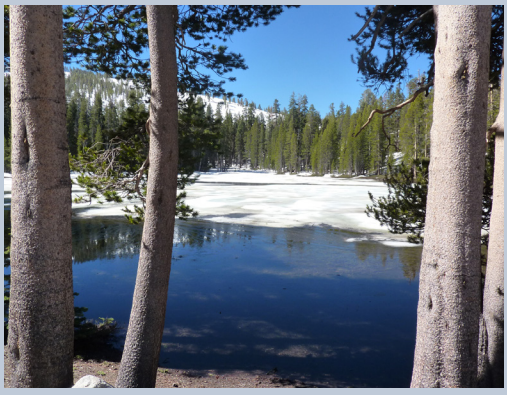


Tioga Road Rehabilitation

Delineation of Wetlands and Other Waters of the United States

March 2011

Acronyms and Abbreviations

°	degree(s)
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
F	Fahrenheit
FAC	facultative (indicator status)
FACU	facultative upland (indicator status)
FACW	facultative wetland (indicator status)
GIS	geographic information system
GPS	global positioning system
NHD	National Hydrography Dataset
NPS	National Park Service
NWI	National Wetlands Inventory
OBL	obligate wetland (indicator status)
OHWM	ordinary high water mark
PEM	palustrine emergent wetland
PFO	palustrine forested wetland
PSS	palustrine scrub-shrub wetland
PUB	palustrine unconsolidated bottom wetland
R3RB	riverine upper perennial rock bottom
R3UB	riverine upper perennial unconsolidated bottom
R4SB	riverine intermittent streambed
UPL	obligate upland (indicator status)
USACE	U.S. Army Corps of Engineers

Table of Contents

EXECUTIVE SUMMARY **ES-1**

1 INTRODUCTION **1-1**

1.1 Tioga Road Rehabilitation Project 1-1
1.2 Purpose and Need for Delineation Report and Functional Assessment 1-1
1.3 Scope of Report 1-1

2 PROJECT AREA CONDITIONS **2-1**

2.1 Climate 2-1
2.2 Hydrology 2-1
2.3 Soils 2-2
2.4 Vegetation 2-7
2.5 Previous Wetland and Aquatic Habitat Mapping 2-10

3 DELINEATION METHODOLOGY **3-1**

3.1 Habitat Classification (Cowardin et al. 1979) 3-1
3.2 Section 404 Clean Water Act Jurisdiction 3-1
3.3 Executive Order 11990 3-3
3.4 Delineation Procedures 3-4
3.4.1 Determination of Hydrophytic Vegetation 3-5
3.4.2 Determination of Hydric Soils 3-6
3.4.3 Determination of Wetland Hydrology 3-7
3.4.4 Other Waters of the United States 3-8

4 DELINEATION RESULTS **4-1**

4.1 Wetlands and Other Aquatic Habitat Types in the Project Corridor 4-4
4.1.1 Palustrine System 4-4
4.1.2 Riverine System 4-6

5 FUNCTIONAL ASSESSMENTS **5-1**

5.1 Methodology 5-1
5.2 Results 5-2

6 REFERENCES **6-1**

APPENDICES

A. NHD and NWI Mapped Waters in the Project Study Area
B. Soils of the Project Study Area
C. Plants Identified During Field Investigations
D. Vegetation of the Project Study Area
E. Wetland Delineation Determination Forms
F. Photograph Log
G. Completed Functional Assessment Worksheets

[This Page Intentionally Left Blank]

EXECUTIVE SUMMARY

This report provides the results of delineations and functional assessments of wetlands, other waters of the United States, and other Cowardin et al. (1979) habitats at specific sites within the affected environment of the Tioga Road Rehabilitation Project in Yosemite National Park. As per National Park Service procedures, this delineation was performed in support of an Environmental Assessment of the project and to meet the requirements of Clean Water Act, Section 404 and *Director's Order #77-1: Wetland Protection*.

The project area consists of the Tioga Road corridor from Crane Flat through Tuolumne Meadows to Blue Slide. Field investigations were focused on sites supporting the most extensive and significant wetland habitats within the project area, including Tuolumne Meadows and other locations identified by Yosemite National Park environmental staff (see Appendix A for the locations of the specific survey areas).

Wetlands were delineated in the field in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). Other waters of the United States were delineated in the field in accordance with U.S. Army Corps of Engineers *Regulatory Guidance Letter No. 05-05* (USACE 2005). All features were mapped in the field with a handheld global positioning system receiver to submeter accuracy. Field investigations for this report were conducted in August and September 2010.

A total of 29.11 acres of wetlands, other waters of the United States, and other Cowardin habitats were identified and mapped within the surveyed areas (Table ES-1). Delineations and functional assessment boundaries extended to 160 feet from the road centerline on both sides, except in the Tuolumne Meadows survey region where delineation boundaries extended to 320 feet from the road centerline on the north side, as directed by Yosemite National Park staff.

Table ES-1. Acreage Summary of Wetlands and Other Aquatic Habitats Delineated in the Tioga Road Rehabilitation Project Survey Areas

Cowardin Habitat Type	Acres	Total
Palustrine Emergent Wetland	19.14	Palustrine Wetlands: 23.26 acres
Palustrine Forested Wetland	2.60	
Palustrine Scrub-Shrub Wetland	0.41	
Palustrine Unconsolidated Bottom Wetland	1.11	
Riverine Upper Perennial Rock Bottom	1.77	Riverine Habitat: 5.85 acres
Riverine Upper Perennial Unconsolidated Bottom	0.003	
Riverine Intermittent Streambed	4.08	
		Total Waters of the U.S.: 29.11 acres

[This Page Intentionally Left Blank]

1 INTRODUCTION

This report provides the results of a delineation of wetlands, other waters of the United States, and other Cowardin et al. (1979) habitats, as well as functional assessments of these habitats, at specific sites within the affected environment of the Tioga Road Rehabilitation Project in Yosemite National Park. This report has been prepared in support of planning efforts and an Environmental Assessment of the project.

1.1 Tioga Road Rehabilitation Project

Tioga Road lies within both Tuolumne and Mariposa counties and is the only road that provides direct access between the east and west portions of the park (Figure 1-1). The National Park Service (NPS) has identified the need for repairs and improvements to Tioga Road, which in the summer serves as a major travel corridor through the park and across the crest of the Sierra Nevada. The Tioga Road Rehabilitation Project is intended to address various needs that include pavement resurfacing, vegetation clearing and slope stabilization for safety on road edges, obliteration and paving of vehicle turnouts to limit resource damage to roadside habitats, revegetation of certain roadside areas, and road surface and culvert and drainage improvements along the 41-mile stretch from Crane Flat to Blue Slide just east of Tuolumne Meadows. As required by the National Environmental Policy Act (NEPA) of 1969, an environmental assessment is being prepared to evaluate the potential impacts of the project on the resources of the park, to identify appropriate mitigation measures, and to consider alternative means of accomplishing the project's goals.

1.2 Purpose and Need for Delineation Report and Functional Assessment

The Tioga Road Rehabilitation Project may necessitate work within or otherwise affecting Clean Water Act (Section 404) jurisdictional wetlands, other Section 404 waters of the United States, and other wetland and aquatic habitats (Cowardin et al. 1979). The regulatory and environmental significance of these features is recognized in the Clean Water Act, Executive Order 11990: *Protection of Wetlands* (42 Fed. Reg. 26961), and National Park Service Procedural Manual #77-1: *Wetland Protection*. This report is needed to support the NEPA evaluation of the project and to support Section 404 permitting.

1.3 Scope of Report

The scope of this report is the delineation of jurisdictional wetlands, other waters of the United States, and other Cowardin habitats at specific sites along the Tioga Road Rehabilitation Project corridor. Functional assessments of wetlands and other aquatic habitats were completed for 22 of the larger (>0.10 acre), more significant sites that may be affected by the project. This report has been prepared to provide guidance and disclose the potential impacts of the project to wetlands and other waters within the project corridor.

Figure 1-1. Tioga Road Project Area

2 PROJECT AREA CONDITIONS

The project area along Tioga Road ranges in elevation from approximately 6,200 feet at Crane Flat to 8,700 feet at Blue Slide just east of Tuolumne Meadows. Project area conditions are variable along this corridor and are highly influenced by elevation, topographic differences, and seasonality. An overview of climate, hydrology, soils, and vegetation that typify the area is provided below.

Areas of special interest, including popular tourist sites, along Tioga Road that were surveyed for this report included Crane Flat, Gin Flat, Siesta Lake, McSwain Meadows, Porcupine Flat Campground, and Tuolumne Meadows.

2.1 Climate

The climate in Yosemite National Park, like much of the central portion of the Sierra Nevada, is characterized by warm, dry summers and cold winters with fair amounts of rain and/or snowfall. Though no long-term weather data exists for the Tioga Road portion of Yosemite National Park, data from the South Entrance (located at 5,120 feet and collected from 1971 to 2000) shows the coldest temperatures and highest precipitation occurs between the months of December and March (NRCS 2010a). January is the coldest and wettest month, with average daily temperatures of 36.1 degrees (°) Fahrenheit (F) and average monthly precipitation of 8.5 inches. The greatest average monthly snowfall occurs in February (25.6 inches), while the average annual snowfall is 85.5 inches (NRCS 2010a). Between May and October, temperatures are higher and there is much less precipitation. July has the warmest average daily temperature (64.4°F), while August has the lowest average monthly precipitation (0.09 inches) (NRCS 2010a).

The growing season is often approximated as the period of time between the average date of the last killing frost in the spring to the average date of the first killing frost in the fall. This represents a temperature threshold of 28°F or lower at a frequency of 5 years in 10, or 50 percent (NRCS 2010a). For the South Entrance, between 1971 and 2000, the growing season averaged 171 days from May 5 to October 24 (NRCS 2010a). However, it is expected that average daily temperatures are typically lower and snowfall much higher (likely exceeding 300 inches above 8000 feet) along Tioga Road than at the South Entrance. Thus, the growing season for vegetation in the vicinity of Tioga Road would be significantly shorter than the 171 days at the South Entrance.

2.2 Hydrology

In Yosemite National Park, the majority of precipitation falls in the form of snow that accumulates above 6,000 feet during the winter, creating a natural water tower that slowly releases meltwater through the spring and early summer (NPS 2010) (Figure 2-1). The hydrology of the Tioga Road corridor is primarily influenced by meltwater of the Tuolumne River and Merced River watersheds, as the road meanders between both of these watersheds.

The Tuolumne River originates in the high peaks above Tuolumne Meadows, and drains the entire northern portion of the park. The Tuolumne River has two principal sources: the Dana Fork, which drains the west-facing slopes of Mount Dana, and the Lyell Fork, which begins at the base of the glacier on Mount Lyell (NPS 2010). The confluence of these two forks occurs at the eastern end of Tuolumne Meadows, where the river flows westward until it meets with the San Joaquin River in the Central Valley. Many of the creeks, streams, and lakes that occur along the Tioga Road corridor eventually join the Tuolumne River.

Figure 2-1. Snowmelt Influences Hydrology

Tenaya Lake (Figure 2-2) is the largest surface water feature within the project area. Tenaya Lake, and creeks along portions of the road nearer to Crane Flat, eventually drain to the Merced River in the southern portion of Yosemite National Park. Wetlands and other waters of the United States in the vicinity of Tenaya Lake were previously mapped in 2008 (Herrera Environmental Consultants, Inc. 2009), and thus this area was not surveyed for the purposes of this report.

Figure 2-2. Tenaya Lake

2.3 Soils

More than 50 soil types are found within Yosemite National Park. General and local variations depend upon glacial history, microclimatic differences, and the ongoing influences of weathering and stream erosion/deposition. Soils of the region are primarily derived from underlying granitic bedrock and are of similar chemical and mineralogical composition. The surface soil in Yosemite National Park consists primarily of granitic sands in various stages of decomposition (Borchers 1996). The extensive glaciation of the region has resulted in typically poorly developed topsoil and soil horizons. The dominant soil types generally have low shrink-swell potential because of their minimal clay content but high erosive potential because they are generally thin and sandy (NRCS 2006). Figures in Appendix B show the soil types occurring within a 500-foot buffer of Tioga Road, based on the digital soils map provided by Yosemite National Park. Descriptions of these soils are provided in Table 2-1.

Evidence of hydric soil within a given area is one of three required parameters (along with hydrophytic vegetation and wetland hydrology) for U.S. Army Corps of Engineers classification as a jurisdictional wetland. Hydric soils are strongly influenced by the presence of water, and require conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS 2010d). Soil types within the project area that have hydric soil components are shown in Table 2.1.

Table 2-1. Soil Types in the Tioga Road Rehabilitation Project Area

Map Unit	Soil Map Unit Name	Hydric Soil Component(s)?	Drainage Class	Depth to Water Table	Available Water Capacity	Landform
213	Canisrocks-Glacierpoint-Vitrandic Dystrocryepts complex, bouldery, 20 to 45 percent slopes, medial moraines, cryic		Somewhat excessively drained	More than 72 inches	Very low (about 2.0 inches)	Summits on medial moraines, mountainsides, lateral moraines, mountain slopes
214	Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic	Y	Moderately well drained	About 60 to 72 inches	Moderate (about 7.1 inches)	Moraines, above normally active flood plain on valley floors
224	Rock outcrop-Crazymule-Vitrandic Cryorthents association, 0 to 45 percent slopes, joints, fractures, scoured, cryic	Y	Somewhat excessively drained	More than 72 inches	Low (about 4.6 inches)	Mountainsides
225	Canisrocks-Rock outcrop-Rubble land-Vitrandic Dystrocryepts association, 2 to 30 percent slopes, glacially scoured mountain valleys, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 3.0 inches)	Nivational cirques on mountains, colluvial aprons on mountainsides
232	Canisrocks-Glacierpoint complex, 0 to 25 percent slopes, lateral moraines, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 1.9 inches)	Mountain slopes, lateral moraines
235	Canisrocks-Rock outcrop-Rubble land complex, 30 to 80 percent slopes, mountainflanks, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 2.6 inches)	Mountain slopes, avalanche chutes
242	Rock outcrop-Canisrocks-Xeric Dystrocryepts complex, 0 to 35 percent slopes, mountain slopes, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 2.4 inches)	Mountain slopes
245	Rock outcrop-Canisrocks-Xeric Dystrocryepts association, 0 to 35 percent slopes, mountain valleys, scoured, filled, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 3.0 inches)	Mountain slopes, flood plains

Table 2-1. Soil Types in the Tioga Road Rehabilitation Project Area

Map Unit	Soil Map Unit Name	Hydric Soil Component(s)?	Drainage Class	Depth to Water Table	Available Water Capacity	Landform
246	Rock outcrop, domes, cryic		Not determined	More than 72 inches	Very low	Domes
247	Canisrocks-Xeric Dystrocryepts association, 5 to 30 percent slopes, mountain valleys, moraines, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 2.2 inches)	Moraines, mountainsides, stream terraces
248	Canisrocks-Rock outcrop-Glacierpoint complex, 30 to 70 percent slopes, mountain slopes, cryic		Somewhat excessively drained	More than 72 inches	Very low (about 1.4 inches)	Structural benches, mountain slopes
249	Rock outcrop-Canisrocks complex, 30 to 70 percent slopes, mountain slopes, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low	Mountainsides
251	Glacierpoint-Typic Cryorthents complex, 30 to 65 percent slopes, mountain slopes, lateral moraines, aprons, cryic		Somewhat excessively drained	More than 72 inches	Low (about 3.1 inches)	Lateral moraines, mountain slopes
252	Rock outcrop-Canisrocks-Xeric Dystrocryepts complex, 5 to 45 percent slopes, moraines, mountain slopes, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 3.0 inches)	Avalanche chutes, moraines, mountain slopes, ridges
253	Canisrocks-Glacierpoint-Humic Dystrocryepts complex, 15 to 55 percent slopes, lateral moraines, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 1.9 inches)	Lateral moraines, avalanche chutes, mountain slopes
257	Badgerpass-Oxyaquic Dystroxerepts association, 0 to 15 percent slopes, mountain valley floors, frigid	Y	Somewhat excessively drained	More than 72 inches	Low (about 3.4 inches)	Terraces, mountain valleys

Table 2-1. Soil Types in the Tioga Road Rehabilitation Project Area

Map Unit	Soil Map Unit Name	Hydric Soil Component(s)?	Drainage Class	Depth to Water Table	Available Water Capacity	Landform
258	Typic Dystroxerepts-Badgerpass-Dystric Xerorthents complex, 15 to 45 percent slopes, mountain slopes, moraines, frigid		Well drained	More than 72 inches	Moderate (about 8.0 inches)	Mountain slopes, moraines
260	Rock outcrop-Craneflat-Dystric Xerorthents complex, 30 to 65 percent slopes, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Very low (about 1.3 inches)	Mountain slopes
261	Dystric Xeropsamments-Typic Dystroxerepts-Badgerpass-Rock outcrop association, 5 to 35 percent slopes, mountain valleys, mountain slopes, frigid	Y	Somewhat excessively drained	More than 72 inches	Low (about 5.2 inches)	Mountain valleys, mountain slopes, moraines
267	Rock outcrop-Typic Cryorthents-Xeric Dystrocryepts complex, 0 to 35 percent slopes, mountain slopes, joints, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 1.7 inches)	Lateral moraines, mountain slopes, mountainsides
269	Canisrocks-Rock outcrop-Glacierpoint complex, 0 to 35 percent slopes, mountain slopes, moraines, joints, cryic		Somewhat excessively drained	More than 72 inches	Very low (about 1.5 inches)	Mountain slopes, moraines
279	Canisrocks-Xeric Dystrocryepts complex, 15 to 45 percent slopes, mountain slopes, moraines, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 2.3 inches)	Mountain slopes, moraines, mountainsides
280	Typic Dystroxerepts-Humic Dystroxerepts-Rock outcrop association, 15 to 45 percent slopes, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Low (about 5.6 inches)	Mountain slopes, moraines

Table 2-1. Soil Types in the Tioga Road Rehabilitation Project Area

Map Unit	Soil Map Unit Name	Hydric Soil Component(s)?	Drainage Class	Depth to Water Table	Available Water Capacity	Landform
285	Waterwheel-Humic Dystroxerepts complex, 15 to 45 percent slopes, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Very low (about 2.3 inches)	Mountain slopes, landslides
289	Waterwheel-Craneflat complex, 35 to 70 percent slopes, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Very low (about 2.4 inches)	Mountain slopes, moraines
293	Xeric Dystrocryepts-Vitrandic Dystrocryepts association, 0 to 25 percent slopes, mountain slopes, summits, cryic		Somewhat excessively drained	More than 72 inches	Low (about 3.8 inches)	Mountains, moraines, mountain slopes
294	Waterwheel-Typic Dystroxerepts complex, 30 to 70 percent slopes, landslides, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Very low (about 1.4 inches)	Mountain slopes, landslides
306	Typic Cryopsamments-Humic Dystrocryepts complex, 0 to 20 percent slopes, mountain toeslopes, moraines, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 3.0 inches)	Mountainsides, ephemeral streams, moraines
313	Nevadafalls-Oxyaquic Dystrudepts complex, 5 to 30 percent slopes, mountain valleys, moraines, frigid	Y	Moderately well drained	About 20 to 39 inches	Low (about 5.5 inches)	Flood plains, ground moraines
328	Clarkslodge-Ultic Palexeralfs complex, metasedimentary, 15 to 45 percent slopes, mountain slopes, landslides, frigid		Well drained	More than 72 inches	Low (about 5.5 inches)	Landslides, ridges, mountain slopes

Sources: NRCS 2006, 2010b, 2010c

2.4 Vegetation

For the purpose of this report, common names are used for plant species identification. Appendix C provides a list of the scientific names of all species identified during field investigations, as well as all species mentioned in this report. Scientific nomenclature used for plant species throughout this report, and in Appendix C, follows the current taxonomic designations found in the Integrated Taxonomic Information System database (2010).

The Tioga Road project area is in the Central High Sierra Nevada district of the California Floristic Province (Hickman 1993). The High Sierra Nevada subregion of the California Floristic Province is characterized primarily by conifer forest above 2,500 feet, with treeless alpine communities at the highest elevations (9,000 to 14,000 feet) (Hickman 1993). Though elevations in Yosemite National Park range from 1,800 feet to over 13,000 feet, with elevation strongly influencing plant community distribution, the project area along Tioga Road has a smaller gradient from roughly 6,200 feet to 8,700 feet above sea level.

Two vegetation zones dominate the Tioga Road corridor: upper montane forest and subalpine forest (NPS 2010). Upper montane forest (Figure 2-3) begins at elevations near 6,000 feet in and around Yosemite National Park, and is the primary vegetation zone located along the Tioga Road corridor.

Figure 2-3. Typical Upper Montane Forest (surrounding a ponded wetland)

California red fir and Sierra lodgepole pine are the typical dominant tree species in this forest, and often form pure stands. Jeffrey pine and Sierra juniper are other common component tree species found within the upper montane forest. Around elevations of 8,000 feet, where the growing season is shorter and snowfall is typically higher, subalpine forest replaces the upper montane forest (NPS 2010). Dominant tree species in the subalpine forest are western white pine, mountain hemlock, and Sierra lodgepole pine. Subalpine forest is the dominant vegetation zone in the eastern portion of the Tioga Road corridor. Within these broadly defined zones, however, the vegetation can be further classified on the basis of growth form, geomorphology, and the dominant plant species and includes a variety of herbaceous, scrub, and woodland/forest types.

A geographical information systems (GIS) vegetation map for Yosemite National Park was completed in 2007 (http://www.nps.gov/yose/naturescience/vegetation-map.htm). The map was based on the interpretation of color infrared aerial photographs taken in 1997 and subsequently validated by intensive, quantitative sampling on the ground. The vegetation was classified to the alliance or super-association level based on the dominant/diagnostic plant species, usually of the uppermost stratum. This

classification represents over 200 distinct vegetation types in the original map. For this analysis, these vegetation types have been aggregated into larger categories based on the dominant species and/or the growth forms of those species, and are listed in Table 2-2 by acreage within the project study area. Figures in Appendix D show the vegetation types within a 500-foot buffer of Tioga Road along the length of the project study area.

Table 2-2. Vegetation Types Within the Tioga Road Project Area

Vegetation Type[1]	Acres	Percent of Total Area
California Red Fir Forest	588.9	35.9
Sierra Lodgepole Pine Forest	397.6	24.2
Jeffrey Pine Forest	151.5	9.2
Sierra Juniper Woodland	90.4	5.5
Western White Pine Forest	85.4	5.2
White Fir Forest	73.9	4.5
Meadow	60.9	3.7
Sparsely Vegetated/Exposed Rock	45.9	2.8
Mountain Hemlock Forest	30.4	1.9
Herbaceous	24.5	1.5
Manzanita/Chinquapin/ Huckleberry Oak Shrubland	22.0	1.3
Sagebrush/Oceanspray/Mountain Heather Shrubland	17.1	1.0
Open Water	14.5	0.9
Ceanothus Shrubland	11.2	0.7
Urban/Developed	8.1	0.5
Quaking Aspen Forest	6.1	0.4
Montane Shrubland	4.7	0.3
Non-alpine Talus	3.8	0.2
Granitic Dome	3.6	0.2
Willow Shrubland	1.6	0.1
Permanently Flooded, Emergent, or Floating Vegetation	1.1	0.1
TOTAL	**1643.2**	**100.0**

Note: [1] These vegetation types represent the dominant species within the community and may be mixed with other species. For example, California red fir is often mixed with lodgepole pine, Jeffrey pine and white fir.

Among the many other plant communities and vegetation types that occur along Tioga Road are meadow and riparian communities that contain the majority of the wetlands and other waters of the United States that occur within the project boundary.

Figure 2-4. Representative Meadow Community (surrounded by upper montane forest)

Meadow Communities

Meadows (Figure 2-4) are typically dominated by low-statured herbaceous species that require periods of surface water inundation and/or shallow groundwater. These communities often have woody shrub and tree components, but these woody species are never dominant. Meadows occur throughout Yosemite National Park at elevations from 3,000 feet to 11,000 feet. The locations of meadow communities are typically determined by the topography of a given area. On the western slope of the Sierra Nevada, meadows occur in situations where a relatively flat landform is surrounded by steep terrain with a large watershed that offers a shallow water table and fine textured soils (NPS 2010).

