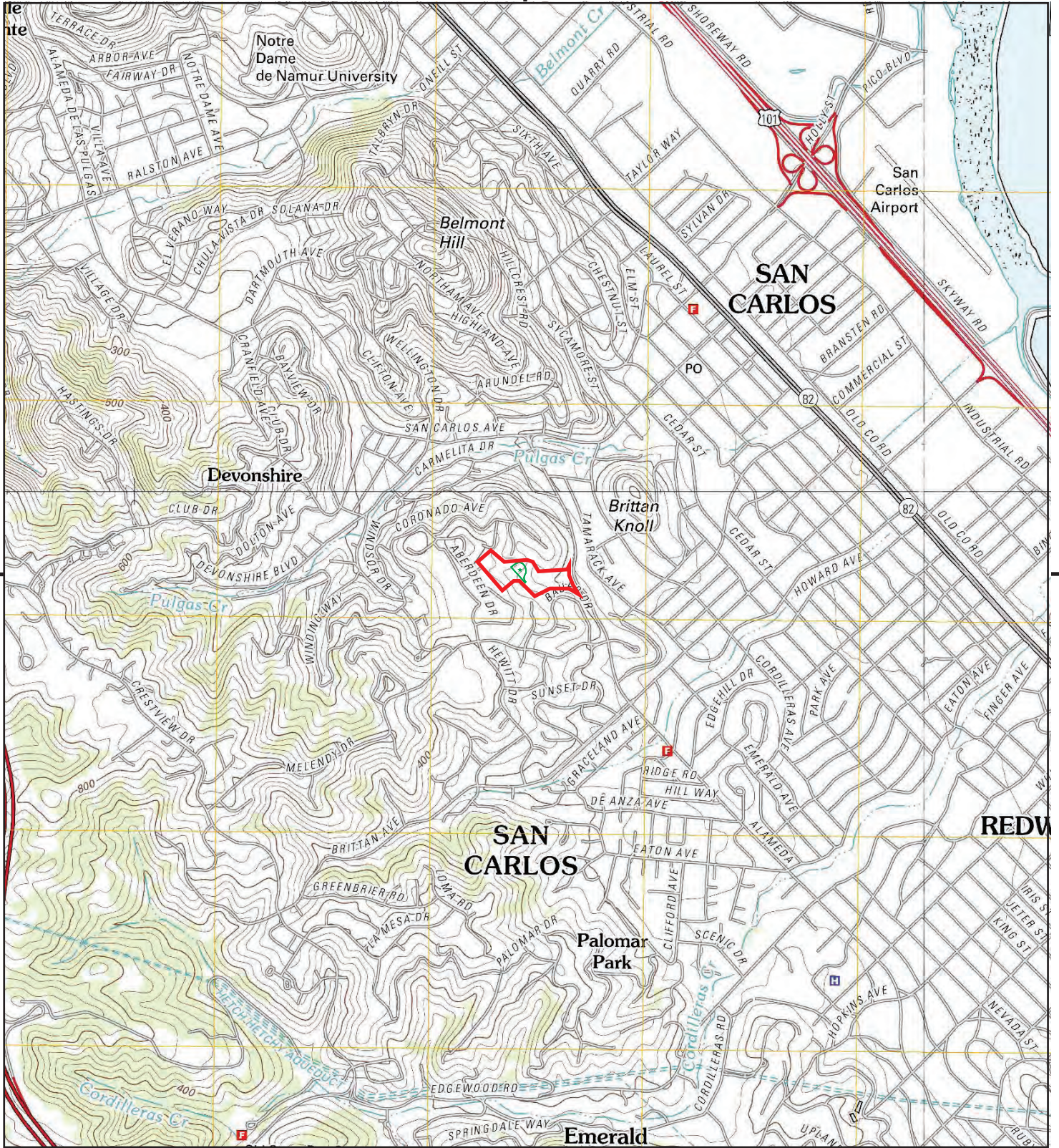
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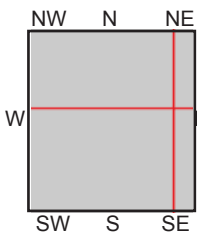
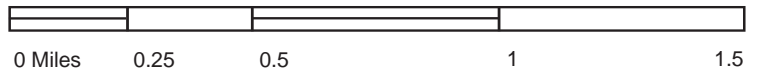
### **1902 Source Sheets**



Santa Cruz  
1902  
30-minute, 125000



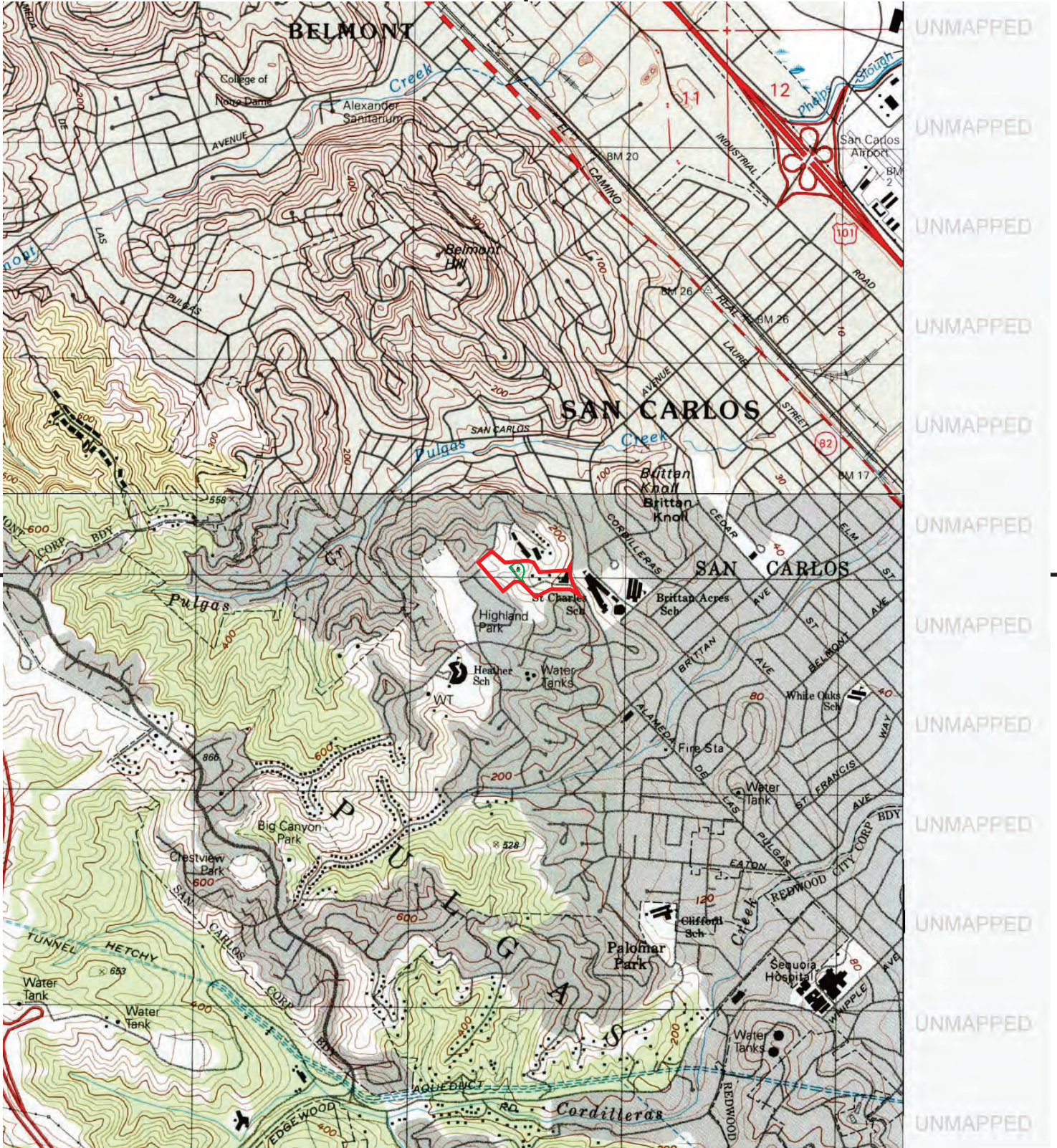
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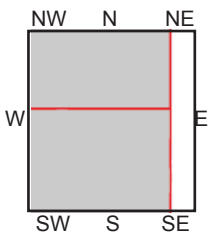
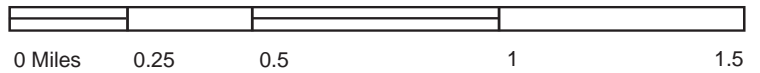
TP, Woodside, 2012, 7.5-minute  
 NE, Redwood Point, 2012, 7.5-minute  
 SE, Palo Alto, 2012, 7.5-minute  
 NW, San Mateo, 2012, 7.5-minute

**SITE NAME:** Black Mountain  
**ADDRESS:** 806 Alameda  
 San Carlos, CA 94070  
**CLIENT:** Env. Assessment Specialists





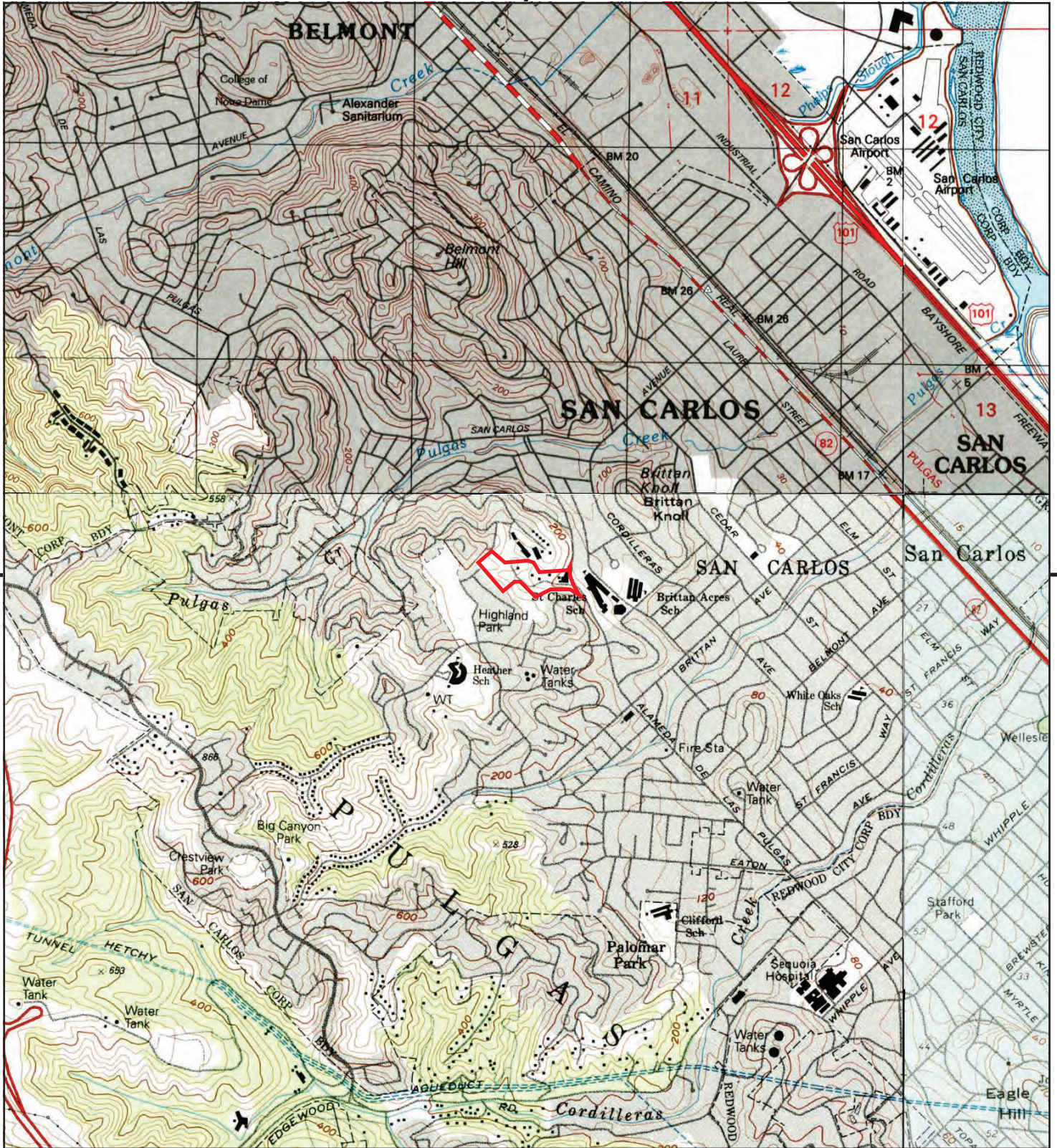
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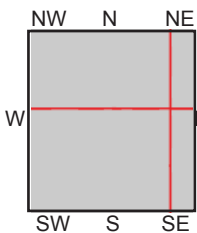
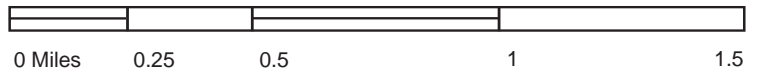
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 NW, San Mateo, 1997, 7.5-minute

**SITE NAME:** Black Mountain  
**ADDRESS:** 806 Alameda  
 San Carlos, CA 94070  
**CLIENT:** Env. Assessment Specialists





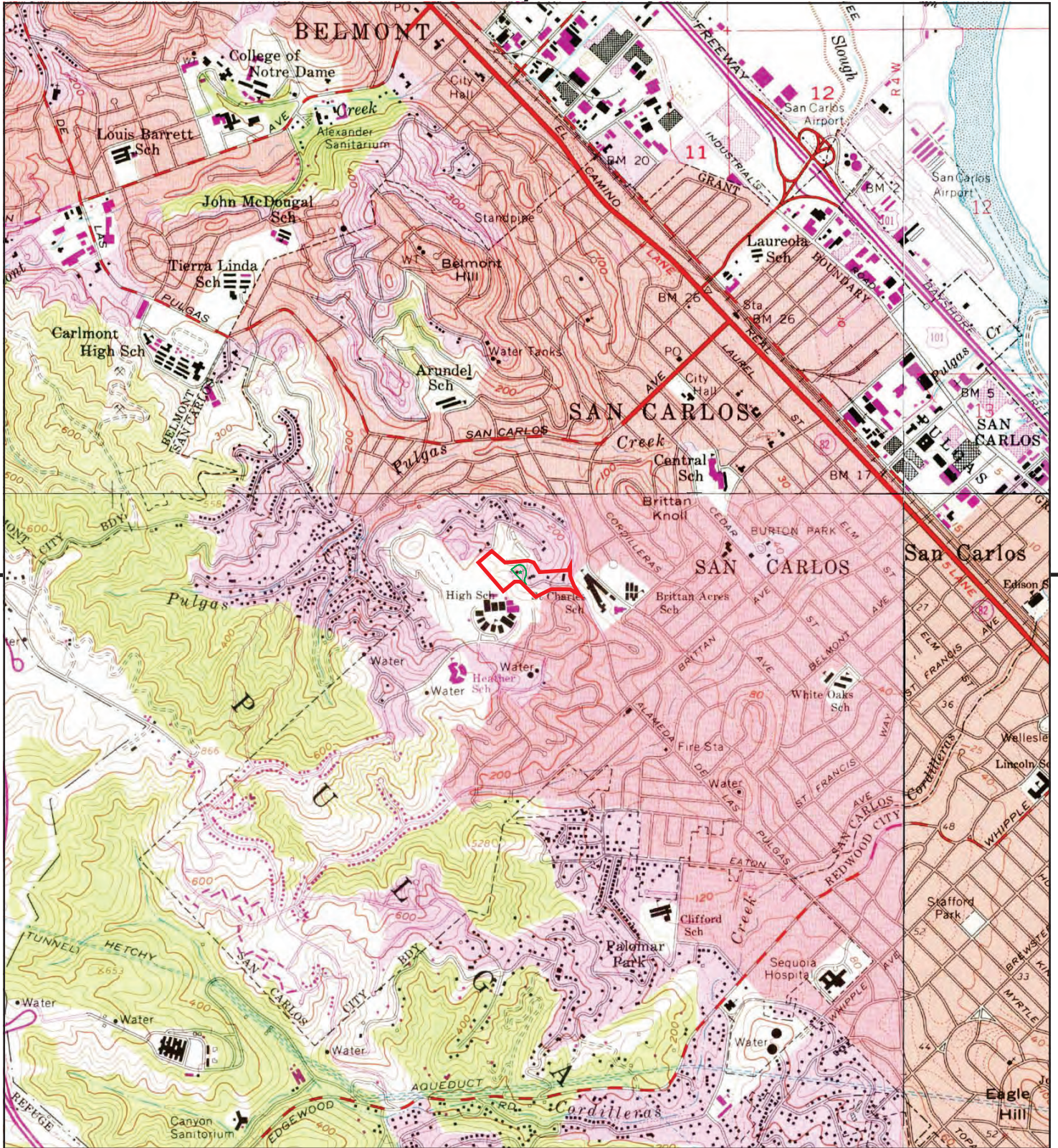
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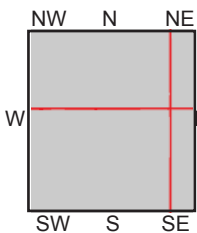
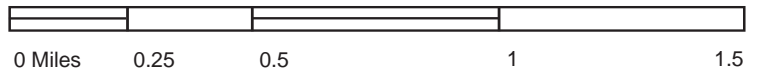
TP, Woodside, 1994, 7.5-minute  
 NE, Redwood Point, 1996, 7.5-minute  
 SE, Palo Alto, 1994, 7.5-minute  
 NW, San Mateo, 1993, 7.5-minute

SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





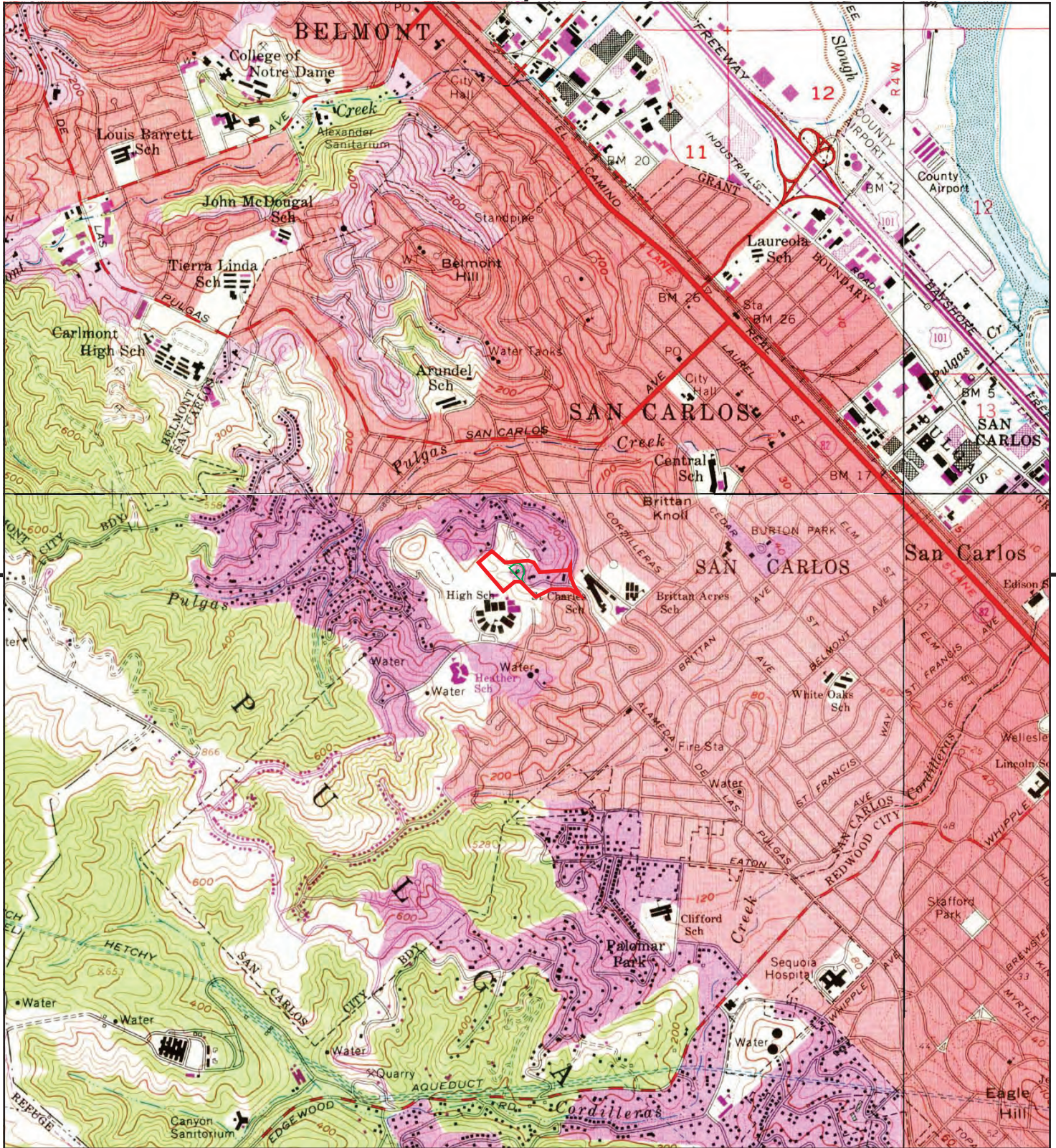
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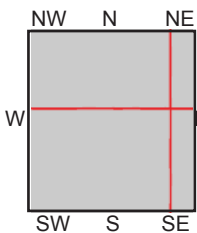
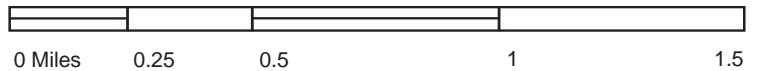
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 SE, Palo Alto, 1973, 7.5-minute  
 NW, San Mateo, 1973, 7.5-minute

SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





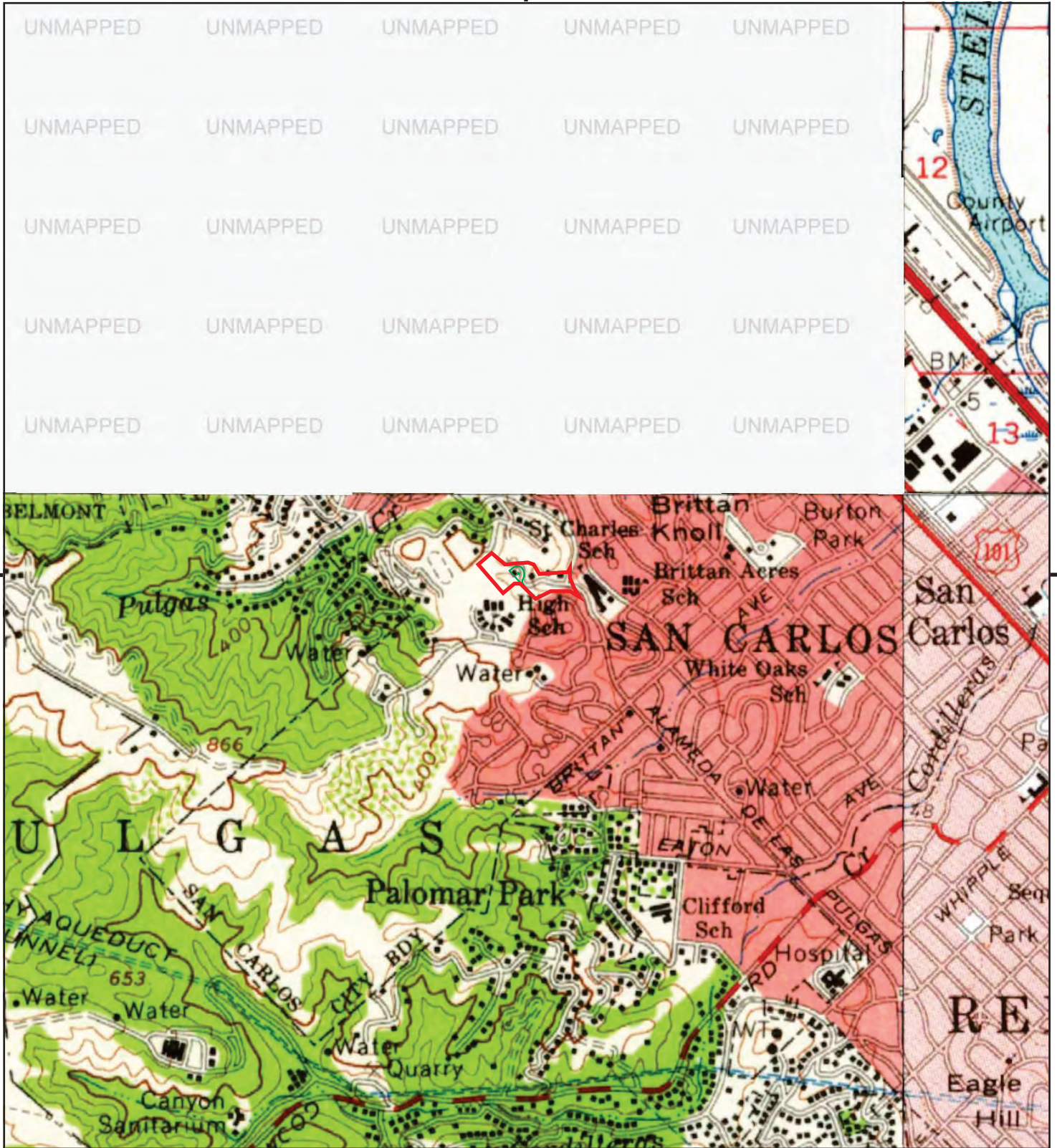
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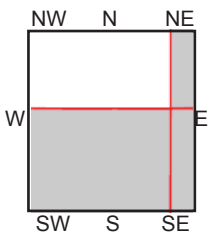
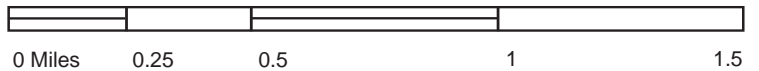
TP, Woodside, 1968, 7.5-minute  
 NE, Redwood Point, 1968, 7.5-minute  
 SE, Palo Alto, 1968, 7.5-minute  
 NW, San Mateo, 1968, 7.5-minute

SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





This report includes information from the following map sheet(s).

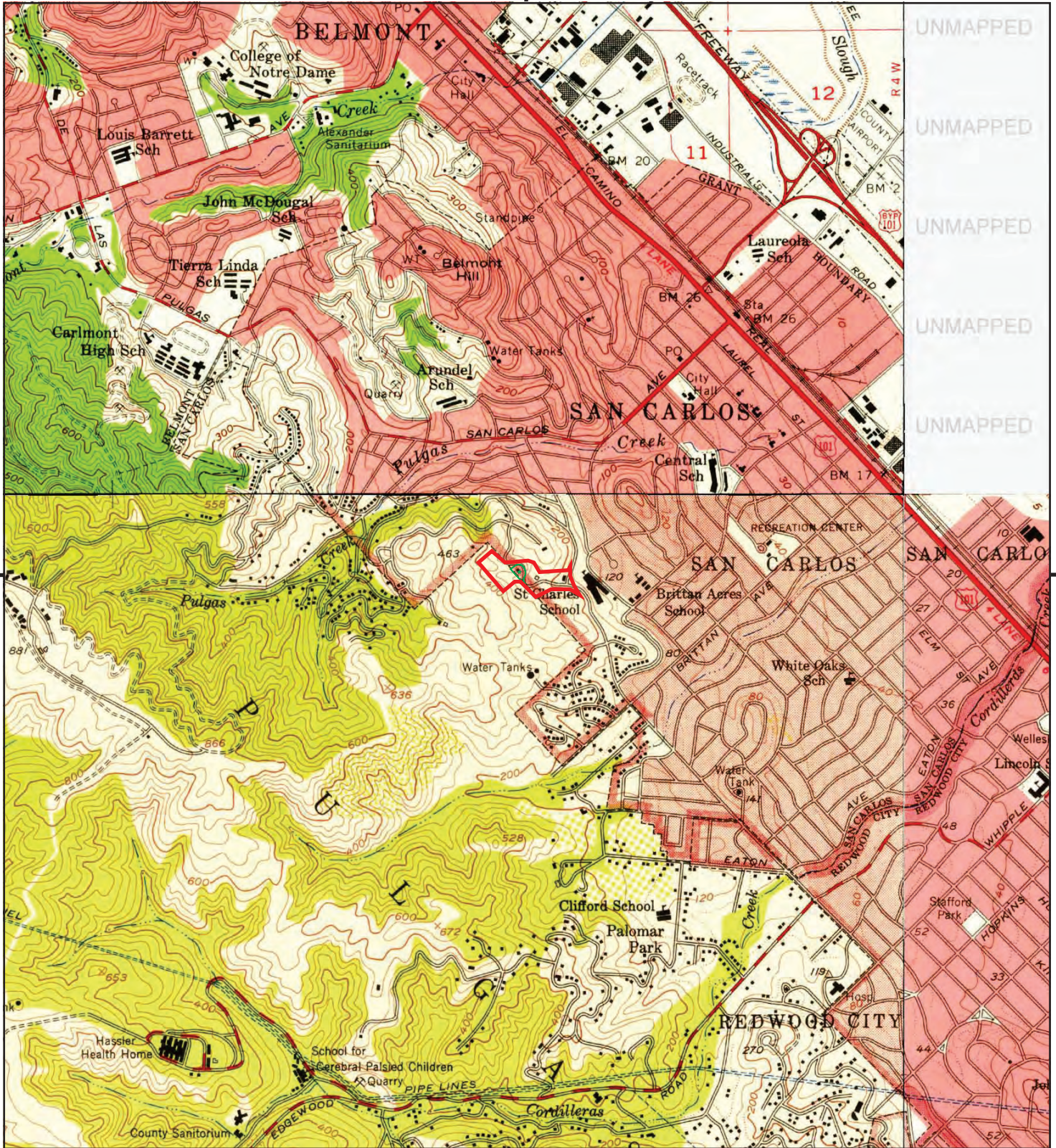


TP, Half Moon Bay, 1961, 15-minute  
 NE, Hayward, 1959, 15-minute  
 SE, Palo Alto, 1961, 15-minute

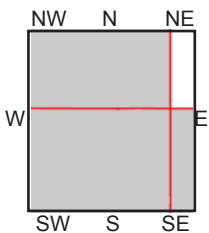
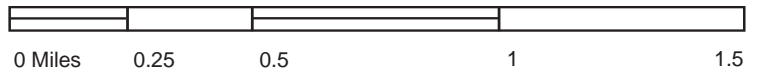
SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists







This report includes information from the following map sheet(s).



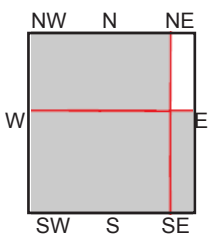
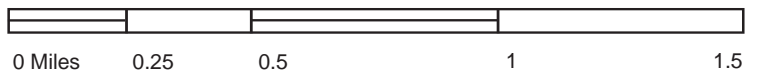
TP, Woodside, 1953, 7.5-minute  
 SE, Palo Alto, 1953, 7.5-minute  
 NW, San Mateo, 1956, 7.5-minute

SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





This report includes information from the following map sheet(s).



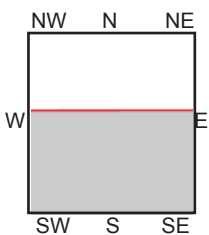
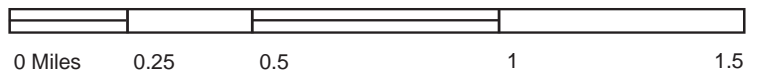
TP, Halfmoon Bay, 1940, 15-minute  
 SE, Palo Alto, 1943, 15-minute  
 NW, San Mateo, 1939, 15-minute

SITE NAME: Black Mountain  
 ADDRESS: 806 Alameda  
 San Carlos, CA 94070  
 CLIENT: Env. Assessment Specialists





This report includes information from the following map sheet(s).



TP, Santa Cruz, 1902, 30-minute

SITE NAME: Black Mountain  
ADDRESS: 806 Alameda  
San Carlos, CA 94070  
CLIENT: Env. Assessment Specialists



**Appendix E:  
Wetlands Map**



U.S. Fish and Wildlife Service

# National Wetlands Inventory



## Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

**Appendix F:  
Sanborn Fire Insurance Abstract**



Black Mountain

806 Alameda

San Carlos, CA 94070

Inquiry Number: 4637606.3

June 06, 2016

## Certified Sanborn® Map Report



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# Certified Sanborn® Map Report

06/06/16

**Site Name:**

Black Mountain  
806 Alameda  
San Carlos, CA 94070  
EDR Inquiry # 4637606.3

**Client Name:**

Env. Assessment Specialists  
71 San Marino Ave  
Ventura, CA 93003-0000  
Contact: FCS



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Env. Assessment Specialists were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn).

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

## Certified Sanborn Results:

**Certification #** 15E4-4DD6-ACCA

**PO #** NA

**Project** Black Mountain

### UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.



Sanborn® Library search results

Certification #: 15E4-4DD6-ACCA

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

*The Sanborn Library LLC Since 1866™*

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**Appendix G:  
City Directories**

**Black Mountain**

806 Alameda  
San Carlos, CA 94070

Inquiry Number: 4637606.9  
June 07, 2016

# The EDR-City Directory Image Report

## TABLE OF CONTENTS

### SECTION

Executive Summary

Findings

City Directory Images

*Thank you for your business.*  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2008	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2003	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1999	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1995	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1990	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1985	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1980	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1977	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1970	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory

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## FINDINGS

### TARGET PROPERTY STREET

806 Alameda  
San Carlos, CA 94070

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
-------------	-----------------	---------------

### ALAMEDA

2013	pg A1	Cole Information Services
2008	pg A2	Cole Information Services
2003	pg A3	Cole Information Services
1999	pg A4	Cole Information Services
1995	pg A5	Cole Information Services

### ALAMEDA (ALAMEDA DE LAS PULGAS)

1990	pg A6	Haines Criss-Cross Directory
1985	pg A7	Haines Criss-Cross Directory
1980	pg A8	Haines Criss-Cross Directory
1977	pg A9	Haines Criss-Cross Directory
1970	pg A10	Haines Criss-Cross Directory

## FINDINGS

### CROSS STREETS

No Cross Streets Identified

## **City Directory Images**

**ALAMEDA 2013**

446	RAPHAEL CARDET
546	JAMES GETTINS
552	ANDREW FRISCH
558	FREDRIC HOLLE
564	ALI CASARETTO
570	CHRISTOPHER NORTON
576	NICHOLAS ZALABAK
588	DANIEL YOUNG
596	DONNA KOPEC
622	ANTHEA LOUIE
628	TIFFANY VIRUEL
642	TINA CRABTREE
650	MICHAEL BYRNES
656	BRENNEN MCKENZIE
668	STEPHEN COTTON
804	ANTHONY BULLOCK
806	HOWARD HUTTO
887	CHARMAINE HOPE
924	ANDREW EATON
930	OCCUPANT UNKNOWN
935	E HINOJOSA
942	STEPHEN RAVANO
947	RYAN LEWIS
948	ROBERT HARPER
953	OCCUPANT UNKNOWN
954	CHARLOTTE LYON
959	OCCUPANT UNKNOWN
960	JEFF WALIKONIS
965	MADHURA KUMAR
974	SAJJAD MASUD
977	JOHN FOLLETT
984	CHARLES HUANG
990	RONALD SCRO
1006	CHARLES PARKER



**ALAMEDA 2008**

446	RAPHAEL CARDET
546	MICHAEL JANSON
552	ANDREW FRISCH
558	FREDRIC HOLLE
564	EUGENE CASARETTO
570	JENNIFER NORTON
575	RICHARD ALHONA
576	DOROTHIE FIGUERADO
588	DANIEL YOUNG
596	DONNA KOPEC
622	BEVERLY COMPTON
628	HERMINGHAUS PLUMBING
	KIM HERMINGHAUS
642	TINA CRABTREE
650	OCCUPANT UNKNOWN
656	BRENNEN MCKENZIE
668	JENNIFER WISHNOFF
688	JERRY SNYDER
804	STEVEN DAHLEN
887	LIANNE HOPE
924	MERRIL SMITH
930	OCCUPANT UNKNOWN
935	CHRISTOPHER HESIK
942	OCCUPANT UNKNOWN
947	RYAN LEWIS
948	BETTY HARPER
953	KRISTI FRANK
954	CHARLOTTE LYON
959	RAYMOND GOODWIN
960	JEFF WALIKONIS
965	CHRISTOPHER ROSSETTO
973	HARRY MCDANIEL
974	PAMELA ANDOR
977	OCCUPANT UNKNOWN
984	LILIAN ORTIZ
990	RONALD SCRO
1005	UNITED STUDIOS OF SELF DEFENSE
1006	ODIN AMADOR
	ODIN AMADOR CORP

**ALAMEDA 2003**

446	RAPHAEL CARDET
546	LINDA GLISSON
552	ANDREW FRISCH
558	OCCUPANT UNKNOWN
564	BARBARA CASARETTO
575	RICHARD ALHONA
576	CARA COBURN
588	DANIEL YOUNG
596	DONNA KOPEC
622	BEVERLY COMPTON
628	HERMINGHAUS PLUMBING
	KIM HERMINGHAUS
642	TINA CRABTREE
650	CHARLES WARTCHOW
656	MAHER NEJAD
668	ERIC DRABKIN
688	JERRY SNYDER
804	DAVID ALLEN
806	CAROL SCARIONI
924	MERRIL SMITH
930	RICHARD BERGHELLA
935	CHRIS HESIK
942	MEGAN MAHAR
947	RYAN LEWIS
948	WILLIAM KELLIHER
953	RICHARD WELLMAN
959	RAYMOND GOODWIN
960	JEFF WALIKONIS
965	OCCUPANT UNKNOWN
973	OCCUPANT UNKNOWN
974	PAMELA ANDOR
977	ROBERTO TOMASSETTI
984	MARIO SIMONSON
990	RONALD SCRO
1006	OCCUPANT UNKNOWN
	ODIN AMADOR CORP



-

**ALAMEDA 1999**

401	MICHAEL GILLESPIE
446	RAPHAEL CARDET
546	MICHAEL JANSON
552	ANDREW FRISCH OCCUPANT UNKNOWN
558	FREDRIC HOLLE
564	EUGENE CASARETTO
570	OCCUPANT UNKNOWN
575	RICHARD ALHONA
576	DAVID FINCH OCCUPANT UNKNOWN
588	DANIEL YOUNG
596	DONNA KOPEC
622	BEVERLY COMPTON
628	KIM HERMINGHAUS
642	TINA CRABTREE
650	OCCUPANT UNKNOWN
656	OCCUPANT UNKNOWN
668	ERIC DRABKIN
688	JERRY SNYDER
804	STEVEN DAHLEN
806	OCCUPANT UNKNOWN
887	CHARMAINE HOPE
924	ANDREW EATON
930	ABBY BERGHELLA
935	CHRISTOPHER HESIK OCCUPANT UNKNOWN
942	OCCUPANT UNKNOWN ROBERT RAVANO
947	RYAN LEWIS
948	OCCUPANT UNKNOWN
953	KRISTI YIM OCCUPANT UNKNOWN
954	SETH CASINI
959	RAYMOND GOODWIN
960	JEFF WALIKONIS
965	CHRISTOPHER ROSSETTO OCCUPANT UNKNOWN
973	HARRY MCDANIEL
974	PATRICK MCHUGH
977	JOHN FOLLETT OCCUPANT UNKNOWN
984	LILIAN ORTIZ OCCUPANT UNKNOWN
990	RONALD SCRO
1006	ERIC AMADOR OCCUPANT UNKNOWN

**ALAMEDA 1995**

546	OCCUPANT UNKNOWNN
552	FRISCH, ANDREW
564	OCCUPANT UNKNOWNN
570	STANLEY, RICHARD L
576	OCCUPANT UNKNOWNN
588	GAGNON, DONALD
622	COMPTON, B A
628	HERMINGHAUS, KIM F
642	LAMERDIN, WILLIAM J
650	MOTT, JAMES M
656	LUNSFORD, E M
668	OCCUPANT UNKNOWNN
808	OCCUPANT UNKNOWNN
887	HOPE, NORMAN A
924	SMITH, MERRIL N
935	OCCUPANT UNKNOWNN
942	SULINSKI, MARY C
947	BERGERON, NICOLE
948	HARPER, BETTY L
953	RICKLEFFS, EDNA A
954	CASINI, SETH S
960	WALIKONIS, JEFF
965	WOODS, DAVID
973	MCDANIEL, HARRY R
974	ANDOR, PAMELA A
977	DEWEESE, ROBBIE J
984	ANDREOZZI, ROBERT P
990	SCRO, RONALD
1006	OCCUPANT UNKNOWNN

## ALAMEDA (ALAMEDA DE LAS PULGAS) 1990

ALAMEDA DE LAS  
PULGAS 94070 SAN  
CARLOS

446	XXXX	00
546	XXXX	00
552	★SCANDIA CNCRTE PMPG	591-3754 9
564	XXXX	00
575	XXXX	00
576	XXXX	00
588	GAGNON Donald J	591-7770 2
622	XXXX	00
642	XXXX	00
656	XXXX	00
800	XXXX	00
924	SMITH Merrill N	591-1638
930	XXXX	00
947	XXXX	00
953	RICKLEFFS Edna A	591-2033
954	XXXX	00
959	GOODWIN Raymond	593-4485
960	AMADIO B	591-9961 1
965	XXXX	00
973	XXXX	00
977	LARKEY R J	591-1769 +0
990	XXXX	00
1011	VANHAUSER Gordon	591-1382
1012	XXXX	00
1017	GELLER Warren	591-4662
1018	XXXX	00
1022	SEWELL Garland R	591-6735
1023	XXXX	00
1030	KNIGHT C L	592-4873
1106	★TRINITY PRSBY CH	593-8226
	★TRINITY PRSBY NRSRY	593-0770

## ALAMEDA (ALAMEDA DE LAS PULGAS) 1985

# ALAMEDA DE LAS PULGAS

## 94070 SAN CARLOS

446	XXXX	00	
546	XXXX	00	
552	JAKOBSEN ARNE	591-3754	
564	C R CLEANING SERV	595-0385	2
575	XXXX	00	
576	BRYAN JOHN D	595-4859	4
588	GAGNON DONALD J	591-7770	2
596	KOPEC F G	591-7562	
808	KILLIAN BONNIE	595-3910	4
924	SMITH MERRIL N	591-1638	
930	XXXX	00	
947	XXXX	00	
953	RICKLEFFS HERBERT	591-2033	
954	HANTKE M	592-1580	3
959	GOODWIN RAYMOND	593-4485	
960	AMADIO B	591-9961	1
965	BARRON JOSEPH R	595-8905	4
973	XXXX	00	
977	XXXX	00	
990	REISS STEVEN	591-6192	2
1011	VANHAUSER GORDEN C	591-1382	
1012	XXXX	00	
1017	GELLER WARREN	591-4662	
1018	XXXX	00	
1022	SEWELL GARLAND R	591-6735	
1023	XXXX	00	
1030	KNIGHT C L	592-4873	
1106	TRINITY PRSBY CH	593-8226	
	TRINITY PRSBY NRSRY	593-0770	

## ALAMEDA (ALAMEDA DE LAS PULGAS) 1980

ALAMEDA DE LAS PULGAS  
94070 SAN CARLOS

446	TIXEL REINHARD C	593-8538	
546	XXXX	00	
552	JAKOBSEN ARNE	591-3754	3
575	SILBER ALLAN	593-0828	
576	XXXX	00	
596	KOPEC F G	591-7562	
622	MUSSO LOUIS SR	593-0181	
642	XXXX	00	
656	XXXX	00	
800★	<b>CAP SNAP SEAL INC</b>	<b>593-9538</b>	
804	XXXX	00	
808	XXXX	00	
924	SMITH MERRIL N	591-1638	
930	URAD BARBARA	593-1293	8
	URAD CHUCK	593-0620	8
935	FORBES CURTIS C	592-0160	
947	XXXX	00	
953	RICKLEFFS HERBERT	591-2033	2
954	XXXX	00	
959	GOODWIN RAYMOND	593-4485	
960	XXXX	00	
973	MCDANIEL HARRY R	593-0445	2
977	PETERSON AUBREY H	591-8843	
984	ANDREOZZI ROBERT P	593-9475	
990	XXXX	00	
1011	VANHAUSER GORDON C	591-1382	
1012	XXXX	00	
1017	GELLER WARREN	591-4662	
1018	XXXX	00	
1022	SEWELL GARLAND R	591-6735	
1023	XXXX	00	
1030	KNIGHT C L	592-4873	2
1106★	<b>TRINITY PRSBY CH</b>	<b>593-8226</b>	4
★	<b>TRINITY PRSBY NRSRY</b>	<b>593-0770</b>	

## ALAMEDA (ALAMEDA DE LAS PULGAS) 1977

ALAMEDA DE LAS PULGAS 94070

SAN CARLOS

446	TIXEL REINHARD C	593-8538	
546	XXXX	00	
552	JAKOBSEN ARNE	591-3754	3
575	SILBER ALLAN	593-0828	
576	XXXX	00	
596	KOPEC F G	591-7562	
622	MUSSO LOUIS SR	593-0181	
642	VANHEES THOMAS J	593-3396	
656	XXXX	00	
800*	CAP SNAP SEAL INC	593-9538	
804	XXXX	00	
808	XXXX	00	
924	SMITH MERRIL N	591-1638	
930	XXXX	00	
935	FORBES CURTIS C	592-0160	
947	MANRY L M	593-5565	3
953	RICKLEFFS HERBERT	591-2033	2
954	XXXX	00	
959	GOODWIN RAYMOND	593-4485	
960	XXXX	00	
973	MCDANIEL HARRY R	593-0445	2
977	PETERSON AUBREY H	591-8843	
984	ANDREOZZI ROBERT P	593-9475	
1011	VANHAUSER GORDON C	591-1382	
1012	XXXX	00	
1017	GELLER WARREN	591-4662	
1018	XXXX	00	
1022	SEWELL GARLAND R	591-6735	



## ALAMEDA (ALAMEDA DE LAS PULGAS) 1970

ALAMEDA DE LAS PULGAS 94070

SAN CARLOS

446	TIXEL REINHARD C	593-8538
546	PIAZZALE BEN	593-6307
552	QUARTAROLI PETER	593-8945
558	WITHERS K W	593-9096
575	SILBER ALLAN	593-0828
576	GILMORE ALICE M	591-6029
596	KOPEC F G	591-7562
622	MUSSO LOUIS SR	593-0181
642	VANHEES THOS J	593-3396
656	STEED G R	591-1943
666	OLIVERIO THOS	591-3231
800*	BLACK MNTN SPG WATR	322-8638
	*BLCK MNTN SPRNG WTR	591-9437
	*CAP SNAP SEAL INC	593-9538
804	DICKMAN JOHN C	593-8606
808	SCARIONI RUSSELL D	591-4076
924	SMITH MERRIL N	591-1638
930	GARCIA JOS	592-2516
935	FORBES CURTIS C	592-0160
947	MACDONALD LORNE	593-9988
953	RICKLEFFS HERBERT	591-2033
954	AIELLO JAS A	593-8626
959	GOODWIN RAYMOND	593-4485
960	PHILLIPS WARNER	593-4527
965	SMITH BARBARA M	591-9137
	SMITH GEO G	591-9137
973	MCDANIEL HARRY R	593-0445
977	FIGONE LOUIS A	591-1591
	PETERSON AUBREY H	591-8843
984	ANDREOZZI ROBT P	593-9475
1011	VANHAUSER GORDON C	591-1382
1012	WILLIAMS D J	593-0406
1017	GELLER WARREN	591-4662
1018	SIEFERMAN P MRS	592-3794
1022	SEWELL GARLAND R	591-6735
1023	FERNANDEZ HENRY G	593-9737
1106*	CLAPHAM ROBERT C	593-5749
	*PRESBYTRN TRINTY CH	593-5749
	*TRINITY PRESBY CH	593-5749
	*TRINITY PRSBY NRSRY	593-0770

**Appendix H:  
EDR/FirstSearch Government Database Report**

**Brothers Property**

808 Alameda De Las Pulgas  
San Carlos, CA 94070

Inquiry Number: 04709353.14r  
August 24, 2016

# FirstSearch Report



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# Search Summary Report

**TARGET SITE      808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070**

Category	Sel	Site	1/8	1/4	1/2	> 1/2	ZIP	TOTALS
<i>NPL</i>	Y	0	0	0	0	0	0	0
<i>NPL Delisted</i>	Y	0	0	0	0	0	0	0
<i>CERCLIS</i>	Y	0	0	0	0	-	0	0
<i>NFRAP</i>	Y	0	0	0	0	-	0	0
<i>RCRA COR ACT</i>	Y	0	0	0	0	0	0	0
<i>RCRA TSD</i>	Y	0	0	0	0	-	0	0
<i>RCRA GEN</i>	Y	0	0	0	-	-	0	0
<i>Federal IC / EC</i>	Y	0	0	0	0	-	0	0
<i>ERNS</i>	Y	0	0	-	-	-	0	0
<i>State/Tribal NPL</i>	Y	0	0	0	0	0	0	0
<i>State/Tribal CERCLIS</i>	Y	0	0	0	0	1	0	1
<i>State/Tribal SWL</i>	Y	0	0	0	0	-	0	0
<i>State/Tribal LTANKS</i>	Y	0	0	0	3	-	0	3
<i>State/Tribal Tanks</i>	Y	0	0	0	-	-	0	0
<i>State/Tribal VCP</i>	Y	0	0	0	0	-	0	0
<i>US Brownfields</i>	Y	0	0	0	0	-	0	0
<i>Other SWF</i>	Y	0	0	0	0	-	0	0
<i>Other Haz Sites</i>	Y	0	0	0	-	-	0	0
<i>Other Tanks</i>	Y	0	0	0	-	-	0	0
<i>Local Land Records</i>	Y	0	0	0	0	-	0	0
<i>Spills</i>	Y	0	0	-	-	-	0	0
<i>Other</i>	Y	0	1	8	-	-	0	9
- Totals --		0	1	8	3	1	0	13

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## Search Summary Report

**TARGET SITE: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070**

Category	Database	Update	Radius	Site	1/8	1/4	1/2	> 1/2	ZIP	TOTALS
<b>NPL</b>	NPL	03/07/2016	1.000	0	0	0	0	0	0	0
	Proposed NPL	03/07/2016	1.000	0	0	0	0	0	0	0
<b>NPL Delisted</b>	Delisted NPL	03/07/2016	1.000	0	0	0	0	0	0	0
<b>CERCLIS</b>	SEMS	03/07/2016	0.500	0	0	0	0	-	0	0
<b>NFRAP</b>	SEMS-ARCHIVE	03/07/2016	0.500	0	0	0	0	-	0	0
<b>RCRA COR ACT</b>	CORRACTS	12/09/2015	1.000	0	0	0	0	0	0	0
<b>RCRA TSD</b>	RCRA-TSDF	12/09/2015	0.500	0	0	0	0	-	0	0
<b>RCRA GEN</b>	RCRA-LQG	12/09/2015	0.250	0	0	0	-	-	0	0
	RCRA-SQG	12/09/2015	0.250	0	0	0	-	-	0	0
	RCRA-CESQG	12/09/2015	0.250	0	0	0	-	-	0	0
<b>Federal IC / EC</b>	US ENG CONTROLS	09/10/2015	0.500	0	0	0	0	-	0	0
	US INST CONTROL	09/10/2015	0.500	0	0	0	0	-	0	0
<b>ERNS</b>	ERNS	03/28/2016	0.001	0	0	-	-	-	0	0
<b>State/Tribal NPL</b>	RESPONSE	05/02/2016	1.000	0	0	0	0	0	0	0
<b>State/Tribal CERCLIS</b>	ENVIROSTOR	05/02/2016	1.000	0	0	0	0	1	0	1
<b>State/Tribal SWL</b>	SWF/LF	05/16/2016	0.500	0	0	0	0	-	0	0
<b>State/Tribal LTANKS</b>	LUST	06/13/2016	0.500	0	0	0	3	-	0	3
	INDIAN LUST	10/27/2015	0.500	0	0	0	0	-	0	0
	SLIC	06/13/2016	0.500	0	0	0	0	-	0	0
<b>State/Tribal Tanks</b>	UST	06/13/2016	0.250	0	0	0	-	-	0	0
	AST	08/01/2009	0.250	0	0	0	-	-	0	0
	INDIAN UST	10/20/2015	0.250	0	0	0	-	-	0	0
<b>State/Tribal VCP</b>	VCP	05/02/2016	0.500	0	0	0	0	-	0	0
<b>US Brownfields</b>	US BROWNFIELDS	03/21/2016	0.500	0	0	0	0	-	0	0

## Search Summary Report

**TARGET SITE: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070**

Category	Database	Update	Radius	Site	1/8	1/4	1/2	> 1/2	ZIP	TOTALS
<b>Other SWF</b>	WMUDS/SWAT	04/01/2000	0.500	0	0	0	0	-	0	0
<b>Other Haz Sites</b>	SCH	05/02/2016	0.250	0	0	0	-	-	0	0
	US CDL	05/04/2016	0.001	0	0	-	-	-	0	0
<b>Other Tanks</b>	SWEEPS UST	06/01/1994	0.250	0	0	0	-	-	0	0
	CA FID UST	10/31/1994	0.250	0	0	0	-	-	0	0
<b>Local Land Records</b>	DEED	06/06/2016	0.500	0	0	0	0	-	0	0
<b>Spills</b>	HMIRS	06/24/2015	0.001	0	0	-	-	-	0	0
	CHMIRS	04/11/2016	0.001	0	0	-	-	-	0	0
	SPILLS 90	06/06/2012	0.001	0	0	-	-	-	0	0
<b>Other</b>	RCRA NonGen / NLR	12/09/2015	0.250	0	0	0	-	-	0	0
	TSCA	12/31/2012	0.001	0	0	-	-	-	0	0
	TRIS	12/31/2014	0.001	0	0	-	-	-	0	0
	SSTS	12/31/2009	0.001	0	0	-	-	-	0	0
	RAATS	04/17/1995	0.001	0	0	-	-	-	0	0
	PRP	10/25/2013	0.001	0	0	-	-	-	0	0
	PADS	07/01/2014	0.001	0	0	-	-	-	0	0
	ICIS	01/23/2015	0.001	0	0	-	-	-	0	0
	FTTS	04/09/2009	0.001	0	0	-	-	-	0	0
	MLTS	03/07/2016	0.001	0	0	-	-	-	0	0
	RADINFO	07/07/2015	0.001	0	0	-	-	-	0	0
	INDIAN RESERV	12/31/2005	1.000	0	0	0	0	0	0	0
	US AIRS	10/20/2015	0.001	0	0	-	-	-	0	0
	FINDS	07/20/2015	0.001	0	0	-	-	-	0	0
	DOCKET HWC	03/01/2016	0.001	0	0	-	-	-	0	0
	UXO	10/25/2015	1.000	0	0	0	0	0	0	0
	Cortese	06/27/2016	0.500	0	0	0	0	-	0	0
	CUPA Listings		0.250	0	0	0	-	-	0	0
	HAZNET	12/31/2014	0.250	0	1	8	-	-	0	9
	WDS	06/19/2007	0.001	0	0	-	-	-	0	0
	- Totals --			0	1	8	3	1	0	13

# Site Information Report

**Request Date:** AUGUST 24, 2016  
**Request Name:** FCS

**Search Type:** COORD  
**Job Number:** NA

**Target Site:** 808 ALAMEDA DE LAS PULGAS  
 SAN CARLOS, CA 94070

## Site Location

	<u>Degrees (Decimal)</u>	<u>Degrees (Min/Sec)</u>	<u>UTMs</u>
Longitude:	122.271321	122.2713210 - 122° 16' 16.75"	Easting: 564412.9
Latitude:	37.496689	37.4966890 - 37° 29' 48.08"	Northing: 4150019.0
Elevation:	302 ft. above sea level		Zone: Zone 10

