

## **Appendix G:**

### Wetland Delineation



# MOODY FLATS QUARRY PROJECT

## Delineation of Waters of the United States



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# Chapter 1. Summary

On behalf of Benchmark Resources, Inc., North State Resources, Inc. (NSR) conducted a delineation of waters of the United States occurring within the approximately 1,900-acre Moody Flats Quarry Project site (study area), owned by the 3-M Company. The study area is located near community of Mountain Gate north of the city of Redding, Shasta County, California. The study area is located west of Interstate 5 (I-5), south of Lake Shasta, and north of the City of Shasta Lake.

The field delineation was conducted during June and July of 2010 and June of 2012. A total of 14.75 acres of waters of the United States were mapped in the study area. Waters of the United States occur as fresh emergent wetland (0.09 acre), fresh emergent-riparian wetland (0.22 acre), intermittent pool (0.001 acre), intermittent swale (1.51 acre), riparian wetland (2.40 acre), seep-spring wetland (0.24 acre), vegetated ditch (0.006 acre, 116 linear feet), ephemeral stream (0.53 acre, 19,087 linear feet), intermittent stream (9.74 acre, 115,369 linear feet), and seep-spring-other waters (0.003 acre, 71 linear feet).

Features that do not qualify as waters of the United States (non-jurisdictional) include ephemeral stream (0.01 acre, 306 linear feet), intermittent pool (0.07 acre), non-vegetated ditch (0.08 acre, 1,795 linear feet), seep-spring wetland (0.009 acre), and vegetated ditch (0.02 acre, 27 linear feet); totaling 0.18 acres.

This delineation of waters of the United States is subject to verification by the United States Army Corps of Engineers (Corps). NSR advises all parties to treat the information contained herein as preliminary until the Corps provides written verification of the boundaries of its jurisdiction.

## Chapter 2. Project Location

The study area is located in Shasta County approximately 8 miles north of the city of Redding. It is located on the *Project City, California* and *Shasta Dam, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles in Township 33N, Range 4W, Sections 20, 30; Range 5W, Sections 13, 23-25. The center of the study area is located at approximately UTM 10 0552898E, 4506065N (NAD27 datum). The location of the study area is shown in Figure 1.

### 2.1 Acreage

The study area encompasses a total of approximately 1,940 acres.

### 2.2 Proximity to Major Highways and Streets

Access to the study area is provided on the east and west sides of the study area. To access the study area from the east, travel north on I-5 to the Mountain Gate exit. Turn left, drive over the freeway,

and turn right on Wonderland Boulevard. Travel approximately 0.1 mile to Flintstone Avenue on the right.

To access the west side of the study area, travel north on I-5 to Shasta Dam Boulevard. Drive west on Shasta Dam Boulevard approximately 0.9 mile to Shasta Park Drive. Turn right and proceed until Shasta Park Drive becomes Digger Bay Road at approximately 0.6 mile. Digger Bay Road continues through the far western portion of the study area. Pickard Street, at the intersection of Shasta Park Drive and Digger Bay Road, also provides access to a locked, gated entrance; however, the combination is not available for this lock. To access, drive down Picard Street until it dead-ends at the study area boundary.

### **2.3 USGS Hydrologic Unit**

The study area is located in the *Sacramento-Lower Cow-Lower Clear* USGS Hydrologic Map Unit (Cataloging Unit Number 18020101).

## **Chapter 3. Environmental Setting**

### **3.1 Current/Recent Land Use**

The study area currently consists of open space. Historically, cattle ranged on the eastern side in the lower elevations of the study area. Based on the presence of a small fig orchard, a homestead may have occupied the area of Moody Flats. The Union Pacific Railroad bisects the southeast corner of the study area. Off-highway vehicle (OHV) use is prevalent throughout the property with many single-track dirt trails throughout most of the study area.

### **3.2 Site Topography and Elevation**

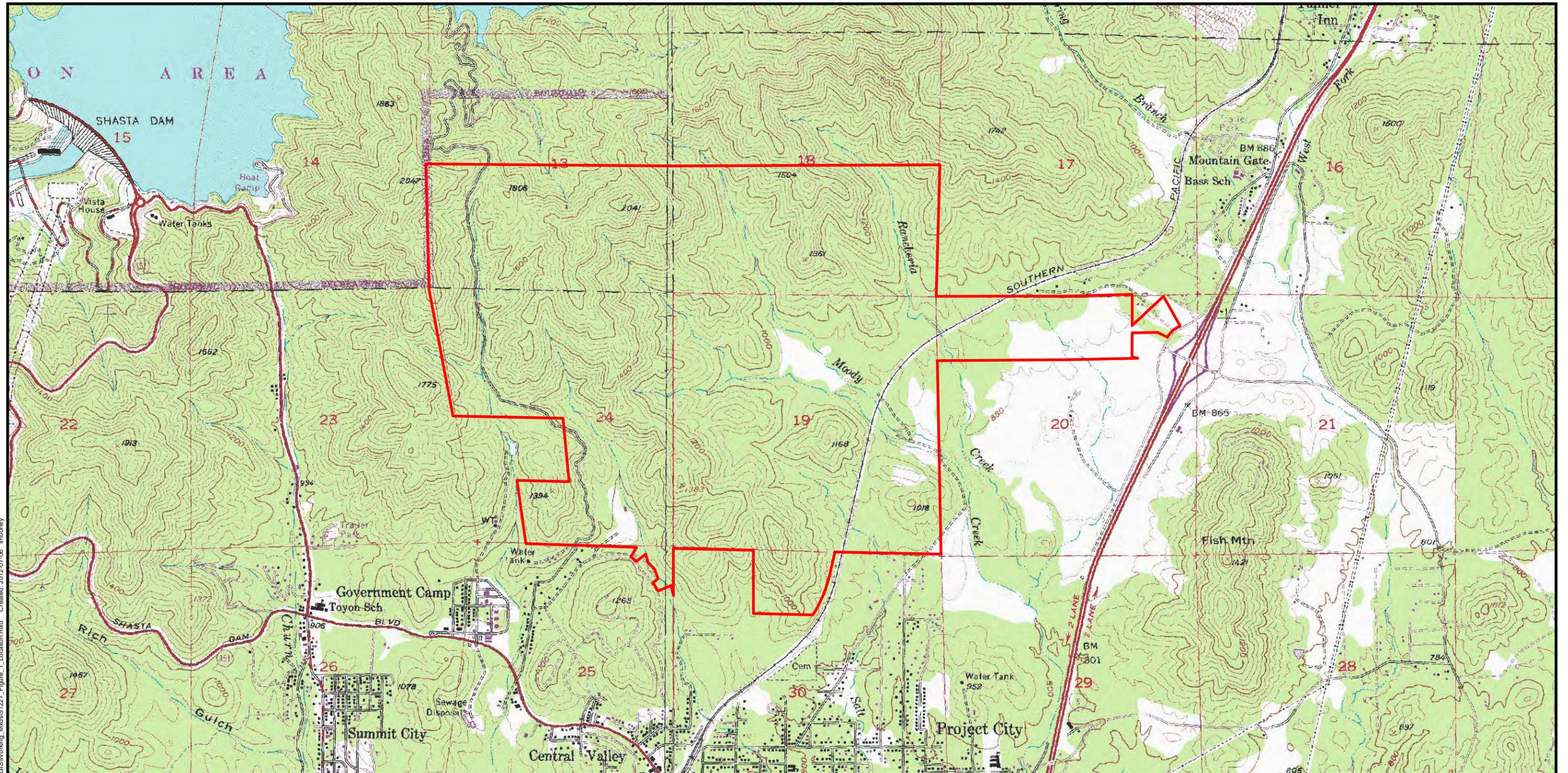
Portions of the eastern study area are nearly level, rising to a ridge in the western third of the study area. The slopes are steep rising in elevation from approximately 880 feet to 2,041 feet in elevation at the highest point. Drainages flow southeasterly on the east side of the ridge. West of the ridge is generally mountainous and steep with drainages flowing southerly. Moody, Rancheria, and Salt creeks and other tributaries to Churn Creek originate in the study area.

### **3.3 Climate**

Climate within the study area is as follows:

**Type:** The study area is characterized by a Mediterranean climate with cool, wet winters and hot, dry summers.

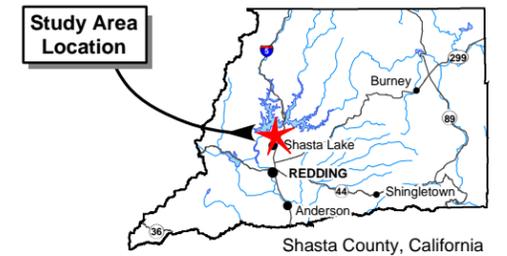
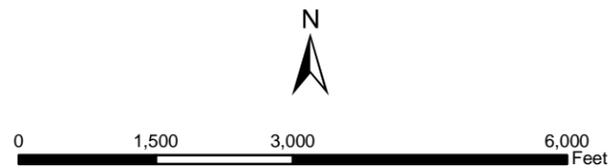
**Precipitation:** Precipitation in the study area primarily falls as rain. Average annual rainfall is approximately 63 inches (Western Regional Climate Center 2010).



Study Area (1940.33 acres)

Public Land Survey:  
 Township: 33N  
 Range: 04W  
 Sections: 17, 18, 19, 20, 30  
 Range: 05W  
 Sections: 13, 14, 23, 24, 25

USGS 7.5 Quads:  
 Project City - 1969  
 Shasta Dam - 1969



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**Figure 1**  
**Project Location Map**

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**Air Temperature:** Air temperatures in the study area range between an average January high of 52 degrees Fahrenheit (°F), and an average July high of 95 °F. The year-round average high is approximately 72 °F (Western Regional Climate Center 2010).

**Growing Season:** The growing season (i.e., 70 percent probability of air temperatures 28 °F or higher) in the study area ranges between 145 and 263 days, and occurs between February and December. The soil temperature regime is thermic (Natural Resources Conservation Service 2010).

### 3.4 Hydrology/Hydrologic Features

Watersheds for Moody, Rancheria, Salt, and Churn creeks originate in or just outside of the study area. Smaller intermittent and ephemeral streams contribute to the hydrology of these larger streams. Seep-springs that generally originate at exposed bedrock occurring on the upper slopes and ridges also contribute to flows within the drainages. The drainages flow south and south easterly, and their hydrology is provided by ground water and sheet flow from adjacent slopes. Drainages in the northeastern portion of the study area convey water to East Fork Stillwater Creek.

The gradient becomes nearly level in the eastern portion of the study area and intermittent swales that convey water become more predominant. Hydrology is provided by precipitation and sheetflow.

Moody, Rancheria, Salt, and Churn creeks are tributary to the Sacramento River, a traditional navigable water (TNW). Rancheria Creek flows to Moody Creek approximately 600 feet downstream of the study area. Moody Creek flows 3.3 river miles to Stillwater Creek and Stillwater Creek flows 15.75 river miles to the Sacramento River.

IS231 (IS 172, IS190, etc.) is a tributary to Salt Creek. This feature flows approximately 1.8 river miles southeast to Salt Creek. From this point Salt Creek conveys water 4 river miles to Churn Creek and Churn Creek flows approximately 14.3 river miles to the Sacramento River.

From the east side of the study area, Salt Creek flows south approximately 5.6 river miles to Churn Creek and Churn Creek flows approximately 14.3 river miles to the Sacramento River.

IS181 is also a tributary to Churn Creek. From the study area, IS181 flows approximately 2.8 river miles to Churn Creek. From this confluence, Churn Creek conveys water to the Sacramento River approximately 17.1 river miles.

### 3.5 Soil Map Units and Miscellaneous Land Types

Twenty one soil map units and/or miscellaneous land types occur in the study area. They are described in the *Soil Survey Shasta County Area, California* and *Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California* (Natural Resources Conservation Service 2012a, 2012b). Soil map units occurring within the study area are shown in Figure 2 and are described in Table 1.

## 3.6 Habitat types

Habitat types within the study area were classified using a combination of descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). The following eleven habitat types occur in the study area: annual grassland, barren, blue oak woodland, blue oak-gray pine, fresh emergent wetland, mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, valley oak woodland, and valley-foothill riparian.

### 3.6.1 Annual Grassland

Annual grassland occurs in the eastern portion of the study area and in the Moody Flats area west of the railroad tracks. It is generally characterized by a dense herbaceous layer of annual grasses and forbs dominated by yellow star-thistle (*Centaurea solstitialis*-UPL<sup>1</sup>), slender wild oat (*Avena barbata*-UPL), rose clover (*Trifolium hirtum*-UPL), storksbill (*Erodium botrys*-UPL), winter vetch (*Vicia villosa*-UPL), medusahead (*Taeniatherum caput-medusae*-UPL), ripgut brome (*Bromus diandrus*-UPL), and soft chess (*B. hordeaceus*-FACU).

### 3.6.2 Barren

Barren habitat occurs in barren areas created by significant roads and fire lines, the railroad corridor, and rock outcrops. Roads and firelines mapped as barren predominantly occur in the western portion of the study area. The railroad corridor bisects the mid- to eastern portion of the study area and rock outcrops occur along the ridge in the west and northern portions of the study area. Barren habitat exhibits sparse to no vegetation. Re-colonization of vegetation in firelines is beginning to occur.

### 3.6.3 Blue Oak Woodland

Blue oak woodland occurs in the easternmost corner of the study area. It is characterized by a moderate overstory of blue oak (*Quercus douglasii*-UPL) with a dense herbaceous understory. Species occurring in the adjacent annual grassland also occur in blue oak woodland and include slender wild oat, rose clover, storks bill, winter vetch, ripgut brome, and soft chess.

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<sup>1</sup> Wetland indicator status for plant species is based on *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1988) and includes the following categories:

Obligate Wetland (OBL) – Plants that occur almost always in wetlands

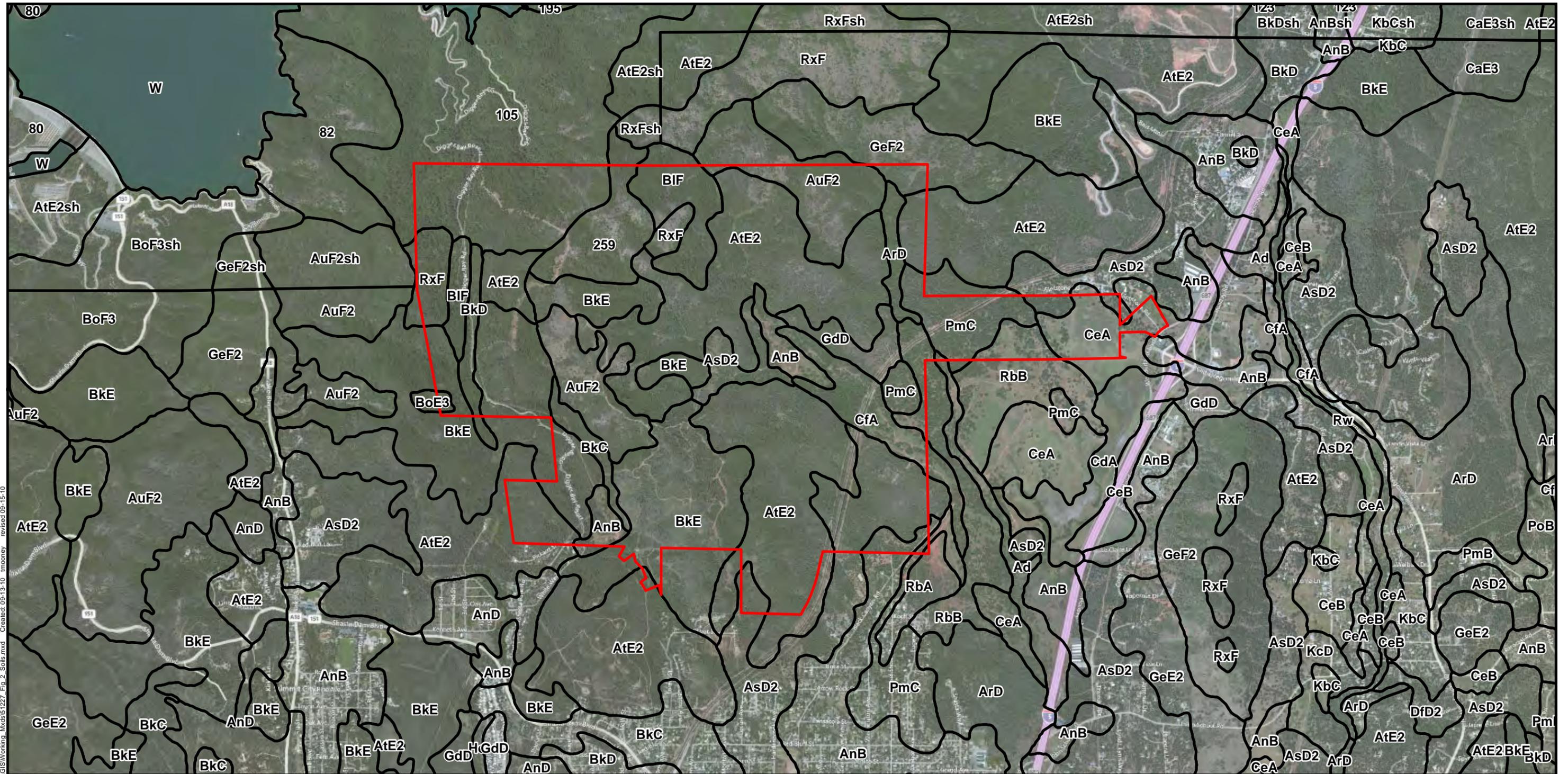
Facultative Wetland (FACW) – Plants that usually occur in wetlands, but also occur in non-wetlands (i.e., uplands)

Facultative (FAC) – Plants with a similar likelihood of occurring in both wetlands and uplands

Facultative Upland (FACU) – Plants that usually occur in uplands, but also occur in wetlands

Obligate Upland (UPL) – Plants that occur almost always in uplands

Need Information (NI) – Plants for which more information is needed prior to assigning an indicator status

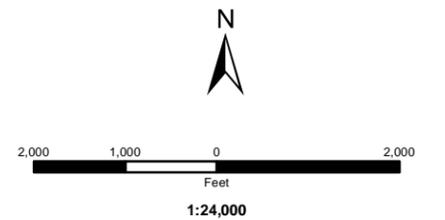


Study Area  
 Soil Units

Ad - Anderson gravelly sandy loam  
 AnB - Auburn loam, 8 to 30 percent slopes  
 ArD - Auburn very stony loam, 8 to 30 percent slopes  
 AsD2 - Auburn clay loam, 8 to 30 percent slopes, eroded  
 AtE2 - Auburn very stony clay loam, 30 to 50 percent slopes, eroded  
 AuF2 - Auburn very rocky clay loam, 50 to 70 percent slopes, eroded

BkC - Boomer gravelly loam, 0 to 15 percent slopes  
 BkD - Boomer gravelly loam, 15 to 30 percent slopes  
 BkE - Boomer gravelly loam, 30 to 50 percent slopes  
 BIF - Boomer very stony loam, 50 to 70 percent slopes  
 BoE3 - Boomer very stony clay loam, 30 to 50 percent slopes, severely eroded  
 CeA - Churn gravelly loam, 0 to 3 percent slopes  
 CfA - Churn gravelly loam, deep, 0 to 3 percent slopes  
 GdD - Goulding very stony loam, 10 to 30 percent slopes  
 GeF2 - Goulding very rocky loam, 30 to 50 percent slopes, eroded  
 PmC - Perkins gravelly loam, 8 to 15 percent slopes

RbA - Red Bluff loam, 0 to 3 percent slopes  
 RbB - Red Bluff loam, 3 to 8 percent slopes  
 RxF - Rockland  
 105 - Holland family, deep complex, 40 to 60 percent slopes.  
 259 - Goulding family complex, 40 to 80 percent slopes.



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**Table 1. Soil Map Units in the Study Area**

<b>Map Unit Name Taxonomy</b>	<b>Map Unit Reference Code</b>	<b>Drainage Class</b>	<b>Depth to Restrictive Layer</b>	<b>Hydric Soils</b>
<b>Soil Survey Shasta County Area, California</b>				
Anderson gravelly sandy loam Typic xerofluvents	Ad	Somewhat excessively drained	More than 80 inches	Yes, cobbly alluvial floodplain inclusions
Auburn loam, 0 to 8 percent slopes Ruptic-lithic xerochrepts	AnB	Well-drained	24 to 28 inches to lithic bedrock	No
Auburn very stony loam, 8 to 30 percent slopes Ruptic-lithic xerochrepts	ArD	Well-drained	More than 80 inches	No
Auburn clay loam 8 to 30 percent slopes, eroded Ruptic-lithic xerochrepts	AsD2	Well-drained	More than 80 inches	No
Auburn very stony clay loam, 30 to 50 percent slopes, eroded Ruptic-lithic xerochrepts	AtE2	Well-drained	27 to 31 inches to lithic bedrock	No
Auburn very rocky clay loam, 50- 70 percent slopes, eroded Ruptic-lithic xerochrepts	AuF2	Well-drained	20 to 24 inches to lithic bedrock	No
Boomer gravelly loam, 0 to 15 percent slopes Ultic haploxeralfs	BkC	Well-drained	45 to 49 inches to paralithic bedrock	No
Boomer gravelly loam, 15 to 30 percent slopes Ultic haploxeralfs	BkD	Well-drained	45 to 49 inches to paralithic bedrock	No
Boomer gravelly loam, 30 to 50 percent slopes Ultic haploxeralfs	BkE	Well-drained	45 to 49 inches to paralithic bedrock	No
Boomer very stony loam, 50 to 70 percent slopes Ultic haploxeralfs	BIF	Well-drained	45 to 49 inches to paralithic bedrock	No
Boomer very stony clay loam, 30 to 50 percent slopes, severely eroded Ultic haploxeralfs	BoE3	Well-drained	45 to 49 inches to paralithic bedrock	No
Churn gravelly loam, 0 to 3 percent slopes Ultic haploxeralfs	CeA	Well-drained	More than 80 inches	Yes, in cobbly alluvial drainageways

**Table 1. Soil Map Units in the Study Area**

Map Unit Name Taxonomy	Map Unit Reference Code	Drainage Class	Depth to Restrictive Layer	Hydric Soils
Churn gravelly loam, deep, 0 to 3 percent slopes Ultic haploxeralfs	CfA	Well-drained	More than 80 inches	Yes, in cobbly alluvial drainageways
Goulding very stony loam, 10 to 30 percent slopes Lithic xerochrepts	GdD	Well-drained	16 to 20 inches to lithic bedrock	No
Goulding very rocky loam, 50 to 70 percent slopes, eroded Lithic xerochrepts	GeF2	Well-drained	16 to 20 inches to lithic bedrock	No
Perkins gravelly loam, 8 to 15 percent slopes Mollic haploxeralfs	PmC	Well-drained	More than 80 inches	No
Red Bluff loam, 0 to 3 percent slopes Ultic palexeralfs	RbA	Well-drained	More than 80 inches	Yes, Modanamed depressions inclusions
Red Bluff loam, 3 to 8 percent slopes Ultic palexeralfs	RbB	Well-drained	More than 80 inches	Yes, Modanamed depressions inclusions
Rockland	RxF	Excessively drained	0 to 10 inches to lithic bedrock	No
<b>Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California</b>				
Holland family-Holland family, deep complex, 40 to 60 percent slopes Ultic haploxeralfs	105	Well-drained	26 inches to paralithic bedrock/more than 80 inches	No
Rock outcrop-Goulding family complex, 40 to 80 percent slopes	259	Well-drained	15 inches to lithic bedrock	No

### 3.6.4 Blue Oak-Gray Pine

Blue oak-gray pine occurs mainly in the lower, moderately sloped portions of the study area. It occurs in the western portion of the study area in valleys generally along stream corridors. It also occurs over a ridge in the north-central portion of the study area. A dense to moderately dense overstory with a dense to moderately dense understory characterizes the blue oak-gray pine habitat. Several oak species are present in this habitat type and herbaceous cover varies from dense to sparse depending on the canopy closure. Dominant overstory species include blue oak, California black oak

(*Q. kelloggii*-UPL), valley oak (*Q. lobata*-FACU), interior live oak (*Q. wislizenii*-UPL), and gray pine (*Pinus sabiniana*-UPL). Oracle oak (*Quercus x morehus*-UPL), a hybrid of California black and interior live oak is also common in the overstory. Common shrubs observed in this habitat include white leaf manzanita (*Arctostaphylos viscida*-UPL), buck brush (*Ceanothus cuneatus*-UPL), poison oak (*Toxicodendron diversilobum*-UPL), coffee berry (*Rhamnus californica*-UPL), cascara (*R. purshiana*-UPL), snowdrop bush (*Styrax officinalis*-UPL), wild mock orange (*Philadelphus lewisii*-UPL), deer brush (*Ceanothus integerrimus*-UPL), and California buckeye (*Aesculus californica*-UPL). Common grasses and forbs observed in this vegetation habitat include pussy ears (*Calochortus tolmiei*-UPL), Pacific hounds tongue (*Cynoglossum grande*-UPL), slender wild oat, and soaproot (*Chlorogalum pomeridianum*-UPL). Lianas of Dutchman's pipe (*Aristolochia californica*-UPL) and chaparral clematis (*Clematis lasiantha*-UPL) shroud shrubs and often grow into the tree canopy.

### 3.6.5 Fresh Emergent Wetland

Fresh emergent wetlands are uncommon in the study area and occur in a pond located in the southern portion of the study area, and in a small, excavated channel along the railroad tracks in the southeastern portion of the study area. Small intermittent pools in the annual grassland habitat also contain fresh emergent vegetation. Emergent wetland vegetation dominates these wetlands due to perennial or nearly perennial inundation. Common species include pale spike rush (*Eleocharis macrostachya*-OBL), broad-leaf cattail (*Typha latifolia*-OBL), pennyroyal (*Mentha pulegium*-OBL), and pondweed (*Potamogeton* sp. -OBL).

### 3.6.6 Mixed Chaparral

Mixed chaparral occurs throughout the study area and is typically characterized by dense shrub stands. Dominant species include whiteleaf manzanita, buckbrush, toyon (*Heteromeles arbutifolia*-UPL), California buckeye, Brewer's oak (*Quercus garryana* var. *breweri*-UPL), California bay (*Umbellularia californica*-UPL), interior live oak, Lemmon's ceanothus (*Ceanothus lemmonii*-UPL), birchleaf mountain mahogany (*Cercocarpus betuloides*-UPL), holly-leaf redberry (*Rhamnus ilicifolia*-UPL), yerba santa (*Eriodictyon californicum*-UPL), and poison oak. Few herbaceous plants occur in this habitat and include soaproot, goosegrass (*Gallium aparine*-UPL), and hedgehog dogtail (*Cynosurus echinatus*-UPL).

### 3.6.7 Montane Hardwood-Conifer

Montane hardwood-conifer occurs on the slopes throughout the main portion of the study area and is characterized by a dense hardwood canopy interspersed with conifers. The dominant hardwood is California black oak with interior and canyon live oak (*Q. chrysolepis*-UPL) associates. Individuals or stands of gray pine or ponderosa pine (*Pinus ponderosa*-UPL) occur in this habitat type. Understory species are generally dense and include whiteleaf manzanita, buck brush, interior live oak, canyon live oak, California buckeye, western redbud (*Cercis occidentalis*-UPL), and California bay. Forbs and grasses occur in a sparse to moderate herbaceous layer dominated by pussy ears, soaproot, hound's tongue, and slender wild oat.

### 3.6.8 Montane Hardwood

Montane hardwood occurs on the slopes in the northern and western portions of the study area and is characterized by a dense overstory of California black oak. The understory is often sparse due to a typically dense canopy. Associated species include canyon live oak, poison oak, soaproot, California buckeye, and California bay.

### 3.6.9 Ponderosa Pine

Ponderosa pine occurs primarily in the northwestern portion of the study area, although there are also small stands occurring toward the southern portion. Ponderosa pine is sparsely to moderately dispersed throughout with California black oak as a common hardwood associate. Dense stands of whiteleaf manzanita, buck brush, and Brewer's oak are also present in the understory. Understory plants are sparse and include soap root, poison oak, and narrow-leaved sword fern (*Polystichum imbricans*-FACU).

### 3.6.10 Valley Oak Woodland

Valley oak woodland is located in the nearly level, lower elevation areas in the eastern portion of the study area. It occurs between Moody and Rancheria creeks east and west of the railroad tracks. This habitat is characterized by a dense overstory dominated by valley oak. Blue, California black, and interior live oaks also occur intermittently. Moderate to dense patches of shrubs occur in the understory and include California buckeye, coffee berry, snowdrop bush, and western redbud. Lianas of California grape (*Vitis californica*-FACU) grow into the upper canopy. Forbs and herbs occur in dense patches where openings in the canopy occur. Dominant herbaceous species include hedgehog dogtail, torilis (*Torilis arvensis*-UPL), and European hairgrass (*Aira caryophyllea*-UPL).

### 3.6.11 Valley Foothill Riparian

Valley foothill riparian occurs as thin stringers and large patches along most stream corridors in the study area. It also occurs around the southern edge of the pond in the southern portion of the study area. Valley foothill riparian associated with streams is characterized by a sparse overstory of Fremont cottonwood (*Populus fremontii*-FACW), big leaf maple (*Acer macrophyllum*-FAC), or white alder (*Alnus rhombifolia*-FACW), and a fairly dense mid-story and herbaceous layer. The mid-story is dominated by willows including arroyo willow (*Salix lasiolepis*-FACW), narrow-leaved willow (*S. exigua*-OBL), red willow (*S. laevigata*-FACW); western choke cherry (*Prunus virginiana*-FACU), and spice bush (*Calycanthus occidentalis*-FAC) are also present. Brambles of Himalayan blackberry (*Rubus discolor*-FACU) and California blackberry (*R. ursinus*-FACU) often engulf broader, low-gradient riparian areas. Lianas of California grape often grow into the canopy. Other species present include California buttonwillow (*Cephalanthus occidentalis*-OBL), American dogwood (*Cornus stolonifera*-UPL), California ash (*Fraxinus dipetala*-UPL), and mugwort (*Artemisia douglasiana*-FACW).

# Chapter 4. Methods

## 4.1 Field Delineation

The on-site routine delineation of waters of the United States in the study area was based on field observations of positive indicators for hydrophytic vegetation, hydrology, and soils for wetlands; and on indicators of an ordinary high water mark (OHWM) for other waters of the United States. This methodology is consistent with the approach outlined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008), and Corps regulations. Taxonomic nomenclature for plant species is in accordance with *The Jepson Manual* (Hickman 1993). Wetland indicator status for plant species was confirmed using (Lichvar and Kartesz 2009), and the “50/20 Rule” was applied to determine plant dominance (U.S. Army Corps of Engineers 2008).

A soil pit was dug in each representative wetland feature. Soil pits were dug to a depth sufficient to document the presence or confirm the absence of hydric soil or hydrology indicators. Soils were examined in order to assess field indicators of hydric soils. Positive indicators of hydric soils were observed in the field in accordance with the criteria outlined in *Field Indicators of Hydric Soils in the United States* (Vasilas et al. 2010). Soil colors were determined using a Munsell<sup>®</sup> soil color chart. The hydric status of each soil map unit occurring in the study area was reviewed using the *Web Soil Survey* (Natural Resources Conservation Service 2012a, 2012b). At least one set of data points was selected to best represent the wetland feature type and the adjacent uplands. Data points were also placed in suspect areas to confirm wetland or upland status.

“Other waters” are TNWs and their tributaries. Delineation of “other waters” was based on presence of an OHWM as defined in Corps regulations (33 CFR 328.3 and 33 CFR 328.4) and whether the feature qualified as tributary to waters of the United States. Physical characteristics of an OHWM include, but are not limited to, a natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, presence of litter and debris, leaf litter disturbed or washed away, scour, deposition, presence of bed and bank, and water staining. At least one set of paired data points was then selected to best represent the “other waters” and adjacent upland conditions for each “other waters” type.

Sixty-eight data points representing each feature type, the associated upland, and suspect areas were characterized and documented throughout the study area. Field observations were conducted June 15 through July 20, 2010 and June 29, 2012. Routine wetland determination data forms are presented in Appendix A. Representative photographs of features delineated and data point locations are presented in Appendix B.

The boundaries of delineated features and data points were mapped using a Trimble Pathfinder Pro XH Global Positioning System (GPS) capable of sub-foot accuracy. Where the use of the GPS was not practicable, the features were delineated by hand onto ortho-rectified color aerial photographs.