During the spring, snowmelt causes rising groundwater levels and streams to inundate meadows, bringing the nutrients that sustain these communities. Water table and soil moisture gradients strongly influence vegetation composition and structure in meadows. Most meadows contain a complex mosaic of wet, moist, and dry areas that support distinctly different plant and animal communities. Fens, which are the wettest portions of wet meadows and which contain many of the park's wetlands, are groundwater-fed systems whose soils remain saturated throughout the growing season. This slows the rate of decomposition such that there is a continual accumulation of plant material at the surface, resulting in a layer of organic soil known as peat. In their natural, undrained state, fens remove and store carbon that would otherwise be released back to the atmosphere through decomposition. Drier areas within meadows are typically found along the meadow margins and have a much deeper water table.

Meadows within Yosemite National Park reduce flood damage by accumulating flood waters and then slowly releasing the stored water; improving water quality by trapping sediments; allowing for groundwater recharge and/or discharge; and reducing erosion in floodplains and along lake shores and stream banks (NPS 2010).

Meadow communities within Yosemite National Park are highly variable in structure and species composition. Common and dominant herbaceous meadow species observed during field investigations for this report included northwest territory sedge, naked sedge, mountain sedge, American bistort, common rush, Sierra shooting star, tufted hair grass, pullup muhly, plantainleaf buttercup, alpine aster, and subalpine fleabane.

Riparian Communities

Riparian communities occur at the interface between land and riverine systems, and are thus, strongly influenced by seasonal drainage patterns. Stream corridors in Yosemite National Park support riparian scrub-woodland communities, typically dominated by willows and cottonwoods, with a variety of associated shrubs such as wild rose, white-stemmed gooseberry, and thimbleberry. Though, the presence of riparian vegetation is not necessarily indicative of wetland habitat, riverine systems often contain pockets of wetlands within and amongst riparian communities.

2.5 Previous Wetland and Aquatic Habitat Mapping

Figures in Appendix A show the occurrence of wetlands and other waters of the United States as previously mapped in the National Wetlands Inventory (NWI) and National Hydrography Dataset (NHD) in the project study area along Tioga Road. Wetland sites that were the focus of delineations and functional assessments for this report were identified by the park hydrologist, botanist, and environmental compliance specialist assigned to this project.

3 DELINEATION METHODOLOGY

3.1 Habitat Classification (Cowardin et al. 1979)

All aquatic habitats were classified according to the Cowardin et al. (1979) classification system developed by the U.S. Fish and Wildlife Service. This classification system is used to hierarchically define wetland and deepwater habitat types by system, subsystem, class, and subclass for the purposes of inventory, evaluation, and management. The Cowardin system considers all aquatic habitats (except those with water levels at least two meters deep, which are considered "deepwater habitats") to be wetlands. However, the U.S. Army Corps of Engineers does not consider naturally unvegetated areas to be wetlands, except in problematic and/or atypical situations (USACE 1987). For purposes of compliance with Executive Order 11990, NPS Procedural Manual #77-1: *Wetland Protection* states that the National Park Service will use Cowardin et al. (1979) as the standard for defining, classifying, and inventorying wetlands. The hierarchical classification of the Cowardin et al. system is shown in Figure 3-1.

3.2 Section 404 Clean Water Act Jurisdiction

Section 404 of the Clean Water Act provides for the federal regulation of the discharge of dredged or fill material into waters of the United States, including wetlands. The term "*waters of the United States"* is defined by Title 40, Code of Federal Regulations (CFR), Section 230.3 as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairiepotholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

   (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
   (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
   (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in paragraphs (1) through (4) of this section;

SYSTEM	R - RIVERINE							
SUBSYSTEM	1 – TIDAL	2 – LOWER PERENNIAL	3 – UPPER PERENNIAL	4 – INTERMITTENT	5 – *UNKNOWN PERENNIAL*			
CLASS	RB – ROCK BOTTOM	UB – UNCONSOLIDATED BOTTOM	*SB – STREAMBED	AB – AQUATIC BED	RS – ROCKY SHORE	US – UNCONSOLIDATED SHORE	**EM – EMERGENT	OW – *OPEN WATER/ Unknown Bottom*
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble 3 Cobble Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 *Unknown Submergent* 6 *Unknown Surface*	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

* STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.
** EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS.

SYSTEM	P - PALUSTRINE								
CLASS	RB – ROCK BOTTOM	UB – UNCONSOLIDATED BOTTOM	AB – AQUATIC BED	US – UNCONSOLIDATED SHORE	ML – MOSS-LICHEN	EM – EMERGENT	SS – SCRUB-SHRUB	FO – FORESTED	OW – *OPEN WATER/ Unknown Bottom*
Subclass	1 Bedrock 2. Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 *Unknown Submergent* 6 *Unknown Surface*	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 *Deciduous* 7 *Evergreen*	

MODIFIERS

In order to more adequately describe the wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME				WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS	
Non-Tidal		**Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**			
A Temporarily Flooded	H Permanently Flooded	K *Artificially Flooded*	*S Temporary-Tidal	1 Hyperhaline	7 Hypersaline		g Organic	b *Beaver*	h *Diked/Impounded*
B Saturated	J Intermittently Flooded	L Subtidal	*R Seasonal-Tidal	2 Euthaline	8 Eusaline	a Acid	n Mineral	d *Partially Drained/Ditched*	r Artificial Substrate
C Seasonally Flooded	K Artificially Flooded	M Irregularly Exposed	*T Semipermanent-Tidal	3 Mixohaline *(Brackish)*	9 Mixosaline	t Circumneutral		f Farmed	s *Spoil*
D *Seasonally Flooded/ Well Drained*	W Intermittently Flooded/Temporary	N Regularly Exposed	*V Permanent-Tidal	4 Polyhaline	0 Fresh	i Alkaline			x Excavated
E *Seasonally Flooded/ Saturated*	Y Saturated/Semipermanent/ Seasonal	P Irregularly Flooded	U *Unknown*	5 Mesohaline					
F Semipermanently Flooded	Z Intermittently Exposed/Permanent			6 Oligohaline					
G Intermittently Exposed	U *Unknown*			0 Fresh					
			*These water regimes are only used in tidally influenced, freshwater systems.						

NOTE: Italicized terms were added for mapping by the National Wetlands Inventory program.

Figure 3-1. Wetlands and Deepwater Habitats Classification for the Tioga Pass Road Rehabilitation Project (Based on Cowardin et al. 1979 and modified for National Wetland Inventory Mapping Convention)

6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

For regulatory purposes, wetlands are defined as:

> …areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33CFR 328.3).

In 2007, the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers issued guidance clarifying Clean Water Act jurisdiction following the U.S. Supreme Court's decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States*.

In summary, the agencies assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Nonnavigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

The agencies decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Nonnavigable tributaries that are not relatively permanent
- Wetlands adjacent to nonnavigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent nonnavigable tributary

3.3 Executive Order 11990

Executive Order 11990: *Protection of Wetlands* (42 Fed. Reg. 26961) was issued by President Carter in 1977 in order "…to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative...." (NPS 2002). Section 6 of Executive Order 11990 directed federal agencies to issue procedures to implement the Executive Order. Director's Order #77-1: *Wetland Protection* (issued in 1998 and reissued in 2002) and the accompanying Procedural Manual #77-1 (reissued in 2008) clarified NPS wetland policies and procedures so as to comply with Executive Order 11990.

3.4 Delineation Procedures

Wetlands were identified and delineated, per the Scope of Work, in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). Per U.S. Army Corps of Engineers requirements, and except for certain problematic situations, evidence of a minimum of one positive wetland indicator from each parameter (hydrophytic vegetation, hydric soil, and hydrology) had to be met in order to make a positive wetland determination. Data collected at sample plots was recorded on wetland determination data forms from the Western *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010).

Field investigations were focused on specific sites that were deemed of greatest potential significance as identified by the park hydrologist. The specified survey sites primarily included areas with previously mapped NWI and NHD waters of the United States, and are identified on the maps in Appendix A. Delineations, mapping, and functional assessments were completed for distinct habitat types with areas greater than 0.10 acres. Because of the variability and patchiness within and amongst habitat types, wetlands and other waters with areas less than 0.10 acres that occurred within larger habitat types were mapped as part of the dominant Cowardin type within which they occurred. Delineation boundaries extended to 160 feet from the road centerline on either side, except in the Tuolumne Meadows survey area where delineation boundaries extended to 320 feet from the road centerline on the north side of the road. Delineation involved field verification of waters of the United States previously mapped in the NWI and NHD, as well as delineation of areas that had not previously been mapped.

Within the specific survey sites, reconnaissance surveys were conducted to identify the approximate extent of wetlands and other waters based on dominant vegetation type, hydrology, topography, and landscape/geomorphic position. In areas that were deemed to contain possible wetlands, the soil, vegetation, and hydrology were evaluated in detail in representative sample plots. Sample plots were chosen both within and outside of wetland boundaries so as to establish clear boundaries between wetland and nonwetland habitats.

Recognizing the sensitivity of natural and cultural resources and aesthetic values in the project study area, the number of sample plots was minimized to the extent practicable so as to reduce the number of soil pits (see section 3.4.1). Therefore, reference plots were identified during the course of the field investigations. Determination of wetland status for certain areas was based on similarities in habitat type, dominant vegetation, hydrology, and soil samples (taken with a 2.5-inch diameter soil auger) to the reference plots. Where wetland hydrology and vegetation indicators were both clearly present, or both clearly absent, such that inspection of a soil pit would not affect the conclusions, no pit was excavated.

TEC Inc. staff conducted on-site determinations, delineations, and functional assessments of all waters of the United States within the project survey boundaries in August and September 2010. A submeter GPS was used to map determination points and wetland features within the survey sites.

3.4.1 Determination of Hydrophytic Vegetation

Hydrophytic vegetation is defined as the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence on the plant species present (USACE 1987). Hydrophytic vegetation determinations are based on assemblages of plant species, rather than the presence or absence of individual indicator species. For wetland delineation purposes, an area is considered to be vegetated if it has 5 percent or more total plant cover at the peak of the growing season (USACE 2010).

Sample plots were evaluated to determine the dominant vegetative cover in the following strata as defined by the U.S. Army Corps of Engineers (USACE 2010):

1. Tree stratum – woody plants 3 inches or more in diameter at breast height, regardless of height
2. Sapling/shrub stratum – woody plants less than 3 inches diameter at breast height, regardless of height.
3. Herb stratum – all herbaceous (nonwoody) plants, including herbaceous vines, regardless of size.
4. Woody vines – consists of all woody vines, regardless of height.

Measures of absolute percent cover for tree and sapling/shrub strata were done by visual estimate using 5-meter and 3-meter radius plots, respectively. Herb strata were measured using either 1 x 1 meter or 1 x 2 meter quadrats, depending on site conditions. No woody vine strata were encountered during surveys for this project.

Hydrophytic vegetation decisions were based on the wetland indicator status (Reed 1988) of species that composed the plant communities. Wetland indicator status is a relative measure of a plant species' potential to occur in wetlands. Hydrophytic vegetation indicator status categories are defined as follows (USACE 1987):

- Obligate (OBL) – plants that occur almost always in wetlands (>99% probability);
- Facultative Wetland (FACW) – plants that occur usually in wetlands (67 to 99% probability);
- Facultative (FAC) – Plants with a similar likelihood of occurring in both nonwetlands or wetlands (33 to 67% probability);
- Facultative Upland (FACU) – plants that usually occur in nonwetlands, but sometimes in wetlands (1 to 33% probability);
- Obligate Upland (UPL) - Plants that almost always occur in nonwetlands and rarely occur in wetlands (<1% probability).

Hydrophytic vegetation determinations followed the standard procedures set forth in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). All sample plots within the project survey area that were characterized by hydrophytic vegetation met at least one of the following two indicators:

1. Indicator 1 - Rapid Test for Hydrophytic Vegetation: all dominant species across all strata are rated OBL or FACW, or a combination of these two categories, based on a visual assessment. This test is intended as a quick confirmation in obvious cases that a site has hydrophytic

vegetation, without the need for more intensive sampling. Dominant species are selected visually from each stratum of the community using the "50/20 rule" (see Indicator 2 – Dominance Test below) as a general guide but without the need to gather quantitative data.

2. Indicator 2 - Dominance Test: more than 50 percent of the dominant plant species across all strata are rated OBL, FACW, or FAC. The "50/20 rule" is the method used for determining dominant species from each stratum. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total.

The wetland indicator status of all plant species observed within the survey sample plots, as well as the hydrophytic vegetation determination method used for each plot, are provided in the Wetland Determination Data Forms (USACE 2010) in Appendix E.

3.4.2 Determination of Hydric Soils

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS 2010d). Hydric soil indicators are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment (USACE 2010).

Figure 3-2. Representative Soil Pit

Survey teams evaluated and documented the morphological characteristics of all visible soil horizons observed in excavated soil profiles at each sample plot. Soil pits were excavated to depths of 20 to 24 inches (Figure 3-2), except in instances where positive hydric soil indicators were obtained above that depth or where excavation was met with refusal (e.g., rock or large roots). Soil profile analyses included descriptions of horizon thickness (depth); matrix color; texture; and type, location, abundance, and color of redoximorphic features (if present). These characteristics were used as the basis for determining the presence or absence of hydric soil indicators as set forth in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010).

Soil profile descriptions and hydric soil determinations from all sample plots are provided in the Wetland Determination Data Forms (USACE 2010) in Appendix E.

3.4.3 Determination of Wetland Hydrology

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season (USACE 1987). An area has wetland hydrology if it is inundated or saturated to the surface continuously for at least 5% of the growing season in most years (50% probability of recurrence) (USACE 1987). Five percent of the growing season, as recorded at the Yosemite National Park South Entrance (171 days), equates to roughly 8.5 days of continuous saturation and/or inundation for an area in that region to have wetland hydrology. The elevation along Tioga Road is significantly higher than at the South Entrance weather station, with colder temperatures and higher snowfall. Thus, the growing season and number of continual days of saturation/inundation required for wetland hydrology is likely significantly less.

Field verification of wetland hydrology involved positive field observation by survey teams of at least one primary indicator or two secondary indicators as defined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). Commonly observed primary indicators for wetland hydrology in the sample plots were as follows:

- Surface Water (A1) – direct, visual observation of surface water (flooding or ponding);
- High Water Table (A2) – direct, visual observation of the water table 12 inches or less below the surface in a soil pit;
- Saturation (A3) – visual observation of saturated soil conditions 12 inches or less from the soil surface as indicated by water glistening on the surfaces and broken interior faces of soil samples removed from the soil pit.

Commonly observed secondary indicators for wetland hydrology in the sample plots were as follows:

- Dry-Season Water Table (C2) – visual observation of the water table between 12 and 24 inches below the surface during the normal dry season or during a drier than normal year;
- Geomorphic Position (D2) – present if the area in question is located in a localized depression, swale or drainageway, concave position within a floodplain, at the toe of a slope, on an extensive flat, on the low-elevation fringe of a pond or other water body, or in an area where groundwater discharges;
- FAC-Neutral Test (D5) – performed by compiling a list of dominant plant species across all strata in the community, and dropping from the list any species with a FAC indicator status. The FAC-neutral test is met if more than 50 percent of the remaining dominant species are rated FACW and/or OBL.

Wetland hydrology field observations and determinations from all sample plots are provided in the Wetland Determination Data Forms (USACE 2010) in Appendix E.

3.4.4 Other Waters of the United States

Figure 3-3. Riverine Habitat with Clearly Defined Bed and Banks

Other waters of the United States were mapped and delineated in the field based on the location of ordinary high water marks, as defined by Section 404 of the Clean Water Act and with the guidelines set forth by *Regulatory Guidance Letter No. 05-05* (USACE 2005). The lateral limits of jurisdiction over nontidal water bodies extend to the ordinary high water marks, in the absence of adjacent wetlands. When adjacent wetlands are present, Clean Water Act jurisdiction extends beyond the ordinary high water mark to the limits of the adjacent wetlands. Physical characteristics (as defined by USACE 2005) that were considered when making ordinary high water mark determinations for this report included, but were not limited to, evidence of: a natural line impressed on the bank, scour, shelving, destruction of terrestrial vegetation, bed and banks (Figure 3-3), and deposition.

4 DELINEATION RESULTS

This section identifies the wetlands and other aquatic habitats that are present within the Tioga Road Rehabilitation Project corridor, their classifications under the Cowardin et al. (1979) system, and acreages. Table 4-1 provides a detailed summary of the delineation and mapping of Cowardin habitats within the project survey area. Descriptions of these habitat types are provided in Section 4.1. Figure 4-1 (provided at the end of this chapter) shows the results of the delineation and mapping that was completed for this report. A photographic summary of wetlands and other aquatic habitats that were mapped during field surveys is provided as Appendix F.

Table 4-1. Summary of Wetlands, Other Waters of the United States, and Other Cowardin Habitats in the Tioga Road Rehabilitation Project Area

General Location	Wetland ID[1]	Dominant Cowardin Habitat	Area (Acres)	Functional Assessment
Tuolumne Meadows	Wet1a	PEMA	3.96	Y
	Wet1b	PEMA	1.41	
	Wet1c	R4SB2	0.07	
	Wet1d	R4SB2	0.02	
	Wet2	PEMC	0.91	Y
	Wet3a	PEMA	0.36	Y
	Wet3b	PEMA	0.65	
	Wet4	PSSC	0.41	
	Wet6	PEMA	0.13	
	Wet7	PEMC	0.37	
	Wet8	PEMC	0.98	
	Wet9a	PEMC	0.28	
	Wet9b	R4SB3	0.02	
	Wet10a	PEMC	0.24	Y
	Wet10b	R4SB7	0.07	
	Wet11a	PEMA	0.18	Y
	Wet11b	PEMA	0.61	
	Wet11c	R4SB2	0.01	
	Wet11d	R4SB3	0.08	
	Wet11e	R4SB2	0.47	
	Wet12	PEMC	0.27	
	Wet13a	PEMA	0.05	
	Wet13b	PEMA	0.02	

Table 4-1. Summary of Wetlands, Other Waters of the United States, and Other Cowardin Habitats in the Tioga Road Rehabilitation Project Area

General Location	Wetland ID[1]	Dominant Cowardin Habitat	Area (Acres)	Functional Assessment
	Wet13c	R4SB2	0.04	
	Wet13d	R4SB2	0.02	
	Wet13e	R4SB2	0.04	
	Wet13g	R4SB7	0.03	
	Wet14a	PEMA	0.31	Y
	Wet14b	PEMA	0.24	
	Wet16a	PEMC	0.74	Y
	Wet16b	R3RB2	1.77	
	Wet16c	R4SB1	0.01	
	Wet16d	R4SB1	0.04	
	Wet16e	R4SB2	0.05	
	Wet17	PEMA	1.20	
	Wet18	PEMA	0.08	
	Wet19	PEMA	0.01	
East of Tenaya Lake	Wet20a	PEMF	0.16	
	Wet20b	R4SB3	0.02	
	Wet21	PUBF	0.08	Y
	Wet22	PUBF	0.08	
	Wet25	PEMC	0.98	Y
Crane Flat	Wet26a	PEMC	0.19	Y
	Wet26b	PEMC	0.19	
	Wet27	PEMC	0.06	
	Wet28a	PEMB	0.75	Y
	Wet28b	PEMB	0.03	
	Wet28c	PEMB	1.03	
Gin Flat	Wet29	PEMB	0.96	Y
	Wet30	PEMC	0.23	
East of Gin Flat	Wet31	R4SB1	1.80	
West of Siesta Lake	Wet32a	R4SB3	0.07	
	Wet32b	R4SB3	0.10	
Siesta Lake	Wet33	PEMB	0.29	Y

Table 4-1. Summary of Wetlands, Other Waters of the United States, and Other Cowardin Habitats in the Tioga Road Rehabilitation Project Area

General Location	Wetland ID[1]	Dominant Cowardin Habitat	Area (Acres)	Functional Assessment
	Wet34a	PUBH	0.96	
	Wet34b	PFOB	0.10	Y
	Wet34c	R4SB3	<0.01	
	Wet34d	R4SB7	0.03	
East of Siesta Lake	Wet35	PEMB	0.10	
	Wet37a	PEMB	0.11	
Porcupine Flat	Wet37b	R4SB3	0.02	Y
	Wet37c	R4SB3	0.02	
	Wet37d	R4SB3	0.03	
West of Olmstead Point	Wet39	PEMB	0.55	Y
West of Tenaya Lake	Wet40a	R4SB4	0.20	
	Wet40b	R4SB4	0.12	
East of Tenaya Lake	Wet41	R4SB3	0.27	
	Wet42a	PEMB	0.38	
	Wet42b	PFOB	0.95	
	Wet42c	PFOB	0.84	Y
McSwain Meadows	Wet42d	PEMA	0.01	
	Wet42e	R4SB5	0.08	
	Wet43	PEMA	0.10	Y
	Wet44a	PFOB	0.26	
	Wet44b	PFOC	0.45	
	Wet45a	R4SB2	0.03	
East of Tenaya Lake	Wet45b	R4SB2	0.01	
	Wet45c	R4SB3	0.03	
	Wet45d	R4SB3	0.01	
Tuolumne Meadows	Wet46	R3UB1	<0.01	
	Wet47	R4SB3	0.11	
Various Locations	Unnamed	R4SB2	0.11	
Various Locations	Unnamed	R4SB3	0.05	

Note: [1] Not all riverine habitats were given a Wetland ID by the field survey teams. Those habitats have been grouped as "Unnamed" in this table. Some wetlands were mapped that occurred outside the project area, and were removed from calculations post-field survey. Therefore, some Wetland ID numbers and letters are missing from this table.

4.1 Wetlands and Other Aquatic Habitat Types in the Project Corridor

Table 4-2 provides a summary of acreages by habitat type for all wetlands and other aquatic habitats mapped during field surveys. Descriptions of these specific habitat types are provided below.

Table 4-2. Acreage Summary of Wetlands and Other Aquatic Habitats in the Tioga Road Rehabilitation Project Survey Areas

Cowardin Habitat Type	Acres	Total
Palustrine Emergent Wetland (PEM)	19.14	Palustrine Wetlands: 23.26 acres
Palustrine Forested Wetland (PFO)	2.60	
Palustrine Scrub-Shrub Wetland (PSS)	0.41	
Palustrine Unconsolidated Bottom Wetland (PUB)	1.11	
Riverine Upper Perennial Rock Bottom (R3RB)	1.77	Riverine Habitat: 5.85 acres
Riverine Upper Perennial Unconsolidated Bottom (R3UB)	0.003	
Riverine Intermittent Streambed (R4SB)	4.08	
		Total Waters of the U.S.: 29.11 acres

4.1.1 Palustrine System

The palustrine system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5% (Cowardin et al. 1979). The palustrine system comprises the vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie. It also includes the small, shallow, permanent or intermittent water bodies often called ponds. Palustrine wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes. They may also occur as islands in lakes or rivers (Cowardin et al. 1979). For the purposes of this report, palustrine wetlands were identified to the level of class, and water regime modifiers (see Figure 3-1) were applied based on direct field observations. A total of 23.26 acres of palustrine habitat was mapped within the survey sites of the Tioga Road project area.

Palustrine Emergent Wetlands

Palustrine emergent wetlands (PEM) are characterized by erect, rooted, herbaceous hydrophytic vegetation. (Cowardin et al. 1979). The majority of fens, bogs, marshes, and wet meadows found in mountain habitats are classified under this system. These wetlands were the most commonly observed within the project survey area and are the dominant Cowardin habitat in the meadows along Tioga Road. Dominant and/or commonly observed plant species within PEM habitats

Figure 4-2. Palustrine Emergent Wetland

along the project corridor included: northwest territory sedge, naked sedge, mountain sedge, American bistort, common rush, Sierra shooting star, tufted hair grass, pullup muhly, plantainleaf buttercup, alpine aster, and subalpine fleabane. A total of 19.14 acres of PEM wetlands were delineated and mapped during surveys for this report. Figure 4-2 shows a typical PEM wetland found within the project survey area.

Palustrine Scrub-Shrub Wetlands

Palustrine scrub-shrub (PSS) wetlands are dominated by woody vegetation less than 20 feet tall (Cowardin et al. 1979). Component dominant species can include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. The majority of palustrine scrub-shrub habitat patches that were encountered during surveys for this report were not large enough (>10 acres) to be mapped as independent habitat types. Often, these small areas were mapped within larger palustrine emergent habitats. Palustrine scrub-shrub wetlands within the project survey area were dominated by low-lying shrub species, such as, Sierra willow and bog bilberry. A total of 0.41 acres of PSS wetlands were delineated and mapped during surveys for this report.

