

REVISED BIOLOGICAL ASSESSMENT

ELLS-WILLITS AIRPORT WILLITS, MENDOCINO COUNTY



October 2009

BIOLOGICAL ASSESSMENT

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Prepared for:

David Dietz, AICP, Senior Airport Planner
Mead & Hunt, Inc.
133 Aviation Boulevard, Suite 100
Santa Rosa, CA 95403
707-526-5010
www.meadhunt.com

Prepared by:

Wildlife Research Associates
1119 Burbank Avenue
Santa Rosa, CA 95407
707-544-6273

And

Jane Valerius Environmental Consulting
152 Weeks Way
Sebastopol, CA 95472
707-824-4327

**ELLS-WILLITS AIRPORT BIOLOGICAL ASSESSMENT
WILLITS, MENDOCINO COUNTY**

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A. EXECUTIVE SUMMARY

Introduction

This Biological Assessment was prepared in accordance with Section 7 of the federal Endangered Species Act (FESA) (16 U.S.C. 1536 (c)), and was created in support of a Biological Opinion from the U.S. Fish and Wildlife Service (Service) for repair of a slide at the City of Willits Ells Airport located north of the city. The slide is located at the northern end of the airport. At the slide face vegetation and loose soil will be removed and no excavation will occur. The proposed project area includes the northern portion of the site, and the two borrow areas located on the eastern portion of the site. An access route between the slope failure site and the two borrow areas will be created along the eastern edge of the runway, along the cleared shoulder. No grading or other preparation will be made as this area is level enough for construction equipment. The existing roadway in the northeastern corner of the project that leads to the bottom of the slope failure area will be cleared of vegetation that is now growing in the road. Only minor grading and clearing will be needed.

We reviewed information provided by the U.S. Fish and Wildlife Service (USFWS 2009), California Natural Diversity Data Base (CNDDDB 2009), the California Department of Fish and Game (CDFG 2009) and the California Native Plant Society's (CNPS) on-line inventory of rare and endangered plants of California. Data base information was reviewed for the Willits and surrounding USGS quadrangles which cover the project area and surrounding general region. The 9-quadrangle search included the Willits, Willits Ridge, Brushy Mountain, Foster Mountain, Redwood Valley, Laughlin Range, Greenough Ridge, Burbeck and Longvale USGS quadrangles.

We evaluated the potential for occurrence for federally-listed, federal candidates for listing, and other special status plant species based on the vegetation communities and soils present on the site and reported occurrences of species in the vicinity of the project. As required by both federal and state guidelines, botanical surveys were conducted during the flowering period for each of the species with potential to occur on the site.

We evaluated the potential for occurrence of several federally-listed animal species, as well as non-federally-listed species, based on the habitats that are present on the site, and the connectivity between the site and locations in the area where the species' presence has been reported.

Also incorporated into this report is information from the *Preliminary Delineation of Waters of the United States, Including Wetlands, of the Willits Airport Project Site, Mendocino County, California* (Jane Valerius Environmental Consulting 2009). This Biological Assessment provides the background information necessary for the determination by the Service of any potential affects the proposed action may have on any special-status species or communities.

Summary of Impacts to Wetlands and Waters of the U.S.

Waters of the U.S., including wetlands, were mapped as part of a delineation of wetlands and waters of the U. S. as defined by the U. S. Army Corps of Engineers (USACE). The delineation was submitted to the USACE as part of the project application in a letter dated July 27, 2009. Mr. David Wickens with the USACE conducted a site visit to verify the delineation on October 1, 2009. A revised map was sent on October 21, 2009. The revised delineation has a total of 0.537

acres of waters of the United States, consisting of 0.493 acres of seasonal wetlands and seeps and 0.044 acres of (non-wetland) other waters, identified on the project site. Impacts to wetlands and waters will be avoided. However, there is the potential that one small wetland area could be impacted. This area, designated as SW-1, is approximately 0.009 acres in size and occurs at the northwestern corner of Borrow Site #1 at the base of the borrow site. If impacts cannot be avoided, fill of this small area can either be mitigated on-site by re-creating the wetland area after the soil material has been removed so that this would be a temporary loss (and not a permanent loss), or mitigating at a suitable off-site location. Because wetlands are considered an attraction for birds the Federal Aviation Administration (FAA) does not favor wetland creation at airports. However, given that this is a small, seasonal wetland it does not provide any substantial habitat for birds or other wildlife species and re-creation of the area would not provide an attraction for birds. Authorization for the placement of fill and mitigation for the fill can be permitted under the USACE's nationwide permit program. Erosion control measures described below will be implemented to protect the other wetlands and waters on the site from construction related activities or potential erosion or sedimentation within downstream creeks and drainages.

Summary of Impacts to Federally-Listed and other Special-Status Plant Species

A search of the USFWS list for Mendocino County identified two federally listed plants, Burke's goldfields (*Lasthenia burkei*) and few-flowered navarretia (*Navarretia leucocephala* ssp. *pauciflora*). No reported occurrences were found for these species within the region of the study area. No individuals were detected during the appropriately timed surveys. Habitats on the site that could support federally listed species include seasonal wetland areas, such as meadows, seeps and vernal pools. All areas that had the potential to be impacted by the project were surveyed.

Two CNPS special status plant species were observed on the site: Sonoma canescent manzanita (*Arctostaphylos canescens* ssp. *sonomensis*) and Glandular western flax (*Hesperolinon adenophyllum*). These are both listed as CNPS List 1B.2 plants. Sonoma canescent manzanita occurs in 5 locations comprising a total of 730 plants observed. The largest population, a total of 450 plants, occurs in the proposed Borrow Site #2 and approximately 100 plants occur in the proposed Borrow Site #1. The remaining 180 plants are outside of the proposed construction area. Glandular western flax occurs in the southern portion of the airport site and will not be impacted by the proposed project. Impacts to Sonoma canescent manzanita will be mitigated by replanting this species in the borrow areas after soil material has been removed.

Summary of Impacts to Federally-Listed and other Special-Status Animal Species

Federally listed or federal species of concern potentially occurring in the area are steelhead central California ESU, California red-legged frog, northwestern pond turtle, Pacific fisher, and bird species listed protected under the federal Migratory Bird Treaty Act. A review of special-status animal lists created by the USFWS, the CDFG, and the CNDDDB revealed that 10 special-status animal species are known from the area (CNDDDB 2009) and an additional 4 species were evaluated for their occurrence on the site based on the habitats present. Based on the current site conditions, only one group of species have potential to occur on the Willits Airport project site as follows:

Several species of passerines (perching birds) and raptors (birds of prey) may use the chaparral, or the Douglas fir-tan oak habitats to nest on the site. The federal Migratory Bird Treaty Act and Fish and Game Codes 3503 and 3503.5 protects the nests, eggs and young of passerines and raptors during the nesting season, which occurs, roughly, March 1 through August 31.