## 4.2 Evaluation of Jurisdictional Features

Isolated, non-navigable, intrastate waters are not subject to federal jurisdiction based on guidance issued in response to the U.S. Supreme Court's decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* ("SWANCC decision") (Guzy and Anderson 2001). The U.S. Environmental Protection Agency (EPA) memorandum providing guidance to implement the U.S. Supreme Court's decision in *Rapanos v. United States* and *Carabell v. United States*, referred to as "Rapanos" (Grumbles and Woodley 2007), was considered in determining federal jurisdiction. Under this guidance, wetland features that are not adjacent to (i.e., bordering, contiguous, or neighboring) a TNW or abutting a relatively permanent water (RPW) are subject to a significant nexus evaluation. In these circumstances, the significant nexus evaluation is used by the Corps (and EPA) to determine whether a particular wetland or "other water" has a "significant nexus" to a TNW; and is therefore subject to regulation under the federal Clean Water Act, (i.e., waters of the United States). Please note that non-jurisdictional features may still fall under the jurisdiction of the Regional Water Quality Control Board and/or the California Department of Fish and Game.

Specifically, jurisdictional status was evaluated on a feature-by-feature basis as follows: if the feature did not have a hydrologic surface connection to a TNW (e.g., a seasonally inundated wetland that abuts an RPW, and the subject RPW conveys surface water to a TNW) or did not demonstrate a "significant nexus" to a TNW, it was not considered to meet the criteria for a water of the United States.

Approved Jurisdictional Determinations and Preliminary Jurisdictional Determinations are tools used by the Corps to help implement Section 404 of the Clean Water Act. In order to obtain an Approved Jurisdictional Determination, as required to determine a feature as non-jurisdictional, the Corps must conduct a significant nexus evaluation to assess the characteristics and functions of the aquatic features to determine if they significantly affect the chemical, physical, and biological integrity of downstream navigable waters. Alternatively, an applicant can request a Preliminary Jurisdictional Determination in which case the Corps will treat all features as jurisdictional waters of the United States for permitting purposes (Riley 2008).

## 4.3 Problem Soils

Sand and gravel bars are problem soils occurring in the study area. Sand and gravel bars occur in the floodplains of rivers and streams. The soils are coarse-textured and often lack hydric soil indicators because of deposition of new soil during seasonal or annual flood events, low iron or manganese, and low organic matter content. Riparian wetlands have developed on gravel and sand bars occurring along many of the intermittent streams in the study area.

# Chapter 5. Results

The boundaries of waters of the United States as well as non-jurisdictional features in the study area are illustrated in Figure 3 and the acreage summary is presented in Appendix C. A total of 14.75 acres of waters of the United States and 0.18 acre of non-jurisdictional features were delineated. An

acreage summary of the features delineated and their jurisdictional status is presented in Tables 2 and 3.

**Table 2. Acreage Summary of Waters of the United States**

<b>Waters of the United States</b>	<b>Total Acreage</b>	<b>Total Linear Feet</b>
<b>Wetlands</b>		
Fresh Emergent Wetland	0.09	N/A
Fresh Emergent-Riparian Wetland	0.22	N/A
Intermittent Pool	0.001	N/A
Intermittent Swale	1.51	N/A
Riparian Wetland	2.40	N/A
Seep-Spring Wetland	0.24	N/A
Vegetated Ditch	0.006	116
<b>Other Waters</b>		
Ephemeral Stream	0.53	19,087
Intermittent Stream	9.74	115,369
Seep-Spring-Other Waters	0.003	71
<b>Total Waters of the United States</b>	<b>14.75</b>	<b>N/A</b>

**Table 3. Acreage Summary of Non-Jurisdictional Features**

<b>Features</b>	<b>Total Acreage</b>	<b>Total Linear Feet</b>
Ephemeral Stream	0.01	306
Intermittent Pool	0.07	N/A
Non-vegetated Ditch	0.08	1,795
Vegetated Ditch	0.02	27

Seep-Spring Wetland	0.009	N/A
<b>Total Non-Jurisdictional Features</b>	<b>0.18</b>	<b>N/A</b>

## 5.1 Characterization and Jurisdictional Determination of Delineated Wetland Features

### 5.1.1 Fresh Emergent Wetland

Fresh emergent wetland (FEW) occurs in the eastern portion (FEW1, 2, and 3 (Figure 3d and 3g) and in one location along the railroad tracks (FEW4, Figure 3e) in the eastern portion of the study area. Fresh emergent wetlands occur in areas with long-duration inundation creating an environment for perennial, hydrophytic plants. Fresh emergent wetlands occurring in the study area are generally man-made. FEW1 and 2 are excavated seep-springs in the headwaters of intermittent swales. FEW4 has formed between the railroad and the dirt road where elevated culverts inhibit flow from the intermittent stream to the west. FEW3, however, is located in a convex position on the slope and hydrology is provided by groundwater.

Dominant plant species occurring in fresh emergent wetlands include twelfth rush (*Juncus uncialis*-OBL), green sheath sedge (*Carex feta*-OBL), and pale spike rush (*Eleocharis macrostachya*-OBL). Inundation was observed during the field visit on June 15, 2010. Additional wetland hydrology criteria include hydrogen sulfide odor, reduced iron, and a thin muck surface. Hydric soil criteria are met through the observation of surface water and saturation. Indicators of long-duration saturation include depleted matrix and a hydrogen sulfide odor.

Fresh emergent wetlands contribute to the flow of water in intermittent swales and intermittent streams that convey water to Rancheria Creek, a RPW, and ultimately to the Sacramento River, a TNW. Therefore, these features are federally jurisdictional.

### 5.1.2 Fresh Emergent-Riparian Wetland

One fresh emergent-riparian wetland (FEW-RW1, Figure 3c) occurs in the in-stream constructed impoundment located in the tributary to Salt Creek in the southwestern portion of the study area. Wooded riparian areas have developed along the banks of the impoundment whereas, fresh emergent vegetation has established in the shallow perimeter of the impoundment. Dominant plant species along the banks of the impoundment include Goodding's black willow (*Salix gooddingii*-OBL), and narrow-leaved willow (*Salix exigua*-OBL). Fresh emergent species include pennyroyal (*Mentha pulegium*-OBL), pale spike rush, willow dock (*Rumex salicifolius*-OBL), water plantain (*Alisma plantago-aquatica*-OBL), and rabbitsfoot grass (*Polypogon monspeliensis*-FACW). Inundation was observed during the field visit on July 8, 2010. Additional wetland hydrology criteria include a hydrogen sulfide odor and sediment deposits. Hydric soil criteria are met through the observation of surface water and saturation. Indicators of long-duration saturation include a hydrogen sulfide odor.

FEW-RW1 is an in-stream constructed impoundment in IS110 (Figure 3c) that conveys water to Salt Creek, a RPW, and ultimately to the Sacramento River, a TNW. Therefore, these features are federally jurisdictional.

### 5.1.3 Intermittent Pool

Intermittent pools (IP) in the study area are created by OHV and 4x4 vehicle use. These are depressional features that are inundated for long enough duration to establish hydrophytic vegetation. Soil characteristics are difficult to determine due to repetitive disturbance by vehicles. Depending on the amount of disturbance, plant establishment varied from sparse to moderately dense. Dominant plant species in less disturbed pools include pennyroyal, smooth cat's ears (*Hypochaeris glabra*-UPL), perennial ryegrass (*Lolium perenne*-FAC), and coyote thistle (*Eryngium castrense*-FACW). In more frequently disturbed pools, dominant plant species include nutsedge (*Cyperus eragrostis*-FACW), rabbitsfoot grass, slender rush (*Juncus tenuis*-FACW), toad rush (*Juncus bufonius*-FACW), and hyssop loosestrife (*Lythrum hyssopifolia*-OBL). Hydrology is provided by frequent flooding and long-duration inundation indicated by sediment deposits, soil surface cracks, water-stained leaves, and oxidized rhizospheres. Vehicle disturbance may inhibit or mask hydric soil indicators; however, inundation was observed through June 30, 2010 and development of dominant hydrophytic vegetation and hydrology indicators are evidence of long duration ponding.

IP1 (Figure 3g) is approximately 25 feet from a jurisdictional water feature and may overflow and sheet flow to IS12 (Figure 3g) to its southwest. Because there is a surface connection to a jurisdictional feature, IP1 is also federally jurisdictional.

NJIP1 through NJIP6 (3g, 3e, and 3f) are isolated from waters of the United States. The pools range from 50 to 200 feet away from any jurisdictional features and do not drain or show any physical evidence of a surface connection to waters of the United States. Therefore, the intermittent pools were determined to be isolated and non-jurisdictional.

### 5.1.4 Intermittent Swale

Intermittent swales (ISW) generally occur in the eastern, gently sloped portion of the study area. Intermittent swales are vegetated, linear, drainage features that convey water to other jurisdictional features, generally intermittent streams. Depending on soil type and slope gradient, these features alternate with scoured, intermittent streams. Plants dominating these features include perennial ryegrass, coyote thistle, pennyroyal, iris-leaved rush (*Juncus xiphioides*-OBL), seep monkey flower (*Mimulus guttatus*-OBL), Mediterranean barley (*Hordeum marinum* var. *gussoneanum*-FAC), and soft chess. Hydrology is provided by frequent flooding and long-duration inundation indicated by a biotic crust and oxidized rhizospheres. Hydric soil criteria are met through indicators of long duration ponding, including the observation of redox depressions.

Intermittent swales convey water to intermittent streams that flow to Rancheria Creek, a RPW and East Stillwater Creek, which are tributaries to the Sacramento River, a TNW. Therefore, intermittent swales in the study area are federally jurisdictional waters.

### 5.1.5 Riparian Wetland

Riparian wetlands (RW) occur adjacent to the larger intermittent streams occurring in the study area. The dominant hydrophytic plants on the east side of the study area include Fremont cottonwood, arroyo willow, California button willow, willow dock, meadow rue (*Thalictrum fendleri*-FAC), rabbitsfoot grass, pinnate-leaved lotus (*Lotus pinnatus*-OBL), seep monkey flower, spearmint (*Mentha spicata* var. *spicata*-OBL), Mexican tea (*Chenopodium ambrosioides*-FAC), sticky cinquefoil (*Potentilla glandulosa*-FAC), and California grape. Upland plants also occur at a lesser extent and include poison oak and California coffeeberry. The dominant hydrophytic plants on the west side of the study area include white alder, spice bush, Indian rhubarb (*Darmera peltata*-OBL), Himalayan blackberry, and California grape.

RW47 (Figure 3e) occurring along IS205 (Figure 3e) is dominated by herbaceous species. Because this riparian area is nearly level, the water table provided by the stream hydrates a broad area. Dominate plants include white-tipped clover (*Trifolium variegatum*-FAC), slender rush, pinnate-leaved lotus, nutsedge, checker mallow (*Sidalcea hirsuta*-OBL), perennial ryegrass, and iris-leaved juncus (*Juncus xiphioides*-OBL).

For all riparian wetlands, hydrology is provided by frequent flooding and long-duration inundation indicated by water marks, sediment deposits, and drift deposits. The soils are problematic in that these features occur on a sand/cobble bars within and adjacent to intermittent streams in the study area. However, the pit dug for RW47 emitted hydrogen sulfide odor supporting both wetland hydrology and hydric soils.

Riparian wetlands occur within and adjacent to intermittent streams that convey water to Moody, Rancheria, Salt, or Churn creeks, each of which are RPWs and tributaries to the Sacramento River, a TNW. Therefore, riparian wetlands in the study area are federally jurisdictional waters.

### 5.1.6 Seep-Spring Wetland

Seep-spring wetlands (SSW) occur throughout the study area but vary in plant composition between the east and west portions of the study area. A spring is a point where ground water flows out of the ground when an aquifer meets the grounds surface. The eastern seep-spring wetlands occur typically along exposed bedrock outcrops in the headwaters of intermittent streams. Dominate plant species in seep-spring wetlands on the east side of the study area include seep monkey flower, white brodiaea (*Triteleia hyacinthina*-FAC), and perennial ryegrass. Hydrology indicators of long duration saturation include water marks and sediment deposits. Hydric soil indicators are problematic because in most cases water seeps directly from the bedrock and typical hydric soil characters cannot develop. Where soil overlays the bedrock, the hydrogen sulfide hydric soil indicator has developed.

The western seep-spring wetlands are generally seeps that have been developed by excavation for road-cuts or in one case, the specific development of a spring (SSW28, Figure 3a). These seep-spring wetlands are dominated by arroyo willow, chain fern (*Woodwardia fimbriata*-FACW), spice bush, slender rush, and Himalayan blackberry. Hydrology is provided by frequent flooding and long-duration inundation indicated by a biotic crust and a hydrogen sulfide odor. Hydric soil criteria are

met through indicators of long duration ponding including the observation of hydrogen sulfide odor, loamy mucky material, loamy gleyed matrix, and depleted matrix.

Seep-spring wetlands are tributary to intermittent streams that flow to Moody, Rancheria, Salt, or Churn creeks, each of which are RPWs and tributaries to the Sacramento River, a TNW. Therefore, seep-spring wetlands in the study area are federally jurisdictional waters.

NJSSW1 (Figure 3a) was created by the development of a landing. From the cut in the slope, water seeps across the landing towards two arroyo willows at the eastern edge of the landing. The arroyo willows appear to respire the seepage because there is no indication that water seeps beyond the arroyo willows. This feature is approximately 150 feet from waters of the United States, and the topography does not indicate that this feature would flow to a jurisdictional feature during a high precipitation event. Therefore, NJSSW1 was determined to be isolated and non-jurisdictional.

### **5.1.7 Vegetated Ditch**

Vegetated ditches occurring in the study area are ditches that have been excavated to drain adjacent uplands, roads, or railways. Because these features gradients are so slight, pooling and/or saturation occur in each of the ditches allowing hydrophytic vegetation to colonize. Dominant plant species include pale spikerush, Perennial ryegrass, Mediterranean barley, hyssop loosestrife, rabbitsfoot grass, and pennyroyal. Wetland hydrology criteria are met through the observation of surface water on June 17, 2010, and oxidized rhizospheres indicating long-duration inundation. Hydric soil criteria are met through the observation of surface water, biotic crust, and redox depression indicating long duration saturation.

VD1 and 2 intercept (Figure 3c) flow from an intermittent stream north of the feature. Although this feature was excavated to drain a road, it intercepts flow from a water of the United States and conveys the flows to waters of the United States. Therefore, VD 1 and 2 are subject to federal jurisdiction.

NJVVD1 and NJVVD2 (Figure 3g) are determined to be federally non-jurisdictional based on the Rapanos guidance provided by the EPA and the Corps. In accordance with this guidance, federal agencies will not assert jurisdiction over “ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water” (Grumbles and Woodley 2007). Although hydrophytic vegetation is present, these features have been excavated wholly in uplands and drain the adjacent uplands and roadways during precipitation events. Therefore, NJVVD1 and NJVVD2 are not subject to federal jurisdiction. A significant nexus evaluation for this feature is included in Appendix D.

## **5.2 Characterization and Jurisdictional Determination of Delineated “Other Water” Features**

### **5.2.1 Ephemeral Stream**

Ephemeral streams (ES) occur infrequently in the study area and are found where seep-spring wetlands do not contribute to the hydrology of the watershed. These features exhibit indicators of scour and deposition, minor drift lines, and sediment deposits, but lack indication of a ground water

component. Hydrology is provided by sheet flow during precipitation events. The poorly defined hydrology indicators, close proximity to the headwaters, and the small size of the ephemeral streams indicate short duration flow and the lack of a groundwater component. Jurisdictional boundaries were established at the OHWM.

Most ephemeral streams in the study area flow into an intermittent stream which conveys water ultimately to the Sacramento River, a TNW. Therefore, these streams are federally jurisdictional.

However, NJES2 and 3 (Figure 3c) has been altered by the construction of a historic building pad. A ditch was built along the perimeter of the pad to intercept water from this drainage, but a breach in the berm has allowed water to flow out and dissipate onto the pad. Due to the short duration of flow and the lack of velocity, water either percolates into the pad or evaporates. The pad is level and approximately 200 feet from a jurisdictional feature. Although the topography generally slopes towards IS111 (Figure 3c), the topography has been historically altered and compacted in this area as there are two roads between IS111 to the south and NJES 2 and 3. Because the feature is ephemeral and has a short duration of flow, the nearest feature is greater than 200 feet away, and the topography is level at the termination of the feature and historically altered downslope, water that percolates would not flow subsurface into the IS111 approximately 200 feet south.

Additionally, NJES1 (Figure 3e) is a small ephemeral stream that has no surface or subsurface connection to a jurisdictional water. Scour and deposition ends approximately 350 feet from the nearest jurisdictional feature. This feature ends at a small two-track road. The road follows the level contour of the rail-road tracks and because the slope is nearly level, water either percolates or evaporates at this point. Because the feature is ephemeral and has a short duration of flow, the nearest feature is greater than 350 away, and the topography is level at its termination, water that percolates would not flow subsurface into drainages 350 feet away.

Because there is no surface or subsurface connection and they are 200 to 350 feet from a jurisdictional feature, these features are not subject to federal jurisdiction.

## 5.2.2 Intermittent Stream

Intermittent streams (IS) occur throughout the study area in both steep and low gradient drainages. Intermittent streams are characterized as bed and bank features that exhibit indicators of scour, deposition, watermarks, and drift lines. Intermittent streams flow seasonally, but are fed by a groundwater component in addition to precipitation and sheet flow from adjacent slopes, extending the duration of flow. Intermittent streams in the study area are highly variable in size, gradient, substrate, and duration of flow. The size of streams range from 1 to 15 feet and gradients can range from 1 to 30 percent slope. Substrates are generally dominated by gravel and cobble, but in the upper portions of the drainage often transition to bedrock.

Generally, most intermittent streams dry-up in early summer. However, Moody (IS133 etc., Figure 3e), Rancheria (IS60 etc., Figure 3d), Salt (IS218, etc. Figure 3f), and IS81 (Figure 3b) are all moderate- to long-duration intermittent streams with flows extending well into the summer. Extended flows often support adjacent riparian wetlands and in reaches with lower gradients support herbaceous hydrophytic vegetation including seep monkey flower and pinnate-leaved lotus within the OHWM. Jurisdictional boundaries were established at the OHWM.

Depending on the drainage, intermittent streams convey water to Moody, Rancheria, Salt, East Fork Stillwater or Churn creeks, each of which are RPWs and tributaries to the Sacramento River, a TNW. Therefore, intermittent streams in the study area are federally jurisdictional waters.

### 5.2.3 Non-Vegetated Ditch

Non-vegetated ditches (NVD) occur along the roadways and railroad tracks in the study area (Figure 3g). These features have been excavated solely to drain uplands. Boundaries were established at the OHWM as indicated by sediment and drift deposits.

All non-vegetated ditches were determined to be non- jurisdictional based on the Rapanos guidance provided by the EPA and the Corps. In accordance with this guidance, federal agencies will not assert jurisdiction over “ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water (Grumbles and Woodley 2007).”

These features have been excavated solely as a function of draining the roadway or railroad. Additionally, these features are characterized as having low volume, infrequent and short duration flow. Therefore, these features are not subject to federal jurisdiction.

### 5.2.4 Seep-Spring-Other Waters

One seep-spring-other waters (SSOW1, Figure 3d) feature occurs in the Moody Creek drainage. Water originates from one location in the drainage. The gradient is steep and the substrate is bedrock providing for increased water velocity and precluding the establishment of hydrophytic plants. Evidence of hydrology is provided by indicators including watermarks, sediment deposits, and drift deposits. This feature flows into Moody Creek. Jurisdictional boundaries were established at the OHWM.

Because this feature conveys water to Moody Creek, a RPW, and tributary to the Sacramento River, a TNW, it is federally jurisdictional.

## Chapter 6. Summary

Waters of the United States delineated within the study area occupy a total of 13.65 acres and include fresh emergent wetland (0.09 acre), fresh emergent-riparian wetland (0.22 acre), intermittent pool (0.001 acre), intermittent swale (0.57 acre), riparian wetland (2.4 acre), seep-spring wetland (0.24 acre), vegetated ditch (0.01 acre, 113 linear feet), ephemeral stream (0.55 acre, 19,568 linear feet), intermittent stream (9.57 acre, 114,118 linear feet), and seep-spring-other waters (0.003 acres, 73 linear feet).

A total of 0.21 acre of non-jurisdictional waters were delineated within the study area including ephemeral stream (0.01 acre, 306 linear feet), intermittent pool (0.07 acre), non-vegetated ditch (0.08 acre, 1,805 linear feet), seep-spring wetland (0.009 acre), and vegetated ditch (0.04 acre, 483 linear feet).

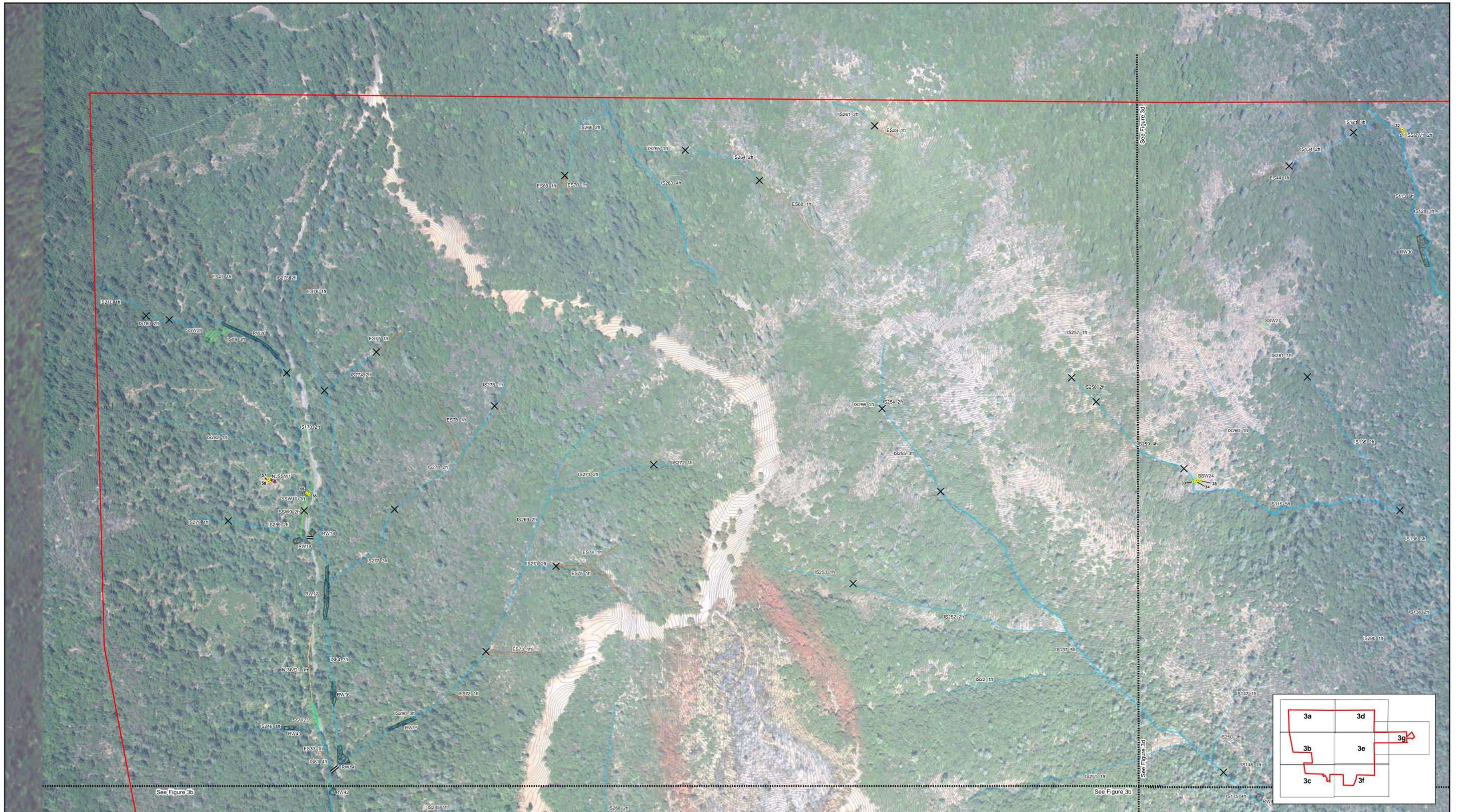
Jurisdictional delineations for the delineated features are based on current conditions, (i.e., normal circumstances). Potential jurisdictional delineations were made in accordance with EPA and Corps guidance developed from the outcomes of SWANCC and Rapanos. Features determined to not meet criteria for waters of the United States are subject to verification by the Corps. NSR advises all interested parties to treat the information contained herein as preliminary pending written verification of jurisdictional boundaries by the Corps.

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**Notes:**  
 This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). NSR advises all parties that the delineation is preliminary until the Corps provides a written verification.  
 Imagery Source: Benchmark Resources, Inc. and NAIP 2005  
 Acreage tables are shown in Appendix C in the Moody Flats Quarry Project Delineation of Waters of the United States Report.  
 Survey Date: June 15 - July 20, 2010 and June 29, 2012  
 Delineator: Heather Kelly and Gabe Youngblood

Waters of the United States		Non-Jurisdictional Features	
Study Area (1940.33 acres)	Fresh Emergent Wetland (0.093 acre)	Intermittent Pool (0.074 acre)	Ephemeral Stream (0.010 acre)
Width Change	Fresh Emergent Wetland/ Riparian Wetland (0.224 acre)	Seep-Spring Wetland (0.009 acre)	Non-Vegetated Ditch (0.083 acre)
3-Parameter Data Point	Intermittent Swale (1.511 acres)	Vegetated Ditch (0.208 acre)	
Culvert	Riparian Wetland (2.403 acres)		
Match Line	Seep-Spring Wetland (0.243 acre)		
5-Foot Contour	Vegetated Ditch (0.006 acre)		
	Ephemeral Stream (0.532 acre)		
	Intermittent Stream (9.741 acres)		
	Seep-Spring Other Waters (0.003 acre)		



**Moody Flats Quarry Project**  
**Figure 3a**  
**Boundaries of Waters of the United States**  
**August 8, 2012**



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3-Parameter Data Point	Intermittent Pool (0.001 acre)	Vegetated Ditch (0.208 acre)	
Culvert	Intermittent Swale (1.511 acres)		
Match Line	Riparian Wetland (2.403 acres)		
5-Foot Contour	Seep-Spring Wetland (0.243 acre)		
	Vegetated Ditch (0.006 acre)		
	Ephemeral Stream (0.532 acre)		
	Intermittent Stream (9.741 acres)		
	Seep-Spring Other Waters (0.003 acre)		

**Moody Flats Quarry Project**  
**Figure 3b**  
**Boundaries of Waters of the United States**  
**August 8, 2012**




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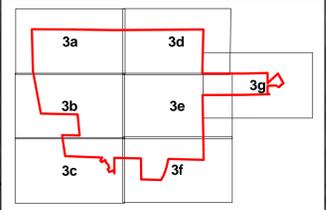
**Notes:**  
 This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). NSR advises all parties that the delineation is preliminary until the Corps provides a written verification.  
 Imagery Source: Benchmark Resources, Inc. and NAIP 2005  
 Acreage tables are shown in Appendix C in the Moody Flats Quarry Project Delineation of Waters of the United States Report.  
 Survey Date: June 15 - July 20, 2010 and June 29, 2012  
 Delineator: Heather Kelly and Gabe Youngblood

Waters of the United States		Non-Jurisdictional Features	
Study Area (1940.33 acres)	Fresh Emergent Wetland (0.093 acre)	Intermittent Pool (0.074 acre)	Ephemeral Stream (0.010 acre)
Width Change	Fresh Emergent Wetland/ Riparian Wetland (0.224 acre)	Seep-Spring Wetland (0.009 acre)	Ephemeral Stream (0.010 acre)
3-Parameter Data Point	Intermittent Pool (0.001 acre)	Seep-Spring Other Waters (0.003 acre)	Non-Vegetated Ditch (0.083 acre)
Culvert	Intermittent Swale (1.511 acres)	Vegetated Ditch (0.208 acre)	
Match Line	Riparian Wetland (2.403 acres)		
5-Foot Contour	Seep-Spring Wetland (0.243 acre)		
	Vegetated Ditch (0.006 acre)		

**Moody Flats Quarry Project**  
**Figure 3c**  
**Boundaries of Waters of the United States**  
**August 8, 2012**



Prepared by:  
  
**North State Resources, Inc.**

5000 Bechelli Lane Suite 203  
 Redding, CA 96002 Phone (530) 222-5347  
 Fax (530) 222-4958 www.nsrnet.com

File path: G:\Projects\51227\_Moody\_Flats\_Quarry\_Project\GIS\Working  
 MXDs\51227\_Figure\_3a\_WUS.mxd

Prepared for:  
**Benchmark Resources, Inc.**  
 4990 Hillsdale Circle, Suite 400  
 El Dorado Hills, CA 95762

**Notes:**  
 This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). NSR advises all parties that the delineation is preliminary until the Corps provides a written verification.

Imagery Source: Benchmark Resources, Inc. and NAIP 2005  
 Acreage tables are shown in Appendix C in the Moody Flats Quarry Project Delineation of Waters of the United States Report.

Survey Date: June 15 - July 20, 2010 and June 29, 2012

Delineator: Heather Kelly and Gabe Youngblood

Waters of the United States		Non-Jurisdictional Features	
Study Area (1940.33 acres)	Fresh Emergent Wetland (0.093 acre)	Intermittent Stream (0.741 acres)	Vegetated Ditch (0.208 acre)
Width Change	Fresh Emergent Wetland/ Riparian Wetland (0.224 acre)	Intermittent Stream (0.741 acres)	Ephemeral Stream (0.010 acre)
3-Parameter Data Point	Intermittent Pool (0.001 acre)	Seep-Spring Other Waters (0.003 acre)	Non-Vegetated Ditch (0.083 acre)
Culvert	Intermittent Swale (1.511 acres)	Seep-Spring Other Waters (0.003 acre)	Ephemeral Stream (0.010 acre)
Match Line	Riparian Wetland (2.403 acres)	Seep-Spring Other Waters (0.003 acre)	Non-Vegetated Ditch (0.083 acre)
5-Foot Contour	Seep-Spring Wetland (0.243 acre)	Seep-Spring Other Waters (0.003 acre)	Non-Vegetated Ditch (0.083 acre)
	Vegetated Ditch (0.006 acre)	Seep-Spring Other Waters (0.003 acre)	Non-Vegetated Ditch (0.083 acre)



**Moody Flats Quarry Project**  
**Figure 3e**  
**Boundaries of Waters of the United States**  
**August 8, 2012**



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 El Dorado Hills, CA 95762

**Notes:**  
 This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). NSR advises all parties that the delineation is preliminary until the Corps provides a written verification.  
 Imagery Source: Benchmark Resources, Inc. and NAIP 2005  
 Acreage tables are shown in Appendix C in the Moody Flats Quarry Project Delineation of Waters of the United States Report.  
 Survey Date: June 15 - July 20, 2010 and June 29, 2012  
 Delineator: Heather Kelly and Gabe Youngblood

Waters of the United States		Non-Jurisdictional Features	
Study Area (1940.33 acres)	Wetlands	Intermittent Stream (0.741 acres)	Wetlands
Width Change	Fresh Emergent Wetland (0.093 acre)	Ephemeral Stream (0.532 acre)	Intermittent Pool (0.074 acre)
3-Parameter Data Point	Fresh Emergent Wetland/ Riparian Wetland (0.224 acre)	Seep-Spring Other Waters (0.003 acre)	Ephemeral Stream (0.010 acre)
Culvert	Intermittent Pool (0.001 acre)	Seep-Spring Other Waters (0.003 acre)	Non-Vegetated Ditch (0.083 acre)
Match Line	Intermittent Swale (1.511 acres)	Vegetated Ditch (0.208 acre)	
5-Foot Contour	Riparian Wetland (2.403 acres)		
	Seep-Spring Wetland (0.243 acre)		
	Vegetated Ditch (0.006 acre)		

**Moody Flats Quarry Project**  
**Figure 3f**  
**Boundaries of Waters of the United States**  
**August 8, 2012**




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Prepared for:  
**Benchmark Resources, Inc.**  
 4990 Hillsdale Circle, Suite 400  
 El Dorado Hills, CA 95762

**Notes:**  
 This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). NSR advises all parties that the delineation is preliminary until the Corps provides a written verification.  
 Imagery Source: Benchmark Resources, Inc. and NAIP 2005  
 Acreage tables are shown in Appendix C in the Moody Flats Quarry Project Delineation of Waters of the United States Report.  
 Survey Date: June 15 - July 20, 2010 and June 29, 2012  
 Delineator: Heather Kelly and Gabe Youngblood

Waters of the United States		Non-Jurisdictional Features	
Study Area (1940.33 acres)	Fresh Emergent Wetland (0.093 acre)	Intermittent Stream (9.741 acres)	Ephemeral Stream (0.010 acre)
Width Change	Fresh Emergent Wetland/ Riparian Wetland (0.224 acre)	Intermittent Stream (9.741 acres)	Ephemeral Stream (0.010 acre)
3-Parameter Data Point	Intermittent Pool (0.001 acre)	Seep-Spring Other Waters (0.003 acre)	Non-Vegetated Ditch (0.083 acre)
Culvert	Intermittent Swale (1.511 acres)	Seep-Spring Wetland (0.009 acre)	Non-Vegetated Ditch (0.083 acre)
Match Line	Riparian Wetland (2.403 acres)	Seep-Spring Wetland (0.243 acre)	Non-Vegetated Ditch (0.083 acre)
5-Foot Contour	Seep-Spring Wetland (0.243 acre)	Vegetated Ditch (0.208 acre)	Non-Vegetated Ditch (0.083 acre)
	Vegetated Ditch (0.006 acre)		

**Moody Flats Quarry Project**  
**Figure 3g**  
**Boundaries of Waters of the United States**  
**August 8, 2012**

# **Appendix A**

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## **Routine Wetland Delineation Data Forms**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Annual grassland  
Wetland Type Int. Swale

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10

Applicant/Owner: 3-M Company State: CA Data Point: 1

Investigator(s): Heather Kelly UTM 10S 550431.5 E 4306326 N NAD83

Landform (hillslope, terrace, etc.) Swale Local relief (concave, convex, none) Concave Slope % 41

Subregion (LRR) C Soil Map Unit Name: Churny gravelly loam, 0-3% Slopes

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)     

Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A  
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks Intermittent water drains SW to Ant Stream/FOW system

**Vegetation**

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%=      20%=      Total Cover:     

Herb Stratum (use scientific names) % Cover Species? Status

1.	<u>Lolium perenne</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>
2.	<u>Eragrostis castrane</u>	<u>10</u>	<u>N</u>	<u>DBL</u>
3.	<u>Melilotus perfoliatus</u>	<u>20</u>	<u>Y</u>	<u>DBL</u>
4.	<u>Lithrum hyssopifolium</u>	<u>5</u>	<u>N</u>	<u>DBL</u>
5.	<u>Hordeum marinum v. quiescens</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
6.	<u>Mentzelia laeta</u>	<u>5</u>	<u>N</u>	<u>DBL</u>
7.	<u>Elychnia macrostachya</u>	<u>5</u>	<u>N</u>	<u>DBL</u>
8.	<u>Bromus hordeaceus</u>	<u>10</u>	<u>N</u>	<u>FACU</u>

50%= 50 20%= 20 Total Cover: 100

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.			
2.			