Palustrine Forested Wetlands

Palustrine forested wetlands (PFO) are dominated by woody vegetation that is at least 20 feet tall, and are most common in the eastern United States and in those sections of the West where moisture is relatively abundant, particularly along rivers and in the mountains (Cowardin et al. 1979). Palustrine forested wetlands occur in floodplains, springs, seeps, adjacent to running waters, and in other areas with high water tables (USACE 2010). Within the Tioga Road project area, these wetlands are dominated by large coniferous species, predominantly lodgepole pine, with herbaceous wetland species occupying the understory. A total of 2.60 acres of PFO wetlands were delineated and mapped during surveys for this report. Figure 4-3 shows a typical PFO wetland found within the project survey area.

Figure 4-3. Palustrine Forested Wetland

Palustrine Unconsolidated Bottom Wetlands

Palustrine unconsolidated bottom (PUB) wetlands are characterized as having a vegetative cover less than 30% with at least 25% cover of particles smaller than stones (Cowardin et al. 1979). These wetlands tend to lack large stable surfaces for plant and animal attachment, and their water regimes range from permanently to semipermanently flooded. Palustrine unconsolidated bottom wetlands typically have a strong

Figure 4-4. Palustrine Unconsolidated Bottom Wetland

association with PEM wetlands, and are often fringed by herbaceous emergent vegetation. Within the project survey area, PUB wetlands often had standing, or ponded, water and were primarily dominated by bladder sedge and/or inflated sedge – two very similar obligate wetland species. A total of 1.11 acres of PUB wetlands were delineated and mapped during surveys for this report. Figure 4-4 shows a typical PUB wetland found within the project survey area.

4.1.2 Riverine System

The riverine system includes all wetlands and deepwater habitats contained within a channel, with the exception of wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens (Cowardin et al. 1979). The term "channel" can refer to an artificially or naturally created watercourse that periodically or continuously contains moving water and/or connects two bodies of standing water. The riverine system is bounded on the landward side by upland, by the channel bank (including natural and manmade levees), or by wetland dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens (Cowardin et al. 1979). Water is typically, but not always, flowing in the riverine system. Riparian and/or wetland habitats often occur adjacent to the banks of the riverine system, often on a floodplain.

The riverine system is divided into four subsystems as defined by Cowardin et al. (1979) (see Figure 3-1), of which two were used to classify all riverine habitats within the project area:

- **Upper Perennial** - the gradient is high and velocity of the water is fast. There is no tidal influence and some water flows throughout the year. The substrate consists of rock, cobbles, or gravel with occasional patches of sand. The natural dissolved oxygen concentration is normally near saturation. The fauna is characteristic of running water, and there are few or no planktonic forms. There is very little floodplain development.
- **Intermittent** - the channel contains flowing water for only part of the year. When the water is not flowing, it may remain in isolated pools or surface water may be absent.

For the purposes of this report, riverine habitats in the Tioga Road project study area were mapped and classified to the level of subclass (substrate material) (refer to Figure 3-1). The types of riverine habitats observed in the project study area are described below.

Riverine Upper Perennial Rock Bottom

Riverine upper perennial rock bottom (R3RB) habitat includes all riverine upper perennial habitats with substrates having an areal cover of stones, boulders, or bedrock 75% or greater and vegetative cover of less than 30% (Cowardin et al. 1979). These habitats have flowing water year-round, and are generally found in the larger riverine systems within the park. The majority of the portions of Tuolumne River that are within the project study area are classified as this habitat type. A total of 1.77 acres of R3RB habitat were mapped during surveys for this report. Figure 4-5 shows a typical R3RB habitat found within the project survey area.

Figure 4-5. Riverine Upper Perennial Rock Bottom

Riverine Upper Perennial Unconsolidated Bottom

Riverine upper perennial unconsolidated bottom (R3UB) habitat includes all riverine upper perennial habitats with at least 25% cover of particles smaller than stones, and a vegetative cover less than 30% (Cowardin et al. 1979). These habitats have bottoms that are characterized by the lack of large stable surfaces, and are usually found in areas with lower energy than rock bottom habitats. Within the project survey area, these riverine habitats are typical of the larger-sized Tuolomne River tributaries that have somewhat lower energy than the main river. Only a small area (0.003 acre) of R3UB habitat was mapped within the study area boundaries, but it is fairly extensive along the Tuolumne River. Figure 4-6 shows a typical R3UB habitat found within the project survey area.

Figure 4-6. Riverine Upper Perennial

Riverine Intermittent Streambed

Riverine intermittent streambed (R4SB) habitat is characterized by the lack of year-round water flow and/or surface water (Cowardin et al. 1979). These systems are typically smaller than perennial riverine systems and can have a variety of bottom substrates. The majority of riverine habitat that was mapped in the project study area is classified as R4SB. Though many of these habitats lacked surface water during field investigations, they often provided evidence of connectivity and drainage between larger wetland habitats. A total of 4.08 acres of R4SB habitat were mapped during surveys for this report. Figure 4-7 shows a typical R4SB habitat found within the project survey area.

Figure 4-7. Riverine Intermittent Streambed

[This Page Intentionally Left Blank]

5 FUNCTIONAL ASSESSMENTS

5.1 Methodology

Wetland functions and values were assessed qualitatively based on field observations and the professional judgment of the survey teams. The definitions and evaluations of wetland functions and values are consistent with NPS Procedural Manual #77-1: *Wetland Protection* (2008). Wetland function and value parameters were adapted from the following sources: *Riparian Area Management* (BLM 2003), *The Highway Methodology Workbook Supplement- Wetland Functions and Values* (USACE 1999), and *California Rapid Assessment Method for Wetlands 5.0.2* (Collins et al. 2008). Assessments of functions and values were completed for discrete wetland sites that typically included a combination of wetlands and other waters as identified by Yosemite National Park staff along the road rehabilitation corridor. Functional assessments encompassed all wetland and deepwater habitat types as defined by Cowardin et al. (1979) within each site. Functional assessments were completed for 22 of the larger (>0.10 acre), more significant wetland sites that may be affected by the project.

The following functions and values were assessed for each wetland site, as shown on the completed functional assessment worksheets in Appendix G:

- **Hydrologic Function** was assessed based on the presence/absence of artificial water sources, degradation caused by upland erosion, alteration of surface or subsurface flow patterns, and any other natural or unnatural disturbance potentially affecting the hydrologic regime of the wetland site;
- **Biotic Function** was assessed in terms of vegetative structure, plant species diversity, percent cover of native species, horizontal interspersion of vegetation, and age-class distribution of wetland vegetation;
- **Sediment/Shoreline Stabilization Function** was assessed based on the levels of erosion, deposition, and/or siltation occurring within the wetland site;
- **Biological Value** was assessed in terms of the structural patch richness and topographic complexity of the wetland site. Patch richness and topographic complexity are indicators of physical surface features and their spatial arrangement. The presence of these features provides habitat for aquatic, wetland, and riparian species. Twenty-one patch types were surveyed for within each wetland site. Definitions and explanations of these patch types are included in Appendix G. Within wetland sites, positive indicators for at least 10 patch types was deemed to be indicative of high biological value; 5 to 9 indicators, of moderate biological value; and less than 5 indicators, of low biological value;
- **Recreational Value** was assessed based on the suitability of the wetland and associated deepwater habitats to provide recreational opportunities such as hiking, wildlife-viewing, canoeing, fishing, and other recreational activities;
- **Educational Value** was assessed in terms of the suitability of the wetland as a potential educational site or as a location for scientific study or research;

- **Uniqueness Value** was assessed in terms of the effectiveness of the wetland site to provide certain special values. These include overall health and appearance, archaeological and/or cultural sites, and relative importance in the geographic location.

Other field observations included notation of the dominant (> 0.10 acres) wetland/other water systems present, other aquatic habitats associated with wetland types, presence or absence of a contiguous undeveloped buffer zone around wetland sites, and all non-native plant species occurring within wetland sites.

5.2 Results

Table 5-1 presents a summarized version of the functional assessments that were performed for specific wetland sites within the Tioga Road project area. The qualitative analysis of function and value presented in Table 5-1 is provided as a means for summarizing and comparing field assessments that were done at each site. The functional assessment data forms that were used for field investigations are presented in Appendix G.

Table 5-1. Summary of Wetland Functions and Values

Wetland	Functional Value			Biological Value	Recreational/Educational/ Uniqueness Value
	Hydrologic	Biotic	Stabilization		
Wet1	high	high	high	moderate	high
Wet2	high	high	low	high	high
Wet3	high	high	high	low	high
Wet10	high	high	high	low	moderate
Wet11	high	high	high	moderate	high
Wet14	high	high	high	low	low
Wet15	high	high	high	high	high
Wet16	moderate	high	low	moderate	high
Wet21,22	high	high	high	moderate	moderate
Wet25	high	high	high	moderate	high
Wet26	moderate	high	high	low	low
Wet28	moderate	high	high	low	moderate
Wet29	high	high	high	low	low
Wet31	moderate	high	high	high	high
Wet32	moderate	high	high	moderate	low
Wet33	moderate	high	high	low	low
Wet34	high	high	high	moderate	high
Wet37	moderate	high	high	high	low
Wet39	high	high	high	low	low
Wet41	moderate	high	high	high	moderate
Wet42	moderate	high	high	moderate	low
Wet43	high	high	high	moderate	high

Overall, the functions and values of wetland habitats along the Tioga Road Rehabilitation Project corridor are rather high. Though many wetlands scored moderate hydrologic function, this was primarily due to the fact that most of these wetlands occur along the road margin and have surface or subsurface flow patterns that are altered by culverts. Biotic functional value was scored high at every wetland site, as there was evidence of high plant species diversity, age-class distribution of vegetation, and low incidence of nonnative vegetation (Wet26 was the only wetland with evidence of nonnative vegetation – a small amount of bull thistle along the roadside margins of the wetland). In terms of shoreline and/or substrate stabilization, the majority of wetland sites appear to have low erosion, and sedimentation does not seem excessive. Wet2 showed signs of heavy erosion in areas adjacent to the roadside parking area (pullout), and high amounts of bare soil that appears to be a result of heavy deposition from the culvert under Tioga Road. Wet16 occurs in a heavily trafficked area adjacent to the Tuolumne Meadows campground, and walking trails have created bare patches of soil in the wetland that appear to be increasing the levels of erosion into the main river.

Biological value was scored as described in Section 5.1. Because of the variability in habitat and structure across wetland sites, the qualification of biological value is difficult to assess. For the purpose of this report, a wetland site typically scored a high biological value if the site contained multiple wetland and/or other aquatic habitat types. Because biological value was assessed in terms of structural patch richness, a high score simply meant that the site contained high structural diversity, and thus, provided greater opportunity for biological diversity.

Recreational, educational, and uniqueness values were assessed entirely based on judgments of the on-site survey teams. Recreational and educational values were strongly associated with the accessibility of wetland sites for nonconsumptive use. Many of the wetland sites are located in areas of high tourist interest and use, and thus, are easily accessed from Tioga Road. Uniqueness value was scored primarily on a wetland site's overall appearance and relative importance in geographic location. For example, areas that contained mosaics of habitats and/or contained habitats that were unique to a certain location were deemed as having high uniqueness value.

[This Page Intentionally Left Blank]

6 REFERENCES

Borchers, J. W. 1996. Ground-water resources and water-supply alternatives in the Wawona area of Yosemite National Park, California. Water-Resources Investigations Report 95-4229. U.S. Geological Survey, Reston, Virginia, USA.

Bureau of Land Management (BLM). 1999 (revised 2003). Riparian Area Management, A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lentic Areas. TR 1737-16.

Collins, J.N., E.D. Stein, M. Sutula, R. Clark, A.E. Fetscher, L. Grenier, C. Grosso, and A. Wiskind. 2008. California Rapid Assessment Method (CRAM) for Wetlands. Version 5.0.2.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. US Government Printing Office. Washington D.C. GPO 024-01000524-6.

Herrera Environmental Consultants, Inc. 2009. Wetland and Stream Delineation, Tenaya Lake Comprehensive Plan Yosemite National Park, California. Prepared for the National Park Service and the Yosemite Fund. March.

Hickman, James C. (ed.). 1993. The Jepson Manual. Berkeley, CA: University of California Press.

ITIS (Integrated Taxonomic Information System). 2010. Online at: http://www.itis.gov/.

NPS (National Park Service). 2010. Yosemite National Park, Nature and Science website. Online at: http://www.nps.gov/yose/naturescience/.

_____. 2008. Procedural Manual #77-1: Wetland Protection. Reissued in 2008 (replaces all previous versions. Online at: http://www.nature.nps.gov/water/wetlands/DO%2077-1%20PROC%20MANUAL%20FEB%202008%20-%20FINAL.pdf.

_____. 2002. Directors Order #77-1: Wetland Protection. Issued in 1998 and reissued in 2002. Online at: http://www.nps.gov/policy/DOrders/DO77-1-Reissue.htm.

NRCS (United States Department of Agriculture, Natural Resources Conservation Service) . 2010a. WETS Table for South Entrance Yosemite National Park WETS Station. Data created in 2002. Online at: http://www.wcc.nrcs.usda.gov/ftpref/support/climate/wetlands/ca/06043.txt.

_____. 2010b. Custom Soil Resource Report for Yosemite National Park, California. June 2.

_____. 2010c. National List of Hydric Soils. Online at: http://soils.usda.gov/use/hydric/.

_____. 2010d. Hydric Soils. Online at: http://soils.usda.gov/use/hydric/intro.html.

_____. 2006. Soil Survey of Yosemite National Park, California. Online at: http://soildatamart.nrcs.usda.gov/Manuscripts/CA790/0/Yosemite_CA.pdf.

Reed, Porter B. 1988. National List of Plant Species that Occur in Wetlands: National Summary. Fish and Wildlife Service, Biological Report 88(24). September.

USACE (United States Army Corps of Engineers). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). May.

_____. New England District. 1999. The Highway Methodology Workbook Supplement – Wetland Functions and Values. NAEEP-360-130a.

_____. Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A176 912.

APPENDICES

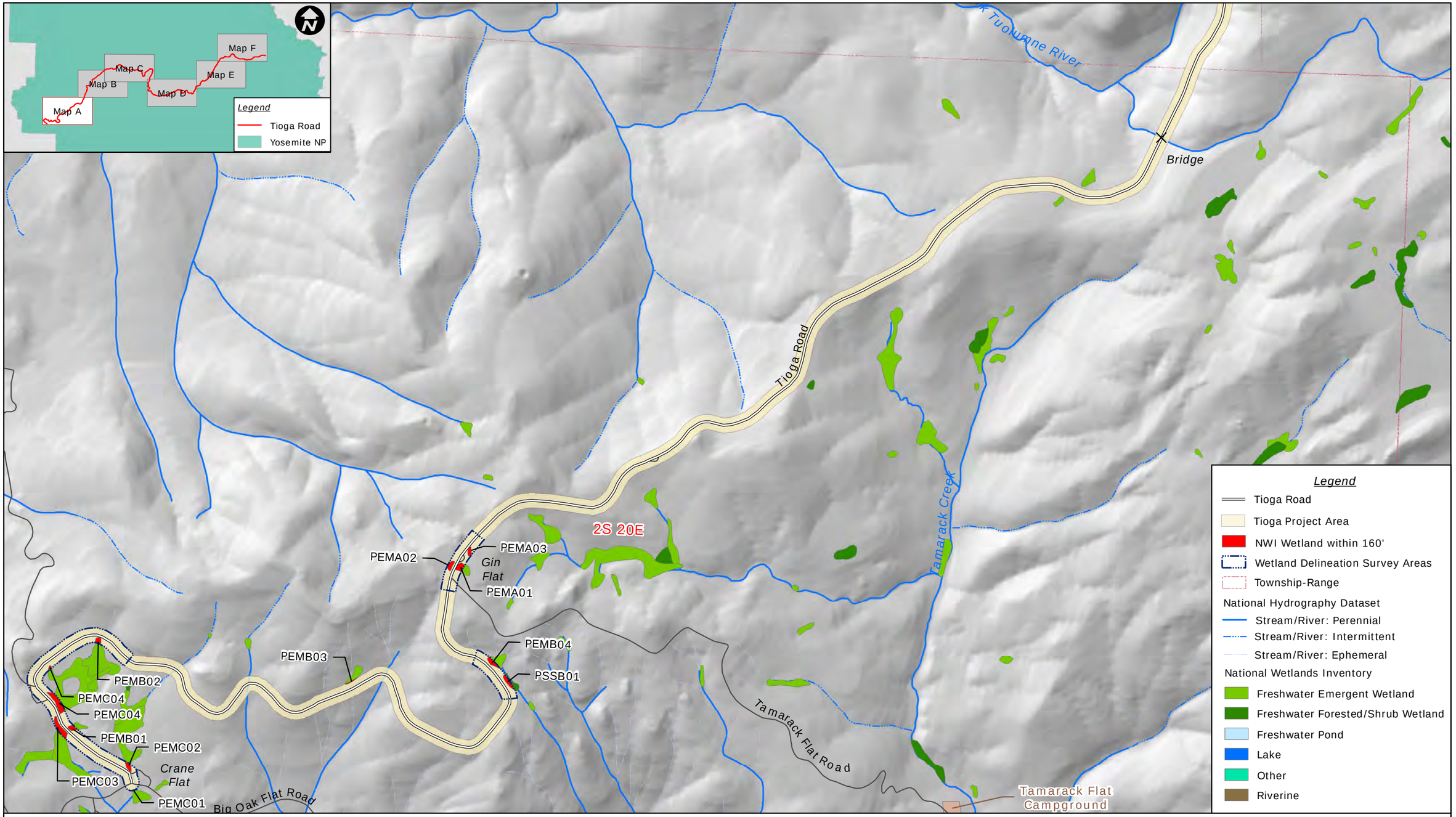
[This Page Intentionally Left Blank]

A. NHD and NWI Mapped Waters in the Project Study Area
B. Soils of the Project Study Area
C. Plants Identified During Field Investigations
D. Vegetation of the Project Study Area
E. Wetland Delineation Determination Forms
F. Photograph Log
G. Functional Assessment Worksheets

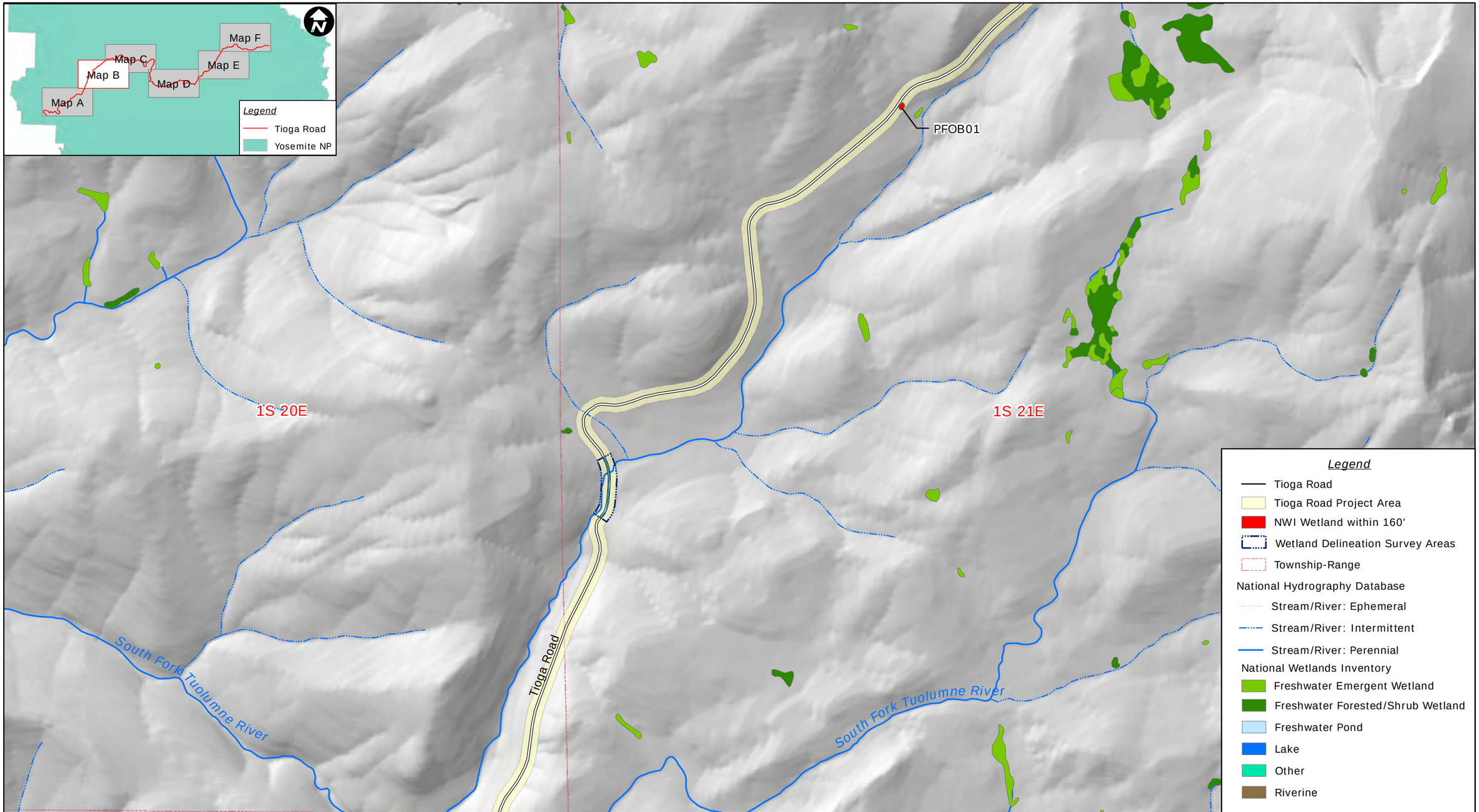
[This Page Intentionally Left Blank]

APPENDIX A
NHD AND NWI MAPPED WATERS IN THE PROJECT STUDY AREA

[This Page Intentionally Left Blank]



Map A: NWI Wetlands and NHD Data
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



N
W E
S

0 0.25 0.5 Miles

Map B: NWI Wetlands and NHD Data
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne County, CA
1:24, 000

Legend

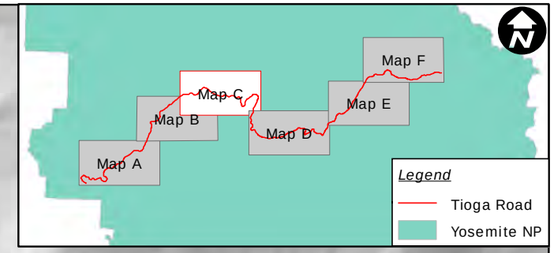
- Tioga Road
- Tioga Road Project Area
- NWI Wetland within 160'
- Wetland Delineation Survey Areas
- Township-Range

National Hydrography Database

- Stream/River: Hydrographic Category = Ephemeral
- Stream/River: Hydrographic Category = Intermittent
- Stream/River: Hydrographic Category = Perennial