It is recommended that removal of any potential habitat, such as trees, plants, and grasslands, occur outside the nesting season. If not feasible, then a pre-construction bird surveys is required. If the habitat is not occupied, then no further action is required. If birds are present, a buffer of 100 feet as determined by a qualified biologist in consultation with CDFG is required to prevent take of passerines and their young.

Summary of Impacts to Critical Plant Habitat and Special Natural Communities

No federal critical plant habitat was listed for the study area. However, two special natural vegetation communities, valley oak woodland and vernal pools, were reported in the CNDDDB (CNDDDB 2009) as occurring in the vicinity of the project. Valley oak woodland does not occur on the project site. One of the wetland areas on the site supports vernal pool plant species and qualifies as a vernal pool. The vernal pool-type wetland will not be impacted by the proposed slide repair project.

Although not reported in the general vicinity of the project area in the CNDDDB, a small area of California oatgrass bunchgrass grassland occurs near the southwestern corner of Borrow Site #2 and a larger area of this vegetation type occurs just south of the borrow site (see Figure 2, Vegetation Communities map). This community is a special natural community (CDFG 2003) that is either known or believed to be of high priority for inventory in the California Natural Diversity Data Base. This community type will not be impacted by the proposed project.

Species Considered Not Present in the Project Area

The following plant communities reported occurring in the region of the project do not occur on the site: closed-cone coniferous forest, coastal prairie, coastal bluff scrub, upper montane coniferous forest, bogs and fens, riparian forest, or freshwater marshes and swamps. No specialized substrates, such as sandy or alkaline soils nor thermal springs occur on the site. Based on a lack of presence of these substrates and communities, the following plant species, endemic to these communities, are not expected to occur on the property: grass alisma (*Alisma gramineum*), scabrid alpine tarplant (*Anisocarpus scabridus*), Nuttalls' ribbon-leaved pondweed (*Potamogeton epihydrus* ssp. *nuttallii*) and great burnet (*Sanguisorba officinalis*).

The following wildlife habitats reported occurring in the region or having potential to occur in the region (USFWS 2009) do not occur on the site: riparian habitat, riverine, freshwater marsh, or sand dunes. Based on a lack of suitable habitat wildlife species not expected to occur are presented in Appendix A.

Summary of Reasonable and Prudent Measures to Minimize Take and Mitigate for Impacts

To prevent take of special-status biological resources the following are recommended:

- Prior to removal of any trees within the breeding season (Feb. 1-Aug. 31), a qualified biologist shall survey the tree for nesting birds to prevent "take" of individuals.

- Best management practices for stormwater, erosion and sediment control will be implemented to protect waters of the U.S., including wetlands and prevent the placement of “fill” material into these areas without any authorization.
- Native perennial grassland to be protected and preserved shall be fenced and appropriately signed to ensure no construction or disturbance within this area.
- Sonoma canescent manzanita will be replanted on the borrow sites after soil material is removed.

B. PROJECT DESCRIPTION

Project Sponsor

The Ells - Willits Airport project is proposed by City of Willits. The contact person is:

Name: Ms. Marilyn Harden, Airport Manager, Willits

Address: 111 East Commercial Street, Willits, CA 95490

Telephone number: (707) 459-7120

Email: marilyn@willitscity.com

Project Description

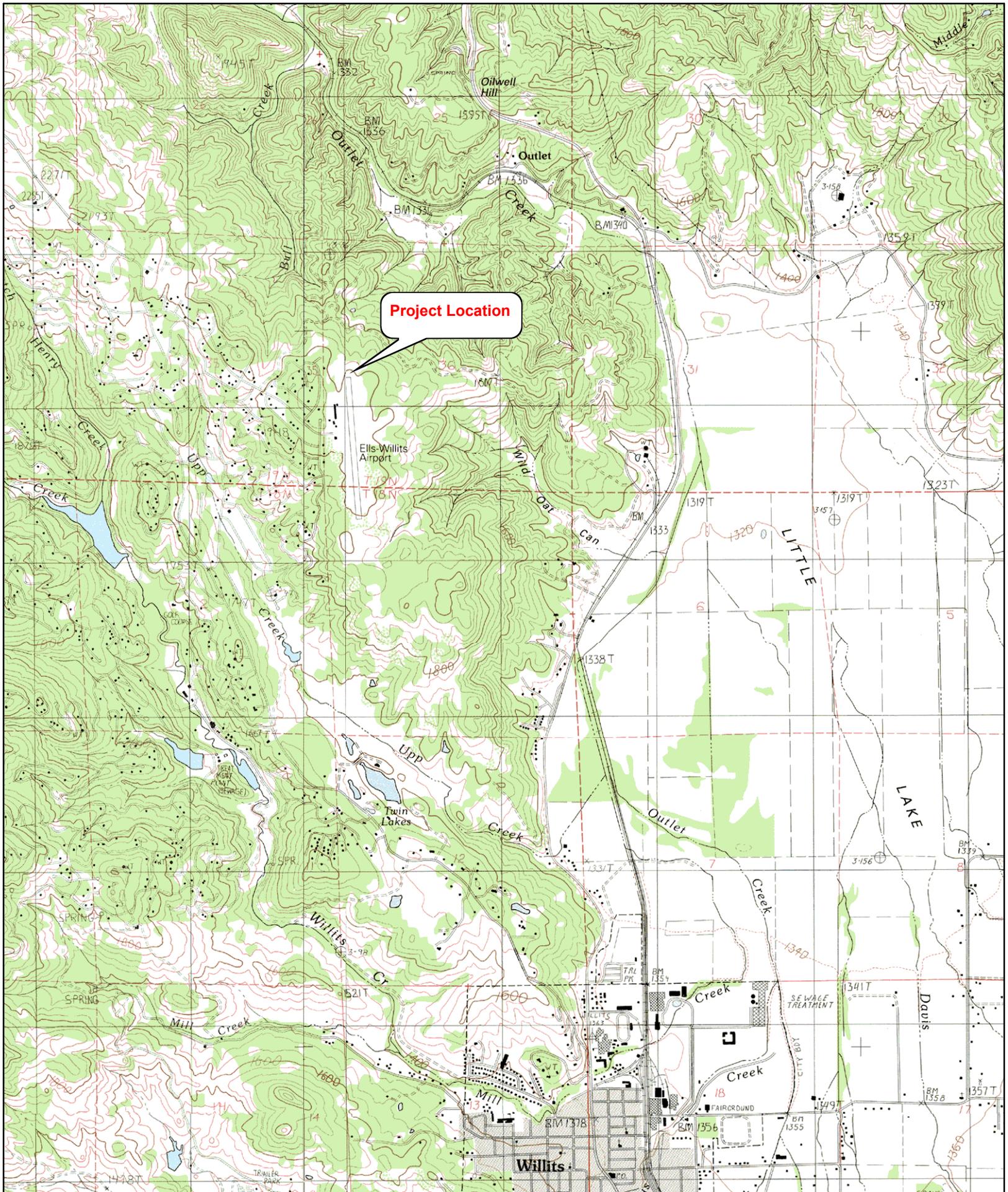
1. *Location:* The polygon-shaped property is located north of the Town of Willits, on the west side of Highway 101, in Mendocino County (Figure 1). The 75-acre parcel (APN 037-160-51-05, 037-160-62-00 and 038-020-32-05) is atop a hill that was leveled to an elevation of 2,063 feet in the northern portion and 2,023 feet in the southern portion of the site. Vegetation communities within the project area were mapped (Figure 2). The excess spoils piles were placed on the eastern side of the site (Figure 3- proposed plan). Surrounding land uses in the area consist of mainly of rural residences and forested, undeveloped land.

