Appendix H-2

Wetland Delineation

Teichert Boca Quarry

Wetlands and Other Waters

Prepared for

Teichert Aggregates
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Summary

This report describes wetlands and other waters that are found within the Teichert Boca Quarry Project Site, a study area of 230 acres in eastern Nevada County, California. The quarry project will occur within a 158-acre portion of this site but will not directly affect any surface waters or wetlands.

The determination of wetland areas was carried out according to the 1987 Corps of Engineers Wetlands Delineation Manual and 2010 Regional Supplement for Western Mountains, Valleys, and Coast. Areas of concave (valley-shaped) topography were evaluated according to the language provided in 33 CFR 328. Interpretation of jurisdictional status considered the extent of Clean Water Act jurisdiction as determined by decisions of the U.S. Supreme Court and as implemented by the Corps through the process of "approved jurisdictional determinations."

The following areas of features meeting the three-parameter definition of wetlands, and other surface waters, were found within the study area:

Riverine	
Perennial Channel:	0.148
Palustrine (Pond)	
Perennial Pond:	0.658
Palustrine (Wetlands)	
Montane Riparian:	0.077
Freshwater Emergent Wetland	0.072
Montane Meadow/Montane Riparian	0.351
Total:	**1.306 acres**

Examination of downslope areas off site revealed that the waters and wetlands found within the study area are hydrologically contiguous (via a culvert) with an off-site wetland on the south side of Interstate 80, but there is no surface water or wetland connection between that off-site wetland and the Truckee River, which is the nearest navigable (and interstate) water. The site boundary is approximately 550 feet from the nearest point on the bank of the Truckee River, but the downslope terminus of the off-site wetland is about 1,800 feet away from the river in a direct line (and probably further along the pathway that either surface or groundwater would follow to arrive at the river). Therefore, this report concludes that the wetlands and waters found within the site are neither tributary to, nor adjacent to, the Truckee River. Being isolated waters, they are excluded from federal Clean Water Act jurisdiction. However, they are waters of the State of California, which include both isolated and adjacent/tributary waters and wetlands.

1 INTRODUCTION

Contact Information

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1.1 Site Information

Location

Nevada County, east of Truckee, USGS Boca quadrangle Sections 26 and 27, T 18 N, R 17 E (Figure 1).

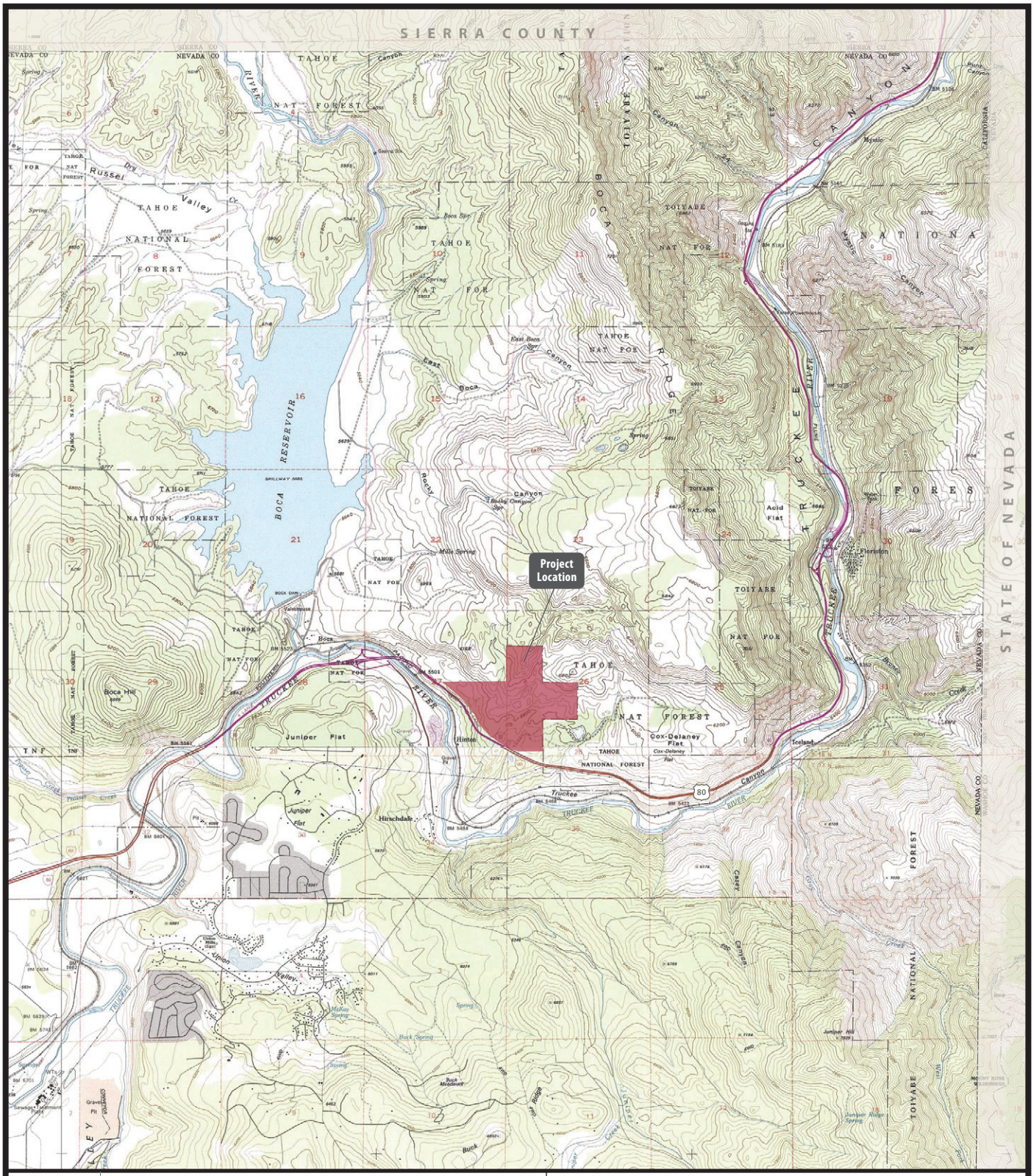
Latitude/longitude (center of site): approximately 39.380 North, (-)120.066 West (NAD 83).

Driving Directions from Sacramento:

Travel Interstate 80 east past Truckee to Hirschdale exit, then turn right and take Glenshire Drive 0.2 mile, veer left onto Hirschdale Road, continue through community, cross river, turn left at sign "Quarry," go under I-80 and proceed to project gate. The access road described above is for light vehicle access only; commercial truck access to the quarry is from the west.

General Description

The study area is 258 acres, at an elevation of 5,700 to 6,200 feet above mean sea level. Vegetation is mostly antelope bitterbrush shrubland, with areas of Jeffrey pine/bitterbrush association and curl-leaf mountain mahogany (Sawyer et al., 2009). The site is very rocky, and the ground surface in significant portions of areas that appear vegetated in the aerial photograph is mostly gravel or coarser rock fragments including outcrops of solid bedrock. Approximately eight acres of the site is simply bare rock or talus. Terrain is very steep over much of the area, with some areas of gentler slopes (<2:1) and a few small depressions. An existing permitted aggregate mining operation is present in the eastern part of the study area.



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Teichert Boca Quarry Wetlands and Other Waters

Figure 1: Project Location

0 0.5 1.0 1.5 2.0

Scale 1 : 63,360 (1 in = 1 mile)

N

2 METHODS

2.1 Background Information

Preliminary wetland mapping was obtained from the US Fish and Wildlife Service National Wetlands Inventory via the on-line Wetlands Mapper application (USFWS, 2009; included NWI figure was downloaded in 2012). Information on soils was obtained from the Web Soil Survey on-line application (NRCS, 2009) and the soil survey of the Tahoe National Forest Area (USDA, 1994). Climatic information was obtained from the Western Regional Climate Center (WRCC).

Teichert Aggregates provided aerial photography and topographic base mapping at five foot contour intervals.

2.2 Field Methods

Field work was carried out according to the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987) and Regional Supplement for Western Mountains, Valleys, and Coast (ERDC, 2010). Features such as the bottoms of topographic valleys within the study area that might include candidate waters of the U.S. were determined and delineated according to the language of 33 CFR 328 and Lichvar and McColley (2008).