National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

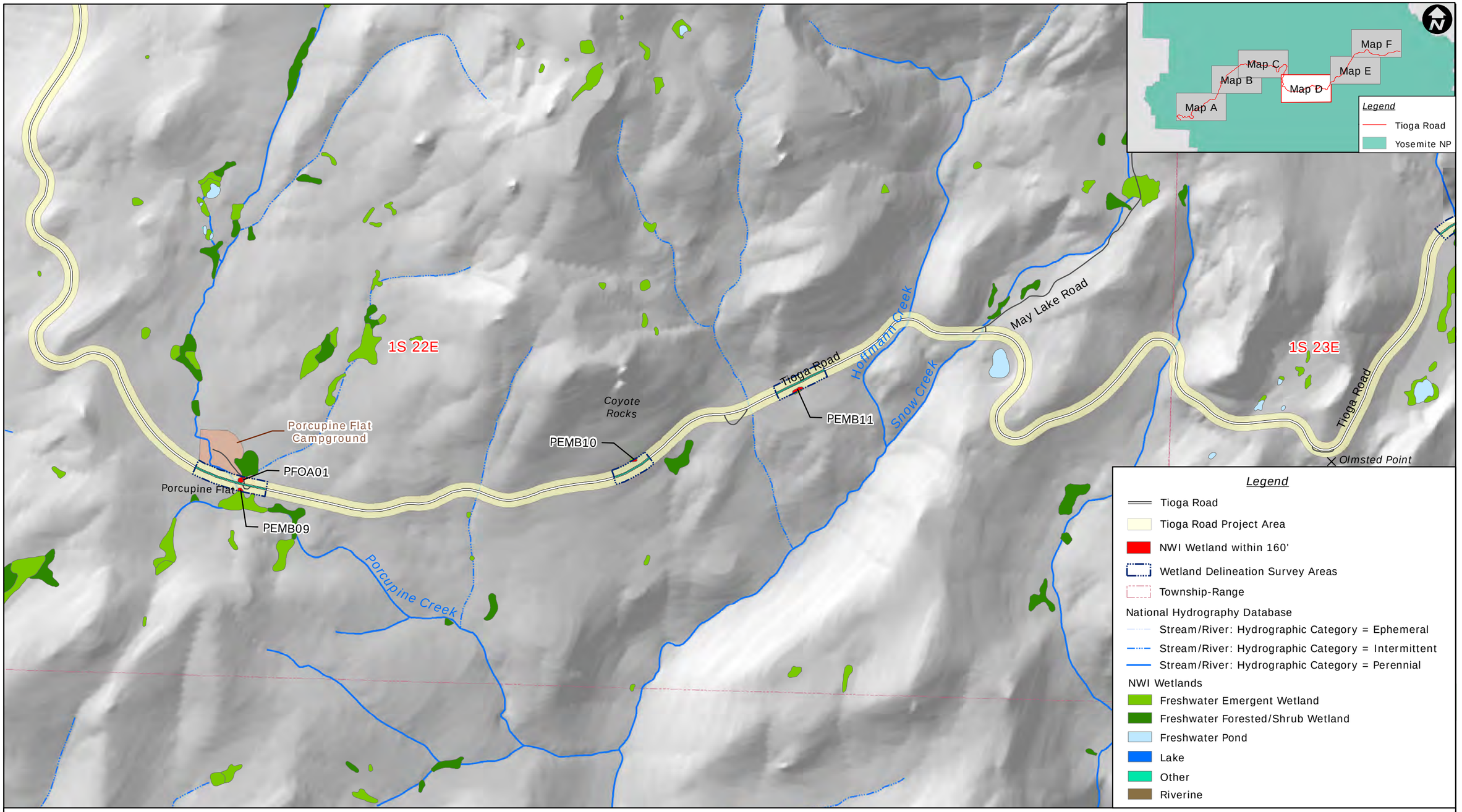


White Wolf Campground
White Wolf Road
Middle Tuolumne River
Lukens Lake
McSwain Meadows
PEMB07
PFOC02
PFOB03
PEMB08
PFOB05
PFOC01
1S 21E
1S 22E
Siesta Lake
PFOB02
PEMB06
PUBH01
PEMB05
Yosemite Creek Campground Rd
Dark Hole
Yosemite Creek
Yosemite Creek Campground

N
W E
S

0 0.25 0.5 Miles

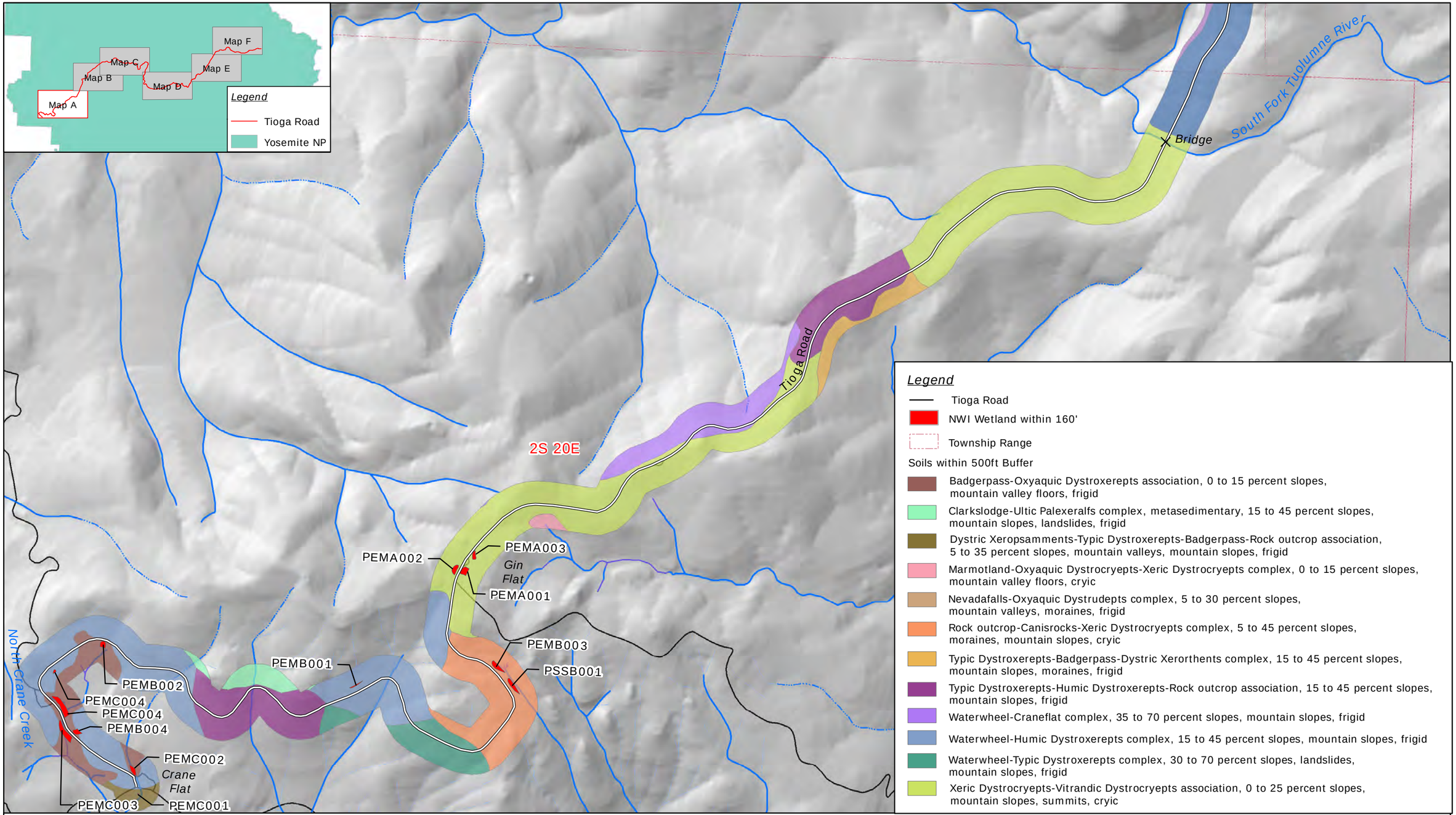
Map C: NWI Wetlands and NHD Data
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne and Mariposa County, CA
1:24, 000



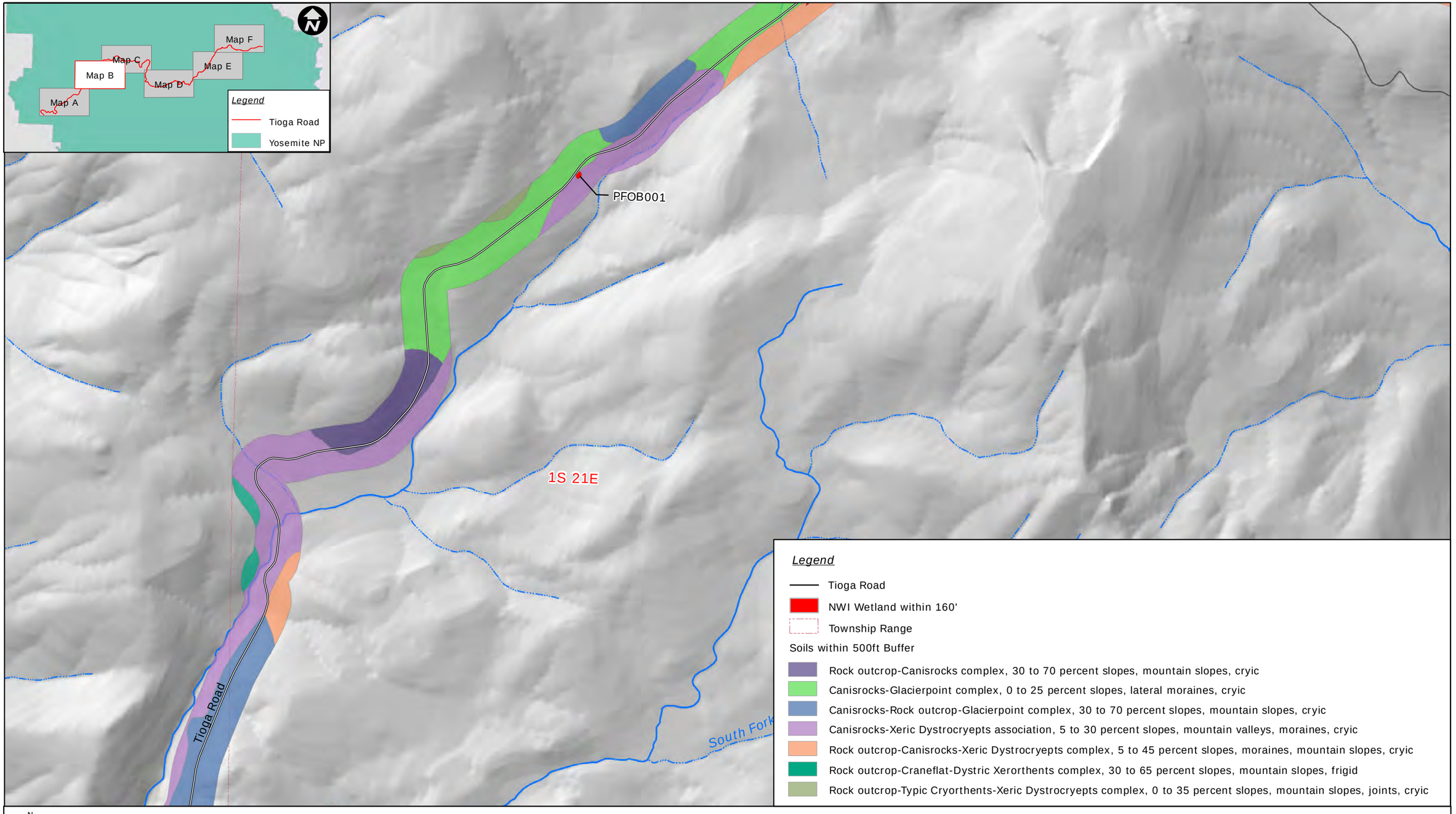
Map D: NWI Wetlands and NHD Data
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne and Mariposa County, CA
1:24, 000

APPENDIX B
SOILS OF THE PROJECT STUDY AREA

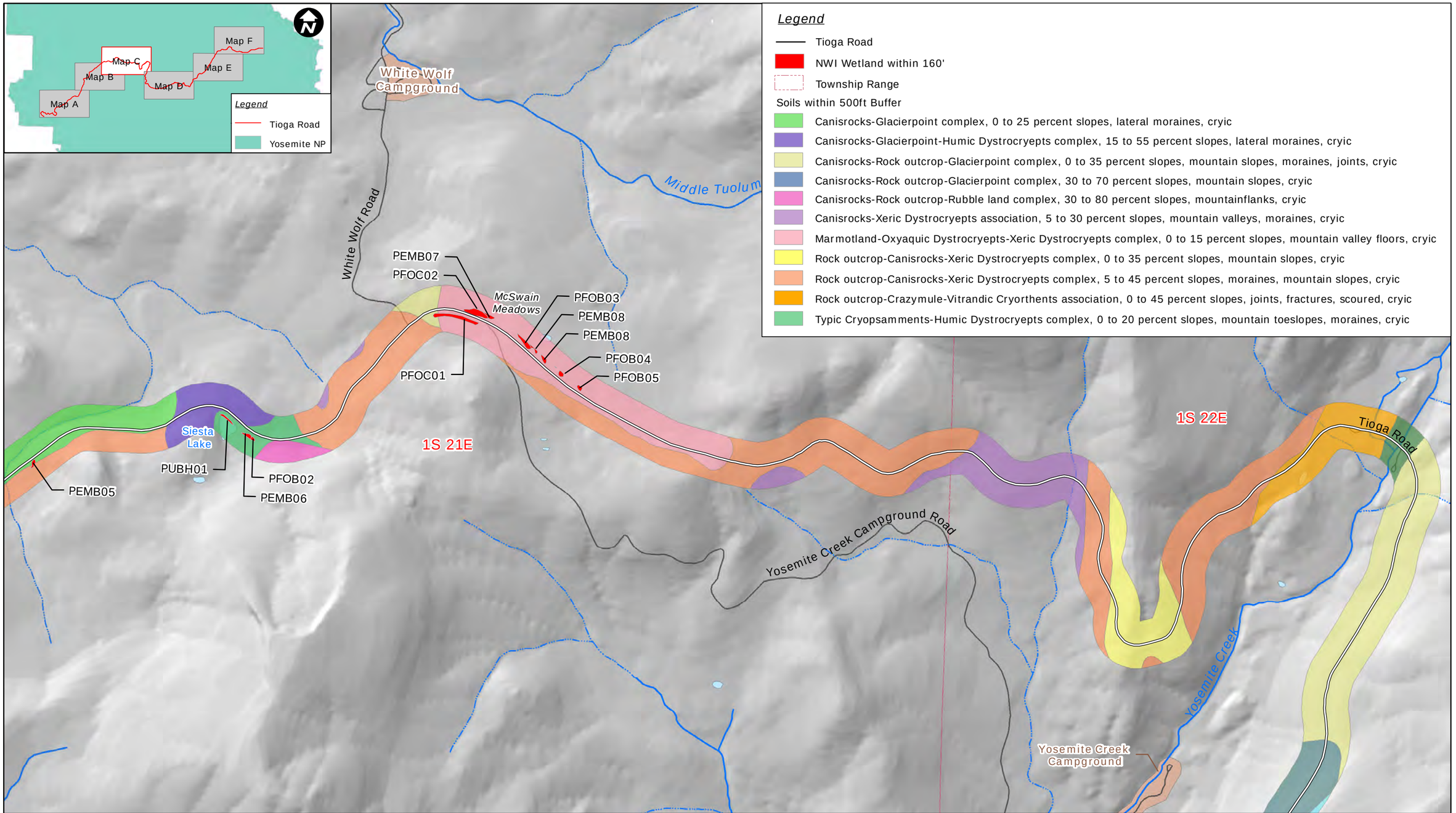
[This Page Intentionally Left Blank]



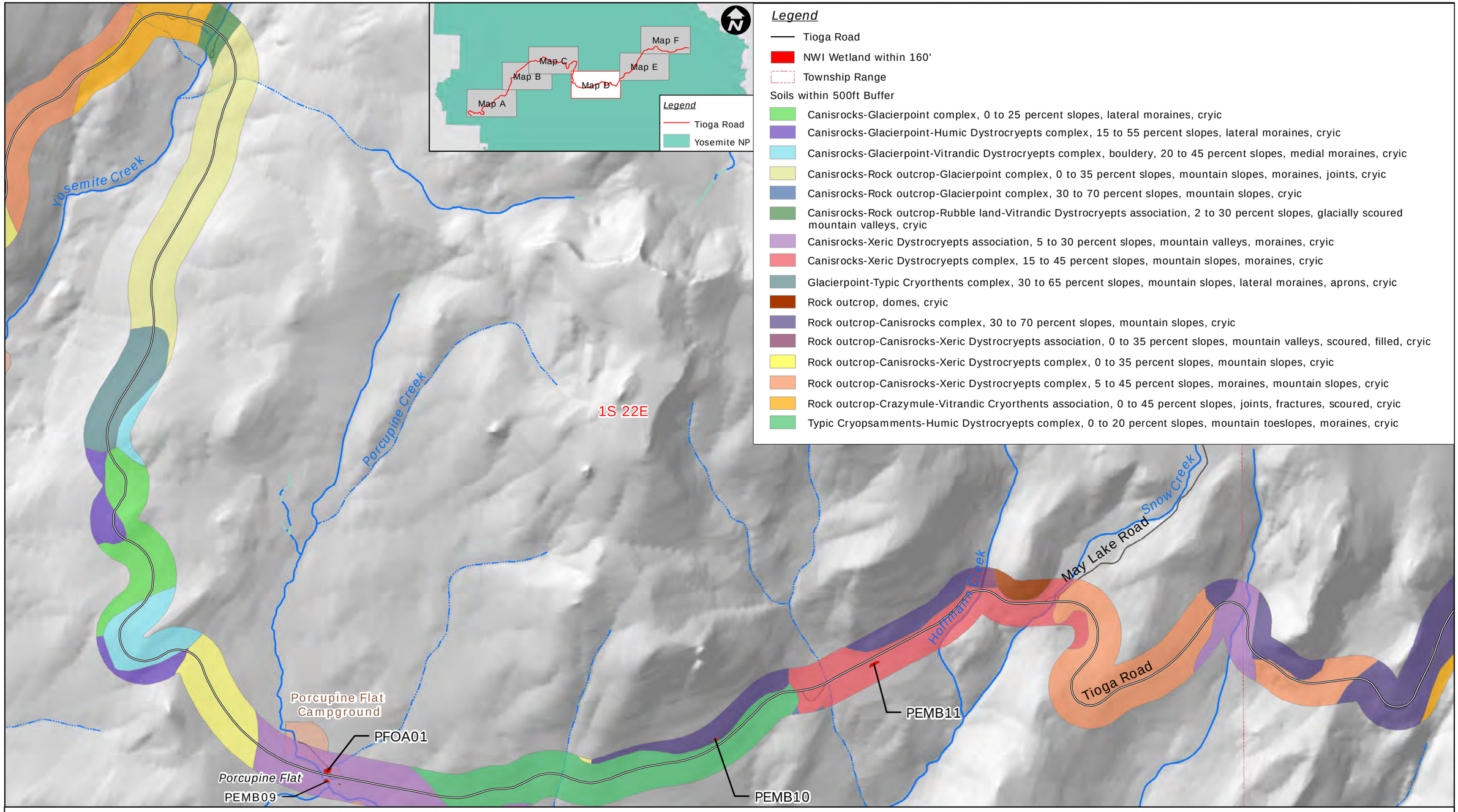
Map A: Soils
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



Map B: Vegetation Type
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



Map C: Soils
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



Legend

- Tioga Road
- NWI Wetland within 160'
- Township Range

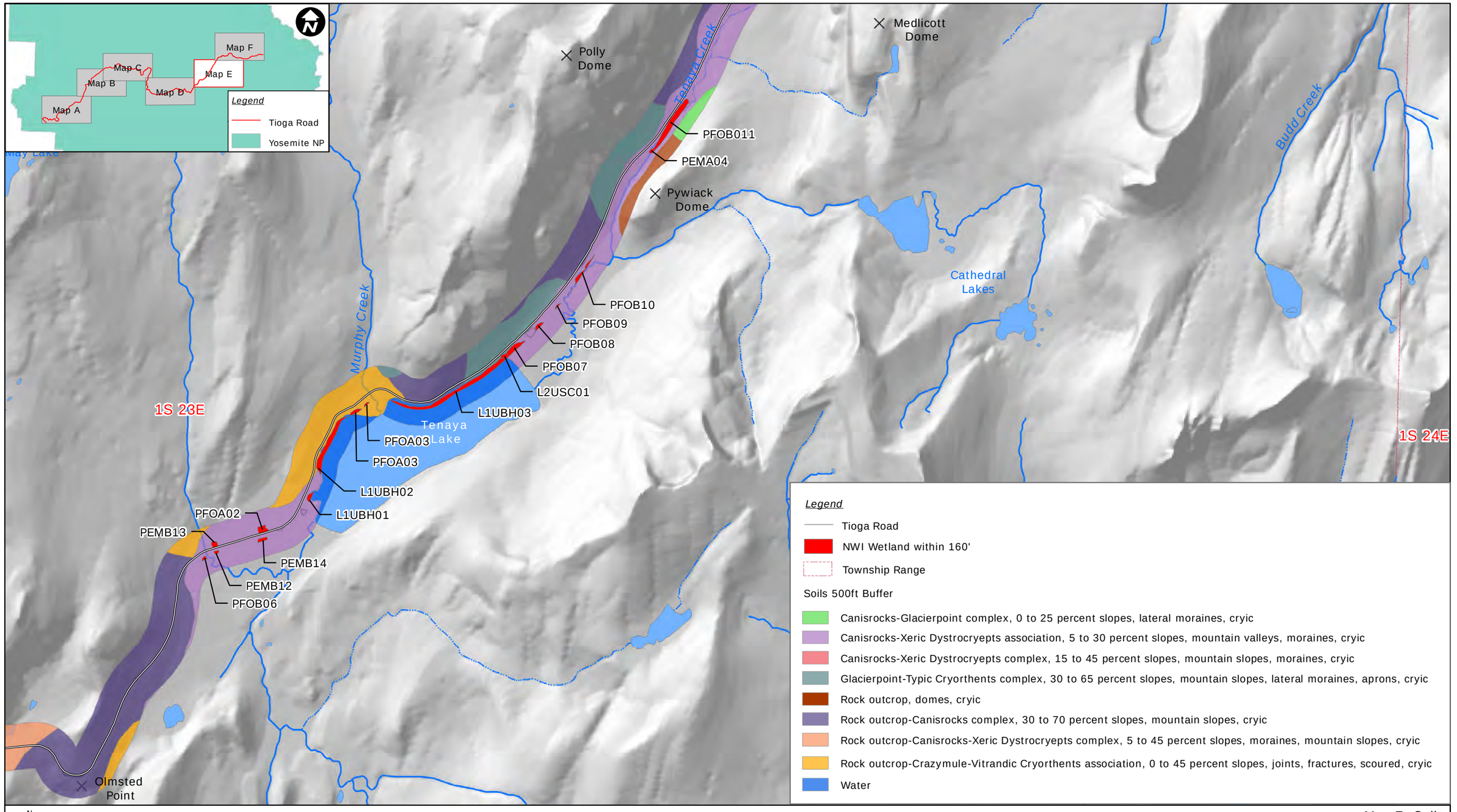
Soils within 500ft Buffer

- Canisrocks-Glacierpoint complex, 0 to 25 percent slopes, lateral moraines, cryic
- Canisrocks-Glacierpoint-Humic Dystrocryepts complex, 15 to 55 percent slopes, lateral moraines, cryic
- Canisrocks-Glacierpoint-Vitrandic Dystrocryepts complex, bouldery, 20 to 45 percent slopes, medial moraines, cryic
- Canisrocks-Rock outcrop-Glacierpoint complex, 0 to 35 percent slopes, mountain slopes, moraines, joints, cryic
- Canisrocks-Rock outcrop-Glacierpoint complex, 30 to 70 percent slopes, mountain slopes, cryic
- Canisrocks-Rock outcrop-Rubble land-Vitrandic Dystrocryepts association, 2 to 30 percent slopes, glacially scoured mountain valleys, cryic
- Canisrocks-Xeric Dystrocryepts association, 5 to 30 percent slopes, mountain valleys, moraines, cryic
- Canisrocks-Xeric Dystrocryepts complex, 15 to 45 percent slopes, mountain slopes, moraines, cryic
- Glacierpoint-Typic Cryorthents complex, 30 to 65 percent slopes, mountain slopes, lateral moraines, aprons, cryic
- Rock outcrop, domes, cryic
- Rock outcrop-Canisrocks complex, 30 to 70 percent slopes, mountain slopes, cryic
- Rock outcrop-Canisrocks-Xeric Dystrocryepts association, 0 to 35 percent slopes, mountain valleys, scoured, filled, cryic
- Rock outcrop-Canisrocks-Xeric Dystrocryepts complex, 0 to 35 percent slopes, mountain slopes, cryic
- Rock outcrop-Canisrocks-Xeric Dystrocryepts complex, 5 to 45 percent slopes, moraines, mountain slopes, cryic
- Rock outcrop-Crazymule-Vitrandic Cryorthents association, 0 to 45 percent slopes, joints, fractures, scoured, cryic
- Typic Cryopsamments-Humic Dystrocryepts complex, 0 to 20 percent slopes, mountain toeslopes, moraines, cryic