2. *Action Area:* The action area includes the northern portion of the site, and two borrow areas, Borrow Site # 1, located on the southeast side of the airport, and Borrow Site #2, located on the northeast side of the airport (Figure 2). The northern portion of the site encompasses about 1.5 acres of slope repair. Borrow Area #1 encompasses 2.5 acres and Borrow Area #2 encompasses 2 acres. An access route between the slope failure site and the two borrow areas will be created along the eastern edge of the runway, along the cleared shoulder. No grading or other preparation will be made as this area is level enough for construction equipment. The existing roadway in the northeastern corner of the project that leads to the bottom of the slope failure area will be cleared of vegetation that is now growing in the road. Only minor grading and clearing will be needed.

3. *Proposed Action:* The proposed action is to repair a slide on the northern end of the Willits Airport Runway. At the existing slide face vegetation and loose soil will be removed. No additional excavation will occur other than to stabilize the soils. A series of compacted earth benches will be created to stabilize the slope. Approximately 7,500 cubic yards will be removed from the southeastern borrow area (#1) and approximately 25,500 cubic yards will be removed from the northeastern borrow area (#2). Stormwater best management practices to prevent sedimentation into Bull Creek are part of the project and will be designed as part of the Storm Water Prevention Plan to control erosion both during and after construction. Please refer to Impacts and Mitigation Measures for more details on these practices.

Project Alternatives

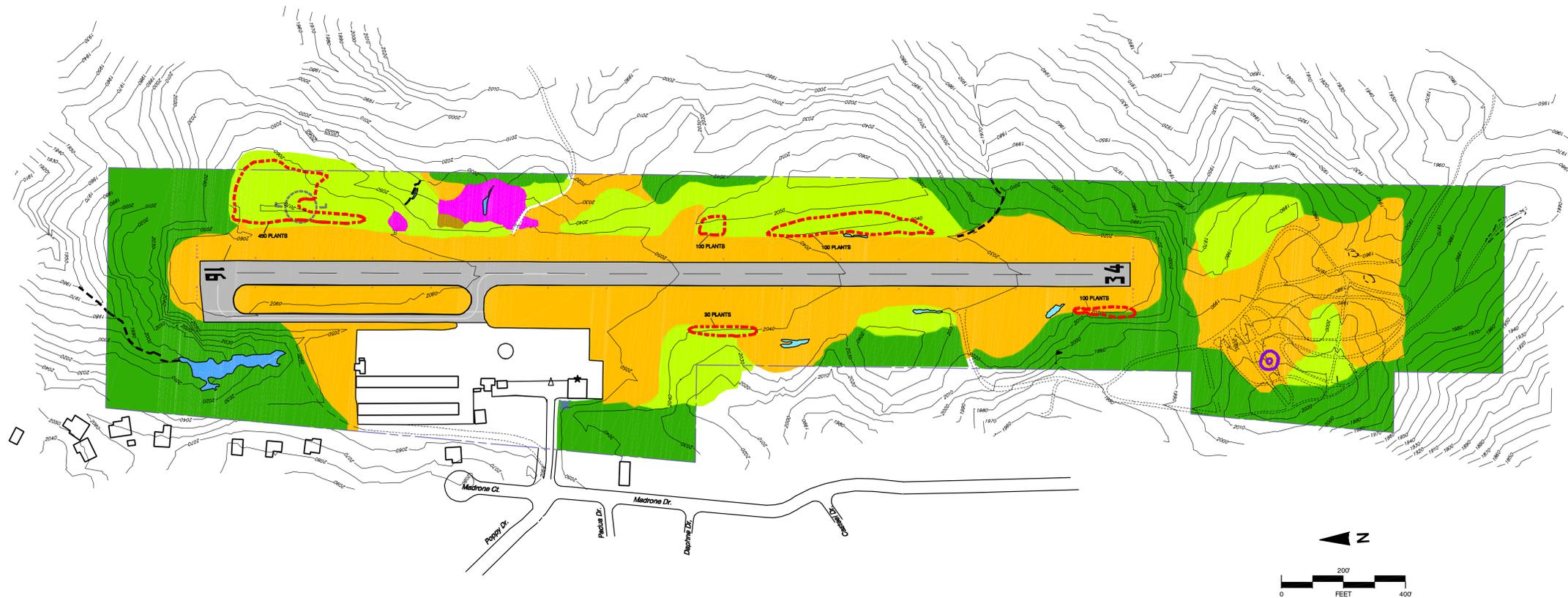
Three alternatives were reviewed. A geotechnical investigation was conducted by SHN Consulting Engineers & Geologists in 2002. SHN's report, *Alternatives for Slope Failure Mitigation, North Runway, Willits Airport*, issued in June 2003 identified three possible alternatives: 1) Compacted earth fill; 2) reinforced earth fill; and 3) Hilfiker retaining wall system. All three alternatives were similar in their ability to provide a stable, long-term means of stabilizing the slope from erosion or slides. The compacted earth fill alternative was selected because it was the least expensive.