50%=      20%=      Total Cover:     

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

**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 (AB)

**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 Text is >50%
  - Prevalence Index is ≤ 3.0<sup>1</sup>
  - Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
  - Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)
- <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

**Soils**

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

Depth (inches)	Matrix		Redox Features			Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%					
0-6	10YR4/4	70	5YR4/6	30	RM	M	Gravelly loam		
6-12	7.5YR4/6	95	10YR4/4	5	PL	M	Gravelly loam w/ <sup>manganese</sup> concentrations		

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) |   |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) 180 in Hydric Soil? y

Remarks Sufficient hydric soil indicators

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input checked="" type="checkbox"/> Biotic Crust (B12)              | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)      | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches)  Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches)
- Saturation Present? Yes  No  Depth (inches)  (includes capillary fringe)

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

Remarks Sufficient hydrology



# Wetland Determination Data Form - Arid West Region

Habitat Type Annual grassland  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10

Applicant/Owner: 3-M Company State: CA Data Point: 2

Investigator(s): Heather Kelly UTM10S 555433.2E 4506327N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 41

Subregion (LRR) C Soil Map Unit Name: Churn gravelly loam, 0-37%

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? Y Wetland hydrology? N Is sampled area a wetland? N Other waters? N

### USACE Jurisdiction

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A

Explain:

### Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks Upland pair to #1

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Herb Stratum (use scientific names)				
1.	<u>Taraxacum caput-medusae</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Bromus japonicus</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>
3.				
4.				
5.				
6.				
7.				
8.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
% Bare Ground in Herb Stratum <u>    </u>		% Cover of Biotic Crust <u>    </u>		

### 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 (AB)

### 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 Text is >50%

     Prevalence Index is >3.0<sup>1</sup>

     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR4/4	95	10YR4/6	5	RM	PL	Loam	
4-12	7.5YR4/6	95	7.5YR4/4	5	C	M	Loam/gravelly	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) |   |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) < 80"      Hydric Soil? yes

**Remarks**

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No       Depth (inches) ✓      Wetland Hydrology? Yes  No
- Water Table Present? Yes  No       Depth (inches) ✓
- Saturation Present? Yes  No       Depth (inches) ✓ (includes capillary fringe)

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

**Remarks**      No hydrology indicators

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak woodland  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10  
Applicant/Owner: 3-M Company State: CA Data Point: 3  
Investigator(s): Heather Kelly UTM 10S 555620.7E 4506361N  
Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % <1  
Subregion (LRR) C Soil Map Unit Name: Churn gravelly loam, 0-39"

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**  
Adjacent to Waters \_\_\_\_\_ Tributary to Waters \_\_\_\_\_ Isolated (with interstate commerce) \_\_\_\_\_ Isolated (non jurisdictional) N/A  
Explain:

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank \_\_\_\_\_ Scour \_\_\_\_\_ Ordinary High Water Mark Mapped \_\_\_\_\_  
Feature Designation: Perennial \_\_\_\_\_ Intermittent \_\_\_\_\_ Ephemeral \_\_\_\_\_ Blue-line on USGS Quad \_\_\_\_\_  
Natural Drainage \_\_\_\_\_ Artificial Drainage \_\_\_\_\_ Navigable Water \_\_\_\_\_ N/A

**Remarks** upland pair to #4

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.	<u>Quercus douglasii</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>
2.				
3.				
4.				
50% = <u>25</u> 20% = <u>10</u> Total Cover: <u>50</u>				
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50% = _____ 20% = _____ Total Cover: _____				
Herb Stratum (use scientific names)				
1.	<u>Centaurea solstitialis</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Cynodon dactylon</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>
3.	<u>Taraxacum officinale</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
4.	<u>Lolium perenne</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
5.	<u>Bromus diandrus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
6.	<u>Carduus pycnocephalus</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
7.	<u>Avena fatua</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
8.	<u>Tribolium hirtum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
50% = _____ 20% = _____ Total Cover: <u>100</u>				
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50% = _____ 20% = _____ Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>		

**Dominance Test Worksheet**

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 4 (B)

Percent of dominant species that are OBL, FACW, or FAC: 25 (AB)

**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 Text is >50%  
\_\_\_\_\_ Prevalence Index is >3.0<sup>1</sup>  
\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	7.5 <sup>g</sup> 12 <sup>g</sup> /H	100	—	—	—	—	Gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

*Soil Survey*

Restrictive Layer (if present): Type: N/A Depth (Inches) >80" Hydric Soil? N

Remarks No indicators

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Netural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) — Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) —

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

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

Remarks No indicators

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak woodland  
Wetland Type Int. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10  
Applicant/Owner: 3-M Company State: CA Data Point: 4  
Investigator(s): Heather Kelly UTM 103 555621.6 4506560

Landform (hillslope, terrace, etc.) drainage Local relief (concave, convex, none) concave Slope % L2  
Subregion (LRR) C Soil Map Unit Name: Churn gravelly loam, 0-37% clay

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X  
Feature Designation: Perennial      Intermittent X Ephemeral      Blue-line on USGS Quad       
Natural Drainage X Artificial Drainage      Navigable Water     

**Remarks** Int. Stream dry on 6/15/10

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.	<u>No veg</u>			
4.	<u>Scoured channel</u>			
50%=	20%=	Total Cover:		
Herb Stratum (use scientific names)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
50%=	20%=	Total Cover:		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=	20%=	Total Cover:		
% Bare Ground in Herb Stratum <u>    </u> % Cover of Biotic Crust <u>    </u>				

**Dominance Test Worksheet**  
Number of dominant species that are OBL, FACW, or FAC:      (A)  
Total number of dominant species across all strata:      (B)  
Percent of dominant species that are OBL, FACW, or FAC:      (AB)

**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 Text is >50%  
     Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** 10/10

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
<i>No pit - scoured channel</i>								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? N/A

Remarks *No pit scoured channel*

**Hydrology**

**Wetland Indicators**

- |  |   |   |
|--|---|---|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                      |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input checked="" type="checkbox"/> Water Marks (B1) (Riverine)       |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Netural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)                 Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)           

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

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

**Remarks**



# Wetland Determination Data Form - Arid West Region

Habitat Type Annual grassland  
Wetland Type Suspect area

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10

Applicant/Owner: 3-M Company State: CA Data Point: 5

Investigator(s): Heather Kelly UTM 10S 555 223.2 45065P2

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex/level Slope % 12

Subregion (LRR) C Soil Map Unit Name: Red Bluff loam, 3-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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?    Hydric soil? Y Wetland hydrology? N Is sampled area a wetland? N Other waters? N

## USACE Jurisdiction

Adjacent to Waters    Tributary to Waters    Isolated (with interstate commerce)    Isolated (non jurisdictional) N/A

Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank    Scour    Ordinary High Water Mark Mapped    N/A  
Feature Designation: Perennial    Intermittent    Ephemeral    Blue-line on USGS Quad     
Natural Drainage    Artificial Drainage    Navigable Water   

## Remarks

Suspect area because of buttonwillow; no hydrology or other hydrophytic plants; a water table maybe present at a depth greater than 12" & button willow is tapped in @ greater than 12". Herbs are upland species.

## Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>
2. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>
3. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>
4. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>

50%=    20%=    Total Cover:   

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Cephalanthus occidentalis</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>
2. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>
3. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>
4. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>

50%= 25 20%= 10 Total Cover: 50

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Taraxacum caput-medusae</u>	<u>25</u>	<u>Y</u>	<u>UPL</u>
2. <u>Vulpia myuros</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
3. <u>Bromus hordeaceus</u>	<u>70</u>	<u>N</u>	<u>FACW</u>
4. <u>Cichorium intybus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
5. <u>Bromus japonicum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
6. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>
7. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>
8. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>

50%= 30 20%= 12 Total Cover: 60

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>
2. <u>  </u>	<u>  </u>	<u>  </u>	<u>  </u>

50%=    20%=    Total Cover:   

% Bare Ground in Herb Stratum    % 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 (AB)

## Prevalence Index Worksheet

Total % Cover of:    Multiply by   

OBL Species 50 x 1 = 50

FACW Species 0 x 2 = 0

FAC Species 0 x 3 = 0

FACU Species 20 x 4 = 80

UPL Species 40 x 5 = 200

Column Totals 110 (A) 330 (B)

Prevalance Index = B/A = 3

## Hydrophytic Vegetation Indicators

- Dominance Text is >50%
- Prevalance Index is ≤ 3.0<sup>1</sup>
- Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-18	7.5YR <sup>4</sup> /4	95	N/A - dark concentration	5	C	M	Loam - concentrations present throughout	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)   |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)  |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2)   |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars   |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           | <sup>3</sup> Indicators of hydrophytic vegetation and<br>wetland hydrology must be present. |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) |   |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |   |

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? Y

Remarks Soil began to increase in moisture @ 18 inches but not saturated

**Hydrology**

**Wetland Indicators**

- |   |  |   |
|---|--|---|
| <b>Primary Indicators (Any one indicator is sufficient)</b>           |  | <b>Secondary Indicators (2 or more required)</b>                      |
| <input type="checkbox"/> Surface Water (A1)                           | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                        | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)            |
| <input type="checkbox"/> Saturation (A3)                              | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)               |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)               | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)         | <input type="checkbox"/> Oxidized Rhizospheres (C3)                    | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                     | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on<br>Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in<br>Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                    | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on<br>Aerial Imagery (C9) |
|   |  | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|   |  | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)         Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)   

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

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

Remarks No indicators of hydrology

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak-grassprairie  
Wetland Type Int. Swale

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10

Applicant/Owner: 3-M Company State: CA Data Point: 6

Investigator(s): Heather Kelly UTM 10S 555261.4E 4506384N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 22

Subregion (LRR) C Soil Map Unit Name: Red Bluff loam, 3-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Intermittent swale that transitions to Int. stream then alternates between swale + stream. Predominantly scoured areas were mapped as stream; predominantly vegetated areas were mapped as swale

**Vegetation**

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Cotium perenne</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>
2. <u>Briza minor</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
3. <u>Mentha pulganiun</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
4. <u>Plantago lanceolata</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
5. <u>Eryngium castrense</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
6. <u>Polygonum monspeliense</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
7. <u>Ranunculus mucosatus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
8. <u>Lithospermum hyssopifolium</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
50%= <u>45</u> 20%= <u>18</u> Total Cover: <u>90</u>			
Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50%= _____ 20%= _____ 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: 1 (A)  
Total number of dominant species across all strata: 1 (B)  
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

**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<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-10	10YR 4/4	90	10YR 4/6	10	D	PL	gravelly loam	
10-12	10YR 4/2	80	10YR 5/6	20	RM	M	gravelly loam w/ concretions	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |  |

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? Y

Remarks Sufficient soils

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <u>Primary Indicators (Any one indicator is sufficient)</u>              |   | <u>Secondary Indicators (2 or more required)</u>                   |
| <input type="checkbox"/> Surface Water (A1)                              | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                           | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                                 | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input checked="" type="checkbox"/> Water Marks (B1) (Nonriverine)       | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                        | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)       | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                       | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No       Depth (inches) ✓      Wetland Hydrology? Yes  No
- Water Table Present? Yes  No       Depth (inches) ✓
- Saturation Present? Yes  No       Depth (inches) ✓      (includes capillary fringe)

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak - gray pine  
Wetland Type Int. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10

Applicant/Owner: 3-M Company State: CA Data Point: 7

Investigator(s): Heather Kelly UTM 10S 555259E 4506369N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 2

Subregion (LRR) C Soil Map Unit Name: Red Bluff loam 3-8% Slopes

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:     

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X  
Feature Designation: Perennial      Intermittent X Ephemeral      Blue-line on USGS Quad       
Natural Drainage X Artificial Drainage      Navigable Water     

**Remarks** Int stream w variable amounts of hydrophytic veg in stream; when veg dominates transitions to swale

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Herb Stratum (use scientific names)				
1.	<u>Mentha pulegium</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>
2.	<u>Hypochaeris glabra</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
3.				
4.				
5.				
6.				
7.				
8.				
50%= <u>25</u>	20%= <u>    </u>	Total Cover: <u>50</u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
% Bare Ground in Herb Stratum <u>    </u>		% Cover of Biotic Crust <u>    </u>		

**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 (AB)

**Prevalence Index Worksheet**

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

Prevalence Index = B/A =     

**Hydrophytic Vegetation Indicators**

Y Dominance Test is >50%  
Y Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				

*Scoured Channel - no pit*

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) 280"      Hydric Soil? N/A

Remarks: Scoured Channel - no pit

**Hydrology**

**Wetland Indicators**

- |  |   |   |
|--|---|---|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                      |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)                 Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)           

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

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak-grass pine  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10

Applicant/Owner: 3-M Company State: CA Data Point: 8

Investigator(s): Heather Kelly UTM 10S 555261.9E 4506384N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) convex Slope % 42

Subregion (LRR) C Soil Map Unit Name: Red Bluff loam 3-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A  
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad      N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks**

Upland prior to # 6+7

**Vegetation**

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%=      20%=      Total Cover:     

Herb Stratum (use scientific names) % Cover Species? Status

1.	<u>Anthoxanthum aristata</u>	<u>75</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Vulpia myuros</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
3.	<u>Cichorium intybus</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
4.	<u>Plantago lanceolata</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
5.				
6.				
7.				
8.				

50%= 50 20%= 20 Total Cover: 100

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.			
2.			

50%=      20%=      Total Cover:     

% Bare Ground in Herb Stratum      % 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: 1 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

**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 Text is >50%
- Prevalence Index is ≤ 3.0<sup>1</sup>
- Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

### Soils

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	10YR4/3	70	10YR4/6	30	D	PL/RC	gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |  |

Restrictive Layer (if present): Type: N/A      Depth (Inches) 780"      Hydric Soil? Y

Remarks: Sufficient Soils

### Hydrology

#### Wetland Indicators

- | Primary Indicators (Any one indicator is sufficient)               |   | Secondary Indicators (2 or more required)                          |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)      | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

#### Field Observations

- Surface Water Present? Yes  No       Depth (inches)             Wetland Hydrology? Yes  No
- Water Table Present? Yes  No       Depth (inches)
- Saturation Present? Yes  No       Depth (inches)        (includes capillary fringe)

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

Remarks: Sufficient hydrology

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue Oak - Gray Pine  
Wetland Type Freshwater Wetland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/16/10  
Applicant/Owner: 3-M Company State: CA Data Point: 9  
Investigator(s): Heather Kelly UTM 10S 554877.5E 4506402N  
Landform (hillslope, terrace, etc.) Depression Local relief (concave, convex, none) CONCAVE Slope % 21  
Subregion (LRR) C Soil Map Unit Name: Red Bluff loam - 3-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A  
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks Excavated pools w/ hydrology provided by seep/springs

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Herb Stratum (use scientific names)				
1.	<u>Juncus uncialis</u>	<u>75</u>	<u>Y</u>	<u>OBL</u>
2.	<u>Carex pita</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
3.	<u>Eleocharis macrostachya</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
4.				
5.				
6.				
7.				
8.				
50%=	<u>45</u>	20%= <u>18</u>	Total Cover: <u>90</u>	
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=	20%=	Total Cover:		
% Bare Ground in Herb Stratum <u>    </u> % Cover of Biotic Crust <u>    </u>				

**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 (AB)

**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**  
Y Dominance Test is >50%  
Y Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	10YR4/1	90	10YR4/6	10	D	M	gravelly loam	
4-12	10YR4/1	30	10YR4/6	30	P	M	dense layer of concretions & soft masses	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)        | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)            | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4)  | <input type="checkbox"/> Loamy Mucky Mineral (F1)        | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)        | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)         |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)      |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)          |   |
|  | <input type="checkbox"/> Vernal Pools (F9)               |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? Y

**Remarks**

**Hydrology**

**Wetland Indicators**

**Primary Indicators** (Any one indicator is sufficient)

**Secondary Indicators** (2 or more required)

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)      | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input checked="" type="checkbox"/> Presence of Reduced Iron (C4)   | <input checked="" type="checkbox"/> Thin Muck Surface (C7)         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches) 2-3' max      Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches) Surface

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

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

**Remarks** Tadpoles Present

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue Oak gray pine  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 6/16/10  
Applicant/Owner: 3-M Company Data Point: 10  
Investigator(s): Heather Kelly UTM 10S 554876.7 E 4506400 N  
Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % <2  
Subregion (LRR) C Soil Map Unit Name: Red Bluff Loam 3-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? Y Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A  
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Upland pair to #9

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.	<u>Rhamnus purshiana</u>	<u>20</u>	<u>Y</u>	<u>NI-FAC</u>
2.				
3.				
4.				
50%=	<u>10</u>	20%= <u>4</u>	Total Cover: <u>20</u>	
Herb Stratum (use scientific names)				
1.	<u>Cynosuavis echinatus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
2.	<u>Thymatherum caput-medusae</u>	<u>55</u>	<u>Y</u>	<u>UPL</u>
3.	<u>Anthoxanthum aristata</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
4.	<u>Trifolium hirtum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
5.	<u>Plantago lanceolata</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
6.	<u>Lotus purshiana</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
7.				
8.				
50%=	<u>50</u>	20%= <u>20</u>	Total Cover: <u>100</u>	
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=		20%=	Total Cover:	
% Bare Ground in Herb Stratum <u>    </u> % Cover of Biotic Crust <u>    </u>				

**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 (AB)

**Prevalence Index Worksheet**

Total % Cover of:      Multiply by

OBL Species 0 x 1 =     

FACW Species 0 x 2 =     

FAC Species 25 x 3 = 75

FACU Species 0 x 4 =     

UPL Species 100 x 5 = 500

Column Totals 120 (A) 575 (B)

Prevalence Index = B/A = 4.8

**Hydrophytic Vegetation Indicators**

N Dominance Text is >50%

N Prevalence Index is ≤ 3.0<sup>1</sup>

     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	10YR4/4	100					gravelly loam	
4-8	10YR4/4	80	10YR6/1	20	D	M	gravelly clay loam	
8-12	10YR5/4	90	10YR4/6	10	RM	M	clay concretions present	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Red Parent Materials (TF2)
<input type="checkbox"/> Stratified Layers (AG) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Vegetated Sand/Gravel Bars
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
	<input type="checkbox"/> Vernal Pools (F9)	

Restrictive Layer (if present): Type: N/A      Depth (Inches) > 80%      Hydric Soil? yes

Remarks: Sufficient Soils

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Natural Test (D5)

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)           Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)     

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

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

Remarks: No hydrology indicators

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak-grass pine  
Wetland Type Non-Vegetated Ditch

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/16/10

Applicant/Owner: 3-M Company State: CA Data Point: 11

Investigator(s): Heather Kelly UTM 10S 554541.9 E 4506521 N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 5

Subregion (LRR) C Soil Map Unit Name: Parkino gravelly loam 8-15% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

**USACE Jurisdiction**  
Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X  
Feature Designation: Perennial      Intermittent      Ephemeral X Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage X Navigable Water     

**Remarks** Non-vegetated ditch - Non-jurisdictional because it is created in uplands to drain uplands

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Herb Stratum (use scientific names)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
50%=	20%=	Total Cover:		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=	20%=	Total Cover:		
% Bare Ground in Herb Stratum		% Cover of Biotic Crust		

**Dominance Test Worksheet**  
Number of dominant species that are OBL, FACW, or FAC:      (A)  
Total number of dominant species across all strata:      (B)  
Percent of dominant species that are OBL, FACW, or FAC:      (AB)

**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<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** N/A

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
<i>No pit scoured channel</i>								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil survey N/A      Depth (Inches) >80"      Hydric Soil? N/A

**Remarks** *No pit-scoured channel*

**Hydrology**

**Wetland Indicators**

- |  |   |   |
|--|---|---|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                      |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)                 Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)           

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

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

**Remarks** *Sufficient hydrology*

Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak - gray pine  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/16/10  
Applicant/Owner: 3-M Company State: CA Data Point: 12

Investigator(s): Heather Kelly UTM 10S 554541.9E 4506521N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 5  
Subregion (LRR) C Soil Map Unit Name: Perkins gravelly loam 8-15%

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**  
Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional)      N/A  
Explain:

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water      N/A

**Remarks** Upland pair # 11

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.	<u>Quercus wislizenii</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>
2.				
3.				
4.				
50% = <u>20</u> 20% = <u>8</u> Total Cover: <u>40</u>				
Sapling/Shrub Stratum (use scientific names)				
1.	<u>Q. wislizenii</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Ceanothus cuneatus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
3.	<u>Aristostaphylos viscidula</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
4.				
50% = <u>50</u> 20% = <u>20</u> Total Cover: <u>100</u>				
Herb Stratum (use scientific names)				
1.	<u>Hypericum perforatum</u>	<u>1</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Galium bolanderi</u>	<u>1</u>	<u>Y</u>	<u>UPL</u>
3.				
4.				
5.				
6.				
7.				
8.				
50% = <u>1</u> 20% = <u>0.4</u> Total Cover: <u>2</u>				
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50% = <u>    </u> 20% = <u>    </u> Total Cover: <u>    </u>				
% Bare Ground in Herb Stratum <u>98</u> % Cover of Biotic Crust <u>    </u>				

**Dominance Test Worksheet**  
Number of dominant species that are OBL, FACW, or FAC: 0 (A)  
Total number of dominant species across all strata: 5 (B)  
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

**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 Text is >50%  
     Prevalence Index is < 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	5YR <sup>4</sup> /6	100					gravelly loam	compact dirt bank

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vetric (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? NO

Remarks: No indicators

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)                 Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)           

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

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

Remarks: No indicators



# Wetland Determination Data Form - Arid West Region

Habitat Type MHC  
Wetland Type Ephemeral stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/20/10

Applicant/Owner: 3-M Company State: CA Data Point: 13

Investigator(s): Heather Kelly UTM 10S 551597.9E 4506056N

Landform (hillslope, terrace, etc.) \_\_\_\_\_ Local relief (concave, convex, none) Concave Slope % 20

Subregion (LRR) C Soil Map Unit Name: Boomer gravelly loam

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

## USACE Jurisdiction

Adjacent to Waters \_\_\_\_\_ Tributary to Waters X Isolated (with interstate commerce) \_\_\_\_\_ Isolated (non jurisdictional) \_\_\_\_\_

Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X  
Feature Designation: Perennial \_\_\_\_\_ Intermittent \_\_\_\_\_ Ephemeral X Blue-line on USGS Quad \_\_\_\_\_  
Natural Drainage X Artificial Drainage X Navigable Water \_\_\_\_\_

Remarks Ephemeral drainage has been enhanced by road run off from Pigger Bay Road.

Vegetation	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)			
1. _____			
2. _____			
3. _____			
4. _____			
50%= _____ 20%= _____ Total Cover: _____			
Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. _____			
2. _____			
3. <u>No pit</u>			
4. <u>Scoured channel</u>			
50%= _____ 20%= _____ Total Cover: _____			
Herb Stratum (use scientific names)	% Cover	Species?	Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
50%= _____ 20%= _____ Total Cover: _____			
Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. _____			
2. _____			
50%= _____ 20%= _____ Total Cover: _____			
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____			

### Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: \_\_\_\_\_ (A)

Total number of dominant species across all strata: \_\_\_\_\_ (B)

Percent of dominant species that are OBL, FACW, or FAC: \_\_\_\_\_ (AB)

### 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)

Prevalance Index = B/A = \_\_\_\_\_

### Hydrophytic Vegetation Indicators

\_\_\_\_\_ Dominance Test is >50%

\_\_\_\_\_ Prevalence Index is < 3.0<sup>1</sup>

\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				

*No pit scoured channel*

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      Indicators for Problematic Hydric Soils<sup>3</sup>

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vetric (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: *karst* Depth (Inches) *45-49"* Hydric Soil? *N/A*

**Remarks**

*N/A*

**Hydrology**

**Wetland Indicators**

- |  |   |   |
|--|---|---|
| <u>Primary Indicators (Any one indicator is sufficient)</u>        |   | <u>Secondary Indicators (2 or more required)</u>                      |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) *—* Wetland Hydrology? Yes  No   
 Water Table Present? Yes  No  Depth (inches) *—*  
 Saturation Present? Yes  No  Depth (inches) *—* (includes capillary fringe)

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

**Remarks**



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue Oak-grassprairie  
Wetland Type Suspect area

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10

Applicant/Owner: 3-M Company State: CA Data Point: 14

Investigator(s): Heather Kelly LTM105 553355.16 4504860N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) concave Slope % 30

Subregion (LRR) C Soil Map Unit Name: Auburn very stony clay loam

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.) 30-50%

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

## USACE Jurisdiction

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A

Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Draw; but no evidence of scour & deposition or bed & bank; leaves present & no sign of movement.

## Vegetation

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

	% Cover	Species?	Status
1. <u>Asteromoles arbutifolia</u>	<u>3</u>	<u>Y</u>	<u>UPL</u>
2. <u>Rhamnus californica</u>	<u>2</u>	<u>Y</u>	<u>UPL</u>
3. <u>Toxicodendron diversilobum</u>	<u>2</u>	<u>Y</u>	<u>UPL</u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%= 3.5 20%= 1.4 Total Cover: 7

Herb Stratum (use scientific names) % Cover Species? Status

	% Cover	Species?	Status
1. <u>Avena fatua</u>	<u>1</u>	<u>Y</u>	<u>UPL</u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%= 0.5 20%= 0.2 Total Cover: 1

Woody/Vine Stratum (use scientific names) % Cover Species? Status

	% Cover	Species?	Status
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%=      20%=      Total Cover:     

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust     

Litter

## 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 (AB)

## 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 Text is >50%
- Prevalence Index is < 3.0<sup>1</sup>
- Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
			No pit, cobble/boulder					

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: lentic bedrock Depth (Inches) 27-31" Hydric Soil? No

**Remarks**  
No indicators

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches) 1 Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches) 1
- Saturation Present? Yes  No  Depth (inches) 1 (includes capillary fringe)

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

**Remarks**  
No indicators

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak - gray pine  
 Wetland Type Suspect area

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10

Applicant/Owner: 3-M Company State: CA Data Point: 15

Investigator(s): Heather Kelly UTM 10S 554878.8 4506315N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) convex Slope % 41

Subregion (LRR) C Soil Map Unit Name: Red Bluff loam 3-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
 Are vegetation N soil N or hydrology N significantly disturbed? Are normal circumstances present? Yes  
 Are vegetation N soil N or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A  
 Explain:     

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A  
 Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
 Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Suspect area - slight draw w/ culvert; installation of culvert has caused head cutting but there is no feature above culvert. No indication of flow or saturation. No bed + bank or scour + deposition above headcut.

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Herb Stratum (use scientific names)				
1.	<u><i>Anthoxanthum aristata</i></u>	<u>25</u>	<u>Y</u>	<u>UPL</u>
2.	<u><i>Trifolium hirtum</i></u>	<u>60</u>	<u>Y</u>	<u>UPL</u>
3.	<u><i>Avena fatua</i></u>	<u>5</u>	<u>N</u>	<u>UPL</u>
4.	<u><i>Taraxacum caput-medusae</i></u>	<u>5</u>	<u>N</u>	<u>UPL</u>
5.	<u><i>Bromus hordeaceus</i></u>	<u>5</u>	<u>N</u>	<u>FACU</u>
6.				
7.				
8.				
50%=	<u>50</u>	20%= <u>20</u>	Total Cover: <u>100</u>	
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=	20%=	Total Cover:		
% Bare Ground in Herb Stratum <u>    </u> % Cover of Biotic Crust <u>    </u>				

**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 (AB)

**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<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	5YR 9/4	100	/	/	/	/	Gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? N

**Remarks**

*No hydric soil indicators*

**Hydrology**

**Wetland 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)
- 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 (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-Natural Test (D5)

**Field Observations**

Surface Water Present? Yes  No       Depth (inches) /      Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches) /

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

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

**Remarks**

*No indication of flow*

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak-grapevine  
Wetland Type Int. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10  
Applicant/Owner: 3-M Company State: CA Data Point: 10  
Investigator(s): Heather Kelly UTM 10S 554505, 1E 4506312N  
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 41  
Subregion (LRR): C Soil Map Unit Name: Anderson gravelly sandy loam  
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X  
Feature Designation: Perennial      Intermittent X Ephemeral      Blue-line on USGS Quad X  
Natural Drainage X Artificial Drainage      Navigable Water     

**Remarks** Randevia Creek - 5-8' wide on average

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Herb Stratum (use scientific names)				
1.	<u>Perideridia killoggii</u>	<u>2</u>	<u>Y</u>	<u>FACW</u>
2.	<u>Lotus perniatus</u>	<u>5</u>	<u>Y</u>	<u>OBL</u>
3.				
4.				
5.				
6.				
7.				
8.				
50%=	<u>3.5</u>	20%= <u>1.4</u>	Total Cover: <u>7</u>	
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=	20%=	Total Cover:		
% Bare Ground in Herb Stratum <u>    </u> % Cover of Biotic Crust <u>    </u>				

**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 (AB)

**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)

Prevalance Index = B/A =

**Hydrophytic Vegetation Indicators**

Y Dominance Text is >50%  
     Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes  
W/in OTHWM



Wetland Determination Data Form - Arid West Region

Habitat Type Blueoak-gran-pine  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10

Applicant/Owner: 3-M Company State: CA Data Point: 17

Investigator(s): Heather Kelly UTM 103 554503.7 E 4506313 N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) convex Slope % L2

Subregion (LRR) C Soil Map Unit Name: Anderson gravelly sandy loam

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A  
Explain:     

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks Upland pair to #16

**Vegetation**

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Quercus douglasii</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2. <u>Pinus sabiniana</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
3. <u>Quercus wislizenii</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
50%= <u>20</u> 20%= <u>8</u> Total Cover: <u>40</u>			
Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Toxicodendron diversilobum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
2. <u>Cercis occidentalis</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
3. <u>Rhamnus purshiana</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
4. <u>Rhamnus californica</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
50%= <u>17.5</u> 20%= <u>7</u> Total Cover: <u>35</u>			
Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Cynurus echinatus</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>
2. <u>Trifolium hirtum</u>	<u>25</u>	<u>Y</u>	<u>UPL</u>
3. <u>Briza maxima</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
4. <u>Lolium perenne</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
5. <u>Carduus pycnocephalus</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
50%= <u>    </u> 20%= <u>    </u> Total Cover: <u>    </u>			
Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
50%= <u>    </u> 20%= <u>    </u> Total Cover: <u>    </u>			
% Bare Ground in Herb Stratum <u>    </u> % Cover of Biotic Crust <u>    </u>			

**Dominance Test Worksheet**

Number of dominant species that are OBL, FACW, or FAC: 1 (A)  
Total number of dominant species across all strata: 8 (B)  
Percent of dominant species that are OBL, FACW, or FAC: 12.5 (AB)

**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**

N Dominance Test is >50%  
     Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix Color (moist)	Redox Features %	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-12	7.5YR4/4	100					gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      Indicators for Problematic Hydric Soils<sup>3</sup>

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

Restrictive Layer (if present): Type: Soil Survey N/A      Depth (Inches) 780"      Hydric Soil? No

Remarks: No hydric soils

**Hydrology**

**Wetland Indicators**

- |   |  |
|---|--|
| <u>Primary Indicators (Any one indicator is sufficient)</u>         | <u>Secondary Indicators (2 or more required)</u>                   |
| <input type="checkbox"/> Surface Water (A1)                         | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                      | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input checked="" type="checkbox"/> Saturation (A3)                 | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)             | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)       | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                   | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)  | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                  | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> FAC-Natural Test (D5)                     |
| <input type="checkbox"/> Aquatic Invertebrates (B13)                |  |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |  |
| <input type="checkbox"/> Oxidized Rhizospheres (C3)                 |  |
| <input type="checkbox"/> Presence of Reduced Iron (C4)              |  |
| <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |  |
| <input type="checkbox"/> Other (Explain in Remarks)                 |  |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)           Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)     

Saturation Present? Yes  No       Depth (inches) 10 in (includes capillary fringe)

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

**Remarks**

Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak-grapevine  
Wetland Type Suspect area

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10  
Applicant/Owner: 3-M Company State: CA Data Point: 18  
Investigator(s): Heather Kelly UTM 105 554 329.3 4506227 N  
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 12  
Subregion (LRR) C Soil Map Unit Name: Red Bluff loam 3-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain: Percolates No flow

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad      N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks No wetland; No bed & bank; ~ 10' shows evidence of flow then fans out. Leaves are pushed, but no bed & bank are evident. No evidence of flow "up stream". Mud puddle in road but dissipates "down stream" of road. No culvert.

