APPENDIX A

Wetland Delineation

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GATEWAY SOUTH RETAIL STORE

Wetland Delineation

Prepared for
The City of Scotts Valley

August 2008

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Wetland Delineation

Prepared for
The City of Scotts Valley

August 2008

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EXECUTIVE SUMMARY

Environmental Science Associates (ESA) was retained by the City of Scotts Valley. to conduct a delineation of wetlands on the site within the Gateway South Specific Plan Area.. No wetlands or other waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers were identified. Therefore, this report has been prepared for the City of Scotts Valley for submittal to the Central Coast Regional Water Quality Control Board (RWQCB). The report summarizes the results of the wetland delineation conducted on a property proposed for development as a retail store. The proposed project is currently undergoing environmental review. This delineation of Waters of the State identifies all features at the project site that may be regulated by the RWQCB according to Section 401 of the Clean Water Act and/or the Porter-Cologne Act.

Based on the current status of implementation of Section 404 of the Clean Water Act, the wetlands at the project site will not likely fall under the jurisdiction of the U. S. Army Corps of Engineers (Corps) based on their isolated location and lack of connectivity to other wetlands and waters of the United States.

The wetland delineation survey was conducted on June 2, 2008, by ESA staff. Four freshwater seep wetlands were identified on the property within or directly adjacent to the proposed project footprint. The total area of freshwater seep wetland is 1.026 acre, with temporary and permanent impacts estimated to be 1.026 acre. All conclusions presented in this report are drawn from the results of this preliminary delineation and are subject to revision pending review by the RWQCB.

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CHAPTER 1
Introduction

1.1 Objective

This report was prepared to document the extent of freshwater seep wetlands on a property located in the City of Scotts Valley, west of the intersection of La Madrona Drive and Silverwood Drive. Waters of the U.S. and related wetlands fall under the jurisdiction of the Army Corps of Engineers ("Corps") under Section 404 of the Clean Water Act. Wetlands and other water bodies may fall under the jurisdiction of the California Regional Water Quality Control Board for the Central Coast Region (RWQCB) under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Section 13000 et seq.) and the California Department of Fish and Game (CDFG) under Sections 1600 – 1616 of the California Fish and Game Code. These agencies may require permits for activities affecting wetlands and streams. The purpose of this document is to identify areas that may fall under the jurisdiction of these agencies and to provide the background information necessary to support applications for any required permits.

The City of Scotts Valley requested a delineation of the property, which is proposed for development as a retail store. The proposed project is currently undergoing environmental review, and a Supplemental Environmental Impact Report (SEIR) is being prepared. Project plans are in a review stage; however, implementation of the project is expected to result in permanent impacts to approximately 93 percent of the area where freshwater seeps are found on the property.

1.2 Summary of Results

The field delineation survey was conducted by ESA biologists on June 2, 2008, in accordance with the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers, 2008).

The survey identified four areas of freshwater seep wetlands scattered throughout the sloped grassland terrace on the eastern portion of the property. The total area identified as freshwater seep is 1.026 acre, or approximately 1.0 acre. The breakdown of area covered by the freshwater seep wetlands is shown in Table 1, and a map of wetland location is given in Figure 2.

Summary of EIP 2004 Wetland Delineation report

A wetland delineation was conducted in 2004 by EIP Associates for the same property as the current delineation. The 2004 delineation identified 0.10 acre of wetlands likely under Corps jurisdiction on the upper slopes, mostly located outside of the current project footprint. The 2004 delineation was completed in direct relation to the development project for the Gateway South Office Building and Fire Station. The office building and fire station proposal was approved, which included the necessary environmental review process, but development of the site has not occurred. The proposed office building development footprint is nearly the same as the footprint of the retail store that is being proposed currently. The parcel where the fire station was planned is not planned for development in the current proposal. (No wetlands were identified on the fire station site in the 2004 delineation (EIP, 2004)).

Changes to Wetland Area

Since the 2004 delineation, the scope of the Corps' regulatory authority over wetlands has changed. In addition, the Corps recently adopted the Arid West Regional Supplement as the primary guideline for assessing wetlands in drier climates of California and elsewhere. These regulatory changes made it necessary to update the delineation.

The EIP report identified approximately 0.10 acre of freshwater seep wetlands on the upper portions of the grassland slope. For reasons most likely related to differences between the 2004 delineation and the current delineation concerning interpretation of field indicators of wetland vegetation, soils, and hydrology, the area of wetlands is now identified as 1.026 acre. This entirety of this area is considered to be isolated and therefore not federally jurisdictional under Section 404 of the Clean Water Act, but is considered to be Waters of the State subject to regulatory purview of the Regional Water Quality Control Board.

1.3 Responsible Parties

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1.4 Project Description

Project Location

The project site is located at the southern end of the City of Scotts Valley with the eastern perimeter of the property parcel boundary running along La Madrona Drive, adjacent to Highway 17. The north and south perimeters are bounded by the Hilton Hotel, and Silverwood Drive, respectively. The western boundary of the parcel extends up a very steep hill, and borders the adjacent residential community.

The project footprint analyzed herein was based upon the Preliminary Grading & Drainage Plan for the proposed Gateway South Retail Store Project.[1]

Land Use History

The project site has been left unused by people for the past several decades, excluding occasional recreational hiking on a trail that runs through the site. This has allowed the site to remain in a relatively natural state. Native plant communities dominate much of the site. The property owner mows or disks the lower grassland dominated portions of the site periodically to reduce fuels for fire protection, but this is currently the only management on the property. There is rubble in isolated locations at the site and a concrete foundation, indicating that there was apparently a structure on the site at one time. The nature and function of this structure are unknown. The upper portions of the property are very steep and densely vegetated with mature mixed conifer and oak trees, and have likely never been modified.

1.5 Regulatory Setting and Definitions

Certain wetlands and other water resources, e.g., rivers, streams and natural ponds, are a subset of "waters of the United States" and receive protection under Section 404 of the Clean Water Act (CWA). The Corps has primary federal responsibility for administering regulations that concern waters and wetlands. In this regard, the Corps acts under the statutory authority of the Clean Water Act (Section 404), which governs specified activities in "waters of the United States," including wetlands.

In the Code of Federal Regulations (33 CFR 328.3[a]; 40 CFR 230.3[s]) "waters of the United States"[2] are defined as: (1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any

1 DES Architects and Engineers and C2G/Civil Consultants Group, "Preliminary Grading & Drainage Plan, Target, Scotts Valley, CA," November 12, 2007.

2 Based on the Supreme Court ruling (SWANCC) concerning the Clean Water Act (January 9, 2001), Corps jurisdiction over non-navigable, isolated, intrastate waters can no longer be based solely on the use of such waters by migratory birds. Jurisdiction over such waters may be asserted by the Corps if the use, degradation, or destruction of these waters could affect other waters of the Unites States, or interstate or foreign commerce and is to be analyzed on a case-by-case basis. Impoundments of waters, tributaries of waters, and wetlands adjacent to waters should be analyzed on a case-by-case basis. A more recent Supreme Court case, *Rapanos v. United States* (2006), also questioned the definition of "waters of the United States" and the scope of federal regulatory jurisdiction over such waters, but left open the question as to whether the CWA extends to those waters and wetlands that have a 'significant nexus' to navigable waters of the United States, or whether it is limited to waters with a continuous connection. The implications of this ruling are being tested in the courts. For example, the U.S. Ninth Circuit Court of Appeals decision, in *Northern California River Watch v. City of Healdsburg* (August 10, 2006), relied on the "significant nexus" definition, an interpretation that suggests little change in the scope of the CWA. The EPA and the Corps have issued guidance (June 5, 2007) on how to implement the CWA in light of these latest rulings. They have accepted that a water body must have a "significant nexus" to a "traditionally navigable water." In addition the Corps must now coordinate with the EPA on Determinations of Non-Jurisdiction for Isolated Waters under the SWANCC decision.

such waters which are or could be used by interstate or foreign travelers for recreational or other purposes; or from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or which are used or could be used for industrial purposes by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in paragraphs (1) through (4); (6) Territorial seas; and (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6).

The Corps and the Environmental Protection Agency (EPA) define wetlands as, "Those areas that are saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for the life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."[3] Corps wetlands must exhibit three parameters: 1) wetland hydrology, 2) hydrophytic vegetation, and 3) hydric soils in order to meet the federal definition.

The term "other waters of the United States" includes water bodies, such as rivers and streams, that may not meet the full criteria for wetlands designation but that do exhibit evidence of an ordinary high water mark (OHWM) and are navigable or hydrologically connected to a navigable water body.

The State Water Resources Control Board, acting through the nine Regional Water Quality Control Boards (Regional Boards), must certify that a Corps permit action meets state water quality objectives (Section 401, Clean Water Act). In doing so, the Regional Board will often concur with a Corps finding of jurisdictional waters. However, the Regional Board may also take jurisdiction over waters that the Corps does not consider jurisdictional under the state's Porter-Cologne Water Quality Control Act. The Porter-Cologne Act defines waters of the state in conformity with the federal definition under 40 Code of Federal Regulations:

> *Wetlands in the Region are defined to include areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (including) playa lakes, swamps, marshes, bogs and similar areas such as sloughs, prairie river overflows, mudflats, and natural ponds (40 CFR Section 110.1[f]).*

When wetlands are not identified as meeting CWA Section 404 requirements, the RWQCB may still take jurisdiction under the Porter-Cologne Act. The authority in these cases is protection of beneficial uses and water quality. In determining the functions and values of a wetland, the Regional Board may consider integrated physical, chemical and biological wetland parameters including water purification, flood control, nutrient removal and transformation, sediment stabilization and retention, water supply, ground water recharge/discharge, erosion control, recreation, wildlife diversity/abundance and aquatic diversity/abundance.

[3] 40 CFR 230.3(t).