Project Location

Name: WILLITS
Date: 7/27/2009
Scale: 1 inch equals 2500 feet

Location: 10 0468923 E 4365955 N NAD83
Caption: Figure 1 - Project Location



LEGEND

- | | | | |
|---|--|---|--------------------------|
|  | DOUGLAS FIR/TAN OAK SERIES (25 ACRES) |  | SEASONAL WETLANDS |
|  | CHAPARRAL (10 ACRES) |  | SEEP |
|  | CALIFORNIA ANNUAL GRASSLAND SERIES (26 ACRES) |  | STREAMS |
|  | CALIFORNIA OAT-GRASS SERIES (.75 ACRE) | | |
|  | SEDGE SERIES (.06 ACRE) | | |
|  | SONOMA CANESCENT MANZANITA - CNPS LIST 1.B.2 | | |
|  | GLANDULAR WESTERN FLAX - CNPS LIST 1.B.2 | | |

Source: Jane Valerius Environmental Consulting (July 2009)

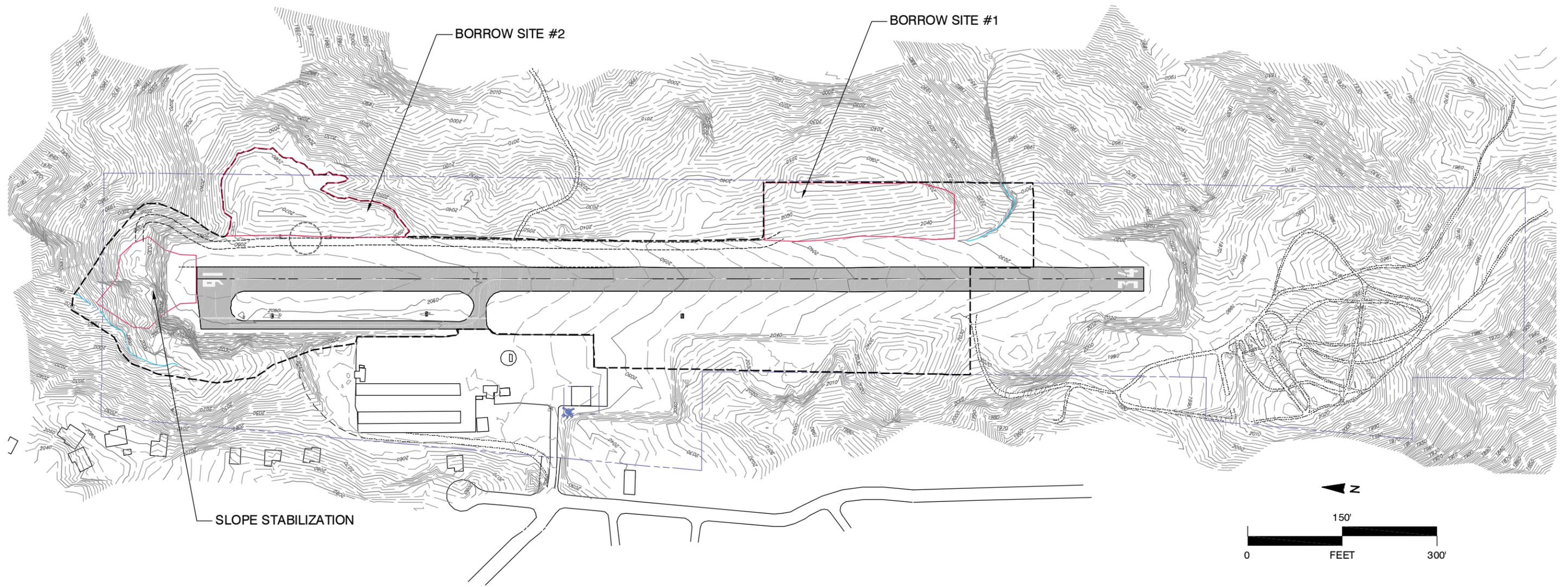
**WILLITS-ELLS FIELD
WILLITS, CALIFORNIA**

FIGURE 2 - VEGETATION MAP



133 Aviation Boulevard, Suite 100
Santa Rosa, California 95403
(707) 526-5010
Fax: (707) 526-8721
www.meadhunt.com

DESIGN: DD	DRAWN: HH	DATE: July 2009	SHEET 1 OF 1
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LEGEND

- CONSTRUCTION AREA
- PROJECT AREA
- HAUL ROAD

**Figure 3
Proposed Plan**

X:\22886-00\08001\TECH\Cadd\WILD\WG\WIL_ACIP\08\Bldg\dwg

C. STUDY METHODOLOGY

Literature Search, Survey Dates, Surveying Personnel, and Consultation to Date

Literature Review: Jane Valerius reviewed the USFWS list of federal endangered and threatened species that occur or may be affected by projects in Mendocino County, the CNDDDB and the CNPS on-line rare plant inventory for special status plants for the Willits and surrounding eight USGS quadrangles. No previous reports have been prepared for this project.

Wildlife Research Associates reviewed the U.S. Fish and Wildlife Service (USFWS) electronic list of Endangered and Threatened Species (<http://www.fws.gov/arcata/specieslist/search.asp>) from the Arcata office for the Willits and Burbeck topographic quadrangles and for Mendocino County. We also reviewed critical habitats for Mendocino County through the USFWS (<http://ecos.fws.gov/docs/imf/pdf/>). We used *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988) for characterizing wildlife habitats. Wildlife Research Associates also analyzed records from the biological literature (e.g. Federal Register, etc.), and the California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDDB 2009) for the Longvale, Burbeck, Greenough Ridge, Willits Ridge, Willits, Laughlin Range, Brushy Mountain, Foster Mountain and Redwood Valley 7.5-minute topographic quadrangles that encompass the area around the proposed project site.

Site Surveys: Jane Valerius Environmental Consulting conducted botanical surveys on April 21, and May 22, June 23, 2009. Meandering transects were walked so that the entire parcel was surveyed. The botanical surveys focused on determining the presence or absence of the special status plants identified in Section E, Special-Status Species and their Habitats. As required by the USFWS and CDFG guidelines, the surveys were floristic in nature, and all plants observed were recorded and identified to determine its rarity status. In some cases a plant sample was taken to be analyzed in the office for identification to species or subspecies. Plant identification and nomenclature was based on *The Jepson Manual* (Hickman 1993). A list of plant species observed on the site is provided as Appendix B.

Wildlife Research Associates biologist Trish Tatarian conducted a site visit on April 21, 2009. The entire parcel, including the proposed borrow-areas and the adjacent wooded areas, was assessed for the potential for special- status animals to occur on the site or use the site for migratory purposes. All trees and shrubs were evaluated for suitable bird nesting and bat roosting habitat using 8 x 42 roof-prism binoculars, noting presence of cavities, old bird nests and squirrel nests. The reconnaissance-level site visit was intended only as an evaluation of on-site and adjacent habitat types, and no special-status species surveys were conducted as part of this survey.

Wetland Delineation: The delineation of potential Section 404 waters of the United States and potential wetlands (as a subcategory of waters) was based on the 1987 *Wetlands Delineation Manual* (Environmental Laboratory 1987). Fieldwork to delineate wetlands and waters was conducted on April 21, 2009 by Jane Valerius, botanist (Jane Valerius Environmental Consulting) and Joel Butterworth, soil and wetland scientist (Valley Environmental Consulting, LLC) under contract to Mead & Hunt, Inc. Please refer to the *Preliminary Delineation of Waters of the United States, Including Wetlands, Willits Airport Project, Willits, Mendocino County, CA* (Jane Valerius Environmental Consulting 2009A) for more details on methodology. A verification site visit by Mr. David Wickens with the USACE was conducted on October 1, 2009. A revised delineation map was submitted to the USACE on October 21, 2009.