Vegetation	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)			
1. <u>Quercus wislizenii</u>	<u>80</u>	<u>Y</u>	<u>UPL</u>
2. <u>    </u>			
3. <u>    </u>			
4. <u>    </u>			
50% = <u>40</u> 20% = <u>16</u> Total Cover: <u>80</u>			
Sapling/Shrub Stratum (use scientific names)			
1. <u>Toxicodendron diversilobum</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
2. <u>Rhamnus californica</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>
3. <u>    </u>			
4. <u>    </u>			
50% = <u>30</u> 20% = <u>12</u> Total Cover: <u>60</u>			
Herb Stratum (use scientific names)			
1. <u>Tonilisanensis</u>	<u>3</u>	<u>Y</u>	<u>UPL</u>
2. <u>Cynosuavis echinata</u>	<u>3</u>	<u>Y</u>	<u>UPL</u>
3. <u>Elymus glaucus</u>	<u>2</u>	<u>Y</u>	<u>UPL</u>
4. <u>    </u>			
5. <u>    </u>			
6. <u>    </u>			
7. <u>    </u>			
8. <u>    </u>			
50% = <u>4</u> 20% = <u>1.6</u> Total Cover: <u>8</u>			
Woody/Vine Stratum (use scientific names)			
1. <u>    </u>			
2. <u>    </u>			
50% = <u>    </u> 20% = <u>    </u> Total Cover: <u>    </u>			
% Bare Ground in Herb Stratum <u>92</u> % Cover of Biotic Crust <u>    </u>			

**Dominance Test Worksheet**

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 6 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

**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 Text is >50%

     Prevalence Index is ≤ 3.0<sup>1</sup>

     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

**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 Features %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-6	7.5YR 4/4	75	7.5YR 4/6	35	D	PL	gravelly loam - concretions	
6+	Roots & rocks inhibit digging - indicators in upper 6"							

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) |   |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey N/A      Depth (Inches) 280"      Hydric Soil? yes

**Remarks**

**Hydrology**

**Wetland Indicators**

- |  |   |   |
|--|---|---|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                      |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input checked="" type="checkbox"/> Water-Stained Leaves (B9)      | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)                 Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)           

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

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak Grassland  
Wetland Type Riparian Wetland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10

Applicant/Owner: 3-M Company State: CA Data Point: 19

Investigator(s): Heather Kelly UTM: 10S 554210.3E 4505835N

Landform (hillslope, terrace, etc.) Depression Local relief (concave, convex, none) Concave Slope % <1

Subregion (LRR) C Soil Map Unit Name: Churn gravelly loam, deep, 0-3%

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

Are vegetation N, soil N, or hydrology Y significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

**USACE Jurisdiction**

Adjacent to Waters  Tributary to Waters  Isolated (with interstate commerce)  Isolated (non jurisdictional)   
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank  Scour  Ordinary High Water Mark Mapped   
Feature Designation: Perennial  Intermittent  Ephemeral  Blue-line on USGS Quad   
Natural Drainage  Artificial Drainage  Navigable Water  N/A

**Remarks**

Riparian Wetland  
Riparian is in a depression adjacent to creek ~ same elevation as water table; drift lines @ creek bank indicate the wetland is also flooded by the creek

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= _____	20%= _____	Total Cover: _____		
Sapling/Shrub Stratum (use scientific names)				
1.	<u>Rhamnus californica</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
2.	<u>Salix lasiolepis</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>
3.	<u>Toxicodendron diversilobum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
4.	<u>Quercus douglasi</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
50%= <u>40</u>	20%= <u>18</u>	Total Cover: <u>90</u>		
Herb Stratum (use scientific names)				
1.	<u>Rumex salicifolia</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>
2.	<u>Thalictrum fendleri</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
3.	<u>Hypericum perforatum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
4.	<u>Potentilla glandulosa</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
5.	<u>Trifolium dubium</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
6.	<u>Polypogon monspeliensis</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
7.				
8.				
50%= <u>37.5</u>	20%= <u>15</u>	Total Cover: <u>75</u>		
Woody/Vine Stratum (use scientific names)				
1.	<u>Vitis californica</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
2.				
50%= _____	20%= _____	Total Cover: <u>10</u>		
% Bare Ground in Herb Stratum <u>/</u> % Cover of Biotic Crust <u>/</u>				

**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: 67% (AB)

**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**

Y Dominance Test is >50%

Y Prevalence Index is ≤ 3.0<sup>1</sup>

\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

**Soils**

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

Depth (inches)	Matrix Color (moist)	Redox Features %	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-8	7.5YR2.5/2	100	—	—	—	—	loam w/ sand deposit	
8+	cobble							

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)                |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)               |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)                  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)            |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input checked="" type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)            |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) 780"      Hydric Soil? yes

**Remarks** *although upland plants are present, wetland plants are dominate. High water table provides hydrology but being in coarse, porous soil, drains readily*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches) —      Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches) —

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

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

**Remarks** *Sand deposits indicate deposition from streams flooding*



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak Gray pine  
Wetland Type Tand. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 6/17/10  
Applicant/Owner: 3-M Company Data Point: 20  
Investigator(s): Heather Kelly LTM 103 554211E 4505850N  
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) concave Slope % L2  
Subregion (LRR) C Soil Map Unit Name: Churn gravelly loam 0-3%

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? N/A Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

### USACE Jurisdiction

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

### Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X  
Feature Designation: Perennial      Intermittent X Ephemeral      Blue-line on USGS Quad X  
Natural Drainage X Artificial Drainage      Navigable Water     

Remarks Moody Creek

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover: _____		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover: _____		
Herb Stratum (use scientific names)				
1.	<u>Mammillaria quottatus</u>	<u>10</u>	<u>Y</u>	<u>OBL</u>
2.	<u>Juncus xiphoides</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
3.	<u>Kernia salicifolia</u>	<u>10</u>	<u>Y</u>	<u>OBL</u>
4.	<u>Lotus pinnatus</u>	<u>10</u>	<u>Y</u>	<u>OBL</u>
5.				
6.	<u>Remainder is scoured channel</u>			
7.				
8.				
50%=	<u>17.5</u>	20%=	<u>7</u>	Total Cover: <u>35</u>
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=		20%=		Total Cover: _____
% Bare Ground in Herb Stratum <u>    </u>		% Cover of Biotic Crust <u>    </u>		

#### 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 (AB)

#### 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

Y Dominance Text is >50%  
Y Prevalence Index is < 3.0'  
\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes  
w/in OHWM



**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue Oak-Grassland  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10

Applicant/Owner: 3-M Company State: CA Data Point: 21

Investigator(s): Heather Kelly UTM 10S 554214E 4505854N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) convex Slope % < 2

Subregion (LRR) C Soil Map Unit Name: Churn gravelly loam, deep, 0-390 slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A  
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks**

Upland pair to # 20+19

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Herb Stratum (use scientific names)				
1.	<u>Verbasicum blattarum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
2.	<u>Centaurea solstitialis</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
3.	<u>Rumex salicifolius</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
4.	<u>Trifolium hirtum</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
5.	<u>Toxilis arvensis</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
6.	<u>Bromus diandrus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
7.	<u>Lolium perenne</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
8.	<u>mustard unknown</u>	<u>10</u>	<u>N</u>	<u>unk</u>
50%=	20%=	Total Cover: <u>100</u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=	20%=	Total Cover:		
% Bare Ground in Herb Stratum <u>    </u>		% Cover of Biotic Crust <u>    </u>		

**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 (AB)

**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 Text is >50%

     Prevalence Index is ≤ 3.0<sup>1</sup>

     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-6 <i>6+ cobbles</i>	7.5YR 4/3	100					gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Red Parent Materials (TF2)
<input type="checkbox"/> Stratified Layers (AG) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Vegetated Sand/Gravel Bars
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
	<input type="checkbox"/> Vernal Pools (F9)	

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? NO

**Remarks** No soil indicators

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Natural Test (D5)

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)           Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)     

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

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

**Remarks** No hydrology indicators



# Wetland Determination Data Form - Arid West Region

Habitat Type Mixed Hardwood con  
Wetland Type Int. Pool - NS

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/18/10

Applicant/Owner: 3-M Company State: CA Data Point: 27

Investigator(s): Heather Kelly UTM 103 553404.5 E 4505320 N

Landform (hillslope, terrace, etc.) Depression Local relief (concave, convex, none) concave Slope % 41

Subregion (LRR) C Soil Map Unit Name: Auburn Clay loam 8-38910  
Slopes

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

## USACE Jurisdiction

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) X

Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      D/A

Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad     

Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Isolated intermittent pool formed by OHU riders. No outlets or connections to waters of U.S. ∴ non-jurisdictional

## Vegetation

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%=      20%=      Total Cover:     

Herb Stratum (use scientific names) % Cover Species? Status

1.	<u>Mentha pulegium</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>
2.	<u>Plantago lanceolata</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
3.	<u>Hypochaeris glabra</u>	<u>20</u>	<u>Y</u>	<u>NI</u>
4.	<u>Lolium perenne</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
5.	<u>Eryngium yuccifolium</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
6.	<u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
7.				
8.				

50%= 55 20%= 22 Total Cover: 110

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.			
2.			

50%=      20%=      Total Cover:     

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

## 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 (AB)

## Prevalence Index Worksheet

Total % Cover of:      Multiply by     

OBL Species 60 x 1 = 60

FACW Species 15 x 2 = 30

FAC Species 15 x 3 = 45

FACU Species 1 x 4 = 4

UPL Species 20 x 5 = 100

Column Totals 110 (A) 235 (B)

Prevalence Index = B/A = 2.1

## Hydrophytic Vegetation Indicators

Y Dominance Test is >50%

Y Prevalence Index is <3.0<sup>1</sup>

Y Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-8	7.5YR 4/6	95	10YR 2 1/2	5	D	PL	gravelly loam	
8-12	7.5YR 4/6	85	10YR 4 1/2	15	D	PL	gravelly loam w/ concretions	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) |   |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: clayey bedrock Depth (Inches) 27-31" Hydric Soil? yes

Remarks Sufficient soils

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                              | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                           | <input checked="" type="checkbox"/> Biotic Crust (B12)              | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                                 | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)                  | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                        | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)       | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input checked="" type="checkbox"/> Water-Stained Leaves (B9)            | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No       Depth (inches)   /        Wetland Hydrology? Yes  No
- Water Table Present? Yes  No       Depth (inches)   /
- Saturation Present? Yes  No       Depth (inches)   /   (includes capillary fringe)

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

Remarks Sufficient hydrology



# Wetland Determination Data Form - Arid West Region

Habitat Type Mixed hardwood conifer  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10

Applicant/Owner: 3-M Company State: CA Data Point: 23

Investigator(s): Heather Kelly UTM 10S 553908.4 E 4505321 N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 41

Subregion (LRR) C Soil Map Unit Name: Quaternary clay loam 8-30% slopes

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

## USACE Jurisdiction

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A

Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped     

Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad     

Natural Drainage      Artificial Drainage      Navigable Water     

## Remarks

Upland pair to # 22

## Vegetation

Tree Stratum (use scientific names)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

Sapling/Shrub Stratum (use scientific names)

	% Cover	Species?	Status
1. <u>Toxicodendron diversilobum</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
2. <u>Rhamnus californica</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____

50%= 15 20%= 6 Total Cover: 30

Herb Stratum (use scientific names)

	% Cover	Species?	Status
1. <u>Briza minor</u>	<u>2</u>	<u>N</u>	<u>FAC</u>
2. <u>Anthoxanthum aristata</u>	<u>66</u>	<u>Y</u>	<u>UPL</u>
3. <u>Lactuca serriola</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
4. <u>Cynosuavis echinatus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
5. <u>Asteraceae sp</u>	<u>5</u>	<u>N</u>	<u>Ukn</u>
6. <u>Lolium perenne</u>	<u>2</u>	<u>N</u>	<u>FAC</u>
7. <u>Taenathium caput-medusae</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
8. <u>Juncus tenuis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>

50%= 50 20%= 20 Total Cover: 100

Woody/Vine Stratum (use scientific names)

	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

% Bare Ground in Herb Stratum \_\_\_\_\_ % 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: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

## 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<sup>1</sup>
- \_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	7.5YR <sup>9</sup> /6	100	/	/	/	/	Sandy/Gravelly/loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 27-31 Hydric Soil? No

**Remarks**

*No indicators*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches) / Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches) /
- Saturation Present? Yes  No  Depth (inches) / (includes capillary fringe)

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

**Remarks**

*No indicators*



North State Resources, Inc.

# Wetland Determination Data Form - Arid West Region

Habitat Type Blueoak-Grassland  
Wetland Type Ephemeral stream

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 6/18/10  
Applicant/Owner: 3-M Company Data Point: 24  
Investigator(s): Heather Kelly UTM 10S 554252.9 E 4505874 N  
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 45  
Subregion (LRR): C Soil Map Unit Name: Red Bluff loam, 3-8% slopes  
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

## USACE Jurisdiction

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X  
Feature Designation: Perennial      Intermittent      Ephemeral X Blue-line on USGS Quad       
Natural Drainage X Artificial Drainage      Navigable Water     

Remarks Ephemeral drainage

## Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Briza maxima</u>	<u>30</u>	<u>Y</u>	<u>WPL</u>
2. _____	_____	_____	_____
3. <u>Remainder Scoured</u>	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50%= <u>15</u> 20%= <u>6</u> Total Cover: <u>30</u>			
Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
% Bare Ground in Herb Stratum <u>    </u> % Cover of Biotic Crust <u>    </u>			

## Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 1 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

## 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<sup>1</sup>
- \_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N

**Soils**

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
<i>No pit - Scoured Channel</i>								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vetric (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) 780"      Hydric Soil? N/A

**Remarks**  
N/A

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)                 Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)           

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

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

**Remarks**



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak Grassland  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/18/10

Applicant/Owner: 3-M Company State: CA Data Point: 25

Investigator(s): Heather Kelly UTM 10S 554253, 58 4505874 N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) convex Slope % 30

Subregion (LRR) C Soil Map Unit Name: Red Bluff Loam 3-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**  
Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A  
Explain:     

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Upland pair

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
<b>Tree Stratum (use scientific names)</b>				
1.	<u>Pinus sabiniana</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Quercus douglasii</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
3.				
4.				
50% = <u>15</u> 20% = <u>6</u> Total Cover: <u>30</u>				
<b>Sapling/Shrub Stratum (use scientific names)</b>				
1.	<u>Arctostaphylos viscidula</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
2.				
3.				
4.				
50% = <u>15</u> 20% = <u>6</u> Total Cover: <u>30</u>				
<b>Herb Stratum (use scientific names)</b>				
1.	<u>Briza maxima</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Avena fatua</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
3.				
4.				
5.				
6.				
7.				
8.				
50% = <u>37.5</u> 20% = <u>15</u> Total Cover: <u>75</u>				
<b>Woody/Vine Stratum (use scientific names)</b>				
1.				
2.				
50% = <u>    </u> 20% = <u>    </u> Total Cover: <u>    </u>				
% Bare Ground in Herb Stratum <u>25</u> % Cover of Biotic Crust <u>1</u> <u>litter</u>				

**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 (AB)

**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 Text is >50%  
     Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** No

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-6	7.5YR4/4	400	/	/	/	/	gravelly loam	lot shade/difficult digging

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) >80" Hydric Soil? No

**Remarks**  
No indicators

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 |

Secondary Indicators (2 or more required)

- |  |
|--|
| <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> FAC-Netural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) / Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) /

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

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

**Remarks**  
No indicators

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak gray pine  
Wetland Type Vegetated ditch

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/27/10  
Applicant/Owner: 3-M Company State: CA Data Point: 26  
Investigator(s): Heather Kelly UTM 10S 554678.8 E 4506609 N  
Landform (hillslope, terrace, etc.) C Local relief (concave, convex, none) Concave Slope % 2  
Subregion (LRR) C Soil Map Unit Name: Perkins gravelly loam 8-15%

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? y Hydric soil? y Wetland hydrology? y Is sampled area a wetland? y Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      ~~Isolated~~ (non jurisdictional) X  
Explain: ditch in uplands to drain uplands

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Vegetated ditch becomes non-vegetated ditch as slope increases & scour precludes plant establishment  
Non-jurisdictional because created in uplands to drain uplands adjacent to the RR tracks

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Herb Stratum (use scientific names)				
1.	<u>Eleocharis macrostachya</u>	<u>20</u>	<u>Y</u>	<u>PBL</u>
2.	<u>Paspalum dilatatum</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
3.				
4.				
5.				
6.				
7.				
8.				
50%= <u>20</u>	20%= <u>8</u>	Total Cover: <u>40</u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
% Bare Ground in Herb Stratum <u>    </u>		% Cover of Biotic Crust <u>    </u>		

**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 (AB)

**Prevalence Index Worksheet**

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

Prevalence Index = B/A =     

**Hydrophytic Vegetation Indicators**

yes Dominance Text is >50%  
     Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes  
Cover increases up stream

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				

*No pit - inundated*

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)                |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)               |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)                  |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4)  | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)            |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars            |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input checked="" type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) >80" Hydric Soil? Y

Remarks *long duration ponding during >50% of growing period*  
*Sufficient hydric soils*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> Surface Water (A1)                   | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input checked="" type="checkbox"/> High Water Table (A2)                | <input checked="" type="checkbox"/> Biotic Crust (B12)              | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input checked="" type="checkbox"/> Saturation (A3)                      | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)                  | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                        | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)       | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input checked="" type="checkbox"/> Water-Stained Leaves (B9)            | <input checked="" type="checkbox"/> Other (Explain in Remarks)      | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  | <i>metamorphosing chorus frogs</i>                                  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) 4" Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) Surface

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

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue Oak-grass PRA  
 Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/18/10  
 Applicant/Owner: 3-M Company State: CA Data Point: 27  
 Investigator(s): Heather Kelly UTM 10S 554676.9 E 4506619 N  
 Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 70  
 Subregion (LRR) C Soil Map Unit Name: Perkins gravelly loam 8-15% slopes  
 Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
 Are vegetation ✓, soil ✓, or hydrology ✓ significantly disturbed? Are normal circumstances present? yes  
 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters     Tributary to Waters     Isolated (with interstate commerce)     Isolated (non jurisdictional) 8/2  
 Explain:    

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank     Scour     Ordinary High Water Mark Mapped     N/A  
 Feature Designation: Perennial     Intermittent     Ephemeral     Blue-line on USGS Quad      
 Natural Drainage     Artificial Drainage     Navigable Water    

**Remarks** Upland pair to #26

Vegetation				Dominance Test Worksheet	
Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status	Number of dominant species that are OBL, FACW, or FAC: <u>0</u> (A)	
1. <u>Quercus wislizenii</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	Total number of dominant species across all strata: <u>5</u> (B)	
2. <u>Pinus sabiniana</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	Percent of dominant species that are OBL, FACW, or FAC: <u>0</u> (AB)	
3. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<b>Prevalence Index Worksheet</b>	
4. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	Total % Cover of: <u>   </u> Multiply by <u>   </u>	
50% = <u>30</u> 20% = <u>12</u> Total Cover: <u>60</u>					
Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status	OBL Species <u>   </u> x 1 = <u>   </u>	
1. <u>Arctostaphylos viscida</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	FACW Species <u>   </u> x 2 = <u>   </u>	
2. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	FAC Species <u>   </u> x 3 = <u>   </u>	
3. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	FACU Species <u>   </u> x 4 = <u>   </u>	
4. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	UPL Species <u>   </u> x 5 = <u>   </u>	
50% = <u>5</u> 20% = <u>2</u> Total Cover: <u>10</u>					
Herb Stratum (use scientific names)	% Cover	Species?	Status	Column Totals <u>   </u> (A) <u>   </u> (B)	
1. <u>Scutellaria antivirginoides</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	Prevalence Index = B/A = <u>   </u>	
2. <u>Vicia villosa</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators</b>	
3. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u> Dominance Text is >50%	
4. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u> Prevalence Index is ≤ 3.0 <sup>1</sup>	
5. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u> Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
8. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	Hydrophytic Vegetation? <u>NO</u>	
50% = <u>5</u> 20% = <u>2</u> Total Cover: <u>10</u>					
Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status		
1. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>		
2. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>		
50% = <u>   </u> 20% = <u>   </u> Total Cover: <u>   </u>					
% Bare Ground in Herb Stratum <u>70</u> % Cover of Biotic Crust <u>   </u>					

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-5	5YR 4/4	100	/	/	/	/	gravelly loam	
	3+ Rock							

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? NO

**Remarks**

*No indicators*

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)         Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)   

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

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

**Remarks**

*No indicators*



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak-grapevine  
Wetland Type Ephemeral Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 6/25/10  
Applicant/Owner: 3-M Company Data Point: 28  
Investigator(s): Heather Kelly UTM 10S 554368.2E 4505165N  
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % <1  
Subregion (LRR) C Soil Map Unit Name: Perkins gravelly loam 8-15%  
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

**USACE Jurisdiction**  
Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:     

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X  
Feature Designation: Perennial      Intermittent      Ephemeral X Blue-line on USGS Quad       
Natural Drainage X Artificial Drainage      Navigable Water     

**Remarks** Ephemeral Stream; Evidence of scour + deposition but debris dams do not indicate constant flow; rather leaf/debris flow in high precip events only.

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.	<u>No veg. Scoured Channel</u>			
4.				
50%=	20%=	Total Cover:		
Herb Stratum (use scientific names)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
50%=	20%=	Total Cover:		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=	20%=	Total Cover:		
% Bare Ground in Herb Stratum		% Cover of Biotic Crust		

**Dominance Test Worksheet**  
Number of dominant species that are OBL, FACW, or FAC:      (A)  
Total number of dominant species across all strata:      (B)  
Percent of dominant species that are OBL, FACW, or FAC:      (AB)

**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)  
Prevalance Index = B/A =     

**Hydrophytic Vegetation Indicators**  
     Dominance Test is >50%  
     Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

**Soils**

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks

*No pit scoured channel*

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? N/A

**Remarks**

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches) ✓      Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches) ✓

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

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

**Remarks**

*Sufficient hydrology*



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue Oak-Gray-pine  
Wetland Type Ind. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/25/10  
Applicant/Owner: 3-M Company State: CA Data Point: 29  
Investigator(s): Heather Kelly UTM 10S 554373.9 E 4505160 N  
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none) concave Slope % 41  
Subregion (LRR) C Soil Map Unit Name: Perkins gravelly loam 8-15%  
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

## USACE Jurisdiction

Adjacent to Waters  Tributary to Waters  Isolated (with interstate commerce)  Isolated (non jurisdictional)   
Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank  Scour  Ordinary High Water Mark Mapped   
Feature Designation: Perennial  Intermittent  Ephemeral  Blue-line on USGS Quad   
Natural Drainage  Artificial Drainage  Navigable Water

Remarks Intermittent stream transects @ confluence  
of 2 ephemeral streams; increased size & presence  
of biotic crust indicates stream runs longer during  
the growing season

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= _____	20%= _____	Total Cover: _____		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.	<u>No veg - Scoured Channel</u>			
3.				
4.				
50%= _____	20%= _____	Total Cover: _____		
Herb Stratum (use scientific names)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
50%= _____	20%= _____	Total Cover: _____		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= _____	20%= _____	Total Cover: _____		
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____			

Dominance Test Worksheet	
Number of dominant species that are OBL, FACW, or FAC:	_____ (A)
Total number of dominant species across all strata:	_____ (B)
Percent of dominant species that are OBL, FACW, or FAC:	_____ (AB)
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'  
 Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
<i>No pit - Scoured channel</i>								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A      Depth (Inches) >80"      Hydric Soil? N/A

**Remarks**

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input checked="" type="checkbox"/> Biotic Crust (B12)              | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Netural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)           Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)     

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

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

**Remarks**

*Bank & bank is more defined & biotic crust indicates stream runs for longer duration.*



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak-granipine  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/23/10

Applicant/Owner: 3-M Company State: CA Data Point: 30

Investigator(s): Heather Kelly UTM 10S 554373.4 4505163N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % <1

Subregion (LRR) C Soil Map Unit Name: Perkins gravelly loam 8-1570 Slopes

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

## USACE Jurisdiction

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A

Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

## Remarks

Upland pair to # 28+29

## Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Quercus wislizenii</u>	<u>35</u>	<u>Y</u>	<u>UPL</u>
2. <u>Pinus sabiniana</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
3. <u>D. Kelloggii</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
4. <u>D. Douglasii</u>	<u>5</u>	<u>N</u>	<u>UPL</u>

50%=      20%=      Total Cover: 90

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Toxicodendron diversilobum</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
2. <u>Heteromeles arbutifolia</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
3. <u>D. wislizenii</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
4. <u>P. sabiniana</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>

50%= 10 20%= 4 Total Cover: 20

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Cynosurus echinatus</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%= 2.5 20%= 1 Total Cover: 5

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%=      20%=      Total Cover:     

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust       
later

## Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)  
Total number of dominant species across all strata: 8 (B)  
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

## 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 Text is >50%  
     Prevalence Index is < 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4 Rock	7.5YR 4/4	100	/	/	/	/	gravelly loam to Rock	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

*Soil Survey*

Restrictive Layer (if present): Type: N/A Depth (Inches) 780" Hydric Soil? N

**Remarks**

*No indicators*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No       Depth (inches)           Wetland Hydrology? Yes  No
- Water Table Present? Yes  No       Depth (inches)
- Saturation Present? Yes  No       Depth (inches)      (includes capillary fringe)

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

**Remarks**

*No indicators*



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue Dak. grass prairie  
Wetland Type Spring - other waters

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/25/10

Applicant/Owner: 3-M Company State: CA Data Point: 31

Investigator(s): Heather Kelly UTM 10S 553055.3 B 4507454 W

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) concave Slope % 45

Subregion (LRR) C Soil Map Unit Name: Auburn very rocky clay loam

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.) 50-70% slopes eroded

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

### USACE Jurisdiction

Adjacent to Waters  Tributary to Waters  Isolated (with interstate commerce)  Isolated (non jurisdictional)

Explain:

### Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank  Scour  Ordinary High Water Mark Mapped   
Feature Designation: Perennial  Intermittent  Ephemeral  Blue-line on USGS Quad   
Natural Drainage  Artificial Drainage  Navigable Water

Remarks Spring - other waters; It appears water originates @ 1 location @ head of spring. Bedrock substrate

### Vegetation

	Absolute % Cover	Dominant Species?	Indicator Status
<b>Tree Stratum (use scientific names)</b>			
1. _____			
2. _____			
3. _____			
4. _____			
50%= _____ 20%= _____ Total Cover: _____			
<b>Sapling/Shrub Stratum (use scientific names)</b>	% Cover	Species?	Status
1. _____			
2. _____			
3. <u>No Veg</u>			
4. <u>Scoured channel</u>			
50%= _____ 20%= _____ Total Cover: _____			
<b>Herb Stratum (use scientific names)</b>	% Cover	Species?	Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
50%= _____ 20%= _____ Total Cover: _____			
<b>Woody/Vine Stratum (use scientific names)</b>	% Cover	Species?	Status
1. _____			
2. _____			
50%= _____ 20%= _____ Total Cover: _____			
<b>% Bare Ground in Herb Stratum</b> _____ <b>% Cover of Biotic Crust</b> _____			

### Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: \_\_\_\_\_ (A)  
Total number of dominant species across all strata: \_\_\_\_\_ (B)  
Percent of dominant species that are OBL, FACW, or FAC: \_\_\_\_\_ (AB)

### 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<sup>1</sup>  
\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
<i>No pit. Scoured channel</i>								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (Inches) Surface Hydric Soil? N/A

**Remarks**

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 |

Secondary Indicators (2 or more required)

- |   |
|---|
| <input checked="" type="checkbox"/> Water Marks (B1) (Riverine)       |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
| <input type="checkbox"/> Shallow Aquitard (D3)                        |
| <input type="checkbox"/> FAC-Neutral Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches)      Wetland Hydrology? Yes  No   
 Water Table Present? Yes  No  Depth (inches)       
 Saturation Present? Yes  No  Depth (inches)      (includes capillary fringe)

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue Oak-grasspine  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/25/10

Applicant/Owner: 3-M Company State: CA Data Point: 32

Investigator(s): Heather Kelly UTM 103 53050.9E 4507459N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) convex Slope % 70

Subregion (LRR) C Soil Map Unit Name: Dunsmuir very rocky clay loam

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.) 50-70% slopes eroded

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A

Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A  
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks Upland pair to #31

**Vegetation**

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%=      20%=      Total Cover:     

Herb Stratum (use scientific names) % Cover Species? Status

1.	<u>Centaurea solstitiabs</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Petrorhagia dubia</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
3.	<u>Hypochaeris glabra</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
4.	<u>Talimatherum caput-medusae</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
5.	<u>Eriophyllum lanata</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
6.	<u>Avena fatua</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
7.				
8.				

50%= 37.5 20%= 15 Total Cover: 75

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.			
2.			

50%=      20%=      Total Cover:     

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust       
or moss

**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 (AB)

**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 Text is >50%

     Prevalence Index is < 3.0<sup>1</sup>

     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

**Soils**

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

Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-2	10YR 3/3	100	/	/	/	/	gravelly loam	→ Bedrock
Bedrock								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (Inches) 2 Hydric Soil? N

**Remarks**

*No indicators*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches)      Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches)
- Saturation Present? Yes  No  Depth (inches)      (includes capillary fringe)

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

**Remarks**

*No indicators*

**Wetland Determination Data Form - Arid West Region**

Habitat Type MHC  
Wetland Type Int. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 10/28/10

Applicant/Owner: 3-M Company State: CA Data Point: 33

Investigator(s): Heather Kelly UTM 103 552757.5 E 4506953 N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 100

Subregion (LRR) C Soil Map Unit Name: Auburn clay loam, 8-30%

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.) Slopes Eroded

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)     

Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X

Feature Designation: Perennial      Intermittent X Ephemeral      Blue-line on USGS Quad     

Natural Drainage X Artificial Drainage      Navigable Water     

Remarks Intermittent Stream fed by springs

**Vegetation**

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%=      20%= Channel Total Cover:     

Herb Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

50%=      20%=      Total Cover:     

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.			
2.			

