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# Delineation of Waters of the U.S. and State

SPECIALTY GRANULES (IONE) LLC - IONE QUARRY EXPANSION  
PROJECT  
AMADOR COUNTY, CALIFORNIA

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## TABLE OF CONTENTS

1.0 INTRODUCTION .....	1
1.1 Study Background .....	1
2.0 REGULATORY BACKGROUND .....	1
2.1 Section 404 of the Clean Water Act.....	1
2.1.1 Wetlands .....	2
2.1.2 Non-Wetland Waters .....	2
2.2 Waters of the State .....	3
3.0 METHODS .....	3
3.1 Wetlands.....	4
3.1.1 Routine Methods.....	4
3.1.2 Difficult Wetland Situations.....	4
3.1.3 WETS Analysis .....	5
3.2 Non-Wetland Waters .....	5
3.2.1 Ordinary High Water Mark.....	5
4.0 Study Area DESCRIPTION .....	5
4.1 Location .....	5
4.2 Vegetation .....	6
4.3 Soils .....	6
4.4 Hydrology .....	8
5.0 RESULTS.....	8
5.1 Wetlands.....	11
5.2 Non-wetland Waters.....	12
5.3 Features Determined Potentially Exempt .....	13
6.0 CONCLUSION .....	13
7.0 REFERENCES .....	14

## LIST OF TABLES

Table 1. Summary of Wetlands and Non-wetland Waters Mapped within the Study Area .....	10
Table 2. Areas Determined Exempt from Regulation under the State Wetland Policy and Corps Regulations .....	11

## LIST OF APPENDICES

Appendix A – Figures
Appendix B – Arid West Wetland Delineation Data Forms
Appendix C – Representative Photographs of the Study Area
Appendix D – List of Plant Species Observed within the Study Area
Appendix E – WETS Analyses

## LIST OF ACRONYMS

CFR	Code of Federal Regulations
Corps	United States Army Corps of Engineers
CSRL	California Soil Resources Lab
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	Facultative plant species
FACU	Facultative Upland plant species
FACW	Facultative Wetland plant species
GHCN	Global Historical Climatological Network
HTL	High Tide Line
HUC	Hydrologic Unit Code
NL/UPL	Not Listed/Upland plant species
NOAA	National Oceanic and Atmospheric Agency
NRCS	National Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate plant species
OHW	Ordinary High Water
OHWM	Ordinary High Water Mark
PI	Prevalence Index
RWQCB	Regional Water Quality Control Board
USDA	United States Department Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WRA	WRA, Inc.
SWRCB	State Water Resources Control Board

## 1.0 INTRODUCTION

### 1.1 Study Background

This report presents the results of a delineation of Waters of the U.S. (“waters”) at the Specialty Granules (lone) LLC (SGI) mine expansion site (Study Area), located approximately 3 miles west of the City of Lone, in unincorporated Amador County, California.

The approximately 390-acre Study Area is composed of an existing open-pit quarry, materials stockpiles, processing plant, and associated roads and drainage ditches, and surrounding undisturbed land consisting generally of non-native annual grassland, and blue oak woodland and savanna. The Study Area is located at 1900 CA HWY 104, approximately 3 miles west of Lone.

On May 15, 2019, and June 9 and 10, 2020 WRA, Inc. (WRA) conducted a delineation within the Study Area to identify wetlands and non-wetland waters potentially subject to jurisdiction by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act (CWA). In addition, this report identifies wetlands and other features potentially subject to jurisdiction of the California State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB) as defined in the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Wetland Policy, SWRCB, 2019). The following sections describe the regulatory background and methods used to guide the delineation and provide a summary of wetlands and non-wetland waters within the Study Area. This delineation is considered “potential” subject to the approval of the Corps of Engineers and, where appropriate, RWQCB<sup>1</sup>.

This report may depict wetland or non-wetland features which are not jurisdictional under the CWA and State Wetland Policy. Such features may include, but are not limited to, ditches dug on uplands and not draining any wetlands, irrigation canals and areas subject to irrigation, and other man-made wetlands that are considered exempt under the 1986 Final Rule (Federal Register 1986) that defines “waters of the United States”. In addition, this report has not taken into consideration wetlands or non-wetland waters that may be excluded from federal jurisdiction as either isolated features and/or features that lack a significant nexus to navigable waters.

## 2.0 REGULATORY BACKGROUND

### 2.1 Section 404 of the Clean Water Act

Section 404 of the Clean Water Act gives the Environmental Protection Agency (EPA) and the Corps regulatory and permitting authority regarding discharge of dredged or fill material into “navigable waters of the United States.” Section 502(7) of the CWA defines “navigable waters” as “waters of the United States, including territorial seas.” The Navigable Waters Protection Rule: Definition of “Waters of the United States” published April 21, 2020, and effective June 22, 2020 (Federal Register Vol. 85, No. 77), provides the final rule defining the scope of waters federally regulated under the Clean Water Act. Section 328 of Chapter 33 in the Code of Federal Regulations (CFR) defines the term “waters of the United States” as it applies to the jurisdictional

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<sup>1</sup> Per the State Wetland Policy, the SWRCB or local RWQCB is required to verify any wetlands present that are not included on delineation maps verified by the Corps (Lines 77-81 of the State Wetland Policy).

limits of the authority of the Corps under the CWA. The definition of “waters of the United States” in 33 CFR 328.3 is:

- (1) The territorial seas and traditional navigable waters;
- (2) Perennial and intermittent tributaries that contribute surface water flow to such waters;
- (3) Certain lakes, ponds, and impoundments of jurisdictional waters;
- (4) Wetlands adjacent to other jurisdictional waters.

The Navigable Waters Protection Rule clarifies that the following are not considered waters of the U.S.:

- (a) Groundwater, including groundwater drained through subsurface drainage systems;
- (b) Ephemeral features that flow only in direct response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- (c) Diffuse stormwater runoff and directional sheet flow over upland;
- (d) Ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations.
- (e) Prior converted cropland;
- (f) Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- (g) Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;
- (h) Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose obtaining fill, sand, or gravel;
- (i) Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off;
- (j) Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters;
- (k) Waste treatment systems.

### 2.1.1 Wetlands

Wetlands are defined in 33 CFR 328.3 (b) as:

*...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

The basis for determining whether a given area is a wetland for the purposes of Section 404 of the CWA is outlined in the Corps *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Delineation Manual* for the respective region (Arid West). As defined in 33 CFR 328.4 (c), the extent of federal jurisdiction within wetlands is defined as extending to the limit of the wetland as determined using the methods outlined in the manuals.

### 2.1.2 Non-Wetland Waters

The limit of federal jurisdiction in non-tidal non-wetland waters extends to the OHWM which is defined in 33 CFR 328.3 (e) as:

*...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

## **2.2 Waters of the State**

The Porter-Cologne Water Quality Control Act gives the State Water Resources Control Board authority to regulate discharge of dredged or fill material that may affect the quality of “waters of the state”. “Waters of the State” are defined broadly as:

*any surface water or groundwater, including saline waters, within the boundaries of the state.*

In April 2019 the SWRCB adopted the State Wetland Policy, which provides a State wetland definition, procedures and requirements for regulation of the discharge of dredge or fill material to wetlands and non-wetland waters of the State. The State Wetland Policy also includes exemptions from regulation of dredge and fill discharges for certain types of wetland and waters features, as well as for certain classes of activities, such as activities covered by an existing RWQCB or SWRCB Order. The state wetland definition that became effective May 28, 2020 is similar to, but slightly different from that used by the Corps of Engineers:

*An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation.*

The State Wetland Definition and Procedures utilize existing Corps delineation procedures (Environmental Laboratory 1987, Corps 2008a, 2010). According to the State Wetland Policy, the SWRCB and RWQCBs generally rely on the Corps for verification of wetland and waters as part of an aquatic resource report. Any potential wetland area not identified in a report verified by the Corps is required to be delineated using Corps methods for consideration as a state wetland and verification by SWRCB or RWQCB staff. This report includes wetlands and non-wetland waters meeting both the Corps and State wetland definitions. Some features mapped as non-wetland waters under the Corps wetland definition may be considered wetlands under the State definition.

This report identifies wetlands and non-wetland waters according to the Corps definitions and criteria, consistent with the State Wetland Policy’s reliance of these criteria. This report also recognizes that some non-wetland waters features may meet the wetland definition of the State Wetland Policy. Regardless of how they are defined, wetlands and non-wetland waters deemed jurisdictional may be regulated by the RWQCB and/or SWRCB under the State Wetland Policy.

## **3.0 METHODS**

Prior to conducting field surveys, reference materials were reviewed, including the *Soil Survey of Amador Area, California* (USDA 1965, CSRL 2020), the Goose Creek, Carbondale, Irish Hill, and lone USGS 7.5-minute quadrangle (USGS 2020a-d), National Wetlands Inventory (NWI) data

(USFWS 2020), and historical aerial photographs (Google Earth 2020). Following the background data search, WRA biologists performed a focused field evaluation of indicators of wetlands and non-wetland waters in the Study Area. This field evaluation occurred on May 15, 2019, and June 9 and 10, 2020.

The methods used to delineate potentially jurisdictional wetlands and non-wetland waters were based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (“Corps Manual”; Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (“Arid West Supplement”; Corps 2008a), and the *Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the United States* (Corps 2008b). The routine method for wetland delineation described in the Corps Manual was used to identify areas potentially subject to Corps Section 404 jurisdiction within the Study Area. The general description of the Study Area, described below in Section 4.0, was generated during the field visit. Additionally, methods for evaluating the presence of wetlands and non-wetland waters employed during the delineation are described in detail below.

### **3.1 Wetlands**

#### *3.1.1 Routine Methods*

WRA followed the Routine Method to evaluate the Study Area for the presence or absence of indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and Arid West Supplement (Corps 2008). Data on vegetation, hydrology, and soils were collected at sample points within potential wetland communities and adjacent upland areas. Sample points that contained positive indicators for hydrophytic vegetation, hydric soils, and wetland hydrology were considered to be wetland. Except in cases of atypical or problematic wetland situations (i.e., difficult wetland situations, as described below), sample points that lacked one or more indicators were considered to be upland. Sample point data were reported on Arid West Supplement data forms. Sample point locations were recorded using a handheld GPS unit with sub-meter accuracy.

Wetland boundaries were identified using a combination of indicators observed on the ground, most often corresponding to changes in topography and dominant vegetation, in addition to other indicators. The presence or absence of the primary or secondary indicators described in the Arid West Supplement was utilized to determine if sample points within the Study Area met the wetland hydrology criterion.

#### *3.1.2 Difficult Wetland Situations*

The Arid West Supplement (Corps 2008) includes recommended procedures for completing wetland delineations in areas of “difficult wetland situations” in which wetlands may lack one or more indicators due to natural or anthropogenic factors; these are discussed as atypical or problematic wetland conditions in the Corps Manual (Environmental Laboratory 1987). Although the Corps Manual and Arid West Supplement (Corps 2008) were utilized in the wetland determination, they do not provide exhaustive lists of the difficult situations and problem areas that can arise during delineations in the Arid West. In these situations, the Corps Manual and Regional Supplements stress the importance of using best professional judgment and knowledge of the ecology of the wetlands in the region during the collection and interpretation of data in difficult sites.

The Study Area contained one wetland feature which did not meet an applicable hydric soil indicator. In this case, the difficult situations methodology for soils with faint or no indicators was applied. The soil sample was characteristic of a man-made, recently developed wetland feature, exhibiting apparent fill material with a mixed matrix exhibiting chroma that was too light to meet a hydric soil indicator, despite the presence of redoximorphic concentrations. At this location, the soil sample was presumed hydric due to the presence of wetland hydrology and hydrophytic vegetation indicators, and the feature was determined to be wetland.

### *3.1.3 WETS Analysis*

A hydrologic analysis (i.e., WETS analysis; USDA 1997; Sprecher and Warne 2000) was conducted to determine whether precipitation levels during the three months prior to each aerial image used by WRA and prior to each site visit were above, below, or within the 30-year average for the region. Long-term precipitation data (i.e., the WETS table) were obtained from the weather station in nearby Camp Pardee located approximately 12 miles southeast of the Study Area. Daily precipitation data for the three months preceding the site visits by WRA, were obtained from the Sutter Hill CalFire weather station located approximately 11 miles east of the Study Area. A summary of the results of the WETS analysis is provided as Appendix E.

## **3.2 Non-Wetland Waters**

This study also evaluated the presence of non-wetland waters using Corps manuals and guidance for the identification of ordinary high water mark (OHWM) indicators (Lichvar and McColley 2008). Examples of non-wetland waters include lakes, rivers, and streams in addition to all areas below the HTL in areas subject to tidal influence. Non-wetland water types potentially subject to both Corps and RWQCB/SWRCB jurisdiction were investigated and identified in the field and as part of this report.

### *3.2.1 Ordinary High Water Mark*

Consistent with Corps delineation methodology, the OHWM was used to identify the limits of non-wetland waters. The location of the OHWM was determined based on a combination of indicators observed on the ground (e.g., bed and bank, scour marks, and sediment sorting). Where direct access to the OHWM was feasible, it was mapped in the field using a GPS unit with sub-meter accuracy. Where direct access to the OHWM was not feasible, the location of the OHWM was hand drawn in the field on aerial photographs and topographical maps for subsequent digitizing in ArcGIS. For smaller streams, the width between the OHWM was visually estimated in the field and recorded for each feature. For larger features, the OHWM was mapped directly and the average width measured with ArcGIS.

## **4.0 STUDY AREA DESCRIPTION**

### **4.1 Location**

The Study Area is on approximately 390 acres at 1900 State Route (SR) 104, approximately 3 miles west of the city of Lone, in unincorporated Amador County, California (see Figure 1). The Study Area is accessed from the access road off SR 104 just south of the intersection of Michigan Bar Road and SR 104, and is located within the Arroyo Seco Land Grant on the Goose Creek, Carbondale, Irish Hill, and Lone U.S. Geological Survey 7.5-minute quadrangle maps.



The Study Area is surrounded by undeveloped open space, agriculture, industrial, low-density residential development, and commercial uses. The Study Area consists of an active quarry; materials stockpiles; a plant for processing aggregate (i.e., cap rock) and material for granules production; a scale; equipment, fuel storage, maintenance, and storage building; a solar field, constructed drainage ditches and stormwater containment; access roads; and surrounding undisturbed land.

## 4.2 Vegetation

The majority of the Study Area consists of developed areas, including the quarry pit, a solar array, and existing roads which have been altered from their natural state. The surrounding vegetation is dominated by non-native annual grassland, and blue oak woodland and savanna interspersed with seasonal wetland, vernal pools, and intermittent stream features. Other upland tree- or shrub-dominated communities present in the Study Area include interior live oak woodland, and buckbrush chaparral.

Dominant species present in upland within the Study Area primarily consisted of non-native annual upland (UPL) or not-listed (NL) grasses including Medusa head (*Elymus caput-medusae*, NL), and slim oat (*Avena barbata*, NL). Dominant species within areas delineated as wetland included facultative (FAC) to obligate (OBL) hydrophytic grasses, graminoids and forbs including Italian ryegrass (*Festuca perennis*, FAC), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*, FAC), watercress (*Nasturtium officinale*, OBL), and narrow leaf cattail (*Typha angustifolia*, OBL).