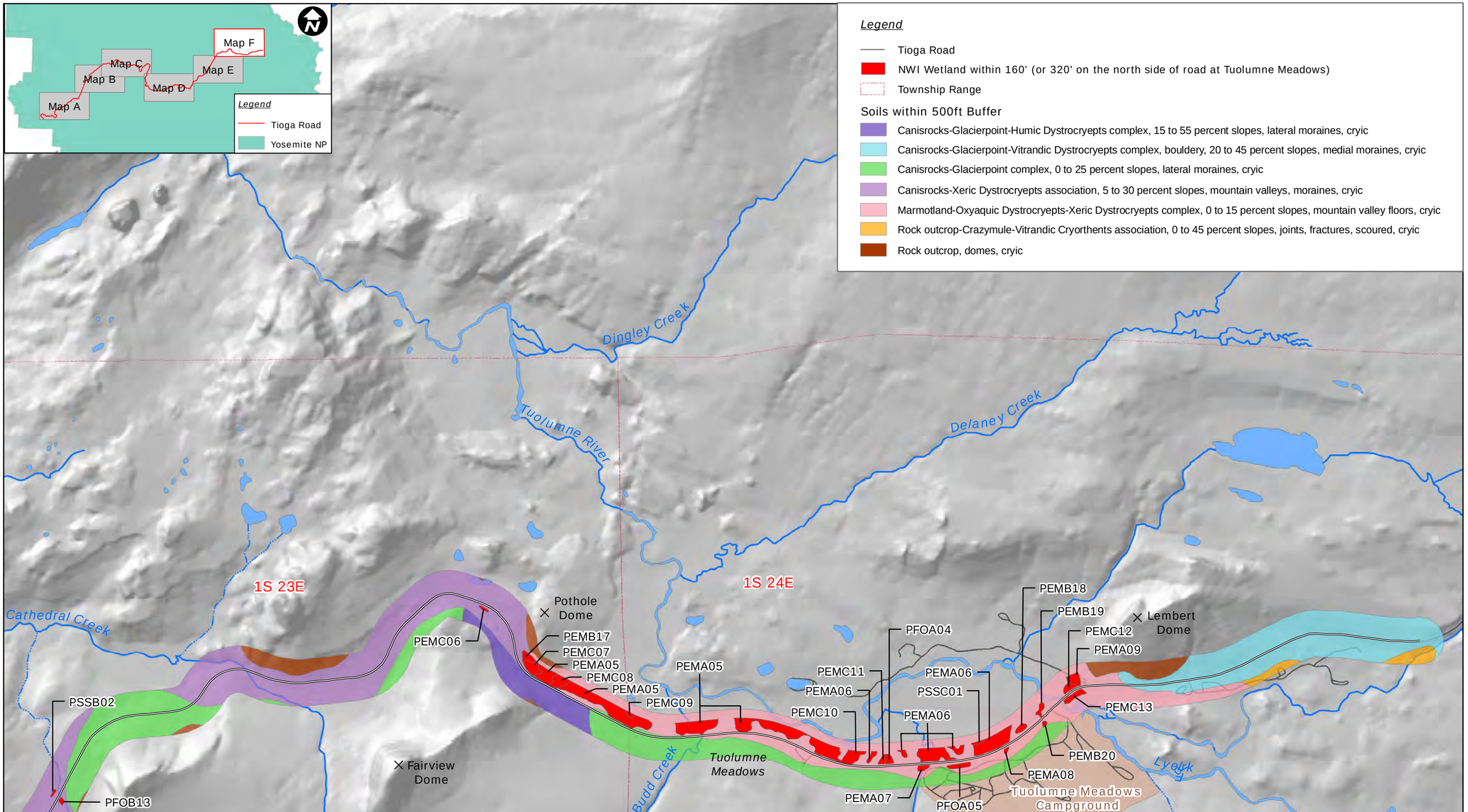
N W E S

0 0.25 0.5 Miles

Map D: Soils
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



Map E: Soils
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



Map F: Soils
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000

APPENDIX C
PLANTS IDENTIFIED DURING FIELD INVESTIGATIONS

[This Page Intentionally Left Blank]

Plant Species Identified During Field Investigations

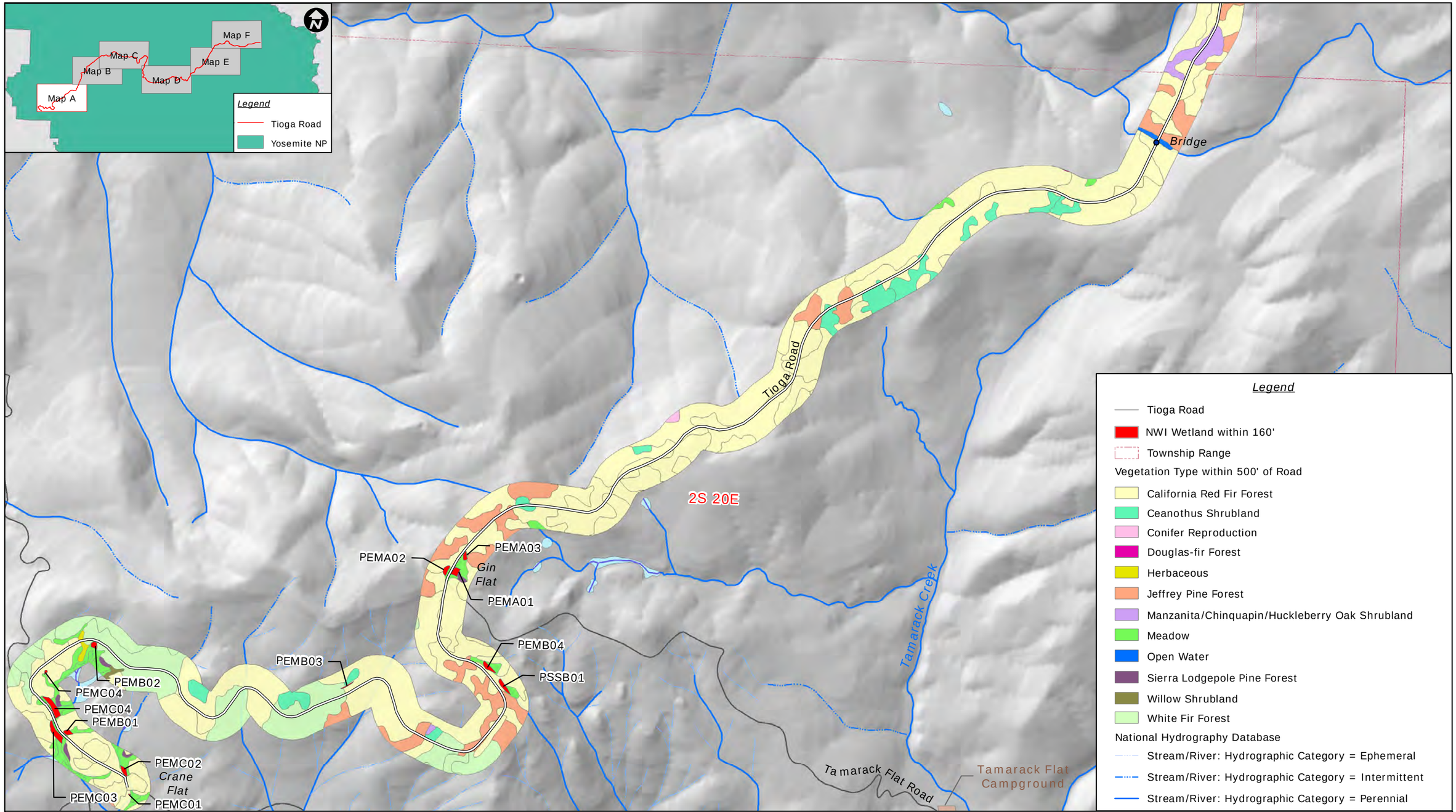
Scientific Name	Common Name	Wetland Indicator Status (Region 0) (Reed 1988)
Abies concolor	White fir	UPL (not listed)
Abies magnifica	Red fir	FACU
Achillea millefolium	Yarrow	FACU
Achnatherum lemmonii	Lemmon's needlegrass	UPL (not listed)
Achnatherum occidentale	Western needlegrass	UPL (not listed)
Allium validum	Pacific onion	OBL
Antennaria corymbosa	Flat-top pussytoes	FAC
Antennaria media	Rocky Mountain pussytoes	UPL (not listed)
Aster alpigenus	Alpine aster	OBL
Aster occidentalis	Western mountain aster	FAC
Bromus suksdorfii	Suksdorf's brome	UPL (not listed)
Calamagrostis breweri	Short hair reedgrass	UPL (not listed)
Calamagrostis canadensis	Bluejoint	FACW
Caltha leptosepala	White marsh marigold	OBL
Carex athrostachya	Slenderbeak sedge	FACW
Carex echinata	Star sedge	OBL
Carex lanuginosa	Woolly sedge	OBL
Carex multicostata	Many-ribbed sedge	UPL (not listed)
Carex nudata	Torrent sedge	FACW
Carex raynoldsii	Raynold's sedge	FAC
Carex scopulorum	Rocky Mountain sedge	FACW
Carex subnigricans	Carpet sedge	FAC
Carex utriculata	Bladder sedge	OBL
Carex vesicaria	Inflated sedge	OBL
Chrysolepis sempervirens	Bush chinquapin	UPL (not listed)
Cirsium vulgare	Bull thistle	FACU
Deschampsia cespitosa	Tufted hairgrass	FACW
Dodecatheon alpinum	Alpine shootingstar	OBL
Dodecatheon jeffreyi	Sierra shootingstar	FACW
Elymus elymoides	Squirreltail	FACU
Elymus trachycaulus	Slender wheatgrass	FAC
Epilobium ciliatum	Fringed willowherb	FACW
Erigeron peregrinus	Subalpine fleabane	FACW
Eriophorum crinigerum	Cotton grass	FACW
Galium aparine	Goose grass	FACU
Galium trifidum	Threepetal bedstraw	OBL
Gayophytum diffusum	Spreading groundsmoke	UPL (not listed)
Gentianopsis holopetala	Sierra gentian	OBL
Hypericum anagalloides	Tinker's penny	OBL
Ivesia lycopodioides	Clubmoss ivesia	UPL (not listed)
Juncus effusus	Common rush	OBL
Juncus mexicanus	Mexican rush	FACW
Juncus orthophyllus	Straightleaf rush	FACW
Juncus parryi	Parry's rush	FACU
Juniperus occidentalis	Western juniper	UPL (not listed)
Lomatium utriculatum	Common lomatium	UPL (not listed)
Lotus oblongifolius	Narrow-leaved lotus	OBL

Plant Species Identified During Field Investigations

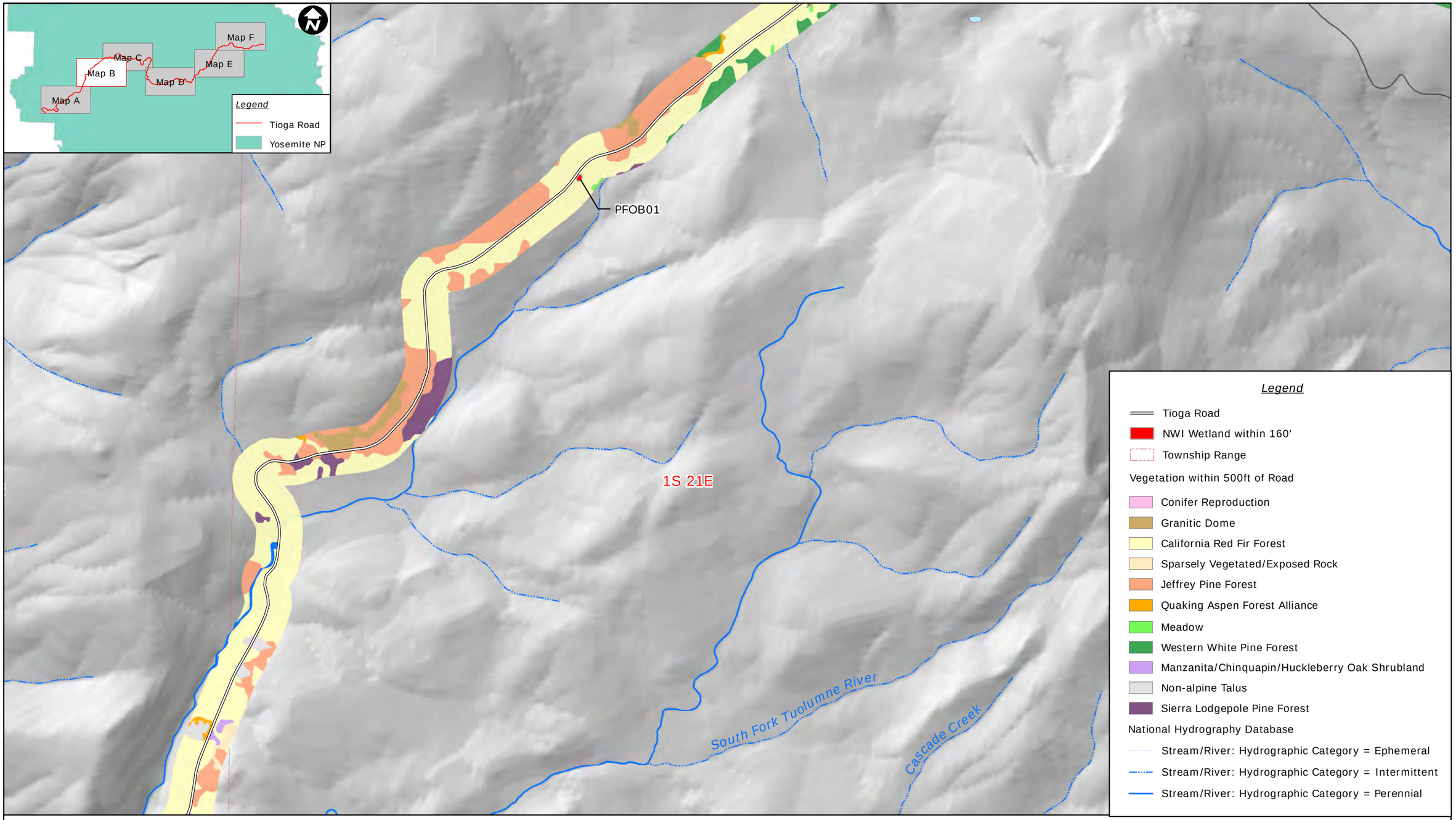
Scientific Name	Common Name	Wetland Indicator Status (Region 0) (Reed 1988)
Lupinus polyphyllus	Large-leaved lupine	FACW
Luzula parviflora	Smallflowered woodrush	FAC
Mimulus primuloides	Primrose monkeyflower	OBL
Muhlenbergia filiformis	Pullup muhly	FACW
Osmorhiza occidentalis	Western sweetroot	UPL (not listed)
Pedicularis attollens	Little elephant's head	FACW
Penstemon rydbergii	Rydberg's penstemon	FAC
Perideridia lemmonii	Lemmon's yampah	UPL (not listed)
Perideridia parishii	Parish's yampah	FACW
Phalacroseris bolanderi	Bolander's mock dandelion	OBL
Pinus contorta	Lodgepole pine	FAC
Pinus jeffreyi	Jeffrey's pine	UPL (not listed)
Pinus lambertiana	Sugar pine	UPL (not listed)
Pinus monticola	Western white pine	FACU
Platanthera leucostachys	Sierra bog orchid	FACW
Poa pratensis	Kentucky bluegrass	FACU
Polygonum bistortoides	American bistort	OBL
Polygonum polygaloides	Milkwort knotweed	FACW
Populus spp.	Cottonwood species	N/A
Potentilla gracilis	Slender cinquefoil	FACW
Pseudotsuga menziesii	Douglas-fir	UPL
Pteridium aquilinum	Bracken fern	FACU
Pyrrocoma apargioides	Alpineflames	UPL
Ranunculus alismifolius	Plantainleaf buttercup	FACW
Ribes inerme	White-stemmed gooseberry	FAC
Ribes roezlii	Sierra gooseberry	UPL (not listed)
Rosa woodsii	Wild rose	FAC
Rubus parviflorus	Thimbleberry	FAC
Rumex crispus	Curly dock	FACW
Salix orestera	Sierra willow	FACW
Salix spp.	Willow species	≥ FACW
Scirpus clementis	Yosemite bulrush	FAC
Senecio scorzonella	Sierra ragwort	UPL (not listed)
Senecio triangularis	Arrowleaf ragwort	OBL
Sidalcea reptans	Creeping sidalcea	OBL
Solidago canadensis	Canada goldenrod	FACU
Trifolium monanthum	Carpet clover	FACW
Trifolium wormskioldii	Sierra clover	FACW
Tsuga mertensiana	Mountain hemlock	FACU
Vaccinium caespitosum	Dwarf bilberry	FACW
Vaccinium uliginosum	Bog bilberry	FACW
Veratrum californicum	California corn lily	OBL

APPENDIX D
VEGETATION OF THE PROJECT STUDY AREA

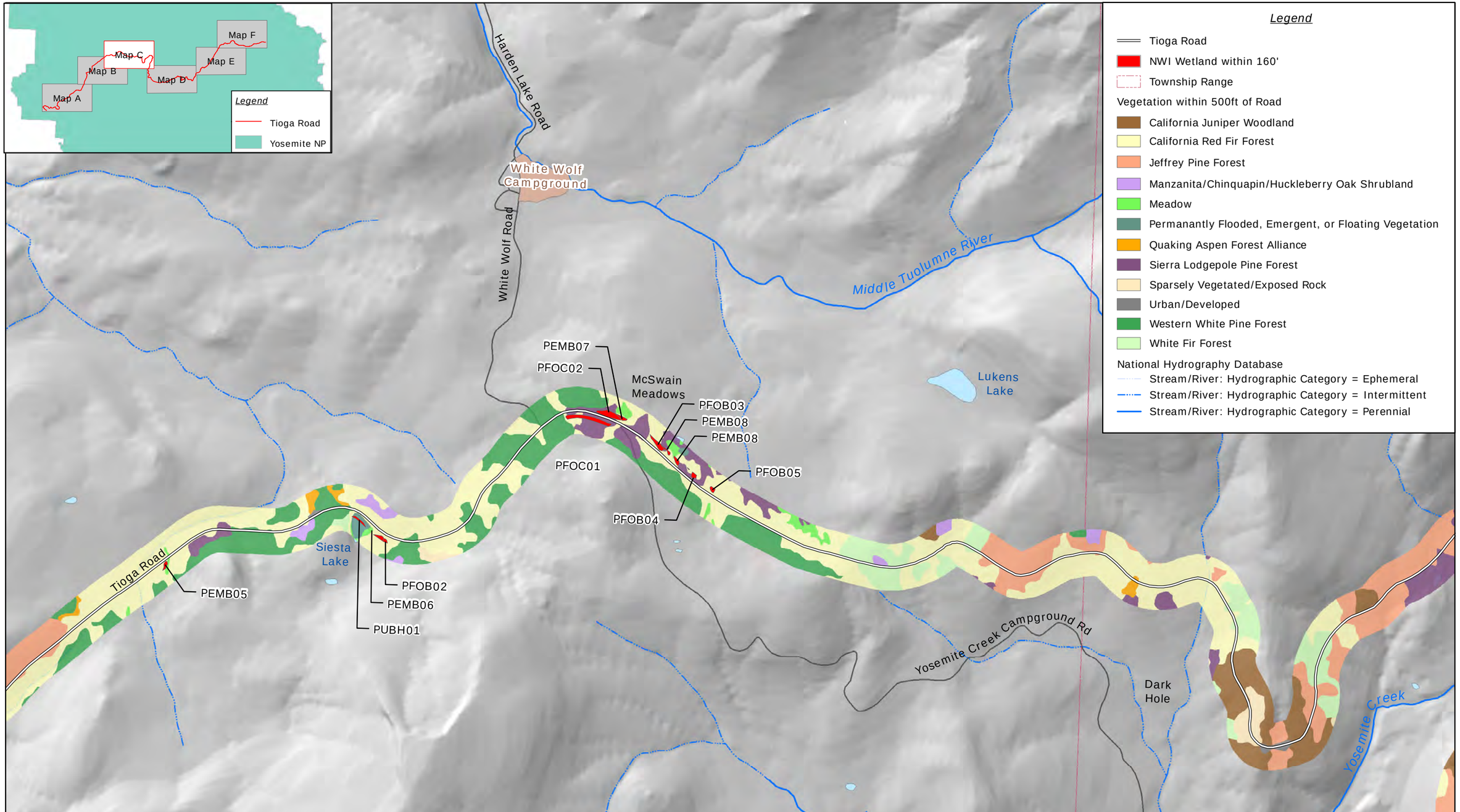
[This Page Intentionally Left Blank]



Map A: Vegetation Type
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



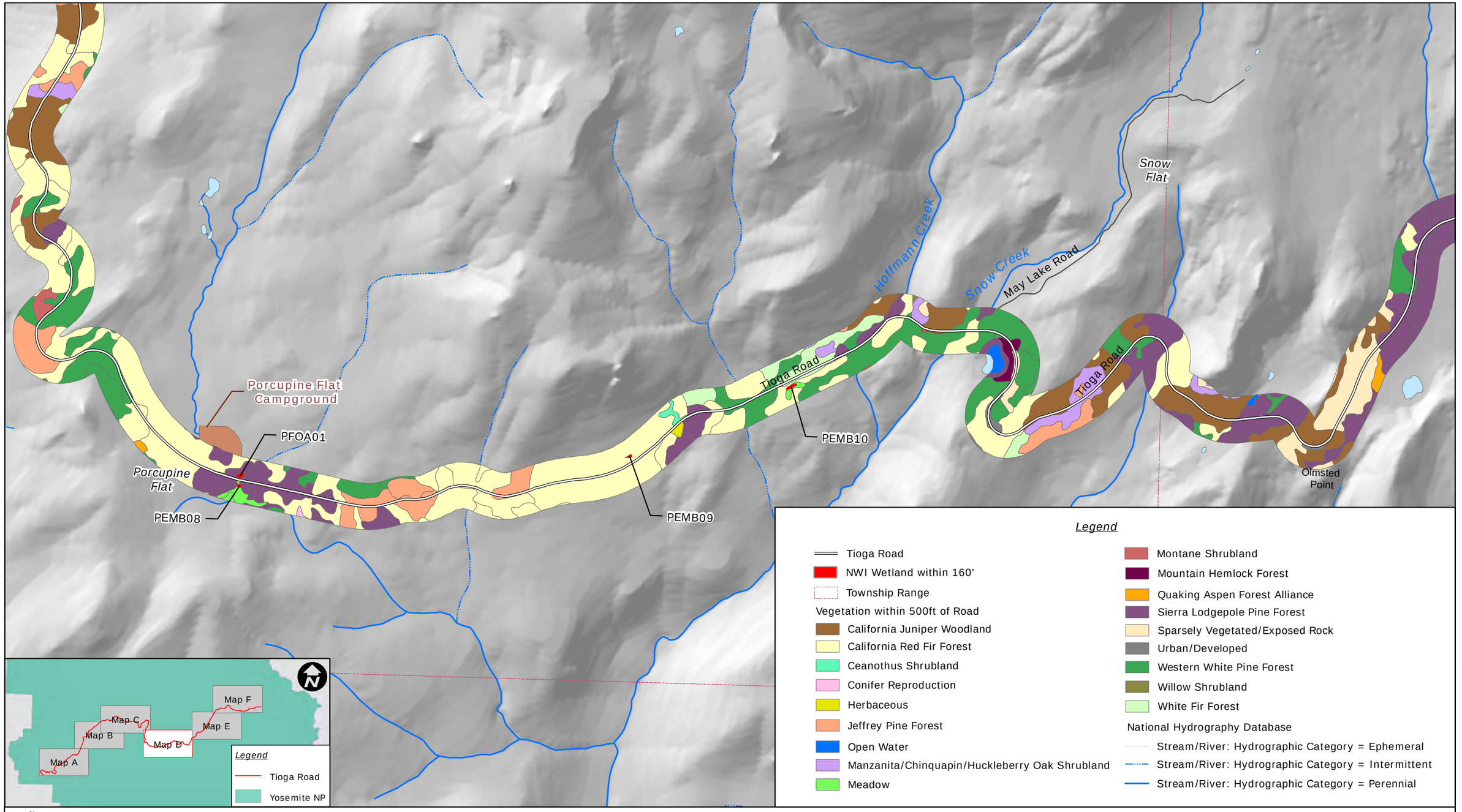
Map B: Vegetation Type
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