CDFG has jurisdiction under the California Fish and Game Code, Sections 1600 – 1616, with regard to lakes, rivers, and stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams. The wetlands definition used by CDFG was developed by the U.S. Fish and Wildlife Service. No CDFG jurisdictional features exist on the project site.

Wetlands and other environmentally sensitive habitats in California's coastal zone are regulated under the California Coastal Act of 1976, by the California Coastal Commission. The coastal zone, according to the Central Coast Local Coastal Program (LCP), extends up the central coast from Santa Cruz in a narrow strip, staying to the west side of the coast range. The City of Scotts Valley is not found within the Central Coast LCP, therefore the project site is not within the jurisdictional area of the Coastal Commission.

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CHAPTER 2
Setting

2.1 Project Setting

The project site is located in Scotts Valley with the eastern perimeter along La Madrona Drive, adjacent to Highway 17. The north and south perimeters are bounded by the Hilton Hotel, and Silverwood Drive, respectively. The western boundary extends up a very steep hill, and borders the adjacent residential community. The proposed development is a retail store with surrounding parking lot and landscaping. The retail store itself is proposed to cover 155,000 square feet, and the project footprint is located almost exclusively over the annual/perennial grassland portion of the property on the more gentle slopes. The proposed development would have direct, permanent impacts to approximately 53 percent of the 17.6-acre property.

2.2 Climate and Topography

The City of Scotts Valley is located in the south-central Santa Cruz Mountains in Santa Cruz County. The Santa Cruz Mountains support a variety of unique habitats and resources due to their location and topography. The marine influence is strong on the western side of the range which leads to frequent summer fog and relatively high precipitation. This environment supports habitats dominated by coast redwood, conifer, and coast live oak trees on hillsides, while the valleys are dominated by grasslands, chaparral communities and riparian corridors. Scotts Valley has an average annual rainfall of 41 inches, and mild temperatures year round.

2.3 Soils

In general, the soils at the project site are well drained, sandy loams found on moderate to steep slopes. Three soil map units are found within the project boundary according to the Natural Resource Conservation Service (NRCS) Soil Survey. These map units are the Ben Lomond-Felton complex (50 – 75 percent slopes), Elkhorn sandy loam (15-30 percent slopes), and Pfeiffer gravelly sandy loam (15 – 30 percent slopes). None of these soil map units are characterized as hydric on the *Soil List of Santa Cruz County* (USDAa, 1992).

The NRCS Custom Soil Resource Report for the project site and its immediate vicinity is included as Appendix D of this document. The Soil Resource Report includes a map of the individual soil types, as well as some information about the characteristics of each soil type.

Ben Lomond Series

This soil series is formed from weathered sandstone or granitic rocks, and the soil is typically a deep and well drained sandy loam. Ben Lomond soils are found on moderate to steep slopes (5 to 95 percent slopes) between 400 and 3,000 ft in elevation, and support mixed conifer, oak, and shrub vegetation communities. At the project site this soil series is represented only on the steepest slopes at the western boundary of the proposed project footprint and is found in conjunction with the Felton Series.

Felton Series

This soil series is formed from weathered shale, sandstone or mica schist, and the soil is a deep and well drained silt loam. This series is found on moderate to steep slopes (5 to 95 percent slopes) between 400 and 3,000 ft in elevation, and supports mixed conifer, oak, and shrub vegetation communities in central Californian coastal mountains. At the project site this soil series is represented only on the steepest slopes at the western boundary of the proposed project footprint and is found in conjunction with the Ben Lomond Series.

Elkhorn Series

The Elkhorn series is formed from weathered alluvium of mixed parent materials, and is a deep, well drained, fine, sandy loam. Elkhorn sandy loam is found on moderate to steep coastal terraces and supports a variety of natural grassland and forb communities as well as some agricultural crops. At the project site, this soil series is found on 15 to 30 percent slopes on the upper grassland dominated slope in the northwestern portion of the proposed project footprint.

Pfeiffer Series

This soil series is formed from weathered sandstone, schist, gneiss, and granite, and is a deep, well drained, coarse, sandy loam. The Pfeiffer series is found on nearly level to steep slopes and supports grassland and sparse oak savannah in the central California coast range. Pfeiffer gravelly sandy loam (15 to 30 percent slopes) underlies the majority of the project area extending from the base of the steep slope to La Madrona drive on the eastern project boundary, and supports the majority of the freshwater seeps on the property.

2.4 Hydrology

Surface Water

The project site is found in the Carbonera Creek drainage basin, which encompasses the majority of the City of Scotts Valley. Carbonera Creek is a perennial, south flowing stream located approximately a quarter mile to the east of the project site. Surface water at the project site occurs in two forms: rainfall, and seepage from underground sources. Surface water drains quickly into the soils at the site, which all have moderately rapid permeability and are generally sandy. During rain events, when the soils become saturated, water runs off the site in the form of sheet flow. This water makes its way to La Madrona Road storm drains which eventually drain into Carbonera Creek.

Groundwater

There are two aquifers underlying the Scotts Valley area: the Santa Margarita Sandstone aquifer, and the Lompico aquifer. These aquifers contribute to the Scotts Valley groundwater basin, which is the city's primary water source. The principal sources of natural groundwater recharge are precipitation, and infiltration along streams. The freshwater seeps on the property are most likely created by perched groundwater which flows naturally to the surface of the soil as a result of the low permeable layer.

2.5 Vegetation

Vegetation Communities

California annual grassland is a plant community that exhibits extreme variation across the state, but that is characterized by a dominance of native and non-native annual grasses. There can be also be a high cover of native and non-native broad-leaved plants (forbs), and scattered, sparse shrub and tree cover within annual grasslands. At the project site, the annual grassland is dominated by non-native species such as soft brome (*Bromus hordeaceus*), sheep sorrel (*Rumex acetosella*), Italian rye grass (*Lolium multiflorum*) and various species of vetch (*Vicia* spp. – some native). The majority of the project site is dominated by this vegetation community, which occurs mostly on the gentle to moderate east-facing slope. There is significant variability at the site with regard to species diversity, distribution, and relative cover within the California annual grassland community.

California oatgrass grassland is dominated by California oatgrass (*Danthonia californica*), a perennial bunchgrass. This species forms an almost continuous cover, with few other species present in the stand. Species that commonly associate with California oatgrass grassland are blue eyed grass (*Sisyrinchium bellum*) and blue wildrye (*Elymus glaucus*). This community is found in coastal areas as well as inland grasslands throughout the state, and is an important component of coastal prairie. California oatgrass is given a wetland indicator status of Facultative Wetland (FACW) by the Corps.[4] This community is found in small patches in or near the wetland seeps on the property.

California needlegrass grassland is dominated by purple needlegrass (*Nassella pulchra*), which is a perennial bunchgrass that has a large range, extending from northern California down through Baja California and from the California coast to the western foothills of the Sierra Nevada range. This grass forms sparse to dense stands that typically contain a wide variety of associated species, mostly exotic annual grasses such as soft brome, Italian rye grass, and ripgut brome (*Bromus diandrus*). At the project site needlegrass grassland is found scattered within the annual grassland in small, discrete stands, mostly on the upper slope of the grassland, but below the mixed conifer tree line.

[4] See definitions of plant species as wetland indicators in footnote 7, p. 3-**Error! Bookmark not defined.**.

Wetland seeps are not a vegetation community so much as a hydrologic feature, but they will be used here as a basis to describe the unique habitat that exists as a result of water seeping up to the soil surface from a groundwater source. Seeps are found dispersed throughout the grasslands at the project site, some very small, others large. They typically support wetland species such as brown-headed rush (*Juncus phaeocephalus*), various sedges (*Carex* spp.), and common velvet grass (*Holcus lanatus*).

Mixed conifer forest is found in the eastern portion of the property, on slopes generally 40 percent or steeper. At the project site, this community is dominated by coast redwood (*Sequoia sempervirens*), Douglas fir (*Pseudotsuga menziesii*), and ponderosa pine (*Pinus ponderosa*), with scattered, mature, coast live oak (*Quercus agrifolia*) at the lower margins of the stand. The understory of this community is dominated by poison oak (*Toxicodendron diversilobum*), and miner's lettuce (*Claytonia perfoliata*). For the most part, the mixed conifer stand would remain undisturbed by the development on the site. The exception is a grove of coast redwoods near the north boundary of the property, which would be wholly or partially removed.

2.6 Special Status Species

Plants

There are a variety of special status plant species that have a low potential to occur on the project site. Based on extensive past and current rare plant surveys (EIP, 2004; Harvey and Stanley and Associates, 1988; and by Environmental Science Associates in connection with the forthcoming environmental impact report for the Gateway South Retail Store project) which have all failed to locate any special status plants at the site, the probability that rare plants grow at the site is low. Some special status species that are present in the greater Scotts Valley area, and have therefore been intensively surveyed for at the project site are:[5]

- Ben Lomond spineflower, *Chorizanthe pungens* var. *hartwegiana* (FE, 1B.1)
- Scotts Valley spineflower, *Chorizanthe robusta* var. *hartwegii* (FE, 1B.1)
- Robust spineflower, *Chorizanthe robusta* var. *robusta* (FE, 1B.1)
- Santa Cruz tarplant, *Holocarpha macradenia* (FT, CE, 1B.1)

Wildlife

Raptors that may nest or forage in mixed conifer forest and grasslands in the project area include Cooper's hawk (*Accipiter cooperii)*, sharp-shinned hawk *(Accipiter striatus)*, red-shouldered hawk *(Buteo lineatus)*, red-tailed hawk (*Buteo jamaicensis)*, white-tailed kite (*Elanus leucurus)*, American kestrel (*Falco sparverius)*, and Northern harrier (*Circus cyaneus*). These species are protected from hunting and capture under the federal Migratory Bird Treaty Act. All except the Northern harrier nest in trees and would be expected to nest in the mixed conifer community

[5] FE – federally listed as endangered; FT – federally listed as threatened; 1B.1 – California Native Plant Society designation indicating a plant is Threatened, or Endangered in California and elsewhere and "Seriously Endangered" in California.

located on the steep slope rather than the younger, more sparsely arranged trees in the grassland dominated area.