Field work within topographic valleys was carried out on numerous dates between 2006 and 2011, by Dr. Adrian Juncosa. Most of the wetland delineation data points were studied on May 29, 2012; a few were studied in July to allow time for one possibly significant species of *Senecio* to grow sufficiently for accurate identification. Areas that meet all three of the mandatory wetland criteria under normal circumstances were mapped as wetlands. Specific field methods that were applied to the determination of each of the criteria within the study area are described below.

2.2.1 VEGETATION

Plant species were identified almost entirely on sight or, as necessary, by microscopic examination of specimens, according to keys and nomenclature of The Jepson Manual, 2nd edition (Baldwin et al., 2012). The generic names of many plants that are on the national wetland plant list (see below) are different from the ones that are now found in The Jepson Manual and the Flora of North America North of Mexico. Scientific names provided in this report include generic equivalence in such cases.

Estimates of plant cover were made visually, aided by cover percentage diagrams provided in CNPS (2007).

Wetland indicator status assignments were made according to current National Wetland Plant List (version 2.4.0; Lichvar and Kartesz, 2009). This delineation report uses the shorthand found in the National List, as follows:

OBL	obligate (almost always found within wetlands)
FACW	facultative-wetland (generally, but not always, found within wetlands)
FAC	facultative (found equally within and outside wetlands)
FACU	facultative-upland (generally not, but may be, found within wetlands)
UPL	upland (rarely found within wetlands)

2.2.2 SOILS

Soils were studied by means of test pits excavated by hand to depths of 11-16 inches. At some data points, soils included a very high proportion of rocks; in some cases, the landscape seemed to be almost purely fractured bedrock with some soil in the interstices. Test pit excavations were limited at these locations. Determination of the presence/absence of hydric soils field indicators was made on the basis of NRCS (2006) and ERDC (2010).

2.2.3 HYDROLOGY

Observations were made both during the season when wetland hydrology could be directly observed, and shortly afterward. After surface and near-surface hydrology was no longer observable, the presence of wetland hydrology field indicators was recorded as indicated in the Regional Supplement.

2.2.4 NON-WETLAND SURFACE WATERS

Non-wetland waters were judged to occur where unvegetated surface water, or surface water vegetated by floating aquatics, was present. Where algal mats were observed above the water level, these were judged to represent the ordinary high water mark (OHWM).

The language of 33 CFR 328 and Lichvar and McColley (2008) was applied to the determination of whether the lowest declivity in any of the topographic valleys on site constituted a seasonal, intermittent, or ephemeral tributary. These methods entail observation of characteristics such as vertically incised banks in loamy substrates, scoured channel beds, elimination (by water flow) of terrestrial vegetation, water staining, and the nature of in-channel versus surrounding vegetation.

2.2.5 BOUNDARIES

The limits of delineated wetlands were determined at the point where the prevalence of vegetation changed from hydrophytic (dominated by FAC or wetter species, or with prevalence index of 3.0 or less) to non-hydrophytic (with 50 percent or fewer of the dominant species FAC or wetter, or with prevalence index of >3.0).

Boundaries of non-wetland surface waters were mapped at the OHWM.

2.2.6 SURVEY TECHNOLOGY

Boundaries were mapped using a Trimble GeoXH hand computer with GNSS (formerly and still widely referred to as GPS) satellite location capability. Boundary mapping was differentially corrected using publicly available base station data. Compared with other functionally similar units, the GeoXH provides better positional accuracy due to technology that allows differential correction using data from multiple (not just a single) base station simultaneously.

3 RESULTS

This chapter of the report includes information on the site's environmental setting and specific information on each of the mandatory wetland criteria (vegetation, soils, and hydrology), followed by a description of the wetlands and other waters of the U.S. that were delineated.

The NWI mapping is provided in Figure 2. NRCS soil survey mapping is shown in Figure 3. The delineation mapping is provided in Figure 4. A list of plant species relevant to the determination of wetlands and other waters is provided in Table 1, and acreages of delineated features are provided in Table 2. Additional results are found in the appendices as follows:

Appendix A: photographs of wetlands and areas of concave (valley-shaped) topography.

Appendix B: wetland determination data forms.

3.1 Wetland Criteria

3.1.1 VEGETATION

Plant species that were observed in the delineated wetlands and nearby upland data points are listed in Table 1.

In order to minimize potential confusion with other reports pertaining to the Teichert Boca Quarry project, the wetlands and waters described in this report are named as in the biological inventory report (Juncosa, 2009). However, to provide additional information about specific wetland communities, the following crosswalk is provided. Descriptions of the plant communities of the wetlands are provided in section 3.2.

Nevada County Natural Resources Report	**Manual of California Vegetation Second Edition**	**Cowardin System, Class, and Type**
Perennial Pond	n. a.	Palustrine - Unconsolidated Bottom - Perennial
Perennial Channel	n. a.	Riverine - Unconsolidated Bottom - Perennial
Montane Riparian	*Populus tremuloides* forest *Salix lucida (lasiandra)* woodland *Salix lemmonii* shrubland *Salix geyeriana* shrubland	Palustrine - Scrub/Shrub Wetland - Broad-leaved Deciduous
Freshwater Emergent Wetland	*Carex nebrascensis* alliance *Juncus arcticus (*var. *balticus)* alliance	Palustrine - Emergent Wetland - Persistent
Montane Meadow	*Carex douglasii* provisional alliance *Hordeum brachyantherum* alliance	Palustrine - Emergent Wetland - Persistent

Table 1. Plant species observed at wetland determination data points and within wetlands or other waters. Status is from 2012 National Wetland Plant List, Western Mountains, Valleys, and Coast. Plants not listed in that source were assigned UPL status.

Scientific Name	Common Name	Wetland Status	Comments
Achillea millefolium	yarrow	FACU	
Artemisia ludoviciana ssp. *ludoviciana*	silver wormwood	FACU	
Bromus tectorum	cheat grass	UPL	
Carex douglasii	Douglas's sedge	FAC	Co-dominant in Montane Meadow.
Carex nebrascensis	Nebraska sedge	OBL	Dominant in wetland by channel.
Carex rossii	Ross's sedge	UPL	
Cirsium vulgare	common thistle	FACU	
Drymocallis (Potentilla) glandulosa	sticky cinquefoil	FAC	
Elymus glaucus	blue wild-rye	FACU	
Epilobium brachycarpum	willowherb	UPL	
Ericameria nauseosa ssp. *hololeuca*	white rabbitbrush	UPL	
Gayophytum diffusum ssp. *parviflorum*	groundsmoke	UPL	
Hordeum brachyantherum	meadow barley	FACW	Co-dominant in Montane Meadow.
Juncus arcticus (balticus)	arctic (Baltic) rush	FACW	
Juncus ensifolius	sword-leaved rush	FACW	Adjacent to and within channel.
Lemna minuta	duckweed	OBL	Within channel.
Lupinus lepidus	dwarf lupine	UPL	
Mimulus guttatus	monkeyflower	OBL	Adjacent to and within channel.
Nasturtium officinale	water cress	OBL	Adjacent to and within channel.
Persicaria (Polygonum) amphibia	water smartweed	OBL	Within pond.
Pinus jeffreyi	Jeffrey pine	UPL	
Poa pratensis	Kentucky blue-grass	FAC	
Populus tremuloides	quaking aspen	FACU	In Montane Riparian by pond.
Potentilla biennis	biennial cinquefoil	FACW	
Prunus virginiana var. *demissa*	western choke cherry	FACU	
Purshia tridentata	antelope bitterbrush	UPL	
Rosa woodsii ssp. *ultramontana*	interior wild rose	FACU	
Rumex crispus	curly dock	FAC	
Salix geyeriana	Geyer's willow	OBL	Montane Riparian.
Salix lasiandra	Pacific willow	FACW	Montane Riparian by site boundary.
Salix lemmonii	Lemmon's willow	FACW	In Montane Riparian by pond.
Scirpus microcarpus	small-fruited bulrush	OBL	Adjacent to and within channel.
Senecio serra var. *serra*	tall ragwort	FACU	Outside edge of MM/MR wetland.
Taraxacum officinale	common dandelion	FACU	
Urtica dioica ssp. *holosericea*	stinging nettle	FAC	Mostly found just outside wetlands.
Verbascum thapsus	woolly mullein	FACU	
Veronica americana	speedwell	OBL	In channel, mostly within OHWM.