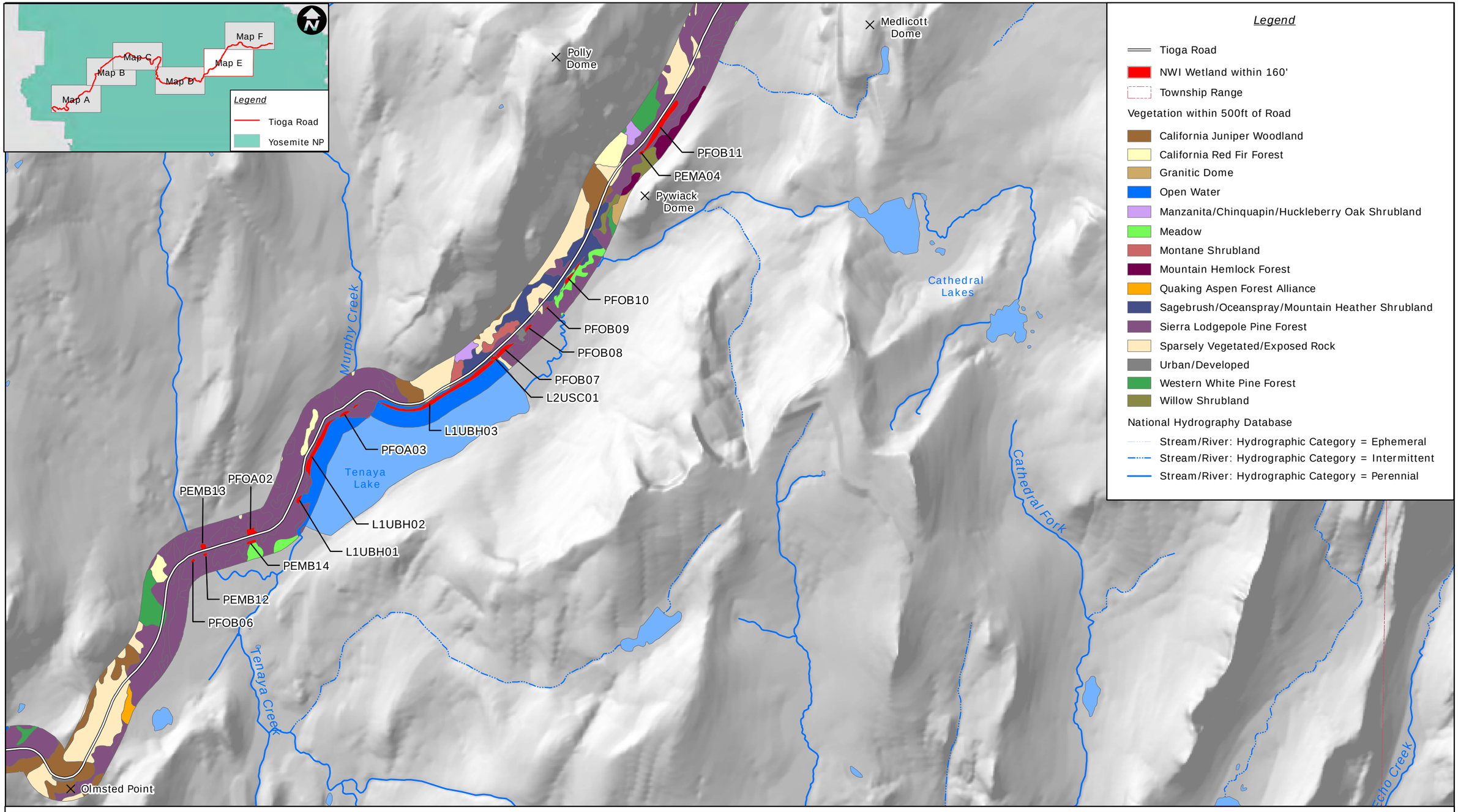
N
W E
S

0 0.25 0.5 Miles

Map C: Vegetation Type
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



Map D: Vegetation Type
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



Legend

- Tioga Road
- NWI Wetland within 160'
- Township Range

Vegetation within 500ft of Road

- California Juniper Woodland
- California Red Fir Forest
- Granitic Dome
- Open Water
- Manzanita/Chinquapin/Huckleberry Oak Shrubland
- Meadow
- Montane Shrubland
- Mountain Hemlock Forest
- Quaking Aspen Forest Alliance
- Sagebrush/Oceanspray/Mountain Heather Shrubland
- Sierra Lodgepole Pine Forest
- Sparsely Vegetated/Exposed Rock
- Urban/Developed
- Western White Pine Forest
- Willow Shrubland

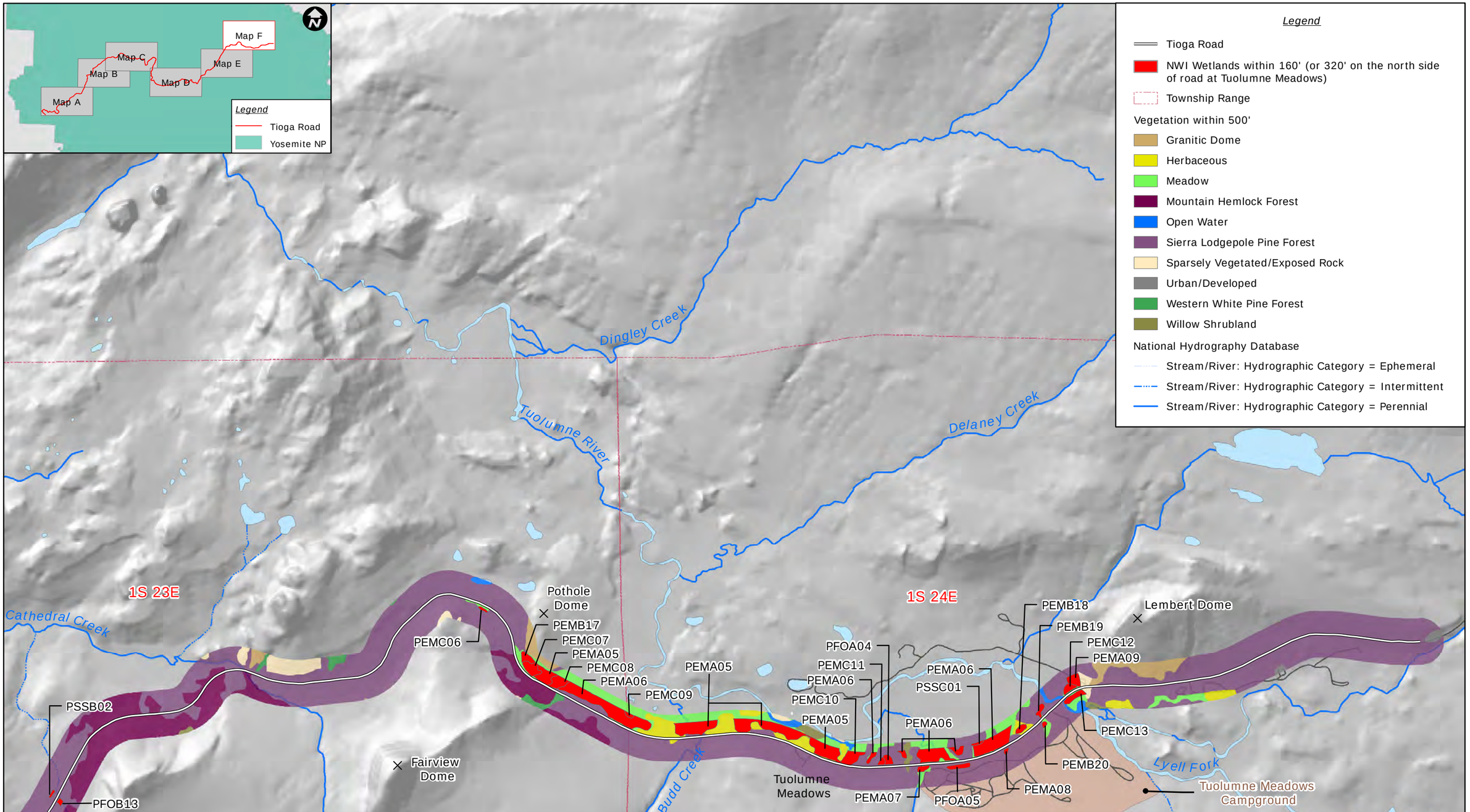
National Hydrography Database

- Stream/River: Hydrographic Category = Ephemeral
- Stream/River: Hydrographic Category = Intermittent
- Stream/River: Hydrographic Category = Perennial

N W E S

0 0.25 0.5 Miles

Map E: Vegetation Type
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000



Map F: Vegetation Type
Tioga Road Rehabilitation EA
Yosemite National Park
Tuolumne & Mariposa County, CA
1:24, 000

APPENDIX E
WETLAND DELINEATION DETERMINATION FORMS

[This Page Intentionally Left Blank]

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/24/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP2

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

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

Subregion (LRR): MLRA 22A Lat: 37 52 37.32 N Long: 119 23 32.43 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

Photos: MD3 west and MD4 south. Upland pit for Wet1.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 3 m radius)			
1. Vaccinium caespitosum	40	Y	FACW
2.			
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 2 x 1m)			
1. Scirpus clementis	40	Y	FAC
2. Muhlenbergia filiformis	15	Y	FACW
3. Aster alpigenus	15	Y	OBL
4. Calamagrostris breweri	1	N	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	71 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					SaL	Dense roots
3-20	10YR 2/2	100					LoSa	Less roots
20-24	10 YR 5/6	98	5 YR 3/4	2	C	M	LoSa	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/24/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP3 Wet2

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 52 26.68 N Long: 119 22 56.66 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: PEMC

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

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

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

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

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

Remarks:

Photos: MD6-12.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Deschampsia cespitosa	70	Y	FACW
2. Aster alpigenus	5	N	OBL
3. Polygonum bistortoides	15	N	OBL
4. Antennaria media	20	N	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP3 Wet2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 2.5/2	100					LoSa	Thick Roots, Moist
4-9	7.5 YR 2.5/2	95	10R 3/4	5	C	M	Lo	Mucky, some roots, moist
9-11	10 YR 4/4	70	2.5 YR 3/6	30	C	M	Sa	Moist
11-24	7/5 YR 3/2	90	2.5 YR 3/6	10	C	M	SiLo	Moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 6"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/24/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP3 Wet2

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 52 26.68 N Long: 119 22 56.66 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: PEMC

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

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

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

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

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

Remarks:

Photos: MD6-12.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Deschampsia cespitosa	70	Y	FACW
2. Aster alpigenus	5	N	OBL
3. Polygonum bistortoides	15	N	OBL
4. Antennaria media	20	N	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP3 Wet2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 2.5/2	100					LoSa	Thick Roots, Moist
4-9	7.5 YR 2.5/2	95	10R 3/4	5	C	M	Lo	Mucky, some roots, moist
9-11	10 YR 4/4	70	2.5 YR 3/6	30	C	M	Sa	Moist
11-24	7/5 YR 3/2	90	2.5 YR 3/6	10	C	M	SiLo	Moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 6"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/24/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP4

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 52 26.43 N Long: 119 22 56.85 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

Upland pit for Wet2.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 m radius)			
1. Vaccinium caespitosum	30	Y	FACW
2.			
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Scirpus clementis	40	Y	FAC
2. Senecio scorzonella	10	N	UPL
3. Aster alpigenus	2	N	OBL
4. Ivesia lycopodioides	3	N	UPL
5. Calamagrostris breweri	2	N	UPL
6. Carex subnigricans	15	Y	FAC
7.			
8.			
9.			
10.			
11.			
	72 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 2

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10 YR 2/2	100					silty loam	Thick roots
4-7	7/5 YR 3/3	100					sandy loam	
7-8	2.5 YR 5/3	100					sand	
8-20	5YR 3/4	100					sand	Refusal at 20" due to rock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/25/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP5 Wet3

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

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

Subregion (LRR): MLRA 22A Lat: 37 52 27.11 N Long: 119 22 49.78 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: PEMC/PSSC

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

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

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

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

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

Remarks:

Photos: MD13,14

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 3 m radius)			
1. Salix orestera	60	Y	FACW
2.			
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Deschampsia cespitosa	20	Y	FACW
2. Aster alpigenus	15	Y	OBL
3. Antennaria corymbosa	2	N	FAC
4. Senecio scorzonella	5	N	UPL
5. Carex utriculata	15	Y	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	57 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP5 Wet3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-7	10 YR 2/2	100					silty loam	Heavy roots - moist
7-20	10 YR 3/3	100					sand	Heavy gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- X Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes X No ____ Depth (inches): 17"

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 7"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

US Army Corps of Engineers

Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/25/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP6

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 52 27.36 N Long: 119 22 49.64 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

Upland pit for Wet3.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Antennaria corymbosa	40	Y	FAC
2. Carex subnigricans	5	N	FAC
3. Aster alpigenus	7	N	OBL
4. Juncus mexicanus	30	Y	FACW
5. Calamagrostis breweri	7	N	UPL
6. Scirpus clementis	30	Y	FAC
7. Dodecatheon alpinum	1	N	OBL
8.			
9.			
10.			
11.			
	120 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10 YR 2/2	100					loamy sand	Thick Roots
3-12	7.5 YR 3/3	98	7.5 YR 4/6	2	C	M	loamy sand	
12-24	10 YR 3/4	100					sand	Moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/25/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP7

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

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

Subregion (LRR): MLRA 22A Lat: 37 52 23.19 N Long: 119 22 22.79 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

Animal burrows, old stream channel.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Deschampsia cespitosa	40	Y	FACW
2. Aster alpigenus	10	N	OBL
3. Gentianopsis holopetala	4	N	OBL
4. Mimulus primuloides	7	N	OBL
5. Muhlenbergia filiformis	10	N	FACW
6. Polygonum bistortoides	2	N	OBL
7. Polygonum polygaloides	1	N	FACW
8. Scirpus clementis	14	Y	FAC
9.			
10.			
11.			
	88 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	7.5 YR 2.5/2	100					loam	Dense roots
6-10	7.5 YR 2.5/2	100					sandy loam	fine sand
10-12	10 YR 3/3	90	7/5 YR 4/6	10	C	M	sandy loam	
12-21	10 YR 3/4	100					sandy loam	Heavy gravel with cobble

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Refusal at 21" due to cobble.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Soil profile dry all the way through.

US Army Corps of Engineers

Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/25/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP8

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

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

Subregion (LRR): MLRA 22A Lat: 37 52 19.99 N Long: 119 22 05.56 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: PEMC

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

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

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

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

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

Remarks:

Photos - MD 21 (soil) and MD 24

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Pedicularis attolens	10	N	FACW
2. Gentianopsis holopetala	5	N	OBL
3. Scirpus clementis	30	Y	FAC
4. Deschampsia cespitosa	30	Y	FACW
5. Aster alpigenus	20	Y	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 2/2	100					loam	Thick roots
2-17	2.5 YR 4/4	95	7.5 YR 4/6	5			loamy sand	
17-24	10 YR 5/8	85	7/5 YR 5/8	15			loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Isolated near forest edge.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/25/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP9 Wet10

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

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

Subregion (LRR): MLRA 22A Lat: 37 52 20.60 N Long: 119 21 58.74 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: PEMC

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Carex scopulorum	75	Y	FACW
2. Senecio scorzonella	10	N	UPL
3. Perideridia parishii	7	N	FACW
4. Senecio triangularis	5	N	OBL
5. Agrostis sp.	20	N	
6. Hypericum anagalloides	10	N	OBL
7.			
8.			
9.			
10.			
11.			
	127 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP9 Wet10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10 YR 2/2	100					silty loam	Thick roots, fragments of wood
3-5	10 YR 3/4	100					loamy sand	
5-8	10 YR 2/2	100					sandy loam	
8-12	10 YR 3/3	100					loamy sand	cobble, refusal at 12" due to cobble

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Soil does not meet standard soil indicators, however area is seasonally ponded and in accordance with Western Mountain Supplement believe soil is hydric due to prolonged hydric conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes X No ____ Depth (inches): 11"

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 1"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Near road and outfall channel on edge of lodgepole forest. Sphagnum present.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/25/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP10

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 52 20.00 N Long: 119 21 59.30 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

Upland pit for Wet10

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus contorta	40	Y	FAC
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Elymus elymoides	5	Y	FACU
2. Achnatherum occidentale	15	Y	UPL
3. Gayophytum diffusum	3	N	UPL
4. Penstemon rydbergii	1	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	24 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

High amount of pine litter/duff on the ground.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10 YR 2/1	100					loamy sand	Roots/fibers
5-20	10 YR 2/2	100					loamy sand	Heavy gravel/cobble, very dry

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/26/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP11

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 52 23.80 N Long: 119 21 36.26 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

Photo: MD38

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 3 m radius)			
1. Vaccinium caespitosum	50	Y	FACW
2. Pinus contorta	3	N	FAC
3.			
4.			
5.			
	53 = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Dodecatheon alpinum	40	Y	OBL
2. Trifolium monanthum	20	Y	FACW
3. Calamagrostis breweri	3	N	UPL
4. Senecio scorzonella	10	N	UPL
5. Scirpus clementis	12	N	FAC
6. Pedicularis attolens	2	N	FACW
7. Aster occidentalis	2	N	FAC
8.			
9.			
10.			
11.			
	89 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10 YR 2/2	100					sandy loam	Dense Roots
6-12	10 YR 2/2	100					sandy loam	
12-18	10 YR 3/3	95	7.5 YR 4/6	5	C	M	sandy loam	
18-24	7/5 YR 4/6	80	7/5 YR 5/8	20	C	M	loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/26/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP12 Wet14

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

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

Subregion (LRR): MLRA 22A Lat: 37 52 31.01 N Long: 119 21 24.65 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: PEMC

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 m radius)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Erigeron peregrinus	40	Y	FACW
2. Juncus mexicanus	5	N	FACW
3. Juncus orthophyllus	8	N	FACW
4. Carex athrostachya	3	N	FACW
5. Bromus suksdorfii	4	N	UPL
6. Antennaria corymbosa	20	Y	FAC
7. Carex lanuginosa	5	N	OBL
8. Unk. dicot herb (no flowers or fruits)	15	N	
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

Surrounded by Pinus contorta.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP12 Wet14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	98	10 YR 4/6	2	C	M	sandy loam	
6-24	5Y 6/2	80	7/5 YR 5/8	20	C	M	loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/26/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP13

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

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

Subregion (LRR): MLRA 22A Lat: 37 52 31.32 N Long: 119 21 24.66 W Datum: NAD83

Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

Upland pit for Wet14.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus contorta	10	Y	FAC
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Antennaria corymbosa	2	N	FAC
2. Achillea millefolium	20	Y	FACU
3. Calamagrostis breweri	40	Y	UPL
4. Elymus trachycaulus	5	N	FAC
5. Erigeron peregrinus	10	N	FACW
6. Potentilla gracilis	7	N	FACW
7. Pyrrocoma apargioides	3	N	UPL
8.			
9.			
10.			
11.			
	87 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/2	85	10 YR 4/6	15	C	M	sandy loam	
16-24	10 YR 4/4	90	10 YR 5/6	10	C	M	loamy sand	Orange sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Tuolumne Meadows City/County: Tuolumne County Sampling Date: 8/26/10

Applicant/Owner: National Park Service State: CA Sampling Point: SP14

Investigator(s): Stevens, Dungan, Scheuerman Section, Township, Range:

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

Subregion (LRR): MLRA 22A Lat: 37 52 50.20 N Long: 119 23 52.09 W Datum: NAD83

Soil Map Unit Name: Canisrocks-Xeric Dystrocryepts association, 5 to 30 percent slopes, mountain valleys, moraines, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 3 m radius)			
1. Pinus contorta	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Carex scopulorum	5	N	FACW
2. Perideridia parishii	10	N	FACW
3. Mimulus primuloides	70	Y	OBL
4. Calamagrostis canadensis	25	N	FACW
5. Juncus orthophyllus	10	N	FACW
6. Muhlenbergia filiformis	20	Y	FACW
7. Aster alpigenus	10	N	OBL
8. Ranunculus alismifolius	70	Y	FACW
9.			
10.			
11.			
	220 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10 YR 2.5/2	100					loam	High organic matter, dense roots, moist
4-6	7.5 YR 2.5/2	100					loam	mucky mineral, moist
6-20	10 YR 3/3	100					sandy loam	moist
20-24	10 YR 3/3	90	10 YR 4/6	10	C	M	loam	moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Crane Flat City/County: _____ Sampling Date: 09/08/2010

Applicant/Owner: National Park Service State: CA Sampling Point: SP15 Wet26

Investigator(s): Scheuerman, Stevens Section, Township, Range: _____

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

Subregion (LRR): MLRA 22A Lat: 37 45 12.09 N Long: 119 47 51.14 W Datum: NAD83

Soil Map Unit Name: Badgerpass-Oxyaquic Dystroxerepts association, 0 to 15 percent slopes, mountain valley floors, frigid NWI classification: PEMC

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

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

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

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

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

Remarks:

Photo: CS1.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Lupinus polyphyllus	2	N	FACW
2. Galium trifidum	10	N	OBL
3. Sidalcea reptans	5	N	OBL
4. Carex nudata	50	Y	FACW
5. Rumex crispus	10	N	FACW
6. Trifolium wormskioldii	12	N	FACW
7. Lomatium utriculatum	3	N	UPL
8. Carex vesicaria	40	Y	OBL
9. Polygonum bistortoides	7	N	OBL
10.			
11.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP15 Wet26

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					sand	thick roots/low mineral content
6-15	10YR 2/1	100					clay loam	moist/thick roots/fibers
15-21	10YR 2/1	100					sandy clay loam	
21-24	10YR 4/1	80	7.5YR 5/8	20	C	M	sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Water stained Carex leaves have formed mat.