## Demographics

<b>Sites:</b> 13	<b>Non-Geocoded:</b> 0	<b>Population:</b> N/A		
<b>RADON</b>				
Federal EPA Radon Zone for SAN MATEO County: 2				
Note: Zone 1 indoor average level > 4 pCi/L.				
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.				
: Zone 3 indoor average level < 2 pCi/L.				
<hr/>				
Federal Area Radon Information for Zip Code: 94070				
Number of sites tested: 4				
<u>Area</u>	<u>Average Activity</u>	<u>% &lt;4 pCi/L</u>	<u>% 4-20 pCi/L</u>	<u>% &gt;20 pCi/L</u>
Living Area - 1st Floor	0.650 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported
<hr/>				
Federal Area Radon Information for SAN MATEO COUNTY, CA				
Number of sites tested: 32				
<u>Area</u>	<u>Average Activity</u>	<u>% &lt;4 pCi/L</u>	<u>% 4-20 pCi/L</u>	<u>% &gt;20 pCi/L</u>
Living Area - 1st Floor	0.594 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.000 pCi/L	100%	0%	0%
Basement	3.133 pCi/L	67%	33%	0%

# Site Information Report

## RADON

State Database: CA Radon

### Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94070	88	5



# Target Site Summary Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

TOTAL: 13

GEOCODED: 13

NON GEOCODED: 0

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
--------	------------------------	-----------	---------	----------	----------	----------

No sites found for target address

## Sites Summary Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

TOTAL: 13

GEOCODED: 13

NON GEOCODED: 0

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
1	HAZNET --CAC002609721	VIKI BAKER	155 VISTA DEL GRANDE SAN CARLOS, CA 94070	0.09 NE	+ 2	1
A2	HAZNET --CAC002795949	RYAN BRAUNSTEIN	860 BAUER DR SAN CARLOS, CA 94070	0.13 SE	- 9	2
3	HAZNET --CAC000761400	CAROL SCARIONI	800 ALAMEDA DE LOS POGAS SAN CARLOS, CA 94070	0.13 East	- 129	3
A4	HAZNET --CAC002750867	ROBERT SETO	813 BAUER DR SAN CARLOS, CA 94070	0.14 SSE	+ 13	4
5	HAZNET --CAC002692526	STEPHEN COTTRELL	804 TAMARACK AVE SAN CARLOS, CA 94070	0.17 East	- 165	5
6	HAZNET --CAC002744987	VIKAS CHINNAN	2416 MELENDY DR SAN CARLOS, CA 94070	0.22 SSE	- 70	6
B7	HAZNET --CAC002681311	SHARON CARROLL	890 HEATHER DR SAN CARLOS, CA 94070	0.22 South	+ 1	7
8	HAZNET --CAC002596777	SAINT CHARLES SCHOOL	850 TAMARACK AVE SAN CARLOS, CA 94070	0.23 ESE	- 184	8
B9	HAZNET --CAC001446048	FERNANDO THE NEAT	886 HEATHER SAN CARLOS, CA 94070	0.24 South	+ 16	9
C10	LUST --Completed - Case Closed --T0608100983	PRIVATE RESIDENCE	PRIVATE RESIDENCE SAN CARLOS, CA 94070	0.25 North	- 171	10
C11	LUST --9- Case Closed --778064 --T0608100983	RESIDENCE	115 DALE SAN CARLOS, CA 94070	0.26 North	- 174	16
12	LUST --Case Closed --9- Case Closed --Completed - Case Closed --770062 --T0608101016 --T0608101016	SAN CARLOS HIGH SCHOOL, FORMER	2800 MELENDY SAN CARLOS, CA 94070	0.45 SW	+ 252	17

\*Additional key fields are available in the Map Findings section

# Sites Summary Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

TOTAL: 13

GEOCODED: 13

NON GEOCODED: 0

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
13	ENVIROSTOR --60002247 --Active	CENTRAL MIDDLE SCHOOL/ARROYO B	757 CEDAR STREET SAN CARLOS, CA 94070	0.56 ENE	- 250	20

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112957188      **DIST/DIR:** 0.089 NE      **ELEVATION:** 304      **MAP ID:** 1

**NAME:** VIKI BAKER

**Rev:** 12/31/2014

**ADDRESS:** 155 VISTA DEL GRANDE  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002609721

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112957188

Year: 2006

GEPAID: CAC002609721

Contact: GOODY SEIF

Telephone: 5109671786

Mailing Name: Not reported

Mailing Address: 444 N BONHILL RD

Mailing City,St,Zip: LOS ANGELES, CA 900492324

Gen County: Not reported

TSD EPA ID: CAT000646117

TSD County: Not reported

Waste Category: Other organic solids

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 29.49

Cat Decode: Other organic solids

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S118228868      **DIST/DIR:** 0.127 SE      **ELEVATION:** 293      **MAP ID:** A2

**NAME:** RYAN BRAUNSTEIN

**Rev:** 12/31/2014

**ADDRESS:** 860 BAUER DR  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002795949

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S118228868

Year: 2014

GEPAID: CAC002795949

Contact: RYAN BRAUNSTEIN

Telephone: 4157944767

Mailing Name: Not reported

Mailing Address: 860 BAUER DR

Mailing City,St,Zip: SAN CARLOS, CA 94070

Gen County: San Mateo

TSD EPA ID: CAD981382732

TSD County: Alameda

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.23

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112843406      **DIST/DIR:** 0.134 East      **ELEVATION:** 173      **MAP ID:** 3

**NAME:** CAROL SCARIONI

**Rev:** 12/31/2014

**ADDRESS:** 800 ALAMEDA DE LOS POGAS  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC000761400

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112843406

Year: 1996

GEPAID: CAC000761400

Contact: CAROL SCARIONI

Telephone: 0000000000

Mailing Name: Not reported

Mailing Address: 806 ALAMEDA DE LOS POGAS

Mailing City,St,Zip: SAN CARLOS, CA 940700000

Gen County: Not reported

TSD EPA ID: CAL000027741

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Disposal, Land Fill

Tons: 1.8541

Cat Decode: Asbestos containing waste

Method Decode: Disposal, Land Fill

Facility County: San Mateo

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S117305932      **DIST/DIR:** 0.140 SSE      **ELEVATION:** 315      **MAP ID:** A4

**NAME:** ROBERT SETO

**Rev:** 12/31/2014

**ADDRESS:** 813 BAUER DR  
SAN CARLOS, CA 94070  
41

**ID/Status:** CAC002750867

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S117305932

Year: 2013

GEPAID: CAC002750867

Contact: ROBERT SETO

Telephone: 6505923460

Mailing Name: Not reported

Mailing Address: 813 BAUER DR

Mailing City,St,Zip: SAN CARLOS, CA 940703613

Gen County: San Mateo

TSD EPA ID: CAD982042475

TSD County: Solano

Waste Category: Not reported

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Not reported

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: Not reported

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S113778881      **DIST/DIR:** 0.168 East      **ELEVATION:** 137      **MAP ID:** 5

**NAME:** STEPHEN COTTRELL      **Rev:** 12/31/2014  
**ADDRESS:** 804 TAMARACK AVE      **ID/Status:** CAC002692526  
SAN CARLOS, CA 94070  
SAN MATEO  
**SOURCE:** CA California Environmental Protection Agency

HAZNET:  
envid: S113778881  
Year: 2012  
GEPaid: CAC002692526  
Contact: STEPHEN COTTRELL  
Telephone: 6503392101  
Mailing Name: Not reported  
Mailing Address: 804 TAMARACK AVE  
Mailing City,St,Zip: SAN CARLOS, CA 94070  
Gen County: San Mateo  
TSD EPA ID: CAD982042475  
TSD County: Solano  
Waste Category: Not reported  
Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)  
Tons: 0.4  
Cat Decode: Not reported  
Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)  
Facility County: San Mateo



# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S117301749      **DIST/DIR:** 0.223 SSE      **ELEVATION:** 232      **MAP ID:** 6

**NAME:** VIKAS CHINNAN

**Rev:** 12/31/2014

**ADDRESS:** 2416 MELENDY DR  
SAN CARLOS, CA 94070  
41

**ID/Status:** CAC002744987

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S117301749

Year: 2013

GEPAID: CAC002744987

Contact: VIKAS CHINNAN

Telephone: 4158507530

Mailing Name: Not reported

Mailing Address: 2416 MELENDY DR

Mailing City,St,Zip: SAN CARLOS, CA 940703623

Gen County: San Mateo

TSD EPA ID: CAD981382732

TSD County: Alameda

Waste Category: Not reported

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 0.4

Cat Decode: Not reported

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: Not reported

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112997525      **DIST/DIR:** 0.225 South      **ELEVATION:** 303      **MAP ID:** B7

**NAME:** SHARON CARROLL

**Rev:** 12/31/2014

**ADDRESS:** 890 HEATHER DR  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002681311

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112997525

Year: 2011

GEPAID: CAC002681311

Contact: SHARON CARROLL

Telephone: 6505338704

Mailing Name: Not reported

Mailing Address: 890 HEATHER DR

Mailing City,St,Zip: SAN CARLOS, CA 940703618

Gen County: Not reported

TSD EPA ID: CAD981382732

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Tons: 1.2

Cat Decode: Asbestos containing waste

Method Decode: Landfill Or Surface Impoundment That Will Be Closed As Landfill( To  
Include On-Site Treatment And/Or Stabilization)

Facility County: San Mateo

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112949266      **DIST/DIR:** 0.229 ESE      **ELEVATION:** 118      **MAP ID:** 8

**NAME:** SAINT CHARLES SCHOOL

**Rev:** 12/31/2014

**ADDRESS:** 850 TAMARACK AVE  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC002596777

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112949266

Year: 2005

GEPAID: CAC002596777

Contact: STEVE CALPAKOFF

Telephone: 4156145561

Mailing Name: Not reported

Mailing Address: 1 PETER YORKE WAY

Mailing City,St,Zip: SAN FRANCISCO, CA 941096602

Gen County: Not reported

TSD EPA ID: CAD981382732

TSD County: Not reported

Waste Category: Asbestos containing waste

Disposal Method: Disposal, Land Fill

Tons: 1.68

Cat Decode: Asbestos containing waste

Method Decode: Disposal, Land Fill

Facility County: San Mateo

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## HAZNET

**EDR ID:** S112892336      **DIST/DIR:** 0.236 South      **ELEVATION:** 318      **MAP ID:** B9

**NAME:** FERNANDO THE NEAT

**Rev:** 12/31/2014

**ADDRESS:** 886 HEATHER  
SAN CARLOS, CA 94070  
SAN MATEO

**ID/Status:** CAC001446048

**SOURCE:** CA California Environmental Protection Agency

### HAZNET:

envid: S112892336

Year: 2002

GEPAID: CAC001446048

Contact: RAY BONNETT

Telephone: --

Mailing Name: Not reported

Mailing Address: 886 HEATHER

Mailing City,St,Zip: SAN CARLOS, CA 940700000

Gen County: Not reported

TSD EPA ID: CAD008252405

TSD County: Not reported

Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)

Disposal Method: Recycler

Tons: 0.1

Cat Decode: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)

Method Decode: Recycler

Facility County: San Mateo

envid: S112892336

Year: 2001

GEPAID: CAC001446048

Contact: RAY BONNETT

Telephone: --

Mailing Name: Not reported

Mailing Address: 886 HEATHER

Mailing City,St,Zip: SAN CARLOS, CA 940700000

Gen County: Not reported

TSD EPA ID: CAD008252405

TSD County: Not reported

Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)

Disposal Method: Recycler

Tons: 0.2

Cat Decode: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)

Method Decode: Recycler

Facility County: San Mateo

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.254 North      **ELEVATION:** 131      **MAP ID:** C10

**NAME:** PRIVATE RESIDENCE      **Rev:** 06/13/2016  
**ADDRESS:** PRIVATE RESIDENCE      ID/Status: Completed - Case Closed  
SAN CARLOS, CA 94070      ID/Status: T0608100983  
SAN MATEO  
**SOURCE:** CA State Water Resources Control Board

LUST:  
Region: STATE  
Global Id: T0608100983  
Latitude: 37.5006816665686  
Longitude: -122.271890938282  
Case Type: LUST Cleanup Site  
Status: Completed - Case Closed  
Status Date: 01/28/1998  
Lead Agency: SAN MATEO COUNTY LOP  
Case Worker: MM  
Local Agency: SAN MATEO COUNTY LOP  
RB Case Number: 41-1072  
LOC Case Number: 778064  
File Location: Local Agency  
Potential Media Affect: Other Groundwater (uses other than drinking water)  
Potential Contaminants of Concern: Diesel  
Site History: Extracted from Kodiak Consulting's July 5, 2005 SITE CONCEPTUAL MODEL AND CASE CLOSURE SUMMARY ARGUMENT, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report. The site is located in San Carlos, California on the south side of Dale Avenue, between Manor Drive and Pine Avenue. The site is approximately 0.75 mile and 1.2 miles southwest of El Camino Real and State Highway 101, respectively. Site elevation is approximately 140 feet above mean sea level. The site consists of a 0.459 acre property; Assessors Parcel Number 049-373-080. The property is currently owned by Robert and Sandy Yolland. The site is a single family residence and is within a residentially zoned area of San Carlos. The topography slopes gently onsite to the north toward Pulgas Creek, and ascends steeply behind the residence. The ground elevation difference is less than two feet between MW-1 and B-4 as measured by North State Environmental in 1999. 1998 UST Removal Activities In January 1998, SEMCO removed one 1,000-gallon single-walled steel heating oil underground storage tank (UST) and associated product piping from the site. Approximately 120 gallons of residual product were pumped from the tank prior to removal. Small holes were noted in the bottom of the tank at the south end. Soil samples collected beneath the UST at approximately 7.5 feet below grade (fbg) contained up to 13,000 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as diesel (TPH-D). Benzene was not detected. A small amount of water was observed in the UST excavation, suspected to be rainwater or irrigation water. Sheen was observed on the surface of the water. The excavation was backfilled with imported silty gravelly sand fill from 2.5 to 8 fbg. A composite soil sample

- Continued on next page -

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.254 North      **ELEVATION:** 131      **MAP ID:** C10

**NAME:** PRIVATE RESIDENCE  
**ADDRESS:** PRIVATE RESIDENCE  
SAN CARLOS, CA 94070  
SAN MATEO

**Rev:** 06/13/2016  
**ID/Status:** Completed - Case Closed  
**ID/Status:** T0608100983

**SOURCE:** CA State Water Resources Control Board

was collected from the excavated soil from the UST removal and analyzed for TPH-D and benzene. The sample contained 59 mg/kg TPH-D and <0.005 mg/kg benzene. In addition, the UST removal soil sample containing the highest TPH-D concentration was analyzed for reactivity, corrosivity, ignitibility (RCI), and aquatic toxicity using rainbow trout. The results showed the soil to be non-hazardous, and subsequently the excavated soil was approved for used as backfill from 2.5 fbg to surface grade. 1998 Soil and Groundwater Investigation On March 3, 1998 SEMCO advanced one soil boring (B1) to 22 fbg to evaluate the hydrocarbon content in soil and groundwater beneath the former UST. Soil samples collected from the boring at 11, 15, 20, and 22 fbg contained up to 6,900 mg/kg TPH-D (20 fbg, capillary fringe zone) and <0.02 mg/kg benzene). The groundwater sample collected at 15 fbg in B1 contained 120 micrograms per liter ("g/l) TPH-D, but benzene was not detected (<0.5 "g/l benzene). Fluorene (13 "g/l) and phenanthrene (17 "g/l) were the polynuclear aromatic hydrocarbons (PAHs) detected, typical constituents of heating oil. Trace free-phase hydrocarbons (<0.01 foot) were observed in the groundwater sample. 1999 Soil and Groundwater Investigation Based on the 1998 subsurface investigation, additional characterization was required by the GPP. During March, April and June 1999, SEMCO advanced four soil borings (B2 through B5) to a maximum of 24 fbg around the perimeter of the former UST. Temporary casing was placed in the borings and surveyed. Based on these measurements, the groundwater gradient was calculated to flow to the southeast. Subsequently, SEMCO converted boring B5, downgradient of the former UST, to a 2-inch-diameter groundwater monitoring well. The locations of the borings and monitoring well are shown in Figure 1. Soil samples were collected from three of the borings (B5/MW-1 was not sampled due to it proximity to B2). The soil samples show that the heating oil was present beneath the former UST to the groundwater table at around 20 fbg, but decreased with depth from 1,700 mg/Kg at 11 fbg to 590 mg/Kg at 15 fbg. BTEX was not detected or was insignificant. The sample from B-4 at 23 fbg also contained 0.25 mg/Kg fluorene and 0.45mg/Kg phenanthrene, but represents a saturated soil sample. Grab groundwater samples collected from borings B2 through B4 contained up to 900 "g/L TPH-D (B2) and 2 "g/L benzene (B2). The groundwater sample collected from MW-1 contained 1,100 "g/L TPH-D and <0.5 "g/L benzene. No MTBE was detected. August 2002 Door-To-Door Well Survey Kodiak personnel performed a door-to-door well survey on August 22, 2002 of properties located within a 300 feet of the subject site property boundary. The survey was not performed directly behind the property to the south, as theses properties are located at least 100 feet upslope of the subject site. Four wells were reported, of which two of the wells were reported to

- Continued on next page -

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.254 North      **ELEVATION:** 131      **MAP ID:** C10

**NAME:** PRIVATE RESIDENCE

**Rev:** 06/13/2016

**ADDRESS:** PRIVATE RESIDENCE  
SAN CARLOS, CA 94070  
SAN MATEO

ID/Status: Completed - Case Closed  
ID/Status: T0608100983

**SOURCE:** CA State Water Resources Control Board

be filled or covered up and never used. The owners at 2108 Carmelita Drive reported a cistern, 1.5 feet in diameter and 8 feet deep, made of brick/clay. The cistern was believed to be installed approximately 100 years ago, for the purpose of farm irrigation, and is no longer in use. The owners at 2124 Carmelita Drive also reported a well that is six inches in diameter and 20 feet deep, and is made of brick/clay. It is used for landscaping purposes, albeit rarely.

[Click here to access the California GeoTracker records for this facility:](#)

**Contact:**

Global Id: T0608100983  
Contact Type: Regional Board Caseworker  
Contact Name: Regional Water Board  
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)  
Address: 1515 CLAY ST SUITE 1400  
City: OAKLAND  
Email: Not reported  
Phone Number: Not reported

Global Id: T0608100983  
Contact Type: Local Agency Caseworker  
Contact Name: MARC MULLANEY  
Organization Name: SAN MATEO COUNTY LOP  
Address: 2000 ALAMEDA DE LAS PULGAS  
City: SAN MATEO  
Email: mmullaney@smcgov.org  
Phone Number: 6503726289

**Status History:**

Global Id: T0608100983  
Status: Completed - Case Closed  
Status Date: 01/28/1998

Global Id: T0608100983  
Status: Open - Case Begin Date  
Status Date: 01/28/1998

Global Id: T0608100983  
Status: Open - Site Assessment  
Status Date: 01/28/1998

**Regulatory Activities:**

Global Id: T0608100983

- Continued on next page -

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.254 North      **ELEVATION:** 131      **MAP ID:** C10

**NAME:** PRIVATE RESIDENCE      **Rev:** 06/13/2016  
**ADDRESS:** PRIVATE RESIDENCE      ID/Status: Completed - Case Closed  
SAN CARLOS, CA 94070      ID/Status: T0608100983  
SAN MATEO  
**SOURCE:** CA State Water Resources Control Board

Action Type: RESPONSE  
Date: 05/12/2011  
Action: Electronic Reporting Submittal Due

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 07/13/2010  
Action: Staff Letter - #20100713 email

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 08/13/2010  
Action: Electronic Reporting Submittal Due

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 12/03/2010  
Action: Well Installation Report - Regulator Responded

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 07/14/2009  
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 04/12/2011  
Action: Staff Letter - #20110412

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 09/07/2007  
Action: Soil and Water Investigation Workplan

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 04/07/2005  
Action: Staff Letter - #20050407

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 02/05/1998  
Action: Notice of Responsibility - #1

Global Id: T0608100983

- Continued on next page -



# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.254 North      **ELEVATION:** 131      **MAP ID:** C10

**NAME:** PRIVATE RESIDENCE      **Rev:** 06/13/2016  
**ADDRESS:** PRIVATE RESIDENCE      ID/Status: Completed - Case Closed  
SAN CARLOS, CA 94070      ID/Status: T0608100983  
SAN MATEO  
**SOURCE:** CA State Water Resources Control Board

Action Type: ENFORCEMENT  
Date: 05/15/2007  
Action: Staff Letter - #20070515B

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 05/15/2007  
Action: Staff Letter - #20070515A

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 07/27/2009  
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0608100983  
Action Type: Other  
Date: 01/28/1998  
Action: Leak Discovery

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 07/06/2005  
Action: Request for Closure

Global Id: T0608100983  
Action Type: RESPONSE  
Date: 06/15/2007  
Action: Monitoring Report - Annually

Global Id: T0608100983  
Action Type: Other  
Date: 01/28/1998  
Action: Leak Reported

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 07/07/2009  
Action: Staff Letter - #20070707

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 05/25/2011  
Action: Closure/No Further Action Letter - #20110525

Global Id: T0608100983

- Continued on next page -

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S110655254      **DIST/DIR:** 0.254 North      **ELEVATION:** 131      **MAP ID:** C10

**NAME:** PRIVATE RESIDENCE

**Rev:** 06/13/2016

**ADDRESS:** PRIVATE RESIDENCE  
SAN CARLOS, CA 94070  
SAN MATEO

ID/Status: Completed - Case Closed  
ID/Status: T0608100983

**SOURCE:** CA State Water Resources Control Board

Action Type: ENFORCEMENT  
Date: 04/06/2011  
Action: Staff Letter - #20110406

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 07/13/2010  
Action: Staff Letter - #20100713

Global Id: T0608100983  
Action Type: ENFORCEMENT  
Date: 03/01/2011  
Action: Staff Letter - #20110301

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## LUST

**EDR ID:** S103893713      **DIST/DIR:** 0.259 North      **ELEVATION:** 128      **MAP ID:** C11

**NAME:** RESIDENCE

**Rev:** 06/13/2016

**ADDRESS:** 115 DALE

ID/Status: 9- Case Closed

SAN CARLOS, CA 94070

ID/Status: 778064

ID/Status: T0608100983

**SOURCE:** CA State Water Resources Control Board

### SAN MATEO CO. LUST:

Region: SAN MATEO

Facility ID: 778064

Facility Status: 9- Case Closed

Global ID: T0608100983

APN Number: 049373080

Case Type: SAN MATEO CO. LUST

EDR Link ID: SAN MATEO CO. LUST

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## LUST

**EDR ID:** S103396265      **DIST/DIR:** 0.454 SW      **ELEVATION:** 554      **MAP ID:** 12

<b>NAME:</b> SAN CARLOS HIGH SCHOOL, FORMER	<b>Rev:</b> 06/13/2016
<b>ADDRESS:</b> 2800 MELENDY	ID/Status: Case Closed
SAN CARLOS, CA 94070	ID/Status: 9- Case Closed
SAN MATEO	ID/Status: Completed - Case Closed
<b>SOURCE:</b> CA State Water Resources Control Board	ID/Status: 770062
	ID/Status: T0608101016

LUST:  
Region: STATE  
Global Id: T0608101016  
Latitude: 37.4917993  
Longitude: -122.276666  
Case Type: LUST Cleanup Site  
Status: Completed - Case Closed  
Status Date: 07/23/2003  
Lead Agency: SAN MATEO COUNTY LOP  
Case Worker: MM  
Local Agency: SAN MATEO COUNTY LOP  
RB Case Number: 41-1106  
LOC Case Number: 770062  
File Location: Local Agency Warehouse  
Potential Media Affect: Soil  
Potential Contaminants of Concern: Waste Oil / Motor / Hydraulic / Lubricating  
Site History: Not reported

[Click here to access the California GeoTracker records for this facility:](#)

Contact:  
Global Id: T0608101016  
Contact Type: Regional Board Caseworker  
Contact Name: Regional Water Board  
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)  
Address: 1515 CLAY ST SUITE 1400  
City: OAKLAND  
Email: Not reported  
Phone Number: Not reported

Global Id: T0608101016  
Contact Type: Local Agency Caseworker  
Contact Name: MARC MULLANEY  
Organization Name: SAN MATEO COUNTY LOP  
Address: 2000 ALAMEDA DE LAS PULGAS  
City: SAN MATEO  
Email: mmullaney@smcgov.org  
Phone Number: 6503726289

Status History:  
Global Id: T0608101016  
Status: Completed - Case Closed  
Status Date: 07/23/2003

- Continued on next page -

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## LUST

**EDR ID:** S103396265      **DIST/DIR:** 0.454 SW      **ELEVATION:** 554      **MAP ID:** 12

**NAME:** SAN CARLOS HIGH SCHOOL, FORMER      **Rev:** 06/13/2016  
**ADDRESS:** 2800 MELENDY      ID/Status: Case Closed  
SAN CARLOS, CA 94070      ID/Status: 9- Case Closed  
SAN MATEO      ID/Status: Completed - Case Closed  
**SOURCE:** CA State Water Resources Control Board      ID/Status: 770062  
ID/Status: T0608101016

Global Id: T0608101016  
Status: Open - Case Begin Date  
Status Date: 12/11/1997

Global Id: T0608101016  
Status: Open - Verification Monitoring  
Status Date: 12/11/1997

Regulatory Activities:  
Global Id: T0608101016  
Action Type: ENFORCEMENT  
Date: 12/11/1997  
Action: Notice of Responsibility - #1

Global Id: T0608101016  
Action Type: ENFORCEMENT  
Date: 07/23/2003  
Action: Closure/No Further Action Letter - #2

Global Id: T0608101016  
Action Type: Other  
Date: 12/11/1997  
Action: Leak Reported

LUST REG 2:  
Region: 2  
Facility Id: Not reported  
Facility Status: Case Closed  
Case Number: 770062  
How Discovered: OM  
Leak Cause: Unknown  
Leak Source: Unknown  
Date Leak Confirmed: Not reported  
Oversight Program: LUST  
Prelim. Site Assessment Workplan Submitted: Not reported  
Preliminary Site Assessment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: 1/1/1965

SAN MATEO CO. LUST:

- Continued on next page -

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

LUST

**EDR ID:** S103396265      **DIST/DIR:** 0.454 SW      **ELEVATION:** 554      **MAP ID:** 12

**NAME:** SAN CARLOS HIGH SCHOOL, FORMER  
**ADDRESS:** 2800 MELENDY  
SAN CARLOS, CA 94070  
SAN MATEO  
**SOURCE:** CA State Water Resources Control Board

**Rev:** 06/13/2016  
ID/Status: Case Closed  
ID/Status: 9- Case Closed  
ID/Status: Completed - Case Closed  
ID/Status: 770062  
ID/Status: T0608101016

Region: SAN MATEO  
Facility ID: 770062  
Facility Status: 9- Case Closed  
Global ID: T0608101016  
APN Number: Not reported  
Case Type: SAN MATEO CO. LUST  
EDR Link ID: SAN MATEO CO. LUST

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** S118353731      **DIST/DIR:** 0.560 ENE      **ELEVATION:** 52      **MAP ID:** 13

**NAME:** CENTRAL MIDDLE SCHOOL/ARROYO BRIDGE SCHOOL      **Rev:** 05/02/2016  
**ADDRESS:** 757 CEDAR STREET      ID/Status: 60002247  
SAN CARLOS, CA 94070      ID/Status: Active  
SAN MATEO  
**SOURCE:** CA Department of Toxic Substances Control

ENVIROSTOR:  
Facility ID: 60002247  
Status: Active  
Status Date: 10/06/2015  
Site Code: 204278  
Site Type: School Investigation  
Site Type Detailed: School  
Acres: 9  
NPL: NO  
Regulatory Agencies: SMBRP  
Lead Agency: SMBRP  
Program Manager: Craig Sanchez  
Supervisor: Jose Salcedo  
Division Branch: Northern California Schools & Santa Susana  
Assembly: , 22  
Senate: , 13  
Special Program: Not reported  
Restricted Use: NO  
Site Mgmt Req: NONE SPECIFIED  
Funding: School District  
Latitude: 37.50072  
Longitude: -122.2621  
APN: 050-141-350  
Past Use: SCHOOL - MIDDLE  
Potential COC: Under Investigation Chlordane Endrin Lead Polychlorinated biphenyls  
(PCBs)  
Confirmed COC: 30004-NO 30010-NO 30013-NO 30018-NO Under Investigation  
Potential Description: SOIL  
Alias Name: 050-141-350  
Alias Type: APN  
Alias Name: 204278  
Alias Type: Project Code (Site Code)  
Alias Name: 60002247  
Alias Type: Envirostor ID Number  
  
Completed Info:  
Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Phase 1  
Completed Date: 10/14/2015  
Comments: Not reported  
  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported

- Continued on next page -

# Site Detail Report

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

## ENVIROSTOR

**EDR ID:** S118353731      **DIST/DIR:** 0.560 ENE      **ELEVATION:** 52      **MAP ID:** 13

**NAME:** CENTRAL MIDDLE SCHOOL/ARROYO BRIDGE SCHOOL      **Rev:** 05/02/2016  
**ADDRESS:** 757 CEDAR STREET      ID/Status: 60002247  
SAN CARLOS, CA 94070      ID/Status: Active  
SAN MATEO  
**SOURCE:** CA Department of Toxic Substances Control

Future Due Date: Not reported  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported



## Database Descriptions

NPL: NPL National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices. NPL - National Priority List Proposed NPL - Proposed National Priority List Sites.

NPL Delisted: Delisted NPL The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Delisted NPL - National Priority List Deletions

CERCLIS: SEMS SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL. SEMS - Superfund Enterprise Management System

NFRAP: SEMS-ARCHIVE SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site. SEMS-ARCHIVE - Superfund Enterprise Management System Archive

RCRA COR ACT: CORRACTS CORRACTS identifies hazardous waste handlers with RCRA corrective action activity. CORRACTS - Corrective Action Report

RCRA TSD: RCRA-TSDF RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste. RCRA-TSDF - RCRA - Treatment, Storage and Disposal

RCRA GEN: RCRA-LQG RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. RCRA-LQG - RCRA - Large Quantity Generators RCRA-SQG - RCRA - Small Quantity Generators. RCRA-CESQG - RCRA - Conditionally Exempt Small Quantity Generators.

Federal IC / EC: US ENG CONTROLS A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. US ENG CONTROLS - Engineering Controls Sites List US INST CONTROL - Sites with Institutional Controls.

## Database Descriptions

ERNS: ERNS Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances. ERNS - Emergency Response Notification System

State/Tribal NPL: RESPONSE Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. RESPONSE - State Response Sites

State/Tribal CERCLIS: ENVIROSTOR The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. ENVIROSTOR - EnviroStor Database

State/Tribal SWL: SWF/LF (SWIS) Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites. SWF/LF (SWIS) - Solid Waste Information System

State/Tribal LTANKS: SAN MATEO CO. LUST SOLANO CO. LUST - Leaking Underground Storage Tanks. RIVERSIDE CO. LUST - Listing of Underground Tank Cleanup Sites. LUST SANTA CLARA - LOP Listing. VENTURA CO. LUST - Listing of Underground Tank Cleanup Sites. LUST REG 1 - Active Toxic Site Investigation. LUST REG 6V - Leaking Underground Storage Tank Case Listing. LUST REG 2 - Fuel Leak List. LUST REG 4 - Underground Storage Tank Leak List. LUST REG 5 - Leaking Underground Storage Tank Database. LUST REG 7 - Leaking Underground Storage Tank Case Listing. NAPA CO. LUST - Sites With Reported Contamination. LUST REG 8 - Leaking Underground Storage Tanks. SAN FRANCISCO CO. LUST - Local Oversight Facilities. LUST - Geotracker's Leaking Underground Fuel Tank Report. LUST REG 6L - Leaking Underground Storage Tank Case Listing. SAN DIEGO CO. SAM - Environmental Case Listing. LUST REG 3 - Leaking Underground Storage Tank Database. LUST REG 9 - Leaking Underground Storage Tank Report. SONOMA CO. LUST - Leaking Underground Storage Tank Sites. ORANGE CO. LUST - List of Underground Storage Tank Cleanups. A listing of leaking underground storage tank sites located in San Francisco county. ORANGE CO. LUST - Local Oversight Facilities INDIAN LUST R1 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R5 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R10 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R9 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R4 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R6 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R7 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R8 - Leaking Underground Storage Tanks on Indian Land. SLIC - Statewide SLIC Cases. SLIC REG 1 - Active Toxic Site Investigations. SLIC REG 2 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 3 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 4 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 5 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 6V - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 6L - SLIC Sites. SLIC REG 7 - SLIC List. SLIC REG 8 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 9 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. Sacramento Co. CS - Toxic Site Clean-Up List.

State/Tribal Tanks: UST Active UST facilities gathered from the local regulatory agencies UST - Active UST Facilities AST - Aboveground Petroleum Storage Tank Facilities. INDIAN UST R6 - Underground Storage Tanks on Indian Land. INDIAN UST R5 - Underground Storage Tanks on Indian Land. INDIAN UST R4 - Underground Storage Tanks on Indian Land. INDIAN UST R9 - Underground Storage Tanks on Indian Land. INDIAN UST R8 - Underground Storage Tanks on Indian Land. INDIAN UST R7 - Underground Storage Tanks on Indian Land. INDIAN UST R10 - Underground Storage Tanks on Indian Land. INDIAN UST R1 - Underground Storage Tanks on Indian Land.

## Database Descriptions

State/Tribal VCP: VCP Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs. VCP - Voluntary Cleanup Program Properties

US Brownfields: US BROWNFIELDS Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs. US BROWNFIELDS - A Listing of Brownfields Sites

Other SWF: VENTURA CO. LF LOS ANGELES CO. LF - List of Solid Waste Facilities. SAN DIEGO CO. LF - Solid Waste Facilities. CA LA LF - City of Los Angeles Landfills. WMUDS/SWAT - Waste Management Unit Database. Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites. WMUDS/SWAT - Inventory of Illegal Abandoned and Inactive Sites

Other Haz Sites: SCH This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose. SCH - School Property Evaluation Program SAN DIEGO CO. HMMD - Hazardous Materials Management Division Database. US CDL - Clandestine Drug Labs.

Other Tanks: SWEEPS UST Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list. SWEEPS UST - SWEEPS UST Listing ALAMEDA CO. UST - Underground Tanks. KERN CO. UST - Underground Storage Tank Sites & Tank Listing. MARIN CO. UST - Underground Storage Tank Sites. NAPA CO. UST - Closed and Operating Underground Storage Tank Sites. ORANGE CO. UST - List of Underground Storage Tank Facilities. RIVERSIDE CO. UST - Underground Storage Tank List. SAN FRANCISCO CO. UST - Underground Storage Tank Information. SOLANO CO. UST - Underground Storage Tanks. SUTTER CO. UST - Underground Storage Tanks. VENTURA CO. UST - Underground Tank Closed Sites List. YOLO CO. UST - Underground Storage Tank Comprehensive Facility Report. EL SEGUNDO UST - City of El Segundo Underground Storage Tank. LONG BEACH UST - City of Long Beach Underground Storage Tank. UST MENDOCINO - Mendocino County UST Database. TORRANCE UST - City of Torrance Underground Storage Tank. UST SAN JOAQUIN - San Joaquin Co. UST. CA FID UST - Facility Inventory Database.

Local Land Records: DEED Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners. DEED - Deed Restriction Listing

Spills: HMIRS Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT. HMIRS - Hazardous Materials Information Reporting System CHMIRS - California Hazardous Material Incident Report System. Orange Co. Industrial Site - List of Industrial Site Cleanups. SPILLS 90 - SPILLS90 data from FirstSearch.

## Database Descriptions

Other: RCRA NonGen / NLR RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste. RCRA NonGen / NLR - RCRA - Non Generators / No Longer Regulated FEDLAND - Federal and Indian Lands. TSCA - Toxic Substances Control Act. TRIS - Toxic Chemical Release Inventory System. SSTS - Section 7 Tracking Systems. RAATS - RCRA Administrative Action Tracking System. PRP - Potentially Responsible Parties. PADS - PCB Activity Database System. ICIS - Integrated Compliance Information System. FTTS - FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act). FTTS INSP - FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act). MLTS - Material Licensing Tracking System. RADINFO - Radiation Information Database. BRS - Biennial Reporting System. INDIAN RESERV - Indian Reservations. US AIRS (AFS) - Aerometric Information Retrieval System Facility Subsystem (AFS). US AIRS MINOR - Air Facility System Data. FINDS - Facility Index System/Facility Registry System. DOCKET HWC - Hazardous Waste Compliance Docket Listing. UXO - Unexploded Ordnance Sites. CORTESE - "Cortese" Hazardous Waste & Substances Sites List. CUPA - CUPA Resources List. CUPA AMADOR - CUPA Facility List. CUPA BUTTE - CUPA Facility Listing. CUPA CALVERAS - CUPA Facility Listing. CUPA COLUSA - CUPA Facility List. CUPA DEL NORTE - CUPA Facility List. CUPA EL DORADO - CUPA Facility List. CUPA FRESNO - CUPA Resources List. CUPA HUMBOLDT - CUPA Facility List. CUPA IMPERIAL - CUPA Facility List. CUPA INYO - CUPA Facility List. CUPA KINGS - CUPA Facility List. CUPA LAKE - CUPA Facility List. CUPA MADERA - CUPA Facility List. CUPA MERCED - CUPA Facility List. CUPA MONO - CUPA Facility List. CUPA MONTEREY - CUPA Facility Listing. CUPA NEVADA - CUPA Facility List. CUPA SAN LUIS OBISPO - CUPA Facility List. CUPA SANTA BARBARA - CUPA Facility Listing. CUPA SANTA CLARA - Cupa Facility List. CUPA SANTA CRUZ - CUPA Facility List. CUPA SHASTA - CUPA Facility List. CUPA SONOMA - Cupa Facility List. CUPA TUOLUMNE - CUPA Facility List. CUPA YUBA - CUPA Facility List. HAZNET - Facility and Manifest Data. Sacramento Co. ML - Master Hazardous Materials Facility List. San Bern. Co. Permit - Hazardous Material Permits. LA Co. Site Mitigation - Site Mitigation List. WDS - Waste Discharge System.

## Database Sources

NPL: EPA

Updated Quarterly

NPL Delisted: EPA

Updated Quarterly

CERCLIS: EPA

Updated Quarterly

NFRAP: EPA

Updated Quarterly

RCRA COR ACT: EPA

Updated Quarterly

RCRA TSD: Environmental Protection Agency

Updated Quarterly

RCRA GEN: Environmental Protection Agency

Updated Quarterly

Federal IC / EC: Environmental Protection Agency

Varies

ERNS: National Response Center, United States Coast Guard

Updated Annually

State/Tribal NPL: Department of Toxic Substances Control

Updated Quarterly

State/Tribal CERCLIS: Department of Toxic Substances Control

Updated Quarterly

State/Tribal SWL: Department of Resources Recycling and Recovery

Updated Quarterly

State/Tribal LTANKS: Health Care Agency

Updated Quarterly

## Database Sources

State/Tribal Tanks: SWRCB

Updated Semi-Annually

State/Tribal VCP: Department of Toxic Substances Control

Updated Quarterly

US Brownfields: Environmental Protection Agency

Updated Semi-Annually

Other SWF: Department of Health Services

Varies

Other Haz Sites: Department of Toxic Substances Control

Updated Quarterly

Other Tanks: State Water Resources Control Board

No Update Planned

Local Land Records: DTSC and SWRCB

Updated Semi-Annually

Spills: U.S. Department of Transportation

Updated Annually

Other: Environmental Protection Agency

Varies

# Street Name Report for Streets near the Target Property

Target Property: 808 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CA 94070

JOB: NA

Street Name	Dist/Dir	Street Name	Dist/Dir
Aberdeen Dr	0.15 SW		
Alameda	0.16 East		
Bauer Ct	0.19 SSE		
Bauer Dr	0.13 SE		
Coleman Ct	0.17 WNW		
Coronado Ave	0.14 North		
Dundee Ln	0.11 West		
Elizabeth St	0.20 ENE		
Glasgow Ln	0.10 SW		
Heather Dr	0.10 SSE		
Hewitt Dr	0.24 SSW		
Madera Ave	0.18 NE		
Melendy Dr	0.21 SSW		
Pine Ave	0.23 NNE		
Tamarack Ave	0.20 East		
Vista del Grande	0.10 NE		

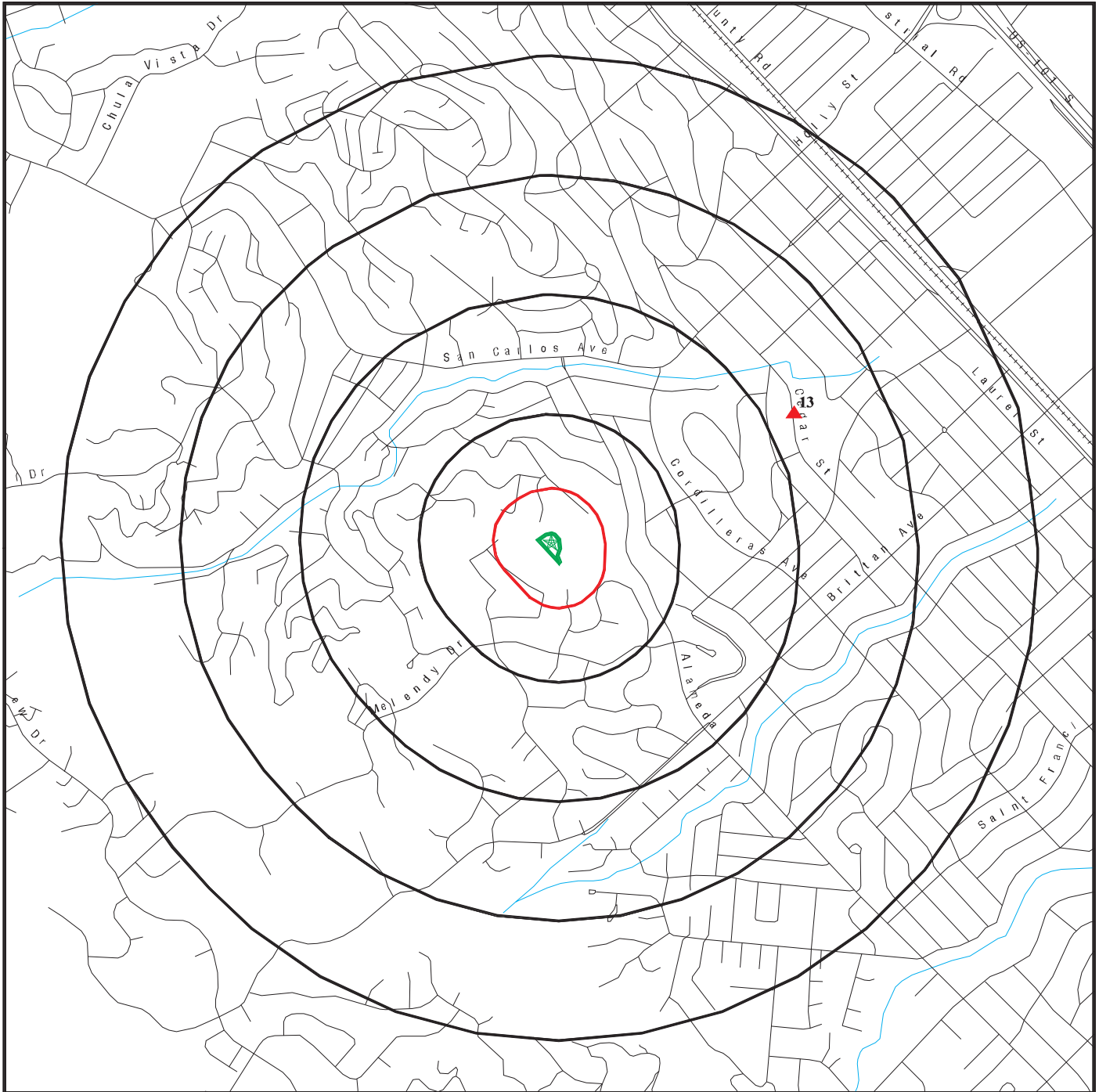
# Environmental FirstSearch

1.000 Mile Radius

ASTM MAP: NPL, RCRACOR, STATES Sites



808 ALAMEDA DE LAS PULGAS SAN CARLOS, CA 94070



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

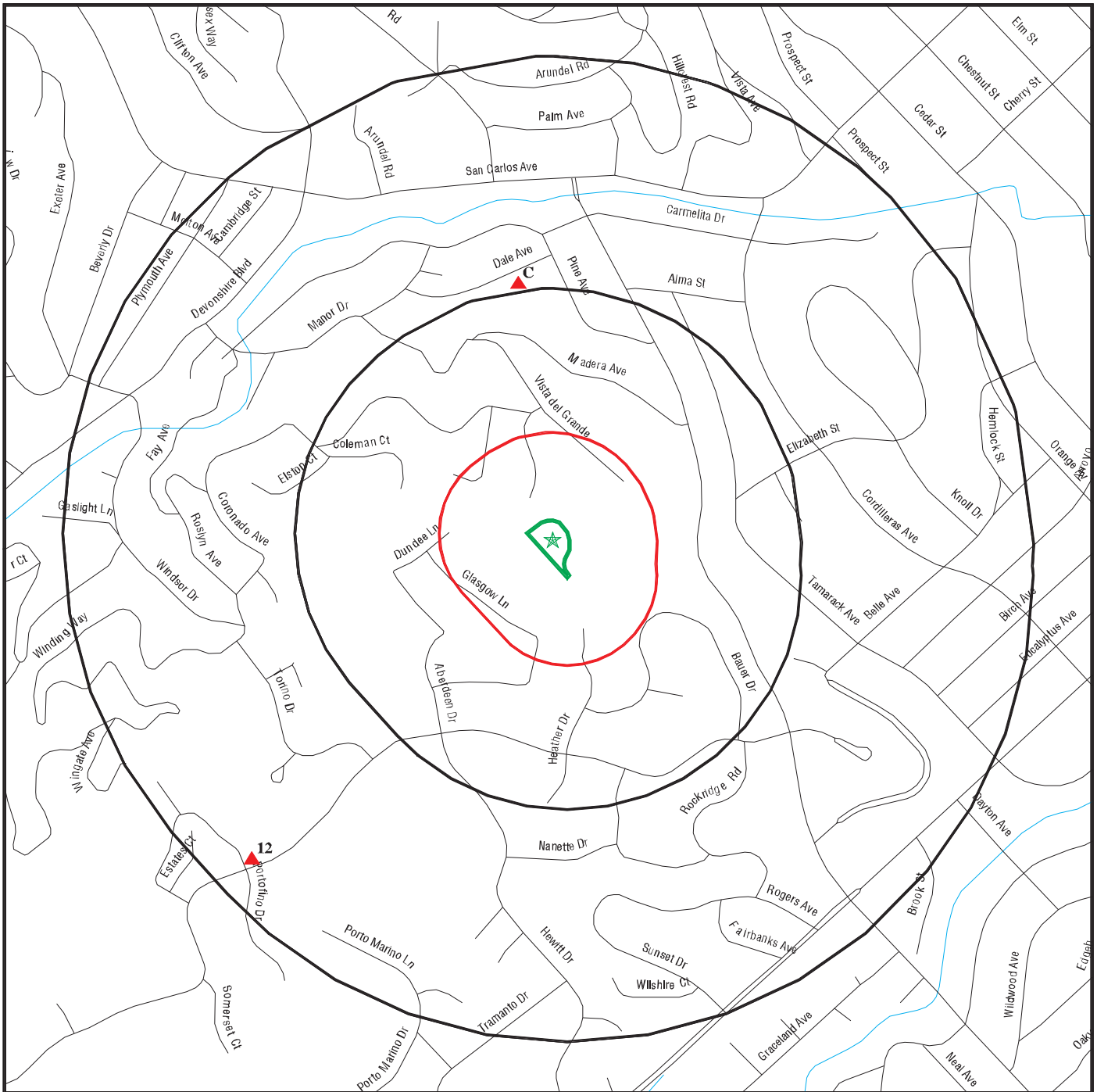
★ Target Property (Latitude: 37.496689 Longitude: 122.271321)

▲ Identified Sites      [Hatched Box] Indian Reservations BIA

[Red Box with 'N'] National Priority List Sites



808 ALAMEDA DE LAS PULGAS SAN CARLOS, CA 94070



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

- ★ Target Property (Latitude: 37.496689 Longitude: 122.271321)
- ▲ Identified Sites
- Indian Reservations BIA
- National Priority List Sites

# Environmental FirstSearch

0.25 Mile Radius

ASTM MAP: RCRAGEN, ERNS, UST, FED IC/EC, METH LABS



808 ALAMEDA DE LAS PULGAS SAN CARLOS, CA 94070



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

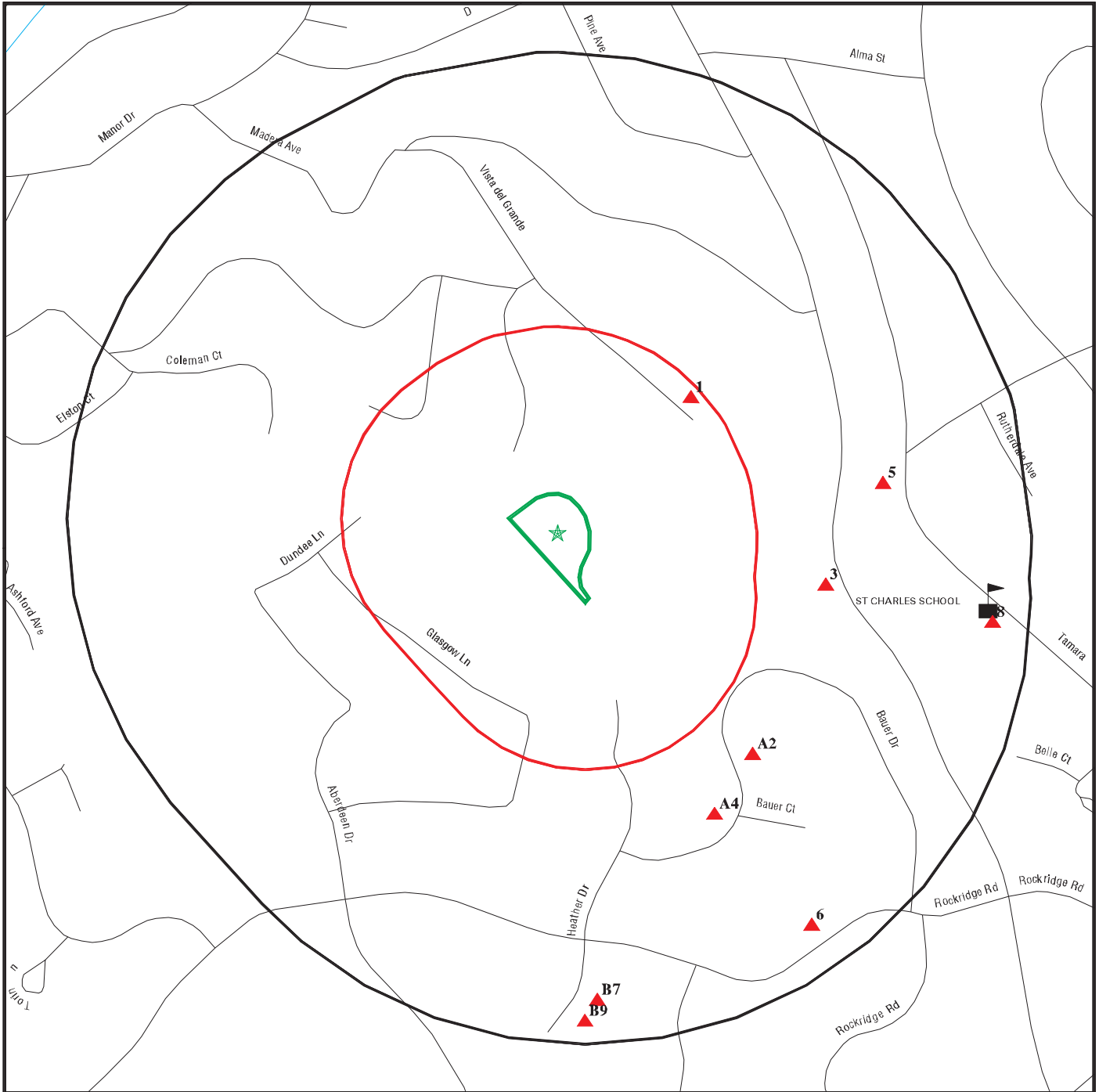
- ★ Target Property (Latitude: 37.496689 Longitude: 122.271321)
- ▲ Identified Sites
- Indian Reservations BIA
- National Priority List Sites

# Environmental FirstSearch






0.25 Mile Radius  
Non ASTM Map, Spills, FINDS



808 ALAMEDA DE LAS PULGAS SAN CARLOS, CA 94070



**Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius**

-  **Target Property (Latitude: 37.496689 Longitude: 122.271321)**
-  **Identified Sites**
-  **Sensitive Receptors**
-  **National Priority List Sites**
-  **Indian Reservations BIA**

**Appendix I:  
Questionnaires and Supporting Documents**

## PHASE I ENVIRONMENTAL SITE ASSESSMENT PROCESS

## USER QUESTIONNAIRE

808 Alameda De Las Pulgas, San Carlos, California 94070

"brother's" property

**INTRODUCTION:** In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "Brownfields Amendments"), the user must provide the following information (if available) to the environmental professional. Failure to provide this information could result in a determination that "all appropriate inquiry" is not complete.