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Teichert Boca Quarry
Wetlands and Other Waters

Figure 2. National Wetlands Inventory

N

0 400 800 1200 1600

Scale 1 : 9,600 (1 in = 800 ft)

Legend

- Freshwater Emergent (off site only)
- Freshwater Forested/Shrub
- Freshwater Pond
- Other

3.1.2 SOILS

Results from Soil Survey

The Project Area is located on the eastern flank of the Sierra Nevada Mountains in the northern High Sierra Nevada district of the California Floristic Province. It is within Climate Zone 2 and is characterized by winter cold and a frost-free season of only 20-30 days, so all of the soils types are characterized as "frigid."

The following soil map units occur within the project area, in order of decreasing area (Figure 2):

Kyburz-Rock Outcrop-Trojan complex, 2 to 30 and 30 to 50 percent slopes

Cinder land-Sierraville-Kyburz complex, 30 to 50 percent slopies

Rubble-Lang-Jorge complex, 30 to 75 percent slopes

Sierra-Trojan-Kyburz complex, 2 to 30 percent slopes

Kyburz-Aldi variant-Jorge complex, 30 to 50 percent slopes

As is evident from this list, the area is pedologically complex and the topography is mostly very steep. None of the soil series are hydric or are noted as having hydric inclusions.

Kyburz series is the soil type that occurs over most of the project area, specifically in the lower part of the site. This soil is derived from volcanic rock and lake sediments, relatively highly weathered; the series is classified as Ultic Haploxeralfs. The upper (A and B) horizons of these soils are sandy loams containing 15 to 20 percent gravel or cobble, and becoming increasingly acid below (down to pH of 5.0). Fractured andesite is encountered at a relatively shallow depth (34 inches in the typical profile).

Sierraville series soils consist of fine montmorillonitic stony sandy loams derived from basic volcanic rocks, and are also classified as Ultic Haploxeralfs. They differ from Kyburz soils primarily in being deeper to bedrock, less acidic, and in lacking the component of lake-derived material. Rock content is similar.

Trojan series soils are also much deeper than Kyburz and differ from both of the preceding types in being mollisols (specifically, Ultic Argixerolls) and having much lower content of stones. Trojan soils are derived from both basaltic and andesitic volcanic rocks, specifically from breccias, which are usually a mixture of igneous rock types. As a mollisol, Trojan soils have a deeper A horizon than the other two main soils of the project area, with organic material well distributed throughout by the action of burrowing rodents.

Jorge series soils occur in a complex with exposed rock (talus) covering the upper slopes of the mining area. Being formed from volcanic flow rocks, they are skeletal sandy loams (also Ultic Haploxeralfs) with chemistry that is slightly acid at the surface to strongly acid at depth. Rock content may be less than 20 percent near the surface but is typically about 50 percent throughout most of the profile.

Aldi variant occurs as part of a complex found primarily at the extreme western tip of the site. Aldi variant soils are moderately deep, well drained soils that are classified as Ultic Argixerolls. Depth to soft (uncemented) lake sediments is 20 to 40 inches.

Cinder, rubble, and rock outcrop land coverage represents exposed volcanic material of textures varying from porous to talus to monolithic outcrops.

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Teichert Boca Quarry
Wetlands and Other Waters

Figure 3. Soils Map

N

0 400 800 1200 1600

Scale 1 : 9,600 (1 in = 800 ft)

Legend

- Kyburz-Rock Outcrop-Trojan Complex, 2-30 percent slopes
- Kyburz-Rock Outcrop-Trojan Complex, 30-50 percent slopes
- Sierraville-Trojan-Kyburz Complex, 2-30 percent slopes
- Cinder land-Sierraville-Kyburz Complex, 30-50 percent slopes
- Rubble land-Jorge Complex, 30 to 75 percent slopes
- Kyburz-Aldi variant-Jorge Complex, 30 to 50 percent slopes

Field Observations

Data points within wetlands generally had soils with high organic content based upon color, mucky feel, and/or very low bulk density which is typical of organic soils in the project region. Other hydric soils field indicators were not always found. Points in nearby uplands exhibited moderately high chroma soils (wet chroma usually 3, sometimes 2) without redoximorphic features. Soils at some data points had much higher rock content at the surface than is expressed in the soil series descriptions; in some cases >50 percent by volume, making excavation of test pits difficult.

3.1.3 HYDROLOGY

The long-term (50-year) average annual precipitation for the nearest recording station (Boca; NWS ID 040931) is 22.27 inches for the period of record 1906-2012 (WRCC, 2012).

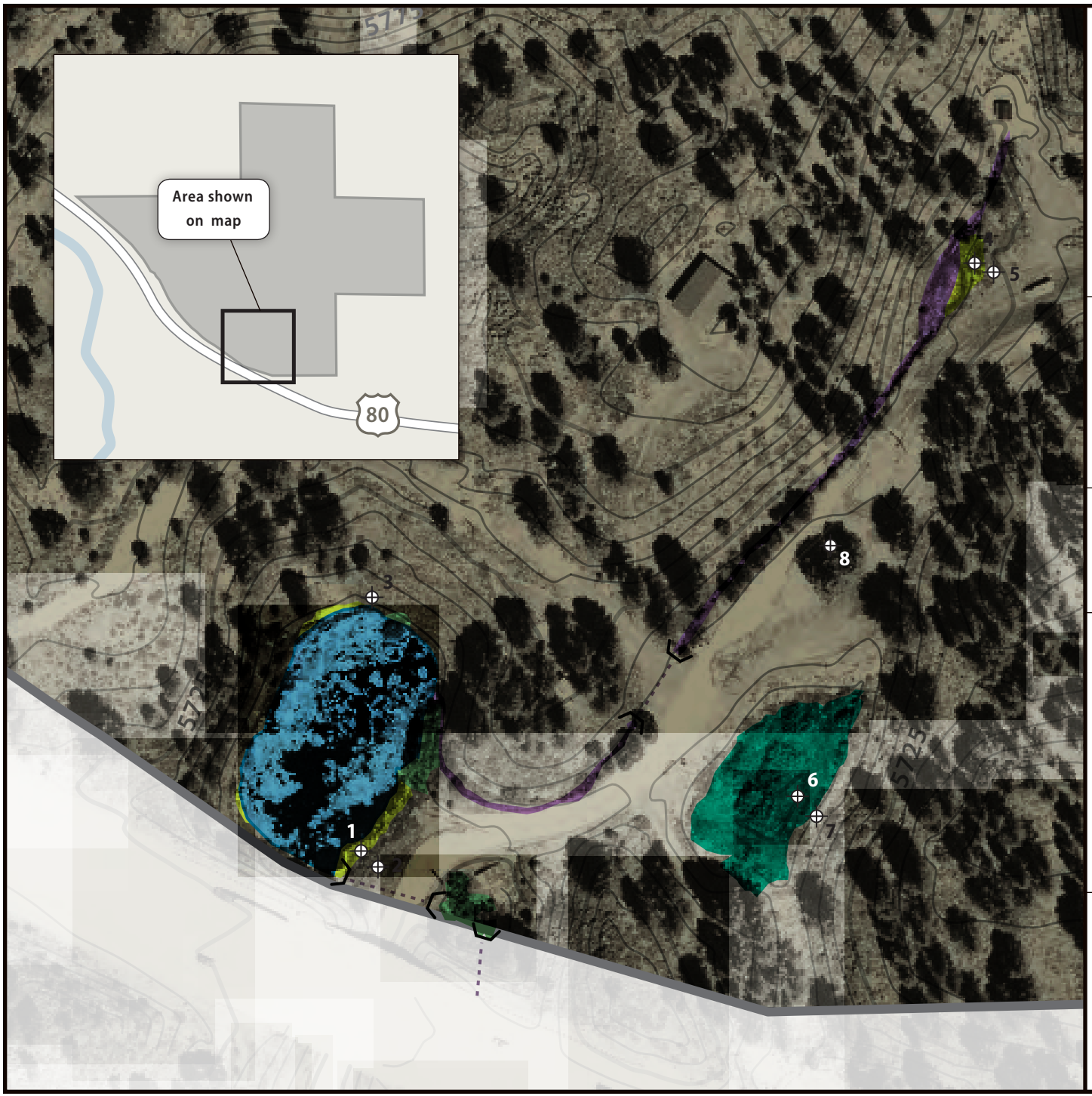
The project site lies to the east of Truckee, within the rain shadow of the Sierra Nevada crest but also still within the zone of orographic (elevationally-driven) precipitation. Approximately 86 percent of the total average annual precipitation arrives in the months October through April (WRCC, 2009); thus, outside the growing season. Both as a proportion and in absolute terms, the average amount of summertime precipitation is even lower than the amount of summertime precipitation in the intermountain sagebrush and salt deserts to the east, but with a colder overall climate. Precipitation in the wet season prior to the delineation work was somewhat lower than average (probably about 70 percent), but all wetland units found on site are characterized by long-lived woody or perennial herbaceous species which remained vigorous nonetheless, so the sub-average precipitation did not affect any wetland determinations or boundary delineations.