## 4.3 Soils

SoilWeb (CSRL 2020) indicates that the Study Area contains eight mapping units consisting of seven soil series, as well as water, placer diggings and riverwash. Soil mapping units within the Study Area include: Auburn-Argonaut silt loams, 0 to 16 percent slopes; Auburn-Argonaut very rocky silt loams, 3 to 31 percent slopes; Inks loam and Rock land, 3 to 45 percent slopes; Pardee cobbly loam, 3 to 31 percent slopes; Pentz gravelly sandy loam, 2 to 16 percent slopes; Pentz sandy loam, 16 to 31 percent slopes; Pentz sandy loam, 2 to 16 percent slopes; Red Bluff-Mokelumne complex, 5 to 16 percent slopes, water, placer diggings, and riverwash (Appendix A – Figure 2). The soil series that makes up the mapping units within the Study Area are described below.

Auburn Series: The Auburn series consists of well-drained, shallow to moderately deep silt loam soils formed in material weathered from amphibolite schist. These soils occur on foothills and have slopes of 2 to 75 percent. In a representative profile, the surface layer (A-horizon) is a slightly acidic (pH 6.4) reddish brown (5YR 4/4) silt loam from 0 to 9 inches. This is underlain by Bw-horizon of slightly acidic (pH 6.5) yellowish red (5YR 4/6) silt loam from 9 to 14 inches. This is underlain by partly weathered amphibolite schist bedrock at 14 to 28 inches. Rock fragments within the soil profile range from 0 to 25 percent and consist of pebbles, cobbles and stones (CSRL 2019). The two soil mapping units containing Auburn Series soils are considered hydric soils (USDA 2019).

Argonaut Series: The Argonaut series consists of well-drained, moderately deep gravelly loam soils formed in materials weathered from meta-andesite. These soils occur on undulating to hilly broad ridges to slightly concave slopes of 2 to 30 percent. In a representative profile, the surface layer (A-horizon) is a slightly acidic (pH 6.1 to 6.3) dark reddish brown (5YR 3/4) to yellowish red

(5YR 3/6) gravelly loam with 20 percent pebbles from 0 to 6 inches. This is underlain by Bt-horizon of slightly acidic (pH 6.1 to 6.2) yellowish red (5YR 3/6), and yellowish brown (10YR 5/4) to brown (7.5YR 5/4) gravelly heavy loam to gravelly clay from 6 to 21 inches. Rock fragments within the Bt-horizon range from 8 to 22 percent pebbles, cobbles, and stones. This is underlain by deeply weathered meta-andesite bedrock from 21 to 27 inches (CSRL 2019). The two soil mapping units containing Argonaut Series soils are considered hydric soils (USDA 2019).

Inks Series: The Inks series consists of well-drained, shallow soils that formed in material weathered from consolidated or cemented sediments from volcanic rocks. These soils occur on undulating to hilly tabular volcanic ridges and sideslopes. In a representative profile, the surface layer (A-horizon) is a moderately acid (pH 5.9), dark brown (10YR 3/3), very cobbly sandy clay loam with 20 percent gravel and 15 percent cobbles from 0 to 6 inches depth. This is underlain by a BA<sub>t</sub>/B<sub>t</sub>-horizon of moderately acid (pH 5.9), dark brown (10YR 3/3) very gravelly clay loam to very cobbly loam with up to 35 percent gravels and up to 25 percent cobbles from 6 to 13 inches. This is underlain by a 2Cr-Horizon of partly weathered weakly consolidated tuff from basic igneous rock sources 13 to 18 inches (CSRL 2019). Inks Loam and Rock Land is not considered a hydric soil (USDA 2019).

Mokelumne Series: The Mokelumne series consists of moderately deep, well or moderately well drained soils formed in hillslope alluvium underlain by material weathered from sandstone and weakly consolidated clayey marine sediments. These soils occur on dissected terraces, hills, sideslopes of terrace remnants, and in swales with slopes of 2 to 35 percent. In a representative profile, the surface layer (A-horizon) is a slightly to strongly acid (pH 6.5 to 5.5), brown (7.5YR 4/4), gravelly loam with 25 to 30 percent pebbles, and up to 5 percent cobbles from 0 to 10 inches. This is underlain by a 2B<sub>t</sub>-horizon of strongly acid to very strongly acid (pH 5.2 to 4.5), red (2.5YR 5/6) to reddish yellow (5YR 6/6) and light gray (2.5Y 7/2) clay from 10 to 31 inches. This is underlain by a 2BC<sub>t</sub> and 2Cr layer consisting of clay and weakly consolidated clayey sediments from 31 to 46 inches (CSRL 2019). Red Bluff-Mokelumne complex, 5 to 16 percent slopes is considered a hydric soil (USDA 2019).

Pardee Series: The Pardee series consists of shallow, well drained soils formed in mixed alluvium. These soils occur on terrace remnants and eroded fan remnants on hills with slopes of 0 to 30 percent. In a representative profile, the surface layer (A-horizon) is a slightly acid (pH 6.3), dark brown (7.5YR 3/4), gravelly to cobbly loam with 10 to 15 percent gravels, and 5 to 15 percent cobbles from 0 to 9 inches. This is underlain by a B<sub>t</sub>-horizon of moderately acid (pH 6.0 to 5.8), reddish brown (5YR 4/4) very cobbly to extremely cobbly loam with 10 to 20 percent rounded indurated gravels, and 45 to 60 percent rounded indurated cobbles from 9 to 17 inches. This is underlain by a 2B<sub>t</sub>-layer of strongly acid (pH 5.3) brown (7.5YR 4/2) very cobbly clay with flecks of light gray (10YR 7/2) weathered sand, 5 percent mixed rounded indurated gravel, and 35 percent mixed rounded indurated cobbles from 17 to 18 inches. Finally, this is underlain by a 2R-layer of moderately acid (pH 6.0) very pale brown (10YR 7/3), light brownish gray (10YR 6/2), light brownish gray (10YR 6/2), brownish yellow (10YR 6/6) and gray (5Y 5/1) consolidated andesitic conglomerate from 18 to 41 (CSRL 2019). Pardee cobbly loam, 3 to 31 percent slopes is not considered a hydric soil (USDA 2019).

Pentz Series: The Pentz series consists of shallow, well drained soils formed in colluvium or residuum derived from basic tuff. These soils occur on hills with mound and swale topography and on backslopes of hills with slopes of 2 to 60 percent. In a representative profile, the surface layer (A-horizon) is a moderately acid (pH 6.0), very dark grayish brown (10YR 3/2), to dark brown (10YR 3/3) fine sandy loam with 5 percent gravel from 0 to 9 inches. This is underlain by B<sub>w</sub>- and B<sub>t</sub>-horizons of slightly acid (pH 6.5) very dark grayish brown (10YR 3/2) to very dark brown

(10YR 2/2), fine sandy loam from 9 to 16 inches depth. Finally, this is underlain by a Cr-Horizon of slightly acid (pH 6.5), variegated olive brown (2.5Y 4/4), very dark grayish brown (2.5Y 3/2) and light olive brown (2.5Y 5/4) consolidated, basic tuff from 16 to 22 inches (CSRL 2019). Of the three soil mapping units containing Pentz series soils, only Pentz gravelly sandy loam, 2 to 16 percent slopes is considered hydric (USDA 2019).

Red Bluff Series: The Red Bluff series consists of very deep, well drained soils formed in old mixed alluvium. These soils occur on terraces with slopes of 0 to 9 percent. In a representative profile, the surface layer (A-horizon) is a very strongly acid (pH 5.0), dark reddish brown (2.5YR 3/4), gravelly loam to loam with 10 to 20 percent pebbles from 0 to 20 inches. This is underlain by a Bt-horizon of strongly acid to very strongly acid (pH 5.2 to 5.0), weak red (IOR 4/4) clay loam to gravelly clay loam from 20 to 37 inches. This is underlain by a 2Bt and 2BCt and 2Cr layer consisting of gravelly clay loam from 37 to 72 inches (CSRL 2019). Red Bluff-Mokelumne complex, 5 to 16 percent slopes is considered a hydric soil (USDA 2019).

Placer Diggings and Riverwash: Areas mapped as placer diggings and riverwash consist of cobbly and gravelly substrate that has been sluiced or dredged for gold and the material left in hummocky mounds or cobbly stringers along streams (USDA 1965). Due to their location in and around streams and floodplains these areas also contain natural alluvium deposited by streams. Placer diggings and riverwash is considered a hydric soil (USDA 2019).

#### **4.4 Hydrology**

The majority of the Study Area is within the Cosumnes River watershed (HUC 18040013) with streams and swales draining to the north. However, the southernmost portion of the Study Area, south of the quarry pit is within the Mokelumne River (HUC 18040013) watershed, draining to the south. Sources of hydrology within the Study Area include direct precipitation falling as rain, with occasional, non-persistent snowfall.

Precipitation in the region occurs predominantly as rainfall with an annual average of 22.5 inches recorded at the Camp Pardee station (GHCN USC00041428) in Camp Pardee, Calaveras County, California, located approximately 12 miles southeast of the Study Area (USDA 2020). A WETS analysis for the Sutter Hill CalFire weather station, located approximately 11 miles east of the Study Area, was performed prior to the field investigation. The three-month precipitation period and water year to date preceding the field investigation in May 2019 was considered wet. Therefore, conditions were considered above-normal during that site visit. The three-month precipitation period preceding the field investigation in June 2020 was considered wet with all three months (May, April, and March) registering above normal precipitation. However the total precipitation recorded for water year 2020 to date (i.e. October 1, 2019 to June 4, 2020) at Sutter Hill CalFire weather station was 19.13 inches, or 85 percent of normal. Therefore, conditions observed in the Study Area during 2020 were considered normal.

### **5.0 RESULTS**

Descriptions of all aquatic resources identified within the Study Area are provided in the following sections, including areas meeting both the Corps and RWQCB/SWRCB wetland definitions, and potential non-jurisdictional features. As discussed above, features in this report are classified based on the Corps definition of wetlands. State-defined wetlands include areas lacking vegetation and containing anaerobic substrate. The State Wetland Policy regulates wetlands and non-wetland waters equivalently. Therefore the classification of an unvegetated feature as a

wetland or non-wetland water does not affect the scope of State regulation of that feature. In contrast, feature classification for purposes of Corps jurisdiction can affect some regulatory permitting decisions, such as determining the applicability of Nationwide Permit Program thresholds. Therefore, the Corps definitions are relied upon for feature classifications in this report. In some cases, features mapped and classified as non-wetland waters may meet the State Wetland Policy definition of a wetland, where those features contain anaerobic substrates. Examples of such features include unvegetated lakes, ponds, and some portions of playas and perennial streams. All features satisfying the technical criteria for wetlands and non-wetland waters are mapped as part of this report, including areas regulated by the State but not by the Corps, and features exempted from regulation by the Corps and under the State Wetland Policy.

An overview of potential jurisdictional waters mapped within the Study Area is provided on Figure 3 in Appendix A, and a summary of acreages is provided in Table 1, below. Table 2 provides a summary of features determined to be potentially exempt from regulation under both Corps and State Wetland Policy. Maps showing the location and extent of potential jurisdictional and non-jurisdictional waters mapped within the Study Area are provided in Appendix A. Standard Corps Arid West wetland delineation data forms are included as Appendix B. Representative photographs of the Study Area and photographs of sample points are presented in Appendix C. A list of all plant species observed during the site visit is included as Appendix D. WETS analyses are provided in Appendix E.

**Table 1. Summary of Wetlands and Non-wetland Waters Mapped within the Study Area**

Feature Type	Classification <sup>1</sup>	Potential Section 404 Waters of the U.S.		Potential Waters of the State	
		Acres	Linear Feet	Acres	Linear Feet
<b>Wetlands</b>					
Seasonal Wetland	PEM2C	2.24	-	2.24	-
Vernal Pool	PEM2C	0.33	-	0.33	-
Freshwater Marsh	PEM1F	1.01	-	1.01	-
<b>Total:</b>		<b>3.58</b>	<b>-</b>	<b>3.58</b>	<b>-</b>
<b>Non-Wetland Waters<sup>2</sup></b>					
Intermittent Stream	R4SBA	0.67	12,608	0.67	12,608
Pond	PUBHx	0.26	-	0.26	-
Drainage Ditch	R2UBHx	<0.01	65	<0.01	65
<b>Total:</b>		<b>0.94</b>	<b>12,673</b>	<b>0.94</b>	<b>12,673</b>

<sup>1</sup>See Federal Geographic Data Committee 2013

<sup>2</sup>Some non-wetland waters may meet the definition of a wetland in the State Wetland Policy.

Based on site investigations and documentation of the creation and use of some features meeting the technical definition of a wetland or non-wetland water, the following features were determined to be exempt from regulation by both the State Wetland Policy and Corps of Engineers.

**Table 2. Areas Determined Exempt from Regulation under the State Wetland Policy and Corps Regulations**

Feature Name (Type)	Acres	Summary Basis for Exemption
Quarry Detention Basin	4.72	Man-made features excavated in dry land to retain and treat stormwater runoff and store water for reuse on-site as part of the mining operations.
Quarry Drainage Ditch	0.46	Man-made features excavated in dry land to retain and treat stormwater runoff and store water for reuse on-site as part of the mining operations.
<b>Total</b>	<b>5.18</b>	

Wetland and non-wetland waters features observed in the Study Area are located in the Cosumnes River (HUC 18040013), and Mokelumne River (HUC 18040012) watersheds, and presumably tributaries to intermittent or perennial streams which ultimately drain into the Sacramento River, a traditionally navigable water of the U.S..

## 5.1 Wetlands

### Seasonal wetland (PEM2C)

The Study Area contains approximately 2.24 acres of seasonal wetlands (NWI classification = PE2MC, palustrine emergent wetland, seasonally flooded) that are potential waters of the U.S. and State. Within the Study Area, seasonal wetlands typically occur in concave swales, enclosed depressions, and seepage areas, some of which appear to be partially impounded or receiving hydrology inputs from nearby non-jurisdictional quarry detention basins. Seasonal wetlands within the Study Area are typically dominated by FAC to facultative-wetland (FACW) grasses including Italian ryegrass (*Festuca perennis*, FAC), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*, FAC), and ditch beardgrass (*Polypogon interruptus*, FAC). Areas mapped as seasonal wetlands typically met the Depleted Matrix (F3) hydric soil indicator, exhibiting brown (7.5YR 4/2) to dark grayish brown (10YR 4/2) matrices with distinct or prominent redoximorphic concentrations in the matrix and/or pore linings. Soil textures at sample points ranged from cobbly clay loams to loams. Wetland hydrology indicators observed at areas mapped as seasonal wetlands included Biotic Crust (B12), High Water Table (A2), and Saturation (A3).

Areas mapped as seasonal wetland contained indicators of hydrophytic vegetation, wetland hydrology, and hydric soils sufficient to satisfy criteria to meet the wetland definition pursuant to the CWA and the State Wetland Policy definition of a wetland.