**(1.) Environmental cleanup liens that are filed or recorded against the site.**

Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law? Yes \_\_\_ No X

**(2.) Activity and land use limitations that are in place on the site or that have been filed or recorded in a registry.**

Are you aware of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? Yes \_\_\_ No X

**(3.) Specialized knowledge or experience of the person seeking to qualify for the LLP.**

As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? Yes \_\_\_ No X

**(4.) Relationship of the purchase price to the fair market value of the property if it were not contaminated.**

Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property? Yes \_\_\_ No \_\_\_ UNKNOWN

**(5.) Commonly known or reasonably ascertainable information about the property.**

Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

(a.) Do you know the past uses of the property? Yes \_\_\_ No X

(b.) Do you know of specific chemicals that are present or once were present at the property? Yes \_\_\_ No X

(c.) Do you know of spills or other chemical releases that have taken place at the property? Yes \_\_\_ No X

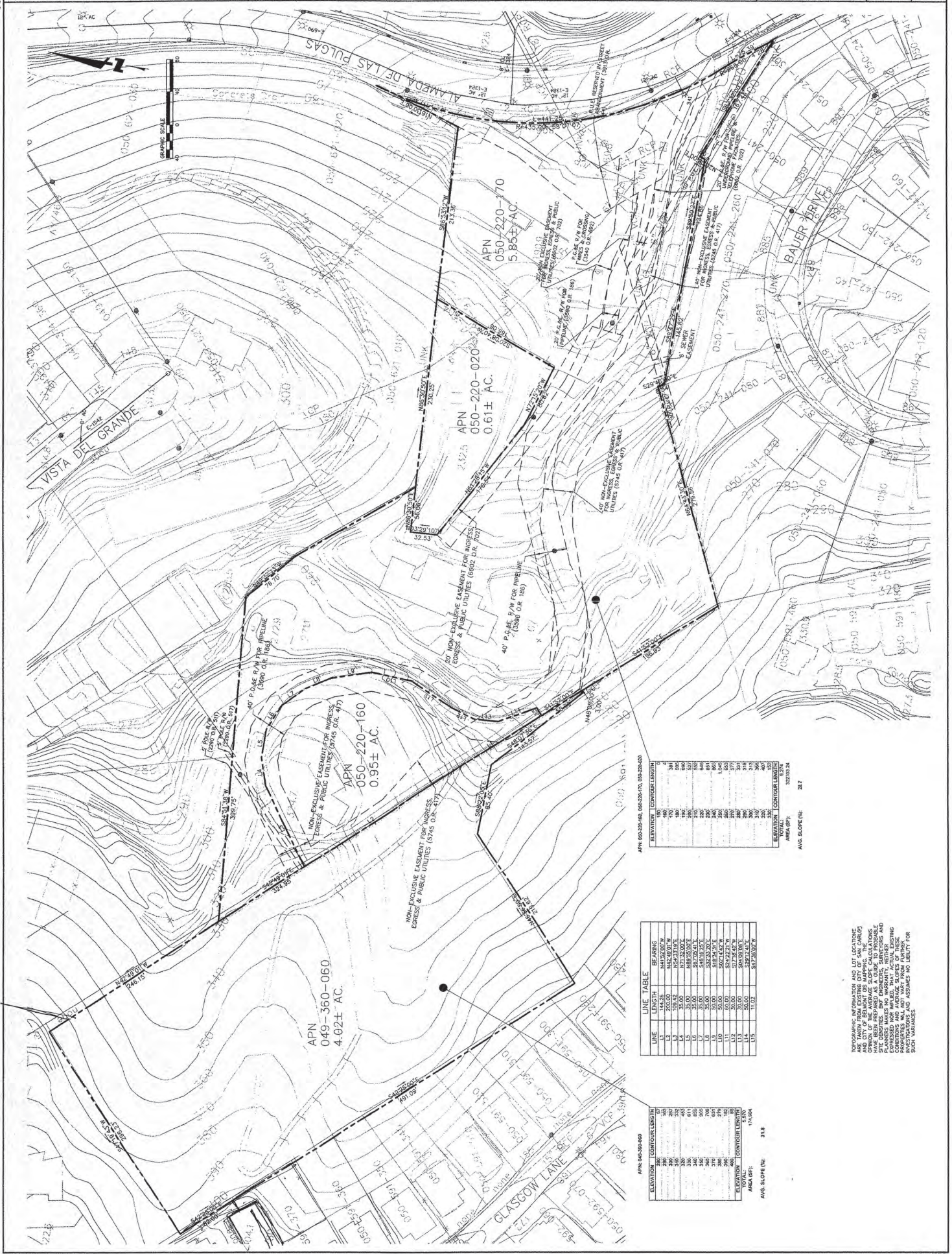
(d.) Do you know of any environmental cleanups that have taken place at the property? Yes \_\_\_ No X

**(6.) The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.**

As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property? Yes \_\_\_ No X

*Landowner Liability Protections, or LLPs, is the term used to describe the three types of potential defenses to Superfund liability in EPA's Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability ("Common Elements" Guide) issued on March 6, 2003.*

Questionnaire Completed By: Name Robert Bernstein Date 8/25, 2016



APN 050-220-170, 050-220-170, 050-220-170

ELEVATION	COUNTOUR LENGTH
160	34
170	34
180	34
190	34
200	34
210	34
220	34
230	34
240	34
250	34
260	34
270	34
280	34
290	34
300	34
310	34
320	34
330	34
340	34
350	34
360	34
370	34
380	34
390	34
400	34
410	34
420	34
430	34
440	34
450	34
460	34
470	34
480	34
490	34
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510	34
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710	34
720	34
730	34
740	34
750	34
760	34
770	34
780	34
790	34
800	34
810	34
820	34
830	34
840	34
850	34
860	34
870	34
880	34
890	34
900	34
910	34
920	34
930	34
940	34
950	34
960	34
970	34
980	34
990	34
1000	34
TOTAL	3574
AREA (SF)	357000.00
AVG. SLOPE (%)	28.7

APN 049-360-060

LINE	LENGTH	BEARING
L1	200.00	N45°45'00"W
L2	100.00	N45°45'00"W
L3	100.00	N45°45'00"W
L4	100.00	N45°45'00"W
L5	100.00	N45°45'00"W
L6	100.00	N45°45'00"W
L7	100.00	N45°45'00"W
L8	100.00	N45°45'00"W
L9	100.00	N45°45'00"W
L10	100.00	N45°45'00"W
L11	100.00	N45°45'00"W
L12	100.00	N45°45'00"W
L13	100.00	N45°45'00"W
L14	100.00	N45°45'00"W
L15	100.00	N45°45'00"W
TOTAL	1700.00	
AREA (SF)	170000.00	
AVG. SLOPE (%)	31.8	

TOPOGRAPHIC INFORMATION AND LOT LINES ARE BASED ON THE 1982 AND CITY OF REDWOOD CITY MAPS. THE PLANNED MAP HAS BEEN PREPARED AS A GUIDE TO PROPERTY OWNERS AND INVESTORS. PLANNED MAPS MAKE NO WARRANTY, EITHER EXPRESS OR IMPLIED, AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. INVESTORS AND ASSUMES NO LIABILITY FOR SUCH WARRANTIES.

A P P E N D I X J

HYDROLOGY AND WATER  
QUALITY







APPENDIX J1:  
PRELIMINARY STORMWATER  
MANAGEMENT PLAN







Redwood City  
255 Shoreline Drive, Suite 200  
Redwood City, CA 94065  
Tel 650.482.6300  
Fax 650.482.6399

# **PRELIMINARY STORMWATER MANAGEMENT PLAN**

**808 Alameda de las Pulgas  
APN: 050-220-160  
San Carlos, CA 94070  
BKF Job No: 20160150-10**

**November 2018**

Revised January 2022

## Table of Contents

1.0	INTRODUCTION.....	1
1.1	Project Description.....	1
1.2	Existing Site Conditions.....	1
1.2.1	Existing Land Use.....	1
1.2.2	Existing Tributary Area.....	2
1.2.3	Existing Artesian Well.....	2
1.2.4	FEMA Information.....	2
1.2.5	Soil Characteristics.....	2
1.3	Proposed Site Conditions.....	3
1.3.1	Proposed Land Use.....	3
1.3.2	Proposed Tributary Area.....	3
1.6	Project Requirements.....	4
1.6.1	Stormwater Quality.....	4
1.6.2	Stormwater Hydrology.....	4
2.0	STORMWATER QUALITY.....	5
2.1	Opportunities and Constraints for Stormwater Quality Measures.....	5
2.2	Source Control Measures.....	5
2.2.1	Permanent Controls and Operational BMPs.....	5
2.2.2	Relevant BMP Handbook References.....	7
2.3	Site Design Measures.....	7
2.4	Stormwater Treatment Measures.....	7
2.4.1	Drainage Management Areas (DMAs).....	7
2.4.2	LID Treated DMAs.....	8
3.0	STORMWATER HYDROLOGY.....	9
3.1	Peak Flow Calculations.....	9
3.2	Hydromodification Management / Stormwater Detention.....	9
4.0	MAINTENANCE.....	11
4.1	Post-Construction BMPs.....	11
4.2	Fiscal Resources.....	11
5.0	APPENDICES.....	12

## 1.0 INTRODUCTION

### 1.1 Project Description

This Stormwater Management Plan (SWMP) has been prepared for the proposed 808 Alameda de las Pulgas subdivision improvements (herein referred to as Project). The Project is a 11.4 acre re-development of four existing parcels off of Alameda de las Pulgas in the City of San Carlos, California (see Figure 1: Vicinity Map). The proposed project will replace the existing residences with eighty-seven residential units. The purpose of this report is to demonstrate compliance with City and County requirements for stormwater quality and hydrologic considerations.

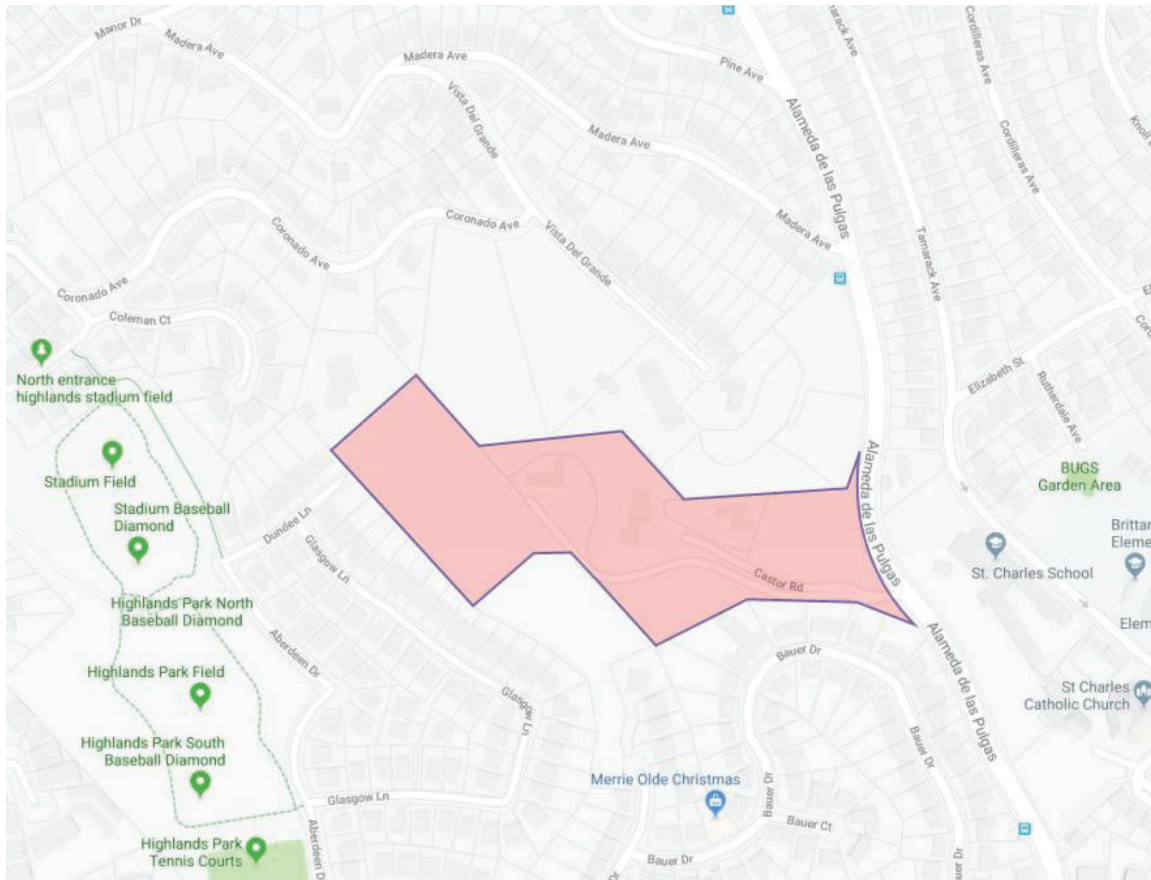


Figure 1: Vicinity Map

### 1.2 Existing Site Conditions

#### 1.2.1 Existing Land Use

The Project site is currently occupied by three (3) single family residences, a private driveway, and vacant land with associated walkways and landscape areas where the surface cover is comprised of open grass areas, concrete, AC pavement, dirt and a large number of trees (including heritage trees). The existing lots are zoned RS-6, single family residential, which allows for densities of up to 6 units/acre. The existing topography at the Project site generally slopes eastward toward Alameda de las Pulgas with an average slope of approximately 28%. Elevations vary from about 400 feet (above the survey datum) in the western corner to a low of about 165 feet (above the survey datum) along the Alameda de las Pulgas frontage.

### **1.2.2 Existing Tributary Area**

The Project's tributary area has a total area of 27.2 acres, including the onsite and offsite area that flows to the same drainage system on Alameda de las Pulgas. The limits of the tributary area extends from the southern ridgeline of Vista Del Grande, east of the private driveway off Coronado Avenue, north of the back of residential lots along Glasgow Lane and Bauer Drive, and north of the high point of Alameda de las Pulgas (See Appendix 2: Project Tributary Area Exhibits). The runoff from the tributary area flows down to Alameda de las Pulgas where it is collected by one of four (4) catch basins on the west side of the street. The surface runoff on the eastern side of Alameda de las Pulgas is collected by the one catch basin on the east side of the street. The runoff collected by these catch basins is piped east to Tamarak Avenue via a single 18" pipe. Once the tributary area surface runoff reaches Tamarak Avenue, the piped system ties into the larger San Carlos drainage system and discharges into a hardened channel on the east side of Old County Road (Pulgas Creek Channel). Per the San Mateo County Watershed Map, the Project lies along the outskirts of the Greenwood Drainage Watershed.

### **1.2.3 Existing Artesian Well**

There is an existing artesian well located to the southeast of the eastern most residence that discharges down the mountain and into the existing storm drain system. Well data has been obtained from the project Black Mountain Spring Investigation and Site Inspection Summary prepared by WSP, dated June 14, 2016. In the report, WSP estimated that the flow from the well was approximately 5 gpm (0.011 cfs). Similar to the existing condition, we anticipate the well will be connected to site storm drain system in the proposed condition. Given that the well's flowrate is insignificant, relative to peak stormwater flows (less than 1% of peak 10-year flow) the discharge was not considered in run-off calculations for the site.

### **1.2.4 FEMA Information**

The Project site is located outside the limits of the 100-year flood plain per the FEMA Flood Insurance Rate Map (FIRM) number 06081C0282E (see Appendix 6: FEMA FIRM).

### **1.2.5 Soil Characteristics**

Soil data has also been obtained from the project Geotechnical Engineering Investigation prepared by Cornerstone Earth Group, dated November 1, 2017. The investigation indicates that the subsurface conditions along the lower two-thirds of the Project site have been altered by past grading activities with fill depths on the order of 10-15 feet. Beneath the fill soils encountered in the five borings, native soils consisted of clayey sand, lean clay, and moderately to highly weathered sandstone. Groundwater was not encountered in any of the borings however it was noted that there is an artisan spring that feeds into a tunnel of unknown length and direction on the site. Extended excerpts from the soils report can be found in Appendix 7 of this report.

## 1.3 Proposed Site Conditions

### 1.2.1 Proposed Land Use

The proposed Project is a residential subdivision that will include eighty-seven (87) residential units contained within 17 building clusters. The units are aligned along a new private street with the rest of the site to be designated as common area.

### 1.2.2 Proposed Tributary Area

The proposed Projects tributary area boundary will remain unchanged with the drainage paths slightly altered by the proposed onsite improvements (See Appendix 2: Project Tributary Area Exhibits). The private streets, residential units, and hardscape walkways will increase the onsite impervious area by approximately 222,500 square feet (see below Table 1: Site Area Summary Table). The new impervious area will be treated by bioretention areas and flow-through planters before discharging into the post-treatment bypass system. The post-treatment bypass system will also collect runoff from the self-treating landscape areas and tie into the 18" storm drain pipe to Tamarak Avenue.

Site Area Summary Table	
<b>Onsite Parcel</b>	
Existing Impervious Area	52,113 sf (1.19 ac)
Existing Pervious Area	445,643 sf (10.2 ac)
Proposed Impervious Area	274,613 sf (6.30 ac)
Proposed Pervious Area	223,143 sf (5.12 ac)
Total Onsite Area	497,756 sf (11.4 ac)
<b>Gross Tributary</b>	
Existing Impervious Area	95,358 sf (2.19 ac)
Existing Pervious Area	1,088,872 sf (25.0 ac)
Proposed Impervious Area	317,858 sf (7.30 ac)
Proposed Pervious Area	866,372 sf (19.9 ac)
Total Tributary Area	1,184,230 sf (27.2 ac)
<b>Increase in Impervious Area in proposed condition</b>	<b>222,500 sf (5.11 ac)</b>

Table 1: Site Area Summary Table

## 1.6 Project Requirements

### 1.6.1 Stormwater Quality

Per the SMCWPPP C.3 Stormwater Handbook, "Projects that create and/or replace 10,000 square feet or more of impervious surface must comply with Provision C.3". Therefore, the Project is a Regulated Project and will comply with Provision C.3 of the Municipal Regional Stormwater Permit (MRP), see Appendix 1: San Mateo County NPDES Forms and Worksheets for C.3 requirements checklist. Stormwater quality requirements under the MRP include source control measures, site design measures and treatment measures. See "Section 2.0 Stormwater Quality" of this report for discussion of opportunities, constraints and proposed measures for the Project.

### 1.6.2 Stormwater Hydrology

The City of San Carlos Design Guidelines (dated 2014) requires that the post-development peak flow and velocity to be less than or equal to pre-development peak flow and velocity. Similarly, the MRP Provision C.3 requires Hydromodification Management (HM) Measures are employed to retain or detain and slowly release runoff so that post-development conditions do not exceed those of the pre-development conditions for projects that create and/or replace one acre or more of impervious surface and creates an increase in total impervious surface from the pre-project condition. Applicable projects shall be required to meet the HM Standard when they are located in areas of HM Applicability as shown on the revised San Mateo Countywide HM Map. See Appendix 8: San Mateo County Hydromodification Map

The Project increases the impervious area by 222,500 sf and the project lies within the HM Applicability area. Therefore, the Project requires HM Measures be implemented to change the timing, peak discharge and volume of runoff from the proposed site to not exceed the pre-development condition. See "Section 3.0 Stormwater Hydrology" of this report for proposed HM Measures for the Project.



## 2.0 STORMWATER QUALITY

### 2.1 Opportunities and Constraints for Stormwater Quality Measures

As described in the SMCWPPP C.3 Stormwater Handbook, identification of the opportunities and constraints presented by a Project site can assist in the selection and design of storm water treatment and flow control facilities. An opportunity for this project is to retain existing landscape areas by clustering development in order to minimize impact.

Constraints presented by this project include:

- Project zoning and required density limits space for stormwater treatment.
- Project site has a large number of heritage trees and steep slopes which limits space for LID treatment areas.

### 2.2 Source Control Measures

#### 2.2.1 Permanent Controls and Operational BMPs

Potential pollutant sources, which will be present onsite, include, landscape/outdoor pesticide use, refuse areas, and sidewalks. The following table, based on the SMCWPPP Model Source Control Measures List, details the permanent controls and operational BMPs for each of these pollutant sources.

Potential Sources of Runoff Pollutants	Permanent Controls	Operational BMPs
<b>Illegal Dumping to Storm Drain Inlets and Waterways</b>	<ul style="list-style-type: none"> <li>• On-site storm drain inlets shall be clearly marked with the words "No Dumping! Flows to Bay", or equivalent, using methods approved by the co-permittee.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance staff to inspect on-site storm drain inlets and report any observations of illegal dumping to the co-permittee.</li> <li>• All on-site storm drain inlets shall be cleaned at least once per year immediately prior to the rainy season</li> </ul>
<b>Refuse Areas</b>	<ul style="list-style-type: none"> <li>• Refuse shall be disposed of in designated collection areas.</li> <li>• Adequate numbers of refuse and recycling receptacles shall be placed in public areas.</li> <li>• Signs shall be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate numbers of refuse and recycling receptacles shall be placed in public areas.</li> <li>• Receptacles shall be inspected regularly, and leaky receptacles shall be repaired or replaced.</li> <li>• Receptacles shall be covered.</li> <li>• Signs shall be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.</li> <li>• Litter shall be picked up daily when the facility is in use and spills shall be cleaned up immediately.</li> <li>• Keep spill control materials available onsite.</li> </ul>

	<ul style="list-style-type: none"> <li>• See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></li> </ul>
<p><b>Landscape/Outdoor Pesticide Use</b></p> <p>Final landscape plans for the project will:</p> <ul style="list-style-type: none"> <li>• Preserve existing native trees, shrubs and ground cover to the maximum extent possible.</li> <li>• Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution.</li> <li>• Where landscape areas are used to retain or detain storm water, specify plants that are tolerant of saturated solid conditions.</li> <li>• Consider using pest-resistant plants, especially adjacent to hardscape.</li> <li>• To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interaction.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain landscaping using minimum or no pesticides.</li> <li>• See applicable operation BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></li> <li>• Distribute Integrated Pest Management (IPM) educational materials to maintenance staff. At a minimum, educational materials will address the following topics:             <ol style="list-style-type: none"> <li>i. Keeping pests out of buildings and landscaping using barriers, screens and caulking</li> <li>ii. Physical pest elimination techniques, such as weeding, squashing, trapping, washing or pruning out pests</li> <li>iii. Relying on natural enemies to eat pests</li> <li>iv. Proper use of pesticides as a last line of defense.</li> </ol> </li> </ul>
<p><b>Potential Sources of Runoff Pollutants</b></p>	<p>Permanent Controls</p> <p>Operational BMPs</p>
<p><b>Paved sidewalks</b></p>	<ul style="list-style-type: none"> <li>• Podium and sidewalks, shall be swept regularly to prevent the accumulation of litter and debris.</li> <li>• Debris from pressure washing shall be collected to prevent entry into the storm drain system.</li> <li>• Wash water containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain.</li> </ul>

Table 2: Source Control Measures

### 2.2.2 Relevant BMP Handbook References

Project Relevant Source Control BMPs from the 2009 California Stormwater BMP Handbook for New Development and Redevelopment (Section H):

#### Design

These Source Control BMPs seek to reduce storm water pollution by designing the site layout and infrastructure to prevent introduction of contaminants to the storm water system.

- SD-10 Site Design and Landscape Planning
- SD 11 Roof Runoff Controls
- SD-12 Efficient Irrigation
- SD-13 Storm Drain Systems Signs

#### Areas

These Source Control BMPs focus on controlling and preventing pollution from site areas that are common sources of contaminants. Proper design and maintenance of these areas can have a significant beneficial impact on storm water quality.

- SD-32 Trash Storage Areas

## 2.3 Site Design Measures

The existing site is currently partially developed. No sensitive natural resources have been identified for the site. The proposed project will incorporate bioretention areas to treat and detain the runoff from the proposed impervious surfaces. All site landscape areas will be self-treating with any runoff diverted to Alameda de las Pulgas using swales and drainage ditches. Additionally, all buildings will incorporate a green roof and/or flow through planters to provide the required treatment for each of the units, see Section 2.4.

Measure Strategy	Implementation
<b>Cluster structures/pavement</b>	Development area and units have been clustered in order to minimize land disturbed
<b>Identify self-treating areas</b>	All site landscape areas both disturbed and undisturbed are to be self-treating.

Table 3: Site Design Measures

## 2.4 Stormwater Treatment Measures

### 2.4.1 Drainage Management Areas (DMAs)

The SMCWPPP C.3 Handbook states that the project site shall be divided into Drainage Management Areas (DMAs) and each DMA should be classified as one of the following: self-treating areas, self-retaining areas, or areas draining to Best Management Practices (BMPs). Preliminary sizing of the BMPs has been provided for DMAs 1-5 and the building units. This sizing has been calculated using the "4% Rule" according to guidelines presented in the SMCWPPP C.3 Handbook.

The DMAs for the project are described below and are delineated on the Stormwater Control Plan (see Appendix 4: Stormwater Control Plan).

### 2.4.2 LID Treated DMAs

Stormwater treatment for the proposed project will be comprised of 100% LID treatment methods in the form of bioretention areas. No mechanical treatment methods are proposed.

**DMAs 1 thru 5** contain proposed asphalt paving and sidewalk. Runoff from the street, sidewalk and driveways will be collected via catch basins into the pre-treatment storm drain system and piped to one of four (4) bioretention areas and one flow-through planter for treatment. Once treated, stormwater will be routed via the post-treatment storm drain system to the existing storm drain system in Alameda de las Pulgas.

**DMA 6** contains several sub-DMAs of landscape areas and is designated as self-treating. Runoff from each sub-DMA will be routed directly to the post-treatment storm drain system via swales and rock lined channels. Once in the post-treatment storm drain system, stormwater will be routed to the existing storm drain system in Alameda de las Pulgas.

**Building Units Impervious Area** has been excluded from the above DMA's and will not be treated by bioretention areas which have been sized specifically for the road, driveways and sidewalk only. Treatment for each unit will be provided by flow-through planters located at each unit. Treated stormwater from the units will discharge to the post-treatment storm drain system and route to the existing storm drain system in Alameda de las Pulgas.

DMA	Type of LID Treatment	Contributing Impervious Area (sf)	Contributing Pervious Area * (sf)	Required LID Treatment (sf)	Provided LID Treatment (sf)
1	Flow-Through Planter	18,250	3,444	744	755
2	Bioretention Area	34,097	2,114	1,372	1,412
3	Bioretention Area	35,731	12,542	1,483	1,486
4	Bioretention Area	25,034	4,122	1,035	1,040
5	Bioretention Area	41,098	4,503	1,662	1,688
6	Self-treating	0	195,418	-	-
<b>Units</b>	Flow-Through Planters	120,403	0	4,816	5,025
<b>Total</b>	Varies	274,613	223,143	6,179	11,406

\*Pervious areas which drain to LID treatment (DMA's 1 thru 5) are weighted as 10% equivalent impervious area for treatment sizing. Pervious areas from DMA 6 and all run-on from offsite areas bypass LID treatment.

Table 4: Drainage Management Areas

## 3.0 STORMWATER HYDROLOGY

The point of concentration used for the storm drain analysis was the 18" storm drain pipe downstream Alameda de las Pulgas to Tamarak Avenue.

### 3.1 Peak Flow Calculations

Pre and post development peak flow rates were calculated using the Rational Method ( $Q=CIAF$ ). Since the project is not located within a FEMA floodplain, the City of San Carlos requires the storm drain to be designed to convey a 10-year storm event. Runoff coefficients (C) are based off the City of San Carlos Design Guidelines. The time of concentration for rainfall to collect from furthest hydraulically distant point to the downhill 18" storm drain pipe area was calculated to be 15-minutes using the Kerby-Kirpich Method. The 10-year storm event intensity with a time of concentration of 15-minutes was determined to be 1.59 in/hr per the National Oceanic and Atmospheric Administration (NOAA). See Appendix 3: Discharge Calculations.

	Composite Runoff Coefficient, C	Time of Concentration, T <sub>c</sub> (min)	Intensity, I (in/hr)	Peak Discharge, Q (cfs)	18" SD Pipe Peak Velocity, V (ft/sec)
<b>Pre-Development</b>	0.35	15.0	1.59	16.56	14.16
<b>Post-Development (Unmitigated)*</b>	0.46	15.0	1.59	21.92	15.10
<b>18" SD Pipe Capacity</b>	-	-	-	23.49	-

\*Post-Development flows prior to hydromodification management.

Table 5: Rational Method Peak Flow Summary

### 3.2 Hydromodification Management / Stormwater Detention

The Bay Area Hydrology Model (BAHM) software was used to design outlet orifices for LID treatment measures and to confirm that storage volumes provided were sufficient to mitigate net increase in peak flow caused by proposed development. A BAHM model was created for the project site separating each DMA and treatment measure. Flow through planters for residential units were grouped by each cluster. Offsite areas which contribute run-on into the site were also included in the model in accordance with BAHM standards of practice.

Passing BAHM results indicate that the proposed LID treatment measures provide sufficient storage volume such that post-development peak flows will be equal or less than pre-development peak flows for storm events ranging from 2-25 years. This mitigation meets both City of San Carlos Stormwater Detention requirements and County of San Mateo hydromodification requirements. See Appendix 5: BAHM Results.

Design Storm Return Period	Peak Discharge per BAHM (cfs)	
	Pre-Development	Post-Development (Mitigated)
<b>2-Year</b>	3.35	2.48
<b>5-Year</b>	6.48	4.93
<b>10-Year</b>	8.51	6.41
<b>25-Year</b>	15.18	11.42

*Table 6: BAHM Results Peak Flow Summary*

BAHM peak flows vary from those provided in Section 3.1 of our report due to differing hydrology modeling approaches being utilized.

Section 3.1 of our report utilizes the Rational Method for hydrology modelling, consistent with City of San Carlos and local industry standards in order to determine peak flows for capacity sizing of conveyances such as storm drain pipes and open channels.

BAHM utilizes continuous simulation modelling, also known as the Hydrologic Simulation Program – FORTRAN (HSPF). This approach has been adopted by the SF Bay Area Regional Water Quality Control Board and provides a more accurate methodology than single-event modelling for the design of stormwater detention basins.

## 4.0 MAINTENANCE

As established in the Owner’s Certification, the operation and maintenance of the post-construction source control BMPs is the sole responsibility of the site owner.

### 4.1 Post-Construction BMPs

Post-construction BMPs are to be maintained in perpetuity. It will be the responsibility of the property owner to install, and then maintain the BMPs in accordance with this document. Maintenance requirements for LID Measures are shown below. For information regarding Source Control BMP maintenance, refer to the California Stormwater Quality Association (CASQA) Best Management Practice Handbook. It shall be noted that preventative maintenance such as removal of trash and debris from the site will help ensure proper function of the BMPs. See Appendix 9 for San Mateo County Technical Guidance on bioretention areas.

LID	Responsible Party	Minimum Maintenance Frequency	Unit/Annual Maintenance Costs
<b>Bioretention Area</b>	Owner	Semiannual inspection of plants and removal of sediment and debris. Plants to be irrigated during dry weather and replanted if necessary. If ponded water is observed 72 hours after a rainfall event, add soil to raise local low point; soils may need to be replaced after 5-10 years.	Included in Normal Landscape Maintenance
<b>Flow-Through Planter</b>	Owner	Semiannual inspection of plants and removal of sediment and debris. Plants to be irrigated during dry weather and replanted if necessary. If ponded water is observed 72 hours after a rainfall event, add soil to raise local low point; soils may need to be replaced after 5-10 years.	Included in Normal Landscape Maintenance

Table 5: Post Construction BMP Maintenance

### 4.2 Fiscal Resources

The funding and execution of BMP maintenance for the project will be the responsibility of the owner. The owner will be responsible for maintenance activities as follows: properly disposing of waste material within the Project site, maintaining landscaping in a manner that will prevent soil erosion and minimize sediment transport, maintaining drainage facilities in a clean manner and in a good repair, and properly maintaining all post-construction BMPs (both structural and non-structural) that exist within the project.

It should be noted that maintenance for any of the above-mentioned post-construction BMPs might be performed through third-party agreements; however, the ultimate responsibility of each facility rests on the owner.

## **5.0 APPENDICES**

- Appendix 1 San Mateo County NPDES Forms and Worksheets
- Appendix 2 Project Tributary Area Exhibits
- Appendix 3 Discharge Calculations
- Appendix 4 Stormwater Control Plan
- Appendix 5 Bay Area Hydrology Model Results
- Appendix 6 FEMA Firmette
- Appendix 7 Excerpt from Soils Report
- Appendix 8 San Mateo Countywide Hydromodification Map
- Appendix 9 Project Treatment Measure Details



# APPENDIX 1

## **San Mateo County NPDES Forms and Worksheets**

C.3 and C.6 Development Review Checklist

Detailed Infiltration Feasibility Worksheet **(NOT REQUIRED)**

Detailed Rainwater Harvesting and Use Feasibility Worksheet **(NOT REQUIRED)**



# C.3 and C.6 Development Review Checklist

## Municipal Regional Stormwater Permit (MRP)

### Stormwater Controls for Development Projects

## Project Information

**I.A Enter Project Data** (For "C.3 Regulated Projects," data will be reported in the municipality's stormwater Annual Report.)

Project Name:	808 Alameda de la Pulgas	Case Number:	
Project Address & Cross St.:	808 Alameda de las Pulgas		
Project APN:	050-220-160	Project Watershed:	Greenwood Drainage Watershed
Applicant Name:	Veev	<b>I.A.4</b>	Slope on Site: 28 %
Applicant Phone:	Applicant Email Address: sgibson@veev.com		

- Development type: (check all that apply)
- Single Family Residential: A stand-alone home that is not part of a larger project.
  - Single Family Residential: Two or more lot residential development.<sup>1</sup> # of units: \_\_\_\_\_
  - Multi-Family Residential # of units: 87
  - Commercial
  - Industrial, Manufacturing
  - Mixed-Use # of units: \_\_\_\_\_
  - Streets, Roads<sup>2</sup>, etc.
  - 'Redevelopment' as defined by MRP: creating, adding and/or replacing exterior existing impervious surface on a site where past development has occurred.
  - 'Special land use categories'** as defined by MRP: (1) auto service facilities<sup>3</sup>, (2) retail gasoline outlets, (3) restaurants, (4) uncovered parking area (stand-alone or part of a larger project)
  - Institutions: schools, libraries, jails, etc.
  - Parks and trails, camp grounds, other recreational
  - Agricultural, wineries
  - Kennels, Ranches
  - Other, Please specify \_\_\_\_\_

**I.A.1**

Project Description<sup>4</sup>:  
(Also note any past or future phases of the project.)

The proposed project will replace three existing residences with eighty-seven (87) residential units as townhouse style clusters, and a new community center.

**I.A.2** Total Area of Site: 11.43 acres

**I.A.3** Total Area of land disturbed during construction (include clearing, grading, excavating and stockpile area): 10.07 acres.

**I.A.5 Certification:**

I certify that the information provided on this form is correct and acknowledge that, should the project exceed the amount of new and/or replaced impervious surface provided in this form, the as-built project may be subject to additional improvements.

- Attach Preliminary Calculations     Attach Final Calculations     Attach copy of site plan showing areas

Name of person completing the form: Corey Worthington Title: Design Engineer

Signature:  Date: 01/17/2022

Phone number: 650-482-6315 Email address: cworthington@bkf.com

<sup>1</sup> Common Plans of Development (subdivisions or contiguous, commonly owned lots, for the construction of two or more homes developed within 1 year of each other) are not considered single family projects by the MRP.  
<sup>2</sup> Roadway projects creating 10,000 sq.ft. or more of contiguous impervious surface are subject to C.3 requirements if the roadway is new or being widened with additional traffic lanes.  
<sup>3</sup> See Standard Industrial Classification (SIC) codes [here](#)  
<sup>4</sup> Project description examples: 5-story office building, industrial warehouse, residential with five 4-story buildings for 200 condominiums, etc.

**I.B Is the project a “C.3 Regulated Project” per MRP Provision C.3.b?**

**I.B.1 Enter the amount of impervious surface<sup>5</sup> Retained, Replaced and/or Created by the project:**

**Table I.B.1 Impervious<sup>5</sup> and Pervious Surfaces**

Type of Impervious <sup>5</sup> Surface	I.B.1.a	I.B.1.b	I.B.1.c	I.B.1.d	I.B.1.e
	Pre-Project Impervious <sup>5</sup> Surface (sq.ft.)	Existing Impervious <sup>5</sup> Surface to be Retained <sup>6</sup> (sq.ft.)	Existing Impervious <sup>5</sup> Surface to be Replaced <sup>6</sup> (sq.ft.)	New Impervious <sup>5</sup> Surface to be Created <sup>6</sup> (sq.ft.)	Post-Project Impervious <sup>5</sup> Surface (sq.ft.) (=b+c+d)
Roof area(s)	8323		8323	112080	120403
Impervious <sup>5</sup> sidewalks, patios, paths, driveways, streets	43790		43790	110420	154210
Impervious <sup>5</sup> uncovered parking <sup>7</sup>					0
Totals of Impervious Surfaces:	52113	0	52113	222500	274613
<b>I.B.1.f - Total Impervious<sup>5</sup> Surface Replaced and Created (sum of totals for columns I.B.1.c and I.B.1.d):</b>					<b>274,613</b>
Type of Pervious Surface	Pre-Project Pervious Surface (sq.ft.)				Post-project Pervious Surface (sq.ft.)
Landscaping	445643				223143
Pervious Paving					I.B.1.e.1:
Green Roof					
Totals of Pervious Surfaces:	445643				223143
Total Site Area (Total Impervious <sup>5</sup> +Total Pervious=I.A.2)	497756				497756

**I.B.2 Please review and attach additional worksheets as required below using the Total Impervious Surface (IS) Replaced and Created in cell I.B.1.f from Table I.B.1 above and other factors:**

	Check all that apply:	Check One		Attach Worksheet
		Yes	No	
I.B.2.a	Does this project involve any earthwork? If YES, then Check Yes, and Complete Worksheet A. If NO, then go to I.B.2.b	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A
I.B.2.b	Is I.B.1.f greater than or equal to 2,500 sq.ft? If YES, then the Project is subject to Provision C.3.i. - complete Worksheets B, C & go to I.B.2.c. If NO, then Stop here - go to I.A.5 and complete Certification or ask municipal staff for Small Project Checklist.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B, C
I.B.2.c	Is the total Existing IS to be Replaced (column I.B.1.c) 50 percent or more of the total Pre-Project IS (column I.B.1.a)? If YES, site design, source control and treatment requirements apply to the whole site. Continue to I.B.2.d If NO, these requirements apply only to the impervious surface created and/or replaced. Continue to I.B.2.d	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
I.B.2.d	Is this project a Special Land Use Category (I.A.1) and is I.B.1.f greater than or equal to 5,000 sq.ft? If YES, project is a Regulated Project. Fill out Worksheet D. Go to I.B.2.f. If NO, go to I.B.2.e	<input type="checkbox"/>	<input checked="" type="checkbox"/>	D
I.B.2.e	Is I.B.1.f greater than or equal to 10,000 sq.ft? If YES, project is a C.3 Regulated Project - complete Worksheet D. Then continue to I.B.2.f. If NO, then skip to I.B.2.g.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	D
I.B.2.f	Is I.B.1.f greater than or equal to 43,560 sq.ft? If YES, project may be subject to Hydromodification Management requirements - complete Worksheet E then continue to I.B.2.g. If NO, then go to I.B.2.g.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	E
I.B.2.g	Is I.A.3 greater than or equal to 1 acre? If YES, check box, obtain coverage under the CA Const. General Permit & submit Notice of Intent to municipality - go to I.B.2.h. If NO, then go to I.B.2.h. For more information see: <a href="http://www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml">www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
I.B.2.h	Is this a Special Project or does it have the potential to be a Special Project? If YES, complete Worksheet F - then continue to I.B.2.i. If NO, go to I.B.2.i.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	F
I.B.2.i	Is project a High Priority Site? (Determined by the Municipality. High Priority Sites can include those located in or within 100 feet of a sensitive habitat, an Area of Special Biological Significance, a body of water, or starting 7/1/16 on sites disturbing >=5,000 ft <sup>2</sup> with slopes >=15% (see I.A.4) (or per municipal criteria/map) and are subject to monthly inspections from Oct 1 to April 30.) If YES, complete section G-2 on Worksheet G - then continue to I.B.2.j. If NO, then go to I.B.2.j	<input type="checkbox"/>	<input checked="" type="checkbox"/>	G
I.B.2.j	For Municipal Staff Use Only: Are you using Alternative Certification for the project review? If YES, then fill out section G-1 on Worksheet G. Fill out other sections of Worksheet G as appropriate. See cell I.B.1.e.1 above - Is the project installing 3,000 square feet or more of pervious paving? If YES, then fill out section G-3 on Worksheet G. Add to Municipal Inspection Lists (C.3.h)	<input type="checkbox"/>	<input type="checkbox"/>	G

<sup>5</sup> Per the MRP, pavement that meets the following definition of pervious pavement is NOT an impervious surface. Pervious pavement is defined as pavement that stores and infiltrates rainfall at a rate equal to immediately surrounding unpaved, landscaped areas, or that stores and infiltrates the rainfall runoff volume described in Provision C.3.

<sup>6</sup> “Retained” means to leave existing impervious surfaces in place, unchanged; “Replaced” means to install new impervious surface where existing impervious surface is removed anywhere on the same property; and “Created” means the amount of new impervious surface being proposed which exceeds the total existing amount of impervious surface at the property.

<sup>7</sup> Uncovered parking includes the top level of a parking structure.

## Worksheet A

<b>C6 – Construction Stormwater BMPs</b>
--

Identify Plan sheet showing the appropriate construction Best Management Practices (BMPs) used on this project:  
(Applies to all projects with earthwork)

Yes	Plan Sheet	Best Management Practice (BMP)
<input checked="" type="checkbox"/>	C7.1	Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.
<input checked="" type="checkbox"/>		Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater.
<input checked="" type="checkbox"/>		Do not clean, fuel, or maintain vehicles on-site, except in a designated area where wash water is contained and treated.
<input checked="" type="checkbox"/>		Train and provide instruction to all employees/subcontractors re: construction BMPs.
<input checked="" type="checkbox"/>	C7.1	Protect all storm drain inlets in vicinity of site using sediment controls such as berms, fiber rolls, or filters.
<input checked="" type="checkbox"/>		Limit construction access routes and stabilize designated access points.
<input checked="" type="checkbox"/>		Attach the San Mateo Countywide Water Pollution Prevention Program's construction BMP plan sheet to project plans and require contractor to implement the applicable BMPs on the plan sheet.
<input checked="" type="checkbox"/>	C7.1	Use temporary erosion controls to stabilize all denuded areas until permanent erosion controls are established.
<input checked="" type="checkbox"/>		Delineate with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.
<input checked="" type="checkbox"/>	C7.1	Provide notes, specifications, or attachments describing the following: <ul style="list-style-type: none"> <li>▪ Construction, operation and maintenance of erosion and sediment controls, include inspection frequency;</li> <li>▪ Methods and schedule for grading, excavation, filling, clearing of vegetation, and storage and disposal of excavated or cleared material;</li> <li>▪ Specifications for vegetative cover &amp; mulch, include methods and schedules for planting and fertilization;</li> <li>▪ Provisions for temporary and/or permanent irrigation.</li> </ul>
<input checked="" type="checkbox"/>		Perform clearing and earth moving activities only during dry weather.
<input checked="" type="checkbox"/>		Use sediment controls or filtration to remove sediment when dewatering and obtain all necessary permits.
<input checked="" type="checkbox"/>		Trap sediment on-site, using BMPs such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, soil blankets or mats, covers for soil stock piles, etc.
<input checked="" type="checkbox"/>		Divert on-site runoff around exposed areas; divert off-site runoff around the site (e.g., swales and dikes).
<input checked="" type="checkbox"/>		Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.

## Worksheet B

## C3 - Source Controls

Select appropriate source controls and identify the detail/plan sheet where these elements are shown.

Yes	Detail/Plan Sheet No.	Features that require source control measures	Source Control Measures (Refer to Local Source Control List for detailed requirements)
<input checked="" type="checkbox"/>	C5.1	Storm Drain	Mark on-site inlets with the words "No Dumping! Flows to Bay" or equivalent.
<input type="checkbox"/>		Floor Drains	Plumb interior floor drains to sanitary sewer <sup>8</sup> [or prohibit].
<input type="checkbox"/>		Parking garage	Plumb interior parking garage floor drains to sanitary sewer. <sup>8</sup>
<input checked="" type="checkbox"/>	C3.1	Landscaping	<ul style="list-style-type: none"> <li>▪ Retain existing vegetation as practicable.</li> <li>▪ Select diverse species appropriate to the site. Include plants that are pest- and/or disease-resistant, drought-tolerant, and/or attract beneficial insects.</li> <li>▪ Minimize use of pesticides and quick-release fertilizers.</li> <li>▪ Use efficient irrigation system; design to minimize runoff.</li> </ul>
<input type="checkbox"/>		Pool/Spa/Fountain	Provide connection to the sanitary sewer to facilitate draining. <sup>8</sup>
<input type="checkbox"/>		Food Service Equipment (non-residential)	<p>Provide sink or other area for equipment cleaning, which is:</p> <ul style="list-style-type: none"> <li>▪ Connected to a grease interceptor prior to sanitary sewer discharge.<sup>8</sup></li> <li>▪ Large enough for the largest mat or piece of equipment to be cleaned.</li> <li>▪ Indoors or in an outdoor roofed area designed to prevent stormwater run-on and run-off, and signed to require equipment washing in this area.</li> </ul>
<input type="checkbox"/>		Refuse Areas	<ul style="list-style-type: none"> <li>▪ Provide a roofed and enclosed area for dumpsters, recycling containers, etc., designed to prevent stormwater run-on and runoff.</li> <li>▪ Connect any drains in or beneath dumpsters, compactors, and tallow bin areas serving food service facilities to the sanitary sewer.<sup>8</sup></li> </ul>
<input type="checkbox"/>		Outdoor Process Activities <sup>9</sup>	Perform process activities either indoors or in roofed outdoor area, designed to prevent stormwater run-on and runoff, and to drain to the sanitary sewer. <sup>8</sup>
<input type="checkbox"/>		Outdoor Equipment/ Materials Storage	<ul style="list-style-type: none"> <li>▪ Cover the area or design to avoid pollutant contact with stormwater runoff.</li> <li>▪ Locate area only on paved and contained areas.</li> <li>▪ Roof storage areas that will contain non-hazardous liquids, drain to sanitary sewer<sup>8</sup>, and contain by berms or similar.</li> </ul>
<input type="checkbox"/>		Vehicle/ Equipment Cleaning	<ul style="list-style-type: none"> <li>▪ Roofed, pave and berm wash area to prevent stormwater run-on and runoff, plumb to the sanitary sewer<sup>8</sup>, and sign as a designated wash area.</li> <li>▪ Commercial car wash facilities shall discharge to the sanitary sewer.<sup>8</sup></li> </ul>
<input type="checkbox"/>		Vehicle/ Equipment Repair and Maintenance	<ul style="list-style-type: none"> <li>▪ Designate repair/maintenance area indoors, or an outdoors area designed to prevent stormwater run-on and runoff and provide secondary containment. Do not install drains in the secondary containment areas.</li> <li>▪ No floor drains unless pretreated prior to discharge to the sanitary sewer.<sup>8</sup></li> <li>▪ Connect containers or sinks used for parts cleaning to the sanitary sewer.<sup>8</sup></li> </ul>
<input type="checkbox"/>		Fuel Dispensing Areas	<ul style="list-style-type: none"> <li>▪ Fueling areas shall have impermeable surface that is a) minimally graded to prevent ponding and b) separated from the rest of the site by a grade break.</li> <li>▪ Canopy shall extend at least 10 ft. in each direction from each pump and drain away from fueling area.</li> </ul>
<input type="checkbox"/>		Loading Docks	<ul style="list-style-type: none"> <li>▪ Cover and/or grade to minimize run-on to and runoff from the loading area.</li> <li>▪ Position downspouts to direct stormwater away from the loading area.</li> <li>▪ Drain water from loading dock areas to the sanitary sewer.<sup>8</sup></li> <li>▪ Install door skirts between the trailers and the building.</li> </ul>
<input type="checkbox"/>		Fire Sprinklers	Design for discharge of fire sprinkler test water to landscape or sanitary sewer. <sup>8</sup>
<input type="checkbox"/>		Miscellaneous Drain or Wash Water	<ul style="list-style-type: none"> <li>▪ Drain condensate of air conditioning units to landscaping. Large air conditioning units may connect to the sanitary sewer.<sup>8</sup></li> <li>▪ Roof drains from equipment drain to landscaped area where practicable.</li> <li>▪ Drain boiler drain lines, roof top equipment, all wash water to sanitary sewer.<sup>8</sup></li> </ul>
<input type="checkbox"/>		Architectural Copper Rinse Water	<ul style="list-style-type: none"> <li>▪ Drain rinse water to landscaping, discharge to sanitary sewer<sup>8</sup>, or collect and dispose properly offsite. See flyer "Requirements for Architectural Copper."</li> </ul>

<sup>8</sup> Any connection to the sanitary sewer system is subject to sanitary district approval.

<sup>9</sup> Businesses that may have outdoor process activities/equipment include machine shops, auto repair, industries with pretreatment facilities.

## Worksheet C

<b>Low Impact Development – Site Design Measures</b>
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**Select Appropriate Site Design Measures** (Required for C.3 Regulated Projects; all other projects are encouraged to implement site design measures, which may be required at municipality discretion.) Projects that create and/or replace 2,500 – 10,000 sq.ft. of impervious surface, and stand-alone single family homes that create/replace 2,500 sq.ft. or more of impervious surface, must include **one of Site Design Measures a through f** (Provision C.3.i requirements).<sup>10</sup> Larger projects must also include applicable Site Design Measures g through i. Consult with municipal staff about requirements for your project.

Select appropriate site design measures and identify the Plan Sheet where these elements are shown.

Yes	Plan Sheet Number	
<input type="checkbox"/>		a. Direct roof runoff into cisterns or rain barrels and use rainwater for irrigation or other non-potable use.
<input type="checkbox"/>		b. Direct roof runoff onto vegetated areas.
<input checked="" type="checkbox"/>	C5.3	c. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
<input type="checkbox"/>		d. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
<input type="checkbox"/>		e. Construct sidewalks, walkways, and/or patios with pervious or permeable surfaces. Use the specifications in the C3 Technical Guidance (Version 4.1) downloadable at <a href="http://www.flowstobay.org/newdevelopment">www.flowstobay.org/newdevelopment</a> .
<input type="checkbox"/>		f. Construct bike lanes, driveways, and/or uncovered parking lots with pervious surfaces. Use the specifications in the C3 Technical Guidance (Version 4.1) downloadable at <a href="http://www.flowstobay.org/newdevelopment">www.flowstobay.org/newdevelopment</a> .
<input type="checkbox"/>		g. Limit disturbance of natural water bodies and drainage systems; minimize compaction of highly permeable soils; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies.
<input checked="" type="checkbox"/>	C9.3	h. Conserve natural areas, including existing trees, other vegetation and soils.
<input type="checkbox"/>		i. Minimize impervious surfaces.

Regulated Projects can also consider the following site design measures to reduce treatment system sizing:

Yes	Plan Sheet Number	
<input checked="" type="checkbox"/>	C5.3	j. Self-treating area (see Section 4.2 of the C.3 Technical Guidance)
<input type="checkbox"/>		k. Self-retaining area (see Section 4.3 of the C.3 Technical Guidance)
<input type="checkbox"/>		l. Plant or preserve interceptor trees (Section 4.1, C.3 Technical Guidance)

<sup>10</sup> See MRP Provision C.3.a.i.(6) for non-C.3 Regulated Projects, C.3.c.i.(2)(a) for Regulated Projects, C.3.i for projects that create/replace 2,500 to 10,000 sq.ft. of impervious surface and stand-alone single family homes that create/replace 2,500 sq.ft. or more of impervious surface.

## Worksheet D

<b>C3 Regulated Project - Stormwater Treatment Measures</b>
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Check all applicable boxes and indicate the treatment measure(s) included in the project.

Yes											
<input type="checkbox"/>	<p>Is the project a <b>Special Project</b>?<sup>11</sup></p> <p>If yes, consult with municipal staff about the need to evaluate the feasibility and infeasibility of 100% LID treatment. Indicate the type of non-LID treatment to be used, the hydraulic sizing method<sup>12</sup>, and percentage of the amount of runoff specified in Provision C.3.d that is treated:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%; text-align: left;"><u>Non-LID Treatment Measures:</u></th> <th style="width: 40%; text-align: left;"><u>Hydraulic sizing method<sup>12</sup></u></th> <th style="width: 20%; text-align: center;"><u>% of C.3.d amount of runoff treated</u></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Media filter</td> <td><input type="checkbox"/>2.a <input type="checkbox"/>2.b <input type="checkbox"/>2.c</td> <td style="text-align: center;">____%</td> </tr> <tr> <td><input type="checkbox"/> Tree well filter</td> <td><input type="checkbox"/>2.a <input type="checkbox"/>2.b <input type="checkbox"/>2.c</td> <td style="text-align: center;">____%</td> </tr> </tbody> </table>	<u>Non-LID Treatment Measures:</u>	<u>Hydraulic sizing method<sup>12</sup></u>	<u>% of C.3.d amount of runoff treated</u>	<input type="checkbox"/> Media filter	<input type="checkbox"/> 2.a <input type="checkbox"/> 2.b <input type="checkbox"/> 2.c	____%	<input type="checkbox"/> Tree well filter	<input type="checkbox"/> 2.a <input type="checkbox"/> 2.b <input type="checkbox"/> 2.c	____%	
<u>Non-LID Treatment Measures:</u>	<u>Hydraulic sizing method<sup>12</sup></u>	<u>% of C.3.d amount of runoff treated</u>									
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<input type="checkbox"/> Tree well filter	<input type="checkbox"/> 2.a <input type="checkbox"/> 2.b <input type="checkbox"/> 2.c	____%									
<input type="checkbox"/>	<p>Is the project using infiltration systems?</p> <p>The MRP no longer requires the use or analysis of the feasibility of infiltration, but infiltration systems are encouraged and may be beneficial depending on the project.</p> <p>Indicate the infiltration measures to be used, and hydraulic sizing method:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%; text-align: left;"><u>Infiltration Measures:</u></th> <th style="width: 60%; text-align: left;"><u>Hydraulic sizing method<sup>12</sup></u></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Bioinfiltration<sup>13</sup></td> <td><input type="checkbox"/>1.a <input type="checkbox"/>1.b <input type="checkbox"/>2.c <input type="checkbox"/>3</td> </tr> <tr> <td><input type="checkbox"/> Pervious Pavement</td> <td><input type="checkbox"/>1.a <input type="checkbox"/>1.b</td> </tr> <tr> <td><input type="checkbox"/> Infiltration trench</td> <td><input type="checkbox"/>1.a <input type="checkbox"/>1.b</td> </tr> <tr> <td><input type="checkbox"/> Other (specify): _____</td> <td></td> </tr> </tbody> </table>	<u>Infiltration Measures:</u>	<u>Hydraulic sizing method<sup>12</sup></u>	<input type="checkbox"/> Bioinfiltration <sup>13</sup>	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b <input type="checkbox"/> 2.c <input type="checkbox"/> 3	<input type="checkbox"/> Pervious Pavement	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b	<input type="checkbox"/> Infiltration trench	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b	<input type="checkbox"/> Other (specify): _____	
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<input type="checkbox"/> Infiltration trench	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b										
<input type="checkbox"/> Other (specify): _____											
<input type="checkbox"/>	<p>Is the project harvesting and using rainwater?</p> <p>The MRP no longer requires the use or analysis of the feasibility of rainwater harvesting, but it rainwater harvesting and use is encouraged and may be beneficial depending on the project."</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%; text-align: left;"><u>Rainwater Harvesting/Use Measures:</u></th> <th style="width: 40%; text-align: left;"><u>Hydraulic sizing method<sup>12</sup></u></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Rainwater Harvesting for indoor non-potable water use</td> <td><input type="checkbox"/>1.a <input type="checkbox"/>1.b</td> </tr> <tr> <td><input type="checkbox"/> Rainwater Harvesting for landscape irrigation use</td> <td><input type="checkbox"/>1.a <input type="checkbox"/>1.b</td> </tr> </tbody> </table>	<u>Rainwater Harvesting/Use Measures:</u>	<u>Hydraulic sizing method<sup>12</sup></u>	<input type="checkbox"/> Rainwater Harvesting for indoor non-potable water use	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b	<input type="checkbox"/> Rainwater Harvesting for landscape irrigation use	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b				
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<input type="checkbox"/> Rainwater Harvesting for landscape irrigation use	<input type="checkbox"/> 1.a <input type="checkbox"/> 1.b										
<input checked="" type="checkbox"/>	<p>Is the project installing biotreatment measures?</p> <p>Indicate the biotreatment measures to be used, and the hydraulic sizing method:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%; text-align: left;"><u>Biotreatment Measures:</u></th> <th style="width: 40%; text-align: left;"><u>Hydraulic sizing method<sup>12</sup></u></th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Bioretention area</td> <td><input checked="" type="checkbox"/>2.c <input type="checkbox"/>3</td> </tr> <tr> <td><input checked="" type="checkbox"/> Flow-through planter</td> <td><input checked="" type="checkbox"/>2.c <input type="checkbox"/>3</td> </tr> <tr> <td><input type="checkbox"/> Other (specify): _____</td> <td></td> </tr> </tbody> </table>	<u>Biotreatment Measures:</u>	<u>Hydraulic sizing method<sup>12</sup></u>	<input checked="" type="checkbox"/> Bioretention area	<input checked="" type="checkbox"/> 2.c <input type="checkbox"/> 3	<input checked="" type="checkbox"/> Flow-through planter	<input checked="" type="checkbox"/> 2.c <input type="checkbox"/> 3	<input type="checkbox"/> Other (specify): _____			
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<input checked="" type="checkbox"/> Bioretention area	<input checked="" type="checkbox"/> 2.c <input type="checkbox"/> 3										
<input checked="" type="checkbox"/> Flow-through planter	<input checked="" type="checkbox"/> 2.c <input type="checkbox"/> 3										
<input type="checkbox"/> Other (specify): _____											

A copy of the long term Operations and Maintenance (O&M) Agreement and Plan for this project will be required. Please contact the NPDES Representative of the applicable municipality for an agreement template and consult the C.3 Technical Guidance at [www.flowstobay.org](http://www.flowstobay.org) for maintenance plan templates for specific facility types.

<sup>11</sup> Special Projects are smart growth, high density, or transit-oriented developments with the criteria defined in Provision C.3.e.ii.(2), (3) or (4) (see Worksheet F).

<sup>12</sup> Indicate which of the following Provision C.3.d.i hydraulic sizing methods were used. Volume based approaches: 1(a) Urban Runoff Quality Management approach, or 1(b) 80% capture approach (recommended volume-based approach). Flow-based approaches: 2(a) 10% of 50-year peak flow approach, 2(b) 2 times the 85<sup>th</sup> percentile rainfall intensity approach, or 2(c) 0.2-Inch-per-hour intensity approach (recommended flow-based approach – also known as the 4% rule). Combination flow and volume-based approach: 3.