3.2 Types of Wetlands and Waters Observed

Wetlands and other waters of the U.S. are described and grouped according to Cowardin categories (riverine, lacustrine, and palustrine).

Table 2. Summary of wetlands and other surface waters delineated at the Teichert Boca Quarry site. Both the pond and spring outflow channel include some narrow areas of emergent wetland, not delineated separately.

Riverine	
Perennial Channel:	0.148
Palustrine (Pond)	
Perennial Pond:	0.658
Palustrine (Wetlands)	
Montane Riparian:	0.077
Freshwater Emergent Wetland	0.072
Montane Meadow/Montane Riparian	0.351
Total:	**1.306 acres**



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Teichert Boca Quarry
Wetlands and Other Waters

Figure 4. Wetlands and Other Waters

N

0 100 200 300 400

Scale 1 : 2,400 (1 in = 200 ft)

Legend

- Perennial Channel
- Perennial Pond
- Montaine Meadow/Montaine Riparian
- Freshwater Emergent Wetland
- Montaine Riparian
- Data Point
- Culvert

Notes

Wetlands and other waters shown on this map are waters of the State of California but not waters of the United States. See text for additional discussion.

3.2.1 RIVERINE WATERS

Channel

This feature conveys spring water to the pond. It may have been entirely constructed many years ago, or may be a natural channel that has been improved. Regardless of its history, it is a relatively permanent existing feature, and the water that flows in it is from "natural" hydrology: it is not pumped or actively diverted, requiring annual or other regular human action (such as opening a gate valve). Standard regulatory practice is that features supported by natural hydrology are not regarded as irrigated and are not subject to any exclusions from jurisdiction on that basis. Some non-persistent floating and emergent vegetation is present within the channel (below the OHWM), but it is primarily an unvegetated feature.

3.2.2 LACUSTRINE WATERS

Perennial Pond

The channel discharges into a perennial pond whose water level fluctuates from season to season. When the water level is high enough (most of the year), the pond drains out through a culvert under the road, to a wetland area on the east side (see below). The infiltration rate of the bed of this pond is obviously very high, because the outflow through the culvert is visibly much less than the spring flow at the upper end of the channel. The highest pond water levels occur if and when the outflow culvert is blocked by ice. In the early growing season of 2012, for example, remains of algal mats were visible some 0.5 to 1.0 ft above the observed water level of the pond, but still much lower than the elevation of the adjacent uplands. Around most of the circumference of the pond, there is no adjacent wetland that occurs higher than the highest (ice-dammed) OHWM, but several small adjacent wetlands occur, which were mapped separately and are described below.

3.2.3 WETLANDS

Freshwater Emergent Wetland

This wetland type includes seasonally or perennially saturated herbaceous FACW and OBL wetland communities adjacent to the two types of non-wetland waters described above, abutting the OHWM. The emergent marsh vegetation adjacent to the pond is comprised almost exclusively of arctic (Baltic) rush, whereas the marsh adjacent to the channel is mostly Nebraska sedge.

Montane (Woody) Riparian Scrub and Woodland

This wetland type occurs in two patches adjacent the the pond, and in a depression on the east side of Hinton Road that is supported hydrologically by the discharge from the pond's outflow culvert. Vegetation of this latter riparian area is dominated by Pacific willow. The two riparian thickets adjacent to the pond are dominated by Lemmon's willow and by quaking aspen, respectively. Although aspen is a FACU (non-hydrophytic species), distinct hydrophytic adaptation (spongy roots) was observed within the aspen grove, along with hydrophytic species and unequivocal field indicators of wetland hydrology and soils. Accordingly, this area seemed to merit mapping as riparian wetland.

Montane Meadow/Montane Riparian Scrub

This isolated topographic depression east of Hinton Road supports a mosaic of wet meadows with patches of willow scrub (slightly more area of the former). The herbaceous vegetation is quite patchy, with some areas dominated by Douglas's sedge; others by meadow barley; others by arctic (Baltic) rush. All of these species are hydrophytic, as are most of the non-dominant species present.

This feature appears possibly to have been excavated in the very distant past, for what reason we have no information. There is neither an inflow nor outflow channel or culvert, although the fine soil particles that are mixed in the organic soil seem to be slightly stratified, which indicates that sheet flow bearing fine sediment enters the depression from time to time. Regardless of its origin, it is a permanent feature and meets all three mandatory wetland criteria.

3.3 Valleys

Several topographic valleys are found within the study area. The lowest line of all of the valleys was examined on foot over the entire length, in search of indicators that any of them might constitute a tributary water of the State of California or of the U.S. Such indicators include the characteristics noted in the original implementing regulations of the Clean Water Act (33 CFR 328):

- clear, natural line impressed on the bank;
- shelving (vertically incised bank);
- changes in the character of soil (such as erosion of fines leaving coarser textured material in the channel bed);
- destruction of terrestrial vegetation;
- the presence of [water-borne] litter and debris.

Other features that are alluded to in the general verbiage of "other appropriate means" might include water staining (visible concentrations of blue-green bacteria which generally appear blackish or brownish) and removal or alteration of the oxidized coloration of rocks within a water body.

The presence of any of these characteristics, especially in a drainage feature that exhibits one or more of them continuously over most or all of its length, tends to indicate that a topographic flowline might be a seasonal or ephemeral water course and thus a tributary water of the State or U.S.

No characteristics that are indicative of surface water flow were observed in any of the topographic valleys in the Project Site (entire study area - both within and outside the proposed project footprint). The valleys on site include extensive expanses of talus blocks and areas of forest and pine-bitterbrush scrub with no defined flow line at all. Photographs are provided in Appendix A.

3.4 Jurisdictional Status

This section provides observations made on or near the study site that are relevant to judgments about the jurisdictional status of surface waters and wetlands that are found within the study area.

3.4.1 FEDERAL CLEAN WATER ACT

Regulatory Background

Summarized briefly, current legal interpretation of the Clean Water Act specifies that the following categories of surface water features (including wetlands) fall under federal jurisdiction:

- navigable waters that are interstate or flow to territorial seas;
- tributaries thereof that are perennial or reasonably permanent;
- tributaries that otherwise have a significant nexus with water quality of a navigable interstate water or tributary; and
- wetlands that directly abut or are hydrologically adjacent to other jurisdictional features, determined as stated above.

Isolated wetlands or other waters are excluded from Clean Water Act jurisdiction by virtue of the "SWANCC" decision of the U.S. Supreme Court decided on January 9, 2001 (Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers et al.). In practice, wetlands or other waters located more than 100 feet from jurisdictional waters, and not periodically connected to the latter during periods of high flow, are generally treated as isolated.

A subsequent Supreme Court decision ("Rapanos" decision of June 19, 2006; Rapanos et ux., et al. v. United States) resulted in the creation of a regulatory distinction between tributaries of undisputed jurisdictional waters that flow only briefly or have no significant nexus with the water quality of the downstream jurisdictional receiving water, and those that are "reasonably permanent" (flow for about three or more months annually) or otherwise have significant nexus with water quality of the jurisdictional water downstream.

Site Observations

The nearest interstate water is the Truckee River, which flows on the south side of I-80 (side away from the project site) and passes within about 550 feet of the site at the point of closest approach. The Truckee River is a navigable-in-fact traditional navigable water from the Lake Tahoe weir in California to the river's termination in Pyramid Lake in Nevada.

There is no surface water tributary between the delineated waters and wetlands of the project site and the Truckee River; neither perennial, nor reasonably permanent, nor any kind of ephemeral tributary that is distinguishable by the means identified in 33 CFR 328 or in Lichvar and McColley (2008). There is also no continuous connecting feature that exhibits even one of the three mandatory wetland criteria. There is an off-site wetland immediately on the south side of I-80, but this is also separated from the Truckee River by a distance of approximately 1,800 feet.

Thus, the wetlands and other surface waters found on the Boca Quarry Project Site are isolated and therefore do not fall under Clean Water Act permitting jurisdiction as clarified by the SWANCC decision.