Impact Assessment Methodology

We examined the on-site vegetation communities, present and past occurrence locations of special-status species within close proximity of the proposed project areas, and habitats for special-status plant and animal species. Based on the current site conditions, we evaluated the potential for occurrence on the site for special-status biological resources and used the project description to determine any potential direct or indirect effects.

We based our determination of whether the proposed project may result in adverse impacts to special-status species, based on guidelines established by the USFW under Section 7(a) of the Federal Endangered Species Act (FESA), in which a project that may have an adverse effect impact on listed biological resources must be assessed. FESA states that, “each federal agency shall...insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an “agency action”) is not likely to jeopardize the continued existence of any endangered or threatened or result in the destruction or adverse modification of habitat of such species.” Thus, components of the proposed project were deemed to have an adverse impact on special-status biological resources if they could result in effects as described in the above statement to any listed species or its habitat.

D. ENVIRONMENTAL BASELINE

The project area is located within the North Coast Bioregion (Welsh 1994). This bioregion is located the area from southwestern Oregon to the southern extent of the mixed hardwood forest with redwood in southern Monterey County and is defined by the transition from Coast Range montane forest to the dry interior of the Sacramento Valley Bioregion as represented by chaparral and oak-digger pine plant communities (Welsh 1994). Habitats within this bioregion are primarily mesic (moist) habitats, such as freshwater marsh and redwood forests, and xeric (dry) habitats, such as chaparral and blue oak woodland, and are typical of a Mediterranean type climate.

Located at the northwestern portion of Little Lake Valley, the study area is located within the northwestern portion of the Willits 7.5-minute topographic quadrangle, within section 36 (Township 19N and Range 14W). The Willits airport project site is located on a saddle at the northern end of Little Lake Valley. Four creeks have their headwaters originating downstream from the project site. Drainages on the southeast side of the airport flow into Wild Oat Canyon, while those on the northeast side flow into Outlet Creek, those on the northwest side flow into Bull Creek and those drainages on the southwest side of the project area flow into Upp Creek.

The 50.1-acre rectangular-shaped project site is located west of Highway 101 and east of Poppy Drive on a ridge at elevations between 1,935 feet in the southwest to 2,070 feet in the northeast. Slopes are nearly level in the central portion of the site, and are cut to almost 50% on the perimeter. Rural residences are located west and north of the site south with open lands to the east.

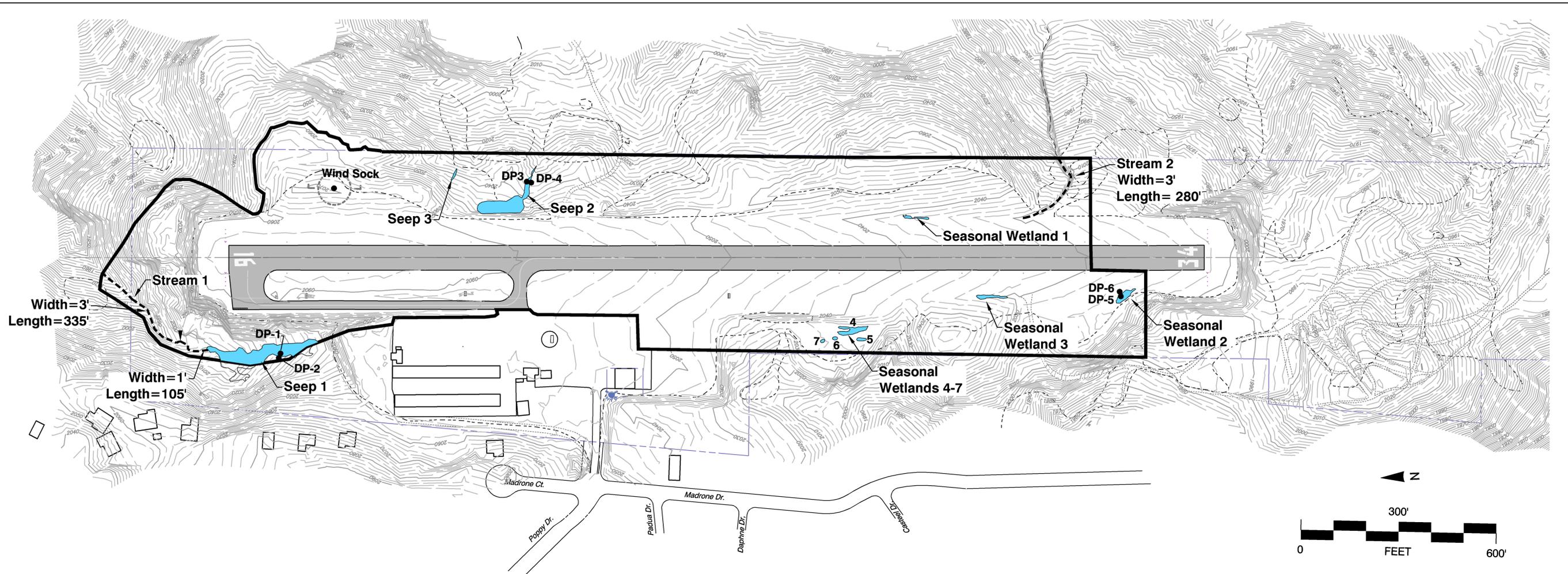
Wetlands and Waters of the U.S.: Natural hydrology on the site is primarily influenced by direct precipitation, surface runoff and subsurface seepage that surfaces on the eastern portion of the site. Two (2) seasonal drainages occur within the project area and flow downhill from the mesa. Runoff flows via several unnamed intermittent drainageways directly to Outlet Creek, located in the northeastern portion of the site. Outlet Creek flows northerly roughly 22 miles to the middle fork Eel River, a perennial stream. From that point, the Eel River flows northwesterly roughly 118 river miles to the Pacific Ocean, just south of Eureka.

Drainages on the northwest portion of the project site drain into Bull Creek, a perennial creek that then flows into Outlet Creek.

On the southeast side of the project site, surface runoff flows via several unnamed intermittent drainages to Wild Oat Canyon Creek, an intermittent stream, which then flows into Outlet Creek.

On the southwest portion of the site, surface runoff flows via several unnamed intermittent drainages to Upp Creek, an intermittent stream, which then flows into Mill Creek, also an intermittent stream. Mill Creek is a tributary to Outlet Creek, a perennial stream which flows through Little Lake Valley, within which Willits exists.

Seven seasonal wetlands and three seep wetlands were mapped for the project site along with two streams (Figure 4). The seasonal wetlands appear to be artificially created as a result of the cutting and filling work that was done to construct the airport. All occur in shallow depressions or swale-like ditches. A total of 0.537 acre of waters of the United States (consisting of 0.493 acre of seasonal wetlands and seeps and 0.044 acre of [non-wetland] other waters) were identified on the project site (Table 1).