<sup>13</sup> See Section 6.1 of the C.3 Technical Guidance for conditions in which bioretention areas provide bioinfiltration.

## Worksheet E

### Hydromodification Management

#### E-1 Is the project a Hydromodification Management<sup>14</sup> (HM) Project?

E-1.1 Is the total impervious area increased over the pre-project condition?

- Yes. Continue to E-1.2.  
 No. Go to Item E-1.3 and check "No".

E-1.2 Is the site located in an HM Control Area per the HM Control Areas map (Appendix H of the C.3 Technical Guidance)?

- Yes. Go to E-1.3 and check "Yes".  
 No. Attach map, indicating project location. Go to Item E-1.3 and check "No".

E-1.3 Is the project a Hydromodification Management Project?

- Yes. The project is subject to HM requirements in Provision C.3.g of the Municipal Regional Stormwater Permit.  
 No. The project is EXEMPT from HM requirements.

- If the project is subject to the HM requirements, incorporate in the project flow duration control measures designed such that post-project discharge rates and durations match pre-project discharge rates and durations.
- The Bay Area Hydrology Model (BAHM) has been developed to help size flow duration controls. See [www.bayareahydrologymodel.org](http://www.bayareahydrologymodel.org). Guidance is provided in Chapter 7 of the C.3 Technical Guidance.

#### E-2 Incorporate HM Controls (if required)

Are the applicable items provided with the Plans?

Yes	No	NA	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Site plans with pre- and post-project impervious surface areas, surface flow directions of entire site, locations of flow duration controls and site design measures per HM site design requirement
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Soils report or other site-specific document showing soil type(s) on site
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If project uses the Bay Area Hydrology Model (BAHM), a list of model inputs and outputs.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If project uses custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves), goodness of fit, and (allowable) low flow rate.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If project uses the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of start up, and entity responsible for maintenance).
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If the project uses alternatives to the default BAHM approach or settings, a written description and rationale.

<sup>14</sup> Hydromodification is the change in a site's runoff hydrograph, including increases in flows and durations that results when land is developed (made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion of receiving streams, loss of habitat, increased sediment transport and/or deposition, and increased flooding. Hydromodification control measures are designed to reduce these effects.



## Worksheet F Special Projects

Complete this worksheet for projects that appear to meet the definition of "Special Project", per Provision C.3.e.ii of the Municipal Regional Stormwater Permit (MRP). The form assists in determining whether a project meets Special Project criteria, and the percentage of low impact development (LID) treatment reduction credit. Special Projects that implement less than 100% LID treatment must provide a narrative discussion of the feasibility or infeasibility of 100% LID treatment. See Appendix J of the C.3 Technical Guidance Handbook (download at [www.flowstobay.org](http://www.flowstobay.org)) for more information.

### F.1 "Special Project" Determination (Check the boxes to determine if the project meets any of the following categories.)

#### Special Project Category "A"

Does the project have ALL of the following characteristics?

- Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district<sup>15</sup>;
- Creates and/or replaces 0.5 acres or less of impervious surface;
- Includes no surface parking, except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones;
- Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment.

No (continue)       Yes – Complete Section F.2 below

#### Special Project Category "B"

Does the project have ALL of the following characteristics?

- Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district<sup>20</sup>;
- Creates and/or replaces more than 0.5 acres of impervious area and less than 2.0 acres;
- Includes no surface parking, except for incidental parking for emergency access, ADA access, and passenger or freight loading zones;
- Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment;
- Minimum density of either 50 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial projects) - mixed use projects may use either criterion. **Note Change on 7/1/16<sup>16</sup>**

No (continue)       Yes – Complete Section F-2 below

#### Special Project Category "C"

Does the project have ALL of the following characteristics?

- At least 50% of the project area is within 1/2 mile of an existing or planned transit hub<sup>17</sup> or 100% within a planned Priority Development Area<sup>18</sup>;
- The project is characterized as a non-auto-related use<sup>19</sup>; and
- Minimum density of either 25 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial projects) - mixed use projects may use either criterion. **Note Change on 7/1/16<sup>16</sup>**

No (continue)       Yes – Complete Section F-2 below

<sup>15</sup> And built as part of a municipality's stated objective to preserve/enhance a pedestrian-oriented type of urban design.

<sup>16</sup> **Effective 7/1/16**, the MRP establishes definitions for "Gross Density"(GD) & FAR. GD is defined as, "the total number of residential units divided by the acreage of the entire site area, including land occupied by public right-of-ways, recreational, civic, commercial and other non-residential uses." FAR is defined as, "the Ratio of the total floor area on all floors of all buildings at a project site (except structures, floors, or floor areas dedicated to parking) to the total project site area.

<sup>17</sup> "Transit hub" is defined as a rail, light rail, or commuter rail station, ferry terminal, or bus transfer station served by three or more bus routes. (A bus stop with no supporting services does not qualify.)

<sup>18</sup> A "planned Priority Development Area" is an infill development area formally designated by the Association of Bay Area Government's / Metropolitan Transportation Commission's FOCUS regional planning program.

<sup>19</sup> Category C specifically excludes stand-alone surface parking lots; car dealerships; auto and truck rental facilities with onsite surface storage; fast-food restaurants, banks or pharmacies with drive-through lanes; gas stations; car washes; auto repair and service facilities; or other auto-related project unrelated to the concept of transit oriented development.

**F.2 LID Treatment Reduction Credit Calculation**

(If more than one category applies, choose only one of the applicable categories and fill out the table for that category.)

Category	Impervious Area Created/Replaced (sq. ft.)	Site Coverage (%)	Project Density <sup>16</sup> or FAR <sup>16</sup>	Density/Criteria	Allowable Credit (%)	Applied Credit (%)
A			N.A.	N.A.	100%	
B				Res ≥ 50 DU/ac or FAR ≥ 2:1	50%	
				Res ≥ 75 DU/ac or FAR ≥ 3:1	75%	
				Res ≥ 100 DU/ac or FAR ≥ 4:1	100%	
C				<b>Location credit (select one)<sup>20</sup>:</b>		
				Within ¼ mile of transit hub	50%	
				Within ½ mile of transit hub	25%	
				Within a planned PDA	25%	
				<b>Density credit (select one):</b>		
				Res ≥ 30 DU/ac or FAR ≥ 2:1	10%	
				Res ≥ 60 DU/ac or FAR ≥ 4:1	20%	
				Res ≥ 100 DU/ac or FAR ≥ 6:1	30%	
				<b>Parking credit (select one):</b>		
				≤ 10% at-grade surface parking <sup>21</sup>	10%	
No surface parking	20%					
<b>TOTAL TOD CREDIT =</b>					<b>0</b>	

**F.3 Narrative Discussion of the Feasibility/Infeasibility of 100% LID Treatment:**

If project will implement less than 100% LID, prepare a discussion of the feasibility or infeasibility of 100% LID treatment, as described in Appendix K of the C.3 Technical Guidance.

**F.4 Select Certified Non-LID Treatment Measures:**

If the project will include non-LID treatment measures, select a treatment measure certified for “Basic” General Use Level Designation (GULD) by the Washington State Department of Ecology’s Technical Assessment Protocol – Ecology (TAPE). Guidance is provided in Appendix K of the C.3 Technical Guidance (download at [www.flowstobay.org](http://www.flowstobay.org)).<sup>22</sup>

<sup>20</sup> To qualify for the location credit, at least 50% of the project’s site must be located within the ¼ mile or ½ mile radius of an existing or planned transit hub, as defined on page 1, footnote 2. A planned transit hub is a station on the MTC’s Regional Transit Expansion Program list, per MTC’s Resolution 3434 (revised April 2006), which is a regional priority funding plan for future transit stations in the San Francisco Bay Area. To qualify for the PDA location credit, 100% of the project site must be located within a PDA, as defined on page 1, footnote 3.

<sup>21</sup> The at-grade surface parking must be treated with LID treatment measures.

<sup>22</sup> TAPE certification is used in order to satisfy Special Project’s reporting requirements in the MRP.

## Worksheet G (For municipal staff use only)

**G-1 Alternative Certification:** Were the treatment and/or HM control sizing and design reviewed by a qualified third-party professional that is not a member of the project team or agency staff?

Yes     No    Name of Reviewer \_\_\_\_\_

**G-2 High Priority Site:** High Priority Sites can include those located in or within 100 feet of a sensitive habitat, an Area of Special Biological Significance (ASBS), a body of water, or **starting 7/1/16** on "hillside projects" disturbing  $\geq 5,000$  sq.ft. of land and with steep slopes (of  $\geq 15\%$  - see cell **I.A.4** - or as identified by municipal criteria or map). These sites are subject to monthly inspections from Oct 1 to April 30. See MRP Provision C.6.e.ii.(2).

Yes     No    If yes, then add site to Staff's Monthly Rainy Season Construction Site Inspection List

**G-3 Inspections of Sites with Pervious Paving: Starting 7/1/16,** Regulated projects that are installing 3,000 sq.ft. or more of pervious paving (see cell **I.B.1.e.1**) (excluding private-use patios in single family homes, townhomes, or condominiums) must have the paving system inspected by the jurisdiction upon completion of the installation and the site must be added to the jurisdiction's list of sites needing inspections at least once every five years – see provision C.3.h. Pervious pavement systems include pervious concrete, pervious asphalt, pervious pavers and grid pavers etc. and are described in the C3 Technical Guidance (Version 4.1) downloadable at: [www.flowstobay.org/newdevelopment](http://www.flowstobay.org/newdevelopment).

Yes     No    If yes, then add site to Staff's Lists for Inspections at the end of Construction and O&M.

### Operations and Maintenance (O&M) Submittals

**G-4** Stormwater Treatment Measure and/HM Control Owner or Operator's Information:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

➤ *Applicant must call for inspection and receive inspection within 45 days of installation of treatment measures and/or hydromodification management controls.*

*The following questions apply to C.3 Regulated Projects and Hydromodification Management Projects.*

	Yes	No	N/A
G-4.1 Was maintenance plan submitted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G-4.2 Was maintenance plan approved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G-4.3 Was maintenance agreement submitted? (Date executed: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

➤ *Attach the executed maintenance agreement as an appendix to this checklist.*

**G-5 Annual Operations and Maintenance (O&M) Submittals (for municipal staff use only):**

*For C.3 Regulated Projects and Hydromodification Management Projects, indicate the dates on which the Applicant submitted annual reports for project O&M:*

\_\_\_\_\_

**G-6 Comments (for municipal staff use only):**

**G-7 NOTES (for municipal staff use only):**

Section I Notes: \_\_\_\_\_  
 Worksheet A Notes: \_\_\_\_\_  
 Worksheet B Notes: \_\_\_\_\_  
 Worksheet C Notes: \_\_\_\_\_  
 Worksheet D Notes: \_\_\_\_\_  
 Worksheet E Notes: \_\_\_\_\_  
 Worksheet F Notes: \_\_\_\_\_

**G-8 Project Close-Out (for municipal staff use only):**

	<b>Yes</b>	<b>No</b>	<b>NA</b>
8.1 Were final Conditions of Approval met?	<input type="checkbox"/>	<input type="checkbox"/>	
8.2 Was initial inspection of the completed treatment/HM measure(s) conducted? (Date of inspection: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.3 Was maintenance plan submitted? (Date executed: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.4 Was project information provided to staff responsible for O&M verification inspections? (Date provided to inspection staff: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

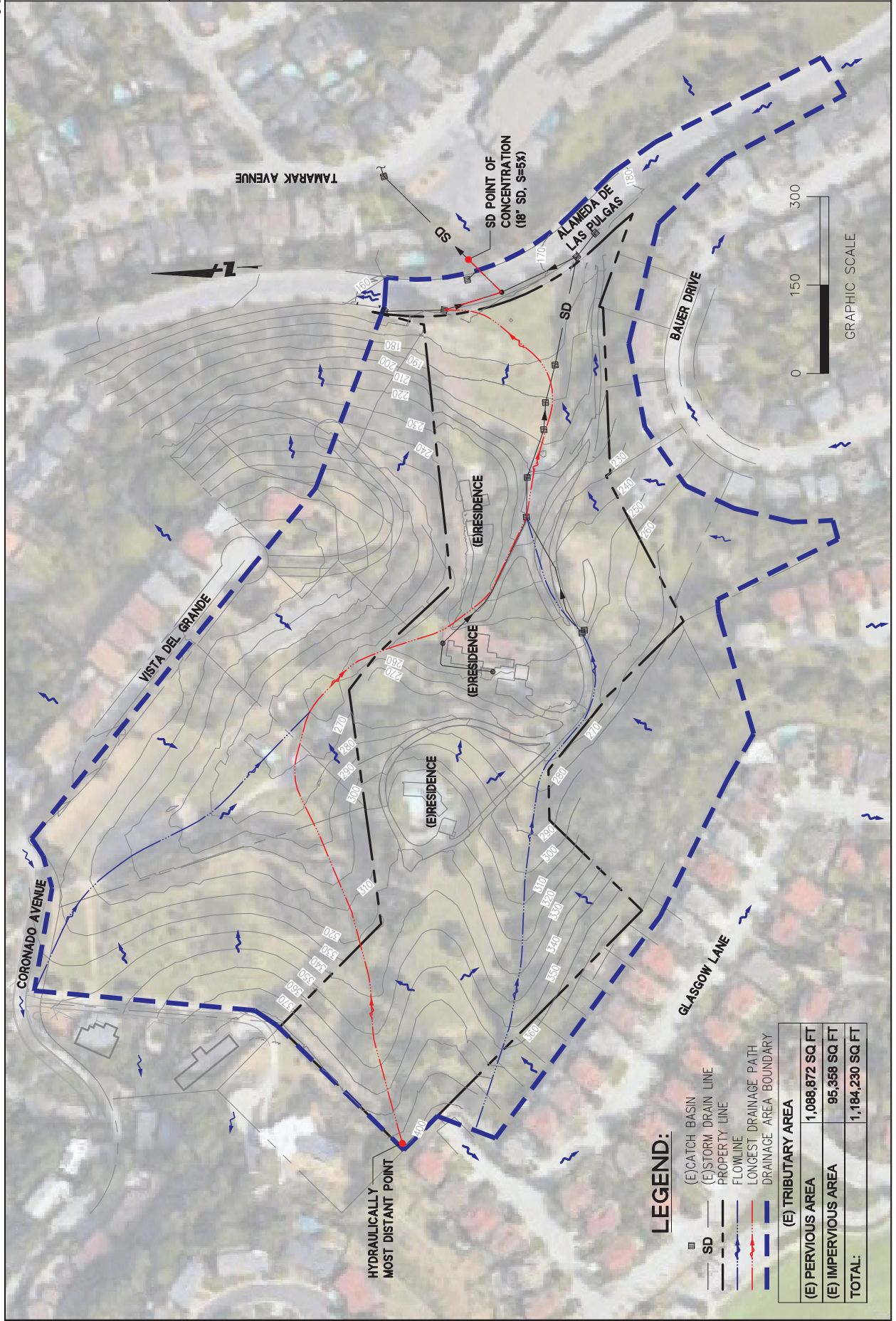
**G-9 Project Close-Out (Continued -- for municipal staff use only):**

Name of staff confirming project is closed out: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Name of O&M staff receiving information: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# APPENDIX 2

## Project Tributary Area Exhibits

Date: 01/4/2022	No.	Revisions
Drawn: JLF		
Design: JLF		
Approved: DUC		
Job No: 2022010		



**LEGEND:**

■	(E) CATCH BASIN
—	(E) STORM DRAIN LINE
---	PROPERTY LINE
—	FLOWLINE
—	LONGEST DRAINAGE PATH
---	DRAINAGE AREA BOUNDARY
<b>(E) TRIBUTARY AREA</b>	
(E) PERVIOUS AREA	1,088,872 SQ. FT
(E) IMPERVIOUS AREA	95,358 SQ. FT
<b>TOTAL:</b>	<b>1,184,230 SQ. FT</b>

**PROPOSED SITE CONDITIONS**  
**808 ALAMEDA DE LAS PULGAS**  
 SAN MATEO COUNTY

Job No.	2022-01-1507
Approved: D.L.	
Drawn: D.L.	
Design: D.P.	
Scale: 1"=150'	
Date: 01/14/2022	
No.	
Revisions	



**LEGEND:**

- (E) CATCH BASIN
- (E) STORM DRAIN LINE
- PROPERTY LINE
- FLOWLINE
- LONGEST DRAINAGE PATH
- DRAINAGE AREA BOUNDARY
- (P) CATCH BASIN
- (P) STORM DRAIN LINE

(P) TRIBUTARY AREA	866,372 SQ FT
(P) PERVIOUS AREA	317,858 SQ FT
(P) IMPERVIOUS AREA	1,184,230 SQ FT
<b>TOTAL:</b>	

# APPENDIX 3

## Peak Discharge Calculations





**Redwood City**  
 255 Shoreline Drive, Suite 200  
 Redwood City, CA 94065  
 Tel 650.482.6300  
 Fax 650.482.6399

**Time of Concentration Calculations**  
**Pre-Development Conditions**

**Project Address:** 808 Alameda de las Pulgas  
**BKF Job No:** 20160150  
**Date:** 1/14/2022  
**Calcs By:** DG/DP

**Time of Concentration (t<sub>c</sub>)**

$$t_{ov} = 0.83 (\ln(s^{-.5}))^{.467}$$

L [ft] = 300  
 s [ft/ft] = 0.167  
 n [] = 0.6  
**t<sub>ov</sub> [min] = 14.2**

Kerby-Kirpich Method

Kerby Equation (Overland Flow)

L is the length of the overland flow drainage path  
 S is the slope of the drainage path (16.7% slope)  
 n is a dimensionless retardance coefficient (deciduous forest)  
 t<sub>ov</sub> is the overland flow time of concentration

$$t_{ch} = 0.0078L^{.77} S^{.385}$$

L [ft] = 1,451  
 s [ft/ft] = 0.124  
**t<sub>ch</sub> [min] = 0.8**

Kirpich Equation (Channel Flow)

L is the length of the channel flow drainage path  
 S is the slope of the drainage path (9.1% slope)  
 t<sub>ch</sub> is the channel flow time of concentration

$$t_c = t_{ov} + t_{ch}$$

**t<sub>c</sub> [min] = 15.0**

t<sub>c</sub> is the total time of concentration from the hydraulically most distant point of tributary area to the point of concentration in the 18" SD pipe downhill of Alameda de las Pulgas. See Exhibit X-1.



**Discharge Calculations for 10-year Event**  
**Pre-Development Conditions**

**Project Address:** 808 Alameda de las Pulgas  
**BKF Job No:** 20160150  
**Date:** 1/14/2022  
**Calcs By:** DG/DP

**Intensity (I):**

**I [in/hr] = 1.59**

NOAA Rainfall Intensity      Storm duration equal to time of concentration  
 10-yr, 15 min                      for Rational Method Peak Flow Calculation

**Existing Tributary Area (A):**

Existing tributary area flowing to point of concentration

Impervious Area [ft <sup>2</sup> ] =	<b>95358</b>	C = 0.9
Semi-pervious Area [ft <sup>2</sup> ] =	<b>0</b>	C = 0.6
Pervious Area [ft <sup>2</sup> ] =	<b>108872</b>	C = 0.3
	<b>1184230</b>	

**Total Area [ac] = 27.2**

**Composite Runoff Coefficient (C):**

**C = 0.35**

Composite runoff coefficient for tributary area

**Existing Peak Discharge (Q<sub>E</sub>):**

Q = CIAF

F = 1.1

**Q<sub>E</sub> [cfs] = 16.56**

San Carlos Design Guidelines (Section 6)  
 Intensity Factor  
 Existing peak discharge at point of concentration

**Existing Flow Velocity (V<sub>E</sub>):**

**V<sub>E</sub> [cfs] = 14.16**

Existing flow velocity calculated using FHWA Hydraulic Toolbox

Type: <input type="text" value="Circular"/> <input type="button" value="Define..."/>		
Side Slope 1 (Z1): <input type="text" value="0.0"/> H: 1V		
Side Slope 2 (Z2): <input type="text" value="0.0"/> H: 1V		
Channel Width (B): <input type="text" value="0.0"/> (ft)		
Pipe Diameter (D): <input type="text" value="1.5"/> (ft)		
Longitudinal Slope: <input type="text" value="0.05"/> (ft/ft)		
Manning's Roughness: <input type="text" value="0.0130"/>		
<input checked="" type="radio"/> Enter Flow: <input type="text" value="15.290"/> (cfs) <input type="radio"/> Enter Depth: <input type="text" value="0.882"/> (ft)		

Parameter	Value	Units
Flow	15.290	cfs
Depth	0.882	ft
Area of Flow	1.080	sq ft
Wetted Perimeter	2.621	ft
Hydraulic Radius	0.412	ft
Average Velocity	14.155	fps
Top Width (T)	1.477	ft
Froude Number	2.917	
Critical Depth	1.411	ft
Critical Velocity	8.865	fps
Critical Slope	0.01831	ft/ft
Critical Top Width	0.707	ft
Max Shear Stress	2.751	lb/ft <sup>2</sup>
Avg Shear Stress	1.286	lb/ft <sup>2</sup>



**Redwood City**  
 255 Shoreline Drive, Suite 200  
 Redwood City, CA 94065  
 Tel 650.482.6300  
 Fax 650.482.6399

**Time of Concentration Calculations**  
**Post-Development Conditions**

**Project Address:** 808 Alameda de las Pulgas  
**BKF Job No:** 20160150  
**Date:** 1/14/2022  
**Calcs By:** DG/DP

**Time of Concentration (t<sub>c</sub>)**

$$t_{ov} = 0.83 (\ln(s^{-.5}))^{.467}$$

L [ft] = 300  
 s [ft/ft] = 0.167  
 n [] = 0.6  
**t<sub>ov</sub> [min] = 14.2**

Kerby-Kirpich Method  
 Kerby Equation (Overland Flow)  
 L is the length of the overland flow drainage path  
 S is the slope of the drainage path (16.7% slope)  
 n is a dimensionless retardance coefficient (deciduous forest)  
 t<sub>ov</sub> is the overland flow time of concentration

$$t_{ch} = 0.0078L^{.77} S^{.385}$$

L [ft] = 1,516  
 s [ft/ft] = 0.119  
**t<sub>ch</sub> [min] = 0.8**

Kirpich Equation (Channel Flow)  
 L is the length of the channel flow drainage path  
 S is the slope of the drainage path (9.1% slope)  
 t<sub>ch</sub> is the channel flow time of concentration

$$t_c = t_{ov} + t_{ch}$$

**t<sub>c</sub> [min] = 15.0**

t<sub>c</sub> is the total time of concentration from the hydraulically most distant point of tributary area to the point of concentration in the 18" SD pipe downhill of Alameda de las Pulgas. See Exhibit X-2.



**Discharge Calculations for 10-year Event**  
**Post-Development Conditions**

**Project Address:** 808 Alameda de las Pulgas  
**BKF Job No:** 20160150  
**Date:** 1/14/2022  
**Calcs By:** DG/DP

**Intensity (I):**

**I [in/hr] = 1.59**

NOAA Rainfall Intensity  
 10-yr, 15 min

Storm duration equal to time of concentration  
 for Rational Method Peak Flow Calculation

**Proposed Tributary Area (A):**

Impervious Area [ft <sup>2</sup> ] = <b>317858</b>	C = 0.9
Semi-pervious Area [ft <sup>2</sup> ] = <b>0</b>	C = 0.6
Pervious Area [ft <sup>2</sup> ] = <b>866372</b>	C = 0.3
<hr/>	
1184230	

**Total Area [ac] = 27.2**

**Composite Runoff Coefficient (C):**

**C = 0.46**

**Proposed Peak Discharge (Q<sub>p</sub>):**

$Q = CIAF$

F = 1.1  
**Q<sub>p</sub> [cfs] = 21.92**

San Carlos Design Guidelines (Section 6)

Intensity Factor

Proposed Peak Discharge prior to hydromodification management

**Proposed Flow Velocity (V<sub>p</sub>):**

**V<sub>p</sub> [cfs] = 15.10**

Proposed flow velocity calculated using FHWA Hydraulic Toolbox

Type:  Define...

Side Slope 1 (Z1):  H : 1V

Side Slope 2 (Z2):  H : 1V

Channel Width (B):  (ft)

Pipe Diameter (D):  (ft)

Longitudinal Slope:  (ft/ft)

Manning's Roughness:

---

Enter Flow:  (cfs)

Enter Depth:  (ft)

Parameter	Value	Units
Flow	21.890	cfs
Depth	1.147	ft
Area of Flow	1.450	sq ft
Wetted Perimeter	3.192	ft
Hydraulic Radius	0.454	ft
Average Velocity	15.101	fps
Top Width (T)	1.273	ft
Froude Number	2.494	
Critical Depth	1.477	ft
Critical Velocity	12.427	fps
Critical Slope	0.03934	ft/ft
Critical Top Width	0.368	ft
Max Shear Stress	3.578	lb/ft <sup>2</sup>
Avg Shear Stress	1.417	lb/ft <sup>2</sup>



**Redwood City Office**  
 255 Shoreline Drive, Suite 200  
 Redwood City, CA, 94065  
 Tel 650.482.6300  
 Fax 650.482.6399

**Pipe Capacity - Alameda de Las Pulgas Storm Drain System**  
**18-inch Pipe @ 5% Slope - 10-yr Storm Event**

**Project Address:** 808 Alameda de las Pulgas

**BKF Job No:** 20160150

**Date:** 01/14/22

**Calcs By:** DG/DP

**Tributary Flow Rate ( $Q_T$ ):**

$Q_T = Q_E$

**$Q_T$  [cfs] = 16.56**

Tributary flow reduced to existing conditions with hydromodification management

**Pipe Flow Rate ( $Q_{PIPE}$ ):**

$Q_{PIPE} = A \times V$

$V = (k/n) \times R_h^{2/3} \times S^{1/2}$

$k$  [] = 1.486

$n$  [] = 0.013

$R_h$  [ft] = 0.375

**$A$  [ft<sup>2</sup>] = 1.767**

$P$  [ft] = 4.712

$D$  [ft] = 1.50

$S$  [] = 0.050

**$V$  [ft/sec] = 13.292**

**$Q_{PIPE}$  [cfs] = 23.49**

$k$  is a conversion constant equal to 1.486 for U.S. units

$n$  is the Gaokler-Manning coefficient (0.013 for RCP pipe)

$R_h$  is the hydraulic Radius ( $R_h = A/P$ )

$A$  is the cross-sectional area of flow ( $A = \frac{1}{4} \pi D^2$  for full pipe)

$P$  is wetted perimeter ( $P = \pi D$  for full pipe)

$D$  is diameter of the pipe (18" pipe)

5% pipe slope (Conservative approximation)

$V$  is the cross-sectional average velocity

$Q_{PIPE}$  is the flow capacity of the pipe

**Check  $Q_{PIPE} > Q_T$ :**

*Check that the pipe has enough capacity to hold the tributary area flow rate*

**TRUE**



NOAA Atlas 14, Volume 6, Version 2  
 Location name: San Carlos, California, USA\*  
 Latitude: 37.4967°, Longitude: -122.2696°  
 Elevation: 241.87 ft\*\*  
 \* source: ESRI Maps  
 \*\* source: USGS



**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

**PF tabular**

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.56 (1.37-1.81)	1.91 (1.67-2.20)	2.36 (2.05-2.74)	2.75 (2.38-3.22)	3.30 (2.75-4.01)	3.74 (3.04-4.66)	4.20 (3.32-5.38)	4.69 (3.60-6.19)	5.39 (3.95-7.44)	5.95 (4.19-8.54)
10-min	1.12 (0.984-1.30)	1.36 (1.19-1.58)	1.69 (1.48-1.96)	1.97 (1.70-2.31)	2.36 (1.97-2.87)	2.68 (2.18-3.34)	3.01 (2.38-3.85)	3.37 (2.57-4.44)	3.86 (2.83-5.33)	4.27 (3.01-6.12)
15-min	0.904 (0.792-1.04)	1.10 (0.960-1.27)	1.36 (1.19-1.58)	1.59 (1.37-1.86)	1.91 (1.58-2.32)	2.16 (1.76-2.69)	2.43 (1.92-3.10)	2.71 (2.08-3.58)	3.12 (2.28-4.30)	3.44 (2.42-4.94)
30-min	0.628 (0.550-0.726)	0.764 (0.668-0.884)	0.950 (0.826-1.10)	1.10 (0.954-1.29)	1.33 (1.10-1.61)	1.50 (1.22-1.87)	1.69 (1.33-2.16)	1.89 (1.44-2.49)	2.16 (1.58-2.99)	2.39 (1.68-3.43)
60-min	0.444 (0.389-0.513)	0.540 (0.472-0.625)	0.671 (0.584-0.778)	0.781 (0.674-0.915)	0.937 (0.779-1.14)	1.06 (0.862-1.32)	1.19 (0.942-1.53)	1.33 (1.02-1.76)	1.53 (1.12-2.11)	1.69 (1.19-2.42)
2-hr	0.325 (0.284-0.375)	0.392 (0.342-0.454)	0.483 (0.420-0.560)	0.559 (0.482-0.654)	0.666 (0.553-0.808)	0.750 (0.609-0.933)	0.838 (0.662-1.07)	0.931 (0.713-1.23)	1.06 (0.776-1.47)	1.17 (0.820-1.67)
3-hr	0.272 (0.238-0.314)	0.328 (0.287-0.380)	0.405 (0.352-0.469)	0.468 (0.404-0.548)	0.557 (0.463-0.677)	0.627 (0.509-0.780)	0.700 (0.553-0.895)	0.777 (0.595-1.02)	0.884 (0.647-1.22)	0.970 (0.683-1.39)
6-hr	0.193 (0.169-0.223)	0.235 (0.205-0.272)	0.291 (0.254-0.338)	0.338 (0.292-0.396)	0.403 (0.335-0.490)	0.455 (0.369-0.565)	0.508 (0.401-0.649)	0.564 (0.432-0.743)	0.641 (0.469-0.885)	0.703 (0.495-1.01)
12-hr	0.125 (0.109-0.144)	0.156 (0.136-0.180)	0.197 (0.172-0.229)	0.231 (0.200-0.271)	0.279 (0.232-0.339)	0.316 (0.257-0.394)	0.355 (0.281-0.454)	0.396 (0.303-0.522)	0.452 (0.331-0.624)	0.496 (0.350-0.712)
24-hr	0.076 (0.070-0.085)	0.098 (0.090-0.109)	0.127 (0.116-0.141)	0.150 (0.136-0.169)	0.183 (0.161-0.212)	0.209 (0.181-0.246)	0.235 (0.199-0.283)	0.263 (0.218-0.324)	0.301 (0.240-0.384)	0.331 (0.257-0.436)
2-day	0.048 (0.044-0.054)	0.062 (0.056-0.069)	0.080 (0.073-0.089)	0.094 (0.086-0.106)	0.115 (0.101-0.133)	0.131 (0.113-0.154)	0.147 (0.125-0.177)	0.164 (0.136-0.202)	0.188 (0.150-0.240)	0.206 (0.160-0.272)
3-day	0.037 (0.034-0.042)	0.048 (0.044-0.053)	0.061 (0.056-0.069)	0.073 (0.066-0.082)	0.088 (0.078-0.102)	0.100 (0.087-0.118)	0.113 (0.096-0.136)	0.126 (0.104-0.155)	0.144 (0.115-0.183)	0.158 (0.122-0.207)
4-day	0.031 (0.029-0.035)	0.040 (0.036-0.044)	0.051 (0.047-0.057)	0.060 (0.055-0.068)	0.073 (0.064-0.085)	0.083 (0.072-0.098)	0.093 (0.079-0.112)	0.104 (0.086-0.128)	0.118 (0.094-0.151)	0.130 (0.101-0.171)
7-day	0.022 (0.020-0.025)	0.028 (0.026-0.031)	0.036 (0.033-0.040)	0.042 (0.038-0.048)	0.051 (0.045-0.059)	0.058 (0.050-0.068)	0.065 (0.055-0.078)	0.072 (0.060-0.089)	0.082 (0.066-0.105)	0.090 (0.070-0.118)
10-day	0.018 (0.016-0.020)	0.022 (0.020-0.025)	0.028 (0.026-0.032)	0.033 (0.030-0.038)	0.040 (0.036-0.047)	0.046 (0.039-0.054)	0.051 (0.043-0.061)	0.056 (0.047-0.070)	0.064 (0.051-0.082)	0.070 (0.054-0.092)
20-day	0.011 (0.011-0.013)	0.015 (0.013-0.016)	0.019 (0.017-0.021)	0.022 (0.020-0.025)	0.026 (0.023-0.030)	0.029 (0.025-0.035)	0.033 (0.028-0.039)	0.036 (0.030-0.044)	0.040 (0.032-0.051)	0.043 (0.034-0.057)
30-day	0.009 (0.008-0.010)	0.012 (0.011-0.013)	0.015 (0.014-0.017)	0.018 (0.016-0.020)	0.021 (0.018-0.024)	0.023 (0.020-0.027)	0.026 (0.022-0.031)	0.028 (0.023-0.035)	0.031 (0.025-0.040)	0.034 (0.026-0.044)
45-day	0.008 (0.007-0.008)	0.010 (0.009-0.011)	0.012 (0.011-0.014)	0.014 (0.013-0.016)	0.017 (0.015-0.020)	0.019 (0.016-0.022)	0.021 (0.018-0.025)	0.023 (0.019-0.028)	0.025 (0.020-0.032)	0.027 (0.021-0.035)
60-day	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.011 (0.010-0.012)	0.013 (0.012-0.014)	0.015 (0.013-0.018)	0.017 (0.015-0.020)	0.018 (0.016-0.022)	0.020 (0.016-0.024)	0.022 (0.017-0.028)	0.023 (0.018-0.030)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

# APPENDIX 4

## Stormwater Control Plan

- LEGEND:**
- IMPROVEMENT AREA
  - IMPROVEMENT AREA - SW CELL
  - IMPROVEMENT AREA - SW PRE-TREATMENT SYSTEM
  - IMPROVEMENT AREA - SW POST-TREATMENT SYSTEM
  - IMPROVEMENT AREA - SW PRE-TREATMENT SYSTEM
  - IMPROVEMENT AREA - SW POST-TREATMENT SYSTEM

- NOTES:**
- THE SIZE OF THE IMPROVEMENT AREA CALCULATED USING THE COMBINATION FLOW AND VOLUME DESIGN BASE AS DESCRIBED IN THE SAN MATEO COUNTY C.U.3 AND SAN MATEO COUNTY C.U.3-1.5. THE IMPROVEMENT AREA IS THE TOTAL IMPROVEMENT AREA PLUS 0.1 TIMES THE TOTAL REMAINS AREA FOR THE IMPROVEMENT AREA.
  - IMPROVEMENT AREAS ARE SIZED TO TREAT 4% OF EFFECTIVE IMPROVEMENT AREA IN DMAs 1-5. EFFECTIVE IMPROVEMENT AREA IS EQUAL TO THE TOTAL IMPROVEMENT AREA PLUS 0.1 TIMES THE TOTAL REMAINS AREA FOR THE IMPROVEMENT AREA.

**ONSITE TRIBUTARY AREA**

DRAINAGE MANAGEMENT AREA (DMA)	IMPROVEMENT AREA	PREVIOUS AREA	REQUIRED IMPROVEMENT AREA	TREATMENT AREA	PROVIDED TREATMENT AREA
DMA 1	18,250	5,444	17,111	33,509	1,422
DMA 2	34,197	11,452	32,705	24,448	1,040
DMA 3	25,034	4,088	24,653	15,862	1,000
DMA 4	15,862	0	15,862	15,862	1,000
DMA 5	15,862	0	15,862	15,862	1,000
<b>TOTAL</b>	<b>129,403</b>	<b>27,984</b>	<b>129,403</b>	<b>129,403</b>	<b>6,302</b>



**ONSITE TRIBUTARY SELF-TREATING AREAS**

DRAINAGE MANAGEMENT AREA (DMA)	PREVIOUS AREA	DISCHARGE POINT TO TREATED REMOTE PIPE
DMA 6A	29,206	CATCH BASIN WEST OF CLUSTER 3
DMA 6B	11,829	CATCH BASIN NORTH OF CLUSTER 3
DMA 6C	67,803	CATCH BASIN SOUTH OF CLUSTER 8
DMA 6D	4,564	CATCH BASIN NORTH OF CLUSTER 8
DMA 6E	6,098	CATCH BASIN SOUTH OF CLUSTER 11
DMA 6F	3,054	CATCH BASIN EAST OF CLUSTER 12
DMA 6G	6,695	CATCH BASIN EAST OF CLUSTER 12
DMA 6H	27,502	CATCH BASIN SOUTH OF CLUSTER 13
DMA 6I	6,472	CATCH BASIN SOUTH OF CLUSTER 13
<b>TOTAL</b>	<b>191,104</b>	

- NOTES:**
- DMAs 6A-6H ARE SELF-TREATING AREAS CONSISTING OF CONCENTRATED FLOW SPACES AND LANDSCAPED AREAS AS SHOWN ON THIS PLAN. THESE AREAS ARE TO BE MAINTAINED AS PART OF THE STORM DRAIN SYSTEM. PREVIOUS TREATMENT, SEE ABOVE TABLE FOR DISCHARGE POINT OF EACH TRIBUTARY.
  - CHANNEL SHALL BE LINED WITH A PERMANENT EROSION CONTROL FABRIC 300# 7.5' PERIOD AND SET IN 6" DED. DEEP (TOP) LAYERS OF 3" SAND. RECOMMENDATIONS AND INSTALLATION SPECIFICATIONS AND DETAILS FOR LINED CHANNEL DIMENSIONS, SLOPE, AND EROSION CONTROL FABRIC IN ACCORDANCE WITH THE EROSION CONTROL PLAN NOTES AND RECOMMENDATIONS.



1



# APPENDIX 5

## Bay Area Hydrology Model Results

# Existing BAHM Model

SCENARIOS

Pre-Project  
 Mitigated

Run Scenario

Basic Elements

Pro Elements

LID Toolbox

Commercial Toolbox

Move Elements

Save x,y Load x,y

X 80  
Y 0

# Proposed BAHM Model

SCENARIOS

Pre-Project  
 Mitigated

Run Scenario

Basic Elements

Pro Elements

LID Toolbox

Commercial Toolbox

Move Elements

Save x,y Load x,y

X 140  
Y 166

**BAHM2013  
PROJECT REPORT**

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**Project Name:** Black\_Mountain  
**Site Name:** Black Mountain  
**Site Address:** 808 Alameda de las Pulgas  
**City** : San Carlos  
**Report Date:** 1/14/2022  
**Gage** : San Francisco  
**Data Start** : 1959/10/01  
**Data End** : 1997/09/30  
**Precip Scale:** 0.93  
**Version Date:** 2018/11/27

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**Low Flow Threshold for POC 2** : 10 Percent of the 2 Year

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**High Flow Threshold for POC 2:** 10 year

---

**PREDEVELOPED LAND USE**

**Name** : Onsite - DMA  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
C D,Forest,Very (>20)	3.41
C D,Grass,Very (>20%)	6.821
<b>Pervious Total</b>	<b>10.231</b>
<u>Impervious Land Use</u>	<u>acre</u>
Roads,Steep(10-20%)	1.005
Roof Area	0.191
<b>Impervious Total</b>	<b>1.196</b>
<b>Basin Total</b>	<b>11.427</b>

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**Element Flows To:**

<b>Surface</b>	<b>Interflow</b>	<b>Groundwater</b>
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**Name** : Offsite - DMA  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
C D,Grass,Very (>20%)	7.383
C D,Forest,Very (>20)	3.692
C D,Shrub,Very (>20%)	3.692
<b>Pervious Total</b>	<b>14.767</b>
<u>Impervious Land Use</u>	<u>acre</u>
Roads,Mod(5-10%)	0.993
<b>Impervious Total</b>	<b>0.993</b>
<b>Basin Total</b>	<b>15.76</b>

<b>Element Flows To:</b>		
Surface	Interflow	Groundwater

**MITIGATED LAND USE**

**Name** : Onsite - DMA 1  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
C D,Grass,Very (>20%)	.062
<b>Pervious Total</b>	<b>0.062</b>
<u>Impervious Land Use</u>	<u>acre</u>
Roads,Steep(10-20%)	0.419
<b>Impervious Total</b>	<b>0.419</b>
<b>Basin Total</b>	<b>0.481</b>

<b>Element Flows To:</b>		
Surface	Interflow	Groundwater
Surface retention 1	Surface retention 1	

**Name** : Offsite - DMA  
**Bypass:** Yes

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
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C D,Grass,Very (>20%)	7.383
C D,Forest,Very (>20)	3.692
C D,Shrub,Very (>20%)	3.692
<b>Pervious Total</b>	<b>14.767</b>
<b>Impervious Land Use</b>	<b>acre</b>
Roads,Mod(5-10%)	0.993
<b>Impervious Total</b>	<b>0.993</b>
<b>Basin Total</b>	<b>15.76</b>

<b>Element Flows To:</b>		
Surface	Interflow	Groundwater

**Name** : Bioretention 1  
**Bottom Length:** 27.50 ft.  
**Bottom Width:** 27.50 ft.  
**Material thickness of first layer:** 1.5  
**Material type for first layer:** BAHM 5  
**Material thickness of second layer:** 1  
**Material type for second layer:** GRAVEL  
**Material thickness of third layer:** 0  
**Material type for third layer:** GRAVEL  
Underdrain used  
**Underdrain Diameter (feet):** 0.334  
**Orifice Diameter (in.):** 0.5  
**Offset (in.):** 0  
**Flow Through Underdrain (ac-ft.):** 98.758  
**Total Outflow (ac-ft.):** 99.196  
**Percent Through Underdrain:** 99.56  
Discharge Structure  
**Riser Height:** 0.5 ft.  
**Riser Diameter:** 36 in.

<b>Element Flows To:</b>	
Outlet 1	Outlet 2

**Bioretention 1 Hydraulic Table**

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0415	0.0000	0.0000	0.0000
0.0385	0.0415	0.0003	0.0000	0.0000
0.0769	0.0410	0.0005	0.0000	0.0000
0.1154	0.0406	0.0008	0.0000	0.0000
0.1538	0.0401	0.0010	0.0000	0.0000
0.1923	0.0397	0.0013	0.0000	0.0000

0.2308	0.0392	0.0016	0.0000	0.0000
0.2692	0.0388	0.0019	0.0000	0.0000
0.3077	0.0384	0.0022	0.0000	0.0000
0.3462	0.0379	0.0025	0.0000	0.0000
0.3846	0.0375	0.0028	0.0000	0.0000
0.4231	0.0371	0.0031	0.0000	0.0000
0.4615	0.0367	0.0034	0.0000	0.0000
0.5000	0.0362	0.0037	0.0000	0.0000
0.5385	0.0358	0.0040	0.0000	0.0000
0.5769	0.0354	0.0043	0.0000	0.0000
0.6154	0.0350	0.0046	0.0000	0.0000
0.6538	0.0346	0.0050	0.0000	0.0000
0.6923	0.0342	0.0053	0.0000	0.0000
0.7308	0.0338	0.0056	0.0000	0.0000
0.7692	0.0334	0.0060	0.0000	0.0000
0.8077	0.0329	0.0063	0.0000	0.0000
0.8462	0.0325	0.0067	0.0000	0.0000
0.8846	0.0322	0.0070	0.0000	0.0000
0.9231	0.0318	0.0074	0.0000	0.0000
0.9615	0.0314	0.0078	0.0000	0.0000
1.0000	0.0310	0.0081	0.0000	0.0000
1.0385	0.0306	0.0085	0.0000	0.0000
1.0769	0.0302	0.0089	0.0000	0.0000
1.1154	0.0298	0.0093	0.0000	0.0000
1.1538	0.0294	0.0097	0.0000	0.0000
1.1923	0.0291	0.0101	0.0000	0.0000
1.2308	0.0287	0.0105	0.0000	0.0000
1.2692	0.0283	0.0109	0.0000	0.0000
1.3077	0.0279	0.0113	0.0000	0.0000
1.3462	0.0276	0.0117	0.0000	0.0000
1.3846	0.0272	0.0122	0.0000	0.0000
1.4231	0.0268	0.0126	0.0000	0.0000
1.4615	0.0265	0.0130	0.0000	0.0000
1.5000	0.0261	0.0135	0.0000	0.0000
1.5385	0.0258	0.0140	0.0000	0.0000
1.5769	0.0254	0.0145	0.0000	0.0000
1.6154	0.0251	0.0150	0.0000	0.0000
1.6538	0.0247	0.0155	0.0000	0.0000
1.6923	0.0244	0.0160	0.0000	0.0000
1.7308	0.0240	0.0166	0.0000	0.0000
1.7692	0.0237	0.0171	0.0000	0.0000
1.8077	0.0233	0.0176	0.0000	0.0000
1.8462	0.0230	0.0182	0.0000	0.0000
1.8846	0.0227	0.0187	0.0000	0.0000
1.9231	0.0223	0.0193	0.0000	0.0000
1.9615	0.0220	0.0198	0.0000	0.0000
2.0000	0.0217	0.0204	0.0000	0.0000
2.0385	0.0214	0.0210	0.0000	0.0000
2.0769	0.0210	0.0216	0.0000	0.0000
2.1154	0.0207	0.0222	0.0000	0.0000
2.1538	0.0204	0.0228	0.0000	0.0000
2.1923	0.0201	0.0234	0.0000	0.0000
2.2308	0.0198	0.0240	0.0000	0.0000
2.2692	0.0195	0.0246	0.0000	0.0000
2.3077	0.0192	0.0252	0.0000	0.0000
2.3462	0.0188	0.0258	0.0000	0.0000
2.3846	0.0185	0.0265	0.0000	0.0000

2.4231	0.0182	0.0271	0.0000	0.0000
2.4615	0.0179	0.0278	0.0000	0.0000
2.5000	0.0177	0.0284	0.0000	0.0000
2.5000	0.0174	0.0284	0.0000	0.0000

**Surface retention 1 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0415	0.0284	0.0000	0.0875	0.0000
2.5385	0.0419	0.0300	0.0000	0.0875	0.0000
2.5769	0.0424	0.0316	0.0000	0.0920	0.0000
2.6154	0.0428	0.0333	0.0000	0.0943	0.0000
2.6538	0.0433	0.0349	0.0000	0.0965	0.0000
2.6923	0.0437	0.0366	0.0000	0.0988	0.0000
2.7308	0.0442	0.0383	0.0000	0.1010	0.0000
2.7692	0.0447	0.0400	0.0000	0.1032	0.0000
2.8077	0.0451	0.0417	0.0000	0.1055	0.0000
2.8462	0.0456	0.0435	0.0000	0.1077	0.0000
2.8846	0.0461	0.0453	0.0000	0.1100	0.0000
2.9231	0.0466	0.0470	0.0012	0.1122	0.0000
2.9615	0.0470	0.0488	0.0016	0.1145	0.0000
3.0000	0.0475	0.0507	0.0018	0.1167	0.0000
3.0385	0.0480	0.0525	0.0021	0.1189	0.0000
3.0769	0.0485	0.0543	0.0023	0.1212	0.0000
3.1154	0.0490	0.0562	0.0025	0.1234	0.0000
3.1538	0.0495	0.0581	0.0027	0.1257	0.0000
3.1923	0.0500	0.0600	0.0028	0.1279	0.0000
3.2308	0.0505	0.0620	0.0030	0.1302	0.0000
3.2692	0.0510	0.0639	0.0031	0.1324	0.0000
3.3077	0.0515	0.0659	0.0033	0.1347	0.0000
3.3462	0.0520	0.0679	0.0034	0.1369	0.0000
3.3846	0.0525	0.0699	0.0035	0.1391	0.0000
3.4231	0.0530	0.0719	0.0037	0.1414	0.0000
3.4615	0.0535	0.0740	0.0038	0.1436	0.0000
3.5000	0.0540	0.0760	0.0039	0.1459	0.0000

**Name** : Surface retention 1

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
 Bioretention 1

**Name** : Onsite - DMA 2

**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
C D, Grass, Very (>20%)	.016

**Pervious Total**                      **0.016**

<u>Impervious Land Use</u>	<u>acre</u>
Roads, Steep(10-20%)	0.783

Impervious Total 0.783  
Basin Total 0.799

---

Element Flows To:  
Surface Interflow Groundwater  
Surface retention 1 Surface retention 1

---

Name : Onsite - DMA 3  
Bypass: No

GroundWater: No

Pervious Land Use acre  
C D,Grass,Very (>20%) .277  
Pervious Total 0.277  
Impervious Land Use acre  
Roads,Steep(10-20%) 0.82  
Impervious Total 0.82  
Basin Total 1.097

---

Element Flows To:  
Surface Interflow Groundwater  
Surface retention 1 Surface retention 1

---

Name : Onsite - DMA 4  
Bypass: No

GroundWater: No

Pervious Land Use acre  
C D,Grass,Very (>20%) .071  
Pervious Total 0.071  
Impervious Land Use acre  
Roads,Steep(10-20%) 0.575  
Impervious Total 0.575  
Basin Total 0.646

---



Element Flows To:  
Surface                      Interflow                      Groundwater  
Surface retention 1   Surface retention 1

---

Name : Onsite - DMA 5  
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>acre</u>
C D,Grass,Very (>20%)	.065
<b>Pervious Total</b>	<b>0.065</b>
<u>Impervious Land Use</u>	<u>acre</u>
Roads,Steep(10-20%)	0.943
<b>Impervious Total</b>	<b>0.943</b>
<b>Basin Total</b>	<b>1.008</b>

---

Element Flows To:  
Surface                      Interflow                      Groundwater  
Surface retention 1   Surface retention 1

---

Name : Bioretention 1  
Bottom Length: 37.58 ft.  
Bottom Width: 37.58 ft.  
Material thickness of first layer: 1.5  
Material type for first layer: BAHM 5  
Material thickness of second layer: 1  
Material type for second layer: GRAVEL  
Material thickness of third layer: 0  
Material type for third layer: GRAVEL  
Underdrain used  
Underdrain Diameter (feet): 0.334  
Orifice Diameter (in.): 0.5  
Offset (in.): 0  
Flow Through Underdrain (ac-ft.): 98.758  
Total Outflow (ac-ft.): 100.876  
Percent Through Underdrain: 97.9  
Discharge Structure  
Riser Height: 0.5 ft.  
Riser Diameter: 36 in.

Element Flows To:  
Outlet 1                      Outlet 2

---

**Bioretention 1 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0635	0.0000	0.0000	0.0000
0.0385	0.0635	0.0005	0.0000	0.0000
0.0769	0.0629	0.0010	0.0000	0.0000
0.1154	0.0624	0.0014	0.0000	0.0000
0.1538	0.0618	0.0019	0.0000	0.0000
0.1923	0.0613	0.0024	0.0000	0.0000
0.2308	0.0607	0.0029	0.0000	0.0000
0.2692	0.0602	0.0035	0.0000	0.0000
0.3077	0.0596	0.0040	0.0000	0.0000
0.3462	0.0591	0.0045	0.0000	0.0000
0.3846	0.0586	0.0050	0.0000	0.0000
0.4231	0.0580	0.0056	0.0000	0.0000
0.4615	0.0575	0.0061	0.0000	0.0000
0.5000	0.0570	0.0067	0.0000	0.0000
0.5385	0.0564	0.0072	0.0000	0.0000
0.5769	0.0559	0.0078	0.0000	0.0000
0.6154	0.0554	0.0084	0.0000	0.0000
0.6538	0.0549	0.0089	0.0000	0.0000
0.6923	0.0544	0.0095	0.0000	0.0000
0.7308	0.0538	0.0101	0.0000	0.0000
0.7692	0.0533	0.0107	0.0000	0.0000
0.8077	0.0528	0.0113	0.0000	0.0000
0.8462	0.0523	0.0119	0.0000	0.0000
0.8846	0.0518	0.0125	0.0000	0.0000
0.9231	0.0513	0.0131	0.0000	0.0000
0.9615	0.0508	0.0138	0.0000	0.0000
1.0000	0.0503	0.0144	0.0000	0.0000
1.0385	0.0498	0.0150	0.0000	0.0000
1.0769	0.0493	0.0157	0.0000	0.0000
1.1154	0.0488	0.0163	0.0000	0.0000
1.1538	0.0483	0.0170	0.0000	0.0000
1.1923	0.0479	0.0177	0.0000	0.0000
1.2308	0.0474	0.0183	0.0000	0.0000
1.2692	0.0469	0.0190	0.0000	0.0000
1.3077	0.0464	0.0197	0.0000	0.0000
1.3462	0.0459	0.0204	0.0000	0.0000
1.3846	0.0455	0.0211	0.0000	0.0000
1.4231	0.0450	0.0218	0.0000	0.0000
1.4615	0.0445	0.0225	0.0000	0.0000
1.5000	0.0441	0.0233	0.0000	0.0000
1.5385	0.0436	0.0241	0.0000	0.0000
1.5769	0.0431	0.0249	0.0000	0.0000
1.6154	0.0427	0.0257	0.0000	0.0000
1.6538	0.0422	0.0266	0.0000	0.0000
1.6923	0.0418	0.0274	0.0000	0.0000
1.7308	0.0413	0.0282	0.0000	0.0000
1.7692	0.0409	0.0291	0.0000	0.0000
1.8077	0.0404	0.0299	0.0000	0.0000
1.8462	0.0400	0.0308	0.0000	0.0000
1.8846	0.0395	0.0317	0.0000	0.0000
1.9231	0.0391	0.0326	0.0000	0.0000

1.9615	0.0387	0.0334	0.0000	0.0000
2.0000	0.0382	0.0343	0.0000	0.0000
2.0385	0.0378	0.0352	0.0000	0.0000
2.0769	0.0374	0.0362	0.0000	0.0000
2.1154	0.0369	0.0371	0.0000	0.0000
2.1538	0.0365	0.0380	0.0000	0.0000
2.1923	0.0361	0.0390	0.0000	0.0000
2.2308	0.0357	0.0399	0.0000	0.0000
2.2692	0.0353	0.0409	0.0000	0.0000
2.3077	0.0349	0.0418	0.0000	0.0000
2.3462	0.0344	0.0428	0.0000	0.0000
2.3846	0.0340	0.0438	0.0000	0.0000
2.4231	0.0336	0.0448	0.0000	0.0000
2.4615	0.0332	0.0458	0.0000	0.0000
2.5000	0.0328	0.0468	0.0000	0.0000
2.5000	0.0324	0.0468	0.0000	0.0000

**Surface retention 1 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0635	0.0468	0.0000	0.1635	0.0000
2.5385	0.0640	0.0492	0.0000	0.1635	0.0000
2.5769	0.0646	0.0517	0.0000	0.1718	0.0000
2.6154	0.0652	0.0542	0.0000	0.1760	0.0000
2.6538	0.0657	0.0567	0.0000	0.1802	0.0000
2.6923	0.0663	0.0592	0.0000	0.1844	0.0000
2.7308	0.0669	0.0618	0.0000	0.1886	0.0000
2.7692	0.0674	0.0644	0.0000	0.1928	0.0000
2.8077	0.0680	0.0670	0.0000	0.1970	0.0000
2.8462	0.0686	0.0696	0.0000	0.2012	0.0000
2.8846	0.0692	0.0723	0.0000	0.2054	0.0000
2.9231	0.0697	0.0749	0.0012	0.2096	0.0000
2.9615	0.0703	0.0776	0.0016	0.2137	0.0000
3.0000	0.0709	0.0804	0.0018	0.2179	0.0000
3.0385	0.0715	0.0831	0.0021	0.2221	0.0000
3.0769	0.0721	0.0859	0.0023	0.2263	0.0000
3.1154	0.0727	0.0886	0.0025	0.2305	0.0000
3.1538	0.0733	0.0914	0.0027	0.2347	0.0000
3.1923	0.0739	0.0943	0.0028	0.2389	0.0000
3.2308	0.0745	0.0971	0.0030	0.2431	0.0000
3.2692	0.0751	0.1000	0.0031	0.2473	0.0000
3.3077	0.0757	0.1029	0.0033	0.2515	0.0000
3.3462	0.0763	0.1058	0.0034	0.2557	0.0000
3.3846	0.0769	0.1088	0.0035	0.2599	0.0000
3.4231	0.0775	0.1117	0.0037	0.2640	0.0000
3.4615	0.0782	0.1147	0.0038	0.2682	0.0000
3.5000	0.0788	0.1178	0.0039	0.2724	0.0000

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**Name** : Surface retention 1

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
 Bioretention 1

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**Name** : Bioretention 1

**Bottom Length:** 38.55 ft.  
**Bottom Width:** 38.55 ft.  
**Material thickness of first layer:** 1.5  
**Material type for first layer:** BAHM 5  
**Material thickness of second layer:** 1  
**Material type for second layer:** GRAVEL  
**Material thickness of third layer:** 0  
**Material type for third layer:** GRAVEL  
Underdrain used  
**Underdrain Diameter (feet):** 0.334  
**Orifice Diameter (in.):** 0.5  
**Offset (in.):** 0  
**Flow Through Underdrain (ac-ft.):** 98.758  
**Total Outflow (ac-ft.):** 102.116  
**Percent Through Underdrain:** 96.71  
Discharge Structure  
**Riser Height:** 0.5 ft.  
**Riser Diameter:** 36 in.