Wetlands and other waters found on site can be presumed to be waters of the State of California under the Porter-Cologne Water Quality Control Act, and would be subject to Nevada County policies pertaining to aquatic features such as ponds, wetlands, and riparian areas.

Permitting

Since there are no waters of the U.S. on site, no Clean Water Act permitting is required for any project actions.

The proposed project's "Ultimate Disturbed Area," including both past and proposed mining and mining-related surface disturbance, does not extend into any delineated non-jurisdictional waters or wetlands. Therefore, even in the unlikely event that Clean Water Act regulations change during the project lifetime, no Section 404 permit would be required to implement or complete the project and its reclamation.

3.4.2 STATE OF CALIFORNIA

The Porter-Cologne Water Quality Control Act (Chapter 2, Definitions, §13050) defines waters of the State of California as including all surface and ground waters within the state. Analogously with the Clean Water Act definitions, wetlands of all kinds are considered to be surface waters. In practice, wetlands that are waters of the State are delineated using the Corps delineation methodology (1987 Manual and regional supplements), but isolated and non-RPWs are not excluded. Accordingly, all of the wetlands and surface waters shown in Figure 4 of this report would be waters of the State.

Regulation of actions that affect waters of the state either directly in the form of excavation or discharge of fill material or indirectly via point- or non-point-source discharges of solids or water is empowered by the Porter-Cologne Act and implemented by the State Water Resources Control Board via the nine Regional Water Quality Control Boards which establish applicable policies in their Basin Plans.

With regard to direct impacts, the Boca Quarry project will not result in excavation or discharge of fill within any water of the State, so no permitting of such actions is necessary.

3.4.3 NEVADA COUNTY

Policies pertaining to the protection of wetlands and water courses are adopted in the Nevada County General Plan. Details of implementation are provided in the Zoning Ordinance. Section L-II 4.3.17 of the latter requires a habitat management plan for fills within or construction within 100 feet of perennial surface waters, wetlands, riparian areas, or within 50 feet of seasonal water courses.

The conceptual outline of the project's ultimate disturbed area comes within 100 feet of a perennial surface water (the spring outflow channel), and roads that are currently used for site access by light vehicles also pass within 100 feet of delineated perennial waters and/or wetlands and riparian areas. In the event that ground disturbance (excavation or placement of fill, including paving) were to occur within this 100-foot buffer distance, a habitat management plan would be required.

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Appendix A:

Photographs

Photo 1.
Perennial pond viewed from southwest. Pale algal mats represent OHWM when outflow culvert is blocked, presumably by ice. Bright green wetland vegetation is within OHWM. Some patches of Freshwater Emergent Wetland (Baltic/arctic rush) and clumps of Montane Riparian wetland scrub (Lemmon's willow, center of photo) abut the pond outside the OHWM, and an area of Montane Riparian woodland (aspen grove) is at right side of photo, between pond and channel.

Photo 2.
Perennial channel (outflow from spring) with emergent wetland above and below level of OHWM. Sedge wetland outside OHWM is perennially saturated with the seasonal water level varying from the soil surface down to (probably) about 4 inches below the surface in the late summer and autumn, when spring flows are reduced. Pale green non-persistent floating aquatic vegetation is duckmeat (*Spirodela polyrhiza*).

Photo 3.
Montane Riparian vegetation (*Salix lasiandra*) in wetland supported by culverted outflow from Perennial Pond. A narrow area of long-seasonal flow, in shadow, occurs between the outfall of the pond culvert (barely visible at lower right corner) and the inlet of another culvert that drains under I-80 to an isolated off-site wetland (see report Figures 2 and 4).

Photo 4.
Mixed Montane Meadow and Montane Riparian scrub (*Salix geyeriana*) in isolated depression. Herbaceous vegetation is dominated in a mosaic by *Carex douglasii* and *Hordeum brachyantherum,* with much lesser proportions of *Juncus balticus (arcticus)*, *Poa pratensis,* and *Potentilla biennis*. The tall coarse herb is *Senecio serra* (FACU), of which a few plants occur within the wetland. Additional meadow occurs to the left of the willows on the left side of the photo.

Photo 5.
Topographic valley immediately (about 20 feet) upslope from the perennial spring, with no water-borne debris, sediment deposits, or scouring of the lowest part of the valley. This spot would have been expected to be the single most likely place for evidence of a seasonal or ephemeral tributary to be found, but no such evidence could be found anywhere in the valley. The white patch in the photograph, taken in May, is a melting snowbank.

Photo 6.
Same valley, a short distance up valley from Photo 5. Part of the bottom of this main valley may have been graded to make an access path or road at some point in the very distant past. Photo shows no flow in early May, lack of scouring of a definable channel (proportion of stones on surface is about the same at the lowest point and up the side slopes), persistence of fines and light debris, and growth of strictly upland plant species. All of these show that this feature is not a seasonal watercourse.

Photo 7.
Typical conditions in upper part of main topographic valley in center of site. Photograph was taken standing in the very bottom of the valley and shows extensive talus fields and highly permeable forest slopes that result in there being no surface flow through the valley.

Photo 8.
Further up the same main valley, also taken from a point at the bottom of the valley.

Photo 9.
Typical conditions in lower part of smaller valley to the west of the one shown in Photos 5-8. Soils are usually present albeit with many large and small rocks on the surface, none showing evidence of weathering by flowing water such as rounded edges or water staining. Fine debris and upland species such as bitterbrush, squirreltail grass, and Jeffrey pine are found at the very lowest point of the valley, where they would not be present if there were even occasional surface flow.

Photo 10.
Upper part of smaller valley; conditions are similar to those found in the largest valley of the site: extensive talus field filling the entire bottom of the valley. Material is much to porous to support surface flow.

Photo 11.
Typical conditions in lower gradient valleys in Jeffrey pine/bitterbrush vegetation. Valley slopes and bottom are soil, not talus, but with no flowline evident: no scouring (removal of fines or vegetative debris), water staining, or incision of the soil surface.

Photo 12.
Typical conditions in shrubland portions of smaller valleys in lower part of site: soil surface is much more rocky than in the woodland/savanna vegetation seen above. But there is still no evidence of surface flow occurring even occasionally.

Appendix B:

Wetland Determination Data Forms

EcoSynthesis
SCIENTIFIC & REGULATORY SERVICES INC

WETLAND DETERMINATION DATA FORM: *Western Mountains, Valleys and Coast Region*

Project/Site: Teichert Boca Quarry			Sampling Date: 5/29/12
Applicant/Owner: Teichert Aggregates			Sampling Point Number: 1
City/County: Nevada County		State: CA	Investigator(s): **Adrian Juncosa**
Section, Township, Range: Sect. 26, T 18 N R 17 E	Lat:39.37502 Long:120.06683	Datum: NAD 83	Subregion (LRR): C
Sampling Point Location: Juncus arct/balt patch adjacent to pond just outside algal mats			Landform: Terrace/hillslope
Soil Map Unit: Kyburz-Rock Outcrop-Trojan	NWI classification: PEMB	Slope (%): <2	Local relief: gentle slope
Climatic/hydrologic conditions typical for this time of year? ■ Yes ☐ No		Are ☐ Vegetation , ■ Soil , or ☐ Hydrology significantly disturbed?	
Are "Normal Circumstances" present? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology naturally problematic?	

SUMMARY OF FINDINGS

Hydrophytic vegetation present? ■ Yes ☐ No		Sampled area within a wetland? ■ Yes ☐ No	
Hydric soil present? ■ Yes ☐ No		Sampled area within other water of state? ☐ Yes ☐ No	
Wetland hydrology present? ■ Yes ☐ No			

Remarks This data point typifies other similar patches of Juncus arcticus/balticus that are adjacent to the pond at other points around the shoreline. See Soil section for discussion of disturbed soil.

VEGETATION

Tree Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			
Sapling/Shrub Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			
Herb Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Juncus arcticus/balticus	95	Y	FACW
Total cover	95		
Percent (%) bare ground in Herb Stratum	5		
Woody Vine Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			

Dominance Test worksheet:

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

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

Percent of dominant species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

% Total Cover

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) = _____ (B)

Prevalence Index: B/A = _____

Hydrophytic Vegetation Indicators:

■ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

■ Morphological Adaptations[1]

☐ Wetland Non-Vascular Plants[1]

☐ Problematic Hydrophytic Vegetation[1]

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

Hydrophytic vegetation present? ■ Yes ☐ No

Remarks Cover includes thatch from previous growing season, because this year's growth is just beginning. Many rhizomes have very spongy cortex.