### Vernal pool (PEM2C)

The Study Area contains approximately 0.33 acre of vernal pools (NWI classification = PEM2C, palustrine emergent wetland, seasonally flooded) that are potential waters of the U.S. and State. Vernal pools within the Study Area are natural enclosed depressions situated over cobbly loam

soils with high clay content. Vernal pools within the Study Area were typically dominated by FAC to FACW grasses such as Italian ryegrass and Mediterranean barley with a combination of characteristic vernal pool associated forbs. Characteristic vernal pool forb species present in vernal pools included Fremont's goldfields (*Lasthenia fremontii*, OBL), coyote thistle (*Eryngium vaseyi*, FACW), common hedge hyssop (*Gratiola ebracteata*, OBL), and woolly heads (*Psilocarphus brevissimus* var. *brevissimus*, FACW). Areas mapped as vernal pool met the Depleted Matrix (F3), or Redox Depressions (F8) hydric soil indicators, exhibiting brown (7.5YR 4/2) to dark yellowish brown (10YR 3/4) matrices with distinct or prominent redoximorphic concentrations in the matrix and pore linings. Soil textures at sample points ranged from cobbly clay loams to loams. Wetland hydrology indicators observed at areas mapped as seasonal wetlands included Biotic Crust (B12) and Water-stained Leaves (B9).

Areas mapped as vernal pools contained indicators of wetland hydrology and hydric soils sufficient to satisfy criteria to meet the wetland definition pursuant to the CWA and the State Wetland Policy definition of a wetland.

#### Freshwater marsh (PEM1F)

The Study Area contains approximately 1.01 acres of freshwater marsh wetlands (NWI classification = PEM1F, palustrine emergent wetland, persistent, semi-permanently flooded) that are potential waters of the U.S. and State. Within the Study Area, areas delineated as freshwater marsh typically occur in concave swales, enclosed depressions, and seepage areas, some of which appear to be partially impounded or receiving hydrology inputs from nearby non-jurisdictional quarry detention basins. Freshwater marshes within the Study Area are typically dominated by OBL graminoids, including narrow leaf cattail (*Typha angustifolia*), and spike rush (*Eleocharis macrostachya*). Areas mapped as freshwater marsh typically contained disturbed soils due to the man-made or man-induced conditions influencing the majority of these features. For instance freshwater marsh FM-03, sampled at SP09 was located in a man-made excavated depression, and the soil sample exhibited a mixed matrix with fill material. Soils sampled at freshwater marsh locations were presumed to be hydric due to the dominance of hydrophytic vegetation and presences of one or more primary wetland hydrology indicators. Wetland hydrology indicators observed at areas mapped as freshwater marsh included High Water Table (A2) and Saturation (A3).

Areas mapped as freshwater marsh contained indicators of hydrophytic vegetation, wetland hydrology, and hydric soils sufficient to satisfy criteria to meet the wetland definition pursuant to the CWA and the State Wetland Policy definition of a wetland.

## **5.2 Non-wetland Waters**

#### Intermittent stream (R4SB)

The Study Area contains approximately 0.67 acre of intermittent streams, which are mainly concentrated around the perimeter of the Study Area. Three of these features are mapped as unnamed dashed "blue-line" streams on the lone, Goose Creek, Carbondale, and Irish Hill USGS 7.5-minute quadrangle maps. These streams presumably are tributaries to Laguna Creek or Hadselville Creek to the north and east, respectively. Streams to the west, north, and east of the Quarry pit are located in the Cosumnes River watershed, whereas streams to the South of the Quarry pit are located in the Mokelumne River watershed.

Intermittent streams within the Study Area vary in dimension and form, and range from approximately 2 to 4 feet in width between OHWMs, and approximately 10 to 15 feet between

tops of bank (TOBs). The beds of the intermittent stream channels are variably unvegetated or sparsely vegetated substrate composed of silts and gravels, or vegetated with non-native annual grasses, including Italian ryegrass, soft chess (*Bromus hordeaceus*), and purple false brome (*Brachypodium distachyon*). OHWM indicators included the presence of a bed and bank, scouring, and sediment deposition. Areas mapped as intermittent stream are considered jurisdictional under the State Wetland Policy, and the CWA.

#### Pond (PUBFx)

The Study Area contains one pond feature occupying approximately 0.26 acre in the northeastern portion of the Study Area. This feature contained an earthen bottom and fringe of emergent marsh vegetation including California bulrush. Historical aerial photographs (Google Earth 2020) indicate that this feature was likely excavated in dry land sometime between 1993 and 1998, possibly related to previous mining activities. Although the pond was likely excavated in dry land, the feature appears to be abandoned, and is currently meeting indicators of OHWM. Therefore, the pond may be considered jurisdictional under the CWA and State Wetland Policy.

#### Drainage ditch (R4SBCx)

The Study Area contains one very small (less than 0.01 acre) drainage ditch, which is located in the northeastern boundary of the Study Area where an intermittent stream crosses the quarry road. This drainage ditch appears to have been excavated in dry land. However, the ditch has a direct, above ground connection to a potentially jurisdictional stream. Therefore, this single drainage ditch may be considered jurisdictional under the CWA and State Wetland Policy.

### **5.3 Features Determined Potentially Exempt**

#### Quarry detention basins and drainage ditches

The Study Area contains approximately 4.72 acres of quarry detention basins and drainage ditches. These man-made features, most of which were built between 2003 and 2009 (Google Earth 2020) were excavated in dry land to retain and treat stormwater runoff and store water for reuse on site as part of ongoing mining operations. The principal hydrology sources include runoff from mining-related drainage ditches, overland sheet-flows. The hydroperiod varies from perennial to seasonal. Detention basins with perennial hydrology typically contained emergent marsh vegetation dominated by cattails, California bulrush (*Schoenoplectus californicus*), with occasional Gooding's willow (*Salix gooddingii*) saplings present. Detention basins with seasonally flooded hydrology were typically dominated by hydrophytic grasses and forbs including annual beard grass (*Polypogon monspeliensis*), spikerush, Italian ryegrass, and coyote thistle (*Eryngium vaseyi*).

## **6.0 CONCLUSION**

The results of this delineation of aquatic resources was based on conditions observed during the May 15, 2019, and June 9 and 10, 2020 site visits, and information provided to WRA by the Project Proponent. The delineation uses the federal methodology to determine the potential boundaries of wetlands and non-wetland features and is consistent with the approach used by the Regional Water Quality Control Board to determine wetlands subject to the State Wetland Policy. A total of 3.58 acres of potentially jurisdictional wetlands, and 0.94 acre (12,673 linear feet) of non-wetland waters features were determined to be potentially jurisdictional features under the CWA and State Wetland Policy.



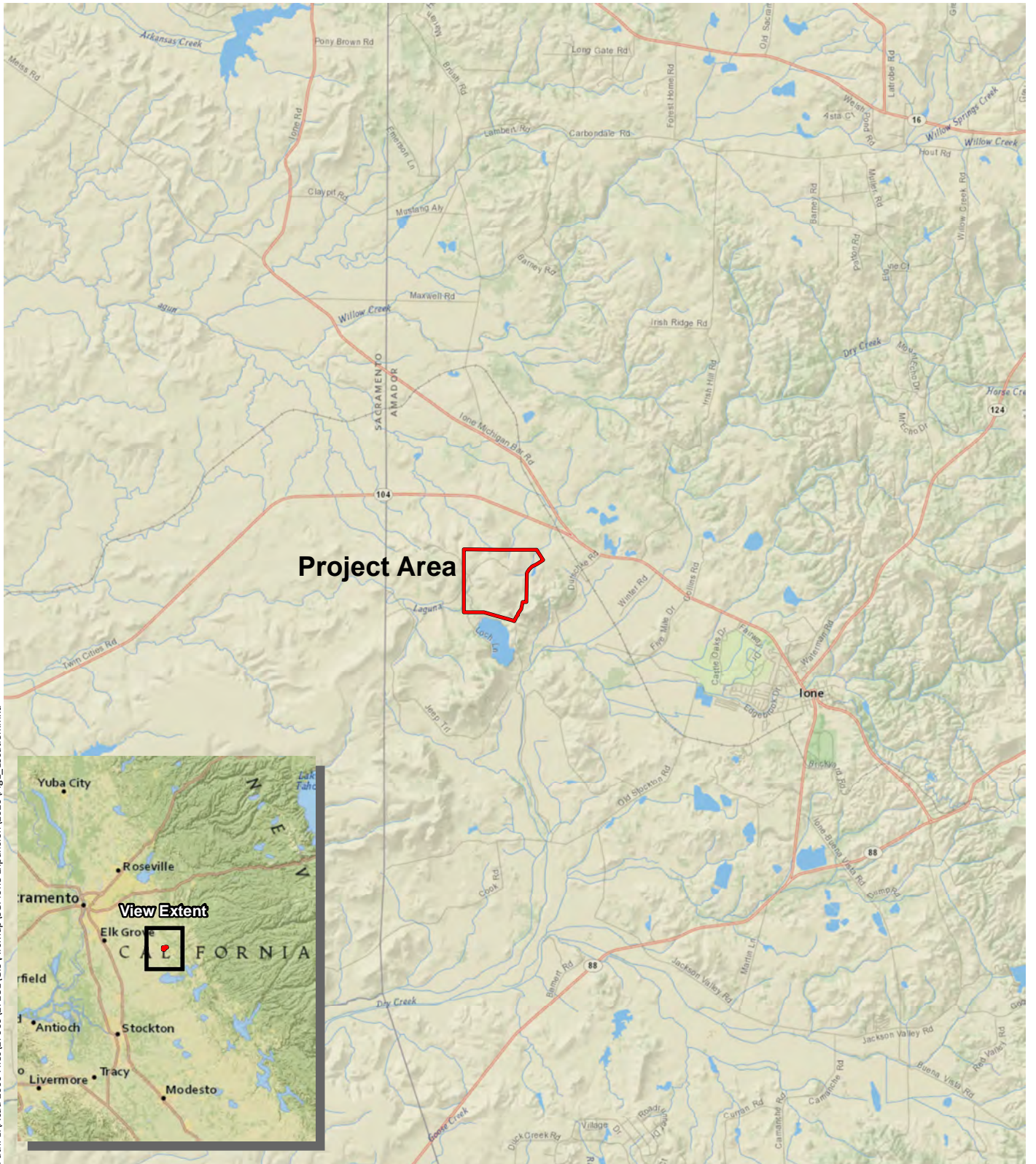
## 7.0 REFERENCES

- [Corps] U.S. Army Corps of Engineers. 2005. Regulatory Guidance Letter No. 05-05. Ordinary High Water Mark Identification. December 7.
- [Corps] U.S. Army Corps of Engineers. 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). September.
- [Corps] U.S. Army Corps of Engineers. 2008b. A Field Guide to the Identification of the Ordinary High Water Mark Identification in the Arid West Region of the United States. August.
- [CSRL] California Soil Resources Lab. 2020. UC Davis Soils Laboratory. Available at: <http://casoilresource.lawr.ucdavis.edu/drupal/>. Most recently accessed June 2020.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish & Wildlife Service, Washington, D.C. 131 pp.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.
- Federal Geographic Data Committee. 2013. Classification of Wetlands and Deepwater Habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.
- Google Earth. 2020. Aerial Imagery 1993-2019. Most recently accessed June 2020.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. *Phytoneuron* 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.
- Lichvar, R.W. and S.M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. U.S. Army Corps of Engineers. August.
- Munsell Color. 2009. Munsell Soil Color Charts. Munsell Color. Grand Rapids, MI. 40pp.
- [NOAA] National Oceanic and Atmospheric Administration. 2020. National Climate Data Center: Climate Data Online. Weather Station: Sutter Hill CDF. Available online at: <http://www.ncdc.noaa.gov/cdo-web/>. Most recently accessed June 2020.
- [SWRCB] State Water Resources Control Board. 2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, May 14, 2019.
- [USDA] U.S. Department of Agriculture, Soil Conservation Service (SCS). 1965. Soil Survey of Amador Area, California. In cooperation with the U.C. Agricultural Experiment Station.
- [USDA] U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2016. Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.0, 2016.

- [USDA] U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2020. WETS Camp Pardee station, GHCN USC00041428. 1987-2017 analysis. <http://www.wcc.nrcs.usda.gov/climate/clim-reports.html>. Most recently accessed June 2020.
- [USFWS] U.S. Fish and Wildlife Service. 2020. National Wetlands Inventory website. U.S. Department of the Interior, USFWS, Washington, D.C. <http://www.fws.gov/nwi/>. Most recently accessed June 2020.
- [USGS] U.S. Geological Survey. 2020a. Goose Creek 7.5-minute quadrangle.
- [USGS] U.S. Geological Survey. 2020b. Carbondale 7.5-minute quadrangle.
- [USGS] U.S. Geological Survey. 2020c. Irish Hill 7.5-minute quadrangle.
- [USGS] U.S. Geological Survey. 2020d. Lone 7.5-minute quadrangle.
- [WRA] WRA, Inc. 2020. Biological Resources Assessment, Specialty Granules (lone) LLC – lone Quarry Expansion Project, Amador County, California. August.