50%=      20%=      Total Cover:     

% Bare Ground in Herb Stratum      % Cover of Biotic Crust     

**Dominance Test Worksheet**

Number of dominant species that are OBL, FACW, or FAC:      (A)

Total number of dominant species across all strata:      (B)

Percent of dominant species that are OBL, FACW, or FAC:      (AB)

**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 Text is >50%
- Prevalence Index is < 3.0<sup>1</sup>
- Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
			<i>No pit</i>					
			<i>Scoured channel</i>					

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock      Depth (Inches) Surface      Hydric Soil? N/A

**Remarks**

**Hydrology**

**Wetland Indicators**

- |  |   |   |
|--|---|---|
| <u>Primary Indicators (Any one indicator is sufficient)</u>        |   | <u>Secondary Indicators (2 or more required)</u>                      |
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                           | <input checked="" type="checkbox"/> Water Marks (B1) (Riverine)       |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches) 1/2"      Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches) Surface

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

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

**Remarks**

Wetland Determination Data Form - Arid West Region

Habitat Type MAC  
Wetland Type Spring

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/28/10  
Applicant/Owner: 3-M Company State: CA Data Point: 34  
Investigator(s): Heather Kelly LITH 103 552762 E 45060540  
Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 70  
Subregion (LRR) C Soil Map Unit Name: Auburn clay loam 8-30%

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.) Slopes eroded  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks

Spring - Bedrock

Vegetation

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%=      20%=      Total Cover:     

Herb Stratum (use scientific names) % Cover Species? Status

1.	<u>Mimulus guttatus</u>	<u>20</u>	<u>Y</u>	<u>DBL</u>
2.	<u>Tritoleia hyacinthina</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
3.	<u>Sidalcea hirsuta</u>	<u>5</u>	<u>N</u>	<u>DBL</u>
4.	<u>Avena fatua</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>
5.	<u>Gastridium ventricosum</u>	<u>10</u>	<u>N</u>	<u>FACU</u>
6.				
7.				
8.				

50%= 35 20%= 14 Total Cover: 70

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.			
2.			

50%=      20%=      Total Cover:     

% Bare Ground in Herb Stratum 30 % 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: 67% (AB)

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

Y Dominance Text is >50%  
Y Prevalence Index is ≤ 3.0<sup>1</sup>

     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
	<u>Bedrock</u>							

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)                |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)               |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)                  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)            |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars            |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input checked="" type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (Inches) Surface Hydric Soil? Y

Remarks Water seeps from bedrock

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <u>Primary Indicators (Any one indicator is sufficient)</u>              |   | <u>Secondary Indicators (2 or more required)</u>                   |
| <input type="checkbox"/> Surface Water (A1)                              | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                           | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                                 | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input checked="" type="checkbox"/> Water Marks (B1) (Nonriverine)       | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                        | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)       | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                       | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches)            Wetland Hydrology? Yes  No   
 Water Table Present? Yes  No  Depth (inches)             
 Saturation Present? Yes  No  Depth (inches)            (includes capillary fringe)

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type MHC  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/28/10

Applicant/Owner: 3-M Company State: CA Data Point: 35

Investigator(s): Heather Kelly UTM 10S 552766.8E 4506955N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) convex Slope % 70

Subregion (LRR) C Soil Map Unit Name: Duburn clayloam 8-30% eroded

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A

Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Upland pair to # 33+34

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.	<u>Rhamnus californica</u>	<u>10</u>	<u>Y</u>	<u>WPL</u>
2.				
3.				
4.				
50%=	<u>5</u>	20%= <u>2</u>	Total Cover: <u>10</u>	
Herb Stratum (use scientific names)				
1.	<u>Vulpia myuros</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>
2.	<u>Petrophagia dubia</u>	<u>5</u>	<u>N</u>	<u>WPL</u>
3.	<u>Pentstemon solstitialis</u>	<u>10</u>	<u>N</u>	<u>WPL</u>
4.	<u>Hypochaeris glabra</u>	<u>20</u>	<u>Y</u>	<u>WPL</u>
5.	<u>Bromus diandrus</u>	<u>5</u>	<u>N</u>	<u>WPL</u>
6.				
7.				
8.				
50%=	<u>40</u>	20%= <u>16</u>	Total Cover: <u>80</u>	
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%=	20%=	Total Cover:		
% Bare Ground in Herb Stratum <u>20</u> % Cover of Biotic Crust <u>    </u>				

**Dominance Test Worksheet**  
Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

**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 Text is >50%  
     Prevalence Index is < 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-1	10YR 4/3	100	/	/	/	/	gravel	
	Bedrock							

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (Inches) 1" Hydric Soil? No

**Remarks**

*No indicators*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches) /      Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches) /

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

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

**Remarks**

*No indicators*

**Wetland Determination Data Form - Arid West Region**

Habitat Type Annual grassland  
 Wetland Type Int. pool (I-NS)  
Suspected Isolated

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/30/10

Applicant/Owner: 3-M Company State: CA Data Point: 36

Investigator(s): Heather Kelly LITM 103 553582.2 E 4506239 N

Landform (hillslope, terrace, etc.) Depression Local relief (concave, convex, none) Concave Slope % 41

Subregion (LRR) C Soil Map Unit Name: Auburn loam, 0-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)

Are vegetation Y, soil Y, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) X

Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A  
 Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
 Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks**

Intermittent pool created by off road vehicle, isolated pool. Although few hydrophytic plants have established the pool is not dominated by hydrophytic plants. Upland plants have established concurrently w/

**Vegetation**

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%=      20%=      Total Cover:     

Herb Stratum (use scientific names) % Cover Species? Status

1.	<u>Navarretia flagellata</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
2.	<u>Navarretia intertexta</u>	<u>2</u>	<u>N</u>	<u>FACW</u>
3.	<u>Filago gallica</u>	<u>15</u>	<u>Y</u>	<u>WPL</u>
4.	<u>Psilocarphus oregonus</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
5.	<u>Hypochaeris perforatum</u>	<u>5</u>	<u>N</u>	<u>WPL</u>
6.	<u>Croton setigerus</u>	<u>3</u>	<u>N</u>	<u>WPL</u>
7.	<u>Suaeda rubra</u>	<u>10</u>	<u>N</u>	<u>WPL</u>
8.	<u>Centaurea solstitialis</u>	<u>2</u>	<u>N</u>	<u>WPL</u>

50%=      20%=      Total Cover:     

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.	<u>Lotus purshiana</u>	<u>5</u>	<u>N</u>	<u>WPL</u>
2.	<u>Scirpocaulis diandra</u>	<u>10</u>	<u>N</u>	<u>FACU</u>

50%= 31 20%= 12.4 Total Cover: 62

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust     

**Dominance Test Worksheet**

Number of dominant species that are OBL, FACW, or FAC: 0 (A) Wetland plants  
 Total number of dominant species across all strata: 1 (B) Indicators stay in wetland long enough to establish a dominance of wetland plants  
 Percent of dominant species that are OBL, FACW, or FAC: WPL (AB)

**Prevalence Index Worksheet**

Total % Cover of:		Multiply by	
OBL Species	<u>5</u>	x 1 =	<u>5</u>
FACW Species	<u>7</u>	x 2 =	<u>14</u>
FAC Species	<u>    </u>	x 3 =	<u>    </u>
FACU Species	<u>10</u>	x 4 =	<u>40</u>
UPL Species	<u>40</u>	x 5 =	<u>200</u>
Column Totals	<u>62</u>	(A)	<u>259</u> (B)
Prevalence Index = B/A =	<u>4.2</u>		

**Hydrophytic Vegetation Indicators**

N Dominance Text is >50%  
N Prevalence Index is ≤ 3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	5R2 7/4	100	—	—	—	—	Sandy loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Red Parent Materials (TF2)
<input type="checkbox"/> Stratified Layers (AG) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Vegetated Sand/Gravel Bars
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
	<input type="checkbox"/> Vernal Pools (F9)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.Restrictive Layer (if present): Type: little bedrock Depth (Inches) 24-28" Hydric Soil? NRemarks No physical indicators; lack of hydrophytic veg does not support long duration ponding**Hydrology****Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Natural Test (D5)

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) — Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) —

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

**Describe Recorded Data** (stream gauge, monitoring well, aerial photos, and previous inspections), if available:Remarks Much hydrology but lack of soil indicators & hydrophytic veg does not support a wetland

**Wetland Determination Data Form - Arid West Region**

Habitat Type Annual grassland  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/3/10  
Applicant/Owner: 3-M Company State: CA Data Point: 37  
Investigator(s): Heather Kelly UTM 103 553553.3 E 4506242 N  
Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 41  
Subregion (LRR) C Soil Map Unit Name: Auburn Loam, 0-89% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A  
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water      N/A

Remarks Upland pair to # 36

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover:		
Herb Stratum (use scientific names)				
1.	<u>Centaurea solstitialis</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Bromus hordeaceus</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
3.	<u>Gastridium ventricosum</u>	<u>0</u>	<u>N</u>	<u>FACW</u>
4.	<u>Trifolium hirtum</u>	<u>20</u>	<u>N</u>	<u>UPL</u>
5.	<u>Navarretia togetina</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
6.	<u>Lotus purshiana</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
7.	<u>Taenatherum caput medusae</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
8.	<u>Navarretia intertexta</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
50%=	20%=	Total Cover:		
Woody/Vine Stratum (use scientific names)				
1.	<u>Hypericum perforatum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
2.				
50%=	<u>60</u>	20%= <u>24</u>	Total Cover: <u>120</u>	
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				

**Dominance Test Worksheet**

Number of dominant species that are OBL, FACW, or FAC: 0 (A)  
Total number of dominant species across all strata: 1 (B)  
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

**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 Text is >50%  
     Prevalence Index is < 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth	Matrix	Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%			
0-4	7.5YR 4/4	100	/	/	/	Sandy loam	
<i>Difficult digging</i>							

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: *Soil Survey Lithic hydric* Depth (Inches) *24-29* Hydric Soil? *No*

**Remarks** *Pit difficult to dig, however dominated by upland plants & does not qualify as wetland.*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input checked="" type="checkbox"/> Surface Soil Cracks (B6)       | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Netural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches)  Wetland Hydrology? Yes  No   
 Water Table Present? Yes  No  Depth (inches)   
 Saturation Present? Yes  No  Depth (inches)  (includes capillary fringe)

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue Oak gray pine  
Wetland Type Riparian Wetland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/30/10  
Applicant/Owner: 3-M Company State: CA Data Point: 38  
Investigator(s): Heather Kelly LTM 102553063.3 E 4506137 N  
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) CONCAVE Slope % 2  
Subregion (LRR) C Soil Map Unit Name: Auburn very stony clay loam  
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.) 30-50%

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

**USACE Jurisdiction**

Adjacent to Waters  Tributary to Waters \_\_\_\_\_ Isolated (with interstate commerce) \_\_\_\_\_ Isolated (non jurisdictional) \_\_\_\_\_  
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank \_\_\_\_\_ Scour \_\_\_\_\_ Ordinary High Water Mark Mapped \_\_\_\_\_  
Feature Designation: Perennial \_\_\_\_\_ Intermittent \_\_\_\_\_ Ephemeral \_\_\_\_\_ Blue-line on USGS Quad N/A  
Natural Drainage \_\_\_\_\_ Artificial Drainage \_\_\_\_\_ Navigable Water \_\_\_\_\_

**Remarks** Riparian Wetland- herbaceous adjacent to intermittent stream. Gradient levels + stream hydrates broad area; floodplain/wetland

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= _____	20%= _____	Total Cover: _____		
Sapling/Shrub Stratum (use scientific names)				
1.	<u>Salix laevigata</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>
2.				
3.				
4.				
50%= <u>25</u>	20%= <u>1</u>	Total Cover: <u>5</u>		
Herb Stratum (use scientific names)				
1.	<u>Trifolium variegatum</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
2.	<u>Juncus tenuis</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
3.	<u>Lotus pinnatus</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>
4.	<u>Cyperus exagrostis</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
5.	<u>Sidalcea hirsuta</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
6.	<u>Lolium perenne</u>	<u>20</u>	<u>N</u>	<u>FAC</u>
7.	<u>Carex licta</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
8.	<u>Mimulus guttatus</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
50%= _____	20%= _____	Total Cover: _____		
Woody/Vine Stratum (use scientific names)				
1.	<u>Juncus xiphioides</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
2.	<u>Mentha pulegium</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
50%= <u>62.5</u>	20%= <u>25</u>	Total Cover: <u>15</u>		
% Bare Ground in Herb Stratum _____ % 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 (AB)

**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**

Y Dominance Text is >50%

Y Prevalence Index is ≤ 3.0<sup>1</sup>

\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** Yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	7.5YR 3/3	70	7.5YR 3/2	30	RM	M	Sandy loam	
4-12	7.5YR 3/3	50	7.5YR 3/2	50	RM	M		

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      Indicators for Problematic Hydric Soils<sup>3</sup>

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4)  | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 27-31 Hydric Soil? yes

Remarks: Sufficient Soils

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <u>Primary Indicators (Any one indicator is sufficient)</u>        |   | <u>Secondary Indicators (2 or more required)</u>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)      | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)      | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) \_\_\_\_\_ Wetland Hydrology? Yes  No   
 Water Table Present? Yes  No  Depth (inches) 6"  
 Saturation Present? Yes  No  Depth (inches) 4" (includes capillary fringe)

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

Remarks: Sufficient hydrology



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue Oak-grass-pine  
Wetland Type Int. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 6/20/10

Applicant/Owner: 3-M Company Data Point: 39

Investigator(s): Heather Kelly UTM 103 553062.7E 4500136N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 12

Subregion (LRR) C Soil Map Unit Name: Auburn very stony clay loam

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

## USACE Jurisdiction

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X  
Feature Designation: Perennial      Intermittent X Ephemeral      Blue-line on USGS Quad       
Natural Drainage X Artificial Drainage      Navigable Water     

## Remarks

Intermittent Stream w/ Lotus in OTHWM  
Slow moving int. stream allows for veg to establish  
w/ in its banks

## Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Lotus pinnatus</u>	<u>80</u>	<u>Y</u>	<u>OBL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50%= <u>40</u> 20%= <u>16</u> Total Cover: <u>80</u>			
Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50%= _____ 20%= _____ Total Cover: _____			
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust <u>20</u>			

## 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 (AB)

## 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

Y Dominance Text is >50%  
Y Prevalence Index is ≤ 3.0<sup>1</sup>  
\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes  
w/in OTHWM

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
		No	pit Scoured channel					

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vetric (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 27-31" Hydric Soil? N/A

**Remarks**

**Hydrology**

**Wetland Indicators**

- |  |   |   |
|--|---|---|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                      |
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

- Surface Water Present? Yes  No       Depth (inches) 1"      Wetland Hydrology? Yes  No
- Water Table Present? Yes  No       Depth (inches) Surface
- Saturation Present? Yes  No       Depth (inches) Surf (includes capillary fringe)

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak gray pine  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/30/10

Applicant/Owner: 3-M Company State: CA Data Point: 4D

Investigator(s): Heather Kelly UTM 10S 55 3061.2E 4506139N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % <1

Subregion (LRR) C Soil Map Unit Name: Auburn very stony clay loam

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.) 30-50% slopes eroded

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non-jurisdictional) N/A  
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Upland pair to # 38+39

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.	<u>Quercus douglasii</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2.				
3.				
4.				
50% = <u>10</u> 20% = <u>4</u> Total Cover: <u>20</u>				
Sapling/Shrub Stratum (use scientific names)				
1.	<u>Arctostaphylos viscida</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
2.				
3.				
4.				
50% = <u>5</u> 20% = <u>2</u> Total Cover: <u>10</u>				
Herb Stratum (use scientific names)				
1.	<u>Anthoxanthum aristata</u>	<u>75</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Juncus tenuis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
3.	<u>Trifolium variegatum</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
4.				
5.				
6.				
7.				
8.				
50% = <u>45</u> 20% = <u>18</u> Total Cover: <u>90</u>				
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50% = <u>    </u> 20% = <u>    </u> Total Cover: <u>    </u>				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust <u>0</u>				

**Dominance Test Worksheet**

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

**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 Text is >50%

     Prevalence Index is ≤ 3.0<sup>1</sup>

     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** No

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-2	7.5YR 3/3	80	10YR 3/2	20	RM	M	sandy loam - some organic muck	
2-12	7.5YR 3/3	100					sandy loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)Indicators for Problematic Hydric Soils<sup>3</sup>

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Red Parent Materials (TF2)
<input type="checkbox"/> Stratified Layers (AG) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Vegetated Sand/Gravel Bars
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
	<input type="checkbox"/> Vernal Pools (F9)	

Restrictive Layer (if present): Type: litthic bedrock Depth (Inches) 27-31" Hydric Soil? yes**Remarks****Hydrology****Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Natural Test (D5)

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) 0 Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) 0

Saturation Present? Yes  No  Depth (inches) 10" (includes capillary fringe)

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

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak-grass, p. oak  
 Wetland Type Seep-Spring

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 12/30/10

Applicant/Owner: 3-M Company State: CA Data Point: 471

Investigator(s): Heather Kelly UTM 10S 553010E 4506099N

Landform (hillslope, terrace, etc.) Slope/drainage Local relief (concave, convex, none) Convex Slope % 21

Subregion (LRR) C Soil Map Unit Name: Auburn Very stony clay loam

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
 Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

**USACE Jurisdiction**

Adjacent to Waters  Tributary to Waters  Isolated (with interstate commerce)  Isolated (non jurisdictional)   
 Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank  Scour  Ordinary High Water Mark Mapped   
 Feature Designation: Perennial  Intermittent  Ephemeral  Blue-line on USGS Quad  N/A  
 Natural Drainage  Artificial Drainage  Navigable Water

**Remarks** Seep-spring; Bedrock underlayment ~ 4"

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
<b>Tree Stratum (use scientific names)</b>				
1.				
2.				
3.				
4.				
50%= _____	20%= _____	Total Cover: _____		
<b>Sapling/Shrub Stratum (use scientific names)</b>				
1.				
2.				
3.				
4.				
50%= _____	20%= _____	Total Cover: _____		
<b>Herb Stratum (use scientific names)</b>				
1.	<u>Mimulus guttatus</u>	<u>73</u>	<u>Y</u>	<u>DBL</u>
2.	<u>Lolium perenne</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
3.	<u>Sidalcea hirsuta</u>	<u>2</u>	<u>N</u>	<u>DBL</u>
4.	<u>Lotus pinnatus</u>	<u>5</u>	<u>N</u>	<u>DBL</u>
5.				
6.				
7.				
8.				
50%= <u>50</u>	20%= <u>20</u>	Total Cover: <u>100</u>		
<b>Woody/Vine Stratum (use scientific names)</b>				
1.				
2.				
50%= _____	20%= _____	Total Cover: _____		
<b>% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____</b>				

**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 (AB)

**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**

yes Dominance Text is >50%

Y Prevalence Index is ≤ 3.0<sup>1</sup>

\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	7.5YR2.3/3	100	/	/	/	/	Sandy loam	
4+	Bedrock							

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4)  | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

Restrictive Layer (if present): Type: Bedrock Depth (Inches) 4 Hydric Soil? yes

Remarks

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)      | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches) \_\_\_\_\_ Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches) \_\_\_\_\_
- Saturation Present? Yes  No  Depth (inches) Surface (includes capillary fringe)

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

Remarks



Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak gray pine  
Wetland Type upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/30/10

Applicant/Owner: 3-M Company State: CA Data Point: 42

Investigator(s): Heather Kelly UTM: 10S 553009.48 4506108.0

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

Subregion (LRR) C Soil Map Unit Name: Auburn very stony clay loam

Are climatic/hydrologic conditions on the site typical for this time of year? Y (If no, explain in remarks.) 30-50% eroded

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) P/A  
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks Upland pair to #41

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.	<u>Quercus douglasii</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Albata</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>
3.	<u>Pinus sabiniana</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
4.				
50% = <u>10</u> 20% = <u>4</u> Total Cover: <u>20</u>				
Sapling/Shrub Stratum (use scientific names)				
1.	<u>Toxicodendron diversilobum</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Rhamnus californica</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
3.				
4.				
50% = <u>5</u> 20% = <u>2</u> Total Cover: <u>10</u>				
Herb Stratum (use scientific names)				
1.	<u>Mentha spicata</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>
2.	<u>Ambrosia sp</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
3.	<u>Lotus marshiana</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
4.	<u>Plantago lanceolata</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
5.	<u>Achillea millefolium anast.</u>	<u>6.33</u>	<u>Y</u>	<u>UPL</u>
6.	<u>Trifolium variegatum</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
7.	<u>Carex feta</u>	<u>2</u>	<u>N</u>	<u>OBL</u>
8.				
50% = <u>50</u> 20% = <u>20</u> Total Cover: <u>100</u>				
Woody/Vine Stratum (use scientific names)				
1.	<u>Vitis californica</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>
2.				
50% = <u>2.5</u> 20% = <u>1</u> Total Cover: <u>5</u>				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				

Dominance Test Worksheet	
Number of dominant species that are OBL, FACW, or FAC:	<u>1</u> (A)
Total number of dominant species across all strata:	<u>9</u> (B)
Percent of dominant species that are OBL, FACW, or FAC:	<u>11%</u> (AB)
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	
<u>N</u> Dominance Text is >50%	
<u>    </u> Prevalence Index is ≤ 3.0 <sup>1</sup>	
<u>    </u> Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
<u>    </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
Hydrophytic Vegetation?	<u>No</u>

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	7.5YR <sup>3</sup> /3	100	/	/	/	/	Sandy loams	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

Restrictive Layer (if present): Type: Soil Survey thick bedrock Depth (Inches) 27-31" Hydric Soil? N

**Remarks**  
No indicators

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)      | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches) 0      Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches) 0

Saturation Present? Yes  No       Depth (inches) 0 (includes capillary fringe)

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

**Remarks**



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak-grassland  
Wetland Type Int. Pool - N5

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10

Applicant/Owner: 3-M Company State: CA Data Point: 43

Investigator(s): Heather Kelly LITM 105 553806.5E 4506235N

Landform (hillslope, terrace, etc.) Depression Local relief (concave, convex, none) Concave Slope % <1

Subregion (LRR) C Soil Map Unit Name: Churn gravelly loam deep, 0-3%

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
Are vegetation Y, soil Y, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

## USACE Jurisdiction

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) X  
Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad      N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Road mud puddle is inundated for long duration + has developed hydrophytic plants. Pool formed by OHV + all terrain vehicles

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Herb Stratum (use scientific names)				
1.	<u>Cyperus eragrostis</u>	<u>2</u>	<u>N</u>	<u>FACW</u>
2.	<u>Polygonum nuttallianum</u>	<u>1</u>	<u>N</u>	<u>FACW</u>
3.	<u>Juncus tenuis</u>	<u>1</u>	<u>N</u>	<u>FACW</u>
4.	<u>Juncus baeiformis</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>
5.	<u>Lythrum hyssopifolia</u>	<u>1</u>	<u>N</u>	<u>OBL</u>
6.				
7.				
8.				
50%= <u>10</u>	20%= <u>4</u>	Total Cover: <u>20</u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
% Bare Ground in Herb Stratum <u>80</u>		% Cover of Biotic Crust <u>    </u>		

**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 (AB)

**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**  
Y Dominance Text is >50%  
Y Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

**Soils**

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

Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
D-4	10YR4/4	100	/	/	/	/	silty loam - oxidized rhizospheres	
4-8	5YR4/6	100	/	/	/	/	gravelly loam	
8' compacted soil								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)                |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)               |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)                  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)            |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars            |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input checked="" type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey N/A Depth (Inches) 780" Hydric Soil? Y

**Remarks** Presence of crack soil + hydrophytic plants indicates long duration ponding. Vehicular disturbance may inhibit or mask development of hydric soil characteristics.

**Hydrology** Inundation observed through 6/30/10

**Wetland Indicators**

**Primary Indicators** (Any one indicator is sufficient)

**Secondary Indicators** (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                              | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                           | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                                 | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)                  | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)      | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input checked="" type="checkbox"/> Surface Soil Cracks (B6)             | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)       | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input checked="" type="checkbox"/> Water-Stained Leaves (B9)            | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) / Wetland Hydrology? Yes  No   
 Water Table Present? Yes  No  Depth (inches) /  
 Saturation Present? Yes  No  Depth (inches) / (includes capillary fringe)

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak-grass  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10

Applicant/Owner: 3-M Company State: CA Data Point: 44

Investigator(s): Heather Kelly LITM 105 553809.5E 4506240N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 2

Subregion (LRR) C Soil Map Unit Name: Churn gravelly loam, deep, 0-39% Slopes

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A

Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks Upland pair to # 43

**Vegetation**

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%=      20%=      Total Cover:     

Herb Stratum (use scientific names) % Cover Species? Status

1.	<u>Anthoxanthum aristata</u>	<u>45</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Lotus purshiana</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
3.	<u>Plantago lanceolata</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
4.	<u>Taraxacum caput-medusae</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
5.	<u>Bruca maxima</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
6.	<u>Trifolium hirsutum</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
7.	<u>Bromus californicus</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
8.				

50%= 50 20%= 20 Total Cover: 100

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.			
2.			

50%=      20%=      Total Cover:     

% Bare Ground in Herb Stratum < 1 % Cover of Biotic Crust > 1

**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 (AB)

**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 Text is >50%
- Prevalence Index is ≤ 3.0<sup>1</sup>
- Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	7.5YR2/4	100	✓	✓	✓	✓	gravelly loam	
4+ concrete (essentially) compacted soils								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Soil Survey

Restrictive Layer (if present): Type: N/A      Depth (Inches) > 80"      Hydric Soil? NO

**Remarks**      No indicators

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present?    Yes     No     Depth (inches) ✓      Wetland Hydrology?    Yes     No
- Water Table Present?    Yes     No     Depth (inches) ✓
- Saturation Present?    Yes     No     Depth (inches) ✓      (includes capillary fringe)

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

**Remarks**      No indicators



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak grass prairie  
Wetland Type Riparian Wetland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10  
Applicant/Owner: 3-M Company State: CA Data Point: 45  
Investigator(s): Heather Kelly UTM 10S 553374.2E 4506554N  
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 12  
Subregion (LRR) C Soil Map Unit Name: Aukurn loam, 0-8% slopes  
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

### USACE Jurisdiction

Adjacent to Waters  Tributary to Waters  Isolated (with interstate commerce)  Isolated (non jurisdictional)   
Explain:

### Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank  Scour  Ordinary High Water Mark Mapped  N/A  
Feature Designation: Perennial  Intermittent  Ephemeral  Blue-line on USGS Quad   
Natural Drainage  Artificial Drainage  Navigable Water

### Remarks

Riparian Wetland adjacent to Moody Creek

### Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Populus fremontii</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

50% = 2.5 20% = 1 Total Cover: 5

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Cephalanthus occidentalis</u>	<u>90</u>	<u>Y</u>	<u>OBL</u>
2. <u>Salix lasiolepis</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____

50% = 50 20% = 20 Total Cover: 100

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Mimulus guttatus</u>	<u>45</u>	<u>Y</u>	<u>OBL</u>
2. <u>Mentha spicata</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>
3. <u>Chenopodium ambrosioides</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
4. <u>Cynisurus echinatus</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
5. <u>Lotus pinnatus</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

50% = 50 20% = 20 Total Cover: 100

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

50% = \_\_\_\_\_ 20% = \_\_\_\_\_ Total Cover: \_\_\_\_\_

% 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 (AB)

### 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 Text is >50%  
 Prevalence Index is ≤ 3.0<sup>1</sup>  
\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
			No Pit - Vegetated gravel bar					

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)                |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)               |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)                  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)            |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input checked="" type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)            |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

*Soil Survey*

Restrictive Layer (if present): Type: Uthic bedrock Depth (Inches) 24-28" Hydric Soil? Y

**Remarks** *Vegetation has formed on gravel/cobble bar along Moody Creek. Driftlines indicate frequent flooding*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches)            Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches)           

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

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

**Remarks**



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue Oak-grass prairie  
Wetland Type Int. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10

Applicant/Owner: 3-M Company State: CA Data Point: 46

Investigator(s): Heather Kelly UTM 10S 55 5374.7E 4506552

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 12

Subregion (LRR) C Soil Map Unit Name: Auburn loam 0-890 slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? N/A Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

### USACE Jurisdiction

Adjacent to Waters  Tributary to Waters  Isolated (with interstate commerce)  Isolated (non jurisdictional)

Explain:

### Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank  Scour  Ordinary High Water Mark Mapped   
Feature Designation: Perennial  Intermittent  Ephemeral  Blue-line on USGS Quad   
Natural Drainage  Artificial Drainage  Navigable Water

Remarks Int stream w/ herbaceous veg w/in OTHWM

### Vegetation

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

Herb Stratum (use scientific names) % Cover Species? Status

1.	<u>Munulus guttatus</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>
2.	<u>Lotus pilosatus</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>
3.				
4.				

50%= 45 20%= 18 Total Cover: 90

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

% Bare Ground in Herb Stratum \_\_\_\_\_ % 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 (AB)

### 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

Y Dominance Test is >50%

Y Prevalence Index is ≤ 3.0<sup>1</sup>

\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
<i>No pit - Scoured channel</i>								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 24-28" Hydric Soil? N/A

**Remarks**

*No pit*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                           | <input checked="" type="checkbox"/> Water Marks (B1) (Riverine)       |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) 2in Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) Surface

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

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak gray pine  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10

Applicant/Owner: 3-M Company State: CA Data Point: 47

Investigator(s): Heather Kelly UTM 10S 553372.36 450651 N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % < 2

Subregion (LRR) C Soil Map Unit Name: Auburn loam 0-890 slopes

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A

Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks**

Upland pair to # 45 & 46

**Vegetation**

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Quercus douglasii</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%= 25 20%= 10 Total Cover: 50

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Toxicodendron diversilobum</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%= 5 20%= 2 Total Cover: 10

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Mentha spicata</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
2. <u>Thalictrum fendleri</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
3. <u>Bromus diandrus</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>
4. <u>Tarlis arvensis</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
5. <u>Cynosuurus echinatus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%= 50 20%= 20 Total Cover: 100

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%=      20%=      Total Cover:     

% Bare Ground in Herb Stratum      % 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: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

**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 Text is >50%
- Prevalence Index is ≤ 3.0<sup>1</sup>
- Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	7.5YR <sup>3</sup> /3	100	/	/	/	/	gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: lithic bedrock Depth (Inches) 24-28" Hydric Soil? NO

**Remarks**

*No indicators*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches)  Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches)
- Saturation Present? Yes  No  Depth (inches)  (includes capillary fringe)

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

**Remarks**

*No indicators*



# Wetland Determination Data Form - Arid West Region

Habitat Type Mixed Hardwood Conifer  
Wetland Type Fresh/Riparian

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 7/8/10

Applicant/Owner: 3-M Company Data Point: 48

Investigator(s): Heather Kelly UTM 10S 552655.2E 4504929N

Landform (hillslope, terrace, etc.) Constructed Impoundment Local relief (concave, convex, none) Concave Slope % <1

Subregion (LRR) C Soil Map Unit Name: Auburn very stony clay loam

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

## USACE Jurisdiction

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)     

Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A

Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad     

Natural Drainage      Artificial Drainage      Navigable Water     

Remarks Fresh emergent/Riparian Wetland - In Channel  
Constructed impoundment.

## Vegetation

Tree Stratum (use scientific names)

1. Salix gooddingii Absolute % Cover 10 Dominant Species? Y Indicator Status OBL

2.      Absolute % Cover      Dominant Species?      Indicator Status     

3.      Absolute % Cover      Dominant Species?      Indicator Status     

4.      Absolute % Cover      Dominant Species?      Indicator Status     

50%= 5 20%= 2 Total Cover: 10

Sapling/Shrub Stratum (use scientific names)

1. Salix nigra Absolute % Cover 10 Dominant Species? Y Indicator Status OBL

2.      Absolute % Cover      Dominant Species?      Indicator Status     

3.      Absolute % Cover      Dominant Species?      Indicator Status     

4.      Absolute % Cover      Dominant Species?      Indicator Status     

50%= 5 20%= 2 Total Cover: 10

Herb Stratum (use scientific names)

1. Mentha pulegium % Cover 20 Species? Y Status OBL

2. Eleocharis macrostachya 30 Y OBL

3. Pumex salicifolius 5 N FACW

4. Alisma plantago-aquatica 5 N OBL

5. Polygonum monspeliense 30 Y FACW

6.                    

7.                    

8.                    