**Element Flows To:**  
**Outlet 1**                      **Outlet 2**

**Bioretention 1 Hydraulic Table**

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0658	0.0000	0.0000	0.0000
0.0385	0.0658	0.0003	0.0000	0.0000
0.0769	0.0653	0.0008	0.0000	0.0000
0.1154	0.0647	0.0013	0.0000	0.0000
0.1538	0.0641	0.0018	0.0000	0.0000
0.1923	0.0636	0.0023	0.0000	0.0000
0.2308	0.0630	0.0028	0.0000	0.0000
0.2692	0.0625	0.0034	0.0000	0.0000
0.3077	0.0619	0.0039	0.0000	0.0000
0.3462	0.0614	0.0045	0.0000	0.0000
0.3846	0.0608	0.0050	0.0000	0.0000
0.4231	0.0603	0.0056	0.0000	0.0000
0.4615	0.0597	0.0062	0.0000	0.0000
0.5000	0.0592	0.0067	0.0000	0.0000
0.5385	0.0587	0.0073	0.0000	0.0000
0.5769	0.0581	0.0079	0.0000	0.0000
0.6154	0.0576	0.0085	0.0000	0.0000
0.6538	0.0571	0.0091	0.0000	0.0000
0.6923	0.0565	0.0097	0.0000	0.0000
0.7308	0.0560	0.0103	0.0000	0.0000
0.7692	0.0555	0.0110	0.0000	0.0000
0.8077	0.0550	0.0116	0.0000	0.0000
0.8462	0.0545	0.0122	0.0000	0.0000
0.8846	0.0539	0.0129	0.0000	0.0000
0.9231	0.0534	0.0135	0.0000	0.0000
0.9615	0.0529	0.0142	0.0000	0.0000
1.0000	0.0524	0.0148	0.0000	0.0000
1.0385	0.0519	0.0155	0.0000	0.0000
1.0769	0.0514	0.0162	0.0000	0.0000

1.1154	0.0509	0.0169	0.0000	0.0000
1.1538	0.0504	0.0176	0.0000	0.0000
1.1923	0.0499	0.0183	0.0000	0.0000
1.2308	0.0494	0.0190	0.0000	0.0000
1.2692	0.0489	0.0197	0.0000	0.0000
1.3077	0.0484	0.0204	0.0000	0.0000
1.3462	0.0480	0.0211	0.0000	0.0000
1.3846	0.0475	0.0218	0.0000	0.0000
1.4231	0.0470	0.0226	0.0000	0.0000
1.4615	0.0465	0.0233	0.0000	0.0000
1.5000	0.0460	0.0242	0.0000	0.0000
1.5385	0.0456	0.0250	0.0000	0.0000
1.5769	0.0451	0.0258	0.0000	0.0000
1.6154	0.0446	0.0267	0.0000	0.0000
1.6538	0.0442	0.0275	0.0000	0.0000
1.6923	0.0437	0.0284	0.0000	0.0000
1.7308	0.0432	0.0293	0.0000	0.0000
1.7692	0.0428	0.0302	0.0000	0.0000
1.8077	0.0423	0.0310	0.0000	0.0000
1.8462	0.0419	0.0319	0.0000	0.0000
1.8846	0.0414	0.0329	0.0000	0.0000
1.9231	0.0410	0.0338	0.0000	0.0000
1.9615	0.0405	0.0347	0.0000	0.0000
2.0000	0.0401	0.0356	0.0000	0.0000
2.0385	0.0396	0.0366	0.0000	0.0000
2.0769	0.0392	0.0375	0.0000	0.0000
2.1154	0.0388	0.0385	0.0000	0.0000
2.1538	0.0383	0.0394	0.0000	0.0000
2.1923	0.0379	0.0404	0.0000	0.0000
2.2308	0.0375	0.0414	0.0000	0.0000
2.2692	0.0370	0.0424	0.0000	0.0000
2.3077	0.0366	0.0434	0.0000	0.0000
2.3462	0.0362	0.0444	0.0000	0.0000
2.3846	0.0358	0.0454	0.0000	0.0000
2.4231	0.0354	0.0464	0.0000	0.0000
2.4615	0.0349	0.0475	0.0000	0.0000
2.5000	0.0345	0.0485	0.0000	0.0000
2.5000	0.0341	0.0485	0.0000	0.0000

**Surface retention 1 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0658	0.0485	0.0000	0.1720	0.0000
2.5385	0.0664	0.0511	0.0000	0.1720	0.0000
2.5769	0.0670	0.0536	0.0000	0.1808	0.0000
2.6154	0.0675	0.0562	0.0000	0.1852	0.0000
2.6538	0.0681	0.0588	0.0000	0.1896	0.0000
2.6923	0.0687	0.0615	0.0000	0.1941	0.0000
2.7308	0.0693	0.0641	0.0000	0.1985	0.0000
2.7692	0.0699	0.0668	0.0000	0.2029	0.0000
2.8077	0.0704	0.0695	0.0000	0.2073	0.0000
2.8462	0.0710	0.0722	0.0000	0.2117	0.0000
2.8846	0.0716	0.0750	0.0000	0.2161	0.0000
2.9231	0.0722	0.0777	0.0012	0.2205	0.0000
2.9615	0.0728	0.0805	0.0016	0.2249	0.0000
3.0000	0.0734	0.0833	0.0018	0.2293	0.0000
3.0385	0.0740	0.0862	0.0021	0.2337	0.0000
3.0769	0.0746	0.0890	0.0023	0.2382	0.0000

3.1154	0.0752	0.0919	0.0025	0.2426	0.0000
3.1538	0.0758	0.0948	0.0027	0.2470	0.0000
3.1923	0.0764	0.0977	0.0028	0.2514	0.0000
3.2308	0.0771	0.1007	0.0030	0.2558	0.0000
3.2692	0.0777	0.1037	0.0031	0.2602	0.0000
3.3077	0.0783	0.1067	0.0033	0.2646	0.0000
3.3462	0.0789	0.1097	0.0034	0.2690	0.0000
3.3846	0.0795	0.1127	0.0035	0.2734	0.0000
3.4231	0.0802	0.1158	0.0037	0.2779	0.0000
3.4615	0.0808	0.1189	0.0038	0.2823	0.0000
3.5000	0.0814	0.1220	0.0039	0.2867	0.0000

**Name** : Surface retention 1

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
Bioretention 1

**Name** : Bioretention 1

**Bottom Length:** 32.25 ft.

**Bottom Width:** 32.25 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 98.758

**Total Outflow (ac-ft.):** 99.792

**Percent Through Underdrain:** 98.96

**Discharge Structure**

**Riser Height:** 0.5 ft.

**Riser Diameter:** 36 in.

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

**Bioretention 1 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0513	0.0000	0.0000	0.0000
0.0385	0.0513	0.0004	0.0000	0.0000
0.0769	0.0508	0.0007	0.0000	0.0000
0.1154	0.0503	0.0011	0.0000	0.0000
0.1538	0.0498	0.0014	0.0000	0.0000
0.1923	0.0493	0.0018	0.0000	0.0000
0.2308	0.0488	0.0022	0.0000	0.0000

0.2692	0.0483	0.0026	0.0000	0.0000
0.3077	0.0478	0.0030	0.0000	0.0000
0.3462	0.0473	0.0033	0.0000	0.0000
0.3846	0.0468	0.0037	0.0000	0.0000
0.4231	0.0464	0.0041	0.0000	0.0000
0.4615	0.0459	0.0046	0.0000	0.0000
0.5000	0.0454	0.0050	0.0000	0.0000
0.5385	0.0450	0.0054	0.0000	0.0000
0.5769	0.0445	0.0058	0.0000	0.0000
0.6154	0.0440	0.0062	0.0000	0.0000
0.6538	0.0436	0.0067	0.0000	0.0000
0.6923	0.0431	0.0071	0.0000	0.0000
0.7308	0.0426	0.0076	0.0000	0.0000
0.7692	0.0422	0.0080	0.0000	0.0000
0.8077	0.0417	0.0085	0.0000	0.0000
0.8462	0.0413	0.0089	0.0000	0.0000
0.8846	0.0408	0.0094	0.0000	0.0000
0.9231	0.0404	0.0099	0.0000	0.0000
0.9615	0.0399	0.0104	0.0000	0.0000
1.0000	0.0395	0.0109	0.0000	0.0000
1.0385	0.0391	0.0114	0.0000	0.0000
1.0769	0.0386	0.0119	0.0000	0.0000
1.1154	0.0382	0.0124	0.0000	0.0000
1.1538	0.0378	0.0129	0.0000	0.0000
1.1923	0.0373	0.0134	0.0000	0.0000
1.2308	0.0369	0.0139	0.0000	0.0000
1.2692	0.0365	0.0144	0.0000	0.0000
1.3077	0.0361	0.0150	0.0000	0.0000
1.3462	0.0356	0.0155	0.0000	0.0000
1.3846	0.0352	0.0161	0.0000	0.0000
1.4231	0.0348	0.0166	0.0000	0.0000
1.4615	0.0344	0.0172	0.0000	0.0000
1.5000	0.0340	0.0178	0.0000	0.0000
1.5385	0.0336	0.0184	0.0000	0.0000
1.5769	0.0332	0.0191	0.0000	0.0000
1.6154	0.0328	0.0197	0.0000	0.0000
1.6538	0.0324	0.0204	0.0000	0.0000
1.6923	0.0320	0.0210	0.0000	0.0000
1.7308	0.0316	0.0217	0.0000	0.0000
1.7692	0.0312	0.0224	0.0000	0.0000
1.8077	0.0308	0.0230	0.0000	0.0000
1.8462	0.0304	0.0237	0.0000	0.0000
1.8846	0.0300	0.0244	0.0000	0.0000
1.9231	0.0297	0.0251	0.0000	0.0000
1.9615	0.0293	0.0258	0.0000	0.0000
2.0000	0.0289	0.0265	0.0000	0.0000
2.0385	0.0285	0.0272	0.0000	0.0000
2.0769	0.0282	0.0280	0.0000	0.0000
2.1154	0.0278	0.0287	0.0000	0.0000
2.1538	0.0274	0.0295	0.0000	0.0000
2.1923	0.0271	0.0302	0.0000	0.0000
2.2308	0.0267	0.0310	0.0000	0.0000
2.2692	0.0263	0.0317	0.0000	0.0000
2.3077	0.0260	0.0325	0.0000	0.0000
2.3462	0.0256	0.0333	0.0000	0.0000
2.3846	0.0253	0.0341	0.0000	0.0000
2.4231	0.0249	0.0349	0.0000	0.0000

2.4615	0.0246	0.0357	0.0000	0.0000
2.5000	0.0242	0.0365	0.0000	0.0000
2.5000	0.0239	0.0365	0.0000	0.0000

**Surface retention 1 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0513	0.0365	0.0000	0.1204	0.0000
2.5385	0.0518	0.0385	0.0000	0.1204	0.0000
2.5769	0.0523	0.0405	0.0000	0.1266	0.0000
2.6154	0.0528	0.0425	0.0000	0.1296	0.0000
2.6538	0.0533	0.0445	0.0000	0.1327	0.0000
2.6923	0.0538	0.0466	0.0000	0.1358	0.0000
2.7308	0.0543	0.0487	0.0000	0.1389	0.0000
2.7692	0.0548	0.0508	0.0000	0.1420	0.0000
2.8077	0.0553	0.0529	0.0000	0.1451	0.0000
2.8462	0.0559	0.0550	0.0000	0.1482	0.0000
2.8846	0.0564	0.0572	0.0000	0.1512	0.0000
2.9231	0.0569	0.0594	0.0012	0.1543	0.0000
2.9615	0.0574	0.0616	0.0016	0.1574	0.0000
3.0000	0.0580	0.0638	0.0018	0.1605	0.0000
3.0385	0.0585	0.0660	0.0021	0.1636	0.0000
3.0769	0.0590	0.0683	0.0023	0.1667	0.0000
3.1154	0.0596	0.0706	0.0025	0.1698	0.0000
3.1538	0.0601	0.0729	0.0027	0.1729	0.0000
3.1923	0.0607	0.0752	0.0028	0.1759	0.0000
3.2308	0.0612	0.0775	0.0030	0.1790	0.0000
3.2692	0.0618	0.0799	0.0031	0.1821	0.0000
3.3077	0.0623	0.0823	0.0033	0.1852	0.0000
3.3462	0.0629	0.0847	0.0034	0.1883	0.0000
3.3846	0.0634	0.0871	0.0035	0.1914	0.0000
3.4231	0.0640	0.0896	0.0037	0.1945	0.0000
3.4615	0.0645	0.0920	0.0038	0.1975	0.0000
3.5000	0.0651	0.0945	0.0039	0.2006	0.0000

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**Name** : Surface retention 1

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
 Bioretention 1

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**Name** : Bioretention 1

**Bottom Length:** 41.09 ft.

**Bottom Width:** 41.09 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 98.758



Total Outflow (ac-ft.): 102.358  
 Percent Through Underdrain: 96.48  
Discharge Structure  
 Riser Height: 0.5 ft.  
 Riser Diameter: 36 in.

Element Flows To:  
 Outlet 1                      Outlet 2

**Bioretention 1 Hydraulic Table**

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0722	0.0000	0.0000	0.0000
0.0385	0.0722	0.0003	0.0000	0.0000
0.0769	0.0716	0.0009	0.0000	0.0000
0.1154	0.0710	0.0014	0.0000	0.0000
0.1538	0.0705	0.0020	0.0000	0.0000
0.1923	0.0699	0.0026	0.0000	0.0000
0.2308	0.0693	0.0032	0.0000	0.0000
0.2692	0.0687	0.0038	0.0000	0.0000
0.3077	0.0681	0.0045	0.0000	0.0000
0.3462	0.0675	0.0051	0.0000	0.0000
0.3846	0.0670	0.0057	0.0000	0.0000
0.4231	0.0664	0.0063	0.0000	0.0000
0.4615	0.0658	0.0070	0.0000	0.0000
0.5000	0.0653	0.0076	0.0000	0.0000
0.5385	0.0647	0.0083	0.0000	0.0000
0.5769	0.0641	0.0089	0.0000	0.0000
0.6154	0.0636	0.0096	0.0000	0.0000
0.6538	0.0630	0.0103	0.0000	0.0000
0.6923	0.0625	0.0110	0.0000	0.0000
0.7308	0.0619	0.0117	0.0000	0.0000
0.7692	0.0614	0.0124	0.0000	0.0000
0.8077	0.0608	0.0131	0.0000	0.0000
0.8462	0.0603	0.0138	0.0000	0.0000
0.8846	0.0597	0.0145	0.0000	0.0000
0.9231	0.0592	0.0152	0.0000	0.0000
0.9615	0.0587	0.0160	0.0000	0.0000
1.0000	0.0581	0.0167	0.0000	0.0000
1.0385	0.0576	0.0174	0.0000	0.0000
1.0769	0.0571	0.0182	0.0000	0.0000
1.1154	0.0565	0.0190	0.0000	0.0000
1.1538	0.0560	0.0197	0.0000	0.0000
1.1923	0.0555	0.0205	0.0000	0.0000
1.2308	0.0550	0.0213	0.0000	0.0000
1.2692	0.0545	0.0221	0.0000	0.0000
1.3077	0.0539	0.0229	0.0000	0.0000
1.3462	0.0534	0.0237	0.0000	0.0000
1.3846	0.0529	0.0245	0.0000	0.0000
1.4231	0.0524	0.0253	0.0000	0.0000
1.4615	0.0519	0.0262	0.0000	0.0000
1.5000	0.0514	0.0271	0.0000	0.0000
1.5385	0.0509	0.0280	0.0000	0.0000
1.5769	0.0504	0.0289	0.0000	0.0000

1.6154	0.0499	0.0299	0.0000	0.0000
1.6538	0.0494	0.0308	0.0000	0.0000
1.6923	0.0489	0.0318	0.0000	0.0000
1.7308	0.0484	0.0327	0.0000	0.0000
1.7692	0.0480	0.0337	0.0000	0.0000
1.8077	0.0475	0.0347	0.0000	0.0000
1.8462	0.0470	0.0357	0.0000	0.0000
1.8846	0.0465	0.0367	0.0000	0.0000
1.9231	0.0460	0.0377	0.0000	0.0000
1.9615	0.0456	0.0387	0.0000	0.0000
2.0000	0.0451	0.0398	0.0000	0.0000
2.0385	0.0446	0.0408	0.0000	0.0000
2.0769	0.0442	0.0418	0.0000	0.0000
2.1154	0.0437	0.0429	0.0000	0.0000
2.1538	0.0432	0.0440	0.0000	0.0000
2.1923	0.0428	0.0450	0.0000	0.0000
2.2308	0.0423	0.0461	0.0000	0.0000
2.2692	0.0419	0.0472	0.0000	0.0000
2.3077	0.0414	0.0483	0.0000	0.0000
2.3462	0.0410	0.0494	0.0000	0.0000
2.3846	0.0405	0.0505	0.0000	0.0000
2.4231	0.0401	0.0517	0.0000	0.0000
2.4615	0.0396	0.0528	0.0000	0.0000
2.5000	0.0392	0.0540	0.0000	0.0000
2.5000	0.0388	0.0540	0.0000	0.0000

**Surface retention 1 Hydraulic Table**

<b>Stage(feet)</b>	<b>Area (ac.)</b>	<b>Volume(ac-ft.)</b>	<b>Discharge(cfs)</b>	<b>To Amended(cfs)</b>	<b>Wetted Surface</b>
2.5000	0.0722	0.0540	0.0000	0.1954	0.0000
2.5385	0.0728	0.0567	0.0000	0.1954	0.0000
2.5769	0.0734	0.0596	0.0000	0.2054	0.0000
2.6154	0.0740	0.0624	0.0000	0.2104	0.0000
2.6538	0.0746	0.0653	0.0000	0.2155	0.0000
2.6923	0.0752	0.0681	0.0000	0.2205	0.0000
2.7308	0.0758	0.0710	0.0000	0.2255	0.0000
2.7692	0.0764	0.0740	0.0000	0.2305	0.0000
2.8077	0.0771	0.0769	0.0000	0.2355	0.0000
2.8462	0.0777	0.0799	0.0000	0.2405	0.0000
2.8846	0.0783	0.0829	0.0000	0.2455	0.0000
2.9231	0.0789	0.0859	0.0012	0.2505	0.0000
2.9615	0.0795	0.0890	0.0016	0.2555	0.0000
3.0000	0.0802	0.0920	0.0018	0.2606	0.0000
3.0385	0.0808	0.0951	0.0021	0.2656	0.0000
3.0769	0.0814	0.0983	0.0023	0.2706	0.0000
3.1154	0.0820	0.1014	0.0025	0.2756	0.0000
3.1538	0.0827	0.1046	0.0027	0.2806	0.0000
3.1923	0.0833	0.1078	0.0028	0.2856	0.0000
3.2308	0.0840	0.1110	0.0030	0.2906	0.0000
3.2692	0.0846	0.1142	0.0031	0.2956	0.0000
3.3077	0.0852	0.1175	0.0033	0.3006	0.0000
3.3462	0.0859	0.1208	0.0034	0.3056	0.0000
3.3846	0.0865	0.1241	0.0035	0.3107	0.0000
3.4231	0.0872	0.1274	0.0037	0.3157	0.0000
3.4615	0.0878	0.1308	0.0038	0.3207	0.0000
3.5000	0.0885	0.1342	0.0039	0.3257	0.0000

---

Name : Surface retention 1

Element Flows To:

Outlet 1                      Outlet 2  
Bioretention 1

---

Name : Onsite - DMA 6\_Self\_Treating  
Bypass: Yes

GroundWater: No

<u>Pervious Land Use</u>	<u>acre</u>
C D,Grass,Very (>20%)	2.185
C D,Forest,Very (>20)	2.185

Pervious Total                      4.37

<u>Impervious Land Use</u>	<u>acre</u>
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Impervious Total                      0

Basin Total                              4.37

---

Element Flows To:

Surface                              Interflow                              Groundwater

---

Name : Onsite - DMA 7.1\_Cluster-1  
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>acre</u>
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Pervious Total                      0

<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.194

Impervious Total                      0.194

Basin Total                              0.194

---

Element Flows To:

Surface                              Interflow                              Groundwater  
Surface - Cluster 1      Surface - Cluster 1

---

**Name** : Bioretention Planters - Cluster 1  
**Bottom Length:** 18.71 ft.  
**Bottom Width:** 18.71 ft.  
**Material thickness of first layer:** 1.5  
**Material type for first layer:** BAHM 5  
**Material thickness of second layer:** 1  
**Material type for second layer:** GRAVEL  
**Material thickness of third layer:** 0  
**Material type for third layer:** GRAVEL  
**Underdrain used**  
**Underdrain Diameter (feet):** 0.334  
**Orifice Diameter (in.):** 0.5  
**Offset (in.):** 0  
**Flow Through Underdrain (ac-ft.):** 5.418  
**Total Outflow (ac-ft.):** 5.622  
**Percent Through Underdrain:** 96.38  
**Discharge Structure**  
**Riser Height:** 0.5 ft.  
**Riser Diameter:** 24 in.

**Element Flows To:**  
**Outlet 1**                      **Outlet 2**

**Bioretention Planters - Cluster 1 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0081	0.0000	0.0000	0.0000
0.0385	0.0081	0.0001	0.0000	0.0000
0.0769	0.0081	0.0002	0.0000	0.0000
0.1154	0.0081	0.0004	0.0000	0.0000
0.1538	0.0081	0.0005	0.0000	0.0000
0.1923	0.0081	0.0006	0.0000	0.0000
0.2308	0.0081	0.0007	0.0000	0.0000
0.2692	0.0081	0.0008	0.0000	0.0000
0.3077	0.0081	0.0009	0.0000	0.0000
0.3462	0.0081	0.0011	0.0000	0.0000
0.3846	0.0081	0.0012	0.0000	0.0000
0.4231	0.0081	0.0013	0.0000	0.0000
0.4615	0.0081	0.0014	0.0000	0.0000
0.5000	0.0081	0.0015	0.0000	0.0000
0.5385	0.0081	0.0016	0.0000	0.0000
0.5769	0.0081	0.0018	0.0000	0.0000
0.6154	0.0081	0.0019	0.0000	0.0000
0.6538	0.0081	0.0020	0.0000	0.0000
0.6923	0.0081	0.0021	0.0000	0.0000
0.7308	0.0081	0.0022	0.0000	0.0000
0.7692	0.0081	0.0024	0.0000	0.0000
0.8077	0.0081	0.0025	0.0000	0.0000
0.8462	0.0081	0.0026	0.0000	0.0000
0.8846	0.0081	0.0027	0.0000	0.0000
0.9231	0.0081	0.0028	0.0000	0.0000
0.9615	0.0081	0.0029	0.0000	0.0000

1.0000	0.0081	0.0031	0.0000	0.0000
1.0385	0.0081	0.0032	0.0000	0.0000
1.0769	0.0081	0.0033	0.0000	0.0000
1.1154	0.0081	0.0034	0.0000	0.0000
1.1538	0.0081	0.0035	0.0000	0.0000
1.1923	0.0081	0.0036	0.0000	0.0000
1.2308	0.0081	0.0038	0.0000	0.0000
1.2692	0.0081	0.0039	0.0000	0.0000
1.3077	0.0081	0.0040	0.0000	0.0000
1.3462	0.0081	0.0041	0.0000	0.0000
1.3846	0.0081	0.0042	0.0000	0.0000
1.4231	0.0081	0.0044	0.0000	0.0000
1.4615	0.0081	0.0045	0.0000	0.0000
1.5000	0.0081	0.0046	0.0000	0.0000
1.5385	0.0081	0.0047	0.0000	0.0000
1.5769	0.0081	0.0049	0.0000	0.0000
1.6154	0.0081	0.0050	0.0000	0.0000
1.6538	0.0081	0.0051	0.0000	0.0000
1.6923	0.0081	0.0052	0.0000	0.0000
1.7308	0.0081	0.0054	0.0000	0.0000
1.7692	0.0080	0.0055	0.0000	0.0000
1.8077	0.0080	0.0056	0.0000	0.0000
1.8462	0.0080	0.0058	0.0000	0.0000
1.8846	0.0080	0.0059	0.0000	0.0000
1.9231	0.0080	0.0060	0.0000	0.0000
1.9615	0.0080	0.0061	0.0000	0.0000
2.0000	0.0080	0.0063	0.0000	0.0000
2.0385	0.0080	0.0064	0.0000	0.0000
2.0769	0.0080	0.0065	0.0000	0.0000
2.1154	0.0080	0.0067	0.0000	0.0000
2.1538	0.0080	0.0068	0.0000	0.0000
2.1923	0.0080	0.0069	0.0000	0.0000
2.2308	0.0080	0.0070	0.0000	0.0000
2.2692	0.0080	0.0072	0.0000	0.0000
2.3077	0.0080	0.0073	0.0000	0.0000
2.3462	0.0080	0.0074	0.0000	0.0000
2.3846	0.0080	0.0076	0.0000	0.0000
2.4231	0.0080	0.0077	0.0000	0.0000
2.4615	0.0080	0.0078	0.0000	0.0000
2.5000	0.0080	0.0079	0.0000	0.0000
2.5000	0.0080	0.0079	0.0000	0.0000

**Surface - Cluster 1 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0081	0.0079	0.0000	0.0405	0.0000
2.5385	0.0081	0.0083	0.0000	0.0405	0.0000
2.5769	0.0081	0.0086	0.0000	0.0426	0.0000
2.6154	0.0081	0.0089	0.0000	0.0436	0.0000
2.6538	0.0081	0.0092	0.0000	0.0447	0.0000
2.6923	0.0081	0.0095	0.0000	0.0457	0.0000
2.7308	0.0081	0.0098	0.0000	0.0468	0.0000
2.7692	0.0081	0.0101	0.0000	0.0478	0.0000
2.8077	0.0081	0.0104	0.0000	0.0488	0.0000
2.8462	0.0081	0.0107	0.0000	0.0499	0.0000
2.8846	0.0081	0.0111	0.0000	0.0509	0.0000
2.9231	0.0081	0.0114	0.0012	0.0519	0.0000
2.9615	0.0081	0.0117	0.0016	0.0530	0.0000

3.0000	0.0081	0.0120	0.0018	0.0540	0.0000
3.0385	0.0081	0.0123	0.0021	0.0551	0.0000
3.0769	0.0081	0.0126	0.0023	0.0561	0.0000
3.1154	0.0081	0.0129	0.0025	0.0571	0.0000
3.1538	0.0081	0.0132	0.0027	0.0582	0.0000
3.1923	0.0081	0.0135	0.0028	0.0592	0.0000
3.2308	0.0081	0.0139	0.0030	0.0603	0.0000
3.2692	0.0081	0.0142	0.0031	0.0613	0.0000
3.3077	0.0081	0.0145	0.0033	0.0623	0.0000
3.3462	0.0081	0.0148	0.0034	0.0634	0.0000
3.3846	0.0081	0.0151	0.0035	0.0644	0.0000
3.4231	0.0081	0.0154	0.0037	0.0655	0.0000
3.4615	0.0081	0.0157	0.0038	0.0665	0.0000
3.5000	0.0081	0.0160	0.0039	0.0675	0.0000

---

**Name** : Surface - Cluster 1

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
Bioretention Planters

---

**Name** : Onsite - DMA 7.2\_Cluster-2

**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.071
Impervious Total	0.071
Basin Total	0.071

---

**Element Flows To:**

**Surface**                      **Interflow**                      **Groundwater**  
Surface - Cluster 2      Surface - Cluster 2

---

**Name** : Onsite - DMA 7.3\_Cluster-3

**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0

<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.139
Impervious Total	0.139
Basin Total	0.139

---

<b>Element Flows To:</b>		
<b>Surface</b>	<b>Interflow</b>	<b>Groundwater</b>
Surface - Cluster 3	Surface - Cluster 3	

---

**Name** : Onsite - DMA 7.4\_Cluster-4  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.142
Impervious Total	0.142
Basin Total	0.142

---

<b>Element Flows To:</b>		
<b>Surface</b>	<b>Interflow</b>	<b>Groundwater</b>
Surface - Cluster 4	Surface - Cluster 4	

---

**Name** : Onsite - DMA 7.5\_Cluster-5  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.139
Impervious Total	0.139
Basin Total	0.139

---

**Element Flows To:**

**Surface**                      **Interflow**                      **Groundwater**  
Surface - Cluster 5    Surface - Cluster 5

---

**Name** : Onsite - DMA 7.6\_Cluster-6

**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.178
Impervious Total	0.178
Basin Total	0.178

---

**Element Flows To:**

**Surface**                      **Interflow**                      **Groundwater**  
Surface - Cluster 6    Surface - Cluster 6

---

**Name** : Onsite - DMA 7.7\_Cluster-7

**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.181
Impervious Total	0.181
Basin Total	0.181

---

**Element Flows To:**

**Surface**                      **Interflow**                      **Groundwater**  
Surface - Cluster 7    Surface - Cluster 7



---

**Name** : Onsite - DMA 7.8\_Cluster-8  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.139
Impervious Total	0.139
Basin Total	0.139

---

**Element Flows To:**

Surface	Interflow	Groundwater
Surface - Cluster 8	Surface - Cluster 8	

---

**Name** : Onsite - DMA 7.9\_Cluster-9  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.107
Impervious Total	0.107
Basin Total	0.107

---

**Element Flows To:**

Surface	Interflow	Groundwater
Surface - Cluster 9	Surface - Cluster 9	

---

**Name** : Onsite - DMA 7.10\_Cluster-10  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.139
Impervious Total	0.139
Basin Total	0.139

---

<b>Element Flows To:</b>		
<b>Surface</b>	<b>Interflow</b>	<b>Groundwater</b>
Surface - Cluster 10	Surface - Cluster 10	

---

**Name** : Onsite - DMA 7.11\_Cluster-11  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.139
Impervious Total	0.139
Basin Total	0.139

---

<b>Element Flows To:</b>		
<b>Surface</b>	<b>Interflow</b>	<b>Groundwater</b>
Surface - Cluster 11	Surface - Cluster 11	

---

**Name** : Onsite - DMA 7.12\_Cluster-12  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.181

Impervious Total                    0.181  
Basin Total                            0.181

---

Element Flows To:  
Surface                                Interflow                                Groundwater  
Surface - Cluster 12    Surface - Cluster 12

---

Name     : Onsite - DMA 7.13\_Cluster-13  
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.139
Impervious Total	0.139
Basin Total	0.139

---

Element Flows To:  
Surface                                Interflow                                Groundwater  
Surface - Cluster 13    Surface - Cluster 13

---

Name     : Onsite - DMA 7.14\_Cluster-14  
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.181
Impervious Total	0.181
Basin Total	0.181

---

**Element Flows To:**  
**Surface**                      **Interflow**                      **Groundwater**  
Surface - Cluster 14    Surface - Cluster 14

---

**Name**    : Onsite - DMA 7.15\_Cluster-15  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.194
Impervious Total	0.194
Basin Total	0.194

---

**Element Flows To:**  
**Surface**                      **Interflow**                      **Groundwater**  
Surface - Cluster 15    Surface - Cluster 15

---

**Name**    : Onsite - DMA 7.16\_Cluster-16  
**Bypass:** No

**GroundWater:** No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.217
Impervious Total	0.217
Basin Total	0.217

---

**Element Flows To:**  
**Surface**                      **Interflow**                      **Groundwater**  
Surface - Cluster 16    Surface - Cluster 16

---

Name : Onsite - DMA 7.17\_Cluster-17  
 Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>acre</u>
Pervious Total	0
<u>Impervious Land Use</u>	<u>acre</u>
Roof Area	0.285
Impervious Total	0.285
Basin Total	0.285

Element Flows To:

Surface	Interflow	Groundwater
Surface - Cluster 17	Surface - Cluster 17	

Name : Bioretention Planters - Cluster 2  
 Bottom Length: 11.40 ft.  
 Bottom Width: 11.40 ft.  
 Material thickness of first layer: 1.5  
 Material type for first layer: BAHM 5  
 Material thickness of second layer: 1  
 Material type for second layer: GRAVEL  
 Material thickness of third layer: 0  
 Material type for third layer: GRAVEL  
Underdrain used  
 Underdrain Diameter (feet): 0.334  
 Orifice Diameter (in.): 0.5  
 Offset (in.): 0  
 Flow Through Underdrain (ac-ft.): 2.031  
 Total Outflow (ac-ft.): 2.053  
 Percent Through Underdrain: 98.94  
Discharge Structure  
 Riser Height: 0.5 ft.  
 Riser Diameter: 24 in.

Element Flows To:

Outlet 1	Outlet 2
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**Bioretention Planters - Cluster 2 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0030	0.0000	0.0000	0.0000
0.0385	0.0030	0.0000	0.0000	0.0000
0.0769	0.0030	0.0001	0.0000	0.0000

0.1154	0.0030	0.0001	0.0000	0.0000
0.1538	0.0030	0.0002	0.0000	0.0000
0.1923	0.0030	0.0002	0.0000	0.0000
0.2308	0.0030	0.0003	0.0000	0.0000
0.2692	0.0030	0.0003	0.0000	0.0000
0.3077	0.0030	0.0003	0.0000	0.0000
0.3462	0.0030	0.0004	0.0000	0.0000
0.3846	0.0030	0.0004	0.0000	0.0000
0.4231	0.0030	0.0005	0.0000	0.0000
0.4615	0.0030	0.0005	0.0000	0.0000
0.5000	0.0030	0.0006	0.0000	0.0000
0.5385	0.0030	0.0006	0.0000	0.0000
0.5769	0.0030	0.0007	0.0000	0.0000
0.6154	0.0030	0.0007	0.0000	0.0000
0.6538	0.0030	0.0007	0.0000	0.0000
0.6923	0.0030	0.0008	0.0000	0.0000
0.7308	0.0030	0.0008	0.0000	0.0000
0.7692	0.0030	0.0009	0.0000	0.0000
0.8077	0.0030	0.0009	0.0000	0.0000
0.8462	0.0030	0.0010	0.0000	0.0000
0.8846	0.0030	0.0010	0.0000	0.0000
0.9231	0.0030	0.0010	0.0000	0.0000
0.9615	0.0030	0.0011	0.0000	0.0000
1.0000	0.0030	0.0011	0.0000	0.0000
1.0385	0.0030	0.0012	0.0000	0.0000
1.0769	0.0030	0.0012	0.0000	0.0000
1.1154	0.0030	0.0013	0.0000	0.0000
1.1538	0.0030	0.0013	0.0000	0.0000
1.1923	0.0030	0.0014	0.0000	0.0000
1.2308	0.0030	0.0014	0.0000	0.0000
1.2692	0.0030	0.0014	0.0000	0.0000
1.3077	0.0030	0.0015	0.0000	0.0000
1.3462	0.0030	0.0015	0.0000	0.0000
1.3846	0.0030	0.0016	0.0000	0.0000
1.4231	0.0030	0.0016	0.0000	0.0000
1.4615	0.0030	0.0017	0.0000	0.0000
1.5000	0.0030	0.0017	0.0000	0.0000
1.5385	0.0030	0.0018	0.0000	0.0000
1.5769	0.0030	0.0018	0.0000	0.0000
1.6154	0.0030	0.0019	0.0000	0.0000
1.6538	0.0030	0.0019	0.0000	0.0000
1.6923	0.0030	0.0019	0.0000	0.0000
1.7308	0.0030	0.0020	0.0000	0.0000
1.7692	0.0030	0.0020	0.0000	0.0000
1.8077	0.0030	0.0021	0.0000	0.0000
1.8462	0.0030	0.0021	0.0000	0.0000
1.8846	0.0030	0.0022	0.0000	0.0000
1.9231	0.0030	0.0022	0.0000	0.0000
1.9615	0.0030	0.0023	0.0000	0.0000
2.0000	0.0030	0.0023	0.0000	0.0000
2.0385	0.0030	0.0024	0.0000	0.0000
2.0769	0.0030	0.0024	0.0000	0.0000
2.1154	0.0030	0.0025	0.0000	0.0000
2.1538	0.0030	0.0025	0.0000	0.0000
2.1923	0.0030	0.0026	0.0000	0.0000
2.2308	0.0030	0.0026	0.0000	0.0000
2.2692	0.0030	0.0027	0.0000	0.0000

2.3077	0.0030	0.0027	0.0000	0.0000
2.3462	0.0030	0.0028	0.0000	0.0000
2.3846	0.0030	0.0028	0.0000	0.0000
2.4231	0.0030	0.0029	0.0000	0.0000
2.4615	0.0030	0.0029	0.0000	0.0000
2.5000	0.0030	0.0030	0.0000	0.0000
2.5000	0.0030	0.0030	0.0000	0.0000

**Surface - Cluster 2 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0030	0.0030	0.0000	0.0150	0.0000
2.5385	0.0030	0.0031	0.0000	0.0150	0.0000
2.5769	0.0030	0.0032	0.0000	0.0158	0.0000
2.6154	0.0030	0.0033	0.0000	0.0162	0.0000
2.6538	0.0030	0.0034	0.0000	0.0166	0.0000
2.6923	0.0030	0.0035	0.0000	0.0170	0.0000
2.7308	0.0030	0.0037	0.0000	0.0174	0.0000
2.7692	0.0030	0.0038	0.0000	0.0177	0.0000
2.8077	0.0030	0.0039	0.0000	0.0181	0.0000
2.8462	0.0030	0.0040	0.0000	0.0185	0.0000
2.8846	0.0030	0.0041	0.0000	0.0189	0.0000
2.9231	0.0030	0.0042	0.0007	0.0193	0.0000
2.9615	0.0030	0.0043	0.0008	0.0197	0.0000
3.0000	0.0030	0.0045	0.0009	0.0201	0.0000
3.0385	0.0030	0.0046	0.0011	0.0204	0.0000
3.0769	0.0030	0.0047	0.0012	0.0208	0.0000
3.1154	0.0030	0.0048	0.0015	0.0212	0.0000
3.1538	0.0030	0.0049	0.0016	0.0216	0.0000
3.1923	0.0030	0.0050	0.0016	0.0220	0.0000
3.2308	0.0030	0.0052	0.0018	0.0224	0.0000
3.2692	0.0030	0.0053	0.0021	0.0228	0.0000
3.3077	0.0030	0.0054	0.0023	0.0231	0.0000
3.3462	0.0030	0.0055	0.0025	0.0235	0.0000
3.3846	0.0030	0.0056	0.0025	0.0239	0.0000
3.4231	0.0030	0.0057	0.0027	0.0243	0.0000
3.4615	0.0030	0.0059	0.0028	0.0247	0.0000
3.5000	0.0030	0.0060	0.0030	0.0251	0.0000

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**Name** : Surface - Cluster 2

**Element Flows To:**

<b>Outlet 1</b>	<b>Outlet 2</b>
Bioretention Planters	

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**Name** : Bioretention Planters - Cluster 3

**Bottom Length:** 15.81 ft.

**Bottom Width:** 15.81 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

Underdrain Diameter (feet): 0.334  
 Orifice Diameter (in.): 0.5  
 Offset (in.): 0  
 Flow Through Underdrain (ac-ft.): 3.928  
 Total Outflow (ac-ft.): 4.025  
 Percent Through Underdrain: 97.59  
Discharge Structure  
 Riser Height: 0.5 ft.  
 Riser Diameter: 24 in.

Element Flows To:  
 Outlet 1                      Outlet 2

**Bioretention Planters - Cluster 3 Hydraulic Table**

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0058	0.0000	0.0000	0.0000
0.0385	0.0058	0.0001	0.0000	0.0000
0.0769	0.0058	0.0002	0.0000	0.0000
0.1154	0.0058	0.0003	0.0000	0.0000
0.1538	0.0058	0.0003	0.0000	0.0000
0.1923	0.0058	0.0004	0.0000	0.0000
0.2308	0.0058	0.0005	0.0000	0.0000
0.2692	0.0058	0.0006	0.0000	0.0000
0.3077	0.0058	0.0007	0.0000	0.0000
0.3462	0.0058	0.0008	0.0000	0.0000
0.3846	0.0058	0.0008	0.0000	0.0000
0.4231	0.0058	0.0009	0.0000	0.0000
0.4615	0.0058	0.0010	0.0000	0.0000
0.5000	0.0058	0.0011	0.0000	0.0000
0.5385	0.0058	0.0012	0.0000	0.0000
0.5769	0.0058	0.0013	0.0000	0.0000
0.6154	0.0058	0.0013	0.0000	0.0000
0.6538	0.0058	0.0014	0.0000	0.0000
0.6923	0.0058	0.0015	0.0000	0.0000
0.7308	0.0058	0.0016	0.0000	0.0000
0.7692	0.0058	0.0017	0.0000	0.0000
0.8077	0.0058	0.0018	0.0000	0.0000
0.8462	0.0058	0.0018	0.0000	0.0000
0.8846	0.0058	0.0019	0.0000	0.0000
0.9231	0.0058	0.0020	0.0000	0.0000
0.9615	0.0058	0.0021	0.0000	0.0000
1.0000	0.0058	0.0022	0.0000	0.0000
1.0385	0.0058	0.0023	0.0000	0.0000
1.0769	0.0058	0.0024	0.0000	0.0000
1.1154	0.0058	0.0024	0.0000	0.0000
1.1538	0.0058	0.0025	0.0000	0.0000
1.1923	0.0058	0.0026	0.0000	0.0000
1.2308	0.0058	0.0027	0.0000	0.0000
1.2692	0.0058	0.0028	0.0000	0.0000
1.3077	0.0058	0.0029	0.0000	0.0000
1.3462	0.0058	0.0029	0.0000	0.0000
1.3846	0.0058	0.0030	0.0000	0.0000
1.4231	0.0058	0.0031	0.0000	0.0000



1.4615	0.0058	0.0032	0.0000	0.0000
1.5000	0.0058	0.0033	0.0000	0.0000
1.5385	0.0058	0.0034	0.0000	0.0000
1.5769	0.0058	0.0035	0.0000	0.0000
1.6154	0.0058	0.0036	0.0000	0.0000
1.6538	0.0058	0.0037	0.0000	0.0000
1.6923	0.0058	0.0037	0.0000	0.0000
1.7308	0.0057	0.0038	0.0000	0.0000
1.7692	0.0057	0.0039	0.0000	0.0000
1.8077	0.0057	0.0040	0.0000	0.0000
1.8462	0.0057	0.0041	0.0000	0.0000
1.8846	0.0057	0.0042	0.0000	0.0000
1.9231	0.0057	0.0043	0.0000	0.0000
1.9615	0.0057	0.0044	0.0000	0.0000
2.0000	0.0057	0.0045	0.0000	0.0000
2.0385	0.0057	0.0046	0.0000	0.0000
2.0769	0.0057	0.0047	0.0000	0.0000
2.1154	0.0057	0.0048	0.0000	0.0000
2.1538	0.0057	0.0048	0.0000	0.0000
2.1923	0.0057	0.0049	0.0000	0.0000
2.2308	0.0057	0.0050	0.0000	0.0000
2.2692	0.0057	0.0051	0.0000	0.0000
2.3077	0.0057	0.0052	0.0000	0.0000
2.3462	0.0057	0.0053	0.0000	0.0000
2.3846	0.0057	0.0054	0.0000	0.0000
2.4231	0.0057	0.0055	0.0000	0.0000
2.4615	0.0057	0.0056	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000

**Surface - Cluster 3 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0058	0.0057	0.0000	0.0289	0.0000
2.5385	0.0058	0.0059	0.0000	0.0289	0.0000
2.5769	0.0058	0.0061	0.0000	0.0304	0.0000
2.6154	0.0058	0.0063	0.0000	0.0312	0.0000
2.6538	0.0058	0.0066	0.0000	0.0319	0.0000
2.6923	0.0058	0.0068	0.0000	0.0326	0.0000
2.7308	0.0058	0.0070	0.0000	0.0334	0.0000
2.7692	0.0058	0.0072	0.0000	0.0341	0.0000
2.8077	0.0058	0.0075	0.0000	0.0349	0.0000
2.8462	0.0058	0.0077	0.0000	0.0356	0.0000
2.8846	0.0058	0.0079	0.0000	0.0363	0.0000
2.9231	0.0058	0.0081	0.0012	0.0371	0.0000
2.9615	0.0058	0.0083	0.0015	0.0378	0.0000
3.0000	0.0058	0.0086	0.0016	0.0386	0.0000
3.0385	0.0058	0.0088	0.0018	0.0393	0.0000
3.0769	0.0058	0.0090	0.0021	0.0401	0.0000
3.1154	0.0058	0.0092	0.0022	0.0408	0.0000
3.1538	0.0058	0.0095	0.0023	0.0415	0.0000
3.1923	0.0058	0.0097	0.0025	0.0423	0.0000
3.2308	0.0058	0.0099	0.0027	0.0430	0.0000
3.2692	0.0058	0.0101	0.0028	0.0438	0.0000
3.3077	0.0058	0.0103	0.0030	0.0445	0.0000
3.3462	0.0058	0.0106	0.0031	0.0452	0.0000
3.3846	0.0058	0.0108	0.0033	0.0460	0.0000
3.4231	0.0058	0.0110	0.0034	0.0467	0.0000

3.4615	0.0058	0.0112	0.0035	0.0475	0.0000
3.5000	0.0058	0.0115	0.0037	0.0482	0.0000

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**Name** : Surface - Cluster 3

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
 Bioretention Planters

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**Name** : Bioretention Planters - Cluster 4

**Bottom Length:** 16.12 ft.

**Bottom Width:** 16.12 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 4.014

**Total Outflow (ac-ft.):** 4.112

**Percent Through Underdrain:** 97.62

**Discharge Structure**

**Riser Height:** 0.5 ft.

**Riser Diameter:** 24 in.

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

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**Bioretention Planters - Cluster 4 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0060	0.0000	0.0000	0.0000
0.0385	0.0060	0.0001	0.0000	0.0000
0.0769	0.0060	0.0002	0.0000	0.0000
0.1154	0.0060	0.0003	0.0000	0.0000
0.1538	0.0060	0.0003	0.0000	0.0000
0.1923	0.0060	0.0004	0.0000	0.0000
0.2308	0.0060	0.0005	0.0000	0.0000
0.2692	0.0060	0.0006	0.0000	0.0000
0.3077	0.0060	0.0007	0.0000	0.0000
0.3462	0.0060	0.0008	0.0000	0.0000
0.3846	0.0060	0.0009	0.0000	0.0000
0.4231	0.0060	0.0010	0.0000	0.0000
0.4615	0.0060	0.0010	0.0000	0.0000
0.5000	0.0060	0.0011	0.0000	0.0000
0.5385	0.0060	0.0012	0.0000	0.0000
0.5769	0.0060	0.0013	0.0000	0.0000

0.6154	0.0060	0.0014	0.0000	0.0000
0.6538	0.0060	0.0015	0.0000	0.0000
0.6923	0.0060	0.0016	0.0000	0.0000
0.7308	0.0060	0.0017	0.0000	0.0000
0.7692	0.0060	0.0017	0.0000	0.0000
0.8077	0.0060	0.0018	0.0000	0.0000
0.8462	0.0060	0.0019	0.0000	0.0000
0.8846	0.0060	0.0020	0.0000	0.0000
0.9231	0.0060	0.0021	0.0000	0.0000
0.9615	0.0060	0.0022	0.0000	0.0000
1.0000	0.0060	0.0023	0.0000	0.0000
1.0385	0.0060	0.0024	0.0000	0.0000
1.0769	0.0060	0.0024	0.0000	0.0000
1.1154	0.0060	0.0025	0.0000	0.0000
1.1538	0.0060	0.0026	0.0000	0.0000
1.1923	0.0060	0.0027	0.0000	0.0000
1.2308	0.0060	0.0028	0.0000	0.0000
1.2692	0.0060	0.0029	0.0000	0.0000
1.3077	0.0060	0.0030	0.0000	0.0000
1.3462	0.0060	0.0031	0.0000	0.0000
1.3846	0.0060	0.0031	0.0000	0.0000
1.4231	0.0060	0.0032	0.0000	0.0000
1.4615	0.0060	0.0033	0.0000	0.0000
1.5000	0.0060	0.0034	0.0000	0.0000
1.5385	0.0060	0.0035	0.0000	0.0000
1.5769	0.0060	0.0036	0.0000	0.0000
1.6154	0.0060	0.0037	0.0000	0.0000
1.6538	0.0060	0.0038	0.0000	0.0000
1.6923	0.0060	0.0039	0.0000	0.0000
1.7308	0.0060	0.0040	0.0000	0.0000
1.7692	0.0060	0.0041	0.0000	0.0000
1.8077	0.0060	0.0042	0.0000	0.0000
1.8462	0.0060	0.0043	0.0000	0.0000
1.8846	0.0060	0.0044	0.0000	0.0000
1.9231	0.0060	0.0045	0.0000	0.0000
1.9615	0.0060	0.0046	0.0000	0.0000
2.0000	0.0060	0.0047	0.0000	0.0000
2.0385	0.0060	0.0048	0.0000	0.0000
2.0769	0.0060	0.0048	0.0000	0.0000
2.1154	0.0060	0.0049	0.0000	0.0000
2.1538	0.0060	0.0050	0.0000	0.0000
2.1923	0.0060	0.0051	0.0000	0.0000
2.2308	0.0060	0.0052	0.0000	0.0000
2.2692	0.0060	0.0053	0.0000	0.0000
2.3077	0.0060	0.0054	0.0000	0.0000
2.3462	0.0060	0.0055	0.0000	0.0000
2.3846	0.0060	0.0056	0.0000	0.0000
2.4231	0.0060	0.0057	0.0000	0.0000
2.4615	0.0060	0.0058	0.0000	0.0000
2.5000	0.0060	0.0059	0.0000	0.0000
2.5000	0.0060	0.0059	0.0000	0.0000

**Surface - Cluster 4 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area (ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0060	0.0059	0.0000	0.0301	0.0000
2.5385	0.0060	0.0061	0.0000	0.0301	0.0000
2.5769	0.0060	0.0064	0.0000	0.0316	0.0000

2.6154	0.0060	0.0066	0.0000	0.0324	0.0000
2.6538	0.0060	0.0068	0.0000	0.0332	0.0000
2.6923	0.0060	0.0071	0.0000	0.0339	0.0000
2.7308	0.0060	0.0073	0.0000	0.0347	0.0000
2.7692	0.0060	0.0075	0.0000	0.0355	0.0000
2.8077	0.0060	0.0078	0.0000	0.0362	0.0000
2.8462	0.0060	0.0080	0.0000	0.0370	0.0000
2.8846	0.0060	0.0082	0.0000	0.0378	0.0000
2.9231	0.0060	0.0084	0.0012	0.0386	0.0000
2.9615	0.0060	0.0087	0.0016	0.0393	0.0000
3.0000	0.0060	0.0089	0.0017	0.0401	0.0000
3.0385	0.0060	0.0091	0.0018	0.0409	0.0000
3.0769	0.0060	0.0094	0.0021	0.0416	0.0000
3.1154	0.0060	0.0096	0.0023	0.0424	0.0000
3.1538	0.0060	0.0098	0.0025	0.0432	0.0000
3.1923	0.0060	0.0101	0.0027	0.0440	0.0000
3.2308	0.0060	0.0103	0.0028	0.0447	0.0000
3.2692	0.0060	0.0105	0.0030	0.0455	0.0000
3.3077	0.0060	0.0108	0.0031	0.0463	0.0000
3.3462	0.0060	0.0110	0.0033	0.0470	0.0000
3.3846	0.0060	0.0112	0.0034	0.0478	0.0000
3.4231	0.0060	0.0114	0.0035	0.0486	0.0000
3.4615	0.0060	0.0117	0.0037	0.0494	0.0000
3.5000	0.0060	0.0119	0.0038	0.0501	0.0000

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**Name** : Surface - Cluster 4

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
Bioretention Planters

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**Name** : Bioretention Planters - Cluster 5

**Bottom Length:** 15.81 ft.

**Bottom Width:** 15.81 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

Underdrain used

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 3.928

**Total Outflow (ac-ft.):** 4.025

**Percent Through Underdrain:** 97.59

Discharge Structure

**Riser Height:** 0.5 ft.

**Riser Diameter:** 24 in.

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

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**Bioretention Planters - Cluster 5 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0058	0.0000	0.0000	0.0000
0.0385	0.0058	0.0001	0.0000	0.0000
0.0769	0.0058	0.0002	0.0000	0.0000
0.1154	0.0058	0.0003	0.0000	0.0000
0.1538	0.0058	0.0003	0.0000	0.0000
0.1923	0.0058	0.0004	0.0000	0.0000
0.2308	0.0058	0.0005	0.0000	0.0000
0.2692	0.0058	0.0006	0.0000	0.0000
0.3077	0.0058	0.0007	0.0000	0.0000
0.3462	0.0058	0.0008	0.0000	0.0000
0.3846	0.0058	0.0008	0.0000	0.0000
0.4231	0.0058	0.0009	0.0000	0.0000
0.4615	0.0058	0.0010	0.0000	0.0000
0.5000	0.0058	0.0011	0.0000	0.0000
0.5385	0.0058	0.0012	0.0000	0.0000
0.5769	0.0058	0.0013	0.0000	0.0000
0.6154	0.0058	0.0013	0.0000	0.0000
0.6538	0.0058	0.0014	0.0000	0.0000
0.6923	0.0058	0.0015	0.0000	0.0000
0.7308	0.0058	0.0016	0.0000	0.0000
0.7692	0.0058	0.0017	0.0000	0.0000
0.8077	0.0058	0.0018	0.0000	0.0000
0.8462	0.0058	0.0018	0.0000	0.0000
0.8846	0.0058	0.0019	0.0000	0.0000
0.9231	0.0058	0.0020	0.0000	0.0000
0.9615	0.0058	0.0021	0.0000	0.0000
1.0000	0.0058	0.0022	0.0000	0.0000
1.0385	0.0058	0.0023	0.0000	0.0000
1.0769	0.0058	0.0024	0.0000	0.0000
1.1154	0.0058	0.0024	0.0000	0.0000
1.1538	0.0058	0.0025	0.0000	0.0000
1.1923	0.0058	0.0026	0.0000	0.0000
1.2308	0.0058	0.0027	0.0000	0.0000
1.2692	0.0058	0.0028	0.0000	0.0000
1.3077	0.0058	0.0029	0.0000	0.0000
1.3462	0.0058	0.0029	0.0000	0.0000
1.3846	0.0058	0.0030	0.0000	0.0000
1.4231	0.0058	0.0031	0.0000	0.0000
1.4615	0.0058	0.0032	0.0000	0.0000
1.5000	0.0058	0.0033	0.0000	0.0000
1.5385	0.0058	0.0034	0.0000	0.0000
1.5769	0.0058	0.0035	0.0000	0.0000
1.6154	0.0058	0.0036	0.0000	0.0000
1.6538	0.0058	0.0037	0.0000	0.0000
1.6923	0.0058	0.0037	0.0000	0.0000
1.7308	0.0057	0.0038	0.0000	0.0000
1.7692	0.0057	0.0039	0.0000	0.0000
1.8077	0.0057	0.0040	0.0000	0.0000
1.8462	0.0057	0.0041	0.0000	0.0000
1.8846	0.0057	0.0042	0.0000	0.0000
1.9231	0.0057	0.0043	0.0000	0.0000