Sampling Point Number: 1

SOIL

PROFILE DESCRIPTION

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					CoSaL	high organic content
10-16	mixed; see Remarks							

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

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

- ☐ Histosol (A1)
- ■ Histic Epipedon(A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) *(except MLRA 1)*
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (See Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches): none encountered

Hydric soil present? ■ Yes ☐ No

Remarks

Chroma of 0-10" layer is actually less than 1; high content of histic organic material alters soil color partway to Neutral. Mixed layer includes lenses of chroma 1-2, some clay of chroma 2-3, red volcanic cinders (from road bed work in distant past?), and charcoal. Nevertheless, upper portion of profile meets indicator A2.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ■ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9) *(except NW coast)*
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ■ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) *(LRR A)*
- ☐ Other (see Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) *(NW coast)*
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ■ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Frost-Heave Hummocks (D4)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) *(LRR A)*

Field Observations:

Surface Water Present?	☐ Yes ■ No	Depth (inches):	
Water Table Present?	☐ Yes ■ No	Depth (inches):	**Wetland hydrology present?** ■ Yes ☐ No
Saturation Present? (includes capillary fringe)	☐ Yes ■ No	Depth (inches):	

Remarks

Algal mat is present < 10 feet away horizontally and much less than 12 inches vertically from soil surface, so it can be inferred that saturation to within 12 inches of surface can be presumed to occur at times that pond water level is as high as the extent of algal mats.

EcoSynthesis
SCIENTIFIC & REGULATORY SERVICES INC

WETLAND DETERMINATION DATA FORM: *Western Mountains, Valleys and Coast Region*

Project/Site: Teichert Boca Quarry			Sampling Date: 5/29/12
Applicant/Owner: Teichert Aggregates			Sampling Point Number: 2
City/County: Nevada County		State: CA	Investigator(s): **Adrian Juncosa**
Section, Township, Range: Sect. 26, T 18 N R 17 E	Lat:39.37493 Long:120.06680	Datum: NAD 83	Subregion (LRR): C
Sampling Point Location: Upland vegetation 25 ft from D.P. 1 (Juncus patch).			Landform: hillslope
Soil Map Unit: Kyburz-Rock Outcrop-Trojan	NWI classification: n.a.	Slope (%): <2	Local relief: none
Climatic/hydrologic conditions typical for this time of year? ■ Yes ☐ No		Are ■ Vegetation , ■ Soil , or ☐ Hydrology significantly disturbed?	
Are "Normal Circumstances" present? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology naturally problematic?	

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	☐ Yes ■ No	Sampled area within a wetland?	☐ Yes ■ No
Hydric soil present?	☐ Yes ■ No	Sampled area within other water of state?	☐ Yes ☐ No
Wetland hydrology present?	☐ Yes ■ No		

Remarks

This data point typifies disturbed upland vegetation between pond and Hinton Road (access to site from Hirschdale). Vegetation includes some non-native weedy species, and soils include mixed materials which suggest that some disturbance occurred, probably when the road was built or improved many years ago. For data typical of undisturbed native upland data point, see D.P. 3.

VEGETATION

Tree Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			
Sapling/Shrub Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Pinus jeffreyi (seedling/sapling)	5	Y	UPL
Total cover			
Herb Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Bromus tectorum	12	Y	UPL
Achillea millefolium	10	Y	FACU
Lupinus lepidus	8	Y	UPL
Melilotus sp.	1	N	UPL
Verbascum thapsus	1	N	UPL
Taraxacum officinale	<1	N	FACU
Carex rossii	<1	N	UPL
Rumex crispus	<1	N	FAC
Total cover	33		
Percent (%) bare ground in Herb Stratum	67		
Woody Vine Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			

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 (A/B)

Prevalence Index worksheet:

	% Total Cover		
OBL species	0	x 1 =	
FACW species	0	x 2 =	
FAC species	<1	x 3 =	1
FACU species	10+	x 4 =	42
UPL species	27+	x 5 =	137
Column Totals:	38 (A)	=	180 (B)
Prevalence Index: B/A		=	4.7

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1]
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

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

Hydrophytic vegetation present? ☐ Yes ■ No

Remarks

Cover includes thatch from previous growing season, because this year's growth is just beginning (or, for annual species, may be minimal or zero in this year of low precipitation during the late spring). Bare ground is largely covered with thatch.

Sampling Point Number: 2

SOIL

PROFILE DESCRIPTION

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/3 mostly						SaL	mixed materials

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon(A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) *(except MLRA 1)*
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (See Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches): none encountered

Hydric soil present? ☐ Yes ■ No

Remarks

No field indicators of hydric soils. Mixed materials include mostly high-chroma sandy loam that appears to be the original soil, with some blobs of high organic, cinders, and some rocks. Road is 10-20 feet away, so there may have been some disturbance of the shoulder area during construction or improvement of the road bed.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9) *(except NW coast)*
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) *(LRR A)*
- ☐ Other (see Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) *(NW coast)*
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Frost-Heave Hummocks (D4)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) *(LRR A)*

Field Observations:

Surface Water Present?	☐ Yes ■ No	Depth (inches):
Water Table Present?	☐ Yes ■ No	Depth (inches):
Saturation Present? (includes capillary fringe)	☐ Yes ■ No	Depth (inches):

Wetland hydrology present? ☐ Yes ■ No

Remarks

No field indicators of wetland hydrology.

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WETLAND DETERMINATION DATA FORM: *Western Mountains, Valleys and Coast Region*

Project/Site: Teichert Boca Quarry			Sampling Date: 5/29/12
Applicant/Owner: Teichert Aggregates			Sampling Point Number: 3
City/County: Nevada County		State: CA	Investigator(s): **Adrian Juncosa**
Section, Township, Range: Sect. 26, T 18 N R 17 E	Lat:39.37566 Long:120.06677	Datum: NAD 83	Subregion (LRR): C
Sampling Point Location: North side of pond (undisturbed area), 10 ft upslope from OHWM.			Landform: hillslope
Soil Map Unit: Kyburz-Rock Outcrop-Trojan	NWI classification: n.a.	Slope (%): 5-10	Local relief: slope
Climatic/hydrologic conditions typical for this time of year? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology significantly disturbed?	
Are "Normal Circumstances" present? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology naturally problematic?	

SUMMARY OF FINDINGS

Hydrophytic vegetation present? ☐ Yes ■ No		Sampled area within a wetland? ☐ Yes ■ No	
Hydric soil present? ☐ Yes ■ No		Sampled area within other water of state? ☐ Yes ☐ No	
Wetland hydrology present? ☐ Yes ■ No			

Remarks This data point typifies undisturbed upland vegetation outside the pond. Stand is an expanse of shrubby vegetation on south-facing slope.

VEGETATION

Tree Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			
Sapling/Shrub Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Ericameria nauseosa ssp. hololeuca	10	Y	UPL
Purshia tridentata	1	N	UPL
Total cover	11		
Herb Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Bromus tectorum	20	Y	UPL
Artemisia ludoviciana ssp. ludoviciana	2	N	FACU
Verbascum thapsus	2	N	UPL
Carex (douglasii?)	1	N	FAC
Cirsium vulgare	1	N	FACU
Gayophytum diffusum ssp. parviflorum	<1	N	UPL
Total cover	26		
Percent (%) bare ground in Herb Stratum	74		
Woody Vine Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			

Remarks

Dominance Test worksheet:

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

Total number of dominant species across all strata: 2 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

	% Total Cover		
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	33	x 5 =	165
Column Totals:	37 (A)	=	180 (B)
Prevalence Index: B/A =			4.9

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1]
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

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

Hydrophytic vegetation present? ☐ Yes ■ No

Sampling Point Number: 3

SOIL

PROFILE DESCRIPTION

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2						CoSaL	Skeletal

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon(A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) *(except MLRA 1)*
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (See Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches): none encountered

Hydric soil present? ☐ Yes ■ No

Remarks No field indicators of hydric soils.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9) *(except NW coast)*
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) *(LRR A)*
- ☐ Other (see Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) *(NW coast)*
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Frost-Heave Hummocks (D4)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) *(LRR A)*

Field Observations:

Surface Water Present?	☐ Yes ■ No	Depth (inches):
Water Table Present?	☐ Yes ■ No	Depth (inches):
Saturation Present? (includes capillary fringe)	☐ Yes ■ No	Depth (inches):

Wetland hydrology present? ☐ Yes ■ No

Remarks No field indicators of wetland hydrology.