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## APPENDIX A -- Figures

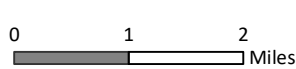


Path: L:\Acad 2000 Files\27000\27231\GIS\ArcMap\SGI Ione Expansion\2020\Fig1\_Location.mxd

Sources: National Geographic, WRA | Prepared By: SGillespie, 4/14/2020

**Figure 1. Project Area Regional Location Map**

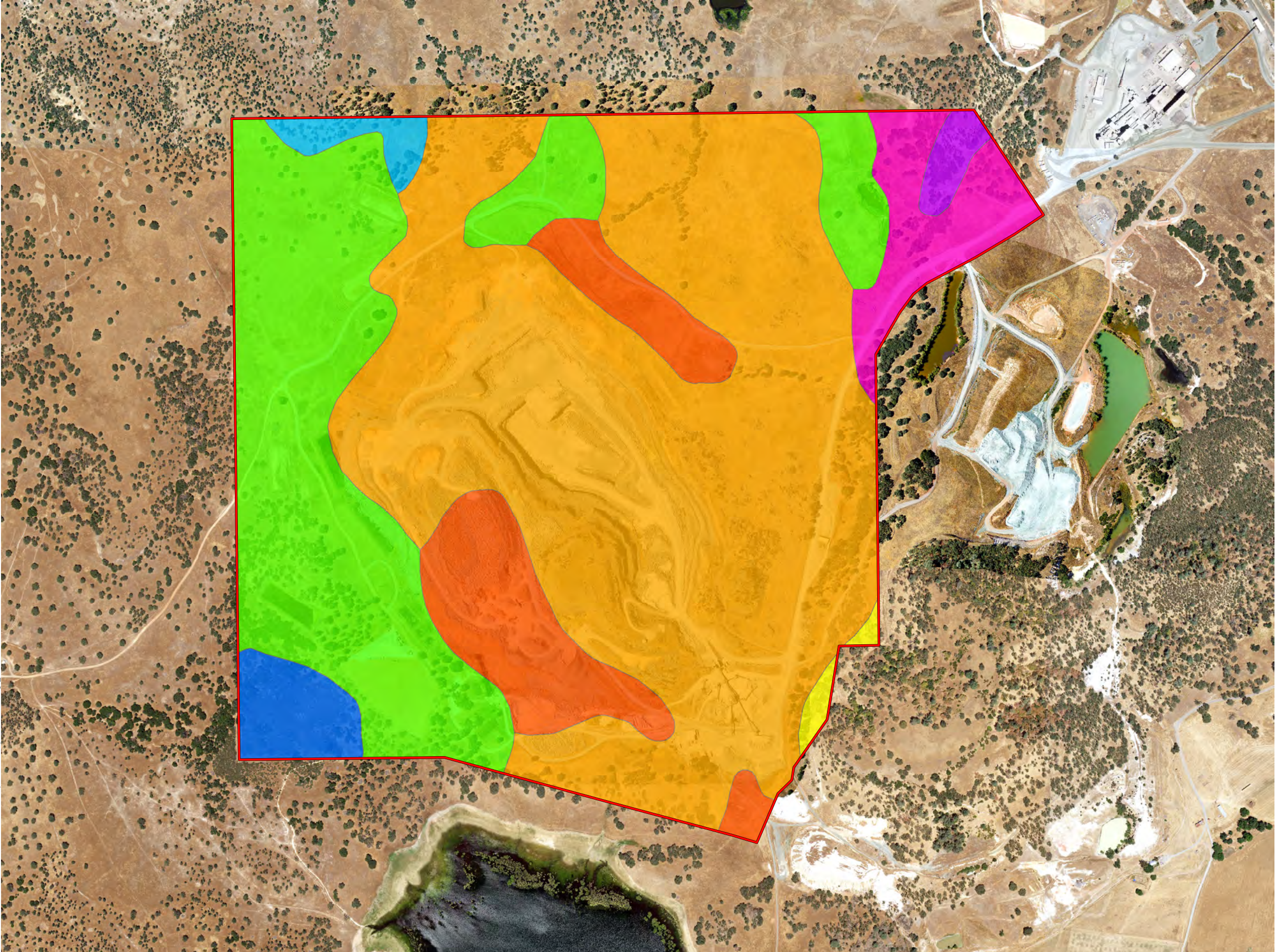
SGI Ione Quarry Expansion  
Amador County, California



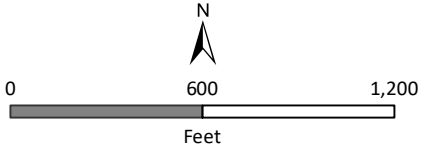
## Figure 2. Soils

SGI lone Quarry Expansion  
Amador County, California

**PRIVILEGED AND CONFIDENTIAL  
ATTORNEY-CLIENT COMMUNICATION**



- Project Area
- Auburn-Argonaut silt loams, 0 to 16 percent slopes
- Auburn-Argonaut very rocky silt loams, 3 to 31 percent slopes
- Inks loam and Rock land, 3 to 45 percent slopes
- Pardee cobbly loam, 3 to 31 percent slopes
- Pentz sandy loam, 16 to 31 percent slopes
- Pentz sandy loam, 2 to 16 percent slopes
- Placer diggings and Riverwash
- Red Bluff-Mokelumne complex, 5 to 16 percent slopes



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Sources: Sonoma Veg 2013 Aerial, WRA | Prepared By: SGillespie, 4/14/2020

# Appendix A. Figure 3 Potential Section 404 Jurisdictional Features

SGI Ione Quarry Expansion  
Amador County, California

**PRIVILEGED AND CONFIDENTIAL  
ATTORNEY-CLIENT COMMUNICATION**

Study Area: (389.21 ac.)

○ Sample Point

### Potential Waters of the U.S. and State

Drainage Ditch: (<0.01 ac.)

Intermittent Stream: (0.67 ac.)

Freshwater Marsh: (1.00 ac.)

Pond: (0.26 ac.)

Seasonal Wetland: (2.24 ac.)

Vernal Pool: (0.33 ac.)

### Potential Non-jurisdictional Features

Quarry Detention Basin: (4.72 ac.)

Quarry Drainage Ditch: (0.46 ac.)

WJA Type	WJA ID	Acres	Length (ft)	Waters of the US (Yes/No)	Waters of the State (Yes/No)
Drainage Ditch (Sensitive)	DD-01	0.009	95	No	No
Freshwater Marsh	FM-01	0.609	<Null>	Yes	Yes
Freshwater Marsh	FM-02	0.054	<Null>	Yes	Yes
Freshwater Marsh	FM-03	0.021	<Null>	Yes	Yes
Freshwater Marsh	FM-04	0.011	<Null>	Yes	Yes
Freshwater Marsh	FM-05	0.039	<Null>	Yes	Yes
Freshwater Marsh	FM-06	0.254	<Null>	Yes	Yes
Freshwater Marsh	FM-07	0.069	<Null>	Yes	Yes
Intermittent Stream	IS-01	0.043	656	Yes	Yes
Intermittent Stream	IS-02	0.067	291	Yes	Yes
Intermittent Stream	IS-03	0.005	21	Yes	Yes
Intermittent Stream	IS-04	0.042	525	Yes	Yes
Intermittent Stream	IS-05	0.006	210	Yes	Yes
Intermittent Stream	IS-06	0.009	83	Yes	Yes
Intermittent Stream	IS-07	0.098	1302	Yes	Yes
Intermittent Stream	IS-08	0.046	1509	Yes	Yes
Intermittent Stream	IS-09	0.039	517	Yes	Yes
Intermittent Stream	IS-10	0.116	1300	Yes	Yes
Intermittent Stream	IS-11	0.020	492	Yes	Yes
Intermittent Stream	IS-12	0.058	327	Yes	Yes
Intermittent Stream	IS-13	0.078	620	Yes	Yes
Intermittent Stream	IS-14	0.018	393	Yes	Yes
Intermittent Stream	IS-15	0.006	144	Yes	Yes
Intermittent Stream	IS-16	0.004	285	Yes	Yes
Intermittent Stream	IS-17	0.006	146	Yes	Yes
Intermittent Stream	IS-18	0.004	135	Yes	Yes
Intermittent Stream	IS-19	0.009	111	Yes	Yes
Intermittent Stream	IS-20	0.006	158	Yes	Yes
Intermittent Stream	IS-21	0.009	41	Yes	Yes
Intermittent Stream	IS-22	0.009	377	Yes	Yes
Intermittent Stream	IS-23	0.004	91	Yes	Yes
Intermittent Stream	IS-24	0.047	512	Yes	Yes
Intermittent Stream	IS-25	0.009	633	Yes	Yes
Intermittent Stream	IS-26	0.006	524	Yes	Yes
Intermittent Stream	IS-27	0.005	23	Yes	Yes
Intermittent Stream	IS-28	0.005	312	Yes	Yes
Intermittent Stream	IS-29	0.064	719	Yes	Yes
Pond	P-01	0.265	<Null>	No	No
Quarry Detention Basin	DB-01	0.391	<Null>	No	No
Quarry Detention Basin	DB-02	1.004	<Null>	No	No
Quarry Detention Basin	DB-03	0.948	<Null>	No	No
Quarry Detention Basin	DB-04	0.610	<Null>	No	No
Quarry Detention Basin	DB-05	0.271	<Null>	No	No
Quarry Detention Basin	DB-06	0.912	<Null>	No	No
Quarry Detention Basin	DB-07	0.274	<Null>	No	No
Quarry Detention Basin	DB-08	0.008	<Null>	No	No
Quarry Detention Basin	DB-09	0.161	<Null>	No	No
Quarry Detention Basin	DB-10	0.198	<Null>	No	No
Quarry Detention Basin	DB-11	0.141	<Null>	No	No
Quarry Detention Basin	DB-12	0.133	<Null>	No	No
Quarry Drainage Ditch	MD-01	0.029	497	No	No
Quarry Drainage Ditch	MD-02	0.064	156	No	No
Quarry Drainage Ditch	MD-03	0.094	407	No	No
Quarry Drainage Ditch	MD-04	0.049	1824	No	No
Quarry Drainage Ditch	MD-05	0.021	310	No	No
Quarry Drainage Ditch	MD-06	0.119	375	No	No
Quarry Drainage Ditch	MD-07	0.024	112	No	No
Quarry Drainage Ditch	MD-08	0.070	397	No	No
Quarry Drainage Ditch	MD-09	0.008	155	No	No
Quarry Drainage Ditch	MD-10	0.047	204	No	No
Quarry Drainage Ditch	MD-11	0.041	203	No	No
Quarry Drainage Ditch	MD-12	0.003	57	No	No
Quarry Drainage Ditch	MD-13	0.178	128	No	No
Quarry Drainage Ditch	MD-14	0.064	790	No	No
Quarry Drainage Ditch	MD-15	0.006	56	No	No
Seasonal Wetland	SW-01	0.174	<Null>	Yes	Yes
Seasonal Wetland	SW-02	0.045	<Null>	Yes	Yes
Seasonal Wetland	SW-03	0.070	<Null>	No	Yes
Seasonal Wetland	SW-04	0.249	<Null>	Yes	Yes
Seasonal Wetland	SW-05	0.020	<Null>	No	Yes
Seasonal Wetland	SW-06	0.076	<Null>	No	Yes
Seasonal Wetland	SW-07	0.200	<Null>	Yes	Yes
Seasonal Wetland	SW-08	0.109	<Null>	No	Yes
Seasonal Wetland	SW-09	0.030	<Null>	No	Yes
Seasonal Wetland	SW-10	0.004	<Null>	Yes	Yes
Seasonal Wetland	SW-11	0.267	<Null>	Yes	Yes
Seasonal Wetland	SW-12	0.348	<Null>	Yes	Yes
Seasonal Wetland	SW-13	0.043	<Null>	Yes	Yes
Seasonal Wetland	SW-14	0.120	<Null>	Yes	Yes
Seasonal Wetland	SW-15	0.192	<Null>	Yes	Yes
Seasonal Wetland	SW-16	0.074	<Null>	No	Yes
Seasonal Wetland	SW-17	0.022	<Null>	No	Yes
Seasonal Wetland	SW-18	0.025	<Null>	No	Yes
Seasonal Wetland	SW-19	0.004	<Null>	Yes	Yes
Seasonal Wetland	SW-20	0.117	<Null>	Yes	Yes
Seasonal Wetland	SW-21	0.083	<Null>	Yes	Yes
Seasonal Wetland	SW-22	0.118	<Null>	Yes	Yes
Seasonal Wetland	SW-23	0.099	<Null>	Yes	Yes
Seasonal Wetland	SW-24	0.012	<Null>	No	Yes
Vernal Pool	VP-01	0.007	<Null>	No	Yes
Vernal Pool	VP-02	0.002	<Null>	No	Yes
Vernal Pool	VP-03	0.062	<Null>	No	Yes
Vernal Pool	VP-04	0.044	<Null>	No	Yes
Vernal Pool	VP-05	0.042	<Null>	No	Yes
Vernal Pool	VP-06	0.105	<Null>	No	Yes
Vernal Pool	VP-07	0.012	<Null>	No	Yes
Vernal Pool	VP-08	0.018	<Null>	No	Yes



0 400 800

1 Inch = 200 Feet

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APPENDIX B -- Arid West Wetland Delineation Data Forms

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Ione Quarry Expansion City                      County Amador Sampling Date 5/15/2019  
 Applicant/Owner Specialty Granules (Ione) LLC (SGI) State CA Sampling Point SP01  
 Investigator(s) S. Yarger, R. Scampavia Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) depression Local Relief (concave, convex, none) concave Slope(%) 2  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.375782 Long: -121.00272 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	---

**Remarks:** Sample point SP01 is a wetland sample point, paired with upland sample point SP02. Sample point taken in a vernal pool within a blue oak savanna and non-native annual grassland dominated landscape. The boundary of the vernal pool was delineated based on a distinct shift in microtopography, vegetation composition, and presence of wetland hydrology indicators. Climatic conditions for the three-month preceding period and water year to date were characterized by above normal precipitation.

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>2</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
<b>SAPLING/SHRUB STRATUM</b>	<b>Plot Size:</b>	<b>Absolute % cover</b>	<b>Dominant Species?</b>	<b>Indicator Status</b>	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
<b>HERB STRATUM</b>	<b>Plot Size:</b>	<b>Absolute % cover</b>	<b>Dominant Species?</b>	<b>Indicator Status</b>	<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Festuca perennis</u>	<u>5' radius</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Hordeum marinum</u>		<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Eryngium castrense</u>		<u>10</u>	<u>N</u>	<u>OBL</u>	
4. <u>Lasthenia fremontii</u>		<u>10</u>	<u>N</u>	<u>OBL</u>	
5. <u>Ranunculus bonariensis</u>		<u>3</u>	<u>N</u>	<u>OBL</u>	
6. <u>Psilocarphus brevissimus</u>		<u>2</u>	<u>N</u>	<u>FACW</u>	
7. <u>Downingia sp.</u>		<u>2</u>	<u>N</u>	<u>FACW</u>	
8. <u>Brodiaea nana</u>		<u>1</u>	<u>N</u>	<u>NL</u>	
<b>Herb Stratum Total Cover:</b> <u>68</u>					
<b>WOODY VINE STRATUM</b>	<b>Plot Size:</b>	<b>Absolute % cover</b>	<b>Dominant Species?</b>	<b>Indicator Status</b>	<b>Hydrophytic Vegetation Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust <u>15</u>			

**Remarks:** At the time of the site visit, the herb stratum was dominated by facultative grass species, thereby meeting the Dominance Test for hydrophytic vegetation. Trace amounts of spike rush (*Eleocharis macrostachya*; OBL) also present within the herb stratum plot. A dried algal mat (biotic crust) covered 15% of the herb stratum plot, and thatch covered the remaining 17%.