50%= 40 20%= 16 Total Cover: 80

Woody/Vine Stratum (use scientific names)

1.      % Cover      Species?      Status     

2.      % Cover      Species?      Status     

50%=      20%=      Total Cover:     

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

open water <5

at South end of feature

## 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 (AB)

## 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

Yes Dominance Text is >50%

Y Prevalence Index is < 3.0<sup>1</sup>

     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-6	10YR 4/3	100	/	/	/	/	silty loam	
6-14	7.5YR 4/3	100	/	/	/	/	gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4)  | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

*Soil Survey*

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 27-31" Hydric Soil? Y

**Remarks**

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                              | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                           | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input checked="" type="checkbox"/> Saturation (A3)                      | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)                  | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)      | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                        | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)       | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                       | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches)    Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches)
- Saturation Present? Yes  No  Depth (inches) 12 (includes capillary fringe)

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

**Remarks**

*Pond depth 0-4.5 feet*



# Wetland Determination Data Form - Arid West Region

Habitat Type Mixed hardwood Con  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10  
Applicant/Owner: 3-M Company State: CA Data Point: .49  
Investigator(s): Heather Kelly UTM 10S 552 656.6E 4504931N  
Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 25  
Subregion (LRR) C Soil Map Unit Name: Auburn very stony clay loam  
Are climatic/hydrologic conditions on the site typical for this time of year? Y (If no, explain in remarks.) 30-50% slopes eroded  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

### USACE Jurisdiction

Adjacent to Waters \_\_\_\_\_ Tributary to Waters \_\_\_\_\_ Isolated (with interstate commerce) \_\_\_\_\_ Isolated (non jurisdictional) N/A  
Explain:

### Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank \_\_\_\_\_ Scour \_\_\_\_\_ Ordinary High Water Mark Mapped \_\_\_\_\_  
Feature Designation: Perennial \_\_\_\_\_ Intermittent \_\_\_\_\_ Ephemeral \_\_\_\_\_ Blue-line on USGS Quad \_\_\_\_\_  
Natural Drainage \_\_\_\_\_ Artificial Drainage \_\_\_\_\_ Navigable Water \_\_\_\_\_ N/A

Remarks Upland pair to # 48

### Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Quercus chrysolepis</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

50%= 30 20%= 12 Total Cover: 60

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Heteromeles arbutifolia</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
2. <u>Cercis occidentalis</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____

50%= 7.5 20%= 3 Total Cover: 15

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Cyperus eragrostis</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
2. <u>Potentilla glandosa</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>
3. <u>Elymus glaucus</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

50%= 15 20%= 6 Total Cover: 30

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

% Bare Ground in Herb Stratum 70 % Cover of Biotic Crust litter

### Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)  
Total number of dominant species across all strata: 6 (B)  
Percent of dominant species that are OBL, FACW, or FAC: 33.3 (AB)

### 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 Text is >50%  
\_\_\_\_\_ Prevalence Index is ≤ 3.0<sup>1</sup>  
\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	7.5YR <sup>4</sup> /4	100	/	/	/	/	gravelly/sandy loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: lithic bedrock Depth (Inches) 27-31 Hydric Soil? No

**Remarks**

*No indicators*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches) / Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches) /
- Saturation Present? Yes  No  Depth (inches) / (includes capillary fringe)

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

**Remarks**

*No indicators*



North State Resources, Inc.

# Wetland Determination Data Form - Arid West Region

Habitat Type MHC  
Wetland Type Ephemeral stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10

Applicant/Owner: 3-M Company State: CA Data Point: 50

Investigator(s): Heather Kelly UTM 10S 552647.4E 4505077N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 30

Subregion (LRR) C Soil Map Unit Name: Auburn very stony clay loam

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.) 30-50% eroded

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y - NJ

## USACE Jurisdiction

Adjacent to Waters  Tributary to Waters  Isolated (with interstate commerce)  Isolated (non jurisdictional)

Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank  Scour  Ordinary High Water Mark Mapped

Feature Designation: Perennial  Intermittent  Ephemeral  Blue-line on USGS Quad

Natural Drainage  Artificial Drainage  Navigable Water

**Remarks** Ephemeral drainage percolates on level pad prior to getting to stream ~ 200 feet; channeled into excavated ditch that has breached & water spills onto pad

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= _____	20%= _____	Total Cover: _____		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= _____	20%= _____	Total Cover: _____		
Herb Stratum (use scientific names)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
50%= _____	20%= _____	Total Cover: _____		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= _____	20%= _____	Total Cover: _____		
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		

Dominance Test Worksheet	
Number of dominant species that are OBL, FACW, or FAC:	_____ (A)
Total number of dominant species across all strata:	_____ (B)
Percent of dominant species that are OBL, FACW, or FAC:	_____ (AB)
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 Text is >50%

\_\_\_\_\_ Prevalence Index is < 3.0<sup>1</sup>

\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
<i>No pit - Scoured channel</i>								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: lithic Depth (Inches) 27-31" Hydric Soil? N/A

**Remarks**

*Soil Samples  
bed rock*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                        |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches)            Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches)
- Saturation Present? Yes  No  Depth (inches)            (includes capillary fringe)

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

**Remarks**



# Wetland Determination Data Form - Arid West Region

Habitat Type MHC  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 7/8/10  
Applicant/Owner: 3-M Company Data Point: 51  
Investigator(s): Heather Kelly UTM 10S 552645.1E 4505079 N  
Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none) Convex Slope % 40  
Subregion (LRR) C Soil Map Unit Name: Auburn very stony clay loam  
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
Are vegetation N soil N or hydrology N significantly disturbed? Are normal circumstances present? Yes  
Are vegetation N soil N or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**  
Adjacent to Waters \_\_\_\_\_ Tributary to Waters \_\_\_\_\_ Isolated (with interstate commerce) \_\_\_\_\_ Isolated (non jurisdictional) N/A  
Explain: \_\_\_\_\_

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank \_\_\_\_\_ Scour \_\_\_\_\_ Ordinary High Water Mark Mapped \_\_\_\_\_  
Feature Designation: Perennial \_\_\_\_\_ Intermittent \_\_\_\_\_ Ephemeral \_\_\_\_\_ Blue-line on USGS Quad \_\_\_\_\_  
Natural Drainage \_\_\_\_\_ Artificial Drainage \_\_\_\_\_ Navigable Water \_\_\_\_\_

**Remarks** Upland pair to ES # 50

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= _____	20%= _____	Total Cover: _____		
Sapling/Shrub Stratum (use scientific names)				
1.	<u>Ceanothus cuneatus</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Arctostaphylos viscida</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
3.				
4.				
50%= <u>20</u>	20%= <u>8</u>	Total Cover: <u>40</u>		
Herb Stratum (use scientific names)				
1.	<u>Calycadenia multiglandulosa</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Purshia faturia</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
3.				
4.				
5.				
6.				
7.				
8.				
50%= <u>15</u>	20%= <u>6</u>	Total Cover: <u>30</u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= _____	20%= _____	Total Cover: _____		
% Bare Ground in Herb Stratum _____		% 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 (AB)

**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 Text is >50%  
 \_\_\_\_\_ Prevalence Index is <= 3.0<sup>1</sup>  
 \_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
			No pit bedrock					

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vetric (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (inches) Surface Hydric Soil? N/A

**Remarks**

No indicators =

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) \_\_\_\_\_ Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches) \_\_\_\_\_ (includes capillary fringe)

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

**Remarks**

No indicators - No pit - Bedrock



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue Oak-grassland  
Wetland Type Vegetated Ditch

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 7/14/10  
Applicant/Owner: 3-M Company Data Point: 52  
Investigator(s): Heather Kelly UTM 10S 582 337.5E 4505156N  
Landform (hillslope, terrace, etc.) Ditch Local relief (concave, convex, none) Concave Slope % 21  
Subregion (LRR) C Soil Map Unit Name: Auburn loam 0-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil?      Wetland hydrology? Y Is sampled area a wetland?      Other waters?     

### USACE Jurisdiction

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:     

### Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A  
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

Remarks Vegetated Ditch that intercepts waters from Int. Streams N. of feature

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Herb Stratum (use scientific names)				
1.	<u>Lythrum hyssopifolium</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>
2.	<u>Polygonum monospermum</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>
3.	<u>Briza minor</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
4.	<u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
5.	<u>Plantago lanceolata</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
6.	<u>Juncus tenuis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
7.				
8.				
50%= <u>30</u>	20%= <u>12</u>	Total Cover: <u>60</u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
% Bare Ground in Herb Stratum <u>30</u> % Cover of Biotic Crust <u>10%</u>				

### 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 (AB)

### 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**  
Yes Dominance Text is >50%  
Yes Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.  
**Hydrophytic Vegetation?** Yes

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	7.5YR2.5/4	80	7.5YR2.5/2	20	RM	M	Loam	
4-10	7.5YR2.5/4	100						

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Red Parent Materials (TF2)
<input type="checkbox"/> Stratified Layers (AG) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Vegetated Sand/Gravel Bars
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
	<input type="checkbox"/> Vernal Pools (F9)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.*Soil Survey*Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 24-28" Hydric Soil? YRemarks *Soils are starting to change. Presence of biotic crust & hydrophytic veg indicates long duration ponding***Hydrology****Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) 1/2 Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) 1/2

Saturation Present? Yes  No  Depth (inches) 1/2 (includes capillary fringe)

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

**Wetland Determination Data Form - Arid West Region**

Habitat Type Blue oak-grassland  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/14/10

Applicant/Owner: 3-M Company State: CA Data Point: 53

Investigator(s): Heather Kelly UTM 10S 552337.6 E 4905157N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) CONVEX Slope % 2

Subregion (LRR) C Soil Map Unit Name: Auburn loam, 0-89% slopes

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A

Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water      N/A

**Remarks** Upland pair to # 52

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
<b>Tree Stratum (use scientific names)</b>				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
<b>Sapling/Shrub Stratum (use scientific names)</b>				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
<b>Herb Stratum (use scientific names)</b>				
1.	<u>Lotus purshiana</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Taenatherum caput-medusae</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
3.	<u>Bruca maritima</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
4.	<u>Avena fatua</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
5.	<u>Plantago lanceolata</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
6.	<u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
7.	<u>Taraxacum officinale</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
8.	<u>Centaurea multiflora</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
	<u>Promis nordalensis</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>105</u>		
<b>Woody/Vine Stratum (use scientific names)</b>				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
<b>% Bare Ground in Herb Stratum <u>    </u> % Cover of Biotic Crust <u>0</u></b>				

**Dominance Test Worksheet**

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

**Prevalence Index Worksheet**

Total % Cover of:	Multiply by
OBL Species <u>    </u>	x 1 = <u>    </u>
FACW Species <u>    </u>	x 2 = <u>    </u>
FAC Species <u>    </u>	x 3 = <u>    </u>
FACU Species <u>    </u>	x 4 = <u>    </u>
UPL Species <u>    </u>	x 5 = <u>    </u>
Column Totals <u>    </u>	(A) <u>    </u> (B) <u>    </u>
Prevalence Index = B/A = <u>    </u>	

**Hydrophytic Vegetation Indicators**

N Dominance Text is >50%  
     Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** N

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	7.5YR 4/4	100			/	/	loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Red Parent Materials (TF2)
<input type="checkbox"/> Stratified Layers (AG) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Vegetated Sand/Gravel Bars
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
	<input type="checkbox"/> Vernal Pools (F9)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.Restrictive Layer (if present): Type: litluic bedrock Depth (Inches) 24-28" Hydric Soil? No**Remarks***No indicators***Hydrology****Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations**

Surface Water Present? Yes  No  Depth (inches)      Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches)     

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

**Describe Recorded Data** (stream gauge, monitoring well, aerial photos, and previous inspections), if available:**Remarks***No indicators*



# Wetland Determination Data Form - Arid West Region

Habitat Type Blue oak-Gray Pine  
Wetland Type Suspect area

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 7/14/10  
Applicant/Owner: 3-M Company Data Point: 54  
Investigator(s): Heather Kelly UTM 10S 552330.1E 4505185N  
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 12  
Subregion (LRR): C Soil Map Unit Name: Auburn loam 0-8% slopes

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Yes Are normal circumstances present?  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil?      Wetland hydrology?      Is sampled area a wetland?      Other waters?     

**USACE Jurisdiction**  
Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A  
Explain:     

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Suspect area hydrophytic veg but no hydrology or soil indicators wetland

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
<b>Tree Stratum (use scientific names)</b>				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover: _____		
<b>Sapling/Shrub Stratum (use scientific names)</b>				
1.				
2.				
3.				
4.				
50%=	20%=	Total Cover: _____		
<b>Herb Stratum (use scientific names)</b>				
1.	<u>Briza minor</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>
2.	<u>Centaureum muhlenbergii</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>
3.	<u>Taraxacum officinale</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
4.	<u>Avena fatua</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
5.	<u>Bromus hordeaceus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
6.				
7.				
8.				
50%=	<u>50</u>	20%= <u>20</u>	Total Cover: <u>100</u>	
<b>Woody/Vine Stratum (use scientific names)</b>				
1.				
2.				
50%=		20%=	Total Cover: _____	
<b>% Bare Ground in Herb Stratum</b>		<b>% Cover of Biotic Crust</b>		
<u>0</u>		<u>0</u>		

**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 (AB)

**Prevalence Index Worksheet**  
Total % Cover of: \_\_\_\_\_ Multiply by \_\_\_\_\_  
OBL Species \_\_\_\_\_ x 1 = \_\_\_\_\_  
FACW Species \_\_\_\_\_ x 2 = \_\_\_\_\_  
FAC Species \_\_\_\_\_ x 3 = \_\_\_\_\_  
FACW Species \_\_\_\_\_ x 4 = \_\_\_\_\_  
UPL Species \_\_\_\_\_ x 5 = \_\_\_\_\_  
Column Totals \_\_\_\_\_ (A) \_\_\_\_\_ (B)  
Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators**  
Y Dominance Test is >50%  
Y Prevalence Index is ≤ 3.0<sup>1</sup>  
\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation?** Yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
D-12	7.5YR 4/4	100	—	—	—	—	Loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey Lithic bedrock Depth (Inches) 24-28" Hydric Soil? No

**Remarks**

*No indicators*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches)                 Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches)           

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

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

**Remarks**

*No indicators*

**Wetland Determination Data Form - Arid West Region**

Habitat Type Montane hardwood con  
Wetland Type Seep/spring

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/14/10  
Applicant/Owner: 3-M Company State: CA Data Point: 55  
Investigator(s): Heather Kelly UTM 10S 551489.3E 4506920N  
Landform (hillslope, terrace, etc.) Roadcut Local relief (concave, convex, none) Concave Slope % 10  
Subregion (LRR) C Soil Map Unit Name: Boomer very stony loam, 50-70%

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters X Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad      N/A  
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Seep/spring in road cut

**Vegetation**

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Salix lasioides</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

50%= 45 20%= 18 Total Cover: 90

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Juncus effusus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
2. <u>Woodwardia frimbriata</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
3. <u>Calycanthus occidentalis</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
4. <u>Mimulus cardinalis</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

50%= 20 20%= 8 Total Cover: 40

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Rubus discolor</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>
2. _____	_____	_____	_____

50%= 20 20%= 8 Total Cover: 40

% Bare Ground in Herb Stratum      % 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: 4 (B)

Percent of dominant species that are OBL, FACW, or FAC: 75 (AB)

**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**

- Y Dominance Text is >50%
- Y Prevalence Index is ≤ 3.0<sup>1</sup>
- \_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	Gley 3/10Y	100	/	/	/	/	mucky/silt	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)            | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                    | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)                | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4)  | <input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)                | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)             |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)          |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)              |   |
|  | <input type="checkbox"/> Vernal Pools (F9)                   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Paralithic rock Depth (Inches) 45-49" Hydric Soil? Y

**Remarks**

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <u>Primary Indicators (Any one indicator is sufficient)</u>        |   | <u>Secondary Indicators (2 or more required)</u>                   |
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)      | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No       Depth (inches) 1"      Wetland Hydrology? Yes  No

Water Table Present? Yes  No       Depth (inches) Surface

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

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

**Remarks**

**Wetland Determination Data Form - Arid West Region**

Habitat Type Montane hardwood wood Com  
 Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/14/10

Applicant/Owner: 3-M Company State: CA Data Point: 56

Investigator(s): Heather Kelly UTM 10S 551486.1E 4506922N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 85

Subregion (LRR) C Soil Map Unit Name: Boomer Very Stony loam

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)  
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes  
 Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) N/A  
 Explain:     

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
 Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
 Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Upland pair to #55

**Vegetation**

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus ponderosa</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>
2. <u>Quercus wislizenii</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%=      20%=      Total Cover:     

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Arctostaphylos viscida</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%=      20%=      Total Cover:     

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Pteridium aquilinum</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
2. <u>Symphoricarpos alba</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%= 15 20%= 6 Total Cover: 36

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Rubus discolor</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

50%= 25 20%= 10 Total Cover: 50

% Bare Ground in Herb Stratum      % 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: 6 (B)  
 Percent of dominant species that are OBL, FACW, or FAC: 17% (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 Text is >50%  
     Prevalence Index is < 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-8	7.5YR 4/4	100					loam	
Bedrock - in roadcut								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Paralytic bedrock Depth (inches) 45-49" Hydric Soil? No

**Remarks**

*No indicators*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches)  Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches)
- Saturation Present? Yes  No  Depth (inches)  (includes capillary fringe)

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

**Remarks**

*No indicators*



# Wetland Determination Data Form - Arid West Region

Habitat Type Ponderosa  
Wetland Type Seep Spring - NJ

Project/Site: Moody Flats Quarry Project City/County: Shasta State: CA Date: 7/20/10

Applicant/Owner: 3-M Company Data Point: 57

Investigator(s): Heather Kelly UTM 10S 551431.26 4506941N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) convex Slope % 10

Subregion (LRR) C Soil Map Unit Name: Boomer very stony loam  
50-70%

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

## USACE Jurisdiction

Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional) X

Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A  
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Seep spring created by landing. Water seeps & runs down slope from the cut to 2 willows, which require all water from the seep - no connection to jurisdictional water

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
<b>Tree Stratum (use scientific names)</b>				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
<b>Sapling/Shrub Stratum (use scientific names)</b>				
1.	<u>Salix lasiolepis</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
2.				
3.				
4.				
50%= <u>5</u>	20%= <u>2</u>	Total Cover: <u>10</u>		
<b>Herb Stratum (use scientific names)</b>				
1.	<u>Juncus tenuis</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>
2.	<u>J. effusus</u>	<u>1</u>	<u>N</u>	<u>FACW</u>
3.	<u>Cotula persicaria</u>	<u>4</u>	<u>N</u>	<u>UPL</u>
4.				
5.				
6.				
7.				
8.				
50%= <u>32.5</u>	20%= <u>13</u>	Total Cover: <u>65</u>		
<b>Woody/Vine Stratum (use scientific names)</b>				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
<b>% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust <u>25</u></b>				

**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 (AB)

**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)

Prevalance Index = B/A =     

**Hydrophytic Vegetation Indicators**  
     Dominance Text is >50%  
     Prevalance Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-6	2.5YR 4/6	50	10YR 7/4	50	RM	M	Clay loam	Concretions present
6-12	10YR 5/4	50	Gley 6/10r	50	RM	M	Clay loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)        | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)            | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)        | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)        | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)         |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)      |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Vernal Pools (F9)

Restrictive Layer (if present): Type: Parallothic Depth (Inches) 45-49 Hydric Soil? Yes

Remarks: Soil Survey  
Padlock

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input checked="" type="checkbox"/> Biotic Crust (B12)              | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

- Surface Water Present? Yes  No  Depth (inches)            Wetland Hydrology? Yes  No
- Water Table Present? Yes  No  Depth (inches)
- Saturation Present? Yes  No  Depth (inches)            (includes capillary fringe)

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

Remarks



# Wetland Determination Data Form - Arid West Region

Habitat Type Ponderosa  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/22/10

Applicant/Owner: 3-M Company State: CA Data Point: 58

Investigator(s): Heather Kelly UTM 10S 551430.9 E 4506938 N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) Convex Slope % 10

Subregion (LRR) C Soil Map Unit Name: Boomer Very Stony loam

Are climatic/hydrologic conditions on the site typical for this time of year? Y (If no, explain in remarks.) 50-70%

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology P 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

## USACE Jurisdiction

Adjacent to Waters   Tributary to Waters   Isolated (with interstate commerce)   Isolated (non jurisdictional) N/A  
Explain:

## Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank   Scour   Ordinary High Water Mark Mapped    
Feature Designation: Perennial   Intermittent   Ephemeral   Blue-line on USGS Quad N/A  
Natural Drainage   Artificial Drainage   Navigable Water

## Remarks

Upland points #57

Vegetation				Dominance Test Worksheet	
Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status	Number of dominant species that are OBL, FACW, or FAC:	
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>1</u>	(A)
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total number of dominant species across all strata:	<u>4</u> (B)
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of dominant species that are OBL, FACW, or FAC:	<u>25</u> (AB)
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
50%= <u> </u> 20%= <u> </u> Total Cover: <u> </u>					
Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status	Prevalence Index Worksheet	
1. <u>Quercus ponderosa</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of:	Multiply by
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	OBL Species	<u> </u> x 1 = <u> </u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACW Species	<u> </u> x 2 = <u> </u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC Species	<u> </u> x 3 = <u> </u>
50%= <u>20</u> 20%= <u>8</u> Total Cover: <u>40</u>				FACW Species	<u> </u> x 4 = <u> </u>
50%= <u>20</u> 20%= <u>8</u> Total Cover: <u>40</u>				FAC Species	<u> </u> x 5 = <u> </u>
Herb Stratum (use scientific names)	% Cover	Species?	Status	UPL Species	<u> </u> x 5 = <u> </u>
1. <u>Juncus tenuis</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>	Column-Totals	<u> </u> (A) <u> </u> (B)
2. <u>Vulpia myuros</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	Prevalence Index = B/A = <u> </u>	
3. <u>Lotus purshiana</u>	<u>3</u>	<u>N</u>	<u>UPL</u>		
4. <u>Hypericum perforatum</u>	<u>2</u>	<u>N</u>	<u>UPL</u>		
5. <u>Bromus madritensis</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>		
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
50%= <u>25</u> 20%= <u>10</u> Total Cover: <u>50</u>					
Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status	Hydrophytic Vegetation Indicators	
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Dominance Text is >50%	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Prevalence Index is ≤ 3.0 <sup>1</sup>	
50%= <u> </u> 20%= <u> </u> Total Cover: <u> </u>				<u> </u> Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
% Bare Ground in Herb Stratum <u>50</u> % Cover of Biotic Crust <u> </u>				<u> </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<u> </u> <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
				Hydrophytic Vegetation? <u>NO</u>	

### Soils

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	10YR 5/4	100	—	—	—	—	sandy loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      Indicators for Problematic Hydric Soils<sup>3</sup>

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

Restrictive Layer (if present): Type: none Depth (Inches) 45-49" Hydric Soil? NO

Remarks

*Soil Survey*  
*no indicators*

### Hydrology

#### Wetland 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)
- 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 (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-Natural Test (D5)

#### Field Observations

Surface Water Present? Yes  No  Depth (inches) —      Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) —

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

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

Remarks

*No indicators*



# Wetland Determination Data Form - Arid West Region

Habitat Type Montane hardwood com  
Wetland Type Int. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/20/10

Applicant/Owner: 3-M Company State: CA Data Point: 59

Investigator(s): Heather Kelly UTM 10S 551592.1E 4506019N

Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 3

Subregion (LRR) C Soil Map Unit Name: Boomer gravelly loam 15-38%

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

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

### USACE Jurisdiction

Adjacent to Waters  Tributary to Waters  Isolated (with interstate commerce)  Isolated (non jurisdictional)

Explain:

### Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank  Scour  Ordinary High Water Mark Mapped   
Feature Designation: Perennial  Intermittent  Ephemeral  Blue-line on USGS Quad   
Natural Drainage  Artificial Drainage  Navigable Water

### Remarks

Int Stream - trib to Churn Cr. 3'

### Vegetation

Tree Stratum (use scientific names) Absolute % Cover Dominant Species? Indicator Status

1.				
2.				
3.				
4.				

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

1.			
2.			
3.			
4.			

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

Herb Stratum (use scientific names) % Cover Species? Status

1.			
2.	<u>No veg - scoured</u>		
3.	<u>channel</u>		
4.			
5.			
6.			
7.			
8.			

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

Woody/Vine Stratum (use scientific names) % Cover Species? Status

1.			
2.			

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

% Bare Ground in Herb Stratum      % Cover of Biotic Crust:     

### Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: \_\_\_\_\_ (A)

Total number of dominant species across all strata: \_\_\_\_\_ (B)

Percent of dominant species that are OBL, FACW, or FAC: \_\_\_\_\_ (AB)

### 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<sup>1</sup>

\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A





**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
<i>No pit - cobble streambank</i>								

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)                |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)               |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vetric (F18)                  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)            |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input checked="" type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)            |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

*Soil Survey*

Restrictive Layer (if present): Type: paralytic Depth (Inches) 45-49 Hydric Soil? N

**Remarks** *Vegetation spotted in banks of stream. Drift deposits indicate frequent flooding*

**Hydrology**

**Wetland Indicators**

- |  |   |   |
|--|---|---|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                      |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                        |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) ✓      Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) ✓

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

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

**Remarks** *Drift deposits indicate frequent flooding*

**Wetland Determination Data Form - Arid West Region**

Habitat Type MHC  
Wetland Type Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/10/10

Applicant/Owner: 3-M Company State: CA Data Point: 601

Investigator(s): Heather Kelly UTM 10S 551598.9E 4506021N

Landform (hillslope, terrace, etc.) Slope Local relief (concave, convex, none) convex Slope % 45

Subregion (LRR) C Soil Map Unit Name: Boomer gravelly loam, 30-50%

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**

Adjacent to Waters   Tributary to Waters   Isolated (with interstate commerce)   Isolated (non jurisdictional) N/A

Explain:

**Evaluation of features designated "Other Waters of the United States"**

Indicators: Defined bed and bank   Scour   Ordinary High Water Mark Mapped    
Feature Designation: Perennial   Intermittent   Ephemeral   Blue-line on USGS Quad N/A  
Natural Drainage   Artificial Drainage   Navigable Water

**Remarks**

Upland pair point to # 59+60

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (use scientific names)				
1.	<u>Quercus wislizenii</u>	<u>80</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Q. kelloggii</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
3.				
4.				
50%= <u>45</u> 20%= <u>18</u> Total Cover: <u>90</u>				
Sapling/Shrub Stratum (use scientific names)				
1.	<u>Heteromeles arbutifolia</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Toxicodendron diversilobum</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
3.	<u>Symphoricarpos alba</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
4.	<u>Polygonum occidentale</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
50%= <u>45</u> 20%= <u>18</u> Total Cover: <u>90</u>				
Herb Stratum (use scientific names)				
1.	<u>Arstilochia californica</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
2.				
3.				
4.				
5.				
6.				
7.				
8.				
50%= <u>2.5</u> 20%= <u>1</u> Total Cover: <u>5</u>				
Woody/Vine Stratum (use scientific names)				
1.	<u>Rubus discolor</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>
2.				
50%= <u>15</u> 20%= <u>6</u> Total Cover: <u>30</u>				
% Bare Ground in Herb Stratum <u>80</u> % Cover of Biotic Crust <u> </u>				

**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 (AB)

**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)

Prevalance Index = B/A =

**Hydrophytic Vegetation Indicators**

N Dominance Text is >50%

Prevalence Index is ≤ 3.0<sup>1</sup>

Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	7.5YR 3/4	100					gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
|  | <input type="checkbox"/> Vernal Pools (F9)          |  |

Restrictive Layer (if present): Type: paralithic Depth (inches) 45-49" Hydric Soil? NO

**Remarks** No indicators

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <b>Primary Indicators (Any one indicator is sufficient)</b>        |   | <b>Secondary Indicators (2 or more required)</b>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes  No  Depth (inches) 5 Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches) 5

Saturation Present? Yes  No  Depth (inches) 5 (includes capillary fringe)

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

**Remarks** No indicators



Wetland Determination Data Form - Arid West Region

Habitat Type AGS  
Wetland Type Int. Swale

Project/Site: Moody Flats City/County: Shasta Date: 6/29/12  
Applicant/Owner: BM State: CA Data Point: 62  
Investigator(s): Holly G Youngblood Section, Township, Range T33N R04W Sec 20  
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none) CONCAVE Slope % 41  
Subregion (LRR): C UTM ID: 555834.5E Long: 4506642N Datum: NAD 83  
Soil Map Unit Name: CEA-Churn gravelly loam 0-30 NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? y (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? y  
Are vegetation N, soil N, or hydrology N 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? y Hydric soil? y Wetland hydrology? y Is sampled area a wetland? y Other waters? N

USACE Jurisdiction

Adjacent to Waters \_\_\_\_\_ Tributary to Waters y Isolated (with interstate commerce) \_\_\_\_\_ Isolated (non jurisdictional) \_\_\_\_\_  
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank \_\_\_\_\_ Scour \_\_\_\_\_ Ordinary High Water Mark Mapped N/A  
Feature Designation: Perennial \_\_\_\_\_ Intermittent \_\_\_\_\_ Ephemeral \_\_\_\_\_ Blue-line on USGS Quad \_\_\_\_\_  
Natural Drainage \_\_\_\_\_ Artificial Drainage \_\_\_\_\_ Navigable Water \_\_\_\_\_

Remarks Int. Swale; drains to NE corner then to W. Fork Stillwater Crk

Vegetation

Tree Stratum Scientific Names (Plot Size: \_\_\_\_\_) Absolute % Cover Dominant Species? Indicator Status

Table with 4 rows for tree stratum data. All cells are crossed out with a diagonal line.

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

Sapling/Shrub Stratum (use scientific names) % Cover Species? Status

Table with 4 rows for sapling/shrub stratum data. All cells are crossed out with a diagonal line.

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

Herb Stratum (use scientific names) % Cover Species? Status

Table with 7 rows for herb stratum data. Row 1: Lolium perenne, 40, Y, FAC. Row 2: Plantago lanceolata, 5, N, FAC. Row 3: Juncus tenuis, 20, Y, FACW. Row 4: Bromus hordeaceus, 20, Y, FACU. Row 5: Mentha pulegium, 5, N, DBL. Row 6: Mumex pulcher, 8, N, FAC. Row 7: Juncus xiphioides, 2, N, DBL.

50%= 50 20%= 20 Total Cover: 100

Woody/Vine Stratum (use scientific names) % Cover Species? Status

Table with 2 rows for woody/vine stratum data. All cells are crossed out with a diagonal line.