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WETLAND DETERMINATION DATA FORM: *Western Mountains, Valleys and Coast Region*

Project/Site: Teichert Boca Quarry			Sampling Date: 5/29/12
Applicant/Owner: Teichert Aggregates			Sampling Point Number: 4
City/County: Nevada County		State: CA	Investigator(s): **Adrian Juncosa**
Section, Township, Range: Sect. 26, T 18 N R 17 E	Lat:39.37644 Long:120.06485	Datum: NAD 83	Subregion (LRR): C
Sampling Point Location: Upper terrace between channel and road.			Landform: terrace
Soil Map Unit: Kyburz-Rock Outcrop-Trojan	NWI classification: PEMB	Slope (%): 3	Local relief: none
Climatic/hydrologic conditions typical for this time of year? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology significantly disturbed?	
Are "Normal Circumstances" present? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology naturally problematic?	

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	■ Yes ☐ No	Sampled area within a wetland?	■ Yes ☐ No
Hydric soil present?	■ Yes ☐ No	Sampled area within other water of state?	☐ Yes ☐ No
Wetland hydrology present?	■ Yes ☐ No		

Remarks This data point typifies a patch of meadow vegetation on the upland side of the low Carex nebrascensis-Scirpus microcarpus marsh (the latter being directly adjacent to the channel and extends from above the OHWM to within the channel).

VEGETATION

Tree Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			
Sapling/Shrub Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover	11		
Herb Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Carex nebrascensis	98	Y	OBL
Cirsium vulgare	2	N	FACU
Total cover	100		
Percent (%) bare ground in Herb Stratum	0		
Woody Vine Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			

Dominance Test worksheet:

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

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

Percent of dominant species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

% Total Cover

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) = _____ (B)

Prevalence Index: B/A = _____

Hydrophytic Vegetation Indicators:

■ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1]

☐ Wetland Non-Vascular Plants[1]

☐ Problematic Hydrophytic Vegetation[1]

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

Hydrophytic vegetation present? ■ Yes ☐ No

Remarks Wetland edge determined at limit of OBL dominated vegetation.

Sampling Point Number: 4

SOIL

PROFILE DESCRIPTION

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/1						CoSaLC	Mucky loamy clay

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

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

- ☐ Histosol (A1)
- ■ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) *(except MLRA 1)*
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (See Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches): none encountered

Hydric soil present? ■ Yes ☐ No

Remarks Chroma may be only 0.5 - hard to tell with soils this dark in both value and chroma.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ■ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9) *(except NW coast)*
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) *(LRR A)*
- ☐ Other (see Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) *(NW coast)*
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Frost-Heave Hummocks (D4)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) *(LRR A)*

Field Observations:

Surface Water Present?	☐ Yes ■ No	Depth (inches):	
Water Table Present?	☐ Yes ■ No	Depth (inches):	
Saturation Present? (includes capillary fringe)	■ Yes ☐ No	Depth (inches): 10	

Wetland hydrology present? ■ Yes ☐ No

Remarks There may also be oxidized rhizospheres, but contrast too low to be sure.

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WETLAND DETERMINATION DATA FORM: *Western Mountains, Valleys and Coast Region*

Project/Site: Teichert Boca Quarry			Sampling Date: 5/29/12
Applicant/Owner: Teichert Aggregates			Sampling Point Number: 5
City/County: Nevada County		State: CA	Investigator(s): **Adrian Juncosa**
Section, Township, Range: Sect. 26, T 18 N R 17 E	Lat:39.37644 Long:120.06485	Datum: NAD 83	Subregion (LRR): C
Sampling Point Location: 20 ft upslope of D.P. 4, 5 ft from edge of Carex nebrascensis.			Landform: hillslope
Soil Map Unit: Kyburz-Rock Outcrop-Trojan	NWI classification: n.a.	Slope (%): 5	Local relief: lower slope above terrace
Climatic/hydrologic conditions typical for this time of year? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology significantly disturbed?	
Are "Normal Circumstances" present? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology naturally problematic?	

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	☐ Yes ■ No	Sampled area within a wetland?	☐ Yes ■ No
Hydric soil present?	☐ Yes ■ No	Sampled area within other water of state?	☐ Yes ■ No
Wetland hydrology present?	☐ Yes ■ No		

Remarks This data point typifies a patch of Carex douglasii on the upland side of the Carex nebrascensis wetland that adjoins the channel.

VEGETATION

Tree Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Pinus jeffreyi	<1	N	UPL
Total cover			
Sapling/Shrub Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Ericameria nauseosa ssp. hololeuca	10	Y	UPL
Total cover	10		
Herb Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Carex douglasii	30	Y	FAC
Bromus tectorum	20	N	UPL
Epilobium brachycarpum	2	N	UPL
Total cover	52		
Percent (%) bare ground in Herb Stratum	48		
Woody Vine Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			

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		
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	32	x 5 =	160
Column Totals:	62 (A)	=	250 (B)
Prevalence Index: B/A		=	4.0

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1]
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

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

Hydrophytic vegetation present? ☐ Yes ■ No

Remarks

Sampling Point Number: 5

SOIL

PROFILE DESCRIPTION

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 2/2						CoSaL	Stony but not quite skeletal

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon(A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) *(except MLRA 1)*
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (See Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches): none encountered

Hydric soil present? ☐ Yes ■ No

Remarks No field indicators of hydric soils.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9) *(except NW coast)*
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) *(LRR A)*
- ☐ Other (see Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) *(NW coast)*
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Frost-Heave Hummocks (D4)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) *(LRR A)*

Field Observations:

Surface Water Present?	☐ Yes ■ No	Depth (inches):
Water Table Present?	☐ Yes ■ No	Depth (inches):
Saturation Present? (includes capillary fringe)	☐ Yes ■ No	Depth (inches):

Wetland hydrology present? ☐ Yes ■ No

Remarks No field indicators of wetland hydrology.

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WETLAND DETERMINATION DATA FORM: *Western Mountains, Valleys and Coast Region*

Project/Site: Teichert Boca Quarry			Sampling Date: 6/20/12
Applicant/Owner: Teichert Aggregates			Sampling Point Number: 6
City/County: Nevada County		State: CA	Investigator(s): **Adrian Juncosa**
Section, Township, Range: Sect. 26, T 18 N R 17 E	Lat:39.37519 Long:120.06540	Datum: NAD 83	Subregion (LRR): C
Sampling Point Location: Pronounced topographic depression east of Hinton Road (access to site).			Landform: depression
Soil Map Unit: Kyburz-Rock Outcrop-Trojan	NWI classification: n.a.	Slope (%): <2	Local relief: concave
Climatic/hydrologic conditions typical for this time of year? ■ Yes ☐ No		Are ☐ Vegetation , ■ Soil , or ☐ Hydrology significantly disturbed?	
Are "Normal Circumstances" present? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ■ Hydrology naturally problematic?	

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	■ Yes ☐ No	Sampled area within a wetland?	■ Yes ☐ No
Hydric soil present?	■ Yes ☐ No	Sampled area within other water of state?	☐ Yes ■ No
Wetland hydrology present?	■ Yes ☐ No		

Remarks

Dry season: wetland hydrology may or may not persist until late June. Also somewhat below average precipitation year. However, all of the vegetation is perennial, so year-to-year variations do not significantly affect vegetation determination at this data point. Feature appears to be an excavated depression (when or why is completely unknown), with no culvert flowing into or out of it.

VEGETATION

Tree Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			
Sapling/Shrub Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Salix geyeriana	20	Y	OBL
Total cover	10		
Herb Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Carex douglasii	65	Y	FAC
Hordeum brachyantherum	25	Y	FACW
Potentilla biennis	1	N	FACW
Poa pratensis	1	N	FAC
Senecio serra var. serra	1	N	FACU
Juncus arcticus/balticus	1	N	FACW
Total cover	94		
Percent (%) bare ground in Herb Stratum	6		
Woody Vine Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			

Dominance Test worksheet:

Number of dominant species that are OBL, FACW, or FAC: 2 (A)

Total number of dominant species across all strata: 2 (B)

Percent of dominant species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

	% Total Cover		
OBL species	20	x 1 =	20
FACW species	27	x 2 =	54
FAC species	66	x 3 =	198
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	114 (A)	=	276 (B)
Prevalence Index: B/A =			2.4

Hydrophytic Vegetation Indicators:

- ■ Dominance Test is >50%
- ■ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1]
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

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

Hydrophytic vegetation present? ☐ Yes ■ No

Remarks

Vegetation within the mapped wetland feature is patchy: for example, Salix is 80 to 100 percent cover in the patches where it occurs at all, and so on. Composition data above represents the whole stand of vegetation within the mapped unit.