LEGEND

	Seasonal Wetlands (wetland)
	Seeps (wetland)
	Streams (other waters)
	Delineation data point
	Project Area Boundary
	Stream width dividing point

Notes:

- 1) Delineation field work conducted by Jane Valerius (Jane Valerius Environmental Consulting) and Joel Butterworth (Valley Environmental Consulting, LLC) on April 21, 2009 using GPS and aerial photograph interpretation methods. Seep 1 mapped by professional land surveyor.
- 2) Delineation map prepared by Mead & Hunt, Inc., 133 Aviation Boulevard Suite 100, Santa Rosa, CA 95403-8279.
- 3) Delineation prepared for City of Willits, California.

Feature	Acreage
Seasonal Wetland 1	0.009
Seasonal Wetland 2	0.024
Seasonal Wetland 3	0.017
Seasonal Wetland 4	0.033
Seasonal Wetland 5	0.005
Seasonal Wetland 6	0.003
Seasonal Wetland 7	0.002
Seep 1	0.247
Seep 2	0.149
Seep 3	0.004
Stream 1	0.025
Stream 2	0.019
Total	0.537

**Figure 4 - Preliminary Delineation of Waters of the United States, Including Wetlands, of the Willits Airport Project Area, Willits
Revised October 2009**

Table 1. Acreages of Preliminary Jurisdictional Waters of the United States, Including Wetlands, in the Willits Airport Project Area

Wetlands	
Jurisdictional Feature	Acres
Seasonal wetland 1	0.009
Seasonal wetland 2	0.024
Seasonal wetland 3	0.017
Seasonal wetland 4	0.033
Seasonal wetland 5	0.005
Seasonal wetland 6	0.003
Seasonal wetland 7	0.002
Seep 1	0.247
Seep 2	0.149
Seep 3	0.004
Subtotal	0.493
Other Waters of the United States	
Jurisdictional Feature	Acres
Stream 1	0.025
Stream 2	0.019
Subtotal	0.044
Total Waters of the United States	0.537

Vegetation Communities: The Willits Airport project site supports seven (7) vegetation communities and includes (1) California annual grassland; (2) California oatgrass; (3) sedge series; (4) chaparral; (5) vernal pool; (6) wetland seep and (7) Douglas fir-tanoak. Figure 2 provides a map of the vegetation communities and locations of the special status plants found on the site during the 2009 surveys.

California Annual Grassland: This community is the dominant vegetation on the site and surrounds the airfield on all sides. A rich diversity of native and exotic grasses and forbs make up the plant community. Native forbs include several clovers: bull clover, (*Trifolium furcatum*), Pinole clover (*Trifolium bifidum*), Gray’s clover (*Trifolium barbigerum*) and dwarf sac clover (*Trifolium depauperatum*), as well as goldfields (*Lasthenia californica*), valley tassels (*Castilleja attenuata*), and pygmy weed (*Crassula connata*). Exotic forbs include mouse-eared chickweed (*Cerastium glomeratum*), hairy cat’s ears (*Hypochaeris radicata*) and smooth cat’s ears (*Hypochaeris glabra*). California oat grass (*Danthonia californica*) grows with exotic grasses,

soft chess (*Bromus hordeaceus*), hedgehog dogtail grass (*Cynosurus echinatus*), six-weeks fescue (*Vulpia bromoides*) and rattail fescue (*Vulpia myuros* var. *myuros*).

On the edges of the airfield both on the east and west side are wet ditches where runoff water accumulates on hard-packed soil below raised soil mounds. In these areas hydrophytic vegetation is dominant and is most evident by the occurrence of slender rush (*Juncus tenuis*), toadrush (*Juncus bufonius*) and pennyroyal (*Mentha pulegium*). Surrounding these ditches are depressions where popcornflower (*Plagiobothrys stipitatus* var. *micranthus*) and white-tip clover (*Trifolium varigatum*) occur.

To the east of the airfield on a gradual eastern facing slope California Annual Grassland occupies the lower slopes bordered by Douglas-fir (*Pseudotsuga menziesii*) and madrone (*Arbutus menziesii*) below. Within that area is a seep dominated by a dense stand of spreading rush (*Juncus patens*). In the north part of this grassland is a seep adjacent to the stream dominated by seep-spring monkey-flower (*Mimulus guttatus*). Other native species observed in this area are slender annual fireweed (*Epilobium minutum*), cream cups (*Platystemon californicus*), white-tip clover (*Trifolium varigatum*), and red maids (*Calandrinia ciliata*).

California Oatgrass series: On the upper slopes of the east facing grassland mentioned above is a large area of native grassland dominated by California oatgrass with purple needlegrass (*Nasella pulcra*) and blue wildrye (*Elymus glaucus*). Directly above the spreading rush seep is a dense stand of California oatgrass. Native forbs in this grassland include blue-eyed grass (*Sisyrinchium bellum*) and hairy woodrush (*Luzula comosa*). Exotic grasses within the native grassland include soft chess and hedge-hog dogtail grass. Slight depressions in this grassland support goldfields, short-spurred plectritus (*Plectritus brachystemon*) and butter-and-eggs (*Triphysaria erianthus*).

Sedge series: On the northwestern edge of the California oatgrass grassland described above is an almost pure stand of two-toothed sedge (*Carex serratodens*) with some velvet grass (*Holcus lanatus*). This area qualifies as a wetland as defined by the U. S. Army Corps of Engineers and has been mapped as wetland seep 2.

Chaparral: Although this community does not fit into any description in the Manual of California Vegetation (Sawyer and Keeler-Wolf 1995) as a specific series, it deserves mention because it is a distinct community and has a listed species as a component of the community. The upslope area to the east of the airfield is a managed and converted landscape evidenced by piles of downed large woody debris and vegetation that is smaller than normal for the species. The plant community that occupies the large berm area known as Borrow Site #2 is made up primarily of bracken fern (*Pteridium aquilinum* var. *pubescens*) and three species of manzanita: Stanford's manzanita (*Arctostaphylos stanfordiana*), common manzanita (*A. manzanita*) and Sonoma canescent manzanita (*A. canescens* ssp. *sonomensis*). See below, under Special-Status Species, for more details.

Borrow Site #1 has received similar management and supports common manzanita, Stanford manzanita, and Sonoma canescent Manzanita, as well as Douglas fir and French broom (*Genista monspessulana*) that are all less than one meter tall. Much of the ground is bare; however, where there is ground cover vegetation native plant species such as miniature lupine (*Lupinus bicolor*), *Lotus micranthus*, *Lotus humistratus*, and rancheria clover (*Trifolium albopurpureum*) were observed.