A number of special status songbirds and passerines (relatively smaller, perching birds) occur or have the potential to occur in the mixed conifer forest and grassland habitats in the project area and include, among others: loggerhead shrike (*Lanius ludovicianus*), Vaux's swift (*Chaetura vauxi)*, and purple martin (*Progne subis)*. Disturbances to nesting raptors or songbirds that contribute to the incidental loss of fertile eggs or nests, or result in nest abandonment are prohibited under CDFG Code §3503 and §3503.5, with additional protection from the Migratory Bird Treaty Act.

Some special status mammals that have a low potential of occurring at the site are the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and several species of bats including the pallid bat *(Antrozous pallidus*), Townsend's Pacific big-eared bat (*Corynorhinus townsendii townsendii*), the Western mastiff bat (*Eumops perotis californicus*), and the fringed myotis bat (*Myotis thysanodes*). These bats forage mostly in open grassland areas and occasionally in mixed conifer forests. Additionally, the pallid bat (*Antrozous pallidus*) and Townsend's Pacific big-eared bat (*Corynorhinus townsendii townsendii*) occasionally roost under the bark of trees, so there is potential roosting habitat for these species at the site.

A habitat assessment for the project site has been prepared for several special status insects that occur in the greater Scotts Valley area (Arnold, 2002; 2008). The insects discussed in the habitat assessment are listed below.[6] These species are not likely to occur at the project site given the poor habitat suitability.

- Opler's longhorn moth, *Adela oplerella* (FSC)
- Ohlone tiger beetle, *Cicindela ohlone* (FE, CE)
- Mt. Hermon june beetle, *Polyphylla barbata* (FE)
- Zayante band-winged grasshopper, *Trimerotropis infantilis* (FE/CE)

6 FSC – Federal Species of Concern; FE – federally listed as endangered; CE – listed as endangered by the California Department of Fish and Game

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CHAPTER 3
Methods

ESA conducted the following tasks as part of this survey: (1) a review of literature, maps, and aerial photos to determine existing conditions of the site; and (2) a field survey and focused delineation of wetlands and other waters of the State on the site.

3.1 Literature Review

ESA reviewed the following sources for information relevant to this delineation:

- Previous EIR documents and biological survey reports;
- Site plans for the proposed Scotts Valley Target store (CAD drawings);
- Aerial photographs of the Project area and vicinity;
- NRCS interactive Soil Mapper web application for the Project area;
- Hydric soils list of Santa Cruz County; and
- Standard biological references and field guides including *The Jepson Manual* (Hickman, J. C. (ed.), 1993), and *An annotated checklist of the Vascular Plants of Santa Cruz County, California* (Morgan et al., 2005)

3.2 Field Survey and Delineation

Prior to the wetland delineation, ESA biologists examined soil maps and aerial photographs in order to pinpoint any areas that analysis of these sources might suggest were drainages or areas that would support wetlands. A previous site visit was also called upon to determine locations of potential wetlands, along with the 2004 wetland delineation of the site, undertaken in connection with a prior development proposal (EIP, 2004). Although the wetlands at the project site are not likely to be claimed under the jurisdiction of the Corps based on their characteristics, the methodology used herein for determining wetland status of a particular feature is that of the *U.S. Army Corps of Engineers Interim Regional Supplement to the Corps of engineers Wetland Delineation Manual: Arid West Region* (Corps, 2006).

Three positive wetland parameters must be present for an area to be considered a wetland by the Corps: (1) a dominance of wetland vegetation, (2) presence of hydric soils, and (3) presence of wetland hydrology. The study area was assessed for the presence or absence of these three positive indicators. At each sampling point, the dominant plant species within a six-foot radius

were visually assessed, using the recommended dominance test and prevalence index. Soils at each sampling point were characterized by texture, and color was described using Munsell soil color charts (1990).

Plants were identified to species using the *Jepson Manual: Higher Plants of California* (Hickman, 1993) and *An Annotated Checklist of the Vascular Plants of Santa Cruz County, California* (Morgan et. al., 2005). The *National List of Plant Species that Occur in Wetlands: California Region 0* (Reed, 1988) was used to determine the wetland indicator status of the plants (UPL-OBL).[7]

Presence of wetland hydrology was determined at each sampling point by presence of one or more of the following primary and/or secondary indicators: visual observation of inundation, observation of soil saturation within 12 inches of the surface, oxidized root channels, algal matting, sediment deposits, flow or drift accumulations at channel margins, channel flow marks in beds, scouring, surface cracking, water staining, and topography ("wetland drainage patterns").

Sampling points were taken within suspected wetlands and a paired point taken (where applicable) in nearby uplands. Sampling points were recorded on standard ESA wetland delineation forms, contained in Appendix C. Seasonal wetlands were measured using a GPS unit by logging a polygon around each of the wetlands. GPS collected field data were used to digitize potentially jurisdictional areas in ArcMap, version 9.2, using recent aerial photographs and USGS quadrangle layers to interpret and map the field delineation results. Potentially jurisdictional areas given in this report (see, for example, Table 4-1) were calculated using ArcMap tools. Representative photographs were taken throughout the study area, a subset of which is contained in Appendix B.

[7] Plant species are classified by their probability of being associated with wetlands or uplands. Obligate (OBL) species almost always (more than 99 percent of the time) occur in wetlands. Facultative Wetland (FACW) species occur in wetlands 67 – 99 percent of the time. Facultative (FAC) species are equally likely to occur in wetlands or uplands. Facultative Upland (FACU) and Obligate Upland (UPL) species occur in wetlands 1 – 33 percent and less than 1 percent of the time, respectively. For a sample point to meet the vegetation criterion to be classified as a wetland, more than 50 percent of the dominant plant species in each of the strata must be OBL, FACW, or FAC indicator species.

CHAPTER 4
Results

4.1 Summary of Results

Four freshwater seep wetlands were identified during the routine wetland delineation at the project site. All four of these wetlands are located in the grassland area on the lower slopes of the project site. These areas were identified by the presence of hydrophytic plant species, hydric soils, and wetland hydrology.

Although the freshwater seep wetlands within the project area are not expected to be considered waters of the United States under the jurisdiction U.S. Army Corps of Engineers, and therefore not likely regulated under sections 404 or 401 of the Clean Water Act, they still may be regulated as waters of the State under the Porter-Cologne Act. ESA estimates the total area within and adjacent to the project footprint for features that may be regulated by the State at 0.956 acre. Of this area, approximately 0.069 acre is outside of the proposed project footprint, but temporary or indirect impacts are expected. Permanent impacts are expected for 0.956 acre of freshwater seep wetlands at the project site.

TABLE 1

SUMMARY OF DELINEATED FEATURES WITHIN THE PROJECT AREA

Feature Type	Square Feet	Acres	Expected Temporary Impact Area (acres)	Expected Permanent Impact Area (acres)	Total Expected Project Impact Area (acres)
Freshwater Seep Wetland					
FS 1	3,281.96	0.075	0.069	0.006	0.075
FS 2	11,083.58	0.254	-	0.254	0.254
FS 3	26,523.64	0.609	-	0.609	0.609
FS 4	3,799.35	0.087	-	0.087	0.087
Total State Jurisdictional Area	**44,688.53**	**1.026**	**0.069**	**0.956**	**1.026**

SOURCE: ESA 2008

4.2 Waters of the State

The wetland seeps at the project site are considered to be isolated since they are not located adjacent to other wetlands or water features such as perennial, intermittent, or ephemeral streams. The nearest stream to the project site is Carbonera Creek, which is located approximately 0.17 mile to the east of the project site. Sheet flow resulting from precipitation at the site is conveyed to Carbonera Creek by way of three storm drains located along La Madrona Road along both sides of the road.

The freshwater seeps are the result of shallow groundwater that perched on an underground bedrock layer. This groundwater percolates up to the soil surface, saturating the soil and creating an environment where hydrophytic plants thrive.

FS 1, a 0.075 acre freshwater seep located in the northeast portion of the project area is a very subtle depression on a gentle slope that is dominated by creeping bent grass (*Agrostis stolonifera*) and red fescue (*Festuca rubra*). These two species are both perennial grasses with wetland indicator status FACW and FAC, respectively. The soil in this seep is considered hydric because it is characterized by low chroma and 2 percent or greater prominent redox concentrations, consistent with hydric soil indicator F3 depleted matrix (according to the Arid West Regional Supplement). The project boundary essentially runs through the middle of this seep, and permanent impacts are expected to be only 0.006 acres.

FS 2, a 0.25 acre freshwater seep located near the eastern boundary of the project site is characterized primarily by dense sedge (*Carex densa*) OBL, velvet grass (*Holcus lanatus*) FAC, and spreading rush (*Juncus patens*) FAC. A few acacia trees are found in this wetland, but they do not constitute a dominant part of the vegetation cover. The soil pit showed that there is moisture in the soil, which was considered capillary fringe, and the pit had a faint but perceptible smell of treated water or septic tank. The soil layer from 4 to 10 inches contained 4 percent redox concentrations, and the matrix had a chroma of 1 which qualifies this soil as F3, depleted matrix.

FS 3, a 0.61 acre feature found in the southern region of the project area, is rather large, and because of this it is described based on two sampling points (sampling points 16, and 18). The extent of FS 3 is characterized by a dominance of velvet grass and sheep sorrel (*Rumex acetosella*), two FAC species. The soils are considered hydric based on the presence of 2 – 5 percent redox concentrations within the soil layer between 0 and 10 to 12 inches. The soil chroma is 1, and the combination of this with the redox concentrations make this soil F3, depleted matrix. Wetland hydrology for this feature is established by the presence of oxidized rhizospheres along living roots.