**SOIL**

Sampling Point SP01

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-4	10YR 3/4	85	5YR 4/6	15	C	M, PL	Sandy loam	high gravel content

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input checked="" type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: <u>hardpan/compacted gravel</u> Depth (inches): <u>4</u>	Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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**Remarks:** Hard, dry, gravelly soils resulted in shovel refusal at 4-inch depth. No hydrogen sulfide odor was present. Prominent redox features met the requirements for hydric soil indicator F8 (Redox Depressions); therefore hydric soil is present.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input checked="" type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (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)
<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-Neutral Test (D5)	

<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): <u>N/A</u> Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): <u>N/A</u> Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): <u>N/A</u> (includes capillary fringe)	Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

**Remarks:** The presence of a biotic crust (B12) indicates wetland hydrology is present.

# Wetland Determination Data Form - Arid West Region

Project/Site SGL Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 5/15/2019  
 Applicant/Owner Specialty Granules (Ione) LLC (SGL) State CA Sampling Point SP02  
 Investigator(s) S. Yarger, R. Scampavia Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) foothills Local Relief (concave, convex, none) none Slope(%) 2  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.375802 Long: -121.002672 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sample point SP02 is an upland sample point, paired with wetland sample point SP01. The sample point was taken in upland non-native grassland, adjacent to a vernal pool, sampled at SP01. The boundary of the vernal pool was delineated based on a distinct shift in microtopography, vegetation composition, and presence of wetland hydrology indicators. Climatic conditions for the three-month preceding period and water year to date were characterized by above normal precipitation.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> 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) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
<b>SAPLING/SHRUB STRATUM</b>	<b>Plot Size:</b>	<b>Absolute % cover</b>	<b>Dominant Species?</b>	<b>Indicator Status</b>	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
<b>HERB STRATUM</b>	<b>Plot Size:</b>	<b>Absolute % cover</b>	<b>Dominant Species?</b>	<b>Indicator Status</b>	<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u><i>Elymus caput-medusae</i></u>	<u>5' radius</u>	<u>45</u>	<u>Y</u>	<u>NL</u>	
2. <u><i>Bromus hordeaceus</i></u>		<u>12</u>	<u>N</u>	<u>FACU</u>	
3. <u><i>Leontodon saxatilis</i></u>		<u>8</u>	<u>N</u>	<u>FACU</u>	
4. <u><i>Festuca perennis</i></u>		<u>5</u>	<u>N</u>	<u>FAC</u>	
5. <u><i>Erodium brachycarpum</i></u>		<u>1</u>	<u>N</u>	<u>NL</u>	
6. <u><i>Trifolium sp.</i></u>		<u>1</u>	<u>N</u>	<u>NL</u>	
7. <u><i>Brodiaea nana</i></u>		<u>1</u>	<u>N</u>	<u>NL</u>	
8. <u><i>Avena barbata</i></u>		<u>1</u>	<u>N</u>	<u>NL</u>	
<b>Herb Stratum Total Cover:</b> <u>74</u>					
<b>WOODY VINE STRATUM</b>	<b>Plot Size:</b>	<b>Absolute % cover</b>	<b>Dominant Species?</b>	<b>Indicator Status</b>	<b>Hydrophytic Vegetation Present ?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>10</u>		% cover of biotic crust <u>0</u>			

**Remarks:** At the time of the site visit, the herb stratum was dominated by nonnative upland grass species. The herb stratum also included trace cover of amole (*Chlorogalum pomeridianum*; NL), silvery hairgrass (*Aira caryophyllea*; FACU), narrow leaved owl clover (*Castilleja attenuata*; NL), Hoover's brodiaea (*Brodiaea appendiculata*; NL), and valley sky lupine (*Lupinus nanus*; NL). Thatch covered 16% of the herb stratum plot.

**SOIL**

Sampling Point SP02

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-7	10YR 3/4	85	5YR 4/6	15	C	M, PL	Sandy loam	high gravel content

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: <u>none</u> Depth (inches): <u>N/A</u>	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks: No hydric soil indicators were identified; hydric soil was not present.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (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)
<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-Neutral Test (D5)	

<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): <u>N/A</u> Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): <u>N/A</u> Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): <u>N/A</u> (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators were identified; wetland hydrology was not present.

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 5/15/2019  
 Applicant/Owner Specialty Granules (Ione) LLC (SGI) State CA Sampling Point SP03  
 Investigator(s) S. Yarger, R. Scampavia Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) hillslope Local Relief (concave, convex, none) concave Slope(%) 5  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.374019 Long: -121.000528 Datum: WGS 84  
 Soil Map Unit Name Auburn-Argonaut very rocky silt loams, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sample point SP03 is a wetland sample point, paired with upland sample point SP04. The sample point was taken within a seasonal wetland swale at the head of an ephemeral stream. The boundary of the seasonal wetland was delineated based on an observed shift in vegetative composition from facultative grass species to upland species associated with a slight shift in local relief from concave to convex. Climatic conditions for the three-month preceding period and water year to date were characterized by above normal precipitation.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
1. _____	<u>N/A</u>	_____	_____	_____	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
1. <u>Festuca perennis</u>	<u>5' radius</u>	<u>95</u>	<u>Y</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Bromus hordeaceus</u>		<u>2</u>	<u>N</u>	<u>FACU</u>	
3. <u>Elymus caput-medusae</u>		<u>1</u>	<u>N</u>	<u>NL</u>	
4. <u>Hordeum marinum</u>		<u>1</u>	<u>N</u>	<u>FAC</u>	
5. <u>Leontodon saxatilis</u>		<u>1</u>	<u>N</u>	<u>FACU</u>	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>100</u>					
1. _____	<u>N/A</u>	_____	_____	_____	<b>Hydrophytic Vegetation Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> <u>0</u>					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust <u>0</u>			

**Remarks:** Italian ryegrass-dominated herb stratum meets the Dominance Test for hydrophytic vegetation; therefore hydrophytic vegetation is present.

**SOIL**

Sampling Point SP03

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-5	10YR 4/2	80	5YR 4/6	20	C	M, PL	Clay loam	
5-10	5YR 3/4	94	10YR 4/2	5	D	M	Clay loam	
			10YR 2/1	1	C	M		relict Manganese concentrations

<sup>1</sup>Type: 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.)**

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

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

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

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

**Restrictive Layer (if present):**

Type: none  
 Depth (inches): N/A

Hydric Soil Present ?  Yes  No

Remarks: Depletions in the soil horizon from 5-10 inches in depth met the criteria for the depleted matrix (F3) hydric soil indicator.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface water present?  Yes  No      Depth (inches): N/A  
 Water table present?  Yes  No      Depth (inches): N/A  
 Saturation Present?  Yes  No      Depth (inches): N/A  
 (includes capillary fringe)

Wetland Hydrology Present ?  Yes  No

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Wetland hydrology indicators were obscured by dense Italian ryegrass cover within most of the feature. Surface soil cracks (B6) were visible in an isolated patch of bare ground within the depression.

# Wetland Determination Data Form - Arid West Region

Project/Site SGL Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 5/15/2019  
 Applicant/Owner Specialty Granules (Ione) LLC (SGL) State CA Sampling Point SP04  
 Investigator(s) S. Yarger, R. Scampavia Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) hillslope Local Relief (concave, convex, none) convex Slope(%) 2  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.374083 Long: -121.000666 Datum: WGS 84  
 Soil Map Unit Name Auburn-Argonaut very rocky silt loams, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sample point SP04 is an upland sample point, paired with wetland sample point SP03. The sample point was taken on a hillslope, adjacent to a seasonal wetland swale sampled at SP03. The boundary of the delineated wetland was mapped based on an observed shift in vegetative composition from facultative grass species to upland species associated with a slight shift in local relief from concave to convex. Climatic conditions for the three-month preceding period and water year to date were characterized by above normal precipitation.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> 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) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
<b>SAPLING/SHRUB STRATUM</b>	<b>Plot Size:</b>	<b>Absolute % cover</b>	<b>Dominant Species?</b>	<b>Indicator Status</b>	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> <u>0</u>					
<b>HERB STRATUM</b>	<b>Plot Size:</b>	<b>Absolute % cover</b>	<b>Dominant Species?</b>	<b>Indicator Status</b>	<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u><i>Leontodon saxatilis</i></u>	<u>5' radius</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
2. <u><i>Bromus diandrus</i></u>		<u>15</u>	<u>N</u>	<u>NL</u>	
3. <u><i>Bromus hordeaceus</i></u>		<u>10</u>	<u>N</u>	<u>FACU</u>	
4. <u><i>Trifolium dubium</i></u>		<u>8</u>	<u>N</u>	<u>UPL</u>	
5. <u><i>Festuca bromoides</i></u>		<u>8</u>	<u>N</u>	<u>FACU</u>	
6. <u><i>Elymus caput-medusae</i></u>		<u>5</u>	<u>N</u>	<u>NL</u>	
7. <u><i>Festuca perennis</i></u>		<u>5</u>	<u>N</u>	<u>FAC</u>	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>91</u>					
<b>WOODY VINE STRATUM</b>	<b>Plot Size:</b>	<b>Absolute % cover</b>	<b>Dominant Species?</b>	<b>Indicator Status</b>	<b>Hydrophytic Vegetation Present ?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust <u>0</u>			

**Remarks:** At the time of the site visit, the herb stratum was dominated by upland grasses and forbs; therefore hydrophytic vegetation was not present. The herb stratum plot also contained trace amounts of wild hyacinth (*Triteleia hyacinthina*; FAC) and wild geranium (*Geranium dissectum*; NL), and 9% thatch cover.



**SOIL**

Sampling Point SP04

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-8	5YR 4/4	95	10YR 4/3	5	D	M	Clay loam	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: <u>none</u> Depth (inches): <u>N/A</u>	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks: No hydric soil indicators were present.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (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)	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-Neutral Test (D5)
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<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): <u>N/A</u> Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): <u>N/A</u> Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): <u>N/A</u> (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators were present.

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/9/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGI) State CA Sampling Point SP05  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) depression Local Relief (concave, convex, none) concave Slope(%) 1  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.371907 Long: -121.008938 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sample point SP10 is a wetland sample point, paired with upland sample point SP11. Sample point was taken in a depression within a seasonal wetland swale, at the confluence of two wetland swales, one of which is blocked by a berm. The boundary of the wetland was delineated based on an observed shift in vegetative composition from hydrophytic grasses and forbs to upland grasses, and a shift in microtopography from concave to convex.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>3</u> (A) Total number of dominant species across all strata? <u>3</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
<b>SAPLING/SHRUB STRATUM</b>	<b>Plot Size:</b>				<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
<b>HERB STRATUM</b>	<b>Plot Size:</b>				<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Festuca perennis</u>	<u>5' radius</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Hordeum marinum</u>		<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Eryngium vaseyi</u>		<u>10</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Lythrum hyssopifolia</u>		<u>2</u>	<u>N</u>	<u>OBL</u>	
5. <u>Juncus bufonius</u>		<u>2</u>	<u>N</u>	<u>FACW</u>	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>44</u>					
<b>WOODY VINE STRATUM</b>	<b>Plot Size:</b>				<b>Hydrophytic Vegetation Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>41</u>		% cover of biotic crust <u>5</u>			

**Remarks:** Sample point was dominated by facultative grass species, meeting the Dominance Test hydrophytic vegetation indicator.

**SOIL**

Sampling Point SP05

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-8	7.5YR 4/2	80	2.5YR 3/6	20	C	M, PL	Silty clay loam	Prominent redox concentrations.

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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**Remarks:** Shovel refusal at 8 inches due to high cobble content. Sample point meets Depleted Matrix (F3) hydric soil indicator.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input checked="" type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (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)
<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-Neutral Test (D5)	

<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

**Remarks:** Sample point meets Biotic Crust (B12) wetland hydrology indicator.

# Wetland Determination Data Form - Arid West Region

Project/Site SGL Ione Quarry Expansion City                      County Amador Sampling Date 6/9/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGL) State CA Sampling Point SP06  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) hillslope Local Relief (concave, convex, none) convex Slope(%) 4  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.372171 Long: -121.008995 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sample point SP11 is an upland sample point, paired with wetland sample point SP10. SP11 was taken on a gentle slope adjacent to a seasonal wetland swale, sampled at SP10. The boundary of the wetland was delineated based on an observed shift in vegetative composition from hydrophytic grasses and forbs to upland grasses, and a shift in microtopography from concave to convex. Sample point lacked hydrophytic vegetation and wetland hydrology indicators, but contained hydric soils, likely relict from a prior wetter climate.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size: <u>25' radius</u>	Absolute % cover	Dominant Species?	Indicator Status	
1. <u>Quercus douglasii</u>		35	Y	NL	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) Total number of dominant species across all strata? <u>4</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B)
2. _____					
3. _____					
4. _____					
<b>Tree Stratum Total Cover:</b>		<u>35</u>			
SAPLING/SHRUB STRATUM	Plot Size: <u>N/A</u>				
1. _____					<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____					
3. _____					
4. _____					
<b>Sapling/Shrub Stratum Total Cover:</b>					
HERB STRATUM	Plot Size: <u>5' radius</u>				
1. <u>Bromus diandrus</u>		30	Y	NL	<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Avena barbata</u>		30	Y	NL	
3. <u>Elymus caput-medusae</u>		30	Y	NL	
4. <u>Bromus hordeaceus</u>		2	N	FACU	
5. _____					
6. _____					
7. _____					
8. _____					
<b>Herb Stratum Total Cover:</b>		<u>92</u>			
WOODY VINE STRATUM	Plot Size: <u>N/A</u>				
1. _____					<b>Hydrophytic Vegetation Present ?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____					
<b>Woody Vines Total Cover:</b>					
% Bare ground in herb stratum <u>0</u> % cover of biotic crust _____					

**Remarks:** Sample point was dominated by upland grass species, lacking hydrophytic vegetation. Thatch covered 8% of herb stratum.

**SOIL**

Sampling Point SP06

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-8	7.5YR 4/2	98	7.5YR 4/6	2	C	M, PL	Silty clay loam	Prominent redox concentrations.

<sup>1</sup>Type: 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.)**

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

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

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

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present ?  Yes  No

**Remarks:** Shovel refusal at 8 inches due to high gravel and cobble content. Sample point meets Depleted Matrix (F3) hydric soil indicator. Hydric soils may be relict from a previous wetter climate or due to other alterations in the landscape.

**HYDROLOGY**

**Wetland Hydrology 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 along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3)(Nonriverine)          | <input type="checkbox"/> Presence of Reduced Iron (C4)                 |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in PLoWed Soils (C6)    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  |

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface water present?  Yes  No Depth (inches): \_\_\_\_\_

Water table present?  Yes  No Depth (inches): \_\_\_\_\_

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

Wetland Hydrology Present ?  Yes  No

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No hydrology indicators observed.

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Lone Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/9/2020  
 Applicant/Owner Specialty Granules (lone) LLC (SGI) State CA Sampling Point SP07  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) depressional swale Local Relief (concave, convex, none) concave Slope(%) 3  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.366895 Long: -121.004763 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sample point SP12 is a wetland sample point, paired with upland sample point SP13. Sample point was taken in a seasonal wetland swale, within a non-native annual grassland and blue oak savanna landscape. The boundary of the wetland was delineated based on a distinct shift in vegetative composition from hydrophytic grasses and forbs to upland grasses and a distinct shift in microtopography from concave to convex.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>2</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <u><i>Nasturtium officinale</i></u>	<u>3' x 10'</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Polypogon interruptus</i></u>		<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u><i>Polypogon monspeliensis</i></u>		<u>10</u>	<u>N</u>	<u>FACW</u>	
4. <u><i>Eleocharis macrostachya</i></u>		<u>10</u>	<u>N</u>	<u>OBL</u>	
5. <u><i>Festuca perennis</i></u>		<u>10</u>	<u>N</u>	<u>FAC</u>	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>100</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	_____	<b>Hydrophytic Vegetation Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. _____	_____	_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u> % cover of biotic crust _____					

**Remarks:** Sample plot size selected to encompass narrow swale feature. Sample point dominated by FACW/OBL species, thus meeting Dominance Test.

**SOIL**

Sampling Point SP07

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix		Redox Features				Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>			
0-8	10YR 4/2	85	5YR 4/4	15	C	M, PL	Silty clay	Prominent redox concentrations.	
8-14	5/10GY	70	2.5Y 5/4	15	C	M, PL	Silty clay	Prominent redox concentrations.	