Vernal Pool: This community, a wetland type, occurs within the California Annual Grassland. To the west of the airfield in the southern portion of the project site is a low-lying area below the level of the airfield. This area is flat and accumulates water seasonally and supports hydrophytic vegetation. It is dominated alternately by native pale spikerush (*Eleocharis macrostachya*) and exotic pennyroyal and loosestrife (*Lythrum hyssopifolium*). Included in this community are exotic toadrush (*Juncus bufonius*) and native hedge-hyssop (*Gratiola ebracteata*), purslane speedwell (*Veronica peregrina* ssp. *xalapensis*), popcornflower (*Plagiobothrys stipitatus* var. *micranthus*) and white-tip clover. Much of the soil in this area is bare and cracked. The vernal pool area is surrounded by California Annual Grassland dominated by Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*).

Wetland Seep 1/Rush and Sedge Dominated: This community is a wetland type occurring within the Douglas-fir/tanoak woodland. Within the woodland is a narrow wet seep and riparian channel. Native sedges and rushes dominate this site and include soft rush (*Juncus effusus* var. *pacificus*), Coville's rush (*Juncus covillei*) rush and spreading rush (*Juncus patens*), as well as a rich and diverse community of sedges that include *Carex praegracilis*, *C. tumulicola*, *C. bolanderi*, *C. feta* and *C. hassii*. Giant horsetail (*Equisetum telmateia* ssp. *braunii*) dominates the more shaded areas along with bracken (*Pteridium aquilinum*) and giant chain fern (*Woodwardia fimbriata*). Other herbaceous natives include mush monkey-flower (*Mimulus moschatus*) and bittercress (*Cardamine oligosperma*). Exotics in the seep area include pennyroyal, bull thistle (*Cirsium vulgare*), and prickly sow thistle (*Sonchus asper*).

Douglas-fir /Tanoak series: On the north and northwest sides of the airfield is a Douglas fir and tanoak woodland with some madrone in the overstory. The woodland is comprised of a dominance of native species. Native understory shrubs include wood rose (*Rosa gymnocarpa*), creeping snowberry (*Symphoricarpos mollis*) and black-cap raspberry (*Rubus leucodermis*), poison oak (*Toxicodendron diversilobum*) and Stanford manzanita (*Arctostaphylos stanfordiana*). Understory herbaceous plants outside of the seep are made up of native grasses and forbs and include California fescue (*Festuca californica*), sword fern (*Polystichum minutum*), Western heart's ease (*Viola ocellata*), star flower (*Trientalis latifolia*) and wood strawberry (*Fragaria vesca*). This woodland has been managed to reduce large woody debris that may exceed the height of the airfield and consequently there is downed woody debris in the area. The areas to the east of the airfield are likely historically comprised of this vegetation type but have been altered to support mostly the three manzanitas mentioned above and bracken fern. Sonoma canescent manzanita was located here as well.

Wildlife Habitats: Wildlife attracted to grassland habitat, including annual and perennial grasslands, use the habitat for a variety of functions, from nesting to foraging. Reptiles and amphibians, such as western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*) and Pacific slender salamander (*Batrachoseps attenuatus*), feed on invertebrates found within and beneath fallen logs within the habitat. Seed-eating and insect-eating species of birds and mammals, such as California quail (*Callipepla californica*), and mourning dove (*Zenaidura macroura*) will also occupy this habitat. Insect-eaters such as scrub jay (*Aphelocoma coerulescens*) use the habitat for foraging only. Western bluebirds (*Sialia mexicana*) observed on the site, will forage in the grasslands and nest in the adjacent trees. Grasslands are important foraging grounds for many aerial and ground foraging insect-eating bat species, including myotis (*Myotis* spp.) and pallid bat (*Antrozous pallidus*). Other mammal species such as California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), and brush rabbit (*Sylvilagus bachmani*), evidence of which were observed on the site, also forage and nest within grasslands. Small rodents attract raptors (birds of prey) such as owls that hunt at night, as well as diurnal raptors such as red-tailed hawk (*Buteo jamaicensis*) and red-shouldered hawk (*Buteo lineatus*),

among others. Larger mammals, such as black-tailed deer (*Odocoileus hemionus californicus*) use grasslands for grazing, while gray fox (*Urocyon cinereoargenteus*) will hunt small mammals in the grasslands.

The trees present within the Douglas fir-tan oak vary in size between 12 inches and 36 inches diameter at breast height (dbh) and provide habitat for a variety of species, including foraging and nesting habitat for passerines, roosting habitat for bats, and refugia for reptiles such as lizards and snakes. Smaller passerines, such as black-capped chickadee (*Poecile atricapillus*), bushtit (*Psaltriparus minimus*) and acorn woodpecker (*Melanerpes formicivorus*) observed on the site may nest and forage in the woodlands. No large cavities that may support the larger raptors, such as great horned owl (*Bubo virginianus*), were observed in any of the trees in the mixed oak woodland. Several cavities large enough to support the small western screech-owl (*Megascops kennicottii*) were observed. Other species observed nesting on the site include spotted white-tailed kite (*Elanus leucurus*), spotted towhee (*Pipilo maculatus*), dark eyed junco (*Junco hyemalis*) and California towhee (*Pipilo crissalis*). Oak trees on the lower east-facing slopes provide potential nesting habitat for purple martin (*Progne subis*) and other swallows, such tree swallows (*Tachycineta bicolor*). Several of the trees were of a diameter large enough to support roosting bats species, and 7 trees were found to contain suitable cavities or crevices for colonial species, such as long-eared myotis (*Myotis evotis*), long-legged myotis (*Myotis volans*), Yuma myotis (*Myotis yumanensis*), California myotis (*Myotis californicus*), big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*) and pallid bat (*Antrozous pallidus*), a California Special Concern (CSC) species.

The chaparral habitat is a mature stand and ranges in height between 3 feet and 5 feet with a sparse canopy and small leaves that offers no protection from predation. Excellent habitat for reptiles, such as western fence lizards (*Sceloporus occidentalis*), rattlesnakes (*Crotalus viridis*) and northern alligator lizards (*Gerrhonotus coeruleus*), occurs in this habitat, as well as suitable nesting habitat for birds. Chipmunks (*Tamias* sp.) will also forage and nest in this habitat. Ground nesting birds, such as California quail, and wild turkey (*Meleagris gallopavo*) may nest at the base of the shrubs if predator levels are not high. Passerines, such as California towhee, dark-eyed junco, and spotted towhee, will forage in the habitat on insects and grass seeds.

The wetland seep/rush and sedge dominated area on the northwest and north side of the project area, including sedge, vernal pool located on the southern and eastern portion of the site are relatively small. The wetland seep forms the headwaters to the tributary to Upp Creek and supports rough-skinned newt (*Taricha granulosa*), slender salamander (*Batrachoseps attenuatus*) and may support other amphibians such as Pacific chorus frog (*Pseudacris regilla*) and western toad (*Bufo boreas*). Mammals common in this habitat are meadow voles (*Microtus californicus*) along the edges of the marsh area, raccoons foraging on eggs and invertebrates, striped skunk, and gray fox (*Urocyon cinereoargenteus*). This habitat provides important foraging and drinking areas for aerial and ground feeding insectivorous bats, such as *Myotis* species and pallid bats (*Antrozous pallidus*).