FS 4 is a small (0.09 acre), narrow feature just downslope from the concrete foundation in the southeastern portion of the project site. This area is characterized by a variety of wetland species, the dominants being bentgrass (*Agrostis stolonifera*) FACW, velvet grass FAC, and dense sedge OBL. The hydric soils contain five percent redox concentrations along root channels 1 to 10 inches from the soil surface, and five percent redox concentrations as soft masses 1 to 10 inches

from the soil surface. Furthermore, the soil chroma is 1, which qualifies this soil as F3, depleted matrix. Wetland hydrology for this feature is established by the presence of oxidized rhizospheres along living roots.

4.3 Non Jurisdictional Areas

ESA surveyed 19 wetland sample points during the delineation. Six of these points were determined to exhibit all three characteristics of a wetland. The remaining sample points were found in areas that lacked either hydrophytic vegetation, hydric soils, wetland hydrology, or any combination of the three. Many of the sample points were placed in areas that superficially appeared to have characteristics of a wetland, or were presumed to be wetlands based on the map provided in the 2004 EIP delineation. Upon investigation these areas lacked one, two, or all three wetland indicators. Four sample points were deliberately placed in upland areas that lack all three wetland indicators to highlight the differences between the uplands and wetlands, and to characterize the habitat adjacent to the wetland seeps.

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CHAPTER 5
Report Authors and References

5.1 Report Authors

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Oakland, CA 94612
510.839.5066

Project Director:	Gary Oates
Project Manager:	Karl Heisler
Wetland Delineation:	Rachel Brush, biologist, Wetland Delineation and Management Training (Richard Chinn Environmental Training, Inc.) Melanie Vanderhoof, biologist, Wetland Delineation Training (Wetlands Training Institute)
Report Preparation:	Rachel Brush, Chris Rogers, plant ecologist, Wetland Delineation Training (Wetland Training Institute)

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APPENDIX A

Figures

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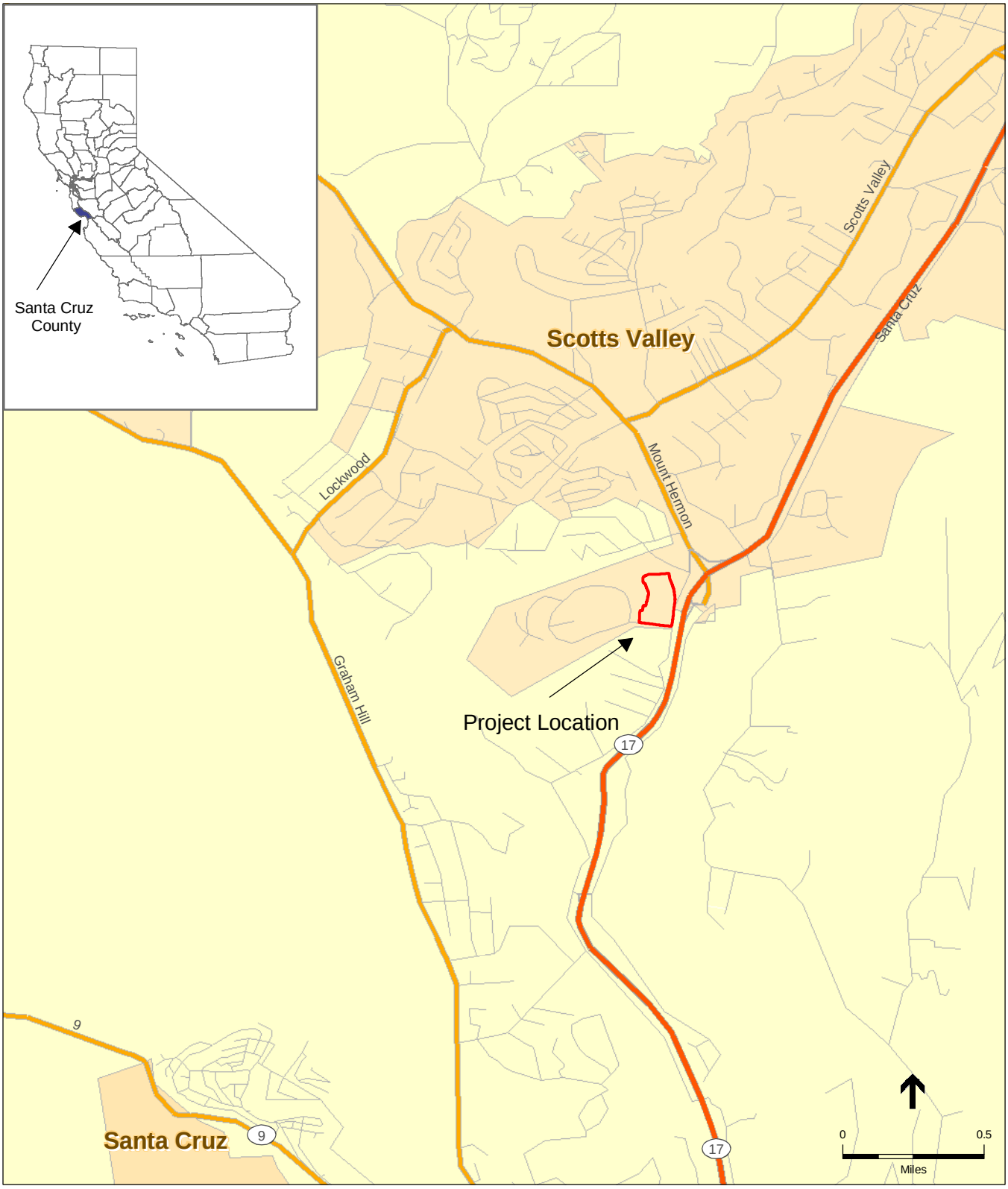

SOURCE: ESRI 2006; and ESA 2008

Gateway South Retail Store Delineation . 207755

Figure 1
Project Location

Gateway South Retail Store . 207755

SOURCE: Globe Xplorer, 2006, ESA 2008

Figure 2
Location of Freshwater Seeps

1.] **FS 1**- from the center of the seep facing south

2.] **FS 1**- from the center of the seep facing east

Source: ESA, 2008

Gateway South Retail Stores. 207755

Figure 3

Representative Photographs

3.] **FS 1**- from the center of the seep facing north

4.] **FS 2** – from the center of the seep facing south

Source: ESA, 2008

Gateway South Retail Stores. 207755

Figure 4

Representative Photographs

5.] **FS 2** – from the center of the seep facing north

6.] **FS 3** –from sampling point 18 facing south

Source: ESA, 2008

Gateway South Retail Stores. 207755

Figure 5

Representative Photographs

7.] **FS 3** from sampling point 18 facing east**.**

8.] **FS 4**- soil pit.

Source: ESA, 2008

Gateway South Retail Stores. 207755

Figure 6
Representative Photographs

9.] **FS 4** – from sampling point 15 facing south

Source: ESA, 2008

Gateway South Retail Stores. 207755

Figure 7

Representative Photographs

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APPENDIX B

Data Sheets

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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008
Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 1
Investigator(s): M. VANDERHOOF, R. BRUSH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 5%
Subregion (LRR): C Lat: 37.035334 Long: -122.02456931 Datum: NAD 83
Soil Map Unit Name: ELKHORN SANDY LOAM NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: WPT #74, TRACK 2-JUN-08, PAIRED W/ SAMPLING PT 2.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. RUMEX ACETOSELLA	15	✓	FAC
2. BROMUS HORDEACEOUS	4		UPL
3. HOLCUS LANATUS	7	✓	FAC
4. LOLIUM MULTIFLORUM	2		FAC
5. BRIZA MAXIMA	3		UPL
6. JUNCUS PATENS	2		FAC
7. LACTUCA SERRIOLA	<1		FAC
8. BROMUS DIANDRUS	4		UPL
AVENA FATUA	<1		UPL
Total Cover:	39		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust —

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	11	x 3 = 33
FACU species		x 4 =
UPL species	11	x 5 = 55
Column Totals:	22 (A)	88 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: LOTS OF THATCH FROM THIS YEAR'S ANNUALS, VERY LITTLE BARE GROUND.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y 3/1	100					SANDY LOAM	
1-8	2.5Y 4/2	97	10YR 6/8	3	C	M	SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: ON A SLOPE.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008

Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 2 WPT 75

Investigator(s): MKV RNB Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): _____ Slope (%): 5

Subregion (LRR): C Lat: 37.03541351 Long: -122.02462295 Datum: NAD 83

Soil Map Unit Name: ELKHORN SANDY LOAM 15-30% SLOPES NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____	No _____	
Wetland Hydrology Present?	Yes _____	No _____	

Remarks: THIS POINT IS AT THE SAME LEVEL ALONG SLOPE AS PT 1.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ~~0~~			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. GENISTA MONSPESSULIANA	5	✓	UPL
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. LOLIUM MULTIFLORUM	4		FAC
2. AVENA FATUA	7	✓	UPL
3. BROMUS DIANDRUS	14	✓	UPL
4. BROMUS HORDEACEUS	5		UPL
5. ERODIUM BOTRYS	1		UPL
6. UNK TARWEED (IDENTIFIED)	7	✓	
7.			
8.			
Total Cover: 30			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: Q

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 3/2	99	10YR 4/6	<1	C	M		LOAMY SAND

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks: SOIL IS VERY UNIFORM EXCEPT FOR ISOLATED REDOX CONCENTRATIONS FOUND AT VARIOUS LEVELS IN THE MATRIX. VERY LITTLE ORGANIC MATTER ON SOIL SURFACE

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- N Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes N No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008
Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 3
Investigator(s): MKV, RNB Section, Township, Range: _____
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): _____ Slope (%): 5
Subregion (LRR): C Lat: 37.035258 Long: -122.021619 Datum: NAD83
Soil Map Unit Name: ELKHORN SANDY LOAM NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	Is the Sampled Area within a Wetland?	Yes X No _____
Hydric Soil Present?	Yes _____ No _____		
Wetland Hydrology Present?	Yes _____ No _____		