<sup>1</sup>Type: 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.)**

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

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

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

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present ?  Yes  No

**Remarks:** Lower stratum contained black (2.5/N) organic matter staining covering 15% of the ped surface. Sample point meets Depleted Matrix (F3) hydric soil indicator. Soil sample was very saturated.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface water present?  Yes  No Depth (inches): \_\_\_\_\_

Water table present?  Yes  No Depth (inches): 1

Saturation Present?  Yes  No Depth (inches): 0  
(includes capillary fringe)

Wetland Hydrology Present ?  Yes  No

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

**Remarks:** Sample point meets Oxidized Rhizospheres along Living Roots (C3), High Water Table (A2), and Saturation (A3) wetland hydrology indicators.

# Wetland Determination Data Form - Arid West Region

Project/Site SGL Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/9/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGL) State CA Sampling Point SP08  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) hillslope Local Relief (concave, convex, none) convex Slope(%) 4  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.36686 Long: -121.00474 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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**Remarks:** Sample point SP13 is an upland sample point, paired with wetland sample point SP12. Sample point was taken adjacent to a seasonal wetland swale, sampled at SP12. The boundary of the wetland was delineated based on a distinct shift in vegetative composition from hydrophytic grasses and forbs to upland grasses and a distinct shift in microtopography from concave to convex.

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <u><i>Elymus caput-medusae</i></u>	<u>5' radius</u>	<u>20</u>	<u>Y</u>	<u>NL</u>	<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Cynosurus echinatus</i></u>		<u>15</u>	<u>Y</u>	<u>NL</u>	
3. <u><i>Hypochaeris radicata</i></u>		<u>10</u>	<u>N</u>	<u>FACU</u>	
4. <u><i>Centaurea solstitialis</i></u>		<u>5</u>	<u>N</u>	<u>NL</u>	
5. <u><i>Carduus pycnocephalus</i></u>		<u>5</u>	<u>N</u>	<u>UPL</u>	
6. <u><i>Torilis arvensis</i></u>		<u>5</u>	<u>N</u>	<u>NL</u>	
7. <u><i>Avena barbata</i></u>		<u>tr</u>	<u>N</u>	<u>NL</u>	
8. <u><i>Bromus madritensis</i></u>		<u>tr</u>	<u>N</u>	<u>UPL</u>	
<b>Herb Stratum Total Cover:</b> <u>60</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Hydrophytic Vegetation Present ?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>40</u>		% cover of biotic crust _____			

**Remarks:** Sample point dominated by upland grasses, and lacking hydrophytic species.



**SOIL**

Sampling Point SP08

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-12	10YR 3/3	100					Clay	

<sup>1</sup>Type: 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.)**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Stratified Layers (A5)(LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> 1cm Muck (A9)(LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present ?**     Yes     No

**Remarks:** Sample point does not meet hydric soil indicators.

**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b></p> <p>Primary Indicators (any one indicator is sufficient)</p> <table border="0"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Salt Crust (B11)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Biotic Crust (B12)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Aquatic Invertebrates (B13)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)(Nonriverine)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)(Nonriverine)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)(Nonriverine)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Surface Soil Cracks (B6)</td> <td><input type="checkbox"/> Recent Iron Reduction in PLoWed Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<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 along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)(Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in PLoWed Soils (C6)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9)		<p>Secondary Indicators (2 or more required)</p> <table border="0"> <tr><td><input type="checkbox"/> Water Marks (B1)(Riverine)</td></tr> <tr><td><input type="checkbox"/> Sediment Deposits (B2)(Riverine)</td></tr> <tr><td><input type="checkbox"/> Drift Deposits (B3)(Riverine)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Thin Muck Surface (C7)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<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-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)																												
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<input type="checkbox"/> Sediment Deposits (B2)(Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																												
<input type="checkbox"/> Drift Deposits (B3)(Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)																												
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																												
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<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): \_\_\_\_\_

Water table present?     Yes     No    Depth (inches): \_\_\_\_\_

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

**Wetland Hydrology Present ?**     Yes     No

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

**Remarks:** Sample point does not meet wetland hydrology indicators.

# Wetland Determination Data Form - Arid West Region

Project/Site SGL Ione Quarry Expansion City                      County Amador Sampling Date 6/9/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGL) State CA Sampling Point SP09  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) hillslope Local Relief (concave, convex, none) concave Slope(%) 1  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.371083 Long: -121.008167 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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**Remarks:** Sample point SP14 is a wetland sample point, paired with upland sample point SP15. The sample point was taken in a roadside wetland area dominated by emergent marsh vegetation. The hydrology source of the wetland feature appeared to be seepage through a levee from a quarry detention basin. The boundary of the wetland was delineated based on a diffuse shift in vegetative composition from emergent marsh vegetation to hydrophytic grasses and forbs to upland grasses.

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>2</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
<b>SAPLING/SHRUB STRATUM</b>	<b>Plot Size:</b>				<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
<b>HERB STRATUM</b>	<b>Plot Size:</b>				<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u><i>Distichlis spicata</i></u>	<u>5' radius</u>	<u>65</u>	<u>Y</u>	<u>FAC</u>	
2. <u><i>Typha angustifolia</i></u>		<u>20</u>	<u>Y</u>	<u>OBL</u>	
3. <u><i>Eleocharis macrostachya</i></u>		<u>10</u>	<u>N</u>	<u>OBL</u>	
4. <u><i>Polypogon interruptus</i></u>		<u>5</u>	<u>N</u>	<u>FACW</u>	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>100</u>					
<b>WOODY VINE STRATUM</b>	<b>Plot Size:</b>				<b>Hydrophytic Vegetation Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____	_____	_____	_____	_____	
2. _____	_____	_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust _____			

**Remarks:** Sample point meets Dominance Test.

**SOIL**

Sampling Point SP09

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-3	10YR 5/2	80					Sandy clay loam	Mixed matrix
	5YR 4/6	20						
3-9	5YR 4/6	80						Mixed matrix
	10YR 5/2	20						

<sup>1</sup>Type: 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.)**

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

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

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

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

**Restrictive Layer (if present):**

Type: compacted gravel

Depth (inches): 9

Hydric Soil Present ?  Yes  No

**Remarks:** A compacted gravel restrictive layer is present at 9 inches. The reddish color in the soil sample appeared to be red parent material comprising a portion of the mixed matrix, as opposed to redoximorphic concentrations, though redox may be masked by red soil color.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface water present?  Yes  No Depth (inches): \_\_\_\_\_

Water table present?  Yes  No Depth (inches): 6

Saturation Present?  Yes  No Depth (inches): 0  
(includes capillary fringe)

Wetland Hydrology Present ?  Yes  No

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

**Remarks:** Sample point meets High Water Table (A2), and Saturation (A3) hydric soil indicators. Hydrogy source appears to be seepage through berm from detention basin.

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/9/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGI) State CA Sampling Point SP10  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) hillslope Local Relief (concave, convex, none) convex Slope(%) 5  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.370996 Long: -121.008279 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sample point SP15 is an upland sample point, paired with wetland sample point SP14. The sample point was taken across the road from a roadside wetland area of emergent marsh vegetation, sampled at SP14. The hydrology source of the wetland feature appeared to be seepage through a levee from a quarry detention basin. The boundary of the wetland was delineated based on a diffuse shift in vegetative composition from emergent marsh vegetation to hydrophytic grasses and forbs to upland grasses.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> 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) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
1. _____	<u>N/A</u>	_____	_____	_____	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
1. <u>Avena barbata</u>	<u>5' radius</u>	<u>70</u>	<u>Y</u>	<u>NL</u>	<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Elymus caput-medusae</u>		<u>10</u>	<u>N</u>	<u>NL</u>	
3. <u>Bromus hordeaceus</u>		<u>5</u>	<u>N</u>	<u>FACU</u>	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>85</u>					
1. _____	<u>N/A</u>	_____	_____	_____	<b>Hydrophytic Vegetation Present ?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust _____			

**Remarks:** Thatch covers 15% of herb stratum plot.

**SOIL**

Sampling Point SP10

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-10	7.5YR 4/4	100					Clay loam	

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

<p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<p><b>Restrictive Layer (if present):</b>          Type: _____          Depth (inches): _____</p>	<p><b>Hydric Soil Present ?</b>    <input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>
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Remarks: Sample point does not meet hydric soil indicators.

**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b></p> <p>Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (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)	<p>Secondary Indicators (2 or more required)</p> <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-Neutral Test (D5)
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<p><b>Field Observations:</b></p> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ (includes capillary fringe)	<p><b>Wetland Hydrology Present ?</b>    <input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point does not meet wetland hydrology indicators.

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/9/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGI) State CA Sampling Point SP11  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) hillslope Local Relief (concave, convex, none) convex Slope(%) 3  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.370383 Long: -121.008002 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sample point SP16 is an upland sample point taken in an area investigated for wetland conditions. The sample point was taken across the road from an area mapped as seasonal wetland. The sample point did not meet hydrophytic vegetation, hydric soil, or wetland hydrology indicators.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>50</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <u><i>Elymus caput-medusae</i></u>	<u>5' radius</u>	<u>40</u>	<u>Y</u>	<u>NL</u>	<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Festuca perennis</i></u>		<u>35</u>	<u>Y</u>	<u>FAC</u>	
3. <u><i>Avena barbata</i></u>		<u>10</u>	<u>N</u>	<u>NL</u>	
4. <u><i>Bromus hordeaceus</i></u>		<u>5</u>	<u>N</u>	<u>FACU</u>	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>90</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Hydrophytic Vegetation Present ?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust _____			

**Remarks:** Thatch covers 10% of herb stratum plot. Sample point does not meet hydrophytic vegetation indicators.

**SOIL**

Sampling Point SP11

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-8	10YR 5/3	80	7.5YR 5/6	20	C	M, PL	Clay loam	

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

<p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Vernal Pools (F9) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks) <p><sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.</p>
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<p><b>Restrictive Layer (if present):</b></p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p><b>Hydric Soil Present ?</b>    <input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>
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**Remarks:** Shovel refusal at 8 inches due to high cobble and gravel content. Although redoximorphic concentrations are present, the soil matrix color is has a chroma that is too light to meet hydric soil indicators.

**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b></p> <p>Primary Indicators (any one indicator is sufficient)</p> <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 along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Recent Iron Reduction in PLoWed Soils (C6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Water-Stained Leaves (B9)	<p>Secondary Indicators (2 or more required)</p> <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-Neutral Test (D5)
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<p><b>Field Observations:</b></p> <p>Surface water present?    <input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No    Depth (inches): _____</p> <p>Water table present?      <input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No    Depth (inches): _____</p> <p>Saturation Present?      <input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No    Depth (inches): _____          (includes capillary fringe)</p>	<p><b>Wetland Hydrology Present ?</b>    <input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

**Remarks:** No wetland hydrology indicators observed.

# Wetland Determination Data Form - Arid West Region

Project/Site SGL Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/10/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGI) State CA Sampling Point SP12  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) depressional swale Local Relief (concave, convex, none) concave Slope(%) 3  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.372542 Long: -121.007629 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b> Sample point SP20 is a wetland sample point, paired with upland sample point SP21. The sample point was taken in a wetland swale on a hillslope. The feature transitions from ephemeral stream to seasonal wetland swale upslope of the sample point. The boundary of the wetland swale was delineated based on a shift in microtopography from concave to convex, and a diffuse shift in vegetation from facultative to upland grasses.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
<b>SAPLING/SHRUB STRATUM</b>	<b>Plot Size:</b>				<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
<b>HERB STRATUM</b>	<b>Plot Size:</b>				<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Festuca perennis</u>	<u>3' x 10'</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Bromus hordeaceus</u>		<u>15</u>	<u>N</u>	<u>FACU</u>	
3. <u>Elymus caput-medusae</u>		<u>10</u>	<u>N</u>	<u>NL</u>	
4. <u>Briza minima</u>		<u>5</u>	<u>N</u>	<u>FAC</u>	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>90</u>					
<b>WOODY VINE STRATUM</b>	<b>Plot Size:</b>				<b>Hydrophytic Vegetation Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust <u>trace</u>			

**Remarks:** Sample plot size selected to encompass narrow swale feature. Thatch is 10% of the herb stratum plot.



**SOIL**

Sampling Point SP12

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-8	7.5YR 4/2	80	7.5YR 4/6	20	C	M, PL	Sandy loam	Prominent redox concentrations.

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks: Very cobbly. Shovel refusal at 8 inches. Sample point Depleted Matrix (F3) hydric soil indicator.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<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-Neutral Test (D5)

<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets Biotic Crust (B12) hydric soil indicator.

# Wetland Determination Data Form - Arid West Region

Project/Site SGL Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/10/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGL) State CA Sampling Point SP13  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) hillslope Local Relief (concave, convex, none) convex Slope(%) 7  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.37256 Long: -121.007661 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sample point SP21 is an upland sample point, paired with wetland sample point SP20. The sample point was taken on a hillslope adjacent to a wetland swale, sampled at SP21. The feature transitions from ephemeral stream to seasonal wetland swale upslope of the sample point. The boundary of the wetland swale was delineated based on a shift in microtopography from concave to convex, and a diffuse shift in vegetation from facultative to upland grasses.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>4</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>25</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
<b>SAPLING/SHRUB STRATUM</b>	Plot Size:				<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
<b>HERB STRATUM</b>	Plot Size:				<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u><i>Elymus caput-medusae</i></u>	<u>5' radius</u>	<u>20</u>	<u>Y</u>	_____	
2. <u><i>Avena barbata</i></u>		<u>20</u>	<u>Y</u>	_____	
3. <u><i>Festuca perennis</i></u>		<u>20</u>	<u>Y</u>	_____	
4. <u><i>Bromus hordeaceus</i></u>		<u>20</u>	<u>Y</u>	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> _____					
<b>WOODY VINE STRATUM</b>	Plot Size:				<b>Hydrophytic Vegetation Present ?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u> % cover of biotic crust _____					

**Remarks:** Sample point does not meet hydrophytic vegetation indicators.

**SOIL**

Sampling Point SP13

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-8	7.5YR 3/3	100					Loam	High cobble content

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks: Shovel refusal at 8 inches due to high cobble content.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (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)
	<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-Neutral Test (D5)

<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators observed.

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Lone Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/10/2020  
 Applicant/Owner Specialty Granules (lone) LLC (SGI) State CA Sampling Point SP14  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) depression Local Relief (concave, convex, none) concave Slope(%) 1  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.37495 Long: -121.00875 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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**Remarks:** Sample point SP22 is a wetland sample point, paired with upland sample point SP23. Sample point was taken in a vernal pool within a non-native annual grassland, and blue oak savanna landscape. The boundary of the vernal pool was delineated based on a distinct shift in microtopography from concave to convex, accompanied by a distinct shift in vegetation composition and presence of wetland hydrology indicators.