1.9615	0.0057	0.0044	0.0000	0.0000
2.0000	0.0057	0.0045	0.0000	0.0000
2.0385	0.0057	0.0046	0.0000	0.0000
2.0769	0.0057	0.0047	0.0000	0.0000
2.1154	0.0057	0.0048	0.0000	0.0000
2.1538	0.0057	0.0048	0.0000	0.0000
2.1923	0.0057	0.0049	0.0000	0.0000
2.2308	0.0057	0.0050	0.0000	0.0000
2.2692	0.0057	0.0051	0.0000	0.0000
2.3077	0.0057	0.0052	0.0000	0.0000
2.3462	0.0057	0.0053	0.0000	0.0000
2.3846	0.0057	0.0054	0.0000	0.0000
2.4231	0.0057	0.0055	0.0000	0.0000
2.4615	0.0057	0.0056	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000

**Surface - Cluster 5 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0058	0.0057	0.0000	0.0289	0.0000
2.5385	0.0058	0.0059	0.0000	0.0289	0.0000
2.5769	0.0058	0.0061	0.0000	0.0304	0.0000
2.6154	0.0058	0.0063	0.0000	0.0312	0.0000
2.6538	0.0058	0.0066	0.0000	0.0319	0.0000
2.6923	0.0058	0.0068	0.0000	0.0326	0.0000
2.7308	0.0058	0.0070	0.0000	0.0334	0.0000
2.7692	0.0058	0.0072	0.0000	0.0341	0.0000
2.8077	0.0058	0.0075	0.0000	0.0349	0.0000
2.8462	0.0058	0.0077	0.0000	0.0356	0.0000
2.8846	0.0058	0.0079	0.0000	0.0363	0.0000
2.9231	0.0058	0.0081	0.0012	0.0371	0.0000
2.9615	0.0058	0.0083	0.0015	0.0378	0.0000
3.0000	0.0058	0.0086	0.0016	0.0386	0.0000
3.0385	0.0058	0.0088	0.0018	0.0393	0.0000
3.0769	0.0058	0.0090	0.0021	0.0401	0.0000
3.1154	0.0058	0.0092	0.0022	0.0408	0.0000
3.1538	0.0058	0.0095	0.0023	0.0415	0.0000
3.1923	0.0058	0.0097	0.0025	0.0423	0.0000
3.2308	0.0058	0.0099	0.0027	0.0430	0.0000
3.2692	0.0058	0.0101	0.0028	0.0438	0.0000
3.3077	0.0058	0.0103	0.0030	0.0445	0.0000
3.3462	0.0058	0.0106	0.0031	0.0452	0.0000
3.3846	0.0058	0.0108	0.0033	0.0460	0.0000
3.4231	0.0058	0.0110	0.0034	0.0467	0.0000
3.4615	0.0058	0.0112	0.0035	0.0475	0.0000
3.5000	0.0058	0.0115	0.0037	0.0482	0.0000

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**Name** : Surface - Cluster 5

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
Bioretention Planters

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**Name** : Bioretention Planters - Cluster 6

**Bottom Length:** 18.03 ft.  
**Bottom Width:** 18.03 ft.  
**Material thickness of first layer:** 1.5  
**Material type for first layer:** BAHM 5  
**Material thickness of second layer:** 1  
**Material type for second layer:** GRAVEL  
**Material thickness of third layer:** 0  
**Material type for third layer:** GRAVEL

Underdrain used

**Underdrain Diameter (feet):** 0.334  
**Orifice Diameter (in.):** 0.5  
**Offset (in.):** 0  
**Flow Through Underdrain (ac-ft.):** 4.992  
**Total Outflow (ac-ft.):** 5.157  
**Percent Through Underdrain:** 96.8

Discharge Structure

**Riser Height:** 0.5 ft.  
**Riser Diameter:** 24 in.

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

**Bioretention Planters - Cluster 6 Hydraulic Table**

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0075	0.0000	0.0000	0.0000
0.0385	0.0075	0.0001	0.0000	0.0000
0.0769	0.0075	0.0002	0.0000	0.0000
0.1154	0.0075	0.0003	0.0000	0.0000
0.1538	0.0075	0.0004	0.0000	0.0000
0.1923	0.0075	0.0005	0.0000	0.0000
0.2308	0.0075	0.0007	0.0000	0.0000
0.2692	0.0075	0.0008	0.0000	0.0000
0.3077	0.0075	0.0009	0.0000	0.0000
0.3462	0.0075	0.0010	0.0000	0.0000
0.3846	0.0075	0.0011	0.0000	0.0000
0.4231	0.0075	0.0012	0.0000	0.0000
0.4615	0.0075	0.0013	0.0000	0.0000
0.5000	0.0075	0.0014	0.0000	0.0000
0.5385	0.0075	0.0015	0.0000	0.0000
0.5769	0.0075	0.0016	0.0000	0.0000
0.6154	0.0075	0.0017	0.0000	0.0000
0.6538	0.0075	0.0019	0.0000	0.0000
0.6923	0.0075	0.0020	0.0000	0.0000
0.7308	0.0075	0.0021	0.0000	0.0000
0.7692	0.0075	0.0022	0.0000	0.0000
0.8077	0.0075	0.0023	0.0000	0.0000
0.8462	0.0075	0.0024	0.0000	0.0000
0.8846	0.0075	0.0025	0.0000	0.0000
0.9231	0.0075	0.0026	0.0000	0.0000
0.9615	0.0075	0.0027	0.0000	0.0000
1.0000	0.0075	0.0028	0.0000	0.0000
1.0385	0.0075	0.0029	0.0000	0.0000
1.0769	0.0075	0.0031	0.0000	0.0000

1.1154	0.0075	0.0032	0.0000	0.0000
1.1538	0.0075	0.0033	0.0000	0.0000
1.1923	0.0075	0.0034	0.0000	0.0000
1.2308	0.0075	0.0035	0.0000	0.0000
1.2692	0.0075	0.0036	0.0000	0.0000
1.3077	0.0075	0.0037	0.0000	0.0000
1.3462	0.0075	0.0038	0.0000	0.0000
1.3846	0.0075	0.0039	0.0000	0.0000
1.4231	0.0075	0.0040	0.0000	0.0000
1.4615	0.0075	0.0042	0.0000	0.0000
1.5000	0.0075	0.0043	0.0000	0.0000
1.5385	0.0075	0.0044	0.0000	0.0000
1.5769	0.0075	0.0045	0.0000	0.0000
1.6154	0.0075	0.0046	0.0000	0.0000
1.6538	0.0075	0.0047	0.0000	0.0000
1.6923	0.0075	0.0049	0.0000	0.0000
1.7308	0.0075	0.0050	0.0000	0.0000
1.7692	0.0075	0.0051	0.0000	0.0000
1.8077	0.0075	0.0052	0.0000	0.0000
1.8462	0.0075	0.0053	0.0000	0.0000
1.8846	0.0075	0.0055	0.0000	0.0000
1.9231	0.0075	0.0056	0.0000	0.0000
1.9615	0.0075	0.0057	0.0000	0.0000
2.0000	0.0075	0.0058	0.0000	0.0000
2.0385	0.0075	0.0059	0.0000	0.0000
2.0769	0.0075	0.0061	0.0000	0.0000
2.1154	0.0075	0.0062	0.0000	0.0000
2.1538	0.0075	0.0063	0.0000	0.0000
2.1923	0.0075	0.0064	0.0000	0.0000
2.2308	0.0075	0.0065	0.0000	0.0000
2.2692	0.0075	0.0067	0.0000	0.0000
2.3077	0.0075	0.0068	0.0000	0.0000
2.3462	0.0075	0.0069	0.0000	0.0000
2.3846	0.0075	0.0070	0.0000	0.0000
2.4231	0.0075	0.0071	0.0000	0.0000
2.4615	0.0075	0.0073	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000

**Surface - Cluster 6 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0075	0.0074	0.0000	0.0376	0.0000
2.5385	0.0075	0.0077	0.0000	0.0376	0.0000
2.5769	0.0075	0.0080	0.0000	0.0396	0.0000
2.6154	0.0075	0.0082	0.0000	0.0405	0.0000
2.6538	0.0075	0.0085	0.0000	0.0415	0.0000
2.6923	0.0075	0.0088	0.0000	0.0424	0.0000
2.7308	0.0075	0.0091	0.0000	0.0434	0.0000
2.7692	0.0075	0.0094	0.0000	0.0444	0.0000
2.8077	0.0075	0.0097	0.0000	0.0453	0.0000
2.8462	0.0075	0.0100	0.0000	0.0463	0.0000
2.8846	0.0075	0.0103	0.0000	0.0473	0.0000
2.9231	0.0075	0.0106	0.0012	0.0482	0.0000
2.9615	0.0075	0.0108	0.0016	0.0492	0.0000
3.0000	0.0075	0.0111	0.0018	0.0502	0.0000
3.0385	0.0075	0.0114	0.0021	0.0511	0.0000
3.0769	0.0075	0.0117	0.0023	0.0521	0.0000



3.1154	0.0075	0.0120	0.0025	0.0531	0.0000
3.1538	0.0075	0.0123	0.0027	0.0540	0.0000
3.1923	0.0075	0.0126	0.0028	0.0550	0.0000
3.2308	0.0075	0.0129	0.0030	0.0560	0.0000
3.2692	0.0075	0.0132	0.0031	0.0569	0.0000
3.3077	0.0075	0.0134	0.0033	0.0579	0.0000
3.3462	0.0075	0.0137	0.0034	0.0588	0.0000
3.3846	0.0075	0.0140	0.0035	0.0598	0.0000
3.4231	0.0075	0.0143	0.0037	0.0608	0.0000
3.4615	0.0075	0.0146	0.0038	0.0617	0.0000
3.5000	0.0075	0.0149	0.0039	0.0627	0.0000

**Name** : Surface - Cluster 6

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
 Bioretention Planters

**Name** : Bioretention Planters - Cluster 7

**Bottom Length:** 18.03 ft.

**Bottom Width:** 18.03 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 5.069

**Total Outflow (ac-ft.):** 5.244

**Percent Through Underdrain:** 96.66

**Discharge Structure**

**Riser Height:** 0.5 ft.

**Riser Diameter:** 24 in.

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

**Bioretention Planters - Cluster 7 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0075	0.0000	0.0000	0.0000
0.0385	0.0075	0.0001	0.0000	0.0000
0.0769	0.0075	0.0002	0.0000	0.0000
0.1154	0.0075	0.0003	0.0000	0.0000
0.1538	0.0075	0.0004	0.0000	0.0000
0.1923	0.0075	0.0005	0.0000	0.0000
0.2308	0.0075	0.0007	0.0000	0.0000

0.2692	0.0075	0.0008	0.0000	0.0000
0.3077	0.0075	0.0009	0.0000	0.0000
0.3462	0.0075	0.0010	0.0000	0.0000
0.3846	0.0075	0.0011	0.0000	0.0000
0.4231	0.0075	0.0012	0.0000	0.0000
0.4615	0.0075	0.0013	0.0000	0.0000
0.5000	0.0075	0.0014	0.0000	0.0000
0.5385	0.0075	0.0015	0.0000	0.0000
0.5769	0.0075	0.0016	0.0000	0.0000
0.6154	0.0075	0.0017	0.0000	0.0000
0.6538	0.0075	0.0019	0.0000	0.0000
0.6923	0.0075	0.0020	0.0000	0.0000
0.7308	0.0075	0.0021	0.0000	0.0000
0.7692	0.0075	0.0022	0.0000	0.0000
0.8077	0.0075	0.0023	0.0000	0.0000
0.8462	0.0075	0.0024	0.0000	0.0000
0.8846	0.0075	0.0025	0.0000	0.0000
0.9231	0.0075	0.0026	0.0000	0.0000
0.9615	0.0075	0.0027	0.0000	0.0000
1.0000	0.0075	0.0028	0.0000	0.0000
1.0385	0.0075	0.0029	0.0000	0.0000
1.0769	0.0075	0.0031	0.0000	0.0000
1.1154	0.0075	0.0032	0.0000	0.0000
1.1538	0.0075	0.0033	0.0000	0.0000
1.1923	0.0075	0.0034	0.0000	0.0000
1.2308	0.0075	0.0035	0.0000	0.0000
1.2692	0.0075	0.0036	0.0000	0.0000
1.3077	0.0075	0.0037	0.0000	0.0000
1.3462	0.0075	0.0038	0.0000	0.0000
1.3846	0.0075	0.0039	0.0000	0.0000
1.4231	0.0075	0.0040	0.0000	0.0000
1.4615	0.0075	0.0042	0.0000	0.0000
1.5000	0.0075	0.0043	0.0000	0.0000
1.5385	0.0075	0.0044	0.0000	0.0000
1.5769	0.0075	0.0045	0.0000	0.0000
1.6154	0.0075	0.0046	0.0000	0.0000
1.6538	0.0075	0.0047	0.0000	0.0000
1.6923	0.0075	0.0049	0.0000	0.0000
1.7308	0.0075	0.0050	0.0000	0.0000
1.7692	0.0075	0.0051	0.0000	0.0000
1.8077	0.0075	0.0052	0.0000	0.0000
1.8462	0.0075	0.0053	0.0000	0.0000
1.8846	0.0075	0.0055	0.0000	0.0000
1.9231	0.0075	0.0056	0.0000	0.0000
1.9615	0.0075	0.0057	0.0000	0.0000
2.0000	0.0075	0.0058	0.0000	0.0000
2.0385	0.0075	0.0059	0.0000	0.0000
2.0769	0.0075	0.0061	0.0000	0.0000
2.1154	0.0075	0.0062	0.0000	0.0000
2.1538	0.0075	0.0063	0.0000	0.0000
2.1923	0.0075	0.0064	0.0000	0.0000
2.2308	0.0075	0.0065	0.0000	0.0000
2.2692	0.0075	0.0067	0.0000	0.0000
2.3077	0.0075	0.0068	0.0000	0.0000
2.3462	0.0075	0.0069	0.0000	0.0000
2.3846	0.0075	0.0070	0.0000	0.0000
2.4231	0.0075	0.0071	0.0000	0.0000

2.4615	0.0075	0.0073	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000

**Surface - Cluster 7 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0075	0.0074	0.0000	0.0376	0.0000
2.5385	0.0075	0.0077	0.0000	0.0376	0.0000
2.5769	0.0075	0.0080	0.0000	0.0396	0.0000
2.6154	0.0075	0.0082	0.0000	0.0405	0.0000
2.6538	0.0075	0.0085	0.0000	0.0415	0.0000
2.6923	0.0075	0.0088	0.0000	0.0424	0.0000
2.7308	0.0075	0.0091	0.0000	0.0434	0.0000
2.7692	0.0075	0.0094	0.0000	0.0444	0.0000
2.8077	0.0075	0.0097	0.0000	0.0453	0.0000
2.8462	0.0075	0.0100	0.0000	0.0463	0.0000
2.8846	0.0075	0.0103	0.0000	0.0473	0.0000
2.9231	0.0075	0.0106	0.0012	0.0482	0.0000
2.9615	0.0075	0.0108	0.0016	0.0492	0.0000
3.0000	0.0075	0.0111	0.0018	0.0502	0.0000
3.0385	0.0075	0.0114	0.0021	0.0511	0.0000
3.0769	0.0075	0.0117	0.0023	0.0521	0.0000
3.1154	0.0075	0.0120	0.0025	0.0531	0.0000
3.1538	0.0075	0.0123	0.0027	0.0540	0.0000
3.1923	0.0075	0.0126	0.0028	0.0550	0.0000
3.2308	0.0075	0.0129	0.0030	0.0560	0.0000
3.2692	0.0075	0.0132	0.0031	0.0569	0.0000
3.3077	0.0075	0.0134	0.0033	0.0579	0.0000
3.3462	0.0075	0.0137	0.0034	0.0588	0.0000
3.3846	0.0075	0.0140	0.0035	0.0598	0.0000
3.4231	0.0075	0.0143	0.0037	0.0608	0.0000
3.4615	0.0075	0.0146	0.0038	0.0617	0.0000
3.5000	0.0075	0.0149	0.0039	0.0627	0.0000

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**Name** : Surface - Cluster 7

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
 Bioretention Planters

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**Name** : Bioretention Planters - Cluster 8

**Bottom Length:** 12.25 ft.

**Bottom Width:** 12.25 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 3.804

Total Outflow (ac-ft.): 4.027  
 Percent Through Underdrain: 94.47  
Discharge Structure  
 Riser Height: 0.5 ft.  
 Riser Diameter: 24 in.

Element Flows To:  
 Outlet 1                      Outlet 2

**Bioretention Planters - Cluster 8 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0035	0.0000	0.0000	0.0000
0.0385	0.0035	0.0001	0.0000	0.0000
0.0769	0.0035	0.0001	0.0000	0.0000
0.1154	0.0035	0.0002	0.0000	0.0000
0.1538	0.0035	0.0002	0.0000	0.0000
0.1923	0.0035	0.0003	0.0000	0.0000
0.2308	0.0035	0.0003	0.0000	0.0000
0.2692	0.0035	0.0004	0.0000	0.0000
0.3077	0.0035	0.0004	0.0000	0.0000
0.3462	0.0035	0.0005	0.0000	0.0000
0.3846	0.0035	0.0005	0.0000	0.0000
0.4231	0.0035	0.0006	0.0000	0.0000
0.4615	0.0035	0.0006	0.0000	0.0000
0.5000	0.0035	0.0007	0.0000	0.0000
0.5385	0.0035	0.0007	0.0000	0.0000
0.5769	0.0035	0.0008	0.0000	0.0000
0.6154	0.0035	0.0008	0.0000	0.0000
0.6538	0.0035	0.0009	0.0000	0.0000
0.6923	0.0035	0.0009	0.0000	0.0000
0.7308	0.0035	0.0010	0.0000	0.0000
0.7692	0.0035	0.0010	0.0000	0.0000
0.8077	0.0035	0.0011	0.0000	0.0000
0.8462	0.0035	0.0011	0.0000	0.0000
0.8846	0.0035	0.0012	0.0000	0.0000
0.9231	0.0035	0.0012	0.0000	0.0000
0.9615	0.0035	0.0013	0.0000	0.0000
1.0000	0.0035	0.0013	0.0000	0.0000
1.0385	0.0035	0.0014	0.0000	0.0000
1.0769	0.0035	0.0014	0.0000	0.0000
1.1154	0.0035	0.0015	0.0000	0.0000
1.1538	0.0035	0.0015	0.0000	0.0000
1.1923	0.0035	0.0016	0.0000	0.0000
1.2308	0.0035	0.0016	0.0000	0.0000
1.2692	0.0035	0.0017	0.0000	0.0000
1.3077	0.0035	0.0017	0.0000	0.0000
1.3462	0.0035	0.0018	0.0000	0.0000
1.3846	0.0035	0.0018	0.0000	0.0000
1.4231	0.0035	0.0019	0.0000	0.0000
1.4615	0.0035	0.0019	0.0000	0.0000
1.5000	0.0035	0.0020	0.0000	0.0000
1.5385	0.0035	0.0020	0.0000	0.0000
1.5769	0.0035	0.0021	0.0000	0.0000

1.6154	0.0035	0.0021	0.0000	0.0000
1.6538	0.0035	0.0022	0.0000	0.0000
1.6923	0.0035	0.0022	0.0000	0.0000
1.7308	0.0035	0.0023	0.0000	0.0000
1.7692	0.0035	0.0024	0.0000	0.0000
1.8077	0.0035	0.0024	0.0000	0.0000
1.8462	0.0035	0.0025	0.0000	0.0000
1.8846	0.0035	0.0025	0.0000	0.0000
1.9231	0.0035	0.0026	0.0000	0.0000
1.9615	0.0035	0.0026	0.0000	0.0000
2.0000	0.0035	0.0027	0.0000	0.0000
2.0385	0.0035	0.0027	0.0000	0.0000
2.0769	0.0035	0.0028	0.0000	0.0000
2.1154	0.0034	0.0029	0.0000	0.0000
2.1538	0.0034	0.0029	0.0000	0.0000
2.1923	0.0034	0.0030	0.0000	0.0000
2.2308	0.0034	0.0030	0.0000	0.0000
2.2692	0.0034	0.0031	0.0000	0.0000
2.3077	0.0034	0.0031	0.0000	0.0000
2.3462	0.0034	0.0032	0.0000	0.0000
2.3846	0.0034	0.0032	0.0000	0.0000
2.4231	0.0034	0.0033	0.0000	0.0000
2.4615	0.0034	0.0034	0.0000	0.0000
2.5000	0.0034	0.0034	0.0000	0.0000
2.5000	0.0034	0.0034	0.0000	0.0000

**Surface - Cluster 8 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0035	0.0034	0.0000	0.0174	0.0000
2.5385	0.0035	0.0035	0.0000	0.0174	0.0000
2.5769	0.0035	0.0037	0.0000	0.0183	0.0000
2.6154	0.0035	0.0038	0.0000	0.0187	0.0000
2.6538	0.0035	0.0039	0.0000	0.0191	0.0000
2.6923	0.0035	0.0041	0.0000	0.0196	0.0000
2.7308	0.0035	0.0042	0.0000	0.0200	0.0000
2.7692	0.0035	0.0043	0.0000	0.0205	0.0000
2.8077	0.0035	0.0045	0.0000	0.0209	0.0000
2.8462	0.0035	0.0046	0.0000	0.0214	0.0000
2.8846	0.0035	0.0047	0.0000	0.0218	0.0000
2.9231	0.0035	0.0049	0.0008	0.0223	0.0000
2.9615	0.0035	0.0050	0.0009	0.0227	0.0000
3.0000	0.0035	0.0052	0.0011	0.0232	0.0000
3.0385	0.0035	0.0053	0.0012	0.0236	0.0000
3.0769	0.0035	0.0054	0.0015	0.0240	0.0000
3.1154	0.0035	0.0056	0.0016	0.0245	0.0000
3.1538	0.0035	0.0057	0.0016	0.0249	0.0000
3.1923	0.0035	0.0058	0.0018	0.0254	0.0000
3.2308	0.0035	0.0060	0.0021	0.0258	0.0000
3.2692	0.0035	0.0061	0.0023	0.0263	0.0000
3.3077	0.0035	0.0062	0.0025	0.0267	0.0000
3.3462	0.0035	0.0064	0.0027	0.0272	0.0000
3.3846	0.0035	0.0065	0.0028	0.0276	0.0000
3.4231	0.0035	0.0066	0.0030	0.0281	0.0000
3.4615	0.0035	0.0068	0.0031	0.0285	0.0000
3.5000	0.0035	0.0069	0.0033	0.0289	0.0000

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Name : Surface - Cluster 8

**Element Flows To:**

Outlet 1                      Outlet 2  
Bioretention Planters

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Name : Bioretention Planters - Cluster 9

Bottom Length: 18.03 ft.

Bottom Width: 18.03 ft.

Material thickness of first layer: 1.5

Material type for first layer: BAHM 5

Material thickness of second layer: 1

Material type for second layer: GRAVEL

Material thickness of third layer: 0

Material type for third layer: GRAVEL

Underdrain used

Underdrain Diameter (feet): 0.334

Orifice Diameter (in.): 0.5

Offset (in.): 0

Flow Through Underdrain (ac-ft.): 3.072

Total Outflow (ac-ft.): 3.097

Percent Through Underdrain: 99.19

Discharge Structure

Riser Height: 0.5 ft.

Riser Diameter: 24 in.

**Element Flows To:**

Outlet 1                      Outlet 2

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**Bioretention Planters - Cluster 9 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0075	0.0000	0.0000	0.0000
0.0385	0.0075	0.0001	0.0000	0.0000
0.0769	0.0075	0.0002	0.0000	0.0000
0.1154	0.0075	0.0003	0.0000	0.0000
0.1538	0.0075	0.0004	0.0000	0.0000
0.1923	0.0075	0.0005	0.0000	0.0000
0.2308	0.0075	0.0007	0.0000	0.0000
0.2692	0.0075	0.0008	0.0000	0.0000
0.3077	0.0075	0.0009	0.0000	0.0000
0.3462	0.0075	0.0010	0.0000	0.0000
0.3846	0.0075	0.0011	0.0000	0.0000
0.4231	0.0075	0.0012	0.0000	0.0000
0.4615	0.0075	0.0013	0.0000	0.0000
0.5000	0.0075	0.0014	0.0000	0.0000
0.5385	0.0075	0.0015	0.0000	0.0000
0.5769	0.0075	0.0016	0.0000	0.0000
0.6154	0.0075	0.0017	0.0000	0.0000
0.6538	0.0075	0.0019	0.0000	0.0000
0.6923	0.0075	0.0020	0.0000	0.0000
0.7308	0.0075	0.0021	0.0000	0.0000

0.7692	0.0075	0.0022	0.0000	0.0000
0.8077	0.0075	0.0023	0.0000	0.0000
0.8462	0.0075	0.0024	0.0000	0.0000
0.8846	0.0075	0.0025	0.0000	0.0000
0.9231	0.0075	0.0026	0.0000	0.0000
0.9615	0.0075	0.0027	0.0000	0.0000
1.0000	0.0075	0.0028	0.0000	0.0000
1.0385	0.0075	0.0029	0.0000	0.0000
1.0769	0.0075	0.0031	0.0000	0.0000
1.1154	0.0075	0.0032	0.0000	0.0000
1.1538	0.0075	0.0033	0.0000	0.0000
1.1923	0.0075	0.0034	0.0000	0.0000
1.2308	0.0075	0.0035	0.0000	0.0000
1.2692	0.0075	0.0036	0.0000	0.0000
1.3077	0.0075	0.0037	0.0000	0.0000
1.3462	0.0075	0.0038	0.0000	0.0000
1.3846	0.0075	0.0039	0.0000	0.0000
1.4231	0.0075	0.0040	0.0000	0.0000
1.4615	0.0075	0.0042	0.0000	0.0000
1.5000	0.0075	0.0043	0.0000	0.0000
1.5385	0.0075	0.0044	0.0000	0.0000
1.5769	0.0075	0.0045	0.0000	0.0000
1.6154	0.0075	0.0046	0.0000	0.0000
1.6538	0.0075	0.0047	0.0000	0.0000
1.6923	0.0075	0.0049	0.0000	0.0000
1.7308	0.0075	0.0050	0.0000	0.0000
1.7692	0.0075	0.0051	0.0000	0.0000
1.8077	0.0075	0.0052	0.0000	0.0000
1.8462	0.0075	0.0053	0.0000	0.0000
1.8846	0.0075	0.0055	0.0000	0.0000
1.9231	0.0075	0.0056	0.0000	0.0000
1.9615	0.0075	0.0057	0.0000	0.0000
2.0000	0.0075	0.0058	0.0000	0.0000
2.0385	0.0075	0.0059	0.0000	0.0000
2.0769	0.0075	0.0061	0.0000	0.0000
2.1154	0.0075	0.0062	0.0000	0.0000
2.1538	0.0075	0.0063	0.0000	0.0000
2.1923	0.0075	0.0064	0.0000	0.0000
2.2308	0.0075	0.0065	0.0000	0.0000
2.2692	0.0075	0.0067	0.0000	0.0000
2.3077	0.0075	0.0068	0.0000	0.0000
2.3462	0.0075	0.0069	0.0000	0.0000
2.3846	0.0075	0.0070	0.0000	0.0000
2.4231	0.0075	0.0071	0.0000	0.0000
2.4615	0.0075	0.0073	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000

**Surface - Cluster 9 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0075	0.0074	0.0000	0.0376	0.0000
2.5385	0.0075	0.0077	0.0000	0.0376	0.0000
2.5769	0.0075	0.0080	0.0000	0.0396	0.0000
2.6154	0.0075	0.0082	0.0000	0.0405	0.0000
2.6538	0.0075	0.0085	0.0000	0.0415	0.0000
2.6923	0.0075	0.0088	0.0000	0.0424	0.0000
2.7308	0.0075	0.0091	0.0000	0.0434	0.0000

2.7692	0.0075	0.0094	0.0000	0.0444	0.0000
2.8077	0.0075	0.0097	0.0000	0.0453	0.0000
2.8462	0.0075	0.0100	0.0000	0.0463	0.0000
2.8846	0.0075	0.0103	0.0000	0.0473	0.0000
2.9231	0.0075	0.0106	0.0012	0.0482	0.0000
2.9615	0.0075	0.0108	0.0016	0.0492	0.0000
3.0000	0.0075	0.0111	0.0018	0.0502	0.0000
3.0385	0.0075	0.0114	0.0021	0.0511	0.0000
3.0769	0.0075	0.0117	0.0023	0.0521	0.0000
3.1154	0.0075	0.0120	0.0025	0.0531	0.0000
3.1538	0.0075	0.0123	0.0027	0.0540	0.0000
3.1923	0.0075	0.0126	0.0028	0.0550	0.0000
3.2308	0.0075	0.0129	0.0030	0.0560	0.0000
3.2692	0.0075	0.0132	0.0031	0.0569	0.0000
3.3077	0.0075	0.0134	0.0033	0.0579	0.0000
3.3462	0.0075	0.0137	0.0034	0.0588	0.0000
3.3846	0.0075	0.0140	0.0035	0.0598	0.0000
3.4231	0.0075	0.0143	0.0037	0.0608	0.0000
3.4615	0.0075	0.0146	0.0038	0.0617	0.0000
3.5000	0.0075	0.0149	0.0039	0.0627	0.0000

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**Name** : Surface - Cluster 9

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
Bioretention Planters

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**Name** : Bioretention Planters - Cluster 10

**Bottom Length:** 15.81 ft.

**Bottom Width:** 15.81 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 3.928

**Total Outflow (ac-ft.):** 4.025

**Percent Through Underdrain:** 97.59

**Discharge Structure**

**Riser Height:** 0.5 ft.

**Riser Diameter:** 24 in.

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

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**Bioretention Planters - Cluster 10 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0058	0.0000	0.0000	0.0000
0.0385	0.0058	0.0001	0.0000	0.0000
0.0769	0.0058	0.0002	0.0000	0.0000
0.1154	0.0058	0.0003	0.0000	0.0000
0.1538	0.0058	0.0003	0.0000	0.0000
0.1923	0.0058	0.0004	0.0000	0.0000
0.2308	0.0058	0.0005	0.0000	0.0000
0.2692	0.0058	0.0006	0.0000	0.0000
0.3077	0.0058	0.0007	0.0000	0.0000
0.3462	0.0058	0.0008	0.0000	0.0000
0.3846	0.0058	0.0008	0.0000	0.0000
0.4231	0.0058	0.0009	0.0000	0.0000
0.4615	0.0058	0.0010	0.0000	0.0000
0.5000	0.0058	0.0011	0.0000	0.0000
0.5385	0.0058	0.0012	0.0000	0.0000
0.5769	0.0058	0.0013	0.0000	0.0000
0.6154	0.0058	0.0013	0.0000	0.0000
0.6538	0.0058	0.0014	0.0000	0.0000
0.6923	0.0058	0.0015	0.0000	0.0000
0.7308	0.0058	0.0016	0.0000	0.0000
0.7692	0.0058	0.0017	0.0000	0.0000
0.8077	0.0058	0.0018	0.0000	0.0000
0.8462	0.0058	0.0018	0.0000	0.0000
0.8846	0.0058	0.0019	0.0000	0.0000
0.9231	0.0058	0.0020	0.0000	0.0000
0.9615	0.0058	0.0021	0.0000	0.0000
1.0000	0.0058	0.0022	0.0000	0.0000
1.0385	0.0058	0.0023	0.0000	0.0000
1.0769	0.0058	0.0024	0.0000	0.0000
1.1154	0.0058	0.0024	0.0000	0.0000
1.1538	0.0058	0.0025	0.0000	0.0000
1.1923	0.0058	0.0026	0.0000	0.0000
1.2308	0.0058	0.0027	0.0000	0.0000
1.2692	0.0058	0.0028	0.0000	0.0000
1.3077	0.0058	0.0029	0.0000	0.0000
1.3462	0.0058	0.0029	0.0000	0.0000
1.3846	0.0058	0.0030	0.0000	0.0000
1.4231	0.0058	0.0031	0.0000	0.0000
1.4615	0.0058	0.0032	0.0000	0.0000
1.5000	0.0058	0.0033	0.0000	0.0000
1.5385	0.0058	0.0034	0.0000	0.0000
1.5769	0.0058	0.0035	0.0000	0.0000
1.6154	0.0058	0.0036	0.0000	0.0000
1.6538	0.0058	0.0037	0.0000	0.0000
1.6923	0.0058	0.0037	0.0000	0.0000
1.7308	0.0057	0.0038	0.0000	0.0000
1.7692	0.0057	0.0039	0.0000	0.0000
1.8077	0.0057	0.0040	0.0000	0.0000
1.8462	0.0057	0.0041	0.0000	0.0000
1.8846	0.0057	0.0042	0.0000	0.0000
1.9231	0.0057	0.0043	0.0000	0.0000
1.9615	0.0057	0.0044	0.0000	0.0000
2.0000	0.0057	0.0045	0.0000	0.0000
2.0385	0.0057	0.0046	0.0000	0.0000
2.0769	0.0057	0.0047	0.0000	0.0000

2.1154	0.0057	0.0048	0.0000	0.0000
2.1538	0.0057	0.0048	0.0000	0.0000
2.1923	0.0057	0.0049	0.0000	0.0000
2.2308	0.0057	0.0050	0.0000	0.0000
2.2692	0.0057	0.0051	0.0000	0.0000
2.3077	0.0057	0.0052	0.0000	0.0000
2.3462	0.0057	0.0053	0.0000	0.0000
2.3846	0.0057	0.0054	0.0000	0.0000
2.4231	0.0057	0.0055	0.0000	0.0000
2.4615	0.0057	0.0056	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000

**Surface - Cluster 10 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0058	0.0057	0.0000	0.0289	0.0000
2.5385	0.0058	0.0059	0.0000	0.0289	0.0000
2.5769	0.0058	0.0061	0.0000	0.0304	0.0000
2.6154	0.0058	0.0063	0.0000	0.0312	0.0000
2.6538	0.0058	0.0066	0.0000	0.0319	0.0000
2.6923	0.0058	0.0068	0.0000	0.0326	0.0000
2.7308	0.0058	0.0070	0.0000	0.0334	0.0000
2.7692	0.0058	0.0072	0.0000	0.0341	0.0000
2.8077	0.0058	0.0075	0.0000	0.0349	0.0000
2.8462	0.0058	0.0077	0.0000	0.0356	0.0000
2.8846	0.0058	0.0079	0.0000	0.0363	0.0000
2.9231	0.0058	0.0081	0.0012	0.0371	0.0000
2.9615	0.0058	0.0083	0.0015	0.0378	0.0000
3.0000	0.0058	0.0086	0.0016	0.0386	0.0000
3.0385	0.0058	0.0088	0.0018	0.0393	0.0000
3.0769	0.0058	0.0090	0.0021	0.0401	0.0000
3.1154	0.0058	0.0092	0.0022	0.0408	0.0000
3.1538	0.0058	0.0095	0.0023	0.0415	0.0000
3.1923	0.0058	0.0097	0.0025	0.0423	0.0000
3.2308	0.0058	0.0099	0.0027	0.0430	0.0000
3.2692	0.0058	0.0101	0.0028	0.0438	0.0000
3.3077	0.0058	0.0103	0.0030	0.0445	0.0000
3.3462	0.0058	0.0106	0.0031	0.0452	0.0000
3.3846	0.0058	0.0108	0.0033	0.0460	0.0000
3.4231	0.0058	0.0110	0.0034	0.0467	0.0000
3.4615	0.0058	0.0112	0.0035	0.0475	0.0000
3.5000	0.0058	0.0115	0.0037	0.0482	0.0000

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**Name** : Surface - Cluster 10

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
Bioretention Planters

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**Name** : Bioretention Planters - Cluster 11

**Bottom Length:** 15.81 ft.

**Bottom Width:** 15.81 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

Material thickness of second layer: 1  
 Material type for second layer: GRAVEL  
 Material thickness of third layer: 0  
 Material type for third layer: GRAVEL

Underdrain used

Underdrain Diameter (feet): 0.334  
 Orifice Diameter (in.): 0.5  
 Offset (in.): 0  
 Flow Through Underdrain (ac-ft.): 3.928  
 Total Outflow (ac-ft.): 4.025  
 Percent Through Underdrain: 97.59

Discharge Structure

Riser Height: 0.5 ft.  
 Riser Diameter: 24 in.

Element Flows To:

Outlet 1                      Outlet 2

**Bioretention Planters - Cluster 11 Hydraulic Table**

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0058	0.0000	0.0000	0.0000
0.0385	0.0058	0.0001	0.0000	0.0000
0.0769	0.0058	0.0002	0.0000	0.0000
0.1154	0.0058	0.0003	0.0000	0.0000
0.1538	0.0058	0.0003	0.0000	0.0000
0.1923	0.0058	0.0004	0.0000	0.0000
0.2308	0.0058	0.0005	0.0000	0.0000
0.2692	0.0058	0.0006	0.0000	0.0000
0.3077	0.0058	0.0007	0.0000	0.0000
0.3462	0.0058	0.0008	0.0000	0.0000
0.3846	0.0058	0.0008	0.0000	0.0000
0.4231	0.0058	0.0009	0.0000	0.0000
0.4615	0.0058	0.0010	0.0000	0.0000
0.5000	0.0058	0.0011	0.0000	0.0000
0.5385	0.0058	0.0012	0.0000	0.0000
0.5769	0.0058	0.0013	0.0000	0.0000
0.6154	0.0058	0.0013	0.0000	0.0000
0.6538	0.0058	0.0014	0.0000	0.0000
0.6923	0.0058	0.0015	0.0000	0.0000
0.7308	0.0058	0.0016	0.0000	0.0000
0.7692	0.0058	0.0017	0.0000	0.0000
0.8077	0.0058	0.0018	0.0000	0.0000
0.8462	0.0058	0.0018	0.0000	0.0000
0.8846	0.0058	0.0019	0.0000	0.0000
0.9231	0.0058	0.0020	0.0000	0.0000
0.9615	0.0058	0.0021	0.0000	0.0000
1.0000	0.0058	0.0022	0.0000	0.0000
1.0385	0.0058	0.0023	0.0000	0.0000
1.0769	0.0058	0.0024	0.0000	0.0000
1.1154	0.0058	0.0024	0.0000	0.0000
1.1538	0.0058	0.0025	0.0000	0.0000
1.1923	0.0058	0.0026	0.0000	0.0000
1.2308	0.0058	0.0027	0.0000	0.0000

1.2692	0.0058	0.0028	0.0000	0.0000
1.3077	0.0058	0.0029	0.0000	0.0000
1.3462	0.0058	0.0029	0.0000	0.0000
1.3846	0.0058	0.0030	0.0000	0.0000
1.4231	0.0058	0.0031	0.0000	0.0000
1.4615	0.0058	0.0032	0.0000	0.0000
1.5000	0.0058	0.0033	0.0000	0.0000
1.5385	0.0058	0.0034	0.0000	0.0000
1.5769	0.0058	0.0035	0.0000	0.0000
1.6154	0.0058	0.0036	0.0000	0.0000
1.6538	0.0058	0.0037	0.0000	0.0000
1.6923	0.0058	0.0037	0.0000	0.0000
1.7308	0.0057	0.0038	0.0000	0.0000
1.7692	0.0057	0.0039	0.0000	0.0000
1.8077	0.0057	0.0040	0.0000	0.0000
1.8462	0.0057	0.0041	0.0000	0.0000
1.8846	0.0057	0.0042	0.0000	0.0000
1.9231	0.0057	0.0043	0.0000	0.0000
1.9615	0.0057	0.0044	0.0000	0.0000
2.0000	0.0057	0.0045	0.0000	0.0000
2.0385	0.0057	0.0046	0.0000	0.0000
2.0769	0.0057	0.0047	0.0000	0.0000
2.1154	0.0057	0.0048	0.0000	0.0000
2.1538	0.0057	0.0048	0.0000	0.0000
2.1923	0.0057	0.0049	0.0000	0.0000
2.2308	0.0057	0.0050	0.0000	0.0000
2.2692	0.0057	0.0051	0.0000	0.0000
2.3077	0.0057	0.0052	0.0000	0.0000
2.3462	0.0057	0.0053	0.0000	0.0000
2.3846	0.0057	0.0054	0.0000	0.0000
2.4231	0.0057	0.0055	0.0000	0.0000
2.4615	0.0057	0.0056	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000

**Surface - Cluster 11 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0058	0.0057	0.0000	0.0289	0.0000
2.5385	0.0058	0.0059	0.0000	0.0289	0.0000
2.5769	0.0058	0.0061	0.0000	0.0304	0.0000
2.6154	0.0058	0.0063	0.0000	0.0312	0.0000
2.6538	0.0058	0.0066	0.0000	0.0319	0.0000
2.6923	0.0058	0.0068	0.0000	0.0326	0.0000
2.7308	0.0058	0.0070	0.0000	0.0334	0.0000
2.7692	0.0058	0.0072	0.0000	0.0341	0.0000
2.8077	0.0058	0.0075	0.0000	0.0349	0.0000
2.8462	0.0058	0.0077	0.0000	0.0356	0.0000
2.8846	0.0058	0.0079	0.0000	0.0363	0.0000
2.9231	0.0058	0.0081	0.0012	0.0371	0.0000
2.9615	0.0058	0.0083	0.0015	0.0378	0.0000
3.0000	0.0058	0.0086	0.0016	0.0386	0.0000
3.0385	0.0058	0.0088	0.0018	0.0393	0.0000
3.0769	0.0058	0.0090	0.0021	0.0401	0.0000
3.1154	0.0058	0.0092	0.0022	0.0408	0.0000
3.1538	0.0058	0.0095	0.0023	0.0415	0.0000
3.1923	0.0058	0.0097	0.0025	0.0423	0.0000
3.2308	0.0058	0.0099	0.0027	0.0430	0.0000

3.2692	0.0058	0.0101	0.0028	0.0438	0.0000
3.3077	0.0058	0.0103	0.0030	0.0445	0.0000
3.3462	0.0058	0.0106	0.0031	0.0452	0.0000
3.3846	0.0058	0.0108	0.0033	0.0460	0.0000
3.4231	0.0058	0.0110	0.0034	0.0467	0.0000
3.4615	0.0058	0.0112	0.0035	0.0475	0.0000
3.5000	0.0058	0.0115	0.0037	0.0482	0.0000

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**Name** : Surface - Cluster 11

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
Bioretention Planters

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**Name** : Bioretention Planters - Cluster 12

**Bottom Length:** 18.03 ft.

**Bottom Width:** 18.03 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 5.069

**Total Outflow (ac-ft.):** 5.244

**Percent Through Underdrain:** 96.66

**Discharge Structure**

**Riser Height:** 0.5 ft.

**Riser Diameter:** 24 in.

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

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**Bioretention Planters - Cluster 12 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0075	0.0000	0.0000	0.0000
0.0385	0.0075	0.0001	0.0000	0.0000
0.0769	0.0075	0.0002	0.0000	0.0000
0.1154	0.0075	0.0003	0.0000	0.0000
0.1538	0.0075	0.0004	0.0000	0.0000
0.1923	0.0075	0.0005	0.0000	0.0000
0.2308	0.0075	0.0007	0.0000	0.0000
0.2692	0.0075	0.0008	0.0000	0.0000
0.3077	0.0075	0.0009	0.0000	0.0000
0.3462	0.0075	0.0010	0.0000	0.0000
0.3846	0.0075	0.0011	0.0000	0.0000

0.4231	0.0075	0.0012	0.0000	0.0000
0.4615	0.0075	0.0013	0.0000	0.0000
0.5000	0.0075	0.0014	0.0000	0.0000
0.5385	0.0075	0.0015	0.0000	0.0000
0.5769	0.0075	0.0016	0.0000	0.0000
0.6154	0.0075	0.0017	0.0000	0.0000
0.6538	0.0075	0.0019	0.0000	0.0000
0.6923	0.0075	0.0020	0.0000	0.0000
0.7308	0.0075	0.0021	0.0000	0.0000
0.7692	0.0075	0.0022	0.0000	0.0000
0.8077	0.0075	0.0023	0.0000	0.0000
0.8462	0.0075	0.0024	0.0000	0.0000
0.8846	0.0075	0.0025	0.0000	0.0000
0.9231	0.0075	0.0026	0.0000	0.0000
0.9615	0.0075	0.0027	0.0000	0.0000
1.0000	0.0075	0.0028	0.0000	0.0000
1.0385	0.0075	0.0029	0.0000	0.0000
1.0769	0.0075	0.0031	0.0000	0.0000
1.1154	0.0075	0.0032	0.0000	0.0000
1.1538	0.0075	0.0033	0.0000	0.0000
1.1923	0.0075	0.0034	0.0000	0.0000
1.2308	0.0075	0.0035	0.0000	0.0000
1.2692	0.0075	0.0036	0.0000	0.0000
1.3077	0.0075	0.0037	0.0000	0.0000
1.3462	0.0075	0.0038	0.0000	0.0000
1.3846	0.0075	0.0039	0.0000	0.0000
1.4231	0.0075	0.0040	0.0000	0.0000
1.4615	0.0075	0.0042	0.0000	0.0000
1.5000	0.0075	0.0043	0.0000	0.0000
1.5385	0.0075	0.0044	0.0000	0.0000
1.5769	0.0075	0.0045	0.0000	0.0000
1.6154	0.0075	0.0046	0.0000	0.0000
1.6538	0.0075	0.0047	0.0000	0.0000
1.6923	0.0075	0.0049	0.0000	0.0000
1.7308	0.0075	0.0050	0.0000	0.0000
1.7692	0.0075	0.0051	0.0000	0.0000
1.8077	0.0075	0.0052	0.0000	0.0000
1.8462	0.0075	0.0053	0.0000	0.0000
1.8846	0.0075	0.0055	0.0000	0.0000
1.9231	0.0075	0.0056	0.0000	0.0000
1.9615	0.0075	0.0057	0.0000	0.0000
2.0000	0.0075	0.0058	0.0000	0.0000
2.0385	0.0075	0.0059	0.0000	0.0000
2.0769	0.0075	0.0061	0.0000	0.0000
2.1154	0.0075	0.0062	0.0000	0.0000
2.1538	0.0075	0.0063	0.0000	0.0000
2.1923	0.0075	0.0064	0.0000	0.0000
2.2308	0.0075	0.0065	0.0000	0.0000
2.2692	0.0075	0.0067	0.0000	0.0000
2.3077	0.0075	0.0068	0.0000	0.0000
2.3462	0.0075	0.0069	0.0000	0.0000
2.3846	0.0075	0.0070	0.0000	0.0000
2.4231	0.0075	0.0071	0.0000	0.0000
2.4615	0.0075	0.0073	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000

**Surface - Cluster 12 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0075	0.0074	0.0000	0.0376	0.0000
2.5385	0.0075	0.0077	0.0000	0.0376	0.0000
2.5769	0.0075	0.0080	0.0000	0.0396	0.0000
2.6154	0.0075	0.0082	0.0000	0.0405	0.0000
2.6538	0.0075	0.0085	0.0000	0.0415	0.0000
2.6923	0.0075	0.0088	0.0000	0.0424	0.0000
2.7308	0.0075	0.0091	0.0000	0.0434	0.0000
2.7692	0.0075	0.0094	0.0000	0.0444	0.0000
2.8077	0.0075	0.0097	0.0000	0.0453	0.0000
2.8462	0.0075	0.0100	0.0000	0.0463	0.0000
2.8846	0.0075	0.0103	0.0000	0.0473	0.0000
2.9231	0.0075	0.0106	0.0012	0.0482	0.0000
2.9615	0.0075	0.0108	0.0016	0.0492	0.0000
3.0000	0.0075	0.0111	0.0018	0.0502	0.0000
3.0385	0.0075	0.0114	0.0021	0.0511	0.0000
3.0769	0.0075	0.0117	0.0023	0.0521	0.0000
3.1154	0.0075	0.0120	0.0025	0.0531	0.0000
3.1538	0.0075	0.0123	0.0027	0.0540	0.0000
3.1923	0.0075	0.0126	0.0028	0.0550	0.0000
3.2308	0.0075	0.0129	0.0030	0.0560	0.0000
3.2692	0.0075	0.0132	0.0031	0.0569	0.0000
3.3077	0.0075	0.0134	0.0033	0.0579	0.0000
3.3462	0.0075	0.0137	0.0034	0.0588	0.0000
3.3846	0.0075	0.0140	0.0035	0.0598	0.0000
3.4231	0.0075	0.0143	0.0037	0.0608	0.0000
3.4615	0.0075	0.0146	0.0038	0.0617	0.0000
3.5000	0.0075	0.0149	0.0039	0.0627	0.0000

**Name** : Surface - Cluster 12

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
 Bioretention Planters

**Name** : Bioretention Planters - Cluster 13

**Bottom Length:** 15.81 ft.

**Bottom Width:** 15.81 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 3.928

**Total Outflow (ac-ft.):** 4.025

**Percent Through Underdrain:** 97.59

**Discharge Structure**

**Riser Height:** 0.5 ft.

Riser Diameter: 24 in.

Element Flows To:

Outlet 1

Outlet 2

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**Bioretention Planters - Cluster 13 Hydraulic Table**

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0058	0.0000	0.0000	0.0000
0.0385	0.0058	0.0001	0.0000	0.0000
0.0769	0.0058	0.0002	0.0000	0.0000
0.1154	0.0058	0.0003	0.0000	0.0000
0.1538	0.0058	0.0003	0.0000	0.0000
0.1923	0.0058	0.0004	0.0000	0.0000
0.2308	0.0058	0.0005	0.0000	0.0000
0.2692	0.0058	0.0006	0.0000	0.0000
0.3077	0.0058	0.0007	0.0000	0.0000
0.3462	0.0058	0.0008	0.0000	0.0000
0.3846	0.0058	0.0008	0.0000	0.0000
0.4231	0.0058	0.0009	0.0000	0.0000
0.4615	0.0058	0.0010	0.0000	0.0000
0.5000	0.0058	0.0011	0.0000	0.0000
0.5385	0.0058	0.0012	0.0000	0.0000
0.5769	0.0058	0.0013	0.0000	0.0000
0.6154	0.0058	0.0013	0.0000	0.0000
0.6538	0.0058	0.0014	0.0000	0.0000
0.6923	0.0058	0.0015	0.0000	0.0000
0.7308	0.0058	0.0016	0.0000	0.0000
0.7692	0.0058	0.0017	0.0000	0.0000
0.8077	0.0058	0.0018	0.0000	0.0000
0.8462	0.0058	0.0018	0.0000	0.0000
0.8846	0.0058	0.0019	0.0000	0.0000
0.9231	0.0058	0.0020	0.0000	0.0000
0.9615	0.0058	0.0021	0.0000	0.0000
1.0000	0.0058	0.0022	0.0000	0.0000
1.0385	0.0058	0.0023	0.0000	0.0000
1.0769	0.0058	0.0024	0.0000	0.0000
1.1154	0.0058	0.0024	0.0000	0.0000
1.1538	0.0058	0.0025	0.0000	0.0000
1.1923	0.0058	0.0026	0.0000	0.0000
1.2308	0.0058	0.0027	0.0000	0.0000
1.2692	0.0058	0.0028	0.0000	0.0000
1.3077	0.0058	0.0029	0.0000	0.0000
1.3462	0.0058	0.0029	0.0000	0.0000
1.3846	0.0058	0.0030	0.0000	0.0000
1.4231	0.0058	0.0031	0.0000	0.0000
1.4615	0.0058	0.0032	0.0000	0.0000
1.5000	0.0058	0.0033	0.0000	0.0000
1.5385	0.0058	0.0034	0.0000	0.0000
1.5769	0.0058	0.0035	0.0000	0.0000
1.6154	0.0058	0.0036	0.0000	0.0000
1.6538	0.0058	0.0037	0.0000	0.0000
1.6923	0.0058	0.0037	0.0000	0.0000
1.7308	0.0057	0.0038	0.0000	0.0000



1.7692	0.0057	0.0039	0.0000	0.0000
1.8077	0.0057	0.0040	0.0000	0.0000
1.8462	0.0057	0.0041	0.0000	0.0000
1.8846	0.0057	0.0042	0.0000	0.0000
1.9231	0.0057	0.0043	0.0000	0.0000
1.9615	0.0057	0.0044	0.0000	0.0000
2.0000	0.0057	0.0045	0.0000	0.0000
2.0385	0.0057	0.0046	0.0000	0.0000
2.0769	0.0057	0.0047	0.0000	0.0000
2.1154	0.0057	0.0048	0.0000	0.0000
2.1538	0.0057	0.0048	0.0000	0.0000
2.1923	0.0057	0.0049	0.0000	0.0000
2.2308	0.0057	0.0050	0.0000	0.0000
2.2692	0.0057	0.0051	0.0000	0.0000
2.3077	0.0057	0.0052	0.0000	0.0000
2.3462	0.0057	0.0053	0.0000	0.0000
2.3846	0.0057	0.0054	0.0000	0.0000
2.4231	0.0057	0.0055	0.0000	0.0000
2.4615	0.0057	0.0056	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000
2.5000	0.0057	0.0057	0.0000	0.0000

**Surface - Cluster 13 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0058	0.0057	0.0000	0.0289	0.0000
2.5385	0.0058	0.0059	0.0000	0.0289	0.0000
2.5769	0.0058	0.0061	0.0000	0.0304	0.0000
2.6154	0.0058	0.0063	0.0000	0.0312	0.0000
2.6538	0.0058	0.0066	0.0000	0.0319	0.0000
2.6923	0.0058	0.0068	0.0000	0.0326	0.0000
2.7308	0.0058	0.0070	0.0000	0.0334	0.0000
2.7692	0.0058	0.0072	0.0000	0.0341	0.0000
2.8077	0.0058	0.0075	0.0000	0.0349	0.0000
2.8462	0.0058	0.0077	0.0000	0.0356	0.0000
2.8846	0.0058	0.0079	0.0000	0.0363	0.0000
2.9231	0.0058	0.0081	0.0012	0.0371	0.0000
2.9615	0.0058	0.0083	0.0015	0.0378	0.0000
3.0000	0.0058	0.0086	0.0016	0.0386	0.0000
3.0385	0.0058	0.0088	0.0018	0.0393	0.0000
3.0769	0.0058	0.0090	0.0021	0.0401	0.0000
3.1154	0.0058	0.0092	0.0022	0.0408	0.0000
3.1538	0.0058	0.0095	0.0023	0.0415	0.0000
3.1923	0.0058	0.0097	0.0025	0.0423	0.0000
3.2308	0.0058	0.0099	0.0027	0.0430	0.0000
3.2692	0.0058	0.0101	0.0028	0.0438	0.0000
3.3077	0.0058	0.0103	0.0030	0.0445	0.0000
3.3462	0.0058	0.0106	0.0031	0.0452	0.0000
3.3846	0.0058	0.0108	0.0033	0.0460	0.0000
3.4231	0.0058	0.0110	0.0034	0.0467	0.0000
3.4615	0.0058	0.0112	0.0035	0.0475	0.0000
3.5000	0.0058	0.0115	0.0037	0.0482	0.0000

**Name** : Surface - Cluster 13

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

Bioretention Planters

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**Name** : Bioretention Planters - Cluster 14  
**Bottom Length:** 18.03 ft.  
**Bottom Width:** 18.03 ft.  
**Material thickness of first layer:** 1.5  
**Material type for first layer:** BAHM 5  
**Material thickness of second layer:** 1  
**Material type for second layer:** GRAVEL  
**Material thickness of third layer:** 0  
**Material type for third layer:** GRAVEL  
**Underdrain used**  
**Underdrain Diameter (feet):** 0.334  
**Orifice Diameter (in.):** 0.5  
**Offset (in.):** 0  
**Flow Through Underdrain (ac-ft.):** 5.069  
**Total Outflow (ac-ft.):** 5.244  
**Percent Through Underdrain:** 96.66  
**Discharge Structure**  
**Riser Height:** 0.5 ft.  
**Riser Diameter:** 24 in.  
  