Remarks: WPT 76, TRACK 02-JUN-08

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. FESTUCA RUBRA	10	X	FAC
2. BRIZA MAXIMA	2		UPL
3. BROMUS HORDEACEOUS	3		UPL
4. LOLIUM MULTIFLORUM	1		FAC
5. DANTHONIA CALIFORNICA	1		FACW
6. AGROSTIS STOLONIFERA	12	X	FACW
7. HOLCUS LANATUS	2		FAC
8. JUNCUS PATENS	1		FAC
Total Cover:	30		
Woody Vine Stratum			
1. —			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	13	x 2 = 26
FAC species	4	x 3 = 12
FACU species		x 4 =
UPL species	5	x 5 = 25
Column Totals:	22 (A)	63 (B)

Prevalence Index = B/A = 2.86

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- X Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: MOSS AT BASE OF GRASSES. LOTS OF BUNCH GRASS THATCH FROM PREVIOUS YEAR'S GROWTH.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/1	100					SANDY LOAM	
1-8	10YR 4/1	98	7.5YR 5/8	2	RM	RC	SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008
Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 4
Investigator(s): MKV RNB Section, Township, Range: _____
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): — Slope (%): 5
Subregion (LRR): C Lat: 37.035285 Long: -122.024129 Datum: NAD 83
Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____	No _____	
Wetland Hydrology Present?	Yes _____	No _____	

Remarks: WPT 77

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. HOLCUS LANATUS	16	X	FAC
2. AVENA FATUA	2		UPL
3. BRIZA MAXIMA	3		UPL
4. JUNCUS PATENS	3		FAC
5. CAREX DENSA	2		OBL
6. CARDUUS PYCNOCEPHALUS	2		UPL
7. BROMUS CARINATUS	1		UPL
8. GERANIUM DISSECTUM	1		UPL
Total Cover:	30		

Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	2	x 1 = 2
FACW species	0	x 2 = 0
FAC species	19	x 3 = 57
FACU species		x 4 =
UPL species	9	x 5 = 45
Column Totals:	30 (A)	104 (B)

Prevalence Index = B/A = 3.47

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					SANDY LOAM	– LOTS OF ORGANIC MATER
3-8	10YR 2/1	99	7.5YR 3/4	<1	C	M	SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/08

Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 5 WPT 80

Investigator(s): MKV, RNB Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): _____ Slope (%): 5%

Subregion (LRR): C Lat: 37.034969 Long: -122.024067 Datum: NAD 83

Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ACACIA DEALBATA	1		UPL
2. SEQUOIA SEMPERVIRENS	<1		UPL
3.			
4.			
Total Cover:	1		
Sapling/Shrub Stratum			
1. GENISTA MONSPESSULIANA	7	X	UPL
2.			
3.			
4.			
5.			
Total Cover:	7		
Herb Stratum			
1. HOLCUS LANATUS	20	X	FAC
2. DANTHONIA CALIFORNICA	2		FACW
3. JUNCUS EFFUSUS	1		FAC
4. CYPERUS ERAGROSTIS	1		FACW
5. CAREX DETSA	4		OBL
6. BRIZA MAXIMA	<1		UPL
7. VICIA DISPERMA	12	X	UPL
8. RUMEX ACETOSELLA	<1		FAC
Total Cover:	40		
Woody Vine Stratum			
1. RUBUS DISTOLOR	<1		FACW
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	4	x 1 =	4
FACW species	8	x 2 =	5
FAC species	22	x 3 =	66
FACU species		x 4 =	
UPL species	20	x 5 =	100
Column Totals:	49 (A)		175 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:
TREES AND SHRUBS GROWING AT DOWNSLOPE MARGIN OF WETLAND
ALL TREES + SHRUBS ARE VERY YOUNG (< 5 M), DANTHONIA CAL AROUND
UPSLOPE + DOWNSLOPE MARGINS OF WETLAND

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 3/2	92	10YR 4/6	8	C	RC/M		LOAMY SAND
2-14"	10YR 3/2	92	10YR 4/6	8	C	RC/M		LOAMY SAND

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks: REDOX INCLUSIONS ALONG ROOT PORES AND AS INDEPENDENT MASSES IN MATRIX.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Co. Sampling Date: 06/02/2008
Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 6
Investigator(s): MKV, RNB Section, Township, Range: ____
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): — Slope (%): 5%
Subregion (LRR): C Lat: 37.035048 Long: -122.024143 Datum: NAD83
Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: WPT 81

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ACACIA DEALBATA	5		UPL
2. SEQUOIA SEMPERVIRENS	<1		UPL
3.			
4.			
Total Cover:	5		
Sapling/Shrub Stratum			
1. GALVISTA MONSPESSULIANA	9	X	UPL
2.			
3.			
4.			
5.			
Total Cover:	9		
Herb Stratum			
1. RUMEX ACETOSELLA	4		FAC
2. HOLCUS LANATUS	10	X	FAC
3. BRIZA MAXIMA	2		UPL
4. VICIA DISPERMA	5		UPL
5. AGROSTIS STOLONIFERA	2		FACW
6. DANTHONIA CALIFORNICA	<1		FACW
7. CAREX DENSA	2		OBL
8.			
Total Cover:	25		
Woody Vine Stratum			
1. RUBUS DISCOLOR	3		FACW
2.			
Total Cover:	3		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust —

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	5	x 2 =	10
FAC species	14	x 3 =	42
FACU species		x 4 =	
UPL species	21	x 5 =	105
Column Totals:	42 (A)		159 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	98	7.5YR 4/6	2	C	RC+M	SANDY LOAM	w/ ORGANIC MATTER
3-10	10YR 3/1	95	7.5YR 4/6	5	C	RC+M	SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): _____

Water Table Present? Yes ___ No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/08

Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 7

Investigator(s): MKV, RNB Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): _____ Slope (%): 3

Subregion (LRR): C Lat: 37.034973 Long: -122.024202 Datum: NAD83

Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: WPT 82 THIS IS UPLAND POINT PAIRED W/ 5, 6

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. BRIZA MAXIMA	12	X	UPL
2. RUMEX ACETOSELLA	10	X	FAC
3. AGROSTIS STOLONIFERA	6	X	FAC
4. AVENA FATUA	1		UPL
5. LACTUCA SERRIOLA	2		FAC
6.			
7.			
8.			
Total Cover: 26			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2"	2.5Y 3/1	100						SANDY LOAM
2-9"	2.5Y 3/1	100						" "

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12) —
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks: TOP SOIL HORIZON HAS MORE ORGANIC MATTER THAN LOWER SOIL HORIZON, NO REDOX FEATURES

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/08

Applicant/Owner: SCOTTS VALLEY State: _____ Sampling Point: 8

Investigator(s): MKV, RNB Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): _____ Slope (%): 5 WPT 83

Subregion (LRR): C Lat: 37.035275 Long: -122.023187 Datum: NAD 83

Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: WPT 83

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ACACIA DEALBATA	7		UPL
2.			
3.			
4.			
Total Cover:	7		
Sapling/Shrub Stratum			
1. GENISTA MONSPESSULANA	2		UPL
2. CONYZA SP.	<1		UPL
3. JUNCUS PATENS	1		FAC
4. CAREX DENSA	<1		OBL
5.			
Total Cover:	4		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. RUBUS DISCOLOR	75	X	FACW
2.			
Total Cover:	75		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: HUGE PATCH DOMINATED BY RUDI JUST UP FROM ROAD.

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8"	2.5Y 3/1	99	10YR 4/6	<1	C	M		SANDY LOAM

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12) —
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: VERY FEW REDOX FEATURES, ONLY AS INCLUSIONS, NONE AS PORE LININGS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008
Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 9
Investigator(s): MKV, RNB Section, Township, Range: _____
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): N/A Slope (%): 5
Subregion (LRR): C Lat: 37.034934 Long: -122.023238 Datum: NAD 83
Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: WPt 85

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ACACIA DEALBATA	3		UPL
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1. BACCHARIS PILULARIS	1		UPL
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. HOLCUS LANATUS	25	x	FAC
2. CAREX DENSA	20	x	OBL
3. JUNCUS PATENS	10	X	FAC
4. RUMEX ACETOSELLA	8		FAC
5. CIRSIUM VULGARE	1		UPL
6.			
7.			
8.			
Total Cover: 55			

Woody Vine Stratum			
1. RUBUS DISCOLOR	2		FACW
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: LONG THIN BAND OF VEGETATION THAT FOLLOWS CONTOUR

Arid West – Version 11-1-2006

US Army Corps of Engineers

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100						SANDY LOAM
4-10	10YR 2/1	96	7.5YR 4/6	4	C	RC+M		SANDY LOAM

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:
SOIL PIT IS MOIST AND HAS A SMELL, NOT SULFURIC, MORE LIKE SEPTIC TANK.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 8"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SATURATION IN THE FORM OF MOIST SOIL.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: _____

Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 10

Investigator(s): MKV, RMB Section, Township, Range: _____ WPT 86

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): — Slope (%): 5%

Subregion (LRR): a Lat: 37.034974 Long: -122.023297 Datum: NAD83

Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: WPT 86

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acacia DEALBATA	3		UPL
2.			
3.			
4.			
Total Cover:	3		
Sapling/Shrub Stratum			
1. Genista monspessulana	4		UPL
2.			
3.			
4.			
5.			
Total Cover:	4		
Herb Stratum			
1. Rumex acetosela	6		FAC
2. Bromus diandrus	12	D	UPL
3. Carex densa	3		OBL
4. Avena fatua	3		UPL
5. Lolium multiflorum	3		FAC
6. Bromus hordaceus	10	D	UPL
7.			
8.			
Total Cover:	37		
Woody Vine Stratum			
1. —			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	3	x 1 = 3
FACW species	—	x 2 =
FAC species	9	x 3 = 21
FACU species		x 4 =
UPL species	32	x 5 = 160
Column Totals:	44 (A)	184 (B)