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
<b>SAPLING/SHRUB STRATUM</b>	Plot Size:				<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
<b>HERB STRATUM</b>	Plot Size:				<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Festuca perennis</u>	<u>5' radius</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Eleocharis macrostachya</u>		<u>15</u>	<u>N</u>	<u>OBL</u>	
3. <u>Eryngium vaseyi</u>		<u>10</u>	<u>N</u>	<u>FACW</u>	
4. <u>Hordeum marinum</u>		<u>10</u>	<u>N</u>	<u>FAC</u>	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>75</u>					
<b>WOODY VINE STRATUM</b>	Plot Size:				<b>Hydrophytic Vegetation Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>15</u>		% cover of biotic crust <u>10</u>			

**Remarks:** Ten percent of herb stratum cover is water stained leaves and biotic crust.

**SOIL**

Sampling Point SP14

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-8	7.5YR 4/2	80	2.5YR 4/4	20	C	M, PL	Loam	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks: Shovel refusal at 8 inches due to high cobble content.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input checked="" type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (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)
<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-Neutral Test (D5)	

<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Sample point meets Water-Stained Leaves (B9) and Biotic Crust (B12) wetland hydrology indicators.

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Lone Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/10/2020  
 Applicant/Owner Specialty Granules (lone) LLC (SGI) State CA Sampling Point SP15  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) foothills Local Relief (concave, convex, none) none Slope(%) 0  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.374948 Long: -121.008663 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sample point SP23 is an upland sample point, paired with wetland sample point SP22. Sample point was taken in upland non-native annual grassland adjacent to a vernal pool, sampled at SP22. The boundary of the vernal pool was delineated based on a distinct shift in microtopography from concave to convex, accompanied by a distinct shift in vegetation composition and presence of wetland hydrology indicators.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> 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) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
<b>SAPLING/SHRUB STRATUM</b>	Plot Size:				<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	<u>N/A</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
<b>HERB STRATUM</b>	Plot Size:				<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u><i>Elymus caput-medusae</i></u>	<u>5' radius</u>	<u>90</u>	<u>Y</u>	<u>NL</u>	
2. <u><i>Avena barbata</i></u>		<u>tr</u>	<u>N</u>	<u>NL</u>	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>90</u>					
<b>WOODY VINE STRATUM</b>	Plot Size:				<b>Hydrophytic Vegetation Present ?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1. _____	_____	_____	_____	_____	
2. _____	_____	_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust _____			

**Remarks:** Thatch covers 10 percent of the herb stratum plot. Sample point does not meet hydrophytic vegetation indicators.

**SOIL**

Sampling Point SP15

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-10	7.5YR 3/3	100					Loam	High cobble content.

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks: No hydric soil indicators observed.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (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)
	<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-Neutral Test (D5)

<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input type="checkbox"/> No    Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input type="checkbox"/> No    Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No    Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks:

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/10/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGI) State CA Sampling Point SP16  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) depression Local Relief (concave, convex, none) concave Slope(%) 2  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.375189 Long: -120.995789 Datum: WGS 84  
 Soil Map Unit Name Pardee cobbly loam, 3 to 31 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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**Remarks:** Sample point SP24 is a wetland sample point, paired with upland sample point SP25. The sample point was taken in a man-made, excavated depression with freshwater marsh vegetation. The boundary of the freshwater marsh was delineated based on a distinct shift in vegetation composition from perennial emergent marsh species to annual grasses. The soil sample was characteristic of a man-made feature, exhibiting apparent fill material. Soils were presumed hydric due to presence of wetland hydrology and hydrophytic vegetation.

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? <u>2</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100</u> (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <u><i>Eleocharis macrostachya</i></u>	<u>5' radius</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Typha angustifolia</i></u>		<u>30</u>	<u>Y</u>	<u>OBL</u>	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>90</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Hydrophytic Vegetation Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. _____		_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust _____			

**Remarks:** Thatch is 10% cover of the herb stratum plot.



**SOIL**

Sampling Point SP16

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-12	7.5YR 4/3	85	5YR 4/6	5	C	M	Clay	Mixed material
	6/5GY	5						
	2.5Y 6/4	5						

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input checked="" type="checkbox"/> Other (explain in remarks)
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<sup>3</sup>Indicators of hydric vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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**Remarks:** Soil color has a chroma that is too light to meet hydric soil indicators. However, this may be due to the man-made, excavated nature of the feature. Soils are presumed hydric due to the strong presence of wetland hydrology and hydrophytic vegetation indicators.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<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-Neutral Test (D5)

<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present ?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

**Remarks:** Sample points meets Biotic Crust (B12) wetland hydrology indicators.

# Wetland Determination Data Form - Arid West Region

Project/Site SGI Ione Quarry Expansion City \_\_\_\_\_ County Amador Sampling Date 6/10/2020  
 Applicant/Owner Specialty Granules (Ione) LLC (SGI) State CA Sampling Point SP17  
 Investigator(s) S. Yarger Section, Township, Range Land Grant - Arroyo Seco  
 Landform (hillslope, terrace, etc.) foothills Local Relief (concave, convex, none) none Slope(%) 1  
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.375267 Long: -120.995712 Datum: WGS 84  
 Soil Map Unit Name Red Bluff-Mokelumne complex, 5 to 16 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year?  Yes  No (If no, explain in remarks)  
 Are any of the following significantly disturbed?  Vegetation  Soil  Hydrology Are "Normal Circumstances" present?  Yes  No  
 Are any of the following naturally problematic?  Vegetation  Soil  Hydrology (If needed, explain any answers in remarks)

**SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the Sampled Area within a Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Remarks:</b> Sample point SP25 is an upland sample point, paired with wetland sample point SP24. The sample point was taken adjacent to a man-made, excavated depression with freshwater marsh vegetation, sampled at SP24. The boundary of the freshwater marsh was delineated based on a distinct shift in vegetation composition from perennial emergent marsh species to annual grasses.	

**VEGETATION** (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC? _____ (A) Total number of dominant species across all strata? _____ (B) % of dominant species that are OBL, FACW, or FAC? _____ (A/B)
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Tree Stratum Total Cover:</b> _____					
SAPLING/SHRUB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	<u>N/A</u>	_____	_____	_____	<b>Prevalence Index Worksheet</b> Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
<b>Sapling/Shrub Stratum Total Cover:</b> _____					
HERB STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. <u><i>Elymus caput-medusae</i></u>	<u>5' radius</u>	<u>80</u>	<u>Y</u>	<u>NL</u>	<b>Hydrophytic Vegetation Indicators</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 <sup>1</sup> <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation <sup>1</sup> (explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Aegilops triuncialis</i></u>		<u>5</u>	<u>N</u>	<u>NL</u>	
3. <u><i>Holocarpha virgata</i></u>		<u>tr</u>	<u>N</u>	<u>NL</u>	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
<b>Herb Stratum Total Cover:</b> <u>85</u>					
WOODY VINE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	_____	<b>Hydrophytic Vegetation Present ?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____	_____	_____	_____	_____	
<b>Woody Vines Total Cover:</b> _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust _____			

**Remarks:** Thatch covers 15% of the herb stratum plot.

**SOIL**

Sampling Point SP17

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>1</sup>		
0-8	5YR 4/6	100					Clay	High cobble content

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
---	---	---

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

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	---

Remarks: Shovel refusal at 8 inches due to high cobble content.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (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)	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-Neutral Test (D5)
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<b>Field Observations:</b> Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	---

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: No wetland hydrology indicators observed.

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APPENDIX C -- Representative Photographs of the Study Area



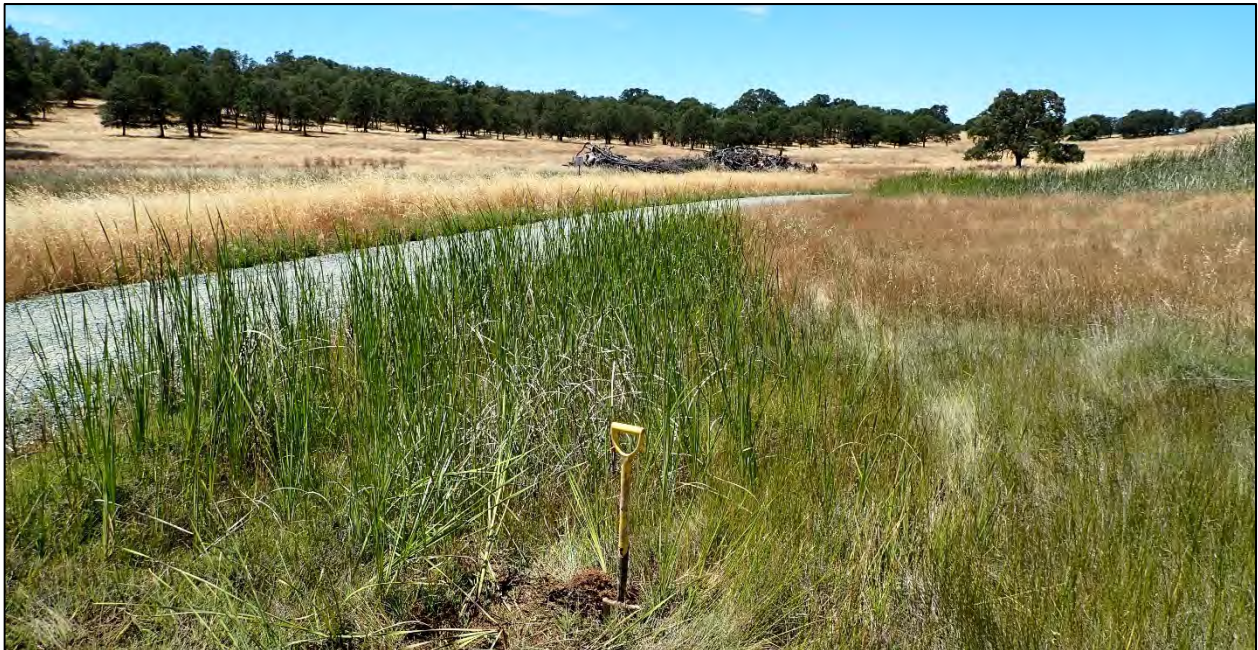
Photograph 1. Photograph depicting potentially jurisdictional vernal pool (VP-06) sampled at SP14. The vernal pool was dominated by Italian ryegrass (*Festuca perennis*), with vernal pool indicator species, coyote thistle (*Eryngium vaseyi*) subdominant. Photo direction is north. Photograph taken June 10, 2020



Photograph 2. Seasonal wetland dominated by Italian ryegrass (*Festuca perennis*) in the north-central portion of the Study Area. Upland non-native annual grasslands and blue oak woodland are seen in the background. Photograph taken May 15, 2019. Photo direction is northeast.



Photograph 3. Photograph depicting soil sample exhibiting depleted matrix, hydric soil indicator F3, sampled within vernal pool VP-06. Photograph taken June 10, 2020.



Photograph 4. Photograph depicting potentially jurisdictional freshwater marsh feature, FM-03, sampled at SP09. The feature was dominated by narrowleaf cattail (*Typha angustifolia*), and saltgrass (*Distichlis spicata*), and soils were saturated during the sample date. Photograph taken June 9, 2020.



Photograph 5. Photograph depicting an ephemeral stream in the northeastern portion of the Study Area. The ephemeral stream, which was dry during the site visits, flows through blue oak woodland dominated by blue oak (*Quercus douglasii*) and is shown as a 'blue line' stream on the lone and Irish Hill USGS 7.5-minute Quadrangle maps. Photograph taken May 15, 2019.



Photograph 6. Potentially jurisdictional pond in the north-central portion of the Study Area. This feature appeared to be originally man-made, but is not in active use, and may be considered jurisdictional. Photograph taken June 10, 2020.





Photograph 7. Non-jurisdictional man-made detention basin (quarry pond) located in the northwest corner of the Study Area. Photograph taken June 10, 2020.



Photograph 8. Non-jurisdictional mining-related drainage ditch located in the southwest portion of the Study Area. This feature terminates in a non-jurisdictional detention basin. Photograph taken May 16, 2019.

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APPENDIX D -- List of Plant Species Observed within the Study Area

**Appendix D.** Plant Species Observed in the Project Area on May 15, 2019, and June 9 and 10, 2020.

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Achillea millefolium</i>	Yarrow	native	perennial herb	-	-	FACU
<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish lotus	native	annual herb	-	-	UPL
<i>Acmispon wrangelianus</i>	Chilean trefoil	native	annual herb	-	-	-
<i>Adenostoma fasciculatum</i>	Chamise	native	tree, shrub	-	-	-
<i>Aegilops triuncialis</i>	Goatgrass	non-native (invasive)	annual grass	-	High	-
<i>Aesculus californica</i>	Buckeye	native	tree	-	-	-
<i>Aira caryophylla</i>	Silvery hairgrass	non-native	annual grass	-	-	FACU
<i>Alopecurus saccatus</i>	Foxtail	native	annual grass	-	-	OBL
<i>Amsinckia intermedia</i>	Common fiddleneck	native	annual herb	-	-	-
<i>Anthemis cotula</i>	Dog fennel	non-native	annual herb	-	-	FACU
<i>Anthriscus caucalis</i>	Bur chervil	non-native	annual herb, vine	-	-	-
<i>Avena barbata</i>	Slim oat	non-native (invasive)	annual, perennial grass	-	Moderate	-

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Baccharis pilularis</i> ssp. <i>consanguinea</i>	Coyote brush	native	shrub	-	-	-
<i>Brachypodium distachyon</i>	Purple false brome	non-native (invasive)	annual, perennial grass	-	Moderate	-
<i>Briza minor</i>	Little rattlesnake grass	non-native	annual grass	-	-	FAC
<i>Brodiaea appendiculata</i>	Hoover's brodiaea	native	perennial herb	-	-	-
<i>Brodiaea nana</i>	Dwarf brodiaea	native	perennial herb	-	-	-
<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
<i>Bromus hordeaceus</i>	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU
<i>Bromus madritensis</i>	Foxtail chess, foxtail brome	non-native	annual grass	-	-	UPL
<i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>	Italian thistle	non-native (invasive)	annual herb	-	Moderate	-
<i>Ceanothus cuneatus</i>	Buck brush	native	shrub	-	-	-
<i>Centaurea solstitialis</i>	Yellow starthistle	non-native (invasive)	annual herb	-	High	-

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Centromadia fitchii</i>	Spikeweed	native	annual herb	-	-	FACU
<i>Cerastium glomeratum</i>	Large mouse ears	non-native	annual herb	-	-	UPL
<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	Common soaproot	native	perennial herb	-	-	-
<i>Cirsium vulgare</i>	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	Purple clarkia	native	annual herb	-	-	-
<i>Claytonia parviflora</i> ssp. <i>parviflora</i>	Miner's lettuce	native	annual herb	-	-	FACU
<i>Claytonia perfoliata</i>	Miner's lettuce	native	annual herb	-	-	FAC
<i>Cotula coronopifolia</i>	Brass buttons	non-native (invasive)	perennial herb	-	Limited	OBL
<i>Crassula connata</i>	Sand pygmy weed	native	annual herb	-	-	FAC
<i>Cynodon dactylon</i>	Bermuda grass	non-native (invasive)	perennial grass	-	Moderate	FACU
<i>Cynosurus echinatus</i>	Dogtail grass	non-native (invasive)	annual grass	-	Moderate	-
<i>Cyperus eragrostis</i>	Tall cyperus	native	perennial grasslike herb	-	-	FACW