US Army Corps of Engineers

Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Crane Flat City/County: _____ Sampling Date: 09/08/2010

Applicant/Owner: National Park Service State: CA Sampling Point: SP16

Investigator(s): Scheuerman, Stevens Section, Township, Range: _____

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

Subregion (LRR): MLRA 22A Lat: 37 45 11.90 N Long: 119 47 51.40 W Datum: NAD83

Soil Map Unit Name: Badgerpass-Oxyaquic Dystroxerepts association, 0 to 15 percent slopes, mountain valley floors, frigid NWI classification: N/A

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

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

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

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

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

Remarks:

Adjacent to Crane Flat gas station.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	40	Y	UPL
2. Abies concolor	40	Y	UPL
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3 m radius)			
1. Pseudotsuga menziesii	3	N	UPL
2. Ribes roezlii	10	Y	UPL
3. Chrysolepis sempervirens	3	N	UPL
4.			
5.			
	16	= Total Cover	
Herb Stratum (Plot size: 2 x 1 meter)			
1. Achillea millefolium	10	Y	FACU
2. Galium aparine	8	Y	FACU
3. Osmorhiza occidentalis	3	N	UPL
4. Caryophyllaceae sp.	5	N	
5. Cirsium vulgare	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 90

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Bare ground is covered with conifer duff and litter.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP16

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
1-4	10YR 2/2	100					loamy sand	thick roots/fibers
4-20	10YR 3/3	100					loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Crane Flat City/County: Sampling Date: 09/08/2010
Applicant/Owner: National Park Service State: CA Sampling Point: SP17
Investigator(s): Scheuerman, Stevens Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22A Lat: 37 45 18.76 N Long: 119 48 08.77 W Datum: NAD83
Soil Map Unit Name: Badgerpass-Oxyaquic Dystroxerepts association, 0 to 15 percent slopes, mountain valley floors, frigid NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Upland pit for Wet28.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Solidago canadensis	80	Y	FACU
2. Erigeron peregrinus	6	N	FACW
3. Poa pratensis	40	Y	FACU
4. Achillea millefolium	2	N	FACU
5. Sidalcea repetans	10	N	OBL
6. Deschampsia cespitosa	2	N	FACW
7. Carex sp.	3	N	
8.			
9.			
10.			
11.			
	143 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					sandy loam	moist after 6"/dense fibers
10-24	10YR 4/3	80	5YR 5/8	20	C	M	sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Crane Flat City/County: _____ Sampling Date: 09/08/2010

Applicant/Owner: National Park Service State: CA Sampling Point: SP18 Wet28

Investigator(s): Scheuerman, Stevens Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 45 18.61 N Long: 119 48 09.42 W Datum: NAD83

Soil Map Unit Name: Badgerpass-Oxyaquic Dystroxerepts association, 0 to 15 percent slopes, mountain valley floors, frigid NWI classification: PEMC

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

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

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

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

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

Remarks:

Photo: CS3,4,5. Small tree frog found in wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Carex vesicaria	60	Y	OBL
2. Carex nudata	30	Y	FACW
3. Polygonum bistortoides	7	N	OBL
4. Epilobium ciliatum	12	N	FACW
5. Galium trifidum	10	N	OBL
6. Perideridia lemmonii	12	N	UPL
7. Lomatium sp.	4	N	
8. Deschampsia cespitosa	1	N	FACW
9.			
10.			
11.			
	136 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP18 Wet28

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					silty loam	thick roots/metallic flecks in soil
4-17	2.5Y 4/1	95	10YR 4/6	5	C	M	sandy clay	
17-21	2.5Y 4/1	100					sandy clay loam	metallic flecks in soil

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- X Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes X No ____ Depth (inches): 15

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

US Army Corps of Engineers

Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Gin Flat City/County: Sampling Date: 09/08/2010
Applicant/Owner: National Park Service State: CA Sampling Point: SP19 Wet29
Investigator(s): Scheuerman, Stevens Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10
Subregion (LRR): MLRA 22A Lat: 37 45 36.85 N Long: 119 46 16.02 W Datum: NAD83
Soil Map Unit Name: Rock outcrop-Canisrocks-Xeric Dystrocryepts complex, 5 to 45 percent slopes, moraines, mountain slopes, cryic NWI classification: PEMB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos: CS6,7.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Polygonum bistortoides	30	Y	OBL
2. Perideridia lemmonii	10	N	UPL
3. Juncus effusus	20	Y	OBL
4. Platanthera leucostachys	5	N	FACW
5. Dodecatheon jeffreyi	4	N	FACW
6. Carex vesicaria	25	Y	OBL
7. Carex nudata	20	Y	FACW
8. Phalacroseris bolanderi	20	Y	OBL
9. Lotus oblongifolius	20	Y	OBL
10. Agrostis sp.	7	N	
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP19 Wet29

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					sandy loam	mucky
4-5	10YR 3/2	100					sand	metallic flecks/gravelly
5-7	2.5YR 4/2	100					clay loam	metallic flecks
7-13	10YR 2/2	100					silty loam	high organic content

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Refusal at 13 inches (large root network).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes X No ____ Depth (inches): 10

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Gin Flat City/County: _____ Sampling Date: 09/08/2010

Applicant/Owner: National Park Service State: CA Sampling Point: SP20

Investigator(s): Scheuerman, Stevens Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): MLRA 22A Lat: 37 45 36.18 N Long: 119 46 15.91 W Datum: NAD83

Soil Map Unit Name: Rock outcrop-Canisrocks-Xeric Dystrocryepts complex, 5 to 45 percent slopes, moraines, mountain slopes, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

Upland area underlain by granite.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Abies magnifica	50	Y	FACU
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Pteridium aquilinum	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 90

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP20

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					duff	organic matter
2-10	10YR 2/2	100					loamy sand	high root/fiber content

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Refusal at 10 inches (granite slab).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - W of Siesta Lake City/County: _____ Sampling Date: 09/09/2010

Applicant/Owner: National Park Service State: CA Sampling Point: SP21 Wet33

Investigator(s): Scheuerman, Stevens Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 50 51.78 N Long: 119 40 26.97 W Datum: NAD83

Soil Map Unit Name: Rock outcrop-Canisrocks-Xeric Dystrocryepts complex, 5 to 45 percent slopes, moraines, mountain slopes, cryic NWI classification: PEMC

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

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

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

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

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

Remarks:

Photo: CS16. Open meadow surrounded by Pinus contorta and Abies magnifica forest.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Deschampsia cespitosa	60	Y	FACW
2. Pedicularis atollens	15	N	FACW
3. Dodecatheon jeffreyi	25	Y	FACW
4. Caltha leptosepala	8	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	108 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP21 Wet33

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					loam	thick roots/fibers
8-10	2.5Y 4/2	100					sandy loam	
10-17	10YR 2/2	100					loam	
17-24	2.5YR 4/4	100					loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Wetland is on terrace adjacent to creek.

US Army Corps of Engineers

Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - West of Siesta Lake City/County: _____ Sampling Date: 09/09/2010

Applicant/Owner: National Park Service State: CA Sampling Point: SP22

Investigator(s): Scheuerman, Stevens Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 50 52.05 N Long: 119 40 27.90 W Datum: NAD83

Soil Map Unit Name: Canisrocks-Glacierpoint complex, 0 to 25 percent slopes, lateral moraines, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus contorta	15	Y	FAC
2.			
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: 3 m radius)			
1. Pinus contorta	7	Y	FAC
2.			
3.			
4.			
5.			
	7 = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Juncus parryi	7	N	FACU
2. Deschampsia cespitosa	65	Y	FACW
3. Polygonum bistortoides	5	N	OBL
4. Caltha leptosepala	10	N	OBL
5. Osmorhiza occidentalis	4	N	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	91 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP22

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					loam	thick roots/fibers
5-18	10YR 2/2	70					sandy loam	moist
18-24	10YR 5/6	70	5YR 5/8	30	C	M	loamy sand	moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Siesta Lake City/County: _____ Sampling Date: 09/09/02010

Applicant/Owner: National Park Service State: CA Sampling Point: SP23

Investigator(s): Stevens, Scheuerman Section, Township, Range: _____

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

Subregion (LRR): MLRA 22A Lat: 37 50 59 N Long: 119 39 31 W Datum: NAD83

Soil Map Unit Name: Typic Cryopsamments-Humic Dystrocryepts complex, 0 to 20 percent slopes, mountain toeslopes, moraines, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

NWI mapped as PFO. Photo: CS20.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus contorta	2	N	FAC
2. Abies magnifica	10	Y	FACU
3.			
4.			
	12	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3 m radius)			
1. Pinus contorta	5	Y	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 2 x 1 meter)			
1. Veratrum californicum	15	N	OBL
2. Senecio triangularis	15	N	OBL
3. Deschampsia cespitosa	30	Y	FACW
4. Senecio scorzonella	20	Y	UPL
5. Perideridia parishii	5	N	FACW
6. Carex athrostachya	7	N	FACW
7. Lupinus polyphyllus	3	N	FACW
8.			
9.			
10.			
11.			
	95	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP23

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					loamy sand	thick roots/high organic content
3-19	10YR 2/2	100					loamy sand	low organic
19-24	10YR 4/4	100					sand	multicolored sand grains

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Surface moist from morning dew. Not saturated.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Porcupine Flat City/County: _____ Sampling Date: 09/09/2010

Applicant/Owner: National Park Service State: CA Sampling Point: SP24 Wet38

Investigator(s): Scheuerman, Stevens Section, Township, Range: _____

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

Subregion (LRR): MLRA 22A Lat: 37 48 28.35 N Long: 119 33 52.51 W Datum: NAD83

Soil Map Unit Name: Canisrocks-Xeric Dystrocryepts association, 5 to 30 percent slopes, mountain valleys, moraines, cryic NWI classification: PFO4E

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

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

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

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

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

Remarks:

Photo: CS26

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5 m radius)			
1. Pinus contorta	10	Y	FAC
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 3 m radius)			
1. Pinus contorta	7	Y	FAC
2.			
3.			
4.			
5.			
	7 = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Senecio scorzonella	20	Y	UPL
2. Ranunculus alismifolius	40	Y	FACW
3. Perideridia parishii	10	N	FACW
4. Deschampsia cespitosa	5	N	FACW
5. Calamagrostis canadensis	10	N	FACW
6. Erigeron peregrinus	4	N	FACW
7. Caltha leptosepala	15	N	OBL
8. Muhlenbergia filiformis	20	Y	FACW
9. Polygonum bistortoides	5	N	OBL
10.			
11.			
	129 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP24 Wet38

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					sandy loam	thick roots
3-12	7.5YR 2.5/2	95	2.5YR 3/6	5	C	M	sandy loam	
12-13	2.5Y 5/4	95	7.5YR 5/8	5	C	M	sand	
13-24	10YR 3/3	98	10YR 5/8	2	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Forested area with matrix of water channels running through it.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - Porcupine Flat City/County: _____ Sampling Date: 09/09/2010

Applicant/Owner: National Park Service State: CA Sampling Point: SP25

Investigator(s): Scheuerman, Stevens Section, Township, Range: _____

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

Subregion (LRR): MLRA 22A Lat: 37 48 27.88 N Long: 119 33 52.51 W Datum: NAD83

Soil Map Unit Name: Canisrocks-Xeric Dystrocryepts association, 5 to 30 percent slopes, mountain valleys, moraines, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 m radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus contorta	80	Y	FAC
2.			
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2 x 1 meter)			
1. Carex raynoldsii	10	Y	FAC
2. Achnatherum lemmonii	12	Y	UPL
3. Carex multicostata	10	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	32 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: SP25

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					sandy loam	high organic content/root fibers
4-20	10YR 2/2	100					loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Very dry.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Yosemite National Park - E of Olmstead Point City/County: _____ Sampling Date: 09/09/2010

Applicant/Owner: National Park Service State: CA Sampling Point: SP26

Investigator(s): Scheuerman, Stevens Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): non Slope (%): 0

Subregion (LRR): MLRA 22A Lat: 37 49 29.43 N Long: 119 28 30.01 W Datum: NAD83

Soil Map Unit Name: Canisrocks-Xeric Dystrocryepts association, 5 to 30 percent slopes, mountain valleys, moraines, cryic NWI classification: N/A

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 x 1 meter)			
1. Carex vesicaria	80	Y	OBL
2. Aster alpigenus	15	N	OBL
3. Deschampsia cespitosa	15	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP26

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					sandy loam	thick roots
4-13	10YR 2/1	100					sandy loam	
13-14	2.5Y 7/2	100					loamy sand	
13-24	10YR 2/1	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Roadside depressional area.

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

APPENDIX F
PHOTOGRAPH LOG

[This Page Intentionally Left Blank]

Tioga Road Rehabilitation Project Wetland Report Photo Log

Photo Number	Wetland ID	Description
1	Wet1a	PEMA, looking SW toward Tioga Road
2	Wet1a	PEMA, looking E
3	Wet1a	Upland transition outside of PEMA
4	Wet1b	PEMA, looking SW
5	Wet2	PEMC adjacent to stream
6	Wet3a	PEMA with scattered patches of PSS
7	Wet4	PSSC occurring in seasonally flooded finger of Tuolumne River
8	Wet6	Upland soil pit (SP7) outside PEMA
9	Wet7	PEMC dominated by *Carex vesicaria*, looking W
10	Wet8	PEMC with small area of ponded water and walking trail disturbance
11	Wet9a	PEMC depression near road
12	Wet9b	R4SB3 that connects Wet9a to non-wet meadow
13	Wet11a,e	Mosaic of PEMA and R4SB2 habitats
14	Wet12	PEMC with R4SB2 meandering through
15	Wet13a	PEMA dominated by *Carex vesicaria*, surrounded by lodgepole pines
16	Wet13f	R4SB2 that drains to PEMA
17	Wet14a	PEMA dominated by *Carex athrostachya*
18	Wet16a	PEMC adjacent to Tuolumne River and SW of Lembert Dome
19	Wet16b	R3RB2 portion of Tuolumne River
20	Wet17	PEMA on south side of Tioga Road, adjacent to Tuolumne River
21	Wet18	Small channels of PEMA dominated by *Carex utriculata*
22	Wet20a	PEMF with ponded water and submerged vegetation (*Sparganium angustifolium*)
23	Wet21	PUBF with fringing monoculture of *Carex vesicaria*
24	Wet22	PUBF surrounded by PEMF
25	Wet25	PEMC marsh mosaic with multiple riverine drainages
26	Wet26a	PEMC adjacent to Crane Flat gas station
27	Wet27	PEMC, looking S
28	Wet28a	PEMB along roadside, surrounded by lodgepole pine and red fir forest
29	Wet28c	PEMB dominated by *Carex vesicaria*
30	Wet28c	Culvert that connects Wet28c to Wet28a
31	Wet29	PEMB with high herbaceous species diversity

Tioga Road Rehabilitation Project Wetland Report Photo Log

Photo Number	Wetland ID	Description
32	Wet30	Small roadside PEMC
33	Wet31	Large creek (R4SB1) runs through culvert under road (photo from N of road)
34	Wet32a,b	R4SB3 with fringing riparian and wetland vegetation
35	Wet33	PEMB dominated by *Deschampsia cespitosa*
36	Wet34a	Siesta Lake (PUBH) with emergent vegetation along margins
37	Wet34b	Edge of PFOB, adjacent to Siesta Lake
38	Wet35	PEMB saturated to surface and dominated by *Carex vesicaria*
39	Wet37a	PEMB adjacent to stream (R4SB3)
40	Wet37b	R4SB3 runs underneath road
41	Wet39	PEMB surrounded by lodgepole pine and red fir forest
42	Wet40b	Dry creek bed (R4SB4) connects to Wet40a through culvert under road
43	Wet41	R4SB3 with banks dominated by *Calamagrostis canadensis*
44	Wet42b	PFOB dominated by lodgepole pine
45	Wet42d	PEMA very wet and bog-like
46	Wet42e	R4SB5 with standing water and covered by emergent vegetation
47	Wet43	PEMA with sporadic lodgepole pines and pockets of water
48	Wet44b	PFOC in McSwain Meadows dominated by lodgepole pines
49	Wet45a	R4SB2 with minimal fringe wetland/riparian vegetation
50	Wet45c	R4SB3 that is part of Wet45 stream matrix on both sides of road
51	Wet46	R3UB1 portion of Tuolumne River

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

Photo 19

Photo 20

Photo 21

Photo 22

Photo 23

Photo 24

Photo 25

Photo 26

Photo 27

Photo 28

Photo 29

Photo 30

Photo 31

Photo 32

Photo 33

Photo 34

Photo 35

Photo 36

Photo 37

Photo 38

Photo 39

Photo 40

Photo 41

Photo 42

Photo 43

Photo 44

Photo 45

Photo 46

Photo 47

Photo 48

Photo 49

Photo 50

Photo 51

APPENDIX G
FUNCTIONAL ASSESSMENT WORKSHEETS

[This Page Intentionally Left Blank]

Structural Patch Richness and Topographic Complexity

Based on California Rapid Assessment Method (CRAM) for Wetlands Definitions (Collins et al. 2008)

Definition: Patch richness is the number of different obvious types of physical surfaces or features that may provide habitat for aquatic, wetland, or riparian species. Physical patches can be natural or unnatural. Topographic complexity refers to the arrangement of these structural patches within a given area.

Patch Type Definitions:

***Animal mounds and burrows*:** Many vertebrates make mounds or holes as a consequence of their foraging, denning, predation, or other behaviors. The resulting soil disturbance helps to redistributes soil nutrients and influences plant species composition and abundance. To be considered a patch type there should be evidence that a population of burrowing animals has occupied the area. A single burrow or mound does not constitute a patch.

***Bank slumps or undercut banks in channels or along shoreline*:** A bank slump is a portion of a depressional, estuarine, or lacustrine bank that has broken free from the rest of the bank but has not eroded away. Undercuts are areas along the bank or shoreline of a wetland that have been excavated by waves or flowing water.

***Cobble and boulders*:** Cobble and boulders are rocks of different size categories. The long axis of cobble ranges from about 6 cm to about 25 cm. A boulder is any rock having a long axis greater than 25 cm. Submerged cobbles and boulders provide abundant habitat for aquatic macroinvertebrates and small fish. Exposed cobbles and boulders provide roosting habitat for birds and shelter for amphibians. They contribute to patterns of shade and light and air movement near the ground surface that affect local soil moisture gradients, deposition of seeds and debris, and overall substrate complexity.

***Concentric or parallel high water marks*:** Repeated variation in water level in a wetland can cause concentric zones in soil moisture, topographic slope, and chemistry that translate into visible zones of different vegetation types, greatly increasing overall ecological diversity. The variation in water level might be natural (e.g., seasonal) or anthropogenic.

***Debris jams*:** A debris jam is an accumulation of drift wood and other flotage across a channel that partially or completely obstructs surface water flow.

***Hummocks or sediment mounds*:** Hummocks are mounds created by plants in slope wetlands, depressions, and along the banks and floodplains of fluvial and tidal systems. Hummocks are typically less than 1m high. Sediment mounds are similar to hummocks but lack plant cover.

***Islands (exposed at high-water stage)*:** An island is an area of land above the usual high water level and, at least at times, surrounded by water in a riverine, lacustrine, estuarine, or playa system. Islands differ from hummocks and other mounds by being large enough to support trees or large shrubs.

***Macroalgae and algal mats*:** Macroalgae occurs on benthic sediments and on the water surface of all types of wetlands. Macroalgae are important primary producers, representing the base of the food web in some wetlands. Algal mats can provide abundant habitat for macro-invertebrates, amphibians, and small fishes.

***Non-vegetated flats (sandflats, mudflats, gravel flats, etc.)*:** A flat is a non-vegetated area of silt, clay, sand, shell hash, gravel, or cobble that adjoins the wetland foreshore and is a potential resting and feeding area for fishes, shorebirds, wading birds, and other waterbirds. Flats can be similar to large bars (see definitions of point bars and inchannel bars below), except that they lack the convex profile of bars and their compositional material is not as obviously sorted by size or texture.

***Pannes or pools on floodplain*:** A panne is a shallow topographic basin lacking vegetation but existing on a well-vegetated wetland plain. Pannes fill with water at least seasonally due to overland flow. They commonly serve as foraging sites for waterbirds and as breeding sites for amphibians.

***Point bars and in-channel bars*:** Bars are sedimentary features within intertidal and fluvial channels. They are patches of transient bedload sediment that form along the inside of meander bends or in the middle of straight channel reaches. They sometimes support vegetation. They are convex in profile and their surface material varies in size from small on top to larger along their lower margins. They can consist of any mixture of silt, sand, gravel, cobble, and boulders.

***Pools in channels*:** Pools are areas along tidal and fluvial channels that are much deeper than the average depths of their channels and that tend to retain water longer than other areas of the channel during periods of low or no surface flow.

***Riffles or rapids*:** Riffles and rapids are areas of relatively rapid flow and standing waves in tidal or fluvial channels. Riffles and rapids add oxygen to flowing water and provide habitat for many fish and aquatic invertebrates.

***Secondary channels on floodplains or along shorelines*:** Channels confine riverine or estuarine flow. A channel consists of a bed and its opposing banks, plus its floodplain. Estuarine and riverine wetlands can have a primary channel that conveys most flow, and one or more secondary channels of varying sizes that convey flood flows. The systems of diverging and converging channels that characterize braided and anastomosing fluvial systems usually consist of one or more main channels plus secondary channels. Tributary channels that originate in the wetland and that only convey flow between the wetland and the primary channel are also regarded as secondary channels. For example, short tributaries that are entirely contained within the survey area are regarded as secondary channels.

***Shellfish beds*:** Oysters, clams and mussels are common bivalves that create beds on the banks and bottoms of wetland systems. Shellfish beds influence the condition of their environment by affecting flow velocities, providing substrates for plant and animal life, and playing particularly important roles in the uptake and cycling of nutrients and other water-borne materials.

***Soil cracks*:** Repeated wetting and drying of fine grain soil that typifies some wetlands can cause the soil to crack and form deep fissures that increase the mobility of heavy metals, promote oxidation and subsidence, while also providing habitat for amphibians and macroinvertebrates.

***Standing snags*:** Tall, woody vegetation, such as trees and tall shrubs, can take many years to fall to the ground after dying. These standing .snags. they provide habitat for many species of birds and small mammals. Any standing, dead woody vegetation that is at least 3 m tall is considered a snag.

***Submerged vegetation*:** Submerged vegetation consists of aquatic macrophytes such as *Elodea canadensis* (common elodea), and *Zostera marina* (eelgrass) that are rooted in the sub-aqueous

substrate but do not usually grow high enough in the overlying water column to intercept the water surface. Submerged vegetation can strongly influence nutrient cycling while providing food and shelter for fish and other organisms.

***Swales on floodplain or along shoreline*:** Swales are broad, elongated, vegetated, shallow depressions that can sometimes help to convey flood flows to and from vegetated marsh plains or floodplains. But, they lack obvious banks, regularly spaced deeps and shallows, or other characteristics of channels. Swales can entrap water after flood flows recede. They can act as localized recharge zones and they can sometimes receive emergent groundwater.

***Variegated or crenulated foreshore*:** As viewed from above, the foreshore of a wetland can be mostly straight, broadly curving (i.e., arcuate), or variegated (e.g., meandering). In plain view, a variegated shoreline resembles a meandering pathway. Variegated shorelines provide greater contact between water and land.

***Wrackline or organic debris in channel or on floodplain*:** Wrack is an accumulation of natural or unnatural floating debris along the high water line of a wetland.

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet1 Lat.: _____ Long.: _____ Date: 08/24/2010 Area Tuolomne

Dominant Cowardin Wetland Types Present PEMA

Other Aquatic Habitats Present R4SB2 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial

If Partial/No Contiguous Buffer Zone, Explain Soutern portion of meadow adjacent to Tioga Road

ID Team Observers Stevens, Scheuerman, Dungan

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover:_____/ Total cover_____x 100 =_____)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic _X_____short (<0.5 m) _____medium (0.5-1.5 m) _____ tall (1.5-3m) _____very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_X_ Animal Mounds and Burrows
_X_ Bank Slumps/Undercut Banks
_____ Cobble and Boulders
_____ Concentric or Parallel High Water Marks
_____ Debris Jams
_X_ Hummocks or Sediment Mounds
_____ Islands
_____ Macroalgae/Algal Mats
_X_ Non-vegetated Flats
_X_ Pannes or Pools on Floodplains
_____ Point Bars and In-channel Bars
_X_ Pools in Channels
_____ Riffles or Rapids
_____ Secondary Channels on Floodplains/Along Shorelines
_____ Shellfish Beds
_____ Soil Cracks
_____ Standing Snags
_____ Submerged Vegetation
_____ Swales on Floodplain or Above Shoreline
_____ Variegated or Crenulated Foreshore
_____ Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Very high value. Accessible parking, trails, and views. Popular tourist destination within the park. Pothole dome is to the North.

Non-native Species:	None observed.

Item Name/Number	Remarks

Photo Identification Numbers and Description

Photo ID No.	Direction	Latitude	Longitude	Datum
1				
2				
3				
4				

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet2 Lat.: _____ Long.: _____ Date: 08/24/2010 Area Tuolomne

Dominant Cowardin Wetland Types Present PEMC

Other Aquatic Habitats Present R4UB3 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes

If Partial/No Contiguous Buffer Zone, Explain _____

ID Team Observers Stevens, Dungan, Scheuerman

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover:_____/ Total cover_____x 100 =_____)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
	X		7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
	X		8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic _X_short (<0.5 m) _____medium (0.5-1.5 m) _____ tall (1.5-3m) _____very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_X_ Animal Mounds and Burrows
_X_ Bank Slumps/Undercut Banks
_X_ Cobble and Boulders
_____ Concentric or Parallel High Water Marks
_____ Debris Jams
_X_ Hummocks or Sediment Mounds
_X_ Islands
_X_ Macroalgae/Algal Mats
_X_ Non-vegetated Flats
_____ Pannes or Pools on Floodplains
_X_ Point Bars and In-channel Bars
_X_ Pools in Channels
_X_ Riffles or Rapids
_____ Secondary Channels on Floodplains/Along Shorelines
_____ Shellfish Beds
_____ Soil Cracks
_____ Standing Snags
_____ Submerged Vegetation
_____ Swales on Floodplain or Above Shoreline
_____ Variegated or Crenulated Foreshore
_____ Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Very high. Part of Tuolumne Meadows. Easily accessible tourist site.