Prevalence Index = B/A = 4.18

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 2/1	100	—					sandy loam
1-10	7.5YR 2/1	100	—					sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008

Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 11

Investigator(s): MKV, RNB Section, Township, Range: ____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): — Slope (%): 5 TRACK 5

Subregion (LRR): C Lat: 37.034656 Long: -122.023557 Datum: NAD 83

Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X NO SOILS.
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: TRACK 5

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ACACIA DEALBATA	6		UPL
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. CORTADERIA JUBATA	<1		UPL
2. GENISTA MONSPESSULIANA	15	X	UPL
3. BACCHARIS PILULARIS	1		UPL
4.			
5.			
Total Cover:			
Herb Stratum			
1. CAREX DENSA	12	X	OBL
2. HOLCUS LANATUS	8		FAC
3. AGROSTIS STOLONIFERA	6		FACW
4. JUNCUS PATENS	2		FAC
5. RUMEX ACETOSELLA	13	X	FAC
6. DANTHONIA CALIFORNICA	2		FACW
7.			
8.			
Total Cover: 37			
Woody Vine Stratum			
1. —			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 3/3	100						LOAMY SAND
2-10	2.5Y 3/3	95	7.5YR 4/6	5	C	M		LOAMY SAND

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks: ROOT LAYER IS VERY DEEP, MATRIX COLOR DOES NOT HAVE DARK ENOUGH CHROMA TO QUALIFY AS INDICATOR S5 EVEN THOUGH THERE ARE SOFT MASSES ~ 1/2 CM - 2 1/2 CM IN SIZE IN THE LOWER MATRIX,

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Scotts Valley City/County: Santa Cruz Sampling Date: 06/02/2008
Applicant/Owner: Scotts Valley State: CA Sampling Point: 12
Investigator(s): MKV RNB Section, Township, Range: ____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): — Slope (%): ____
Subregion (LRR): C Lat: 37.034071 Long: -122.024146 Datum: NAD83
Soil Map Unit Name: Pfeiffer Sandy Loam NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: WPT 88

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Carex barbarae	65	X	FACW
2. Holcus lanatus	3		FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. Rubus discolor	20	X	FACW
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust —

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Almost monoculture stand of C. barbarae w/ Rubi on one end. Lots of thatch from C. barbarae. H. lanatus around outer edge.

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y 3/2	100					SANDY LOAM	
1-12	2.5Y 3/2	99	10YR 5/8	<1	C	M	SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks: SOIL IS VERY SANDY, SOFT MASSES OF REDUCED SOIL, SMALL

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WP 89

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008

Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 13

Investigator(s): MKV, RNB Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): — Slope (%): 5%

Subregion (LRR): C Lat: 37.034166 Long: -122.024125 Datum: NAD83

Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: WPT 89

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Avena fatua	15	D	UPL
2. Brassica maxima	10	D	UPL
3. Rumex acetosella	2		FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. —			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	2	x 3 = 6
FACU species		x 4 =
UPL species	25	x 5 = 125
Column Totals:	27 (A)	131 (B)

Prevalence Index = B/A = 4.85

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 3/2	100	—					sandy loam fiber
1-10	7.5YR 3/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12) —
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008

Applicant/Owner: SCOTTS VALLEY State: _____ Sampling Point: 14 WPT 95 TRACK 7

Investigator(s): MKV, RNB Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): — Slope (%): 3

Subregion (LRR): C Lat: 37.034226 Long: -122.023151 Datum: _____

Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____
Hydric Soil Present?	Yes _____	No X
Wetland Hydrology Present?	Yes X	No _____

Is the Sampled Area within a Wetland? Yes _____ No X

Remarks: WPT 95

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. AGROSTIS STOLONIFERA	20	X	FACW
2. HOLCUS LANATUS	14	X	FAC
3. RUMEX ACETOSELLA	8	X	FAC
4. VULPIA BROMOIDES	3		FACW
5. BROMUS HORDEACEUS	1		UPL
6. CARPUS PYCNOCEPHALUS	<1		UPL
7. CAREX OBNUPTA	<1		OBL
8.			
Total Cover:	35		

Woody Vine Stratum			
1. —			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	23	x 2 = 46
FAC species	22	x 3 = 66
FACU species		x 4 =
UPL species	1	x 5 = 5
Column Totals:	46 (A)	117 (B)

Prevalence Index = B/A = 2.54

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: THATCH LAYER IS VERY DENSE, RESULTING IN VERY LITTLE BARE GROUND.

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100						
2-10	10YR 3/2	99	5YR 4/6	1	RC	M		SANDY LOAM

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12) —
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008

Applicant/Owner: SCOTTS VALLEY State: _____ Sampling Point: 15

Investigator(s): MKV, RNB Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): — Slope (%): 5%

Subregion (LRR): C Lat: 37.033841 Long: -122.023365 Datum: NAD 83

Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: WPT 96 TRACK 8

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. AGROSTIS STOLONIFERA	12	O	FACW
2. JUNCUS PATENS	3		FAC
3. JUNCUS EFFUSUS	3		OBL
4. HOLCUS LANATUS	7	O	FAC
5. RUMEX ACETOSELLA	3		FAC
6. CARDUUS PYCNOCEPHALUS	2		UPL
7. CAREX DENSA	6	O	OBL
8.			
Total Cover:	36		
Woody Vine Stratum			
1. —			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/1	100						SANDY LOAM
1-10	10YR 3/1	90	5YR 4/6	5	C	RC	SANDY LOAM	ROOT CHANNELS (REDOX)
		↳	2.5Y 5/3	5	C	M	SANDY LOAM	SOFT MASSES (REDOX

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008
Applicant/Owner: SCOTTS VALLEY State: _____ Sampling Point: 16
Investigator(s): MKV, RNB Section, Township, Range: _____
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): — Slope (%): 4
Subregion (LRR): C Lat: 37.03376 Long: -122.023658 Datum: NAD83
Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____
Hydric Soil Present?	Yes X	No _____
Wetland Hydrology Present?	Yes X	No _____

Is the Sampled Area within a Wetland? Yes X No _____

Remarks: WPT 97, TRACK 09

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. GENISTA MONSPESSULANA	2		UPL
2. URTICA DIOICA	1		FACW
3.			
4.			
5.			
Total Cover:	3		
Herb Stratum			
1. DANTHONIA CALIFORNICA	8	D	FACW
2. PLANTAGO LANCEOLATA	8	D	FAC
3. RUMEX ACETOSELLA	10	D	FAC
4. AGROSTIS STOLONIFERA	9	D	FACW
5. BRIZA MINOR	<1		UPL
6. BROMUS HORDEACEUS	1		UPL
7. HOLCUS LANATUS	10	D	FAC
8.			
Total Cover:	40		
Woody Vine Stratum			
1. RUBUS DISCOLOR	2		FACW
2.			
Total Cover:	2		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	96	7.5YR 4/6	3	RC	M		SANDY LOAM
2-12	10YR 3/1	96	7.5YR 4/6	3	RC	M		SANDY LOAM
0-2+2-12			7.5YR 4/6	1	M	M		" "

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks: WITHIN MATRIX THERE ARE OXIDATIONS ALONG RHIZOSPHERES (ROOT CHANNELS AND INCLUSIONS OF OXIDIZED SOFT MASSES.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008

Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 17

Investigator(s): MKV, RNB Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): — Slope (%): 3

Subregion (LRR): C Lat: 37.033398 Long: -122.024139 Datum: NAD83

Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: WPT 98

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. BROMUS HORDEACEOUS	9	D	UPL
2. RUMEX ACETOSELLA	13	D	FAC
3. VULPIA BROMOIDES	3		FACW
4. BRIZA MINOR	2		UPL
5. ERODIUM BOTRYS	<1		UPL
6.			
7.			
8.			
Total Cover: 22			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	3	x 2 = 6
FAC species	15	x 3 = 45
FACU species		x 4 =
UPL species	11	x 5 = 55
Column Totals:	29 (A)	106 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100						SANDY LOAM
2-18	10YR 3/2	100						" "

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008
Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 18
Investigator(s): MKV, RMB Section, Township, Range: _____
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): _____ Slope (%): 3
Subregion (LRR): C Lat: 37.033178 Long: -122.024249 Datum: NAD 83
Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	Is the Sampled Area within a Wetland?	Yes X No _____
Hydric Soil Present?	Yes X No _____		
Wetland Hydrology Present?	Yes X No _____		

Remarks: WPT 100, WITHIN TRACK 9, AND 1 OTHER TRACK

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. HOLCUS LANATUS	7	X	FAC
2. RUMEX ACETOSELLA	7	X	FAC
3. CAREX DENSA	2		OBL
4. VICIA TETRASPERMA	15	X	UPL
5. JUNCUS PATENS	2		FAC
6. CARDUUS PYCNOCEPHALUS	2		UPL
7. JUNCUS EFFUSUS	2		OBL
8.			
Total Cover: 33			
Woody Vine Stratum			
1. —			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust —

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/1	98	7.5YR 5/8	2	C	RC	SANDY LOAM	- LOTS OF ORGANIC MATTER
4-10	7.5YR 3/1	95	7.5YR 5/8	5	C	RC	SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): _____

Water Table Present? Yes ___ No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SCOTTS VALLEY City/County: SANTA CRUZ Sampling Date: 06/02/2008
Applicant/Owner: SCOTTS VALLEY State: CA Sampling Point: 19
Investigator(s): MKV, RNB Section, Township, Range: _____
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 1
Subregion (LRR): C Lat: 37.033508 Long: -122.023135 Datum: NAD83
Soil Map Unit Name: PFEIFFER SANDY LOAM NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	Is the Sampled Area within a Wetland?	Yes _____ No X
Hydric Soil Present?	Yes X No _____		
Wetland Hydrology Present?	Yes X No _____		