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Dactylis glomerata</i>	Orchardgrass	non-native (invasive)	perennial grass	-	Limited	FACU
<i>Daucus pusillus</i>	Wild carrot	native	annual herb	-	-	-
<i>Delphinium variegatum</i> ssp. <i>variegatum</i>	Royal larkspur	native	perennial herb	-	-	-
<i>Deschampsia danthonioides</i>	Annual hairgrass	native	annual grass	-	-	FACW
<i>Dichelostemma capitatum</i>	Blue dicks	native	perennial herb	-	-	FACU
<i>Diplacus aurantiacus</i>	Sticky monkeyflower	native	shrub	-	-	FACU
<i>Dittrichia graveolens</i>	Stinkwort	non-native (invasive)	annual herb	-	Moderate	-
<i>Downingia bicornuta</i>	Bristled downingia	native	annual herb	-	-	OBL
<i>Echinodorus berteroi</i>	Burhead	native	perennial herb (aquatic)	-	-	OBL
<i>Eleocharis macrostachya</i>	Spike rush	native	perennial grasslike herb	-	-	OBL
<i>Elymus caput-medusae</i>	Medusa head	non-native (invasive)	annual grass	-	High	-
<i>Elymus glaucus</i>	Blue wildrye	native	perennial grass	-	-	FACU

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Epilobium torreyi</i>	Narrow boisduvalia	native	annual herb	-	-	FACW
<i>Eriodictyon californicum</i>	Yerba santa	native	shrub	-	-	-
<i>Erodium botrys</i>	Big heron bill	non-native	annual herb	-	-	FACU
<i>Erodium brachycarpum</i>	White stemmed filaree	non-native	annual herb	-	-	-
<i>Eryngium vaseyi</i>	Coyote thistle	native	perennial herb	-	-	FACW
<i>Erythranthe guttata</i>	Seep monkeyflower	native	perennial herb (rhizomatous)	-	-	OBL
<i>Eschscholzia californica</i>	California poppy	native	annual, perennial herb	-	-	-
<i>Euphorbia</i> sp.	-	-	-	-	-	-
<i>Festuca bromoides</i>	Brome fescue	non-native	annual grass	-	-	FACU
<i>Festuca perennis</i>	Italian rye grass	non-native (invasive)	annual, perennial grass	-	Moderate	FAC
<i>Geranium dissectum</i>	Wild geranium	non-native (invasive)	annual herb	-	Limited	-
<i>Glyceria declinata</i>	Waxy mannagrass	non-native (invasive)	perennial grass	-	Moderate	FACW



Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Gnaphalium palustre</i>	Lowland cudweed	native	annual herb	-	-	FACW
<i>Gratiola ebracteata</i>	Common hedge hyssop	native	annual herb	-	-	OBL
<i>Heterotheca grandiflora</i>	Telegraph weed	native	annual, perennial herb	-	-	-
<i>Hirschfeldia incana</i>	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-
<i>Holocarpha virgata</i>	Narrow tarplant	native	annual herb	-	-	-
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley	non-native (invasive)	annual grass	-	Moderate	FAC
<i>Hordeum murinum</i>	Foxtail barley	non-native (invasive)	annual grass	-	Moderate	FACU
<i>Hypochaeris glabra</i>	Smooth cats ear	non-native (invasive)	annual herb	-	Limited	-
<i>Juncus bufonius</i>	Common toad rush	native	annual grasslike herb	-	-	FACW
<i>Juncus capitatus</i>	Leafy bracted dwarf rush	non-native	annual grasslike herb	-	-	FACU

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Juncus effusus</i>	Common bog rush	native	perennial grasslike herb	-	-	FACW
<i>Juncus mexicanus</i>	Mexican rush	native	perennial grasslike herb	-	-	FACW
<i>Juncus xiphioides</i>	Iris leaved rush	native	perennial grasslike herb	-	-	OBL
<i>Kickxia elatine</i>	Sharp point fluellin	non-native	perennial herb	-	-	UPL
<i>Lactuca serriola</i>	Prickly lettuce	non-native	annual herb	-	-	FACU
<i>Lasthenia fremontii</i>	Fremont's goldfields	native	annual, perennial herb	-	-	OBL
<i>Lasthenia glaberrima</i>	Smooth goldfields	native	annual herb	-	-	OBL
<i>Leontodon saxatilis</i>	Hawkbit	non-native	annual herb	-	-	FACU
<i>Lepidium nitidum</i>	Shining pepper grass	native	annual herb	-	-	FAC
<i>Logfia gallica</i>	Narrowleaf cottonrose	non-native	annual herb	-	-	-
<i>Lonicera hispidula</i>	Pink honeysuckle	native	vine, shrub	-	-	FACU

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Lotus corniculatus</i>	Bird's foot trefoil	non-native	perennial herb	-	-	FAC
<i>Lupinus microcarpus</i>	Chick lupine	native	annual herb	-	-	-
<i>Lupinus nanus</i>	Valley sky lupine	native	annual herb	-	-	-
<i>Lysimachia arvensis</i>	Scarlet pimpernel	non-native	annual herb	-	-	FAC
<i>Lythrum hyssopifolia</i>	Hyssop loosestrife	non-native (invasive)	annual, perennial herb	-	Limited	OBL
<i>Madia gracilis</i>	Gumweed	native	annual herb	-	-	-
<i>Matricaria discoidea</i>	Pineapple weed	native	annual herb	-	-	FACU
<i>Melica</i> sp.	-	-	-	-	-	-
<i>Melilotus indicus</i>	Annual sweetclover yellow	non-native	annual herb	-	-	FACU
<i>Micropus californicus</i>	Q tips	native	annual herb	-	-	FACU
<i>Montia fontana</i>	Water montia	native	annual herb	-	-	OBL
<i>Nasturtium officinale</i>	Watercress	native	perennial herb (aquatic)	-	-	OBL
<i>Navarretia intertexta</i>	Interwoven navarretia	native	annual herb	-	-	FACW

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Navarretia pubescens</i>	Purple navarretia	native	annual herb	-	-	-
<i>Navarretia tagetina</i>	Marigold navarretia	native	annual herb	-	-	FACW
<i>Parentucellia viscosa</i>	Yellow parentucellia	non-native (invasive)	annual herb	-	Limited	FAC
<i>Pentagramma triangularis</i>	Gold back fern	native	fern	-	-	-
<i>Perideridia</i> sp.	-	-	-	-	-	-
<i>Phacelia cicutaria</i> var. <i>cicutaria</i>	Caterpillar phacelia	native	annual herb	-	-	-
<i>Phalaris aquatica</i>	Harding grass	non-native (invasive)	perennial grass	-	Moderate	FACU
<i>Phoradendron leucarpum</i> ssp. <i>tomentosum</i>	Mistletoe	native	shrub (parasitic)	-	-	-
<i>Pinus sabiniana</i>	Bull pine	native	tree	-	-	-
<i>Plagiobothrys nothofulvus</i>	Rusty haired popcorn flower	native	annual herb	-	-	FAC
<i>Plagiobothrys stipitatus</i>	Vernal pool allocarya	native	annual herb	-	-	FACW
<i>Plantago coronopus</i>	Cut leaf plantain	non-native	annual herb	-	-	FAC
<i>Plantago erecta</i>	California plantain	native	annual herb	-	-	-

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Pleuropogon californicus</i>	Semaphore grass	native	perennial grass (rhizomatous)	-	-	OBL
<i>Pogogyne zizyphoroides</i>	Sacramento mint	native	annual herb	-	-	OBL
<i>Polypogon interruptus</i>	Ditch beard grass	non-native	perennial grass	-	-	FACW
<i>Polypogon monspeliensis</i>	Annual beard grass	non-native (invasive)	annual grass	-	Limited	FACW
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Cottonwood	native	tree	-	-	FAC
<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	non-native	annual herb	-	-	FAC
<i>Psilocarphus brevissimus</i> var. <i>brevissimus</i>	Woolly heads	native	annual herb	-	-	FACW
<i>Quercus douglasii</i>	Blue oak	native	tree	-	-	-
<i>Quercus wislizeni</i>	Interior live oak	native	tree, shrub	-	-	-
<i>Ranunculus aquatilis</i>	Whitewater crowfoot	native	perennial herb (aquatic)	-	-	OBL
<i>Ranunculus bonariensis</i> var. <i>trisepalus</i>	Vernal pool buttercup	native	annual herb	-	-	OBL
<i>Ranunculus californicus</i>	Common buttercup	native	perennial herb	-	-	FACU

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Ranunculus muricatus</i>	Buttercup	non-native	annual, perennial herb	-	-	FACW
<i>Rumex conglomeratus</i>	Green dock	non-native	perennial herb	-	-	FACW
<i>Salix gooddingii</i>	Gooding's willow	native	tree	-	-	FACW
<i>Sanicula bipinnata</i>	Poison sanicle	native	perennial herb	-	-	-
<i>Sanicula crassicaulis</i>	Pacific sanicle	native	perennial herb	-	-	-
<i>Schoenoplectus californicus</i>	California bulrush	native	perennial grasslike herb	-	-	OBL
<i>Scrophularia californica</i>	California bee plant	native	perennial herb	-	-	FAC
<i>Senecio vulgaris</i>	Common groundsel	non-native	annual herb	-	-	FACU
<i>Sherardia arvensis</i>	Field madder	non-native	annual herb	-	-	-
<i>Sidalcea hartwegii</i>	Hartweg's checkerbloom	native	annual herb	-	-	-
<i>Silene gallica</i>	Common catchfly	non-native	annual herb	-	-	-

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Silybum marianum</i>	Milk thistle	non-native (invasive)	annual, perennial herb	-	Limited	-
<i>Sisymbrium officinale</i>	Hedge mustard	non-native	annual herb	-	-	-
<i>Sisyrinchium bellum</i>	Blue eyed grass	native	perennial herb	-	-	FACW
<i>Sonchus asper</i> ssp. <i>asper</i>	Prickly sow thistle	non-native	annual herb	-	-	FAC
<i>Sonchus oleraceus</i>	Common sow thistle	non-native	annual herb	-	-	UPL
<i>Spergularia rubra</i>	Purple sand spurry	non-native	annual, perennial herb	-	-	FAC
<i>Torilis arvensis</i>	Field hedge parsley	non-native (invasive)	annual herb	-	Moderate	-
<i>Toxicodendron diversilobum</i>	Poison oak	native	vine, shrub	-	-	FACU
<i>Trifolium depauperatum</i>	Dwarf sack clover	native	annual herb	-	-	FAC
<i>Trifolium hirtum</i>	Rose clover	non-native (invasive)	annual herb	-	Limited	-
<i>Trifolium tomentosum</i>	Woolly clover	non-native	annual herb	-	-	-
<i>Trifolium variegatum</i>	Variegated clover	native	annual herb	-	-	FAC
<i>Trifolium willdenovii</i>	Tomcat clover	native	annual herb	-	-	FACW

Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Triglochin scilloides</i>	Flowering-quillwort	native	annual herb (aquatic)	-	-	OBL
<i>Triphysaria eriantha</i> ssp. <i>eriantha</i>	Butter 'n' eggs	native	annual herb	-	-	-
<i>Triteleia hyacinthina</i>	Wild hyacinth	native	perennial herb	-	-	FAC
<i>Triteleia laxa</i>	Ithuriel's spear	native	perennial herb	-	-	-
<i>Tuberaria guttata</i>	Tuberaria	non-native	annual, perennial herb	-	-	-
<i>Typha angustifolia</i>	Narrow leaf cattail	non-native	perennial herb (aquatic)	-	-	OBL
<i>Typha latifolia</i>	Broadleaf cattail	native	perennial herb (aquatic)	-	-	OBL
<i>Vicia hirsuta</i>	Hairy vetch	non-native	annual herb, vine	-	-	-
<i>Vicia sativa</i>	Spring vetch	non-native	annual herb, vine	-	-	FACU
<i>Vicia villosa</i>	Hairy vetch	non-native	annual herb, vine	-	-	-
<i>Zeltnera muehlenbergii</i>	Muehlenberg's centaury	native	annual herb	-	-	FAC



Scientific name	Common name	Life form	Origin	Rare Status <sup>1</sup>	Invasive Status <sup>2</sup>	Wetland indicator <sup>3</sup>
<i>Zeltnera venusta</i>	Charming centaury	native	annual herb	-	-	-

All species identified using the *Jepson Manual, 2<sup>nd</sup> Edition* (Baldwin et al. 2012) and *The Jepson Flora Project* (Jepson eFlora 2019); nomenclature follows *The Jepson Flora Project* (Jepson eFlora 2019) unless otherwise noted

Sp.: “species”, intended to indicate that the observer was confident in the identity of the genus but uncertain which species

Cf.: intended to indicate a species appeared to the observer to be specific, but was not identified based on diagnostic characters

<sup>1</sup>Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2017)

FE: Federal Endangered

FT: Federal Threatened

SE: State Endangered

ST: State Threatened

SR: State Rare

Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere

Rank 1B: Plants rare, threatened, or endangered in California and elsewhere

Rank 2A: Plants presumed extirpated in California, but more common elsewhere

Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere

Rank 3: Plants about which we need more information – a review list

Rank 4: Plants of limited distribution – a watch list

<sup>2</sup>Invasive Status: California Invasive Plant Inventory (Cal-IPC 2006)

High: Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.

Moderate: Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited- moderate distribution ecologically

Limited: Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically

Assessed: Assessed by Cal-IPC and determined to not be an existing current threat

<sup>3</sup>Wetland Status: National List of Plant Species that Occur in Wetlands, Arid West Region (Lichvar et al. 2016)

OBL: Almost always a hydrophyte, rarely in uplands

FACW: Usually a hydrophyte, but occasionally found in uplands

FAC: Commonly either a hydrophyte or non-hydrophyte

FACU: Occasionally a hydrophyte, but usually found in uplands

UPL: Rarely a hydrophyte, almost always in uplands

NL: Rarely a hydrophyte, almost always in uplands

NI: No information; not factored during wetland delineation

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## APPENDIX E -- WETS Analyses

WETS historic data from climate station: Camp Pardee, CA  
 2019 Observed rainfall data from climate station: Sutter Hill CDF  
 Date of site visit: 5/15/2019

		Rainfall Data from WETS			Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than						
1st month prior	April	0.89	2.07	2.52	1.84	normal	2	3	6
2nd month prior	March	1.38	3.46	4.2	5.23	wet	3	2	6
3rd month prior	February	2.14	3.85	4.69	5.66	wet	3	1	3
								<b>SUM=</b>	<b>15</b>

Note: If sum is:  
 6-9 prior period has been drier than normal  
 10-14 prior period has been normal  
 15-18 prior period has been wetter than normal

Condition Values: Dry=1  
 Normal=2  
 Wet=3

WETS historic data from climate station: Camp Pardee, CA  
 2020 Observed rainfall data from climate station: Sutter Hill CDF  
 Date of site visit: 6/9/2020

		Rainfall Data from WETS			Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than						
1st month prior	May	0.39	1.2	1.35	2.1	wet	3	3	9
2nd month prior	April	0.89	2.07	2.52	3.16	wet	3	2	6
3rd month prior	March	1.38	3.46	4.2	6.13	wet	3	1	3
								<b>SUM=</b>	<b>18</b>

Note: If sum is:  
 6-9 prior period has been drier than normal  
 10-14 prior period has been normal  
 15-18 prior period has been wetter than normal

Condition Values: Dry=1  
 Normal=2  
 Wet=3