Cathedral lakes parking. Scenic mosaic of aquatic, wetland, and upland habitats.

Non-native Species:	None observed.

Item Name/Number	Remarks
7	Erosion is occurring along parking area and Cathedral Lakes trail.
8	High amount of bare soil being deposited by water flow through culvert and from parking area.
	*Trout present in creek

Photo Identification Numbers and Description

Photo ID No.	Description
5	PEMC adjacent to stream

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet3 Lat.: _____ Long.: _____ Date: 08/25/2010 Area Tuolumne

Dominant Cowardin Wetland Types Present PEMA dominant, PSSA mixed in

Other Aquatic Habitats Present N/A Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes

If Partial/No Contiguous Buffer Zone, Explain _____

ID Team Observers Stevens, Scheuerman, Dungan

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover:_____/ Total cover_____x 100 =_____)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
		X	7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic _X_short (<0.5 m) _____medium (0.5-1.5 m) _____ tall (1.5-3m) _____very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_X_Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
_____Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
_X_Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_____Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_____Standing Snags
_____Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
_____Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Very high. Easy access. Cathedral lakes parking. Upland buffer allows for viewing/walking around wetlands. Mosaic of wetlands, transitional areas, and uplands. Abundant ground squirrels.

Non-native Species:	None observed.

Item Name/Number	Remarks
	Abundant ground squirrels in upland buffer areas.
	Multiple old channel banks and sediment deposits throughout wetland.

Photo Identification Numbers and Description

Photo ID No.	Description
6	PEMA with scattered patches of PSS

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet10 Lat.: _____ Long.: _____ Date: 08/25/2010 Area Tuolumne

Dominant Cowardin Wetland Types Present PEMC dominant, PSSC and PFOC

Other Aquatic Habitats Present R4SB2 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Y

If Partial/No Contiguous Buffer Zone, Explain _____

ID Team Observers Scheuerman, Dungan, Stevens

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover:_____/ Total cover_____x 100 =_____)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic __X__short (<0.5 m) __X__medium (0.5-1.5 m) __X__ tall (1.5-3m) __X__very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
__X__Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
__X__Hummocks or Sediment Mounds
__X__Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
__X__Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_____Standing Snags
_____Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
_____Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Recreational value is high because of easy access to Tuolumne Meadows.

Non-native Species:	None observed.

Item Name/Number	Remarks

Photo Identification Numbers and Description

Photo ID No.	Description

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet11 Lat.: _____ Long.: _____ Date: 08/25/2010 Area Tuolumne

Dominant Cowardin Wetland Types Present PEMA

Other Aquatic Habitats Present R4SB3 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) No

If Partial/No Contiguous Buffer Zone, Explain Wetland borders road. Watercourse goes under road.

ID Team Observers Stevens, Scheuerman, Dungan

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

X aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) _____ very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

X Animal Mounds and Burrows
X Bank Slumps/Undercut Banks
X Cobble and Boulders
X Concentric or Parallel High Water Marks
_____ Debris Jams
X Hummocks or Sediment Mounds
_____ Islands
X Macroalgae/Algal Mats
_____ Non-vegetated Flats
_____ Pannes or Pools on Floodplains
_____ Point Bars and In-channel Bars
X Pools in Channels
_____ Riffles or Rapids
X Secondary Channels on Floodplains/Along Shorelines
_____ Shellfish Beds
_____ Soil Cracks
_____ Standing Snags
_____ Submerged Vegetation
_____ Swales on Floodplain or Above Shoreline
_____ Variegated or Crenulated Foreshore
_____ Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Very high due to accessibility, proximity to road, and mosaic of habitat types.

Non-native Species:	None observed.

Item Name/Number	Remarks

Photo Identification Numbers and Description

Photo ID No.	Description
13	Mosaic of PEMA and R4SB2 habitats

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet14 Lat.: _____ Long.: _____ Date: 08/26/2010 Area Tuolumne

Dominant Cowardin Wetland Types Present PEMA

Other Aquatic Habitats Present N/A Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes

If Partial/No Contiguous Buffer Zone, Explain _____

ID Team Observers Scheuerman, Stevens, Dungan

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: _____ / Total cover _____ x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
	X		7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
X Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
_____Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_____Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_____Standing Snags
_____Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
_____Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Minimal. Easily accessible - across from campground.

Non-native Species:	None observed.

Item Name/Number	Remarks

Photo Identification Numbers and Description

Photo ID No.	Description
17	PEMA dominated by Carex athrostachya

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet16a Lat.: _____ Long.: _____ Date: 08/26/2010 Area Tuolumne

Dominant Cowardin Wetland Types Present PEMC dominant, PFOC on fringes

Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) No

If Partial/No Contiguous Buffer Zone, Explain Adjacent to road

ID Team Observers Scheuerman, Dungan, Stevens

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: _____ / Total cover _____ x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
	X		7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
	X		8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

X Animal Mounds and Burrows
X Bank Slumps/Undercut Banks
_____Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
X Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
X Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
X Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_____Standing Snags
X Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
_____Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Recreational value is high - adjacent to Lembert Dome and Tuolumne River.

Non-native Species:	None observed.

Item Name/Number	Remarks
2	Unpaved trail runs through wetland area.
7	Erosional channel draining out of wetland to main river.
8	Heavy use of trail has created bare patches in wetland.
	*Multiple channels draining through wetland.

Photo Identification Numbers and Description

Photo ID No.	Description
18	PEMC adjacent to Tuolumne River and SW of Lembert Dome

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet16b Lat.: 37 52 33.77 N Long.: 119 21 21.05 W Date: 08/26/2010 Area Tuolumne River
Dominant Cowardin Wetland Types Present None
Other Aquatic Habitats Present R3RB2 dominant Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial
If Partial/No Contiguous Buffer Zone, Explain Adjacent to road and campground
ID Team Observers Dungan, Scheuerman, Stevens

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover:_____/ Total cover_____x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic _X____short (<0.5 m) _X____medium (0.5-1.5 m) _X____ tall (1.5-3m) _X____very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_X___Bank Slumps/Undercut Banks
_X___Cobble and Boulders
_X___Concentric or Parallel High Water Marks
_X___Debris Jams
_X___Hummocks or Sediment Mounds
_X___Islands
_____Macroalgae/Algal Mats
_X___Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_X___Pools in Channels
_X___Riffles or Rapids
_X___Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_X___Standing Snags
_____Submerged Vegetation
_X___Swales on Floodplain or Above Shoreline
_X___Variegated or Crenulated Foreshore
_X___Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Very high. Popular fishing, picnic, and camping area adjacent to road and campground.

Non-native Species:	None observed.

Item Name/Number	Remarks
5 and 6	Diverse species and habitat composition along river corridor.

Photo Identification Numbers and Description

Photo ID No.	Description
19	R3RB2 portion of Tuolumne River

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet21 and 22 Lat.: 37 52 02.89 N Long.: 119 25 50.15 W Date: 08/27/2010 Area East of Tenaya

Dominant Cowardin Wetland Types Present PUBF, PEMA

Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes

If Partial/No Contiguous Buffer Zone, Explain _____

ID Team Observers Scheuerman, Dungan

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
_____Cobble and Boulders
X Concentric or Parallel High Water Marks
X Debris Jams
_____Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
X Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_____Standing Snags
X Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
X Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Uniqueness value is high - small PUBF is unique along roadside.

Non-native Species:	None observed.

Item Name/Number	Remarks
4-6	Pinus contorta surrounding PEMA and PUBF.
	Carex vesicaria occurs as almost monoculture around the edge of the water.
	Other dominants include Veratrum californicum, Mimulus primuloides, Deschampsia cespitosa,
	and Polygonum bistortoides.
	Wet21 and Wet22 are adjacent to each other, and thus, have the same functional assessment.

Photo Identification Numbers and Description

Photo ID No.	Description
23	Wet21 - PUBF with fringing monoculture of Carex vesicaria
24	Wet22 - PUBF surrounded by PEMF

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet25 Lat.: _____ Long.: _____ Date: 08/27/2010 Area East of Tenaya

Dominant Cowardin Wetland Types Present PEMC dominant, PFOC scattered and fringing

Other Aquatic Habitats Present PUB3 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial

If Partial/No Contiguous Buffer Zone, Explain Wetland abuts road

ID Team Observers Dungan, Scheuerman

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic __X__short (<0.5 m) __X__medium (0.5-1.5 m) __X__ tall (1.5-3m) __X__very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

__X__Animal Mounds and Burrows
__X__Bank Slumps/Undercut Banks
__X__Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
__X__Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
__X__Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
__X__Standing Snags
__X__Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
__X__Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): High. Unique mosaic of small marshes and ponded waters.

Aesthetically pleasing.

Non-native Species:	None observed.

Item Name/Number	Remarks
4-6	-Dominant plant species include Eriophorum criniger, multiple Carex spp., Vaccinium cespitosum,
	Deschampsia cespitosa, and Pinus contorta as dominant tree species.
	-Large area with surface water dominated by Carex vesicaria.

Photo Identification Numbers and Description

Photo ID No.	Description
25	PEMC marsh mosaic with multiple riverine drainages

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet26 Lat.: _____ Long.: _____ Date: 09/08/2010 Area Crane Flat

Dominant Cowardin Wetland Types Present PEMC

Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial

If Partial/No Contiguous Buffer Zone, Explain Wetland abuts Crane Flat gas station parking area

ID Team Observers Scheuerman, Stevens

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 99 / Total cover 100 x 100 = 99%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) _____ tall (1.5-3m) _____very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
_____Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
_____Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_____Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
X Standing Snags
_____Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
_____Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Not an important recreational area, nor unique to area. It is adjacent to parking area, though.

Non-native Species:	Small amount of Cirsium vulgare along edges of wetland and along road in upland area.

Item Name/Number	Remarks

Photo Identification Numbers and Description

Photo ID No.	Description
26	Wet26a - PEMC adjacent to Crane Flat gas station

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet28 Lat.: _____ Long.: _____ Date: 09/08/2010 Area Crane Flat

Dominant Cowardin Wetland Types Present PEMB dominant, PSSB occurs in center of Wet28c

Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial

If Partial/No Contiguous Buffer Zone, Explain Wetland abuts road

ID Team Observers Scheuerman, Stevens

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: _____ / Total cover _____ x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) _____very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
_____Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
_____Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_____Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_____Standing Snags
_____Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
_____Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Adjacent to road. Large system of connected wetlands is unique to area.

Non-native Species:	None observed.

Item Name/Number	Remarks
2	Wetland 28b and 28c are connected by culverts to 28a.
	*Small aspen groves near road on border of wetland 28c.

Photo Identification Numbers and Description

Photo ID No.	Description
28	Wet28a - PEMB along roadside, surrounded by lodgepole pine and red fir forest
29	Wet28c - PEMB dominated by Carex vesicaria
30	Wet28c - Culvert that connects Wet28c to Wet28a

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet29 Lat.: _____ Long.: _____ Date: 09/08/2010 Area Gin Flat

Dominant Cowardin Wetland Types Present PEMB

Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes

If Partial/No Contiguous Buffer Zone, Explain _____

ID Team Observers Scheuerman, Stevens

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) _____ tall (1.5-3m) _____very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
_____Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
_____Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_____Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
X Standing Snags
_____Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
_____Variegated or Crenulated Foreshore
X Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Low - not easily accessible.

Non-native Species:	None observed.

Item Name/Number	Remarks
	- Wetland appears to be healthy and is saturated near to surface. No flowing/standing water.
	- High amount of bracken fern surrounding wetland.
	- Soil is very wet/boggy in middle of wetland.

Photo Identification Numbers and Description

Photo ID No.	Description
31	PEMB with high herbaceous species diversity

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet31 Lat.: _____ Long.: _____ Date: 09/08/2010 Area East of Gin Flat

Dominant Cowardin Wetland Types Present R4SB1

Other Aquatic Habitats Present Fringe riparian habitat Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial

If Partial/No Contiguous Buffer Zone, Explain Creek goes under road

ID Team Observers Stevens, Scheuerman

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover:_____/ Total cover_____x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic __X__short (<0.5 m) __X__medium (0.5-1.5 m) __X__ tall (1.5-3m) __X__very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
__X__Cobble and Boulders
__X__Concentric or Parallel High Water Marks
__X__Debris Jams
__X__Hummocks or Sediment Mounds
__X__Islands
_____Macroalgae/Algal Mats
__X__Non-vegetated Flats
__X__Pannes or Pools on Floodplains
__X__Point Bars and In-channel Bars
__X__Pools in Channels
__X__Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_____Standing Snags
__X__Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
__X__Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): High uniqueness value - granite bottom stream parallels road.

Non-native Species:	None observed.

Item Name/Number	Remarks
	- Trout visible in stream
	- Riparian vegetation along banks of stream
	- Water flowing over granite entire length of stream.

Photo Identification Numbers and Description

Photo ID No.	Description
33	Large creek runs through culvert under road (photo from N of road)

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet32 Lat.: _____ Long.: _____ Date: 09/08/2010 Area West of Siesta Lake
Dominant Cowardin Wetland Types Present R4SB3 (creek) dominant habitat, PEMC/PFOC scattered on fringes
Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) N
If Partial/No Contiguous Buffer Zone, Explain Creek flows under road
ID Team Observers Scheuerman, Stevens

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: _____ / Total cover _____ x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic _X_ short (<0.5 m) _X_ medium (0.5-1.5 m) _X_ tall (1.5-3m) _X_ very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_X_ Bank Slumps/Undercut Banks
_X_ Cobble and Boulders
_X_ Concentric or Parallel High Water Marks
_X_ Debris Jams
_X_ Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_X_ Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_____Standing Snags
_X_ Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
_X_ Variegated or Crenulated Foreshore
_X_ Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Low - not much recreational use or uniqueness value.

Non-native Species:	None observed.

Item Name/Number	Remarks
2	Water flows through culvert under road.
	- Wetland fringe bordering creek is roughly 5 feet on each side.
	- Dominated by Pinus contorta, Pinus lambertiana, and Abies magnifica at tree level.
	- Dominated by Senecio triangularis, Carex vesicaria, and Caltha leptosepala at the herbaceous level.

Photo Identification Numbers and Description

Photo ID No.	Description
34	R4SB3 with fringing riparian and wetland vegetation

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet33 Lat.: _____ Long.: _____ Date: 09/09/2010 Area West of Siesta Lake
Dominant Cowardin Wetland Types Present PEMB
Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes
If Partial/No Contiguous Buffer Zone, Explain _____
ID Team Observers Scheuerman, Stevens

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: _____ / Total cover _____ x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

X Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
_____Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
_____Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_____Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
_____Standing Snags
_____Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
_____Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Very low - small roadside meadow.

Non-native Species:	None observed.

Item Name/Number	Remarks
2	Water flows under culvert.

Photo Identification Numbers and Description

Photo ID No.	Description
35	PEMB dominated by Deschampsia cespitosa

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet34 Lat.: _____ Long.: _____ Date: 09/09/2010 Area Siesta Lake

Dominant Cowardin Wetland Types Present PUBH is dominant, PEMC and PFOC surround the lake

Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial

If Partial/No Contiguous Buffer Zone, Explain Lake and fringe wetlands are adjacent to road

ID Team Observers Stevens, Scheuerman

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: _____ / Total cover _____ x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

X aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____ Animal Mounds and Burrows
_____ Bank Slumps/Undercut Banks
X Cobble and Boulders
X Concentric or Parallel High Water Marks
_____ Debris Jams
_____ Hummocks or Sediment Mounds
_____ Islands
X Macroalgae/Algal Mats
X Non-vegetated Flats
X Pannes or Pools on Floodplains
_____ Point Bars and In-channel Bars
_____ Pools in Channels
_____ Riffles or Rapids
_____ Secondary Channels on Floodplains/Along Shorelines
_____ Shellfish Beds
_____ Soil Cracks
X Standing Snags
X Submerged Vegetation
_____ Swales on Floodplain or Above Shoreline
X Variegated or Crenulated Foreshore
_____ Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Very high - popular tourist spot. Large body of water with pullout and information for visitors.

Non-native Species:	None observed.

Item Name/Number	Remarks
	- Lake surrounded by Abies magnifica and Pinus contorta dominated forest.
	- Carex vesicaria dominant along shore and into water.
	- Aquatic vegetation mats in middle of lake
	- Adjacent to PFOB wetland.

Photo Identification Numbers and Description

Photo ID No.	Description
36	Wet34a - Siesta Lake (PUBH) with emergent vegetation along margins
37	Wet34b - Edge of PFOB, adjacent to Siesta Lake

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet37 Lat.: _____ Long.: _____ Date: 09/09/2010 Area Porcupine Flat

Dominant Cowardin Wetland Types Present PEMB dominant, with PFOB and PSSB as components

Other Aquatic Habitats Present R4SB3 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial

If Partial/No Contiguous Buffer Zone, Explain Wetland abuts road

ID Team Observers Stevens, Scheuerman

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

X aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

X Animal Mounds and Burrows
_____ Bank Slumps/Undercut Banks
X Cobble and Boulders
X Concentric or Parallel High Water Marks
_____ Debris Jams
X Hummocks or Sediment Mounds
X Islands
X Macroalgae/Algal Mats
X Non-vegetated Flats
_____ Pannes or Pools on Floodplains
_____ Point Bars and In-channel Bars
_____ Pools in Channels
_____ Riffles or Rapids
X Secondary Channels on Floodplains/Along Shorelines
_____ Shellfish Beds
_____ Soil Cracks
_____ Standing Snags
X Submerged Vegetation
_____ Swales on Floodplain or Above Shoreline
X Variegated or Crenulated Foreshore
_____ Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Low - PEMB and stream edge are dominated by Calamagrostis canadensis that overhangs the water and makes it difficult to see the actual stream.

Non-native Species:	None observed.

Item Name/Number	Remarks
	- Main stream channel has willow along east edge. Portions of west edge have scattered Pinus contorta.
	- Water flows under road via culvert.
	- Trout are visible in stream
	- Calamagrostis canadensis overhangs much of the stream(s) and covers them from sight
	- GPS: wetland a (main stream), b (PEMB), c (stream in forest), d (north side stream)

Photo Identification Numbers and Description

Photo ID No.	Description
39	Wet37a - PEMB adjacent to stream (R4SB3)
40	Wet37b - R4SB3 runs underneath road

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet39 Lat.: _____ Long.: _____ Date: 09/09/2010 Area West of Olmstead Point
Dominant Cowardin Wetland Types Present PEMB
Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes
If Partial/No Contiguous Buffer Zone, Explain _____
ID Team Observers Stevens, Scheuerman

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: _____ / Total cover _____ x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
X Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
_____Hummocks or Sediment Mounds
_____Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_____Pools in Channels
_____Riffles or Rapids
_____Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
X Standing Snags
_____Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
X Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain): Low - near road, but steep incline to access. There is no good turnout near wetland.

Non-native Species:	None observed.

Item Name/Number	Remarks
	- Matrix of many small streams (1-2 feet wide) with vegetated banks hanging over
	- Pinus contorta and Abies magnifica upland island on east end with large boulders and stream
	- Dominants include Veratrum californicum, Deschampsia cespitosa, Senecio triangularis, Luzula parviflora,
	and Allium validum.

Photo Identification Numbers and Description

Photo ID No.	Description
41	PEMB surrounded by lodgepole pine and red fir forest

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet41 Lat.: _____ Long.: _____ Date: 09/09/2010 Area Tenaya

Dominant Cowardin Wetland Types Present R4SB3

Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes

If Partial/No Contiguous Buffer Zone, Explain _____

ID Team Observers Scheuerman, Stevens

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

X Animal Mounds and Burrows
X Bank Slumps/Undercut Banks
X Cobble and Boulders
X Concentric or Parallel High Water Marks
X Debris Jams
X Hummocks or Sediment Mounds
_____ Islands
_____ Macroalgae/Algal Mats
X Non-vegetated Flats
_____ Pannes or Pools on Floodplains
X Point Bars and In-channel Bars
X Pools in Channels
_____ Riffles or Rapids
_____ Secondary Channels on Floodplains/Along Shorelines
_____ Shellfish Beds
_____ Soil Cracks
X Standing Snags
_____ Submerged Vegetation
_____ Swales on Floodplain or Above Shoreline
X Variegated or Crenulated Foreshore
X Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain):

Moderate - Scenic roadside creek, but tall Calamagrostis canadensis makes it difficult to see.

Non-native Species:	None observed.

Item Name/Number	Remarks
2	Culverts feed water into creek.
	-This area is NWI mapped as PFO, but soil samples and analysis of vegetation show this not to be
	a wetland.

Photo Identification Numbers and Description

Photo ID No.	Description
43	R4SB3 with banks dominated by Calamagrostis canadensis

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet42 Lat.: _____ Long.: _____ Date: 09/10/2010 Area McSwain Meadows

Dominant Cowardin Wetland Types Present PEMB and PFOB

Other Aquatic Habitats Present R4SB5 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial

If Partial/No Contiguous Buffer Zone, Explain Wetlands abut road

ID Team Observers Stevens, Scheuerman

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic __X__short (<0.5 m) __X__medium (0.5-1.5 m) __X__ tall (1.5-3m) __X__very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

__X__Animal Mounds and Burrows
__X__Bank Slumps/Undercut Banks
_____Cobble and Boulders
__X__Concentric or Parallel High Water Marks
_____Debris Jams
_____Hummocks or Sediment Mounds
__X__Islands
_____Macroalgae/Algal Mats
_____Non-vegetated Flats
_____Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
__X__Pools in Channels
_____Riffles or Rapids
__X__Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
__X__Standing Snags
_____Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
__X__Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain):

Moderate - not easily accessed, and hidden from view.

Non-native Species:	None observed.

Item Name/Number	Remarks
	- Vaccinium uliginosum is dominant on the east side with Calamagrostis. Calamagrostis is dominant on the west side.
	- 42a is stream from culvert to culvert
	- 42b is PFOB on east side, along with various other meandering secondary streams within the wetland
	- 42d and 42e on the north side of road are connected by culverts and have standing water.

Photo Identification Numbers and Description

Photo ID No.	Description
44	Wet42b - PFOB dominated by lodgepole pine
45	Wet42d - PEMA very wet and bog-like
46	Wet42e - R4SB5 with standing water and covered by emergent vegetation

Functional Assessment Worksheet

Wetlands and Other Aquatic Habitats

Site ID: Wet43 Lat.: _____ Long.: _____ Date: 09/09/2010 Area McSwain Meadows

Dominant Cowardin Wetland Types Present PFOB dominant, PEMB and PEMF also present

Other Aquatic Habitats Present _____ Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes

If Partial/No Contiguous Buffer Zone, Explain _____

ID Team Observers Stevens, Scheuerman

Functional Checklist

Yes	No	N/A	#	HYDROLOGY
X			1	Natural feature
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X			3	Feature is not degraded by erosion from upland watershed
Yes	**No**	**N/A**		**VEGETATION**
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes	**No**	**N/A**		**EROSION/DEPOSITION**
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X			8	Amount of bare soil appears to be natural/normal

Biotic Structure

Plant layers comprising at least 5% of survey area:

_____aquatic X short (<0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)

Structural Patch Richness and Topographic Complexity

Patch Types/Indicators Present:

_____Animal Mounds and Burrows
_____Bank Slumps/Undercut Banks
X Cobble and Boulders
_____Concentric or Parallel High Water Marks
_____Debris Jams
_____Hummocks or Sediment Mounds
_____Islands
X Macroalgae/Algal Mats
_____Non-vegetated Flats
X Pannes or Pools on Floodplains
_____Point Bars and In-channel Bars
_____Pools in Channels
_____Riffles or Rapids
X Secondary Channels on Floodplains/Along Shorelines
_____Shellfish Beds
_____Soil Cracks
X Standing Snags
X Submerged Vegetation
_____Swales on Floodplain or Above Shoreline
X Variegated or Crenulated Foreshore
_____Wrackline/Organic Debris in Channel/Floodplain

Recreational/Educational/Uniqueness Value (Explain):

High - Scenic portion of McSwain meadow with mosaic of wetland and aquatic habitats.

Non-native Species:	None observed.

Item Name/Number	Remarks
	- Dominated by multiple Juncus and Carex species at the herbaceous level.
	- Surrounded by Pinus contorta dominated forest.
	-Large pockets of standing water (ponds)
	Vaccinium uliginosum dominates the border

Photo Identification Numbers and Description

Photo ID No.	Description
47	PEMA with sporadic lodgepole pines and pockets of water

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public land and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging Stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Yosemite National Park
P.O. Box 577
Yosemite, California 95389

www.nps.gov/yose/