Sampling Point Number: 6

SOIL

PROFILE DESCRIPTION

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	7.5YR 2.5/1						SiL	very high organic, some folist
								but mostly histic

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

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

- ■ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) *(except MLRA 1)*
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (See Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches): none encountered

Hydric soil present? ■ Yes ☐ No

Remarks

Mixture of organic and what seems to be ashy or other very fine-textured mineral soil material. Very low bulk density, which is typical of soils with high organic content. Very small redox concentrations are visible with a hand lens but are not large enough to determine chroma. Soils are weakly stratified, evidencing periodic inflows of water depositing fines.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9) *(except NW coast)*
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) *(LRR A)*
- ☐ Other (see Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) *(NW coast)*
- ☐ Sparsely Vegetated Concave Surface (B8)
- ■ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ■ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Frost-Heave Hummocks (D4)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) *(LRR A)*

Field Observations:

Surface Water Present?	☐ Yes ■ No	Depth (inches):	
Water Table Present?	☐ Yes ■ No	Depth (inches):	**Wetland hydrology present?** ■ Yes ☐ No
Saturation Present? (includes capillary fringe)	☐ Yes ■ No	Depth (inches):	

Remarks

Small sinkholes and linear erosion features are present. Feature is the bottom of a topographic depression 6-8 ft deep.

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WETLAND DETERMINATION DATA FORM: *Western Mountains, Valleys and Coast Region*

Project/Site: Teichert Boca Quarry			Sampling Date: 7/2/12
Applicant/Owner: Teichert Aggregates			Sampling Point Number: 7
City/County: Nevada County		State: CA	Investigator(s): **Adrian Juncosa**
Section, Township, Range: Sect. 26, T 18 N R 17 E	Lat:39.37496 Long:120.06551	Datum: NAD 83	Subregion (LRR): C
Sampling Point Location: 20 ft upslope from D.P. 6, outside Salix band.			Landform: hillsope
Soil Map Unit: Kyburz-Rock Outcrop-Trojan	NWI classification: n.a.	Slope (%): <10-15	Local relief: slope
Climatic/hydrologic conditions typical for this time of year? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology significantly disturbed?	
Are "Normal Circumstances" present? ■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ■ Hydrology naturally problematic?	

SUMMARY OF FINDINGS

Hydrophytic vegetation present? ☐ Yes ■ No		Sampled area within a wetland? ☐ Yes ■ No	
Hydric soil present? ☐ Yes ■ No		Sampled area within other water of state? ☐ Yes ■ No	
Wetland hydrology present? ☐ Yes ■ No			

Remarks Dry season: wetland hydrology may or may not persist until July.

VEGETATION

Tree Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			
Sapling/Shrub Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Prunus virginiana var. demissa	5	Y	FACU
Purshia tridentata	4	Y	UPL
Total cover	9		
Herb Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Senecio serra var. serra	30	Y	FACU
Artemisia ludoviciana ssp. ludoviciana	20	Y	FACU
Bromus tectorum	10	N	UPL
Drymocallis (Potentilla) glandulosa	2	N	FAC
Total cover	62		
Percent (%) bare ground in Herb Stratum	38		
Woody Vine Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			

Dominance Test worksheet:

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

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

Percent of dominant species that are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

	% Total Cover		
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	55	x 4 =	220
UPL species	10	x 5 =	50
Column Totals:	67 (A)	=	276 (B)
Prevalence Index: B/A		=	4.1

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1]
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

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

Hydrophytic vegetation present? ☐ Yes ■ No

Remarks Vegetation cover in uplands further upslope is much lower than in this narrow band of broad leafy FACU dominated vegetation adjacent to the wetland of D.P. 6

Sampling Point Number: 7

SOIL

PROFILE DESCRIPTION

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	7.5YR 2.5/2	100					LmedSa	skeletal, very rocky

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon(A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) *(except MLRA 1)*
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (See Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches): none encountered

Hydric soil present? ☐ Yes ■ No

Remarks >50% fractured andesitic looking rock by volume, very difficult to dig. No field indicators of hydric soils.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9) *(except NW coast)*
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) *(LRR A)*
- ☐ Other (see Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) *(NW coast)*
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Frost-Heave Hummocks (D4)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) *(LRR A)*

Field Observations:

Surface Water Present?	☐ Yes ■ No	Depth (inches):
Water Table Present?	☐ Yes ■ No	Depth (inches):
Saturation Present? (includes capillary fringe)	☐ Yes ■ No	Depth (inches):

Wetland hydrology present? ☐ Yes ■ No

Remarks No field indicators of wetland hydrology.

Eco Synthesis
SCIENTIFIC & REGULATORY SERVICES INC

WETLAND DETERMINATION DATA FORM: *Western Mountains, Valleys and Coast Region*

Project/Site:	Teichert Boca Quarry			Sampling Date:	7/2/12
Applicant/Owner:	Teichert Aggregates			Sampling Point Number:	8
City/County:	Nevada County		State: CA	Investigator(s):	**Adrian Juncosa**
Section, Township, Range:	Sect. 26, T 18 N R 17 E	Lat: 39.37573 Long: 120.06538	Datum: NAD 83	Subregion (LRR):	C
Sampling Point Location:	Small depression formed by construction of roads around it.			Landform:	hillslope
Soil Map Unit:	Kyburz-Rock Outcrop-Trojan	NWI classification: n.a.	Slope (%): 0	Local relief:	depression
Climatic/hydrologic conditions typical for this time of year?	■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ☐ Hydrology significantly disturbed?		
Are "Normal Circumstances" present?	■ Yes ☐ No		Are ☐ Vegetation , ☐ Soil , or ■ Hydrology naturally problematic?		

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	☐ Yes ■ No	Sampled area within a wetland?	☐ Yes ■ No
Hydric soil present?	☐ Yes ■ No	Sampled area within other water of state?	☐ Yes ■ No
Wetland hydrology present?	☐ Yes ■ No		

Remarks

Dry season: wetland hydrology may or may not persist until July. Surface seems to be mostly original native pine woodland duff. Not formed by excavation; if it were, the tree bases with branching major roots that occur just below the surface would be exposed. So, it seems that this depression was formed by depositing fill to build up the road beds.

VEGETATION

Tree Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Pinus jeffreyi	35	Y	UPL
Total cover			
Sapling/Shrub Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Rosa woodsii ssp. ultramontana	25	Y	FACU
Total cover	9		
Herb Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
Urtica dioica ssp. holosericea	40	Y	FAC
Total cover	62		
Percent (%) bare ground in Herb Stratum	38		
Woody Vine Stratum	*% Abs. Cover*	*Dominant*	*Indicator*
None in stand			
Total cover			

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			
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	40	x 3 =	120	
FACU species	25	x 4 =	100	
UPL species	35	x 5 =	165	
Column Totals:	100 (A)	=	385 (B)	
Prevalence Index: B/A =			3.85	

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1]
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

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

Hydrophytic vegetation present? ☐ Yes ■ No

Remarks

Other species are present on sideslopes of depression, this point is intended to represent only the bottom of it (mostly likely part to meet the three wetland criteria).

Sampling Point Number: 8

SOIL

PROFILE DESCRIPTION

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					CoLSa	stony

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

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

- ☐ Histosol (A1)
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- ☐ Loamy Mucky Mineral (F1) *(except MLRA 1)*
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (See Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches): none encountered

Hydric soil present? ☐ Yes ■ No

Remarks No field indicators of hydric soils. Very thick duff layer of litter and folist material, but the mineral soil itself is not high in organic matter.

HYDROLOGY

WETLAND HYDROLOGY INDICATORS

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
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- ☐ Hydrogen Sulfide Odor (C1)
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- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) *(LRR A)*
- ☐ Other (see Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) *(NW coast)*
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Frost-Heave Hummocks (D4)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) *(LRR A)*

Field Observations:

Surface Water Present?	☐ Yes ■ No	Depth (inches):
Water Table Present?	☐ Yes ■ No	Depth (inches):
Saturation Present? (includes capillary fringe)	☐ Yes ■ No	Depth (inches):

Wetland hydrology present? ☐ Yes ■ No

Remarks No field indicators of wetland hydrology.