50%= \_\_\_\_\_ 20%= \_\_\_\_\_ Total Cover: \_\_\_\_\_

% Bare Ground in Herb Stratum / % 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: 67% (AB)

Prevalence Index Worksheet

Total % Cover of: \_\_\_\_\_ Multiply by \_\_\_\_\_

OBL Species \_\_\_\_\_ x 1 = \_\_\_\_\_

FACW Species \_\_\_\_\_ x 2 = \_\_\_\_\_

FACU Species \_\_\_\_\_ x 3 = \_\_\_\_\_

FACU Species \_\_\_\_\_ x 4 = \_\_\_\_\_

UPL Species \_\_\_\_\_ x 5 = \_\_\_\_\_

Column Totals \_\_\_\_\_ (A) \_\_\_\_\_ (B)

Prevalence Index = B/A = \_\_\_\_\_

Hydrophytic Vegetation Indicators

- \_\_\_\_\_ Dominance Text is >50%
- \_\_\_\_\_ Prevalence Index is ≤ 3.0<sup>1</sup>
- \_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? y

**Soils**

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

Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-4	7.5Y2 <sup>4</sup> /3	80	7.5Y2 <sup>5</sup> /6	20	D	RM/C	gravelly loam	
4-12	7.5Y2 <sup>4</sup> /4	90	7.5Y2 <sup>4</sup> /6	10	D	C	gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |  |

Restrictive Layer (if present): Type: N/A      Depth (Inches) \_\_\_\_\_      Hydric Soil? y

**Remarks**

**Hydrology**

**Wetland Indicators**

- |  |   |  |
|--|---|--|
| <u>Primary Indicators (Any one indicator is sufficient)</u>        |   | <u>Secondary Indicators (2 or more required)</u>                   |
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)      | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes \_\_\_\_\_ No       Depth (inches)         Wetland Hydrology? Yes  No \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No       Depth (inches)   

Saturation Present? Yes \_\_\_\_\_ No       Depth (inches)    (includes capillary fringe)

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

**Remarks**



Wetland Determination Data Form - Arid West Region

Habitat Type Annual Grassland  
Wetland Type Upland

Project/Site: Moody Flats City/County: Shasta State: CA Date: 6-29-12  
Applicant/Owner: 3M Data Point: 63  
Investigator(s): Whitely G Youngblood Section, Township, Range T33N R04W Sec 20  
Landform (hillslope, terrace, etc.) level Local relief (concave, convex, none) convex Slope % 41  
Subregion (LRR): C UTM Lat: 5558331 E Long: 4506641 N Datum: NAD83  
Soil Map Unit Name: CA Churn gravelly loam 0-3% NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Y (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Y  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**  
Adjacent to Waters      Tributary to Waters  Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped N/A  
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Upland pair to #1

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Scientific Names (Plot Size: <u>15' 1/2 radius</u> )				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Herb Stratum (use scientific names)				
1.	<u>Lolium perenne</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
2.	<u>Bromus hordeaceus</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
3.	<u>Vulpia myuros</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
4.	<u>Cirsium myoxyloides</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
5.	<u>Plantago lanceolata</u>	<u>15</u>	<u>N</u>	<u>FAC</u>
6.	<u>Juncus tenuis</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
7.	<u>Elymus caput-medusae</u>	<u>15</u>	<u>N</u>	<u>UPL</u>
8.	<u>Linum lewisii</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
50%= <u>55</u>	20%= <u>22</u>	Total Cover: <u>110</u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
% Bare Ground in Herb Stratum <u>    </u> % Cover of Biotic Crust <u>0</u>				

**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      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<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	7.5YR 3/4	90	7.5YR 4/6	10	D	RM	gravelly loam	concretion observed

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Red Parent Materials (TF2)
<input type="checkbox"/> Stratified Layers (AG) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Vegetated Sand/Gravel Bars
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input checked="" type="checkbox"/> Redox Depressions (F8)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.
	<input type="checkbox"/> Vernal Pools (F9)	

Restrictive Layer (if present): Type: N/A Depth (Inches) \_\_\_\_\_ Hydric Soil? yRemarks Hydric soils in top 4"**Hydrology****Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations**Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches) \_\_\_\_\_ Wetland Hydrology? Yes  No \_\_\_\_\_Water Table Present? Yes \_\_\_\_\_ No  Depth (inches) \_\_\_\_\_Saturation Present? Yes \_\_\_\_\_ No  Depth (inches) \_\_\_\_\_ (includes capillary fringe)**Describe Recorded Data** (stream gauge, monitoring well, aerial photos, and previous inspections), if available:**Remarks**



Wetland Determination Data Form - Arid West Region

Habitat Type Annual grassland  
Wetland Type Int. Swale

Project/Site: Moody Flats City/County: Shasta Date: 6/29/12  
Applicant/Owner: BM State: CA Data Point: 64  
Investigator(s): Hully & Youngblood Section, Township, Range T33N R04W Sec 20  
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none) Concave Slope % 22  
Subregion (LRR): C UTM 10°E Lat: 5558104.9 E Long: 45010561 N Datum: NAD83  
Soil Map Unit Name: CoP - Churn gravelly loam 0-30% NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes  
Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

**USACE Jurisdiction**  
Adjacent to Waters      Tributary to Waters Y Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A  
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Int. Swale

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Scientific Names (Plot Size: <u>    </u> )				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Herb Stratum (use scientific names)				
1.	<u>Juncus hypochaeris</u>	<u>20</u>	<u>Y</u>	<u>DBL</u>
2.	<u>Arthrocnemum aristata</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
3.	<u>Bromus hordeaceus</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
4.	<u>Mentha pulgencium</u>	<u>10</u>	<u>N</u>	<u>DBL</u>
5.	<u>Colum triflorus</u>	<u>78</u>	<u>Y</u>	<u>FAC</u>
6.	<u>Rumex pulcher</u>	<u>2</u>	<u>N</u>	<u>FAC</u>
7.				
8.				
50%= <u>50</u>	20%= <u>20</u>	Total Cover: <u>100</u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
% Bare Ground in Herb Stratum <u>    </u>		% Cover of Biotic Crust <u>    </u>		

**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: 67 (AB)

**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**  
Y Dominance Text is >50%  
Y Prevalence Index is ≤ 3.0<sup>1</sup>  
     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Y

**Soils**

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-12	7.5YR 4/4	80	7.5YR 5/6	20	RM	PL/RC	gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) |  |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |  |

Restrictive Layer (if present): Type: \_\_\_\_\_ Depth (Inches) \_\_\_\_\_ Hydric Soil? Y

**Remarks**

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)      | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Netural Test (D5)                     |

**Field Observations**

Surface Water Present? Yes \_\_\_\_\_ No       Depth (inches) \_\_\_\_\_      Wetland Hydrology? Yes  No \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No       Depth (inches) \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No       Depth (inches) \_\_\_\_\_ (includes capillary fringe)

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

**Remarks**



Wetland Determination Data Form - Arid West Region

Project/Site: Moody Flats City/County: Shasta Date: 6-29-12  
Applicant/Owner: 3M State: CA Data Point: 65  
Investigator(s): Kelly G Youngblood Section, Township, Range T33N R04W Sec 20  
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none) Convex Slope % 1  
Subregion (LRR): C LTM102 Lat: 555863.4E Long: 4506561 Datum: NAD83  
Soil Map Unit Name: C1A-Churn gravelly loam 0-30% NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Y (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Y  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil?   Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters   Tributary to Waters N/A Isolated (with interstate commerce)   Isolated (non jurisdictional)    
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank   Scour   Ordinary High Water Mark Mapped N/A  
Feature Designation: Perennial   Intermittent   Ephemeral   Blue-line on USGS Quad    
Natural Drainage   Artificial Drainage   Navigable Water

Remarks Upland pair to # 64

Vegetation			
Tree Stratum Scientific Names (Plot Size: <u>15ft</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= <u> </u> 20%= <u> </u> Total Cover: <u> </u>			
Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= <u> </u> 20%= <u> </u> Total Cover: <u> </u>			
Herb Stratum (use scientific names)	% Cover	Species?	Status
1. <u>Anthoxanthum aristatum</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
2. <u>Linum lewisii</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
3. <u>Elymus Caput-medusae</u>	<u>55</u>	<u>Y</u>	<u>UPL</u>
4. <u>Juncus tenuis</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
5. <u>Lolium perenne</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
6. <u>Bromus hordeaceus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
7. <u>Verbascum blattaria</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
8. <u>Juncus Xiphophodes</u>	<u>5</u>	<u>N</u>	<u>DBL</u>
50%= <u>50</u> 20%= <u>20</u> Total Cover: <u>105</u>			
Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= <u> </u> 20%= <u> </u> Total Cover: <u> </u>			
% Bare Ground in Herb Stratum <u>5</u> % Cover of Biotic Crust <u>0</u>			

Dominance Test Worksheet	
Number of dominant species that are OBL, FACW, or FAC:	<u>0</u> (A)
Total number of dominant species across all strata:	<u>1</u> (B)
Percent of dominant species that are OBL, FACW, or FAC:	<u>0</u> (AB)

Prevalence Index Worksheet	
Total % Cover of:	Multiply by
OBL Species <u> </u>	x 1 = <u> </u>
FACW Species <u> </u>	x 2 = <u> </u>
FAC Species <u> </u>	x 3 = <u> </u>
FACU Species <u> </u>	x 4 = <u> </u>
UPL Species <u> </u>	x 5 = <u> </u>
Column Totals <u> </u>	(A) <u> </u> (B) <u> </u>
Prevalence Index = B/A = <u> </u>	

Hydrophytic Vegetation Indicators  
 \_\_\_ Dominance Test is >50%  
 \_\_\_ Prevalence Index is <= 3.0<sup>1</sup>  
 \_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.  
 Hydrophytic Vegetation? No

**Soils**

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

Depth	Matrix	Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%			
0-12	7.5YR 4/3	40%	7.5YR 3/8	20%	RM	RC	Gravelly loam

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) |  |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |  |

Restrictive Layer (if present): Type: \_\_\_\_\_ Depth (Inches) \_\_\_\_\_ Hydric Soil?

**Remarks**

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)      | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches) \_\_\_\_\_ Wetland Hydrology? Yes  No \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches) \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches) \_\_\_\_\_ (includes capillary fringe)

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

**Remarks**



Wetland Determination Data Form - Arid West Region

Project/Site: Moody Plats City/County: Shasta Date: 6-29-12  
Applicant/Owner: 3M State: CA Data Point: 66  
Investigator(s): G. Youngblood, H. Kelly Section, Township, Range T33N R04W Sec 20  
Landform (hillslope, terrace, etc.) Drainage Local relief (concave, convex, none) Concave Slope % 2  
Subregion (LRR): C UTM19P Lat: 555799.25 Long: 4506512N Datum: NAD83  
Soil Map Unit Name: CoA-Churn gravelly loam 0-3% NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? \_\_\_\_\_ (If no, explain in remarks.)  
Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are normal circumstances present? \_\_\_\_\_  
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? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

**USACE Jurisdiction**  
Adjacent to Waters \_\_\_\_\_ Tributary to Waters  Isolated (with interstate commerce) \_\_\_\_\_ Isolated (non jurisdictional) \_\_\_\_\_  
Explain:

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank  Scour  Ordinary High Water Mark Mapped   
Feature Designation: Perennial \_\_\_\_\_ Intermittent  Ephemeral \_\_\_\_\_ Blue-line on USGS Quad \_\_\_\_\_  
Natural Drainage  Artificial Drainage \_\_\_\_\_ Navigable Water \_\_\_\_\_

**Remarks** Intermittent stream. Bed and bank feature with scour and drift deposits. Biotic Crust present on rocks in stream. 3' width

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Scientific Names (Plot Size: _____)				
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
50%= _____	20%= _____	Total Cover: _____		
Sapling/Shrub Stratum (use scientific names)				
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
50%= _____	20%= _____	Total Cover: _____		
Herb Stratum (use scientific names)				
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
50%= _____	20%= _____	Total Cover: _____		
Woody/Vine Stratum (use scientific names)				
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
50%= _____	20%= _____	Total Cover: _____		
% Bare Ground in Herb Stratum <u>50</u>		% Cover of Biotic Crust <u>50</u>		

**Dominance Test Worksheet**  
Number of dominant species that are OBL, FACW, or FAC: \_\_\_\_\_ (A)  
Total number of dominant species across all strata: \_\_\_\_\_ (B)  
Percent of dominant species that are OBL, FACW, or FAC: \_\_\_\_\_ (AB)

**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 Text is >50%  
\_\_\_\_\_ Prevalence Index is ≤ 3.0'  
\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? \_\_\_\_\_  
Scoured Channel  
No Veg

**Soils**

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

Depth (inches)	Matrix		Redox Features			Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%					

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: \_\_\_\_\_ Depth (Inches) \_\_\_\_\_ Hydric Soil? \_\_\_\_\_

Remarks *Scoured channel No soil Pit*

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input checked="" type="checkbox"/> Water Marks (B1) (Riverine)       |
| <input type="checkbox"/> High Water Table (A2)                     | <input checked="" type="checkbox"/> Biotic Crust (B12)              | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |   | <input type="checkbox"/> FAC-Natural Test (D5)                        |

**Field Observations**

Surface Water Present? Yes \_\_\_\_\_ No       Depth (inches) \_\_\_\_\_      Wetland Hydrology? Yes  No \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No       Depth (inches) \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No       Depth (inches) \_\_\_\_\_ (includes capillary fringe)

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

Remarks *Stream with scoured bed & bank*

Wetland Determination Data Form - Arid West Region

Habitat Type Blue Oak Woodland  
Wetland Type Upland Pair

Project/Site: Moody Flats City/County: Shasta Date: 6-29-12  
Applicant/Owner: 3M State: CA Data Point: 67  
Investigator(s): G. Youngblood Section, Township, Range T33N R04W S22  
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none) Convex Slope % 2  
Subregion (LRR): C UTM Lat: 555799.7 E Long: 4506513 N Datum: NAD83  
Soil Map Unit Name: Cra-Churn gravelly loam 0-3% NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Y (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Y  
Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

**USACE Jurisdiction**  
Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non jurisdictional)       
Explain:     

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped       
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks**  
Upland Pair data point 66 Intermittent Stream

Vegetation			
Tree Stratum Scientific Names (Plot Size: <u>30ft</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Quercus douglasii</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2. <u>Quercus lobata</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
50% = <u>17.5</u> 20% = <u>7</u> Total Cover: <u>35</u>			
Sapling/Shrub Stratum (use scientific names) <u>30ft</u>			
Scientific Names	% Cover	Species?	Status
1. <u>Quercus douglasii</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
50% = <u>2.5</u> 20% = <u>1</u> Total Cover: <u>5</u>			
Herb Stratum (use scientific names) <u>15ft</u>			
Scientific Names	% Cover	Species?	Status
1. <u>Cynosurus echinatus</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
2. <u>Elymus caput-medusae</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
3. <u>Carduus pycnocephalus</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
4. <u>Bromus hordeaceus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
5. <u>Bromus diandrus</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
6. <u>Taraxacum officinale</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
50% = <u>35</u> 20% = <u>14</u> Total Cover: <u>70</u>			
Woody/Vine Stratum (use scientific names)			
Scientific Names	% Cover	Species?	Status
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
50% = <u>    </u> 20% = <u>    </u> Total Cover: <u>    </u>			
% Bare Ground/in Herb Stratum <u>30</u>		% Cover of Biotic Crust <u>0</u>	

**Dominance Test Worksheet**  
Number of dominant species that are OBL, FACW, or FAC: 0 (A)  
Total number of dominant species across all strata: 5 (B)  
Percent of dominant species that are OBL, FACW, or FAC: 0% (AB)

**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<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N  
Part of herb plot heavily grazed

**Soils**

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	7.5YR 4/3	100	—	—	—	—	gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted)      **Indicators for Problematic Hydric Soils<sup>3</sup>**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Red Parent Materials (TF2) |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Vegetated Sand/Gravel Bars |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
|  | <input type="checkbox"/> Vernal Pools (F9)          |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: \_\_\_\_\_ Depth (Inches) \_\_\_\_\_ Hydric Soil? \_\_\_\_\_

Remarks No indicators

**Hydrology**

**Wetland Indicators**

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres (C3)                 | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

**Field Observations**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches) \_\_\_\_\_ Wetland Hydrology? Yes \_\_\_\_\_ No   
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches) \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches) \_\_\_\_\_ (includes capillary fringe)

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

Remarks No indicators



Wetland Determination Data Form - Arid West Region

Project/Site: Moody flats City/County: Shasta Date: 6-29-12  
Applicant/Owner: 3M State: CA Data Point: 68  
Investigator(s): G. Youngblood Section, Township, Range T33N R04W Sec 28  
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none) Concave Slope % 41  
Subregion (LRR): C UTM<sup>10S</sup> Lat: 555796.3E Long: 4506523 N Datum: NAD83  
Soil Map Unit Name: CaA-Churn gravelly loam 0-3% NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Y (If no, explain in remarks.)  
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Y  
Are vegetation N, soil N, or hydrology N 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? No Hydric soil? Yes Wetland hydrology? Yes Is sampled area a wetland? N Other waters? N

**USAGE Jurisdiction**  
Adjacent to Waters      Tributary to Waters      Isolated (with interstate commerce)      Isolated (non-jurisdictional)      N/A  
Explain:

**Evaluation of features designated "Other Waters of the United States"**  
Indicators: Defined bed and bank      Scour      Ordinary High Water Mark Mapped      N/A  
Feature Designation: Perennial      Intermittent      Ephemeral      Blue-line on USGS Quad       
Natural Drainage      Artificial Drainage      Navigable Water     

**Remarks** Suspect wetland hydrophytic vegetation not dominant

Vegetation		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Scientific Names (Plot Size: <u>10x20</u> )				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Sapling/Shrub Stratum (use scientific names)				
1.				
2.				
3.				
4.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
Herb Stratum (use scientific names)				
1.	<u>Anthoxanthum aristatum</u>	<u>35</u>	<u>Y</u>	<u>UPL</u>
2.	<u>Briza Minor</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
3.	<u>Juncus Tenuis</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
4.	<u>Elymus caput-medusae</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
5.	<u>Cynosuroides echinatus</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
6.	<u>Hordeum marinum ssp. gussoneanum</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
7.	<u>Cyperus eragrostis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
8.	<u>Isolium perenne</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
50%= <u>42.5</u>	20%= <u>17</u>	Total Cover: <u>85</u>		
Woody/Vine Stratum (use scientific names)				
1.				
2.				
50%= <u>    </u>	20%= <u>    </u>	Total Cover: <u>    </u>		
% Bare Ground in Herb Stratum <u>5</u>		% Cover of Biotic Crust <u>10</u>		

**Dominance Test Worksheet**

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 1 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

**Prevalence Index Worksheet**

Total % Cover of:	Multiply by
OBL Species	x 1 = <u>    </u>
FACW Species <u>15</u>	x 2 = <u>30</u>
FAC Species <u>25</u>	x 3 = <u>75</u>
FACU Species	x 4 = <u>    </u>
UPL Species <u>45</u>	x 5 = <u>225</u>
Column Totals <u>85</u> (A)	<u>300</u> (B)
Prevalence Index = B/A = <u>3.88</u>	

**Hydrophytic Vegetation Indicators**

N Dominance Text is >50%

N Prevalence Index is ≤ 3.0<sup>1</sup>

     Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Herb plot moderately - heavily grazed

### Soils

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	7.5YR 3/4	95	7.5YR 5/6	5	RM	RC	Gravelly loam	

<sup>1</sup>Types: C = Concentration D = Depletion RM = Reduced Matrix      <sup>2</sup>Location: PL = Pore Lining RC = Root Channel M = Matrix

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

### Indicators for Problematic Hydric Soils<sup>3</sup>

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)              | <input type="checkbox"/> Reduced Vertic (F18)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)          | <input type="checkbox"/> Red Parent Materials (TF2)                                      |
| <input type="checkbox"/> Stratified Layers (AG) (LRR C)    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)          | <input type="checkbox"/> Vegetated Sand/Gravel Bars                                      |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Depleted Matrix (F3)              | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)           |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)        |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input checked="" type="checkbox"/> Redox Depressions (F8) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present. |
|  | <input type="checkbox"/> Vernal Pools (F9)                 |  |

Restrictive Layer (if present): Type: N/A Depth (Inches) N/A Hydric Soil? Yes

### Remarks

Hydric soils present

### Hydrology

#### Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                         | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input checked="" type="checkbox"/> Oxidized Rhizospheres (C3)      | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
|  |   | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |   | <input type="checkbox"/> FAC-Netural Test (D5)                     |

### Field Observations

Surface Water Present? Yes  No  Depth (inches)      Wetland Hydrology? Yes  No

Water Table Present? Yes  No  Depth (inches)     

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

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

### Remarks

Wetland hydrology present

## **Appendix B**

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### **Representative Photographs**

# Moody Flats Quarry Project Delineation of Waters of the United States

*North State Resources, Inc.  
Photographs Taken June 15, through July 20, 2010, and June 29, 2012*



**Photograph 1.** Intermittent Swale. Linear swale features are prevalent in the eastern, more level areas of the study area. Data points (DP) 1 and 2 document this feature and the adjacent upland, respectively.



**Photograph 2.** Intermittent Stream. Typical of smaller intermittent streams occurring in the study area. DP 3 documents the upland and DP 4 documents the stream.



**Photograph 3.** Suspect area. The presence of California button willow (*Cephalanthus occidentalis*) drew attention to this area as possibly a wetland. Further investigation, documented by DP 5, concluded that it is not a wetland.



**Photograph 4.** Intermittent swale/intermittent stream. Portions of the drainages alternate between vegetated swales and scoured intermittent streams. DP's 6, 7, and 8 document each of the features and the upland, respectively.



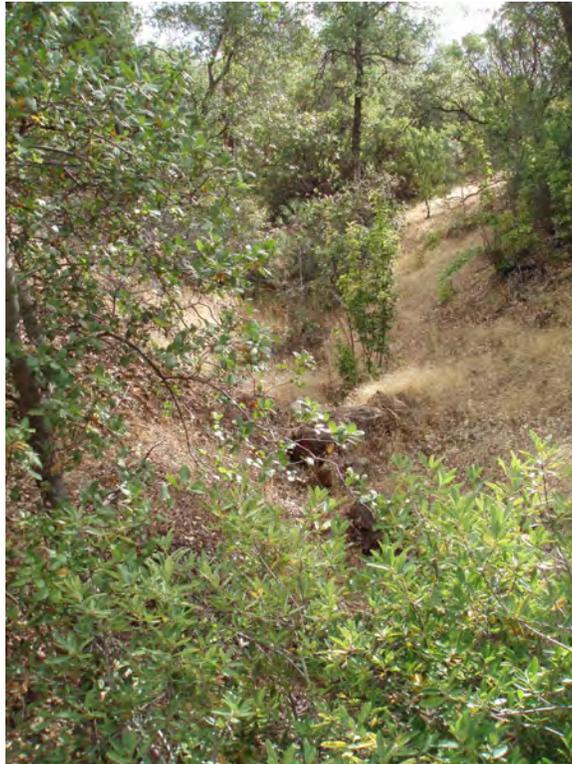
**Photograph 5.** Fresh emergent wetland. Fresh emergent wetlands occurred in excavated areas. Water sources include intermittent swales and intermittent streams. DP 9 and 10 document the feature and the adjacent upland.



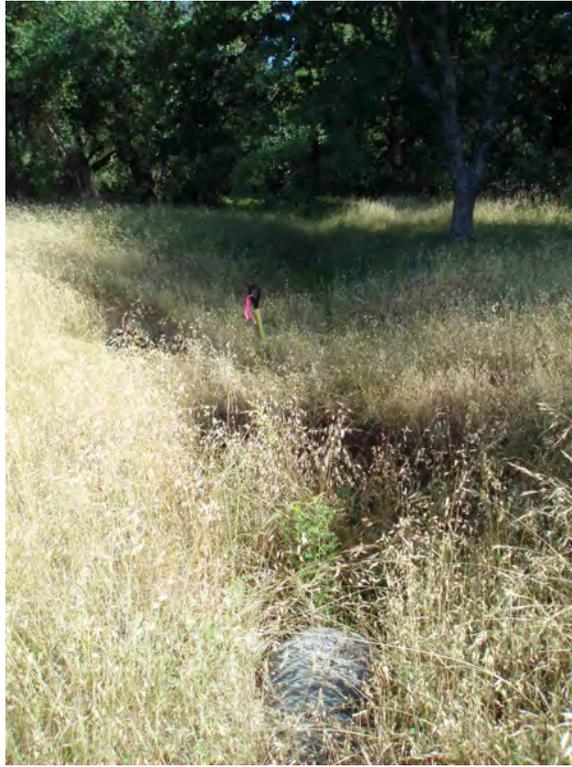
**Photograph 6.** Non-vegetated ditch. Drainage ditches occur along the railroad tracks and roads occurring in the study area. Generally, these features are non-jurisdictional because they were created in uplands to drain uplands; however, interception of a jurisdictional feature results in jurisdiction of ditches. DP 11 documents this ditch as non-jurisdictional.



**Photograph 7.** Ephemeral stream. Interception of flow from the roadway to the east has increase the volume of water in this ephemeral stream resulting in greater erosional quality. DP 13 documents this feature.



**Photograph 8.** Suspect area. Because of its physical drainage character, this area was suspect. Further investigation found no evidence of scour and deposition or development of a bed and bank. DP 14 documents this area as upland.



**Photograph 9.** Suspect area because of culvert; however DP 15 documents this area as upland. Drainage does not contain evidence of scour and deposition to qualify it as a jurisdictional feature.



**Photograph 10.** Intermittent stream. Rancheria Creek running through the study area is an intermittent stream. DP 16 and 17 document this feature and the adjacent upland.



**Photograph 11.** Suspect area. Topography indicated that a feature may occur; however, further inspection determined that there was no scour and deposition to qualify the area as a feature. DP 18 documents this area as upland.



**Photograph 12.** Intermittent stream/riparian wetland. Moody Creek is an intermittent stream with bordering riparian wetlands along portions of the reach occurring in the study area. DP 19, 20, and 21 document the intermittent stream, riparian wetland and upland, respectively.



**Photograph 13.** Intermittent pool. OHV and 4x4 vehicles have created this feature. Wetland vegetation, soils, and hydrology are present; however, this feature is isolated qualifying it as non-jurisdictional. DPs 22 and 23 document this feature and the respective upland.



**Photograph 14.** Ephemeral stream. Typical ephemeral stream located in the study area. This feature and the adjacent upland is documented by DPs 24 and 25.



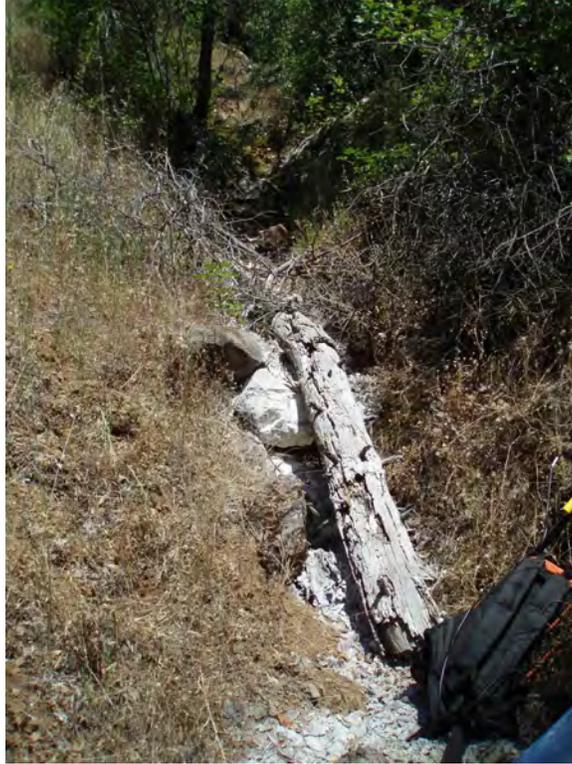
**Photograph 15.** Vegetated ditch. Ditch occurring adjacent to the railroad tracks collects water from adjacent uplands. The low gradient does not allow water to run-off creating a favorable environment for the development of hydrophytic vegetation. Because this feature was created in uplands to drain uplands, it is non-jurisdictional. DPs 26 and 27 document this feature and the adjacent upland.



**Photograph 16.** Intermittent stream. This intermittent stream starts at the confluence of two ephemeral streams. The channel becomes more defined and the presence of a biotic crust indicates this stream flows for a longer duration. DP 29 documents this feature.



**Photograph 17.** Ephemeral Stream. Ephemeral stream flowing into IS30. Another example of more defined ephemeral streams in the study area. This stream shows evidence of flow, but a lack of leaf movement throughout the channel indicates that it only flows for short duration and at low volume. DP 28 documents this feature.



**Photograph 18.** Seep-spring-other waters. This spring originates at the base of the tree located at the top of the photograph. DP 31 and 32 document this feature and the adjacent upland, respectively.



**Photograph 19.** Seep-spring wetland, intermittent stream. In this location the intermittent stream flows over the rock outcrop. Along crevices in the rock, several seep-springs originate and support hydrophytic plants. DPs 33, 34, and 35 document these features and the respective upland.



**Photograph 20.** Suspect feature. Few hydrophytic plants have established concurrently with upland plants that dominate the feature indicating that this area does not stay inundated for a long enough duration to establish a dominance of hydrophytic vegetation. Therefore, this feature is non-jurisdictional. DPs 36 and 37 document this area as upland.



**Photograph 21.** Riparian wetland, intermittent stream. A low gradient and broad floodplain has allowed for the establishment of a riparian wetland dominated by herbaceous hydrophytic species. DPs 38, 39, and 40 document the riparian wetland, intermittent stream, and upland.



**Photograph 22.** Seep-spring wetland. Seep-spring wetland typical of lower elevation springs in the study area. A bedrock layer is present at approximately 4 inches. DPs 41 and 42 document this feature and the respective upland.



**Photograph 23.** Intermittent Pool. Some pools in the road have developed wetland characteristics; however these features are isolated and are non-jurisdictional. DPs 43 and 44 document this feature as non-jurisdictional.



**Photograph 24.** Riparian wetland. Riparian wetland adjacent to Moody Creek. Typical of riparian wetlands adjacent to many of the larger intermittent streams on the east side of the study area. DPs 45, 46 and 47 document the riparian wetland, intermittent stream and adjacent upland.



**Photograph 25.** Fresh emergent-riparian wetland. A complex of fresh emergent and riparian vegetation have developed in this constructed impoundment. DPs 48 and 49 document this feature and the adjacent upland.



**Photograph 26.** Ephemeral stream. Originally, this stream was channeled from this natural drainage around a building pad into another natural drainage that once conveyed water to IS110. However, a breach in the channel has diverted water onto the building pad where it dissipates or evaporates. There is no surface connection to a jurisdictional water, therefore, the feature is non-jurisdictional. DPs 50 and 51 document this feature and the adjacent upland, respectively.



**Photograph 27.** Vegetated ditch. This ditch was constructed to convey sheet flow from the road. Due to its low gradient, wetland characters have developed. This feature intercepts flow from an intermittent stream to the north and conveys water to a jurisdictional intermittent stream. Therefore, this feature is jurisdictional. DPs 52 and 53 document the feature and the adjacent upland.



**Photograph 28.** Suspect area. Hydrophytic vegetation is present, but the feature lacks hydric soil and hydrology indicators. DP 54 documents this area as upland.



**Photograph 29.** Seep-spring wetland. Seep-spring wetland along Digger Bay Road. The road cut has exposed an underlying seep-spring that is conveyed to an intermittent stream. DPs 55 and 56 document this feature and the adjacent upland.



**Photograph 30.** Seep-spring wetland. This feature has developed as the result of building a landing. Water seeps out of the cut in the slope and seeps across the landing. Two willows and the eastern edge of the landing respire this seepage. There is no indication of seepage downslope of the willows. This feature is isolated and non-jurisdictional. DPs 57 and 58 document this feature and the adjacent upland, respectively.



**Photograph 31.** Riparian wetland, intermittent stream. IS81 on the west side of the study area provides flow for long enough duration to establish riparian wetlands along most of its banks. Duration of flow may extend well into the summer and early fall. Riparian wetland plant composition varies greatly from those occurring along Moody and Rancheria Creeks. DPs 59, 60, and 61 document these features and the adjacent upland.



**Photograph 32.** Intermittent Swale. Intermittent swale (ISW36) in northeast portion of the study area conveys water under I-5 and the associated frontage roads to East Fork Stillwater Creek east of the study area. DPs 62 and 63 document the upper portions of this swale and the adjacent upland.



**Photograph 33.** Downstream portion of intermittent Swale (ISW36). Data points 64 and 65 document this feature and the upland, respectively.



**Photograph 34.** Intermittent stream. Intermittent stream in northeast portion of the study area. The stream alternates with intermittent swale features that are vegetated with hydrophytic vegetation. DPs 66 and 67 (shovel) document the intermittent stream and adjacent upland. DP 68 (red arrow) was taken in a suspect area, but was determined to be upland.