**Element Flows To:**  
**Outlet 1**                      **Outlet 2**

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**Bioretention Planters - Cluster 14 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0075	0.0000	0.0000	0.0000
0.0385	0.0075	0.0001	0.0000	0.0000
0.0769	0.0075	0.0002	0.0000	0.0000
0.1154	0.0075	0.0003	0.0000	0.0000
0.1538	0.0075	0.0004	0.0000	0.0000
0.1923	0.0075	0.0005	0.0000	0.0000
0.2308	0.0075	0.0007	0.0000	0.0000
0.2692	0.0075	0.0008	0.0000	0.0000
0.3077	0.0075	0.0009	0.0000	0.0000
0.3462	0.0075	0.0010	0.0000	0.0000
0.3846	0.0075	0.0011	0.0000	0.0000
0.4231	0.0075	0.0012	0.0000	0.0000
0.4615	0.0075	0.0013	0.0000	0.0000
0.5000	0.0075	0.0014	0.0000	0.0000
0.5385	0.0075	0.0015	0.0000	0.0000
0.5769	0.0075	0.0016	0.0000	0.0000
0.6154	0.0075	0.0017	0.0000	0.0000
0.6538	0.0075	0.0019	0.0000	0.0000
0.6923	0.0075	0.0020	0.0000	0.0000
0.7308	0.0075	0.0021	0.0000	0.0000
0.7692	0.0075	0.0022	0.0000	0.0000
0.8077	0.0075	0.0023	0.0000	0.0000
0.8462	0.0075	0.0024	0.0000	0.0000
0.8846	0.0075	0.0025	0.0000	0.0000

0.9231	0.0075	0.0026	0.0000	0.0000
0.9615	0.0075	0.0027	0.0000	0.0000
1.0000	0.0075	0.0028	0.0000	0.0000
1.0385	0.0075	0.0029	0.0000	0.0000
1.0769	0.0075	0.0031	0.0000	0.0000
1.1154	0.0075	0.0032	0.0000	0.0000
1.1538	0.0075	0.0033	0.0000	0.0000
1.1923	0.0075	0.0034	0.0000	0.0000
1.2308	0.0075	0.0035	0.0000	0.0000
1.2692	0.0075	0.0036	0.0000	0.0000
1.3077	0.0075	0.0037	0.0000	0.0000
1.3462	0.0075	0.0038	0.0000	0.0000
1.3846	0.0075	0.0039	0.0000	0.0000
1.4231	0.0075	0.0040	0.0000	0.0000
1.4615	0.0075	0.0042	0.0000	0.0000
1.5000	0.0075	0.0043	0.0000	0.0000
1.5385	0.0075	0.0044	0.0000	0.0000
1.5769	0.0075	0.0045	0.0000	0.0000
1.6154	0.0075	0.0046	0.0000	0.0000
1.6538	0.0075	0.0047	0.0000	0.0000
1.6923	0.0075	0.0049	0.0000	0.0000
1.7308	0.0075	0.0050	0.0000	0.0000
1.7692	0.0075	0.0051	0.0000	0.0000
1.8077	0.0075	0.0052	0.0000	0.0000
1.8462	0.0075	0.0053	0.0000	0.0000
1.8846	0.0075	0.0055	0.0000	0.0000
1.9231	0.0075	0.0056	0.0000	0.0000
1.9615	0.0075	0.0057	0.0000	0.0000
2.0000	0.0075	0.0058	0.0000	0.0000
2.0385	0.0075	0.0059	0.0000	0.0000
2.0769	0.0075	0.0061	0.0000	0.0000
2.1154	0.0075	0.0062	0.0000	0.0000
2.1538	0.0075	0.0063	0.0000	0.0000
2.1923	0.0075	0.0064	0.0000	0.0000
2.2308	0.0075	0.0065	0.0000	0.0000
2.2692	0.0075	0.0067	0.0000	0.0000
2.3077	0.0075	0.0068	0.0000	0.0000
2.3462	0.0075	0.0069	0.0000	0.0000
2.3846	0.0075	0.0070	0.0000	0.0000
2.4231	0.0075	0.0071	0.0000	0.0000
2.4615	0.0075	0.0073	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000
2.5000	0.0075	0.0074	0.0000	0.0000

**Surface - Cluster 14 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0075	0.0074	0.0000	0.0376	0.0000
2.5385	0.0075	0.0077	0.0000	0.0376	0.0000
2.5769	0.0075	0.0080	0.0000	0.0396	0.0000
2.6154	0.0075	0.0082	0.0000	0.0405	0.0000
2.6538	0.0075	0.0085	0.0000	0.0415	0.0000
2.6923	0.0075	0.0088	0.0000	0.0424	0.0000
2.7308	0.0075	0.0091	0.0000	0.0434	0.0000
2.7692	0.0075	0.0094	0.0000	0.0444	0.0000
2.8077	0.0075	0.0097	0.0000	0.0453	0.0000
2.8462	0.0075	0.0100	0.0000	0.0463	0.0000
2.8846	0.0075	0.0103	0.0000	0.0473	0.0000

2.9231	0.0075	0.0106	0.0012	0.0482	0.0000
2.9615	0.0075	0.0108	0.0016	0.0492	0.0000
3.0000	0.0075	0.0111	0.0018	0.0502	0.0000
3.0385	0.0075	0.0114	0.0021	0.0511	0.0000
3.0769	0.0075	0.0117	0.0023	0.0521	0.0000
3.1154	0.0075	0.0120	0.0025	0.0531	0.0000
3.1538	0.0075	0.0123	0.0027	0.0540	0.0000
3.1923	0.0075	0.0126	0.0028	0.0550	0.0000
3.2308	0.0075	0.0129	0.0030	0.0560	0.0000
3.2692	0.0075	0.0132	0.0031	0.0569	0.0000
3.3077	0.0075	0.0134	0.0033	0.0579	0.0000
3.3462	0.0075	0.0137	0.0034	0.0588	0.0000
3.3846	0.0075	0.0140	0.0035	0.0598	0.0000
3.4231	0.0075	0.0143	0.0037	0.0608	0.0000
3.4615	0.0075	0.0146	0.0038	0.0617	0.0000
3.5000	0.0075	0.0149	0.0039	0.0627	0.0000

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**Name** : Surface - Cluster 14

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
Bioretention Planters

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**Name** : Bioretention Planters - Cluster 15

**Bottom Length:** 18.71 ft.

**Bottom Width:** 18.71 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 5.418

**Total Outflow (ac-ft.):** 5.622

**Percent Through Underdrain:** 96.38

**Discharge Structure**

**Riser Height:** 0.5 ft.

**Riser Diameter:** 24 in.

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

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**Bioretention Planters - Cluster 15 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0081	0.0000	0.0000	0.0000
0.0385	0.0081	0.0001	0.0000	0.0000

0.0769	0.0081	0.0002	0.0000	0.0000
0.1154	0.0081	0.0004	0.0000	0.0000
0.1538	0.0081	0.0005	0.0000	0.0000
0.1923	0.0081	0.0006	0.0000	0.0000
0.2308	0.0081	0.0007	0.0000	0.0000
0.2692	0.0081	0.0008	0.0000	0.0000
0.3077	0.0081	0.0009	0.0000	0.0000
0.3462	0.0081	0.0011	0.0000	0.0000
0.3846	0.0081	0.0012	0.0000	0.0000
0.4231	0.0081	0.0013	0.0000	0.0000
0.4615	0.0081	0.0014	0.0000	0.0000
0.5000	0.0081	0.0015	0.0000	0.0000
0.5385	0.0081	0.0016	0.0000	0.0000
0.5769	0.0081	0.0018	0.0000	0.0000
0.6154	0.0081	0.0019	0.0000	0.0000
0.6538	0.0081	0.0020	0.0000	0.0000
0.6923	0.0081	0.0021	0.0000	0.0000
0.7308	0.0081	0.0022	0.0000	0.0000
0.7692	0.0081	0.0024	0.0000	0.0000
0.8077	0.0081	0.0025	0.0000	0.0000
0.8462	0.0081	0.0026	0.0000	0.0000
0.8846	0.0081	0.0027	0.0000	0.0000
0.9231	0.0081	0.0028	0.0000	0.0000
0.9615	0.0081	0.0029	0.0000	0.0000
1.0000	0.0081	0.0031	0.0000	0.0000
1.0385	0.0081	0.0032	0.0000	0.0000
1.0769	0.0081	0.0033	0.0000	0.0000
1.1154	0.0081	0.0034	0.0000	0.0000
1.1538	0.0081	0.0035	0.0000	0.0000
1.1923	0.0081	0.0036	0.0000	0.0000
1.2308	0.0081	0.0038	0.0000	0.0000
1.2692	0.0081	0.0039	0.0000	0.0000
1.3077	0.0081	0.0040	0.0000	0.0000
1.3462	0.0081	0.0041	0.0000	0.0000
1.3846	0.0081	0.0042	0.0000	0.0000
1.4231	0.0081	0.0044	0.0000	0.0000
1.4615	0.0081	0.0045	0.0000	0.0000
1.5000	0.0081	0.0046	0.0000	0.0000
1.5385	0.0081	0.0047	0.0000	0.0000
1.5769	0.0081	0.0049	0.0000	0.0000
1.6154	0.0081	0.0050	0.0000	0.0000
1.6538	0.0081	0.0051	0.0000	0.0000
1.6923	0.0081	0.0052	0.0000	0.0000
1.7308	0.0081	0.0054	0.0000	0.0000
1.7692	0.0080	0.0055	0.0000	0.0000
1.8077	0.0080	0.0056	0.0000	0.0000
1.8462	0.0080	0.0058	0.0000	0.0000
1.8846	0.0080	0.0059	0.0000	0.0000
1.9231	0.0080	0.0060	0.0000	0.0000
1.9615	0.0080	0.0061	0.0000	0.0000
2.0000	0.0080	0.0063	0.0000	0.0000
2.0385	0.0080	0.0064	0.0000	0.0000
2.0769	0.0080	0.0065	0.0000	0.0000
2.1154	0.0080	0.0067	0.0000	0.0000
2.1538	0.0080	0.0068	0.0000	0.0000
2.1923	0.0080	0.0069	0.0000	0.0000
2.2308	0.0080	0.0070	0.0000	0.0000

2.2692	0.0080	0.0072	0.0000	0.0000
2.3077	0.0080	0.0073	0.0000	0.0000
2.3462	0.0080	0.0074	0.0000	0.0000
2.3846	0.0080	0.0076	0.0000	0.0000
2.4231	0.0080	0.0077	0.0000	0.0000
2.4615	0.0080	0.0078	0.0000	0.0000
2.5000	0.0080	0.0079	0.0000	0.0000
2.5000	0.0080	0.0079	0.0000	0.0000

**Surface - Cluster 15 Hydraulic Table**

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.0081	0.0079	0.0000	0.0405	0.0000
2.5385	0.0081	0.0083	0.0000	0.0405	0.0000
2.5769	0.0081	0.0086	0.0000	0.0426	0.0000
2.6154	0.0081	0.0089	0.0000	0.0436	0.0000
2.6538	0.0081	0.0092	0.0000	0.0447	0.0000
2.6923	0.0081	0.0095	0.0000	0.0457	0.0000
2.7308	0.0081	0.0098	0.0000	0.0468	0.0000
2.7692	0.0081	0.0101	0.0000	0.0478	0.0000
2.8077	0.0081	0.0104	0.0000	0.0488	0.0000
2.8462	0.0081	0.0107	0.0000	0.0499	0.0000
2.8846	0.0081	0.0111	0.0000	0.0509	0.0000
2.9231	0.0081	0.0114	0.0012	0.0519	0.0000
2.9615	0.0081	0.0117	0.0016	0.0530	0.0000
3.0000	0.0081	0.0120	0.0018	0.0540	0.0000
3.0385	0.0081	0.0123	0.0021	0.0551	0.0000
3.0769	0.0081	0.0126	0.0023	0.0561	0.0000
3.1154	0.0081	0.0129	0.0025	0.0571	0.0000
3.1538	0.0081	0.0132	0.0027	0.0582	0.0000
3.1923	0.0081	0.0135	0.0028	0.0592	0.0000
3.2308	0.0081	0.0139	0.0030	0.0603	0.0000
3.2692	0.0081	0.0142	0.0031	0.0613	0.0000
3.3077	0.0081	0.0145	0.0033	0.0623	0.0000
3.3462	0.0081	0.0148	0.0034	0.0634	0.0000
3.3846	0.0081	0.0151	0.0035	0.0644	0.0000
3.4231	0.0081	0.0154	0.0037	0.0655	0.0000
3.4615	0.0081	0.0157	0.0038	0.0665	0.0000
3.5000	0.0081	0.0160	0.0039	0.0675	0.0000

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**Name** : Surface - Cluster 15

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
 Bioretention Planters

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**Name** : Bioretention Planters - Cluster 16

**Bottom Length:** 19.75 ft.

**Bottom Width:** 19.75 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

Underdrain used

Underdrain Diameter (feet): 0.334  
Orifice Diameter (in.): 0.5  
Offset (in.): 0  
Flow Through Underdrain (ac-ft.): 6.022  
Total Outflow (ac-ft.): 6.288  
Percent Through Underdrain: 95.76

Discharge Structure

Riser Height: 0.5 ft.  
Riser Diameter: 24 in.

Element Flows To:

Outlet 1                      Outlet 2

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Bioretention Planters - Cluster 16 Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0090	0.0000	0.0000	0.0000
0.0385	0.0090	0.0001	0.0000	0.0000
0.0769	0.0090	0.0003	0.0000	0.0000
0.1154	0.0090	0.0004	0.0000	0.0000
0.1538	0.0090	0.0005	0.0000	0.0000
0.1923	0.0090	0.0007	0.0000	0.0000
0.2308	0.0090	0.0008	0.0000	0.0000
0.2692	0.0090	0.0009	0.0000	0.0000
0.3077	0.0090	0.0010	0.0000	0.0000
0.3462	0.0090	0.0012	0.0000	0.0000
0.3846	0.0090	0.0013	0.0000	0.0000
0.4231	0.0090	0.0014	0.0000	0.0000
0.4615	0.0090	0.0016	0.0000	0.0000
0.5000	0.0090	0.0017	0.0000	0.0000
0.5385	0.0090	0.0018	0.0000	0.0000
0.5769	0.0090	0.0020	0.0000	0.0000
0.6154	0.0090	0.0021	0.0000	0.0000
0.6538	0.0090	0.0022	0.0000	0.0000
0.6923	0.0090	0.0024	0.0000	0.0000
0.7308	0.0090	0.0025	0.0000	0.0000
0.7692	0.0090	0.0026	0.0000	0.0000
0.8077	0.0090	0.0028	0.0000	0.0000
0.8462	0.0090	0.0029	0.0000	0.0000
0.8846	0.0090	0.0030	0.0000	0.0000
0.9231	0.0090	0.0031	0.0000	0.0000
0.9615	0.0090	0.0033	0.0000	0.0000
1.0000	0.0090	0.0034	0.0000	0.0000
1.0385	0.0090	0.0035	0.0000	0.0000
1.0769	0.0090	0.0037	0.0000	0.0000
1.1154	0.0090	0.0038	0.0000	0.0000
1.1538	0.0090	0.0039	0.0000	0.0000
1.1923	0.0090	0.0041	0.0000	0.0000
1.2308	0.0090	0.0042	0.0000	0.0000
1.2692	0.0090	0.0043	0.0000	0.0000
1.3077	0.0090	0.0045	0.0000	0.0000
1.3462	0.0090	0.0046	0.0000	0.0000
1.3846	0.0090	0.0047	0.0000	0.0000

1.4231	0.0090	0.0048	0.0000	0.0000
1.4615	0.0090	0.0050	0.0000	0.0000
1.5000	0.0090	0.0051	0.0000	0.0000
1.5385	0.0090	0.0053	0.0000	0.0000
1.5769	0.0090	0.0054	0.0000	0.0000
1.6154	0.0090	0.0056	0.0000	0.0000
1.6538	0.0090	0.0057	0.0000	0.0000
1.6923	0.0090	0.0058	0.0000	0.0000
1.7308	0.0090	0.0060	0.0000	0.0000
1.7692	0.0090	0.0061	0.0000	0.0000
1.8077	0.0090	0.0063	0.0000	0.0000
1.8462	0.0090	0.0064	0.0000	0.0000
1.8846	0.0090	0.0066	0.0000	0.0000
1.9231	0.0090	0.0067	0.0000	0.0000
1.9615	0.0090	0.0068	0.0000	0.0000
2.0000	0.0090	0.0070	0.0000	0.0000
2.0385	0.0090	0.0071	0.0000	0.0000
2.0769	0.0090	0.0073	0.0000	0.0000
2.1154	0.0090	0.0074	0.0000	0.0000
2.1538	0.0090	0.0076	0.0000	0.0000
2.1923	0.0090	0.0077	0.0000	0.0000
2.2308	0.0090	0.0078	0.0000	0.0000
2.2692	0.0090	0.0080	0.0000	0.0000
2.3077	0.0090	0.0081	0.0000	0.0000
2.3462	0.0090	0.0083	0.0000	0.0000
2.3846	0.0090	0.0084	0.0000	0.0000
2.4231	0.0090	0.0086	0.0000	0.0000
2.4615	0.0090	0.0087	0.0000	0.0000
2.5000	0.0090	0.0089	0.0000	0.0000
2.5000	0.0090	0.0089	0.0000	0.0000

**Surface - Cluster 16 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0090	0.0089	0.0000	0.0451	0.0000
2.5385	0.0090	0.0092	0.0000	0.0451	0.0000
2.5769	0.0090	0.0095	0.0000	0.0475	0.0000
2.6154	0.0090	0.0099	0.0000	0.0486	0.0000
2.6538	0.0090	0.0102	0.0000	0.0498	0.0000
2.6923	0.0090	0.0106	0.0000	0.0509	0.0000
2.7308	0.0090	0.0109	0.0000	0.0521	0.0000
2.7692	0.0090	0.0113	0.0000	0.0532	0.0000
2.8077	0.0090	0.0116	0.0000	0.0544	0.0000
2.8462	0.0090	0.0120	0.0000	0.0556	0.0000
2.8846	0.0090	0.0123	0.0000	0.0567	0.0000
2.9231	0.0090	0.0127	0.0012	0.0579	0.0000
2.9615	0.0090	0.0130	0.0016	0.0590	0.0000
3.0000	0.0090	0.0134	0.0018	0.0602	0.0000
3.0385	0.0090	0.0137	0.0021	0.0614	0.0000
3.0769	0.0090	0.0141	0.0023	0.0625	0.0000
3.1154	0.0090	0.0144	0.0025	0.0637	0.0000
3.1538	0.0090	0.0147	0.0027	0.0648	0.0000
3.1923	0.0090	0.0151	0.0028	0.0660	0.0000
3.2308	0.0090	0.0154	0.0030	0.0671	0.0000
3.2692	0.0090	0.0158	0.0031	0.0683	0.0000
3.3077	0.0090	0.0161	0.0033	0.0695	0.0000
3.3462	0.0090	0.0165	0.0034	0.0706	0.0000
3.3846	0.0090	0.0168	0.0035	0.0718	0.0000



3.4231	0.0090	0.0172	0.0037	0.0729	0.0000
3.4615	0.0090	0.0175	0.0038	0.0741	0.0000
3.5000	0.0090	0.0179	0.0039	0.0752	0.0000

**Name** : Surface - Cluster 16

**Element Flows To:**

**Outlet 1**                      **Outlet 2**  
 Bioretention Planters

**Name** : Bioretention Planters - Cluster 17

**Bottom Length:** 22.80 ft.

**Bottom Width:** 22.80 ft.

**Material thickness of first layer:** 1.5

**Material type for first layer:** BAHM 5

**Material thickness of second layer:** 1

**Material type for second layer:** GRAVEL

**Material thickness of third layer:** 0

**Material type for third layer:** GRAVEL

**Underdrain used**

**Underdrain Diameter (feet):** 0.334

**Orifice Diameter (in.):** 0.5

**Offset (in.):** 0

**Flow Through Underdrain (ac-ft.):** 7.781

**Total Outflow (ac-ft.):** 8.262

**Percent Through Underdrain:** 94.18

**Discharge Structure**

**Riser Height:** 0.5 ft.

**Riser Diameter:** 24 in.

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

**Bioretention Planters - Cluster 17 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>Infilt(cfs)</u>
0.0000	0.0120	0.0000	0.0000	0.0000
0.0385	0.0120	0.0002	0.0000	0.0000
0.0769	0.0120	0.0003	0.0000	0.0000
0.1154	0.0120	0.0005	0.0000	0.0000
0.1538	0.0120	0.0007	0.0000	0.0000
0.1923	0.0120	0.0009	0.0000	0.0000
0.2308	0.0120	0.0010	0.0000	0.0000
0.2692	0.0120	0.0012	0.0000	0.0000
0.3077	0.0120	0.0014	0.0000	0.0000
0.3462	0.0120	0.0016	0.0000	0.0000
0.3846	0.0120	0.0017	0.0000	0.0000
0.4231	0.0120	0.0019	0.0000	0.0000
0.4615	0.0120	0.0021	0.0000	0.0000
0.5000	0.0120	0.0023	0.0000	0.0000
0.5385	0.0120	0.0024	0.0000	0.0000

0.5769	0.0120	0.0026	0.0000	0.0000
0.6154	0.0120	0.0028	0.0000	0.0000
0.6538	0.0120	0.0030	0.0000	0.0000
0.6923	0.0120	0.0031	0.0000	0.0000
0.7308	0.0120	0.0033	0.0000	0.0000
0.7692	0.0120	0.0035	0.0000	0.0000
0.8077	0.0120	0.0037	0.0000	0.0000
0.8462	0.0120	0.0038	0.0000	0.0000
0.8846	0.0120	0.0040	0.0000	0.0000
0.9231	0.0120	0.0042	0.0000	0.0000
0.9615	0.0120	0.0044	0.0000	0.0000
1.0000	0.0120	0.0045	0.0000	0.0000
1.0385	0.0120	0.0047	0.0000	0.0000
1.0769	0.0120	0.0049	0.0000	0.0000
1.1154	0.0120	0.0051	0.0000	0.0000
1.1538	0.0120	0.0052	0.0000	0.0000
1.1923	0.0120	0.0054	0.0000	0.0000
1.2308	0.0120	0.0056	0.0000	0.0000
1.2692	0.0120	0.0058	0.0000	0.0000
1.3077	0.0120	0.0059	0.0000	0.0000
1.3462	0.0120	0.0061	0.0000	0.0000
1.3846	0.0120	0.0063	0.0000	0.0000
1.4231	0.0120	0.0065	0.0000	0.0000
1.4615	0.0120	0.0066	0.0000	0.0000
1.5000	0.0120	0.0068	0.0000	0.0000
1.5385	0.0120	0.0070	0.0000	0.0000
1.5769	0.0120	0.0072	0.0000	0.0000
1.6154	0.0120	0.0074	0.0000	0.0000
1.6538	0.0120	0.0076	0.0000	0.0000
1.6923	0.0120	0.0078	0.0000	0.0000
1.7308	0.0120	0.0080	0.0000	0.0000
1.7692	0.0119	0.0082	0.0000	0.0000
1.8077	0.0119	0.0084	0.0000	0.0000
1.8462	0.0119	0.0085	0.0000	0.0000
1.8846	0.0119	0.0087	0.0000	0.0000
1.9231	0.0119	0.0089	0.0000	0.0000
1.9615	0.0119	0.0091	0.0000	0.0000
2.0000	0.0119	0.0093	0.0000	0.0000
2.0385	0.0119	0.0095	0.0000	0.0000
2.0769	0.0119	0.0097	0.0000	0.0000
2.1154	0.0119	0.0099	0.0000	0.0000
2.1538	0.0119	0.0101	0.0000	0.0000
2.1923	0.0119	0.0103	0.0000	0.0000
2.2308	0.0119	0.0105	0.0000	0.0000
2.2692	0.0119	0.0106	0.0000	0.0000
2.3077	0.0119	0.0108	0.0000	0.0000
2.3462	0.0119	0.0110	0.0000	0.0000
2.3846	0.0119	0.0112	0.0000	0.0000
2.4231	0.0119	0.0114	0.0000	0.0000
2.4615	0.0119	0.0116	0.0000	0.0000
2.5000	0.0119	0.0118	0.0000	0.0000
2.5000	0.0119	0.0118	0.0000	0.0000

**Surface - Cluster 17 Hydraulic Table**

<u>Stage(feet)</u>	<u>Area(ac.)</u>	<u>Volume(ac-ft.)</u>	<u>Discharge(cfs)</u>	<u>To Amended(cfs)</u>	<u>Wetted Surface</u>
2.5000	0.0120	0.0118	0.0000	0.0602	0.0000
2.5385	0.0120	0.0123	0.0000	0.0602	0.0000

2.5769	0.0120	0.0127	0.0000	0.0633	0.0000
2.6154	0.0120	0.0132	0.0000	0.0648	0.0000
2.6538	0.0120	0.0136	0.0000	0.0663	0.0000
2.6923	0.0120	0.0141	0.0000	0.0679	0.0000
2.7308	0.0120	0.0146	0.0000	0.0694	0.0000
2.7692	0.0120	0.0150	0.0000	0.0710	0.0000
2.8077	0.0120	0.0155	0.0000	0.0725	0.0000
2.8462	0.0120	0.0159	0.0000	0.0741	0.0000
2.8846	0.0120	0.0164	0.0000	0.0756	0.0000
2.9231	0.0120	0.0169	0.0012	0.0771	0.0000
2.9615	0.0120	0.0173	0.0016	0.0787	0.0000
3.0000	0.0120	0.0178	0.0018	0.0802	0.0000
3.0385	0.0120	0.0183	0.0021	0.0818	0.0000
3.0769	0.0120	0.0187	0.0023	0.0833	0.0000
3.1154	0.0120	0.0192	0.0025	0.0849	0.0000
3.1538	0.0120	0.0196	0.0027	0.0864	0.0000
3.1923	0.0120	0.0201	0.0028	0.0879	0.0000
3.2308	0.0120	0.0206	0.0030	0.0895	0.0000
3.2692	0.0120	0.0210	0.0031	0.0910	0.0000
3.3077	0.0120	0.0215	0.0033	0.0926	0.0000
3.3462	0.0120	0.0219	0.0034	0.0941	0.0000
3.3846	0.0120	0.0224	0.0035	0.0956	0.0000
3.4231	0.0120	0.0229	0.0037	0.0972	0.0000
3.4615	0.0120	0.0233	0.0038	0.0987	0.0000
3.5000	0.0120	0.0238	0.0039	0.1003	0.0000

---

**Name** : Surface - Cluster 17

**Element Flows To:**

<b>Outlet 1</b>	<b>Outlet 2</b>
Bioretention Planters	

---

**ANALYSIS RESULTS**

**POC #1 was not reported because POC must exist in both scenarios and both scenarios must have been run.**

---

**Predeveloped Landuse Totals for POC #2**

**Total Pervious Area:24.998**  
**Total Impervious Area:2.189**

---

**Mitigated Landuse Totals for POC #2**

**Total Pervious Area:19.628**  
**Total Impervious Area:7.298**

---

**Flow Frequency Return Periods for Predeveloped. POC #2**

<u>Return Period</u>	<u>Flow(cfs)</u>
<b>2 year</b>	3.349868
<b>5 year</b>	6.48144

10 year 8.511962  
 25 year 15.181833

**Flow Frequency Return Periods for Mitigated. POC #2**

<u>Return Period</u>	<u>Flow(cfs)</u>
2 year	2.484381
5 year	4.931029
10 year	6.408692
25 year	11.422856

---

**Annual Peaks for Predeveloped and Mitigated. POC #2**

<u>Year</u>	<u>Predeveloped</u>	<u>Mitigated</u>
1960	2.272	1.706
1961	0.441	0.330
1962	6.229	4.668
1963	1.351	0.994
1964	0.511	0.404
1965	3.727	2.808
1966	2.676	2.011
1967	5.413	4.222
1968	1.457	1.090
1969	8.213	6.103
1970	5.800	4.201
1971	3.393	2.477
1972	0.389	0.265
1973	6.734	5.075
1974	3.553	2.733
1975	0.940	0.666
1976	0.321	0.254
1977	0.605	0.317
1978	3.166	2.448
1979	3.273	2.492
1980	4.105	3.133
1981	1.863	0.937
1982	8.344	6.293
1983	23.153	17.141
1984	5.202	3.978
1985	5.334	3.873
1986	12.051	9.177
1987	3.309	2.473
1988	6.096	4.497
1989	3.434	2.521
1990	0.872	0.631
1991	0.859	0.657
1992	10.523	7.801
1993	7.171	5.406
1994	1.932	1.489
1995	6.426	4.899
1996	0.699	0.535
1997	6.205	4.458

---

**Ranked Annual Peaks for Predeveloped and Mitigated. POC #2**

<u>Rank</u>	<u>Predeveloped</u>	<u>Mitigated</u>
1	23.1525	17.1407
2	12.0505	9.1766

3	10.5227	7.8013
4	8.3444	6.2926
5	8.2132	6.1030
6	7.1709	5.4063
7	6.7345	5.0753
8	6.4261	4.8995
9	6.2285	4.6682
10	6.2046	4.4971
11	6.0955	4.4577
12	5.7997	4.2220
13	5.4132	4.2011
14	5.3337	3.9777
15	5.2023	3.8732
16	4.1048	3.1331
17	3.7267	2.8084
18	3.5532	2.7330
19	3.4341	2.5215
20	3.3930	2.4917
21	3.3089	2.4774
22	3.2727	2.4732
23	3.1661	2.4485
24	2.6759	2.0106
25	2.2717	1.7055
26	1.9317	1.4889
27	1.8630	1.0895
28	1.4568	0.9938
29	1.3510	0.9373
30	0.9396	0.6656
31	0.8720	0.6567
32	0.8587	0.6311
33	0.6990	0.5346
34	0.6048	0.4044
35	0.5113	0.3304
36	0.4415	0.3168
37	0.3888	0.2653
38	0.3213	0.2539

**POC #2**

**The Facility PASSED**

**The Facility PASSED.**

<b>Flow(cfs)</b>	<b>Predev</b>	<b>Mit</b>	<b>Percentage</b>	<b>Pass/Fail</b>
0.3350	1441	1333	92	Pass
0.4176	1228	1109	90	Pass
0.5002	1094	976	89	Pass
0.5828	978	869	88	Pass
0.6654	897	747	83	Pass
0.7480	809	669	82	Pass
0.8306	725	587	80	Pass
0.9132	660	523	79	Pass
0.9958	606	466	76	Pass
1.0783	551	422	76	Pass
1.1609	503	383	76	Pass
1.2435	467	350	74	Pass
1.3261	433	317	73	Pass

1.4087	399	290	72	Pass
1.4913	378	266	70	Pass
1.5739	347	245	70	Pass
1.6565	323	217	67	Pass
1.7391	301	188	62	Pass
1.8217	282	174	61	Pass
1.9043	262	158	60	Pass
1.9869	247	143	57	Pass
2.0695	225	129	57	Pass
2.1521	210	120	57	Pass
2.2347	195	107	54	Pass
2.3173	177	98	55	Pass
2.3999	165	88	53	Pass
2.4825	155	77	49	Pass
2.5651	138	67	48	Pass
2.6477	133	61	45	Pass
2.7303	123	53	43	Pass
2.8129	115	49	42	Pass
2.8955	106	48	45	Pass
2.9780	100	46	46	Pass
3.0606	95	45	47	Pass
3.1432	83	42	50	Pass
3.2258	80	39	48	Pass
3.3084	74	36	48	Pass
3.3910	64	34	53	Pass
3.4736	58	31	53	Pass
3.5562	51	31	60	Pass
3.6388	50	28	56	Pass
3.7214	50	28	56	Pass
3.8040	47	24	51	Pass
3.8866	45	23	51	Pass
3.9692	45	23	51	Pass
4.0518	44	20	45	Pass
4.1344	40	20	50	Pass
4.2170	38	19	50	Pass
4.2996	38	18	47	Pass
4.3822	35	18	51	Pass
4.4648	32	15	46	Pass
4.5474	32	13	40	Pass
4.6300	31	13	41	Pass
4.7126	29	12	41	Pass
4.7952	28	11	39	Pass
4.8778	27	11	40	Pass
4.9603	27	10	37	Pass
5.0429	24	10	41	Pass
5.1255	24	9	37	Pass
5.2081	23	9	39	Pass
5.2907	22	9	40	Pass
5.3733	21	8	38	Pass
5.4559	20	7	35	Pass
5.5385	20	7	35	Pass
5.6211	19	6	31	Pass
5.7037	18	6	33	Pass
5.7863	17	6	35	Pass
5.8689	16	6	37	Pass
5.9515	16	6	37	Pass
6.0341	15	6	40	Pass

6.1167	14	5	35	Pass
6.1993	14	5	35	Pass
6.2819	12	5	41	Pass
6.3645	11	4	36	Pass
6.4471	10	4	40	Pass
6.5297	10	4	40	Pass
6.6123	10	4	40	Pass
6.6949	10	4	40	Pass
6.7775	9	4	44	Pass
6.8600	9	4	44	Pass
6.9426	9	4	44	Pass
7.0252	9	4	44	Pass
7.1078	9	4	44	Pass
7.1904	7	4	57	Pass
7.2730	6	4	66	Pass
7.3556	6	4	66	Pass
7.4382	6	4	66	Pass
7.5208	6	4	66	Pass
7.6034	6	4	66	Pass
7.6860	6	4	66	Pass
7.7686	6	4	66	Pass
7.8512	6	3	50	Pass
7.9338	6	3	50	Pass
8.0164	6	3	50	Pass
8.0990	6	3	50	Pass
8.1816	6	3	50	Pass
8.2642	5	3	60	Pass
8.3468	4	3	75	Pass
8.4294	4	3	75	Pass
8.5120	4	3	75	Pass

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**Drawdown Time Results**

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**Perlnd and Implnd Changes**

No changes have been made.

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# APPENDIX 6

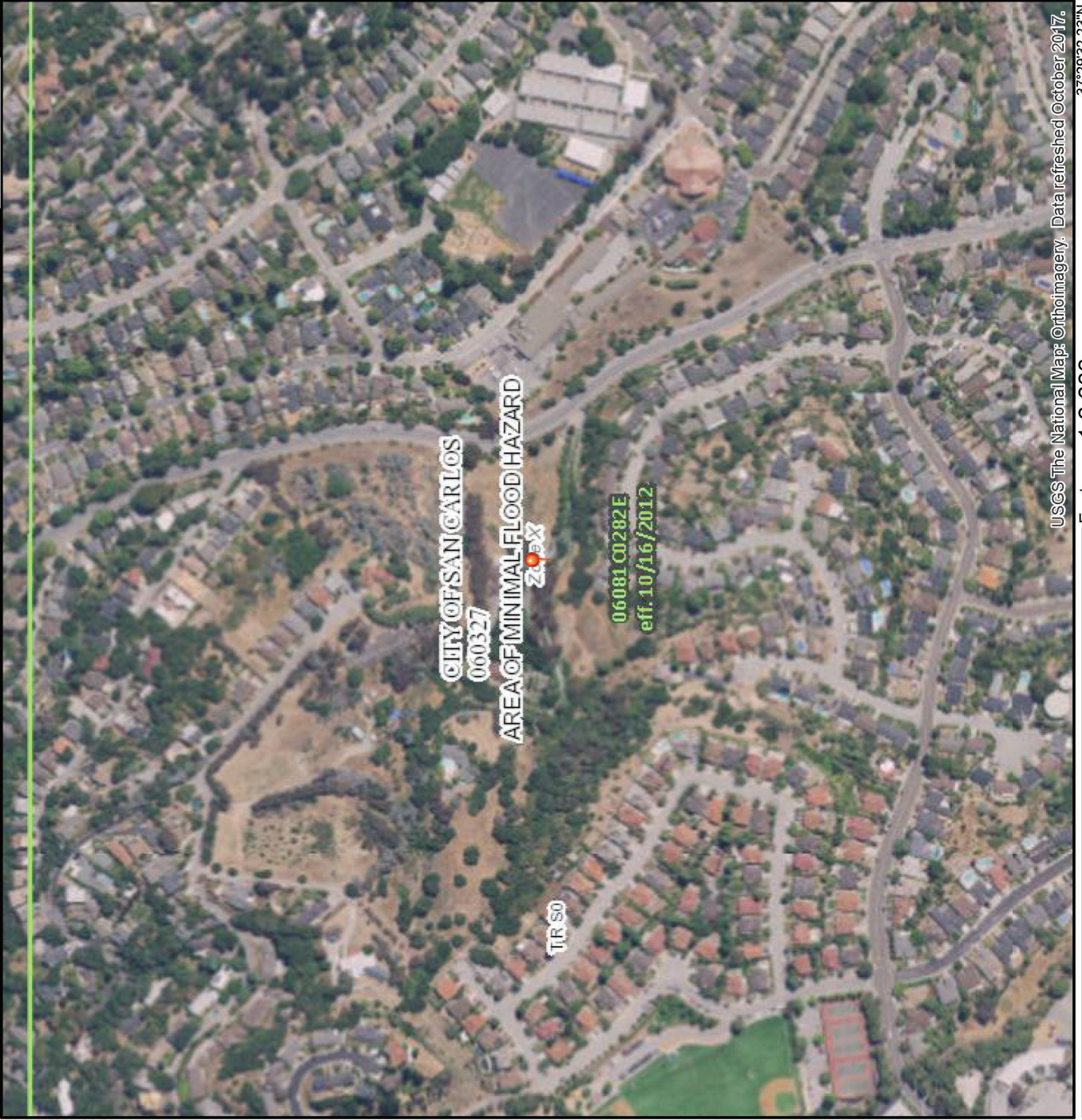
**FEMA Firmette**



# National Flood Hazard Layer FIRMette



37°30'0.77"N



USGS The National Map ©thoimagery. Data refreshed October 2017.

Feet 1:6,000

0 250 500 1,000 1,500 2,000

122°15'51.77"W

37°29'32.23"N

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**

- Without Base Flood Elevation (BFE) Zone A, V, AB9
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile. Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

**OTHER AREAS**

- Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

**GENERAL STRUCTURES**

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**

- Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**

- Digital Data Available
- No Digital Data Available
- Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/19/2018 at 12:11:57 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# APPENDIX 7

## Excerpt from Soils Report

<b>Type of Services</b>	<b>Geotechnical and Geologic Feasibility Review</b>
<b>Project Name</b>	<b>800, 804, and 806 Alameda de las Pulgas Site</b>
<b>Location</b>	<b>800, 804, and 806 Alameda de las Pulgas San Carlos, California</b>

## **SECTION 1: INTRODUCTION**

This geotechnical and geologic feasibility evaluation was prepared for the sole use of Dragonfly Investments Group for the 800, 804, and 806 Alameda de las Pulgas Feasibility in San Carlos, California (see Figure 1). The purpose of this study was to evaluate the existing surface conditions and develop an opinion regarding potential geotechnical and geologic concerns that could impact the proposed development. The preliminary recommendations contained in this report are for your forward planning, preliminary cost estimating, and preliminary project design. For our use, we were provided with a set of disclosure documents prepared by Black Mountain Properties, LLC, on May 2, 2016.

### **1.1 PROJECT DESCRIPTION**

The project will consist of single-family clustered homes on a 9- to 10-acre site. The planned development will be one to two stories, with possibly up to two stories below-grade, and of wood frame residential home construction. The location of the homes have not been selected, and the number of total units will be on the order of 60. Based on our discussions, we understand that the structures may be two stories above grade and cut into the hillsides by ½ to 2 stories below grade. Additionally, cut/fill slopes are anticipated to accommodate the grading of the building pads and roads for the development. Appurtenant parking, streets, utilities, landscaping and other improvements necessary for site development are also planned.

### **1.2 SCOPE OF SERVICES**

Our scope of services was presented in our proposal dated June 4, 2016 and consisted of file review and geotechnical and geologic site reconnaissance and review to develop a preliminary assessment of the potential presence of geotechnical and geologic hazards. Additionally, our scope of services also included engineering analysis for preliminary site grading recommendations and geotechnical design parameters for foundations, retaining structures and pavement areas for preliminary project design and cost evaluations (by others); and preparation of this feasibility report.

### 1.3 ENVIRONMENTAL SERVICES

Environmental services were not requested for this project. If environmental concerns are determined to be present during future evaluations, the project environmental consultant should review our geotechnical recommendations for compatibility with the environmental concerns.

## SECTION 2: REGIONAL SETTING

### 2.1 GEOLOGICAL SETTING

The San Francisco Peninsula is a relatively narrow band of rock at the north end of the Santa Cruz Mountains separating the Pacific Ocean from San Francisco Bay. It represents one mountain range in a series of northwesterly-aligned mountains forming the Coast Ranges geomorphic province of California that stretches from the Oregon border nearly to Point Conception. In the San Francisco Bay Area, most of the Coast Ranges have developed on a basement of tectonically mixed Cretaceous- and Jurassic-age (70 to 200 million years old) rocks of the Franciscan Complex. Locally, these basement rocks are capped by younger sedimentary and volcanic rocks. Most of the Coast Ranges are covered by younger surficial deposits that reflect geologic conditions for approximately the last million years.

Lateral and vertical movement on the many splays of the San Andreas Fault system and other secondary faults has produced the dominant northwest-oriented structural and topographic trend seen throughout the Coast Ranges today. This trend reflects the boundary between two of the Earth's major tectonic plates: the North American plate to the east and the Pacific plate to the west.

The San Andreas Fault is the dominant structure in the system, nearly spanning the length of California, and capable of producing the highest magnitude earthquakes, see Figure 2. Many other sub-parallel or branch faults within the San Andreas system are equally active and nearly as capable of generating large earthquakes. Right-lateral movement dominates these faults, but an increasingly large amount of thrust faulting resulting from compression across the system is now being identified as well.

The San Andreas Fault is located approximately 2.5 miles southwest of the site, where it trends northwesterly through Crystal Springs Reservoir. The Distances to other nearby active faults are shown in Table 1.

More locally, the site is in an area dominated by bedrock units of the Cretaceous and/or Jurassic Franciscan Complex, see Figure 3. Several regional scale geologic maps covering the area have been published of the area including those by Brabb and Pampeyan (1983), Wentworth et al. (1985) and Brabb et al. (1998) depict the same geologic unit underlying the site. Their mapping of the bedrock units is consistent with our site observations (see below). They depict the area as underlain by "Sandstone" of the Franciscan Complex.

The Franciscan Complex - Sandstone forms an extensive outcrop across the immediate area and is the only unit mapped at the subject site. Bedding within the sedimentary rock generally

trends northwest-southeast. However, dips are highly variable and slope both to the northeast and southwest. This is characteristic of tightly folded sedimentary rock.

The following geologic unit description comes from the Brabb et al. (1998). The Cretaceous and Jurassic Franciscan Complex – Sandstone is “Greenish-gray to buff, fine-to coarse-grained sandstone (greywacke), with interbedded siltstone and shale. In many places, shearing has obscured bedding relations; rock in which shale has been sheared to gouge constitutes about 10 percent of unit.”

## 2.2 REGIONAL SEISMICITY

The San Francisco Bay area is one of the most seismically active areas in the Country, see Figure 4. While seismologists cannot predict earthquake events, the U.S. Geological Survey’s Working Group on California Earthquake Probabilities 2007 estimates there is a 63 percent chance of at least one magnitude 6.7 or greater earthquake occurring in the Bay Area region between 2007 and 2036. As seen with damage in San Francisco and Oakland due to the 1989 Loma Prieta earthquake that was centered about 50 miles south of San Francisco, significant damage can occur at considerable distances. Higher levels of shaking and damage would be expected for earthquakes occurring at closer distances.

The faults considered capable of generating significant earthquakes are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The table below presents the State-considered active faults within 25 kilometers of the site.

**Table 1: Approximate Fault Distances**

Fault Name	Distance	
	(miles)	(kilometers)
San Andreas (1906)	2.5	4.0
Monte Vista-Shannon	8.4	13.6
San Gregorio	10.7	17.3

A regional fault map is presented as Figure 2, illustrating the relative distances of the site to significant fault zones. The San Andreas and San Gregorio faults are through going structures that are located to the west of the site. The closest point of these two faults to the site is noted above. The Monte Vista-Shannon fault zone is not through going. Its northern most point terminates 13.6 kilometers to the south of the site.

## SECTION 3: SITE CONDITIONS

### 3.1 SITE BACKGROUND

Please refer to the Site Plan, Figure 5, for the following discussion. The project site is currently developed with two residential homes located at 804 and 806 Alameda de las Pulgas. 800 Alameda de las Pulgas is currently undeveloped. The upper portion of the project site is also

undeveloped. The property located at 808 Alameda de las Pulgas is not part of the subject property.

To aid in our evaluation we have reviewed 4 sets of stereo-paired aerial photographs from the years 1943, 1946, 1956 and 1982 (please refer to the References section) as well as images available on Google Earth from 1948 through 2016. The 1943 photos show the site developed with a small home located just below the current home located at 806 Alameda de las Pulgas. A small cut-fill pad was located south of the home with no associated development. Prior to 1946 a large structure, and associated grading, was constructed at 800 Alameda de las Pulgas. Between 1946 and 1956 the home at 808 Alameda de las Pulgas (not part of the subject project) and associated long driveway was built. Also during this time, a large fill slope associated with the subdivision south of the site was constructed. Prior to 1982, the two homes at 804 and 806 Alameda de las Pulgas as well as San Carlos High School, to the southwest of the site, were built. Grading for the school was extensive. Around 1990 the school was replaced by a home subdivision. At some point prior to 2002 the large structure at 800 Alameda de las Pulgas was removed.

### **3.2 SURFACE AND SUBSURFACE DESCRIPTION**

A reconnaissance of the site and immediate vicinity was performed by our Certified Engineering Geologist on June 22, 2016, for the purpose of observing existing site development, geomorphology and potential geologic hazards associated with site development. The discussion below summarizes what we observed at the site.

The subject site is located on the northeast flank of Pulgas Ridge, a knob of resistant bedrock that rises about 600 hundred feet above the surrounding terrain. The site location and the topography of the area are shown on Figure 5. This area is characterized by rolling terrain and northwest trending ridges and drainages on the peninsula segment of the Santa Cruz Mountains. The project site encompasses a “Y” shaped drainage that drains to the east. Side slopes are moderate. A general cross section of the site is presented in Figure 6.

The upper one-third of the site (rectangular area) is occupied by a gently sloping long ridge with moderate, planar side-slopes, with gradients of approximately 1.5:1 to 3:1 (horizontal to vertical). This area has not been previously developed. Minor grading at the top of the ridge exposes hard sandstone at a shallow depth. This area is vegetated with grasses and oak trees. Vegetation within the two valleys that flank the ridge is indicative of possible ephemeral springs. The valley floors are planar and may be underlain by colluvium. A minor fill wedge occupies the northern valley and a small portion of the southern valley. Residential development abuts this area to the southwest and northwest.

The lower two-thirds of the site is occupied by a single drainage. This area has been altered extensively by grading (cuts, fills and imported fills). Fill depths may be on the order of 10-15 feet. Natural side-slopes are moderate with approximate gradients of 2:1. The two existing homes are located on cut-fill pads. During our site reconnaissance, we observed cracking along the back half of the home located at 806 Alameda de las Pulgas. The deformation may be associated with fill settlement. The steep cut slope (about 1:1) located behind 804 Alameda de

las Pulgas exposes hard sandstone. An artesian spring is located in the center of this portion of the project. Additionally, we understand that the spring flows into a tunnel with a height of approximately six feet; however, there are not any maps or plans indicating the length and direction, or the possibility of there being multiple tunnels.

## **SECTION 4: GEOLOGIC HAZARDS**

### **4.1 FAULT RUPTURE**

As discussed above several significant faults are located within 25 kilometers of the site. The site is not located within a State-designated Alquist Priolo Earthquake Fault Zone. As shown in Figure 2, no known surface expression of fault traces is thought to cross the site; therefore, fault rupture hazard is not a significant geologic hazard at the site.

### **4.2 ESTIMATED GROUND SHAKING**

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. A peak ground acceleration (PGA) of 0.783 was estimated for analysis using  $F_{PGA} \times PGA$  (Equation 11.8-1) as allowed in the 2016 California Building Code.

### **4.3 LIQUEFACTION POTENTIAL**

The site is not currently mapped by the State of California, but is within a zone mapped as having a low to very low liquefaction potential by the Association of Bay Area Governments (ABAG), see Figure 7.

During strong seismic shaking, cyclically induced stresses can cause increased pore pressures within the soil matrix that can result in liquefaction triggering, soil softening due to shear stress loss, potentially significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (NCEER 1998). Limited field and laboratory data is available regarding ground deformation due to settlement; however, in clean sand layers settlement on the order of 2 to 3 percent of the liquefied layer thickness can occur. Soils most susceptible to liquefaction are loose, non-cohesive soils that are saturated and are bedded with poor drainage, such as sand and silt layers bedded with a cohesive cap.

Based on our previous experience in the area, the site is underlain by shallow Franciscan Complex Sandstone bedrock. Additionally, we anticipate ground water to be below potentially liquefiable residual soils. Based on the above, our screening of the site for liquefaction indicates a low potential for liquefaction, and is in general agreement with local mapping for the site by ABAG.





# APPENDIX 8

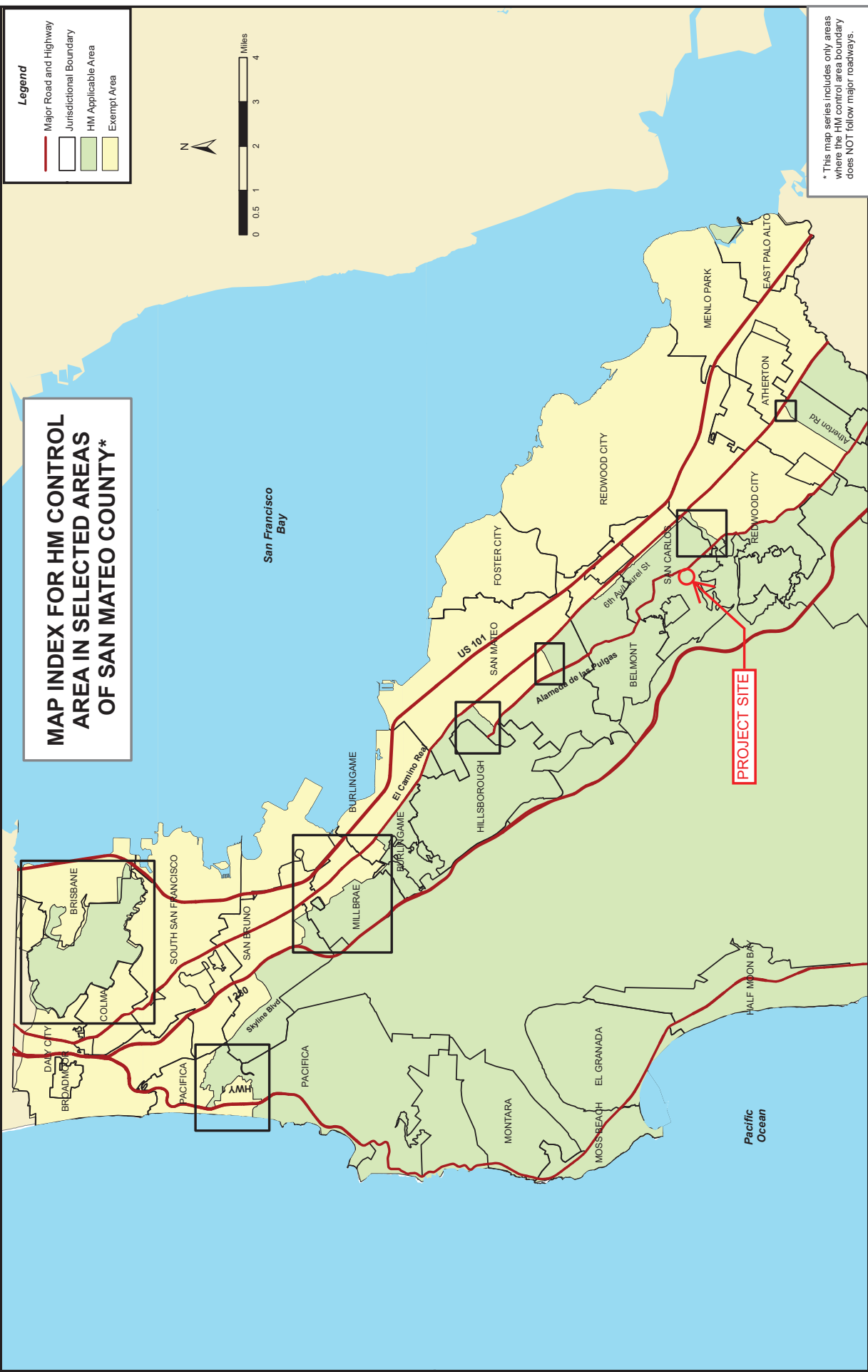
## San Mateo Countywide Hydromodification Map



# MAP INDEX FOR HM CONTROL AREA IN SELECTED AREAS OF SAN MATEO COUNTY\*

**Legend**

-  Major Road and Highway
-  Jurisdictional Boundary
-  HM Applicable Area
-  Exempt Area

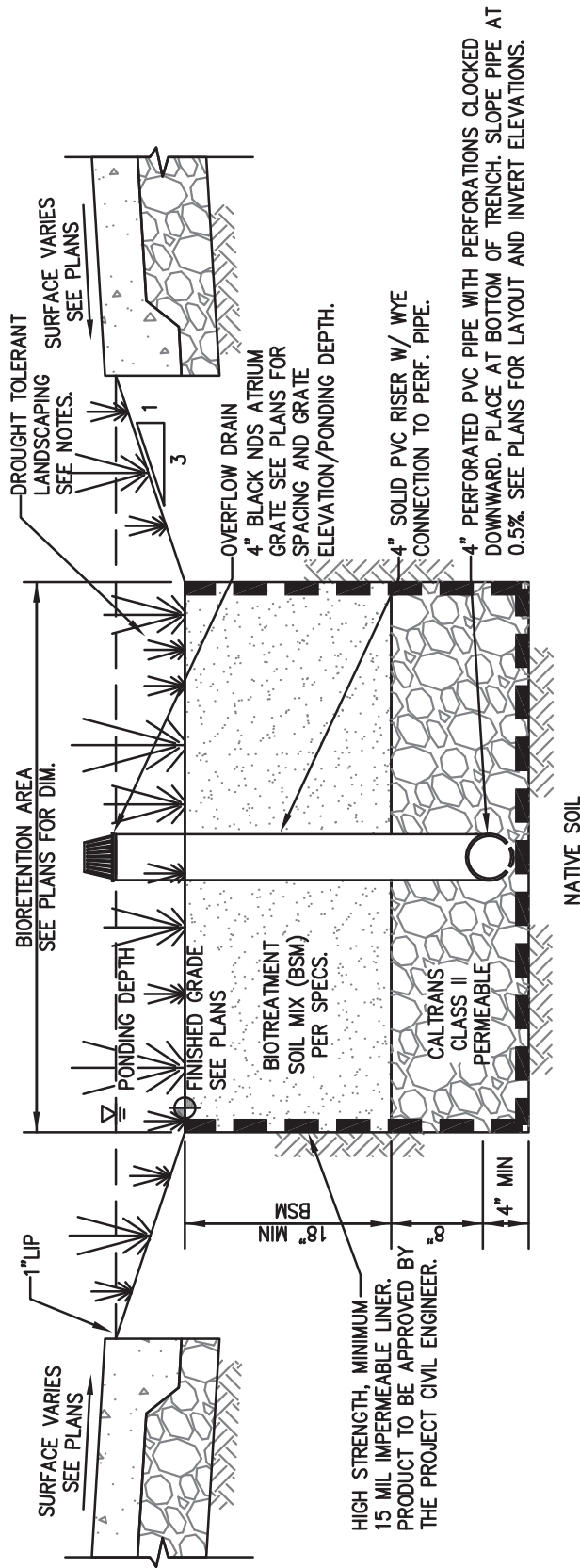


\* This map series includes only areas where the HM control area boundary does NOT follow major roadways.