Remarks: WPT 101, TRACK 10

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. HOLCUS LANATUS	18	X	FAC
2. LOLIUM MULTIFLORUM	1		FAC
3. CARDUUS PYCNOCEPHALUS	8	X	UPL
4. CAREX OBNUSA	1		OBL
5. JUNCUS EFFUSUS	2		OBL
6. BROMUS HORDEACEOUS	1		UPL
7.			
8.			
Total Cover: 36			
Woody Vine Stratum			
1. —			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust —

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	3	x 1 = 3
FACW species		x 2 =
FAC species	19	x 3 = 57
FACU species		x 4 =
UPL species	9	x 5 = 45
Column Totals:	31 (A)	105 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: 19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	95	5YR 4/6	5	C	RC	SANDY LOAM	
2-8	10YR 3/2	89	10YR 4/6	6	C	M	SANDY LOAM	
			5YR 4/6	5	C	RC		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): _____

Water Table Present? Yes ___ No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX C

Soil Report

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United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Santa Cruz County, California

soil map

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

N

Meters
0 50 100 200 300

Feet
0 300 600 1,200 1,800

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

- Gully
- Short Steep Slope
- Other

Political Features

Municipalities

- Cities
- Urban Areas

Water Features

- Oceans
- Streams and Canals

Transportation

- Rails

Roads

- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Cruz County, California
Survey Area Data: Version 5, Dec 12, 2007

Date(s) aerial images were photographed: 10/30/1991

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Santa Cruz County, California (CA087)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
100	Aptos loam, warm, 15 to 30 percent slopes	4.4	4.0%
113	Ben Lomond-Catelli-Sur complex, 30 to 75 percent slopes	4.4	4.0%
115	Ben Lomond-Felton complex, 50 to 75 percent slopes	21.1	19.2%
135	Elkhorn sandy loam, 15 to 30 percent slopes	6.3	5.7%
142	Lompico-Felton complex, 5 to 30 percent slopes	0.0	0.0%
159	Pfeiffer gravelly sandy loam, 15 to 30 percent slopes	73.4	66.8%
160	Pfeiffer gravelly sandy loam, 30 to 50 percent slopes	0.3	0.3%
Totals for Area of Interest (AOI)		109.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified

by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Santa Cruz County, California Version date:12/12/2007 10:01:14 AM

100—Aptos loam, warm, 15 to 30 percent slopes

Map Unit Setting

Elevation: 400 to 3,000 feet
Mean annual precipitation: 35 to 60 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 245 to 270 days

Map Unit Composition

Aptos and similar soils: 85 percent

Description of Aptos

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Concave, convex
Across-slope shape: Convex
Parent material: Residuum weathered from siltstone and/or residuum weathered from sandstone and shale

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Other vegetative classification: LOAMY (015XD047CA_1)

Typical profile

0 to 18 inches: Loam
18 to 24 inches: Sandy clay loam, clay loam, loam
24 to 36 inches: Channery clay loam
36 to 40 inches: Weathered bedrock

113—Ben Lomond-Catelli-Sur complex, 30 to 75 percent slopes

Map Unit Setting

Elevation: 400 to 5,500 feet
Mean annual precipitation: 30 to 80 inches
Mean annual air temperature: 55 to 66 degrees F
Frost-free period: 225 to 245 days

Map Unit Composition

Catelli and similar soils: 30 percent
Ben lomond and similar soils: 30 percent
Sur and similar soils: 20 percent
Minor components: 14 percent

Description of Ben Lomond

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from granite and/or residuum weathered from sandstone

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 11.9 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 19 inches: Sandy loam
19 to 46 inches: Sandy loam, fine sandy loam, loam
46 to 50 inches: Weathered bedrock

Description of Catelli

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from granite and/or residuum weathered from sandstone

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water capacity: High (about 9.2 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 7 inches: Sandy loam
7 to 37 inches: Sandy loam, fine sandy loam, very fine sandy loam
37 to 41 inches: Weathered bedrock

Description of Sur

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from granite and/or residuum weathered from schist and/or residuum weathered from sandstone

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 18 inches: Stony sandy loam
18 to 35 inches: Stony sandy loam, very stony sandy loam
35 to 39 inches: Unweathered bedrock

Minor Components

Aptos sandy loam

Percent of map unit: 4 percent

Catelli

Percent of map unit: 3 percent

Felton sandy loam

Percent of map unit: 2 percent

Nisene loam

Percent of map unit: 2 percent

Lompico loam

Percent of map unit: 1 percent

Maymen stony loam

Percent of map unit: 1 percent

Zayante coarse sand

Percent of map unit: 1 percent

115—Ben Lomond-Felton complex, 50 to 75 percent slopes

Map Unit Setting

Elevation: 300 to 3,000 feet
Mean annual precipitation: 25 to 70 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 220 to 245 days

Map Unit Composition

Felton and similar soils: 35 percent
Ben lomond and similar soils: 35 percent
Minor components: 13 percent

Description of Ben Lomond

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from granite and/or residuum weathered from sandstone

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 11.9 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 19 inches: Sandy loam
19 to 46 inches: Sandy loam, fine sandy loam, loam
46 to 50 inches: Weathered bedrock

Description of Felton

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex

Parent material: Residuum weathered from siltstone and/or residuum weathered from mica schist and/or residuum weathered from sandstone and shale

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: 40 to 72 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very high (about 22.8 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 11 inches: Sandy loam
11 to 43 inches: Clay loam, silty clay loam, sandy clay loam
43 to 63 inches: Sandy loam, loam, sandy clay loam
63 to 67 inches: Weathered bedrock

Minor Components

Nisene

Percent of map unit: 4 percent

Aptos sandy loam

Percent of map unit: 4 percent

Lompico loam

Percent of map unit: 2 percent

Hecker gavelly sandy loam

Percent of map unit: 1 percent

Ben lomond

Percent of map unit: 1 percent

Felton

Percent of map unit: 1 percent

135—Elkhorn sandy loam, 15 to 30 percent slopes

Map Unit Setting

Elevation: 50 to 5,000 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 245 to 275 days

Map Unit Composition

Elkhorn and similar soils: 85 percent
Minor components: 12 percent

Description of Elkhorn

Setting

Landform: Alluvial fans, terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine deposits

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very high (about 15.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile

0 to 21 inches: Sandy loam
21 to 61 inches: Sandy clay loam, clay loam

Minor Components

Baywood loamy sand

Percent of map unit: 5 percent

Tierra sandy loam

Percent of map unit: 4 percent

Pfeiffer sandy loam

Percent of map unit: 2 percent

Watsonville

Percent of map unit: 1 percent
Landform: Marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

142—Lompico-Felton complex, 5 to 30 percent slopes

Map Unit Setting

Elevation: 300 to 3,000 feet
Mean annual precipitation: 25 to 70 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 220 to 245 days

Map Unit Composition

Lompico and similar soils: 40 percent
Felton and similar soils: 35 percent

Minor components: 14 percent

Description of Lompico

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Concave, convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from mudstone and/or residuum weathered from siltstone and/or residuum weathered from sandstone and shale

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very high (about 13.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile

0 to 5 inches: Loam
5 to 37 inches: Clay loam, sandy clay loam, loam
37 to 41 inches: Weathered bedrock

Description of Felton

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Concave, convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from siltstone and/or residuum weathered from mica schist and/or residuum weathered from sandstone and shale

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 40 to 72 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very high (about 22.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile

0 to 11 inches: Sandy loam
11 to 43 inches: Clay loam, silty clay loam, sandy clay loam
43 to 63 inches: Sandy loam, loam, sandy clay loam
63 to 67 inches: Weathered bedrock

Minor Components

Aptos fine sandy loam

Percent of map unit: 5 percent

Nisene loam

Percent of map unit: 4 percent

Lompico varient loam

Percent of map unit: 3 percent

Lompico loam

Percent of map unit: 2 percent

159—Pfeiffer gravelly sandy loam, 15 to 30 percent slopes

Map Unit Setting

Elevation: 300 to 2,800 feet
Mean annual precipitation: 16 to 55 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 245 to 270 days

Map Unit Composition

Pfeiffer and similar soils: 85 percent
Minor components: 7 percent

Description of Pfeiffer

Setting

Landform: Hills, terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, tread
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Marine deposits and/or residuum weathered from granite and/or residuum weathered from sandstone

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e
Ecological site: COARSE LOAMY (R015XD011CA)

Typical profile

0 to 38 inches: Gravelly sandy loam
38 to 66 inches: Gravelly coarse sandy loam, gravelly sandy loam, coarse sandy loam
66 to 70 inches: Weathered bedrock

Minor Components

Elkhorn sandy loam

Percent of map unit: 5 percent

Baywood loamy sand

Percent of map unit: 1 percent

Elder sandy loam

Percent of map unit: 1 percent

160—Pfeiffer gravelly sandy loam, 30 to 50 percent slopes

Map Unit Setting

Elevation: 300 to 2,800 feet
Mean annual precipitation: 16 to 55 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 240 to 270 days

Map Unit Composition

Pfeiffer and similar soils: 85 percent
Minor components: 10 percent

Description of Pfeiffer

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Marine deposits and/or residuum weathered from granite and/or residuum weathered from sandstone

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.6 inches)

Interpretive groups

Land capability (nonirrigated): 6e
Ecological site: COARSE LOAMY (R015XD011CA)

Typical profile

0 to 38 inches: Gravelly sandy loam
38 to 66 inches: Gravelly coarse sandy loam, gravelly sandy loam, coarse sandy loam
66 to 70 inches: Weathered bedrock

Minor Components

Elkhorn sandy loam

Percent of map unit: 5 percent

Baywood loamy sand

Percent of map unit: 3 percent

Elder sandy loam

Percent of map unit: 2 percent

References

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APPENDIX B

Trip Generation Memorandum

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FEHR & PEERS
TRANSPORTATION CONSULTANTS

November 5, 2009

Lesley Lowe
ESA
225 Bush Street, Suite 1700
San Francisco, California 94104-4207

Re: Trip Generation Rates Used for Scotts Valley Gateway South Project

Dear Ms. Lowe:

This letter discusses the trip generation rates used to analyze the proposed Target retail store at the Gateway South site on La Madrona Drive in Scotts Valley, California. A transportation impact study was prepared to estimate the effects of a Target store at this location using trip generation rates contained in the Institute of Transportation Engineers' *Trip Generation* manual (8th Edition).