## **Appendix C**

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### **Acreage Summary of Waters of the United States and Non-Jurisdictional Features**

Summary of Waters of the United States -- Wetlands					
Wetlands					
Label		Name	Acres (ac)	Length (ft)	Width (ft)
FEW	1	Fresh Emergent Wetland	0.020	55	
FEW	2	Fresh Emergent Wetland	0.016	35	
FEW	3	Fresh Emergent Wetland	0.014	25	
FEW	4	Fresh Emergent Wetland	0.043	104	
Fresh Emergent Wetland Total			0.093	219	
FEW/RW	1	Fresh Emergent Wetland/Riparian Wetland	0.224	175	
Fresh Emergent Wetland/Riparian Wetland Total			0.224	175	
IP	1	Intermittent Pool	0.001	6	
Intermittent Pool Total			0.001	6	
ISW	1	Intermittent Swale	0.005	78	3
ISW	2	Intermittent Swale	0.016	136	5
ISW	3	Intermittent Swale	0.004	39	4
ISW	4	Intermittent Swale	0.007	61	5
ISW	5	Intermittent Swale	0.001	24	2
ISW	6	Intermittent Swale	0.002	87	1
ISW	7	Intermittent Swale	0.022	323	3
ISW	8	Intermittent Swale	0.118	267	
ISW	9	Intermittent Swale	0.009	97	4
ISW	10	Intermittent Swale	0.015	164	4
ISW	11	Intermittent Swale	0.001	44	1
ISW	12	Intermittent Swale	0.014	76	8
ISW	13	Intermittent Swale	0.003	61	2
ISW	14	Intermittent Swale	0.018	128	6
ISW	15	Intermittent Swale	0.012	63	8
ISW	16	Intermittent Swale	0.002	42	2
ISW	17	Intermittent Swale	0.004	24	8
ISW	18	Intermittent Swale	0.004	27	6
ISW	19	Intermittent Swale	0.003	58	2
ISW	20	Intermittent Swale	0.002	22	3
ISW	21	Intermittent Swale	0.112	268	
ISW	22	Intermittent Swale	0.051	188	
ISW	23	Intermittent Swale	0.003	39	
ISW	24	Intermittent Swale	0.001	9	
ISW	25	Intermittent Swale	0.007	10	
ISW	26	Intermittent Swale	0.006	45	6
ISW	27	Intermittent Swale	0.012	254	2
ISW	28	Intermittent Swale	0.000	36	
ISW	29	Intermittent Swale	0.007	101	3
ISW	30	Intermittent Swale	0.006	69	4
ISW	31	Intermittent Swale	0.016	174	4
ISW	32	Intermittent Swale	0.007	106	3
ISW	33	Intermittent Swale	0.000	195	
ISW	34	Intermittent Swale	0.021	49	
ISW	35	Intermittent Swale	0.004	26	
ISW	36	Intermittent Swale	0.998	1452	
Intermittent Swale Total			1.511	4842	
RW	1	Riparian Wetland	0.008	50	
RW	2	Riparian Wetland	0.059	51	
RW	3	Riparian Wetland	0.032	78	
RW	4	Riparian Wetland	0.026	140	
RW	5	Riparian Wetland	0.070	265	
RW	6	Riparian Wetland	0.034	102	
RW	7	Riparian Wetland	0.040	129	

RW	8	Riparian Wetland	0.015	42	
RW	9	Riparian Wetland	0.046	213	
RW	10	Riparian Wetland	0.161	1134	
RW	11	Riparian Wetland	0.010	66	
RW	12	Riparian Wetland	0.025	104	
RW	13	Riparian Wetland	0.280	876	
RW	14	Riparian Wetland	0.056	193	
RW	15	Riparian Wetland	0.036	264	
RW	16	Riparian Wetland	0.043	193	
RW	17	Riparian Wetland	0.081	504	
RW	18	Riparian Wetland	0.014	38	
RW	19	Riparian Wetland	0.017	71	
RW	20	Riparian Wetland	0.053	648	
RW	21	Riparian Wetland	0.014	27	
RW	22	Riparian Wetland	0.015	42	
RW	23	Riparian Wetland	0.077	246	
RW	24	Riparian Wetland	0.038	182	
RW	25	Riparian Wetland	0.046	236	
RW	26	Riparian Wetland	0.012	36	
RW	27	Riparian Wetland	0.026	57	
RW	28	Riparian Wetland	0.010	32	
RW	29	Riparian Wetland	0.049	155	
RW	30	Riparian Wetland	0.100	164	
RW	31	Riparian Wetland	0.016	108	
RW	32	Riparian Wetland	0.018	35	
RW	33	Riparian Wetland	0.013	64	
RW	34	Riparian Wetland	0.010	35	
RW	35	Riparian Wetland	0.042	164	
RW	36	Riparian Wetland	0.007	42	
RW	37	Riparian Wetland	0.580	1159	
RW	38	Riparian Wetland	0.008	24	
RW	39	Riparian Wetland	0.009	29	
RW	40	Riparian Wetland	0.012	58	
RW	41	Riparian Wetland	0.010	30	
RW	42	Riparian Wetland	0.015	34	
RW	43	Riparian Wetland	0.018	50	
RW	44	Riparian Wetland	0.017	31	
RW	45	Riparian Wetland	0.048	139	
RW	46	Riparian Wetland	0.031	70	
RW	47	Riparian Wetland	0.053	306	
		Riparian Wetland Total	2.403	8716	
SSW	1	Seep-Spring Wetland	0.002	25	3
SSW	2	Seep-Spring Wetland	0.015	67	10
SSW	3	Seep-Spring Wetland	0.003	38	3
SSW	4	Seep-Spring Wetland	0.003	67	2
SSW	5	Seep-Spring Wetland	0.001	13	3
SSW	6	Seep-Spring Wetland	0.003	40	3
SSW	7	Seep-Spring Wetland	0.003	56	2
SSW	8	Seep-Spring Wetland	0.004	181	1
SSW	9	Seep-Spring Wetland	0.006	131	2
SSW	10	Seep-Spring Wetland	0.011	155	3
SSW	11	Seep-Spring Wetland	0.007	60	5
SSW	12	Seep-Spring Wetland	0.004	31	
SSW	13	Seep-Spring Wetland	0.004	28	
SSW	14	Seep-Spring Wetland	0.002	29	
SSW	15	Seep-Spring Wetland	0.005	24	
SSW	16	Seep-Spring Wetland	0.011	78	
SSW	17	Seep-Spring Wetland	0.014	91	
SSW	18	Seep-Spring Wetland	0.003	42	
SSW	19	Seep-Spring Wetland	0.004	63	
SSW	20	Seep-Spring Wetland	0.001	10	
SSW	21	Seep-Spring Wetland	0.006	38	

SSW	22	Seep-Spring Wetland	0.004	11	
SSW	23	Seep-Spring Wetland	0.027	263	
SSW	24	Seep-Spring Wetland	0.018	41	
SSW	25	Seep-Spring Wetland	0.004	21	
SSW	26	Seep-Spring Wetland	0.007	39	
SSW	27	Seep-Spring Wetland	0.005	21	
SSW	28	Seep-Spring Wetland	0.067	118	
		Seep-Spring Wetland Total	0.243	1781	
VD	1	Vegetated Ditch	0.002	19	4
VD	2	Vegetated Ditch	0.004	97	2
		Vegetated Ditch Total	0.006	116	
		Wetlands Total	4.481	15,855	

Summary of Waters of the United States -- Other Waters					
<i>Other Waters</i>					
Label	Name	Acres (ac)	Length (ft)	Width (ft)	
ES 1	Ephemeral Stream	0.001	43	1	
ES 2	Ephemeral Stream	0.006	274	1	
ES 3	Ephemeral Stream	0.006	267	1	
ES 4	Ephemeral Stream	0.002	92	1	
ES 5	Ephemeral Stream	0.000	14	1	
ES 6	Ephemeral Stream	0.002	91	1	
ES 7	Ephemeral Stream	0.004	162	1	
ES 8	Ephemeral Stream	0.006	266	1	
ES 9	Ephemeral Stream	0.026	558	2	
ES 10	Ephemeral Stream	0.015	215	3	
ES 11	Ephemeral Stream	0.018	198	4	
ES 12	Ephemeral Stream	0.003	143	1	
ES 13	Ephemeral Stream	0.010	450	1	
ES 14	Ephemeral Stream	0.001	60	1	
ES 15	Ephemeral Stream	0.007	324	1	
ES 16	Ephemeral Stream	0.004	189	1	
ES 17	Ephemeral Stream	0.001	50	1	
ES 18	Ephemeral Stream	0.002	103	1	
ES 19	Ephemeral Stream	0.001	59	1	
ES 20	Ephemeral Stream	0.007	155	2	
ES 21	Ephemeral Stream	0.003	43	3	
ES 22	Ephemeral Stream	0.014	295	2	
ES 23	Ephemeral Stream	0.009	204	2	
ES 24	Ephemeral Stream	0.007	290	1	
ES 25	Ephemeral Stream	0.003	152	1	
ES 26	Ephemeral Stream	0.004	169	1	
ES 27	Ephemeral Stream	0.015	167	4	
ES 28	Ephemeral Stream	0.003	133	1	
ES 29	Ephemeral Stream	0.002	96	1	
ES 30	Ephemeral Stream	0.005	213	1	
ES 31	Ephemeral Stream	0.007	158	2	
ES 32	Ephemeral Stream	0.005	232	1	
ES 33	Ephemeral Stream	0.005	237	1	
ES 34	Ephemeral Stream	0.006	264	1	
ES 35	Ephemeral Stream	0.006	257	1	
ES 36	Ephemeral Stream	0.001	51	1	
ES 37	Ephemeral Stream	0.002	80	1	
ES 38	Ephemeral Stream	0.007	293	1	
ES 39	Ephemeral Stream	0.002	72	1	
ES 40	Ephemeral Stream	0.008	329	1	
ES 41	Ephemeral Stream	0.009	384	1	
ES 42	Ephemeral Stream	0.006	274	1	
ES 43	Ephemeral Stream	0.009	388	1	
ES 44	Ephemeral Stream	0.005	197	1	
ES 45	Ephemeral Stream	0.007	303	1	
ES 46	Ephemeral Stream	0.013	580	1	
ES 47	Ephemeral Stream	0.007	304	1	
ES 48	Ephemeral Stream	0.004	183	1	
ES 49	Ephemeral Stream	0.010	442	1	
ES 50	Ephemeral Stream	0.007	299	1	
ES 51	Ephemeral Stream	0.001	65	1	
ES 52	Ephemeral Stream	0.012	542	1	
ES 53	Ephemeral Stream	0.013	277	2	
ES 54	Ephemeral Stream	0.005	203	1	

ES	55	Ephemeral Stream	0.004	80	2
ES	56	Ephemeral Stream	0.009	187	2
ES	57	Ephemeral Stream	0.010	430	1
ES	58	Ephemeral Stream	0.001	61	1
ES	59	Ephemeral Stream	0.009	390	1
ES	60	Ephemeral Stream	0.005	226	1
ES	61	Ephemeral Stream	0.002	95	1
ES	62	Ephemeral Stream	0.001	46	1
ES	63	Ephemeral Stream	0.008	366	1
ES	64	Ephemeral Stream	0.006	268	1
ES	65	Ephemeral Stream	0.005	208	1
ES	66	Ephemeral Stream	0.016	688	1
ES	67	Ephemeral Stream	0.014	625	1
ES	68	Ephemeral Stream	0.008	365	1
ES	69	Ephemeral Stream	0.003	143	1
ES	70	Ephemeral Stream	0.002	99	1
ES	71	Ephemeral Stream	0.003	121	1
ES	72	Ephemeral Stream	0.003	150	1
ES	73	Ephemeral Stream	0.006	245	1
ES	74	Ephemeral Stream	0.005	198	1
ES	75	Ephemeral Stream	0.008	356	1
ES	76	Ephemeral Stream	0.003	132	1
ES	77	Ephemeral Stream	0.004	164	1
ES	78	Ephemeral Stream	0.008	339	1
ES	79	Ephemeral Stream	0.004	174	1
ES	80	Ephemeral Stream	0.002	77	1
ES	81	Ephemeral Stream	0.003	128	1
ES	82	Ephemeral Stream	0.006	256	1
ES	83	Ephemeral Stream	0.027	581	2
		<b>Ephemeral Stream Total</b>	<b>0.532</b>	<b>19087</b>	
IS	1	Intermittent Stream	0.039	424	4
IS	2	Intermittent Stream	0.018	268	3
IS	3	Intermittent Stream	0.006	63	4
IS	4	Intermittent Stream	0.001	47	1
IS	5	Intermittent Stream	0.002	27	4
IS	6	Intermittent Stream	0.009	102	4
IS	7	Intermittent Stream	0.056	303	8
IS	8	Intermittent Stream	0.024	260	4
IS	9	Intermittent Stream	0.003	23	5
IS	10	Intermittent Stream	0.022	242	4
IS	11	Intermittent Stream	0.037	530	3
IS	12	Intermittent Stream	0.013	275	2
IS	13	Intermittent Stream	0.001	56	1
IS	14	Intermittent Stream	0.015	162	4
IS	15	Intermittent Stream	0.010	148	3
IS	16	Intermittent Stream	0.041	257	7
IS	17	Intermittent Stream	0.013	116	5
IS	18	Intermittent Stream	0.019	281	3
IS	19	Intermittent Stream	0.028	152	8
IS	20	Intermittent Stream	0.043	236	8
IS	21	Intermittent Stream	0.186	810	10
IS	22	Intermittent Stream	0.020	861	1
IS	23	Intermittent Stream	0.030	131	10
IS	24	Intermittent Stream	0.054	296	8
IS	25	Intermittent Stream	0.002	33	3
IS	26	Intermittent Stream	0.033	475	3
IS	27	Intermittent Stream	0.048	699	3
IS	28	Intermittent Stream	0.029	626	2
IS	29	Intermittent Stream	0.023	254	4
IS	30	Intermittent Stream	0.010	143	3

IS 31	Intermittent Stream	0.006	126	2
IS 32	Intermittent Stream	0.012	177	3
IS 33	Intermittent Stream	0.010	152	3
IS 34	Intermittent Stream	0.023	504	2
IS 35	Intermittent Stream	0.022	485	2
IS 36	Intermittent Stream	0.051	280	8
IS 37	Intermittent Stream	0.015	332	2
IS 38	Intermittent Stream	0.025	550	2
IS 39	Intermittent Stream	0.029	633	2
IS 40	Intermittent Stream	0.051	743	3
IS 41	Intermittent Stream	0.014	607	1
IS 42	Intermittent Stream	0.058	1265	2
IS 43	Intermittent Stream	0.020	292	3
IS 44	Intermittent Stream	0.027	385	3
IS 45	Intermittent Stream	0.097	351	12
IS 46	Intermittent Stream	0.028	600	2
IS 47	Intermittent Stream	0.031	686	2
IS 48	Intermittent Stream	0.010	114	4
IS 49	Intermittent Stream	0.046	1006	2
IS 49	Intermittent Stream	0.038	546	3
IS 50	Intermittent Stream	0.168	913	8
IS 51	Intermittent Stream	0.071	1032	3
IS 52	Intermittent Stream	0.005	200	1
IS 53	Intermittent Stream	0.005	217	1
IS 54	Intermittent Stream	0.014	157	4
IS 55	Intermittent Stream	0.008	44	8
IS 56	Intermittent Stream	0.015	218	3
IS 57	Intermittent Stream	0.020	292	3
IS 57	Intermittent Stream	0.008	86	4
IS 58	Intermittent Stream	0.028	402	3
IS 58	Intermittent Stream	0.006	30	8
IS 59	Intermittent Stream	0.009	391	1
IS 59	Intermittent Stream	0.024	350	3
IS 60	Intermittent Stream	0.018	195	4
IS 60	Intermittent Stream	0.021	58	16
IS 61	Intermittent Stream	0.020	107	8
IS 62	Intermittent Stream	0.015	43	15
IS 63	Intermittent Stream	0.013	187	3
IS 64	Intermittent Stream	0.125	1810	3
IS 65	Intermittent Stream	0.023	340	3
IS 66	Intermittent Stream	0.031	274	5
IS 67	Intermittent Stream	0.006	69	4
IS 68	Intermittent Stream	0.014	76	8
IS 69	Intermittent Stream	0.002	66	1
IS 70	Intermittent Stream	0.017	148	5
IS 71	Intermittent Stream	0.082	1195	3
IS 72	Intermittent Stream	0.014	99	6
IS 73	Intermittent Stream	0.009	67	6
IS 75	Intermittent Stream	0.046	249	8
IS 76	Intermittent Stream	0.011	48	10
IS 77	Intermittent Stream	0.014	99	6
IS 78	Intermittent Stream	0.012	84	6
IS 79	Intermittent Stream	0.130	1132	5
IS 80	Intermittent Stream	0.002	76	1
IS 81	Intermittent Stream	0.223	2432	4
IS 82	Intermittent Stream	0.011	78	6
IS 83	Intermittent Stream	0.015	163	4
IS 84	Intermittent Stream	0.031	268	5
IS 85	Intermittent Stream	0.006	88	3
IS 86	Intermittent Stream	0.012	539	1
IS 87	Intermittent Stream	0.008	164	2

IS 88	Intermittent Stream	0.564	3069	8
IS 89	Intermittent Stream	0.048	691	3
IS 90	Intermittent Stream	0.009	102	4
IS 91	Intermittent Stream	0.036	130	12
IS 92	Intermittent Stream	0.006	46	6
IS 93	Intermittent Stream	0.018	97	8
IS 94	Intermittent Stream	0.002	21	5
IS 95	Intermittent Stream	0.013	48	12
IS 96	Intermittent Stream	0.030	164	8
IS 97	Intermittent Stream	0.004	36	5
IS 98	Intermittent Stream	0.024	132	8
IS 99	Intermittent Stream	0.017	72	10
IS 100	Intermittent Stream	0.011	94	5
IS 101	Intermittent Stream	0.059	321	8
IS 102	Intermittent Stream	0.053	115	20
IS 103	Intermittent Stream	0.023	83	12
IS 104	Intermittent Stream	0.005	37	6
IS 105	Intermittent Stream	0.001	16	2
IS 106	Intermittent Stream	0.022	158	6
IS 107	Intermittent Stream	0.014	77	8
IS 108	Intermittent Stream	0.012	108	5
IS 109	Intermittent Stream	0.024	104	10
IS 110	Intermittent Stream	0.010	91	5
IS 111	Intermittent Stream	0.024	212	5
IS 112	Intermittent Stream	0.016	136	5
IS 113	Intermittent Stream	0.219	1591	6
IS 114	Intermittent Stream	0.006	70	4
IS 115	Intermittent Stream	0.145	1261	5
IS 116	Intermittent Stream	0.009	32	0
IS 117	Intermittent Stream	0.035	515	3
IS 118	Intermittent Stream	0.082	1196	3
IS 119	Intermittent Stream	0.008	11	0
IS 120	Intermittent Stream	0.051	186	12
IS 121	Intermittent Stream	0.008	344	1
IS 122	Intermittent Stream	0.008	349	1
IS 123	Intermittent Stream	0.046	201	10
IS 124	Intermittent Stream	0.004	23	0
IS 125	Intermittent Stream	0.010	151	3
IS 126	Intermittent Stream	0.010	138	3
IS 127	Intermittent Stream	0.032	703	2
IS 128	Intermittent Stream	0.062	899	3
IS 129	Intermittent Stream	0.031	675	2
IS 130	Intermittent Stream	0.019	206	4
IS 131	Intermittent Stream	0.051	279	8
IS 132	Intermittent Stream	0.006	91	3
IS 133	Intermittent Stream	0.218	1187	8
IS 134	Intermittent Stream	0.016	353	2
IS 135	Intermittent Stream	0.037	815	2
IS 136	Intermittent Stream	0.014	304	2
IS 137	Intermittent Stream	0.226	1970	5
IS 138	Intermittent Stream	0.067	976	3
IS 139	Intermittent Stream	0.014	590	1
IS 140	Intermittent Stream	0.027	293	4
IS 141	Intermittent Stream	0.039	341	5
IS 142	Intermittent Stream	0.005	72	3
IS 143	Intermittent Stream	0.005	69	3
IS 144	Intermittent Stream	0.040	347	5
IS 145	Intermittent Stream	0.036	311	5
IS 146	Intermittent Stream	0.007	299	1
IS 147	Intermittent Stream	0.004	178	1
IS 148	Intermittent Stream	0.029	314	4

IS 149	Intermittent Stream	0.007	95	3
IS 150	Intermittent Stream	0.002	51	2
IS 151	Intermittent Stream	0.085	620	6
IS 152	Intermittent Stream	0.012	171	3
IS 153	Intermittent Stream	0.010	456	1
IS 154	Intermittent Stream	0.005	111	2
IS 156	Intermittent Stream	0.008	182	2
IS 157	Intermittent Stream	0.080	579	6
IS 158	Intermittent Stream	0.007	51	6
IS 159	Intermittent Stream	0.008	351	1
IS 160	Intermittent Stream	0.087	474	8
IS 161	Intermittent Stream	0.176	959	8
IS 162	Intermittent Stream	0.048	703	3
IS 163	Intermittent Stream	0.015	223	3
IS 164	Intermittent Stream	0.005	238	1
IS 165	Intermittent Stream	0.008	172	2
IS 166	Intermittent Stream	0.016	237	3
IS 167	Intermittent Stream	0.001	16	2
IS 168	Intermittent Stream	0.003	115	1
IS 169	Intermittent Stream	0.021	233	4
IS 170	Intermittent Stream	0.025	549	2
IS 171	Intermittent Stream	0.009	136	3
IS 172	Intermittent Stream	0.055	401	6
IS 173	Intermittent Stream	0.010	214	2
IS 174	Intermittent Stream	0.025	538	2
IS 175	Intermittent Stream	0.031	338	4
IS 176	Intermittent Stream	0.055	793	3
IS 177	Intermittent Stream	0.006	69	4
IS 178	Intermittent Stream	0.002	47	2
IS 179	Intermittent Stream	0.016	226	3
IS 180	Intermittent Stream	0.006	136	2
IS 181	Intermittent Stream	0.007	8	0
IS 182	Intermittent Stream	0.011	244	2
IS 183	Intermittent Stream	0.053	287	8
IS 184	Intermittent Stream	0.004	87	2
IS 185	Intermittent Stream	0.122	532	10
IS 186	Intermittent Stream	0.044	323	6
IS 187	Intermittent Stream	0.470	2557	8
IS 188	Intermittent Stream	0.019	162	5
IS 189	Intermittent Stream	0.058	634	4
IS 190	Intermittent Stream	0.079	1149	3
IS 191	Intermittent Stream	0.005	70	3
IS 192	Intermittent Stream	0.016	171	4
IS 193	Intermittent Stream	0.059	1290	2
IS 194	Intermittent Stream	0.050	366	6
IS 195	Intermittent Stream	0.007	157	2
IS 196	Intermittent Stream	0.003	127	1
IS 197	Intermittent Stream	0.025	547	2
IS 198	Intermittent Stream	0.015	110	6
IS 199	Intermittent Stream	0.024	263	4
IS 200	Intermittent Stream	0.017	148	5
IS 201	Intermittent Stream	0.008	44	8
IS 202	Intermittent Stream	0.006	62	4
IS 203	Intermittent Stream	0.008	58	6
IS 204	Intermittent Stream	0.022	121	8
IS 205	Intermittent Stream	0.008	46	8
IS 206	Intermittent Stream	0.037	134	12
IS 207	Intermittent Stream	0.009	386	1
IS 208	Intermittent Stream	0.015	164	4
IS 209	Intermittent Stream	0.009	188	2
IS 210	Intermittent Stream	0.007	295	1

IS 211	Intermittent Stream	0.005	26	8
IS 212	Intermittent Stream	0.003	75	2
IS 213	Intermittent Stream	0.038	833	2
IS 214	Intermittent Stream	0.057	1245	2
IS 215	Intermittent Stream	0.009	101	4
IS 216	Intermittent Stream	0.004	35	0
IS 217	Intermittent Stream	0.074	536	6
IS 218	Intermittent Stream	0.070	506	6
IS 219	Intermittent Stream	0.029	321	4
IS 220	Intermittent Stream	0.009	125	3
IS 221	Intermittent Stream	0.061	882	3
IS 222	Intermittent Stream	0.042	452	4
IS 223	Intermittent Stream	0.003	70	2
IS 224	Intermittent Stream	0.007	72	4
IS 225	Intermittent Stream	0.005	105	2
IS 226	Intermittent Stream	0.035	504	3
IS 227	Intermittent Stream	0.029	631	2
IS 228	Intermittent Stream	0.040	861	2
IS 229	Intermittent Stream	0.006	124	2
IS 230	Intermittent Stream	0.030	662	2
IS 231	Intermittent Stream	0.209	2278	4
IS 232	Intermittent Stream	0.071	1031	3
IS 233	Intermittent Stream	0.006	123	2
IS 234	Intermittent Stream	0.046	993	2
IS 235	Intermittent Stream	0.015	168	4
IS 236	Intermittent Stream	0.002	17	5
IS 237	Intermittent Stream	0.008	171	2
IS 238	Intermittent Stream	0.012	261	2
IS 239	Intermittent Stream	0.040	880	2
IS 240	Intermittent Stream	0.019	84	10
IS 241	Intermittent Stream	0.042	913	2
IS 242	Intermittent Stream	0.014	629	1
IS 243	Intermittent Stream	0.018	99	8
IS 244	Intermittent Stream	0.008	338	1
IS 245	Intermittent Stream	0.016	676	1
IS 246	Intermittent Stream	0.011	471	1
IS 247	Intermittent Stream	0.191	1038	8
IS 248	Intermittent Stream	0.004	167	1
IS 249	Intermittent Stream	0.016	345	2
IS 250	Intermittent Stream	0.019	275	3
IS 251	Intermittent Stream	0.026	1133	1
IS 252	Intermittent Stream	0.048	1048	2
IS 253	Intermittent Stream	0.008	368	1
IS 254	Intermittent Stream	0.014	305	2
IS 255	Intermittent Stream	0.033	483	3
IS 256	Intermittent Stream	0.002	102	1
IS 257	Intermittent Stream	0.007	299	1
IS 258	Intermittent Stream	0.007	163	2
IS 259	Intermittent Stream	0.049	539	4
IS 260	Intermittent Stream	0.021	929	1
IS 261	Intermittent Stream	0.012	257	2
IS 262	Intermittent Stream	0.007	286	1
IS 263	Intermittent Stream	0.099	1081	4
IS 264	Intermittent Stream	0.018	392	2
IS 265	Intermittent Stream	0.006	267	1
IS 266	Intermittent Stream	0.019	413	2
IS 267	Intermittent Stream	0.029	629	2
IS 268	Intermittent Stream	0.048	1053	2
IS 269	Intermittent Stream	0.057	1248	2
IS 270	Intermittent Stream	0.026	192	6
IS 271	Intermittent Stream	0.007	158	2

IS 272	Intermittent Stream	0.004	158	1
IS 273	Intermittent Stream	0.023	507	2
IS 274	Intermittent Stream	0.014	305	2
IS 275	Intermittent Stream	0.052	1128	2
IS 276	Intermittent Stream	0.005	215	1
IS 277	Intermittent Stream	0.034	493	3
IS 278	Intermittent Stream	0.032	691	2
IS 279	Intermittent Stream	0.004	180	1
IS 280	Intermittent Stream	0.006	281	1
IS 281	Intermittent Stream	0.008	358	1
IS 282	Intermittent Stream	0.016	685	1
IS 283	Intermittent Stream	0.004	54	3
IS 284	Intermittent Stream	0.009	102	4
IS 285	Intermittent Stream	0.052	1138	2
IS 286	Intermittent Stream	0.006	91	3
IS 287	Intermittent Stream	0.009	98	4
IS 288	Intermittent Stream	0.018	805	1
IS 289	Intermittent Stream	0.018	389	2
IS 290	Intermittent Stream	0.061	889	3
	<b>Intermittent Stream Total</b>	<b>9.741</b>	<b>115369</b>	
SSOW 1		0.003	71	2
	<b>Seep-Spring Other Waters Total</b>	<b>0.003</b>	<b>71</b>	
	<b>Other Waters Total</b>	<b>10.276</b>	<b>134527</b>	

Summary of Waters of the United States -- Non-Jurisdictional Wetlands					
<i>Non-Jurisdictional Wetlands</i>					
Label		Name	Acres (ac)	Length (ft)	Width (ft)
NJIP	1	Non-Jurisdictional Intermittent Pool	0.004	38	
NJIP	2	Non-Jurisdictional Intermittent Pool	0.008	41	
NJIP	3	Non-Jurisdictional Intermittent Pool	0.025	121	
NJIP	4	Non-Jurisdictional Intermittent Pool	0.004	18	
NJIP	5	Non-Jurisdictional Intermittent Pool	0.016	41	
NJIP	6	Non-Jurisdictional Intermittent Pool	0.018	80	
Non-Jurisdictional Intermittent Pool Total			0.074	339	
NJSSW	1	Non-Jurisdictional Seep-Spring Wetland	0.009	55	
Non-Jurisdictional Seep-Spring Wetland Total			0.009	55	
NJVD	1	Non-Jurisdictional Vegetated Ditch			
NJVD	2	Non-Jurisdictional Vegetated Ditch	0.002	27	4
Non-Jurisdictional Vegetated Ditch Total			0.002	27	
<b>Non-Jurisdictional Wetlands Total</b>			<b>0.085</b>	<b>421</b>	

Summary of Waters of the United States -- Non-Jurisdictional Other Waters					
<i>Non-Jurisdictional Other Waters</i>					
Label		Name	Acres (ac)	Length (ft)	Width (ft)
NJES	1	Non-Jurisdictional Ephemeral Stream	0.002	86	1
NJIP	2	Non-Jurisdictional Ephemeral Stream	0.006	137	2
NJIP	3	Non-Jurisdictional Ephemeral Stream	0.002	83	1
Non-Jurisdictional Ephemeral Stream Total			0.010	306	
NJNVD	1	Non-Jurisdictional Non-Vegetated Ditch	0.008	331	1
NJNVD	2	Non-Jurisdictional Non-Vegetated Ditch	0.026	395	1
NJNVD	3	Non-Jurisdictional Non-Vegetated Ditch	0.022	115	8
NJNVD	4	Non-Jurisdictional Non-Vegetated Ditch	0.012	503	1
NJNVD	5	Non-Jurisdictional Non-Vegetated Ditch	0.002	92	1
NJNVD	6	Non-Jurisdictional Non-Vegetated Ditch	0.003	141	1
NJNVD	7	Non-Jurisdictional Non-Vegetated Ditch	0.010	218	2
Non-Jurisdictional Vegetated Ditch Total			0.083	1795	
<b>Non-Jurisdictional Other Waters Total</b>			<b>0.093</b>	<b>2101</b>	

## **Appendix D**

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### **Significant Nexus Evaluation**

# MOODY FLATS QUARRY PROJECT

## Significant Nexus Analysis

### Ephemeral Stream

SIGNIFICANT NEXUS CATEGORY	WATER RESOURCE VALUE	COMMENTS
Floodflow storage or conveyance	Minimal value	These features may periodically provide conveyance of waters shed from adjacent slopes.
Groundwater recharge and discharge	None	Features are ephemeral in nature and stop flowing when rain stops.
Wave and erosion attenuation	None	Not applicable to these features
Sediment capture	None	Not applicable to these features
Pollutant filtering	None	Not applicable to these features
Fish and shellfish production	None	Not applicable to these features
Waterfowl and shorebird habitat	None	Not applicable to these features
Biochemical cycling	None	Not applicable to these features

### Intermittent Pools

SIGNIFICANT NEXUS CATEGORY	WATER RESOURCE VALUE	COMMENTS
Floodflow storage or conveyance	Minimal value	These features do not show evidence of water conveyance. The capacity of these pools is less than 0.1 acre and would not contribute significantly to flood storage.
Groundwater recharge and discharge	Minimal value	Localized recharge is minimal.
Wave and erosion attenuation	None	Not applicable to these features
Sediment capture	None	Not applicable to these features
Pollutant filtering	None	Not applicable to these features
Fish and shellfish production	None	Not applicable to these features
Waterfowl and shorebird habitat	None	Not applicable to these features
Biochemical cycling	None	Not applicable to these features

## Non-Vegetated Ditch

SIGNIFICANT NEXUS CATEGORY	WATER RESOURCE VALUE	COMMENTS
Floodflow storage or conveyance	Minimal value	These features may periodically provide conveyance of waters shed from adjacent slopes.
Groundwater recharge and discharge	None	Features are ephemeral in nature and stop flowing when rain stops.
Wave and erosion attenuation	None	Not applicable to these features
Sediment capture	None	Not applicable to these features
Pollutant filtering	None	Not applicable to these features
Fish and shellfish production	None	Not applicable to these features
Waterfowl and shorebird habitat	None	Not applicable to these features
Biochemical cycling	None	Not applicable to these features

## Vegetated Ditch

SIGNIFICANT NEXUS CATEGORY	WATER RESOURCE VALUE	COMMENTS
Floodflow storage or conveyance	Minimal value	These features may periodically provide conveyance of flood waters
Groundwater recharge and discharge	Minimal value	Localized recharge is minimal.
Wave and erosion attenuation	None	Not applicable to these features
Sediment capture	Minimal	Due to the slight gradient, this feature may accumulate sediment run off from the adjacent uplands.
Pollutant filtering	Minimal value	May have some value in filtering pollutants (e.g., road runoff) as it flows through the drainage, but features are too small to significantly contribute to pollutant filtering
Fish and shellfish production	None	Not applicable to these features
Waterfowl and shorebird habitat	None	Not applicable to these features
Biochemical cycling	None	Not applicable to these features

## Seep-Spring Wetland

<b>SIGNIFICANT NEXUS CATEGORY</b>	<b>WATER RESOURCE VALUE</b>	<b>COMMENTS</b>
Floodflow storage or conveyance	None	Non applicable to this feature
Groundwater recharge and discharge	Minimal value	Localized recharge is minimal.
Wave and erosion attenuation	None	Not applicable to this feature
Sediment capture	Minimal	Due to the slight gradient, vegetation within this feature may accumulate sediment run off from the adjacent uplands.
Pollutant filtering	Minimal value	Not applicable in this feature
Fish and shellfish production	None	Not applicable in this feature
Waterfowl and shorebird habitat	None	Not applicable in this feature
Biochemical cycling	None	Not applicable in this feature