# APPENDIX 9

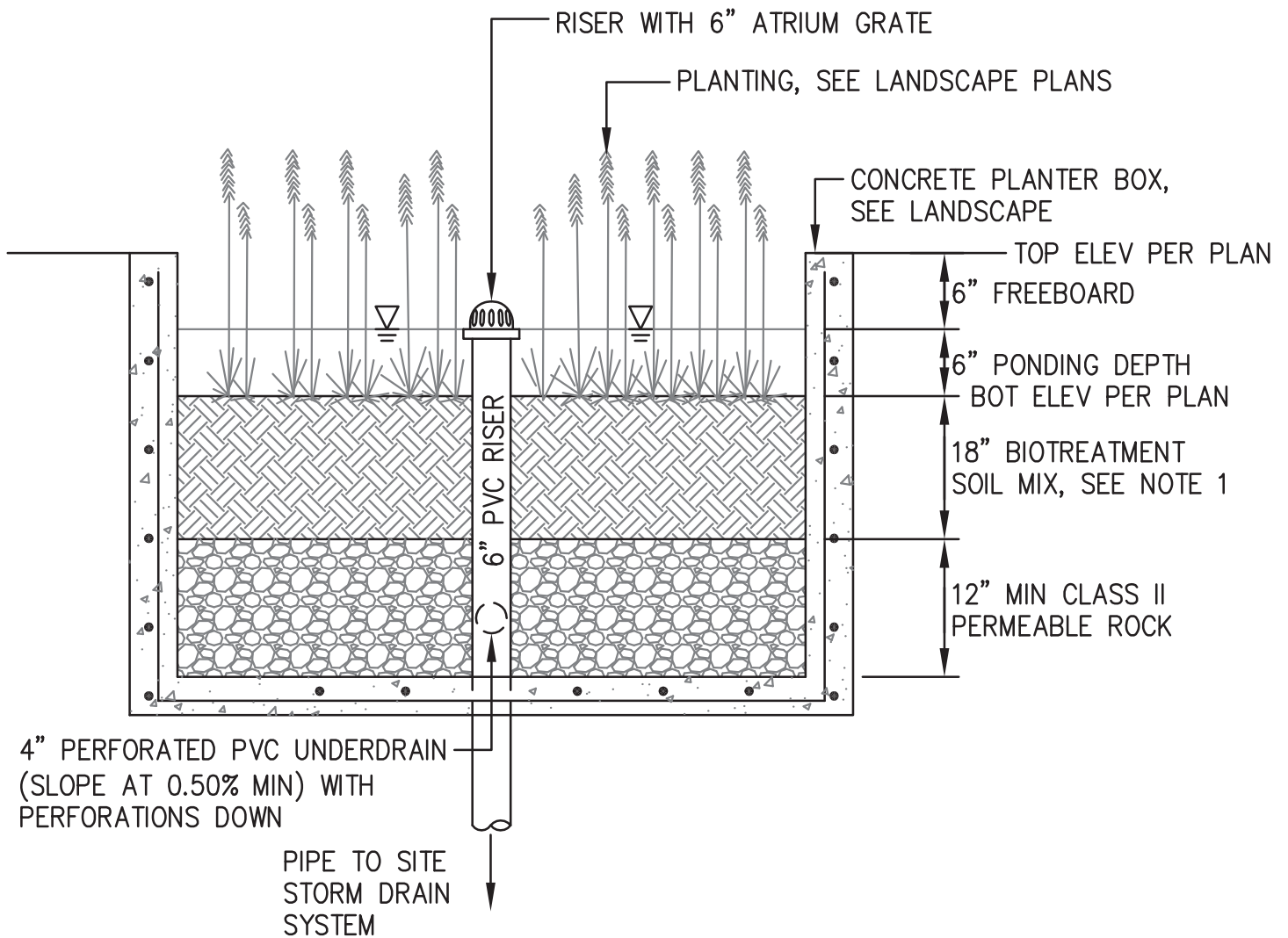
## Project Treatment Measure Details

- Bioretention Area
- Flow-through Planter



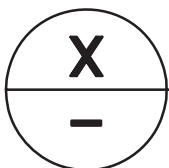
NOTES:

1. COMPLETELY SURROUND SIDES AND BOTTOM OF BIORETENTION AREA WITH IMPERMEABLE LINER. NO INFILTRATION INTO SURROUNDING SOIL IS PERMITTED.
2. SEAL ALL LINER SEAMS WITH WATERPROOF TAPE AS RECOMMENDED BY LINER MANUFACTURER.
3. SEE PROJECT SPECIFICATIONS FOR BIOTREATMENT SOIL MIX.
4. SEE LANDSCAPE PLANTING PLAN FOR TREE LOCATIONS AND OTHER PLANT SPECIES IN BIORETENTION AREA.
5. BASE OF TRENCH SHALL SLOPE AT 0.5% TO PARALLEL UNDERDRAIN.
6. FILTER FABRIC SHOULD NOT BE USED IN OR AROUND THE UNDERDRAIN OR BETWEEN THE BSM AND CLASS II PERM.



NOTES:

1. BIORETENTION SOIL MEDIA PER SAN MATEO COUNTY C.3 TECHNICAL GUIDANCE, VERSION 5.0, APPENDIX K, ENTITLED "BIORETENTION SOIL MIX SPECIFICATIONS", DATED JUNE 2016.



## FLOW-THROUGH PLANTER

NTS

APPENDIX J2:  
SPRING TUNNEL PRELIMINARY  
EVALUATION

.....





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## TECHNICAL MEMORANDUM

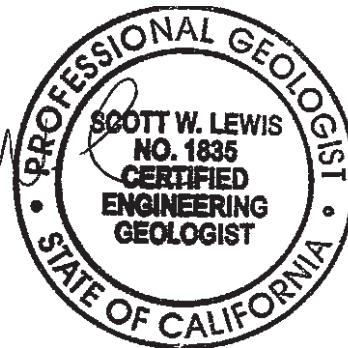
**TO:** Robert Bernstein  
Design & Construction Manager  
Dragonfly Investments Group  
777 Mariners Island Blvd. Suite 150  
San Mateo, CA 94404

**DATE:** August 17, 2016

**PROJECT NO.:** 7380

**FROM:** Scott W. Lewis, CEG, Principal Tunneling Consultant  
Andrew S. Kositsky, PE, Senior Geotechnical Engineer

**SUBJECT:** Black Mountain Spring Tunnel Preliminary Evaluation



### INTRODUCTION

Condor Earth (Condor) prepared this Technical Memorandum as a part of our initial consultation services for your due diligence at 800 Alameda de las Pulgas in San Carlos, California. We understand you are interested in acquiring the property, including the existing Spring Tunnel, and are concerned about potential liabilities and opportunities related to the tunnel and potential future site development.

Our consultation work included a review of available site information and a site visit performed on August 9, 2016 by Scott Lewis, Condor's Principal Engineering Geologist/Tunneling Consultant, with assistance from John Kennedy, Condor's Senior Technician. Andy Kositsky, Condor's Senior Civil/Geotechnical Engineer contributed to and reviewed this evaluation memorandum. Mr. Lewis, Mr. Kositsky and Mr. Kennedy have extensive experience with tunnel investigations and tunnel construction engineering/observations.

### DOCUMENTS REVIEW AND COMMUNICATION

We are not aware of pre-existing plans or descriptions of the existing Spring Tunnel. However, recent documents we reviewed include a Draft Geotechnical and Geologic Feasibility Review for the site (prepared by Cornerstone Earth Group, draft dated July 11, 2016) and a Site Investigation Summary letter (prepared by WSP Parsons Brinckerhoff, dated July 14, 2016). We also reviewed aerial images of the site, and spoke with David Young, an agent with some knowledge about the site's history.

## BACKGROUND AND SITE DESCRIPTION

We understand the site was formerly occupied by the Black Mountain Spring company, which used the spring as a source for bottled water circa 1930s to approximately 1990. The tunnel appears to have been constructed to reach the source(s) of the spring water within the hillside and underlying rock mass, and to act as a water-storage reservoir. The entrance to the tunnel (portal) is located within a small depression in the ground surface. The tunnel is about 4 feet wide by 5.5 feet high at the portal, but only the upper 3 feet of the tunnel arch is exposed. Standing water is present in the tunnel up to the approximate level of the portal sill (about 2.5-foot water depth immediately inside the tunnel portal). The portal consists of a brick masonry arch-opening with a locked steel door. Refer to the attached site photos. Note that the impounded water has left dark iron oxide deposits on the tunnel walls, so many of the photos are not very clear. The long strings in some of the photos are roots penetrating into the tunnel reservoir from above.

## SITE INVESTIGATION

The prior investigations by Cornerstone and WSP did not include tunnel entry. Due to the flooded condition of the existing tunnel, Condor obtained a pump to facilitate man-entry. We began pumping out impounded tunnel water from the tunnel portal at about 10:00 am and completed pumping by about 11:20 am. The water was spray-applied to the ground surface on the subject property and not allowed to run-off the site. Assuming a pumping rate of about 150 gpm, we pumped an estimated 12,000 gallons.

Entry into the tunnel was made by Mr. Lewis, and Mr. Kennedy provided back-up assistance outside the portal. Mr. Lewis used appropriate safety gear, including an air-monitoring device. Oxygen and other gas levels were at acceptable levels throughout the tunnel investigation.

Mr. Lewis used a tape and compass, together with visual observations to map the tunnel. Refer to the attached Figures 1 and 2 for illustrations. As noted above, the tunnel is about 4 feet wide by 5.5 feet high immediately inside the portal. However, the tunnel height increases to about 8 feet high where a sump is located, just about 5 feet inside the tunnel. The sump is about 5 feet in diameter and about 2 feet deep. The tunnel goes straight in from the portal for about 15 feet, and then curves to the left (about 50° turn) over about 10 feet in length. From the turn, the tunnel goes straight for another 65 feet. The width and height of the tunnel gradually decreases to about 3 feet wide by 5 feet high at 90 feet inside from the portal. Along this tunnel segment the tunnel is nearly horizontal (sloping up into the hillside at less than 1%) and is supported by a shotcrete liner (full ring). The shotcrete thickness is unknown, but soundings with a hammer indicate a solid sound (suggesting reasonable thickness and quality). Based on the shape of the tunnel section (uniform v. irregular), it appears that the first approximate 35 feet of tunnel was constructed using cut-and-cover methods, and the remainder was mined.

A dam is located inside the tunnel at about 90 feet from the portal. The dam is constructed of formed concrete and shotcrete, full tunnel width (about 3 feet wide) and impounds water about 5 feet deep behind the dam. The space between the top of the dam and the tunnel ceiling is about 12 inches. Beyond the dam the tunnel bifurcates and is unlined (native sandstone rock exposed). Although Mr. Lewis was unable to go beyond the dam, his observations and estimates are shown on Figures 1 and 2. One leg of the tunnel was fully visible, while the other extended beyond view. A 1.5-inch diameter pipe that exits the tunnel portal appears to be a low-level outlet that could be used to drain the reservoir, but the dam would need to be mostly removed to gain access beyond.

## DISCUSSION

The tunnel entrance to about 35 feet inward appears to be located in a pre-existing gully that was backfilled after the tunnel structure was constructed (referred to as cut-and-cover). There appears to be approximately 4 feet of soil fill above the tunnel in this area, which is overlain by a driveway (the “lower





driveway”). It appears the tunnel transitions to a mined tunnel while still under the lower driveway, and still with limited ground cover thickness. Beyond the edge of the lower driveway, the ground cover increases steeply. The location of the dam and tunnel bifurcation appears to be under the “upper driveway”, with perhaps 20 to 25 feet of ground cover.

Our observations indicate that the Spring Tunnel is in relatively good condition. The 90-foot long entry tunnel has a narrow span and is lined with shotcrete. It is likely this segment of tunnel could remain during site development, perhaps with limited additional support and rehabilitation; although additional investigation of the tunnel structure is warranted after development concepts are prepared (i.e., considering cuts, fills, new structure foundations, etc.). The back “reservoir” section of the tunnel is more uncertain. The exposed rock appears to be relatively hard and blocky, but is not reliably stable without support. We would not recommend that this section of tunnel remain unsupported during the future development; it could remain a tunnel, however, if an appropriately-designed shotcrete liner was placed, or it could be backfilled. It is possible to backfill with materials that would allow the spring water to continue to flow.

In any case, we would not recommend that the tunnel be allowed to impound water in the future, considering the planned residential development and future liability issues. If the tunnel or a portion of the tunnel remains, we recommend that the internal dam be breached and the portal should be opened-up to allow for gravity drainage. There is an opportunity for the tunnel to provide a future source of landscape water, and it may have some value for aesthetic, historic or storage purposes. Note, however, that some level of risk of future tunnel instability and problems is possible unless the entire tunnel is fully backfilled.

If requested, Condor is available to provide additional consultation and future engineering related to this project.

## LIMITATIONS

Conclusions and recommendations presented herein are professional opinions based on limited information obtained from various sources. Condor has endeavored to determine as much as practical about the site using conventional practices given our scope of services. Condor has prepared these recommendations in accordance with the generally accepted standards of care that exist in San Carlos at the time of writing. Different professionals may reasonably adopt different approaches to similar work. Therefore, no warranty or guarantee, express or implied, is included in Condor’s scope of service.

## CLOSURE

We assume this letter report provides the information needed and expected. Please contact us with questions or concerns.

### Attachments:

- Figure 1 – Aerial Map (illustrating the approximate extent of the tunnel)
- Figure 2 – Tunnel Layout (sketch map)
- Site Visit Photos (8 sheets)





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SCALE IN FEET



BACKGROUND IMAGE: GOOGLE EARTH 4/5/2016



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Job No.	7380
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Scale	AS SHOWN
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KGM	SWL

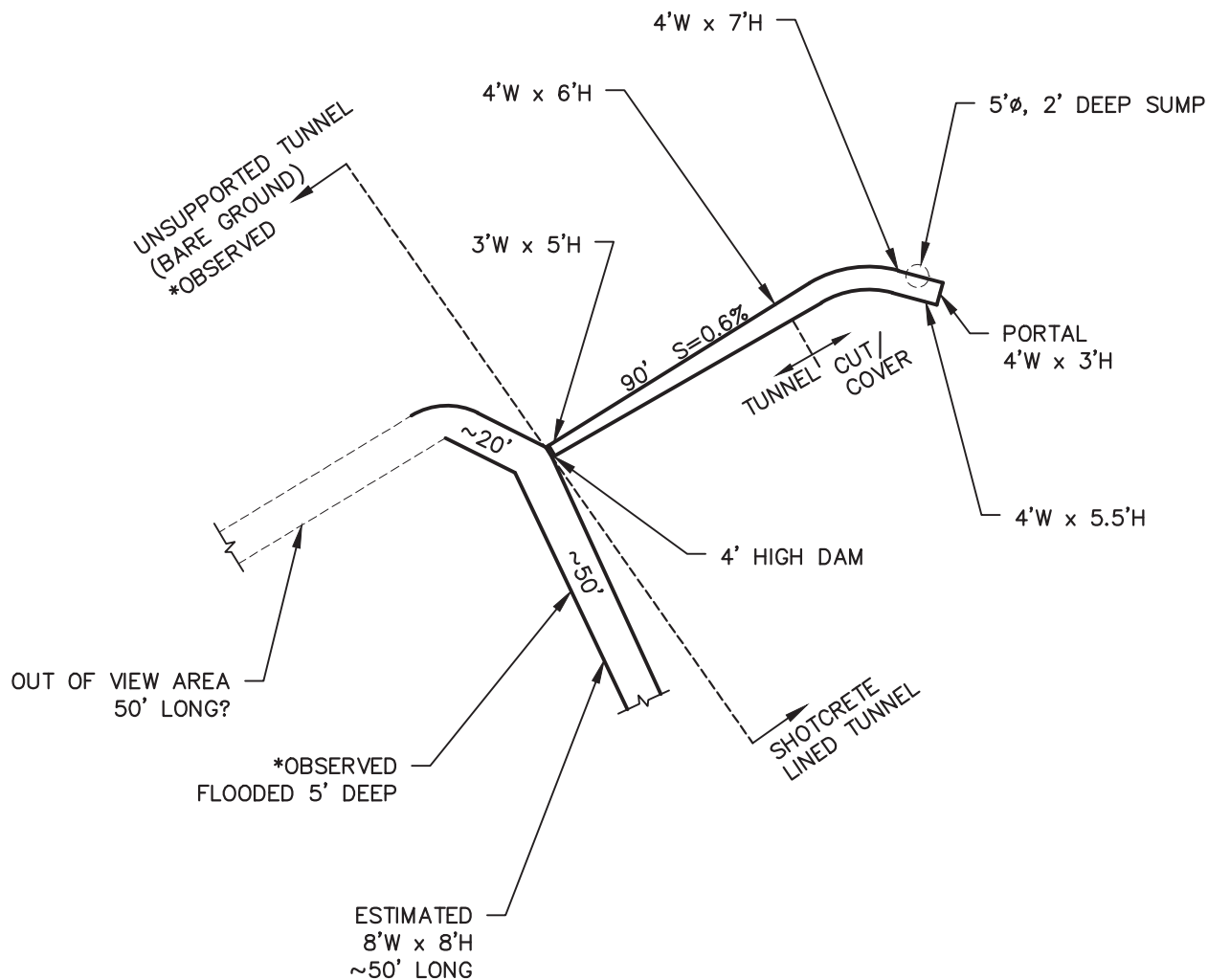
**AERIAL MAP  
 SPRING TUNNEL  
 800 ALAMEDA DE LAS PULGAS  
 SAN CARLOS, CALIFORNIA**

**FIGURE  
 1**

File No.  
7380\_F1



0 40  
SCALE IN FEET



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Chk'd	SWL

**TUNNEL LAYOUT  
 SPRING TUNNEL  
 800 ALAMEDA DE LAS PULGAS  
 SAN CARLOS, CALIFORNIA**

**FIGURE  
 2**

File No.  
 7380\_F2

20160809 Site Visit Photos 7380 SWL



Portal area



Portal area



Portal area



Inside portal

20160809 Site Visit Photos 7380 SWL



Inside portal



Spraying water



Tunnel entry



Sump inside portal

20160809 Site Visit Photos 7380 SWL



Sump inside portal



Inside portal



Sump



Inside tunnel at curve - view towards portal

20160809 Site Visit Photos 7380 SWL



Curve area about 20' into tunnel



Curve area about 20' into tunnel



Curve area about 20' into tunnel



Curve area about 25' into tunnel, tunnel height lowers then raises at apparent transition from cut/cover to mined tunnel location (old portal?)

20160809 Site Visit Photos 7380 SWL



About 35' into tunnel, end cut/cover area



About 45' into tunnel



About 55' into tunnel



About 60' into tunnel



20160809 Site Visit Photos 7380 SWL



About 65' into tunnel



About 70' into tunnel



About 75' into tunnel



About 80' into tunnel

20160809 Site Visit Photos 7380 SWL



About 85' into tunnel - concrete dam



Top of dam to crown of tunnel about 12"

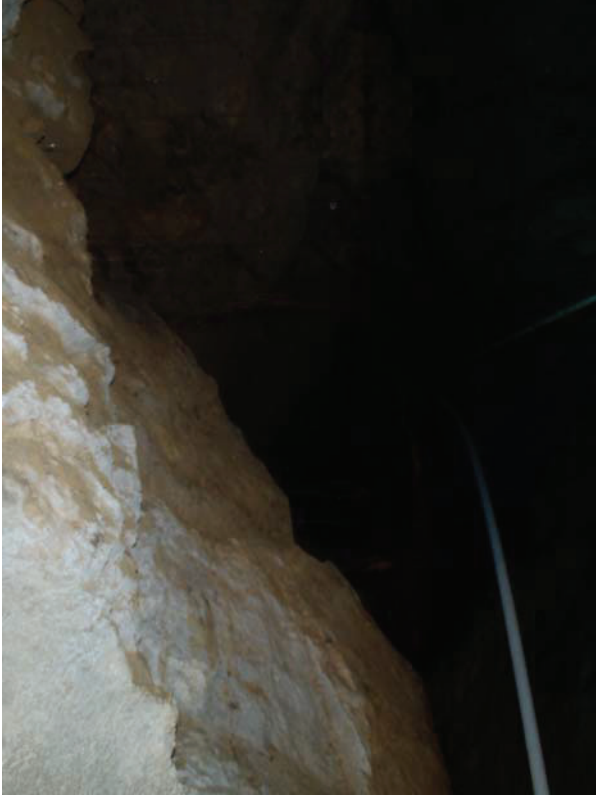


View into reservoir area



View into reservoir area - tunnel bifurcation

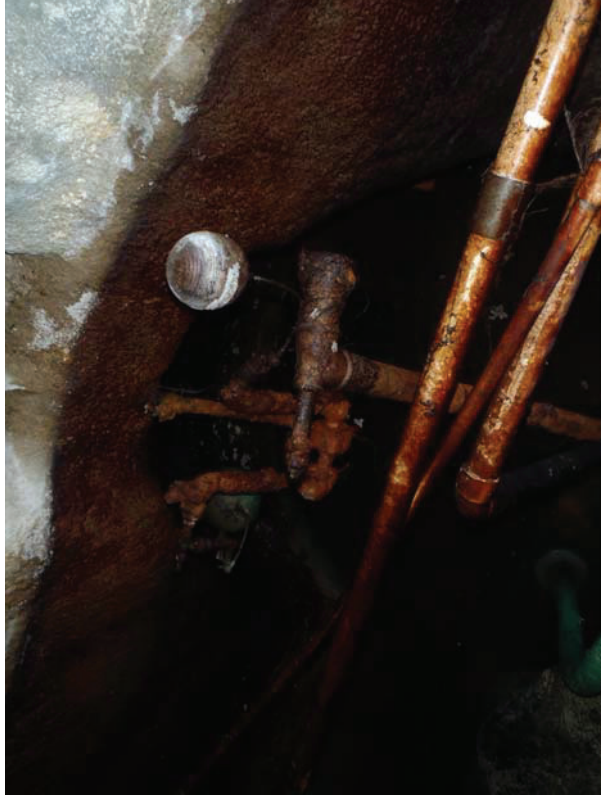
20160809 Site Visit Photos 7380 SWL



View east leg



View west leg



Old sump plumbing near portal



Old in-operable valve on apparent low-level discharge pipe at portal



APPENDIX J3:  
SPRING TUNNEL MITIGATION  
PLAN

.....



**SPRING TUNNEL MITIGATION PLAN  
BLACK MOUNTAIN PROPERTY  
800 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CALIFORNIA**

*Prepared for*  
**Dafna Akiva**  
**Dragonfly Assets C-56, LLC**  
**777 Mariners Island Blvd., Suite 150**  
**San Mateo, CA 94404**

*Prepared by*  
**Condor Earth**  
**21663 Brian Lane**  
**Sonora, CA 95370**  
**209.532.0361**

**August 16, 2018**  
**Condor Project No. 7380A**

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## TABLE OF CONTENTS

<b>1.0 INTRODUCTION</b> .....	<b>1</b>
<b>2.0 PROJECT DESCRIPTION</b> .....	<b>1</b>
<b>3.0 SCOPE OF WORK</b> .....	<b>1</b>
<b>4.0 TUNNEL MITIGATION PLAN</b> .....	<b>2</b>
<b>5.0 CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>3</b>
<b>6.0 ADDITIONAL SERVICES</b> .....	<b>3</b>
<b>7.0 LIMITATIONS</b> .....	<b>3</b>
<b>8.0 CLOSURE</b> .....	<b>4</b>

## ATTACHMENTS

### FIGURES

Figure 1	Aerial Map
Figure 2	Tunnel Layout
Figure 3	Tunnel Profile
Figure 4	Reservoir Backfill Detail





**SPRING TUNNEL MITIGATION PLAN  
BLACK MOUNTAIN PROPERTY  
800 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CALIFORNIA**

## **1.0 INTRODUCTION**

Condor Earth (Condor) has prepared this conceptual mitigation plan to abandon the tunnel at the Black Mountain Property – Spring Tunnel, located at 800 Alameda de las Pulgas, San Carlos, CA, for Dragonfly Investments Group (DIG). Condor’s previous site investigation work presented in our August 17, 2016 Technical Memorandum (Condor Project No. 7380) served as the basis for the mitigation plan, though additional investigation is necessary during construction (described below). Condor developed mitigation criteria for backfilling the entire length of the tunnel, with an option for a portion of the tunnel to remain open inslope of a tunnel plug, if ground conditions allow.

## **2.0 PROJECT DESCRIPTION**

This site was formerly occupied by the Black Mountain Spring company, which used the spring as a source for bottled water from the 1930s to approximately 1990. The tunnel appears to have been constructed to reach the source(s) of the spring water within the hillside and underlying rock mass, and to act as a water-storage reservoir. The entrance to the tunnel (portal) is located within a small depression in the ground surface (Figure 1). The tunnel is about 4 feet wide by 5.5 feet high at the portal, but only the upper 3 feet of the tunnel arch is exposed. Standing water is present in the tunnel up to the approximate level of the portal sill (about 2.5-foot water depth immediately inside the tunnel portal). The portal consists of a brick masonry arch-opening with a locked steel door.

The tunnel entrance to about 35 feet inward appears to be located in a pre-existing gully that was backfilled after the tunnel structure was constructed (referred to as cut-and-cover; see Figure 2). There appears to be approximately 4 feet of soil fill above the tunnel in this area, which is overlain by a driveway (the “lower driveway”). It appears the tunnel transitions to a mined tunnel while still under the lower driveway, and still with limited ground cover thickness. Beyond the edge of the lower driveway, the ground cover increases steeply. The location of the dam and tunnel bifurcation appears to be under the “upper driveway”, with perhaps 20 to 25 feet of ground cover.

Condor understands the option of permanently abandoning the tunnel is desired by DIG, but that continued use of the spring water for future landscape irrigation is also desired. The intention is to structurally backfill the tunnel openings, while maintaining discharge of the existing spring to the ground surface. We understand the existing portal will be excavated during mass grading work, and a drain will be installed to allow for free drainage of the spring water to a new buried tank.

## **3.0 SCOPE OF WORK**

Condor’s scope of work consisted of reviewing information from our previous site visits and preparing this mitigation plan for submittal (by others) to the City of San Carlos. We have performed review of preliminary designs and discussion with the design team regarding design issues and alternatives to be considered.



#### 4.0 TUNNEL MITIGATION PLAN

Our observations during our site investigation described in our August 17, 2016 memorandum indicate that the Spring Tunnel is in relatively good condition. The 90-foot long entry tunnel has a narrow span and is lined with shotcrete. The back “reservoir” section of the tunnel is more uncertain. The exposed rock appears to be relatively hard and blocky, but it is not likely to be reliably stable over the long-term without support. We recommend that the entire length of the tunnel that will remain following mass grading be backfilled with cellular concrete prior to future site development, with a potential alternate as described below (refer to Figure 3 for schematic illustration).

We understand from our previous site visits that about 2.5 feet of standing water is present in the entry tunnel, and up to 5 feet of water in the reservoir tunnel is presently impounded behind a concrete dam. The entire length of the tunnel will need to be de-watered and the existing dam removed prior to placing the backfill material. An underground land survey should be performed to establish the full extent of the spring tunnel reaches beyond the point where the reservoir tunnel bifurcates, which is currently unknown. The source location(s) of the spring water will be located, as possible, to develop an approach for collecting and discharging spring water after the tunnel is backfilled. Water seeping into the tunnel will be controlled to facilitate backfilling.

We recommend use of a 4- to 6-inch diameter pipe comprised of non-corrodible material (e.g. PVC, concrete) at the tunnel invert to control/discharge spring water. We recommend placement of about 1 foot of class 2 permeable material along the invert of the reservoir tunnel to allow water to flow from the spring source(s) to the discharge pipe. Figure 4 illustrates the proposed geometry of the backfill materials and water discharge pipe in the reservoir tunnel. The layout of the discharge pipe may be altered in the field to fit the location(s) of the spring water source(s), if necessary.

We recommend the open space in the reservoir tunnel and the portion of the entry tunnel beyond the cut-and-cover section be backfilled with closed-cell cellular concrete. Cellular concrete is the preferred backfill material due to its fluidity and low density, which allows the material to be pumped efficiently and will effectively fill underground void space. We recommend a minimum design unconfined compressive strength of 100 pounds per square inch for the cellular concrete material. Detailed materials specifications for the backfill operation will be provided by Condor in a subsequent design package.

As an alternate, the reservoir tunnel may remain a tunnel if the native rock is observed by Condor during construction to be strong and reliably stable (with the addition of a shotcrete liner, as needed). Condor was unable to access the reservoir tunnel during previous site visits owing to the impounded spring water. The reservoir tunnel will be examined after de-watering and Condor will advise DIG on appropriate support measures necessary to leave the tunnel open, if desired. This alternate should not be utilized if there are concerns related to future tunnel instability based on the actual ground conditions; future problems could be possible in poor ground unless the entire length of the tunnel is fully backfilled. The entry tunnel will be backfilled with cellular concrete (with a pipe installed to discharge spring water) regardless of the future state of the reservoir tunnel.

It is our understanding that the existing tunnel portal will be excavated during mass grading work. The excavation of the portal and cut-and-cover section of the entry tunnel will occur after the tunnel backfill work is complete. A new concrete bulkhead (with a protruding spring water discharge pipe) will be constructed at the transition from cut-and-cover to mined tunnel. Earth fill may be placed against the bulkhead during mass grading work.



## 5.0 CONCLUSIONS AND RECOMMENDATIONS

The Spring Tunnel should not remain in its current state, considering the planned residential development and future liability issues. If this Mitigation Plan is acceptable, Condor recommends that we prepare detailed Spring Tunnel Mitigation Drawings and Specifications for permitting, bidding and construction.

## 6.0 ADDITIONAL SERVICES

Because this Plan is conceptual and because subsurface conditions at this site vary, it is not possible to include all construction details related to tunnel mitigation in this Mitigation Plan. In addition, engineering recommendations depend on the possible need for adjustment in the field during construction. Therefore, Condor or another qualified firm should prepare detailed Tunnel Mitigation Drawing and Specifications, and should also perform geologic and engineering observations and tests during construction. The purpose of Condor's work during construction will be to check for subsurface conditions that vary from the conditions observed during our prior site investigation and to develop supplemental engineering recommendations, as necessary. An additional purpose is to verify that the contractor follows the general intent of our recommendations during construction and that they perform the work according to the approved designs.

Because Condor understands the intent of the engineering recommendations best, we recommend that Condor perform or direct future phases of tunnel mitigation engineering work, including field engineering, inspection and testing.

## 7.0 LIMITATIONS

The information presented in this report is intended for planning and design of the proposed improvements described herein. This information does not apply for a different site or project, if the recommendations presented in this report are not followed, or if other changes are made that materially alter the proposed project.

Condor based this report on data obtained from a limited site investigation noted in Section 4.0. Subsurface conditions may vary between and around the investigated locations. Should varied conditions be discovered during construction, then additional investigation, testing evaluations and development of supplemental geotechnical engineering recommendations may be required. Any person associated with the project who observes conditions or features of the site or its surrounding areas that are different from those described in the report should report them immediately to Condor for evaluation.

Implementation of our recommendations requires an adequate testing and observation program during construction. If Condor does not perform this testing and observation, then the Professional Engineer that performs the observation and tests shall be responsible

Condor prepared this report according to the generally accepted standards of tunnel engineering practice that currently exist in northern California. No other warranty, express or implied, is made.

Changes in the standards of practice in the field of tunnel engineering, changes in site conditions such as new excavations or fills, new agency regulations, or modifications to the proposed project warrant professional review of this report. Because of this, there is a practical limit to the usefulness of this report without critical professional review. We suggest that 2 years be considered a reasonable time for the validity of this report.

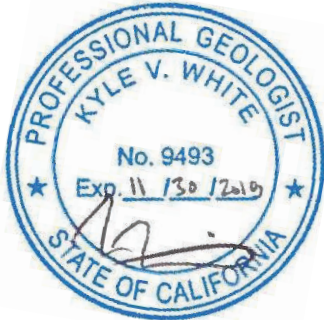


## 8.0 CLOSURE

Please contact Condor if you have any questions.

Respectfully submitted,

CONDOR EARTH

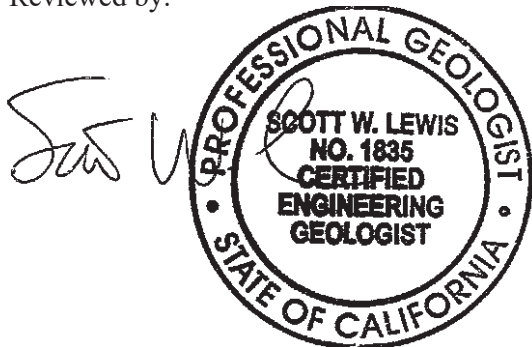


Kyle V. White, PG No. 9493  
Associate Geologist



Andy Kositsky, PE No. C55758  
Senior Engineer

Reviewed by:



Scott W. Lewis, CEG No. 1835  
Principal Engineering Geologist  
Senior Tunneling Consultant

X:\Project\7000\_prj\7380 Spring Tunnel\7380A Engineering\Reports\FR 20180816 Mitigation Plan.docx

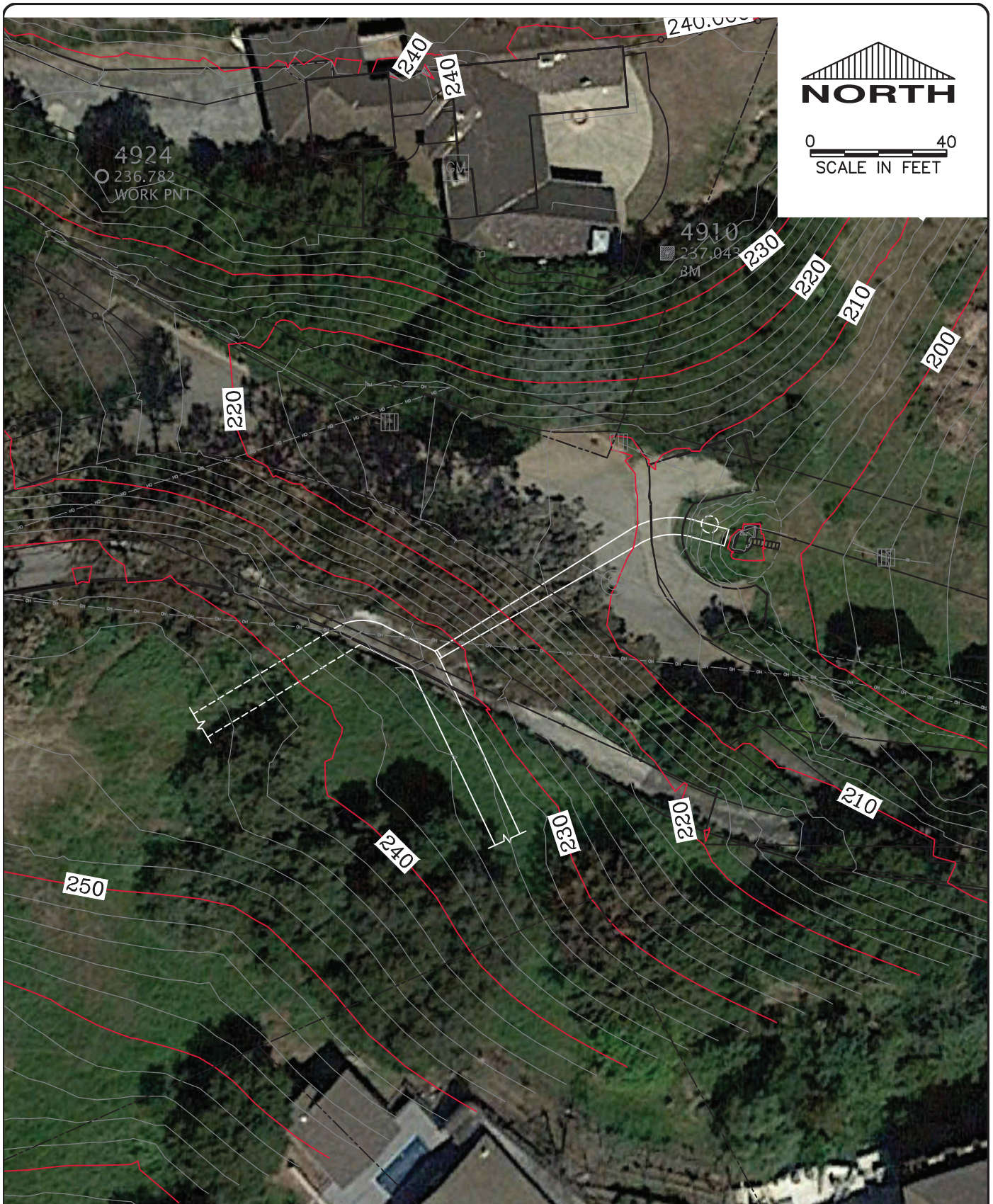


## FIGURES





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BACKGROUND IMAGE: GOOGLE EARTH 4/5/2016



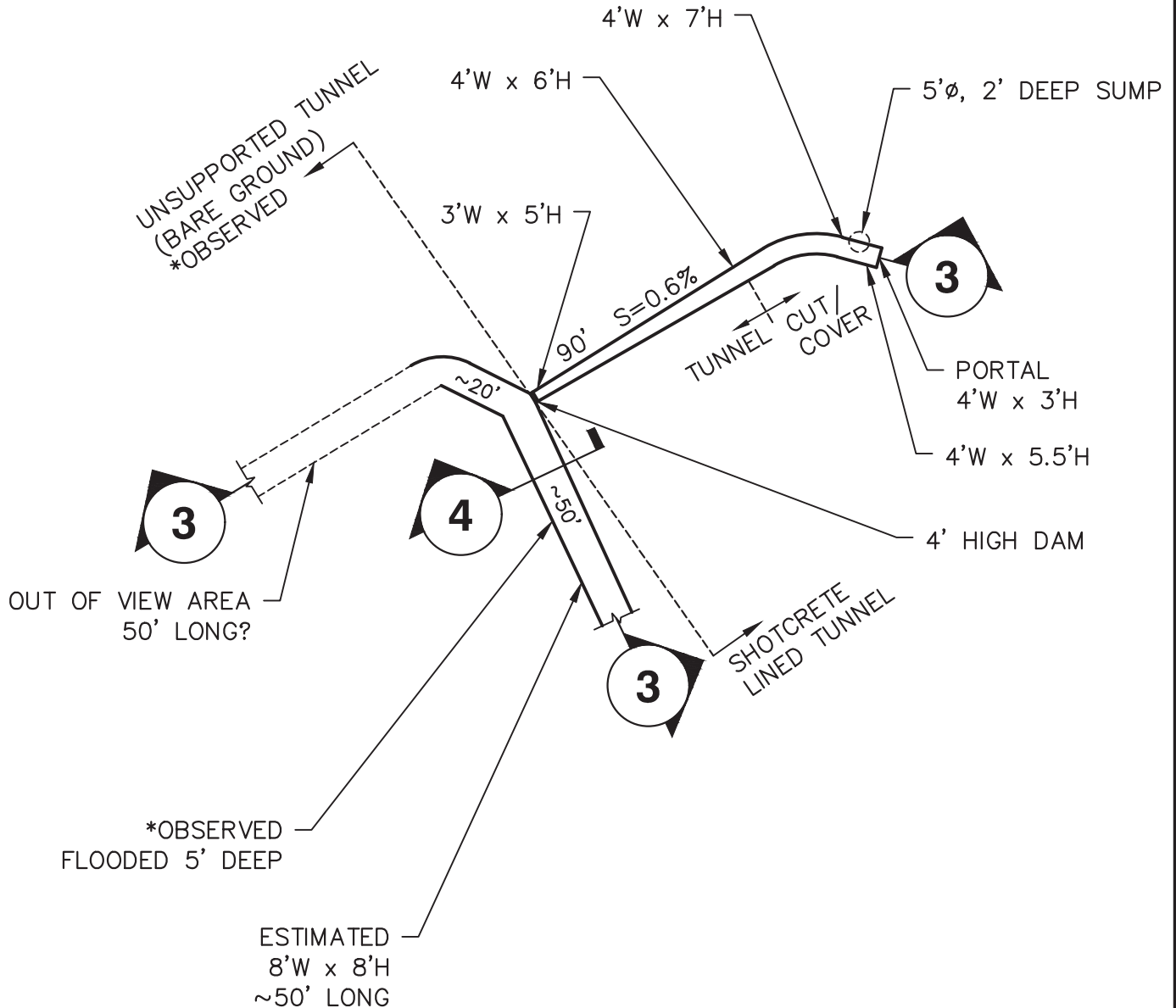
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Job No.	7380A
Date	16 AUG 2016
Scale	AS SHOWN
Drawn	Chk'd
KGM	SWL

**AERIAL MAP  
SPRING TUNNEL  
800 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CALIFORNIA**

**FIGURE  
1**

7380A\_SK1



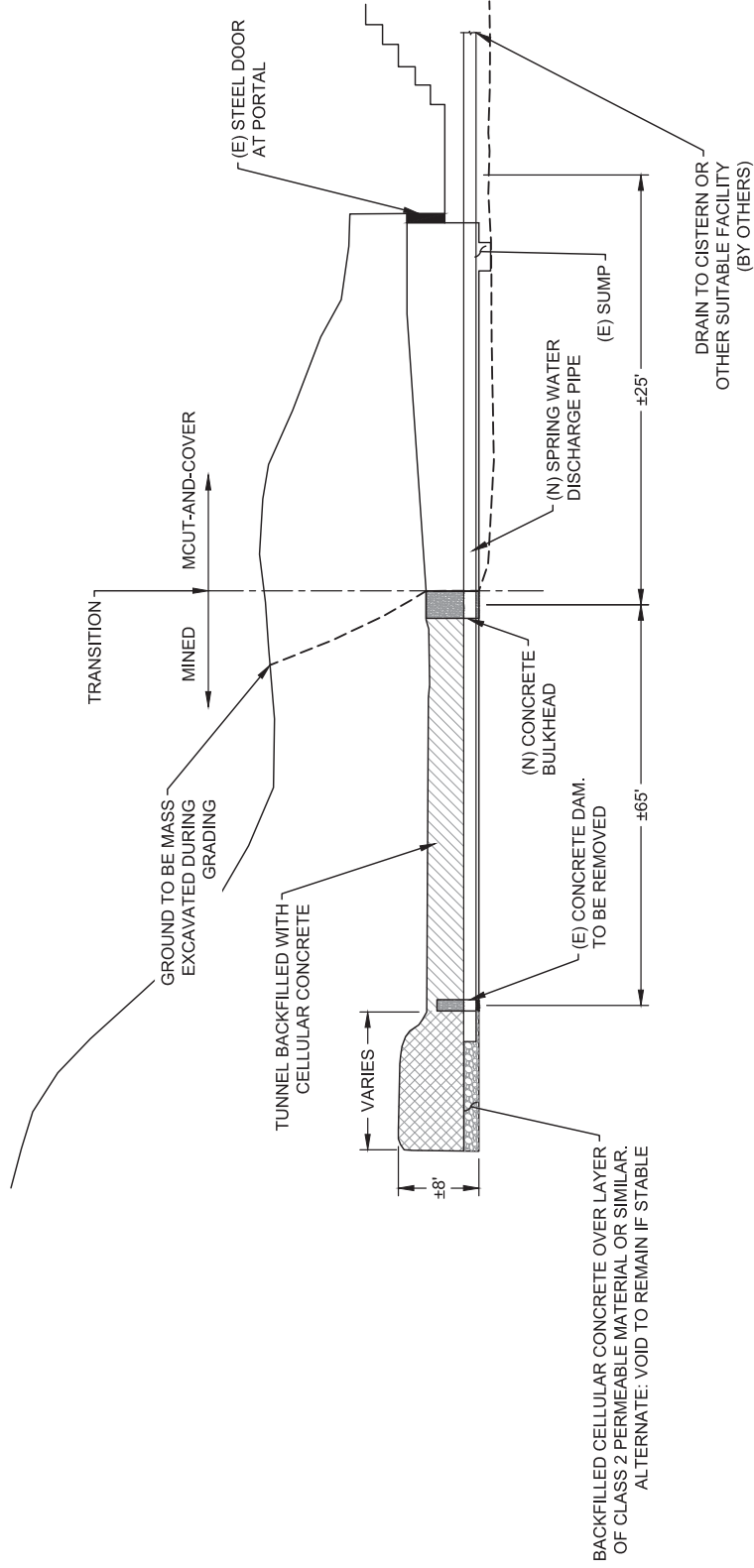
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Job No.	7380A
Date	16 AUG 2018
Scale	AS SHOWN
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KGM	SWL

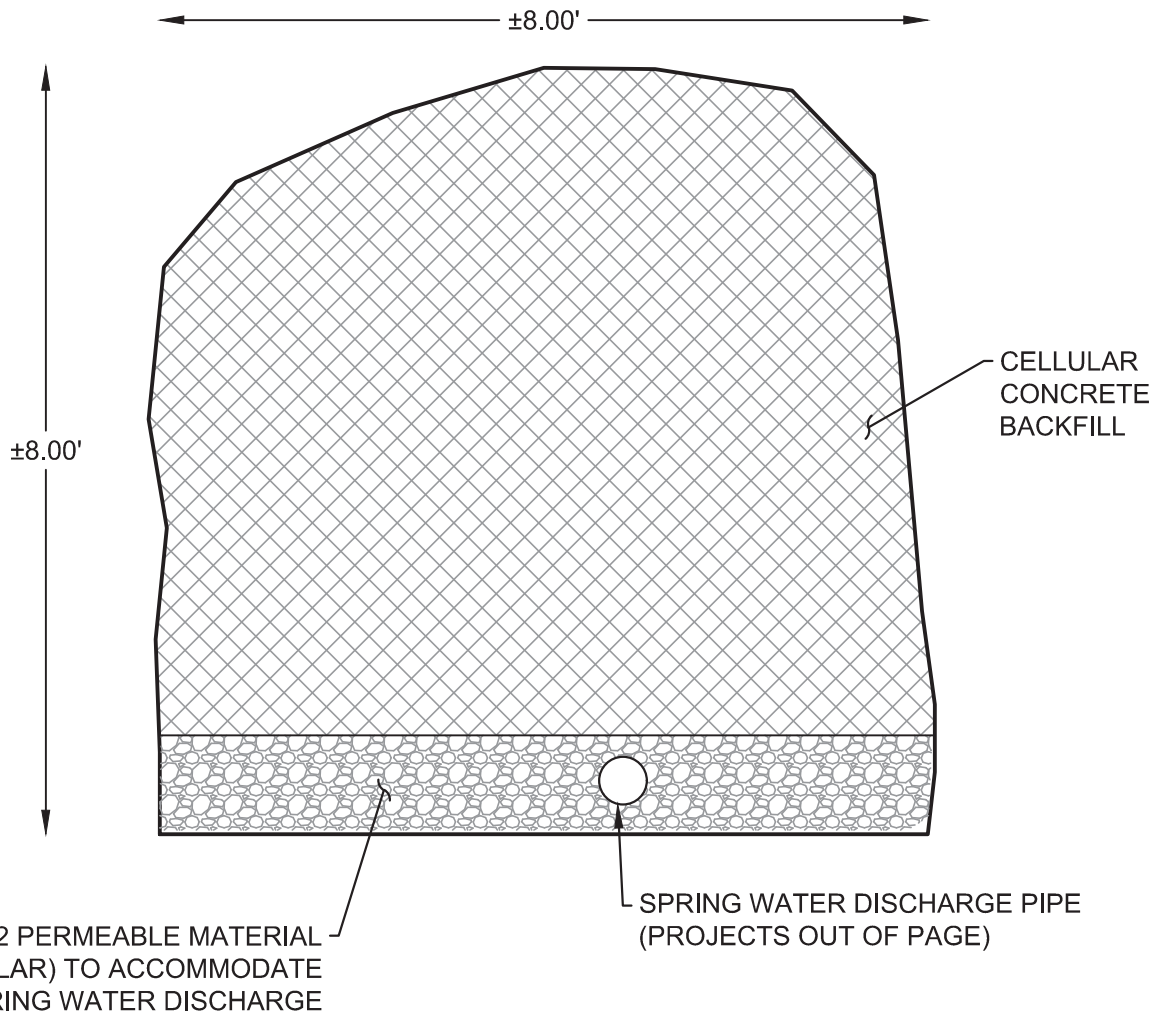
**TUNNEL LAYOUT  
 SPRING TUNNEL  
 800 ALAMEDA DE LAS PULGAS  
 SAN CARLOS, CALIFORNIA**

**FIGURE  
 2**

7380A\_F2







**CONDOR EARTH**

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Job No. 7380A	
Date 16 AUG 2018	
Scale AS SHOWN	
Drawn KGM	Chk'd SWL

**RESERVOIR BACKFILL DETAIL  
SPRING TUNNEL MITIGATION  
800 ALAMEDA DE LAS PULGAS  
SAN CARLOS, CALIFORNIA**

**FIGURE  
4**

7380A\_F4



APPENDIX J4:  
SPRING INVESTIGATION AND SITE  
INSPECTION SUMMARY

.....





## VIA ELECTRONIC MAIL

July 14, 2016

Mr. Robert Bernstein  
Design and Construction Manager  
Dragonfly Investments Group  
1001 Laurel Street, Suite B  
San Carlos, CA

Re: Black Mountain Spring Investigation and Site Inspection Summary at Parcels 050-220-170, 050-220-020, and 049-360-06, Avenida de Las Pulgas, San Carlos, California

Dear Mr. Bernstein:

On behalf of Dragonfly Investors Group, Robert Roat, Kenneth Johnson and Claire Wilkin of WSP | Parsons Brinckerhoff (WSP) visited the Black Mountain Spring site in San Carlos, CA on June 14, 2016. The purpose of the visit was to investigate the condition and nature of an apparent natural spring located on the east side of the Black Mountain property, and assess its physical condition and the best method of sampling. Photos of the spring inspection are included in Attachment A.

## SPRING DESCRIPTION

The entrance to the spring is located within an approximately 10-foot-wide, 4-foot-deep depression, at the toe of an east-facing slope. An asphalt driveway cuts across the slope above the entrance area, which is shored by bricks and concrete. The opening to the spring sits within an arched brick entryway. A metal door covers the opening. The arched entryway is approximately 4 feet 6 inches wide, and 3 feet at its tallest.

Three PVC pipes extend from the bottom of the opening, through which the flow from the entryway discharges. Using a five gallon bucket and a stopwatch, WSP estimated the flow at approximately 5 gallons per minute (gpm). Water from the PVC pipes is directed into a storm drain drop inlet. The storm drain, shown on City public works drawings (Attachment B; reference GHD, *City of San Carlos Citywide Storm Drain System Master Plan Final Report*, January 2016, p 12), appears to convey water east beneath the property and then across Avenida de las Pulgas and into the Brittan Creek storm drain system.

Inside the metal door is a shotcrete-coated tunnel, with pooled water up to the entrance elevation. Pool depth at the entrance is 2 feet 6 inches, and the tunnel height is approximately 5 feet 8 inches. Standing water was clear with some aquatic vegetation and fine sediment along the bottom. A submerged metal pipe runs along the length of the tunnel, and another enters the tunnel vertically from the north approximately 4 feet into the tunnel. A float typical of a pump control was observed on the surface of the water near the tunnel entrance.

The tunnel initially heads directly west into the hill for approximately 20 feet, after which the diameter decreases, and the tunnel bends southwest and turns out of sight.

Above the spring, along the road winding back into the property, no clear surface utility or piping appeared to be related to the source or extent of the spring.

## SAMPLING RECOMMENDATIONS

Water samples were collected on July 5, 2016 from the effluent pipe at the spring. To determine if this spring water is a candidate as a drinking water source, samples are being analyzed for the following compounds:

- Total Coliforms by EPA 1604
- Fecal Coliforms by EPA 1680
- Anions (ex: nitrate, chloride, sulfate) by EPA 300

- Perchlorate by EPA 314
- Priority Pollutant Metals (PP13) by EPA 200.8
- Low Level Mercury by EPA 245.1
- Volatile Organic Compounds (VOCs) by EPA 524.2
- Radionuclides by EPA methods EPA 900, 903, 904, 906 and 908

Sample results will be compared to the California Department of Public Health drinking water standards for bottled water.

## FURTHER WORK RECOMMENDATIONS

A more extensive investigation of the extent of the tunnel is proposed, including determining the purpose and source of the observed piping network within the spring. The investigation would likely include having a diver carry a camera into the tunnel as far as feasible to record the inspection and to map the extent of the tunnel. WSP also recommends a more extensive review of the history of the use of the spring, and an examination of any as-built drawings of the shotcrete tunnel construction.

## QUESTIONS FOR THE SITE OWNER

To continue this investigation, WSP has prepared the following questions and requests for information, to be relayed to the property owner.

1. Please provide a description of the operation that used the spring
2. Are there as-built drawings for the engineering improvements to the outlet of the spring
3. What quantity of water was pumped for bottling?
4. Is there any available water quality data for the spring or the bottled water operation?
5. Why did they stop using it as a bottled water source?
6. Is anyone using the water now?
7. Is there any history of storage or handling of hazardous materials or hazardous waste onsite?

Please call me at 510.919.4358 or Claire Wilkin at 408.878.0663 if you have questions.

Sincerely yours,



Robert Roat, PE.  
Practice Leader

Attachments



## Attachment A – Site Photos

PHOTOGRAPHIC LOG

San Carlos, CA

Black Mountain Spring

June 14, 2016

Photo No.

1

Date

6/14/2016

Above the spring, looking East. Concrete steps descend into depression, the west side of which contains the spring tunnel entrance.



Photo No.

2

Date

6/14/2016

Looking down into shored entryway. PVC pipes discharging from tunnel on bottom right of image.



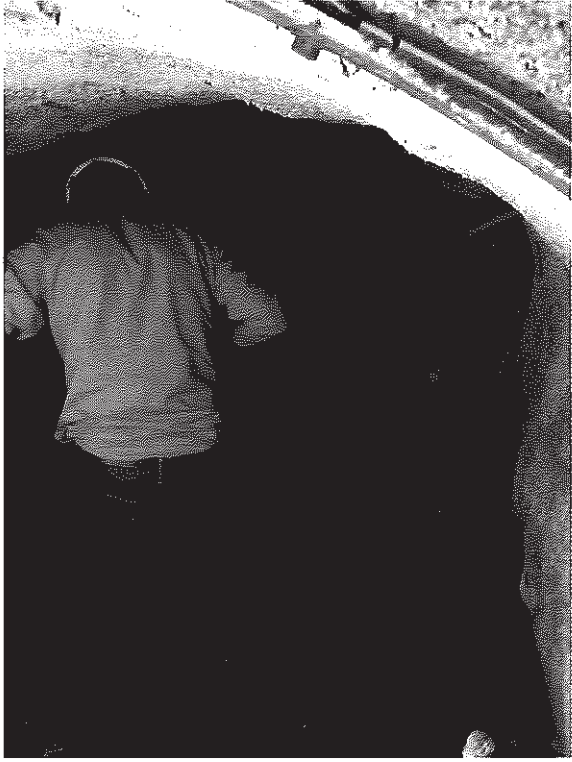



**PHOTOGRAPHIC LOG**

San Carlos, CA

Black Mountain Spring

June 14, 2016

Photo No.	Date	
3	6/14/2016	
4	6/14/2016	
View along shotcreted tunnel. A metal pipe runs along the tunnel underwater. A second, smaller metal pipe can be seen to its right. Tunnel heads to the left (southwest) and out of sight.		

**PHOTOGRAPHIC LOG**

**San Carlos, CA**

**Black Mountain Spring**

**June 14, 2016**

**Photo No.**

**Date**

5

09/11/2015

**View of pipe and float structure located approximately 4 feet inside the tunnel, on the north side.**



**Photo No.**

**Date**

6

6/14/2016

**PVC pipes discharging approximately 5 gpm from spring across a short ditch to a storm drain inlet.**



## **Attachment B – Storm Drain Maps**



Note: Easements are approximate and official easements should be reviewed prior to entering a site. Approximate easement locations provided by City of San Carlos.

Paper Size 11" x 17" (ANSI B)

0 1,000 2,000 Feet

Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 GCS: NAD 1983 StatePlane California II FIPS 9403 Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar (United States), CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, SPP, Swisstopo, and the GIS User Community. Sources: Esri, USGS, NOAA

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City of San Carlos  
 Storm Drain Master Plan

Storm Drain Junction (In Model) — Conduits (Not in Model) Streams  
 Pump Stations (In Model) • Junctions (Not in Model) Major Watersheds  
 Storm Drain Conduit (In Model) ▲ Pump Stations (Not in Model) City of San Carlos Boundary  
 City Storm Drain Easements

## Storm Drain System System Overview

Figure 1.2



Carlos

Brittan Creek

Brittan Ave

Cordilleras Ave

BRITTAN CREEK

15 St  
LWSP