The store was analyzed as a Free-Standing Discount Store (Land Use Code 815) in *Trip Generation.* The manual describes this land use code as follows:

> *The discount stores in this category are similar to the free-standing discount superstores described in Land Use 813 with the exception that they do not contain a full-service grocery department. They are also similar to the department stores described in Land Use 875 with the exception that they generally offer centralized cashiering and sell products that are advertised at discount prices. These stores offer a variety of customer services and typically maintain long store hours 7 days a week. The stores included in this land use are often the only ones on the site, but they can also be found in mutual operation with a related or unrelated garden center and/or service station. Free-standing discount stores are also sometimes found as separate parcels within a retail complex, with or without their own dedicated parking. Free-standing discount superstore (Land Use 813) and department store (Land Use 875) are related uses.*

The trip generation estimate and associated analysis would therefore be applicable to other retail uses matching the above description.

Please contact us if you have any questions.

Sincerely,

FEHR & PEERS

Joe Fernandez, P.E., AICP
Senior Transportation Engineer/Planner

D. Sohrab Rashid, P.E.
Principal

APPENDIX C

Air Quality Winter and Annual URBEMIS Files

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Scotts Valley Target 4 13 09.urb924

Project Name: Scotts Valley Target

Project Location: Santa Cruz County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	50.35	33.92	28.95	0.01	35.64	1.61	37.24	7.45	1.48	8.92	3,252.04

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.02	1.50	1.26	0.00	0.00	0.00	1,798.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	77.99	93.83	808.55	0.35	69.77	13.63	37,237.04

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	79.01	95.33	809.81	0.35	69.77	13.63	39,035.04

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/1/2009-2/13/2009 Active Days: 32	3.25	26.60	14.65	0.00	35.61	1.34	36.94	7.44	1.23	8.67	2,352.99
Mass Grading 01/01/2009-02/15/2009	3.25	26.60	14.65	0.00	35.61	1.34	36.94	7.44	1.23	8.67	2,352.99
Mass Grading Dust	0.00	0.00	0.00	0.00	35.60	0.00	35.60	7.43	0.00	7.43	0.00
Mass Grading Off Road Diesel	3.18	26.46	12.98	0.00	0.00	1.33	1.33	0.00	1.23	1.23	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.07	0.14	1.67	0.00	0.01	0.00	0.01	0.00	0.00	0.00	105.67
Time Slice 2/16/2009-4/1/2009 Active Days: 33	3.72	**33.92**	17.02	0.01	**35.64**	**1.61**	**37.24**	**7.45**	**1.48**	**8.92**	**3,252.04**
Fine Grading 02/16/2009-04/01/2009	3.72	33.92	17.02	0.01	35.64	1.61	37.24	7.45	1.48	8.92	3,252.04
Fine Grading Dust	0.00	0.00	0.00	0.00	35.60	0.00	35.60	7.43	0.00	7.43	0.00
Fine Grading Off Road Diesel	3.18	26.46	12.98	0.00	0.00	1.33	1.33	0.00	1.23	1.23	2,247.32
Fine Grading On Road Diesel	0.47	7.32	2.37	0.01	0.03	0.27	0.30	0.01	0.25	0.26	899.05
Fine Grading Worker Trips	0.07	0.14	1.67	0.00	0.01	0.00	0.01	0.00	0.00	0.00	105.67
Time Slice 4/2/2009-9/1/2009 Active Days: 109	4.68	19.68	**28.95**	**0.01**	0.06	1.35	1.40	0.02	1.23	1.26	2,822.45
Building 04/02/2009-09/01/2009	4.68	19.68	28.95	0.01	0.06	1.35	1.40	0.02	1.23	1.26	2,822.45
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	0.09	0.95	0.88	0.00	0.01	0.03	0.04	0.00	0.03	0.03	153.02
Building Worker Trips	0.73	1.39	16.57	0.01	0.05	0.04	0.09	0.02	0.03	0.05	1,048.23

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Time Slice 9/2/2009-12/2/2009 Active Days: 66	50.35	0.08	0.98	0.00	0.00	0.00	0.01	0.00	0.00	0.00	62.04
Coating 09/02/2009-12/02/2009	50.35	0.08	0.98	0.00	0.00	0.00	0.01	0.00	0.00	0.00	62.04
Architectural Coating	50.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.08	0.98	0.00	0.00	0.00	0.01	0.00	0.00	0.00	62.04

Phase Assumptions

Phase: Fine Grading 2/16/2009 - 4/1/2009 - Fine Site Grading

Total Acres Disturbed: 10

Maximum Daily Acreage Disturbed: 1.78

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 212.12

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 2/15/2009 - Mass Site Grading

Total Acres Disturbed: 10

Maximum Daily Acreage Disturbed: 1.78

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 4/2/2009 - 9/1/2009 - Building Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/2/2009 - 12/2/2009 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 100

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.11	1.50	1.26	0.00	0.00	0.00	1,798.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping - No Winter Emissions							
Consumer Products	0.00						
Architectural Coatings	0.91						
TOTALS (lbs/day, unmitigated)	1.02	1.50	1.26	0.00	0.00	0.00	1,798.00

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Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Free-standing discount store	77.99	93.83	808.55	0.35	69.77	13.63	37,237.04
TOTALS (lbs/day, unmitigated)	77.99	93.83	808.55	0.35	69.77	13.63	37,237.04

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 50 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Free-standing discount store		57.24	1000 sq ft	155.00	8,872.20	40,350.77
					8,872.20	40,350.77

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.6	2.0	97.1	0.9
Light Truck < 3750 lbs	18.7	2.7	92.5	4.8
Light Truck 3751-5750 lbs	19.9	1.0	98.5	0.5
Med Truck 5751-8500 lbs	6.9	1.4	98.6	0.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Lite-Heavy Truck 8501-10,000 lbs	1.2	0.0	66.7	33.3
Lite-Heavy Truck 10,001-14,000 lbs	0.8	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.1	9.1	18.2	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	5.1	68.6	31.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.3	7.7	84.6	7.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4
Rural Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Free-standing discount store				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Scotts Valley Target 4 13 09.urb924

Project Name: Scotts Valley Target

Project Location: Santa Cruz County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	2.03	2.06	2.13	0.00	1.16	0.12	1.28	0.24	0.11	0.35	247.18

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.20	0.27	0.37	0.00	0.00	0.00	328.39

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	12.57	14.92	131.81	0.06	12.73	2.49	6,855.55

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	12.77	15.19	132.18	0.06	12.73	2.49	7,183.94

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009	2.03	2.06	2.13	0.00	1.16	0.12	1.28	0.24	0.11	0.35	247.18
Mass Grading 01/01/2009-02/15/2009	0.05	0.43	0.23	0.00	0.57	0.02	0.59	0.12	0.02	0.14	37.65
Mass Grading Dust	0.00	0.00	0.00	0.00	0.57	0.00	0.57	0.12	0.00	0.12	0.00
Mass Grading Off Road Diesel	0.05	0.42	0.21	0.00	0.00	0.02	0.02	0.00	0.02	0.02	35.96
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
Fine Grading 02/16/2009-04/01/2009	0.06	0.56	0.28	0.00	0.59	0.03	0.61	0.12	0.02	0.15	53.66
Fine Grading Dust	0.00	0.00	0.00	0.00	0.59	0.00	0.59	0.12	0.00	0.12	0.00
Fine Grading Off Road Diesel	0.05	0.44	0.21	0.00	0.00	0.02	0.02	0.00	0.02	0.02	37.08
Fine Grading On Road Diesel	0.01	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.83
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
Building 04/02/2009-09/01/2009	0.26	1.07	1.58	0.00	0.00	0.07	0.08	0.00	0.07	0.07	153.82
Building Off Road Diesel	0.21	0.95	0.63	0.00	0.00	0.07	0.07	0.00	0.06	0.06	88.36
Building Vendor Trips	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.34
Building Worker Trips	0.04	0.08	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.13
Coating 09/02/2009-12/02/2009	1.66	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05
Architectural Coating	1.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05

Phase Assumptions

Phase: Fine Grading 2/16/2009 - 4/1/2009 - Fine Site Grading

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Total Acres Disturbed: 10

Maximum Daily Acreage Disturbed: 1.78

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 212.12

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2009 - 2/15/2009 - Mass Site Grading

Total Acres Disturbed: 10

Maximum Daily Acreage Disturbed: 1.78

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 4/2/2009 - 9/1/2009 - Building Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/2/2009 - 12/2/2009 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 100

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.02	0.27	0.23	0.00	0.00	0.00	328.14
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.17						
TOTALS (tons/year, unmitigated)	0.20	0.27	0.37	0.00	0.00	0.00	328.39

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Free-standing discount store	12.57	14.92	131.81	0.06	12.73	2.49	6,855.55
TOTALS (tons/year, unmitigated)	12.57	14.92	131.81	0.06	12.73	2.49	6,855.55

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Free-standing discount store		57.24	1000 sq ft	155.00	8,872.20	40,350.77
					8,872.20	40,350.77

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.6	2.0	97.1	0.9
Light Truck < 3750 lbs	18.7	2.7	92.5	4.8
Light Truck 3751-5750 lbs	19.9	1.0	98.5	0.5
Med Truck 5751-8500 lbs	6.9	1.4	98.6	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.2	0.0	66.7	33.3
Lite-Heavy Truck 10,001-14,000 lbs	0.8	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.1	9.1	18.2	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	5.1	68.6	31.4	0.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.3	7.7	84.6	7.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4
Rural Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Free-standing discount store				2.0	1.0	97.0