Wildlife Movement Corridors: Wildlife movement includes migration (*i.e.*, usually one way per season), inter-population movement (*i.e.*, long-term genetic flow) and small travel pathways (*i.e.*, daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow between populations.

These linkages between habitat types can extend for miles between primary habitat areas and occur on a large scale throughout California. Habitat linkages facilitate movement between populations located in discrete areas and populations located within larger habitat areas. The mosaic of habitats found within a large-scale landscape results in wildlife populations that consist of discrete sub-populations comprising a large single population, often referred to as a meta-population. Even where patches of pristine habitat are fragmented, such as occurs with coastal scrub, the movement between wildlife populations is facilitated through habitat linkages, migration corridors and movement corridors. Depending on the condition of the corridor, genetic flow between populations may be high in frequency, thus allowing high genetic diversity within the population, or may be low in frequency. Low frequency genetic flow can potentially lead to complete isolation, and if pressures are strong, potential extinction (McCullough 1996; Whittaker 1998).

There are no barriers to movement for any terrestrial animal species on this site. The open space of the site may allow deer, fox and raccoon to move through the area. The activities of the runway are not considered a barrier to movement. The construction of the project will not create a barrier and may provide additional habitat not present in the current erodible state.

E. SPECIAL-STATUS SPECIES AND THEIR HABITAT

Special-Status Species Reviewed for the Ells - Willits Airport Project

For the purposes of this Biological Assessment for the Ells - Willits Airport proposed project, special-status species include those that are federally listed as Endangered, Threatened or Proposed for federal listing (candidate) under the USFWS. Other species also evaluated in this Biological Assessment include non-listed federal and California Special Concern species (CSC) and those species that fall under the jurisdiction of the USFWS such as the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-711), and the CDFG, such as CEQA Section 15380(d).

Impacts to special-status species were assessed if: (1) those species occurred in habitats similar to those of the Ells - Willits Airport project area, and (2) were known to occur within the project area represented on the Willits and Burbeck 7.5-minute topographic quadrangles and within 3 miles, as depicted on the same quadrangles.

Wetlands. A total of 0.493 acre of wetlands (i.e., seasonal wetlands and seeps) and 0.044 acre of other waters of the United States (i.e., streams) were delineated (Table 1).

Federally Listed Plant Species: A review of the USFWS (USFWS 2009), and the CNDDDB (CNDDDB 2009) of reported occurrences of species in the region revealed that 2 federally listed plants have potential to occur in the area southern Mendocino County. Communities on the site that may support special status plants include chaparral, coniferous forest, cismontane woodland, meadows and seeps, and valley and foothill grassland which include both native and non-native grassland on the site. All areas that had the potential to be impacted by the project were surveyed

State Listed and CNPS listed Plant Species: A review of the CDFG lists, the CNDDDB (CNDDDB 2009) and 18 special-status plant species have potential to occur in the area. Please refer to Table 2 for a list of these species. A total of 17 species had some potential to occur in the vicinity of the project site, based on the presence of potential habitat.

Table 2: Special-Status Plant Species Potentially Occurring within the Proposed Project Site

Scientific Name Common Name	Status Federal/State/ CNPS List	Habitat and Notes	Potential for Occurrence
<i>Federally-Listed Species</i>			
<i>Lasthenia burkei</i> Burke's goldfields	FE/CE/1B	Meadows and seeps (mesic), vernal pools. Flowers April-June	None. Not observed during surveys.
<i>Navarretia leucocephala</i> ssp. <i>pauciflora</i> Baker's navarretia	FE/CT/1B	Vernal pools (volcanic ash flow). Flowers May-June.	None: Not observed during surveys.
<i>State Listed and CNPS listed Species</i>			
<i>Alisma gramineum</i> Grass alisma	-/-/L2	Marshes and swamps (assorted shallow freshwater). Flowers	None: No habitat on site.

Scientific Name Common Name	Status Federal/State/ CNPS List	Habitat and Notes	Potential for Occurrence
		June-August.	
<i>Anisocarpus scabridus</i> Scabrid alpine tarplant	-/-/L1B	Upper montane coniferous forest on open stony ridges, metamorphic scree slopes of mountain peaks and cliffs in or near red fir forests. Flowers July-August.	None: No habitat on site.
<i>Arctostaphylos canescens</i> ssp. <i>sonomensis</i> Sonoma canescent manzanita	-/-/L1B	Chaparral, lower montane coniferous forest-sometimes serpentinite. Flowers January-June.	High: Present in borrow areas.
<i>Astragalus agnicidus</i> Humboldt County milkvetch	-/CE/L1B	Broadleaved upland forest, North Coast coniferous forest/ openings, disturbed areas, sometimes roadsides. Flowers April-September.	None: Not observed during surveys.
<i>Calystegia collina</i> ssp. <i>tridactylosa</i> Coast range bindweed	-/-/L1B	Chaparral, cismontane woodland-rocky, gravelly, openings in serpentinite. Flowers April-June.	None: Not observed during surveys.
<i>Cryptantha excavata</i> Deep scarred cryptantha	-/-/L1B	Cismontane woodland-sandy, gravelly dry streambanks. Flowers April-May.	None: Not observed during surveys.
<i>Fritillaria roderickii</i> Roderick's fritillary	-/CE/L1B	Coastal bluff scrub, coastal prairie, grassland. Flowers March-May.	None: Not observed during surveys.
<i>Gilia capitata</i> ssp. <i>pacifica</i> Pacific gilia	-/-/L1B	Coastal bluff scrub, chaparral (openings), coastal prairie, grassland. Flowers April-August.	None: Not observed during surveys.
<i>Hesperolinon adenophyllum</i> Glandular western flax	-/-/L1B	Chaparral, cismontane woodland, grassland – usually serpentinite. Flowers May-August.	High. This species is present in the southern portion of the airport but does not occur in the construction area.
<i>Horkelia tenuiloba</i> Thin-lobed horkelia	-/-/L1B	Broadleaved upland forest, chaparral, grassland-mesic openings, sandy. Flowers May-July.	None: Not observed during surveys.
<i>Limnanthes bakeri</i> Baker's meadowfoam	-/CR/1B	Meadows and seeps, marshes and swamps (freshwater), grasslands (vernally mesic), vernal pools. Flowers April-May.	None: Not observed during surveys.
<i>Lupinus milo-bakeri</i> Milo Baker lupine	-/CT/1B	Cismontane woodland (often along roadsides), grassland. Flowers June-September.	None: Not observed during surveys.
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	-/-/1B	Cismontane woodland, lower montane coniferous forest, meadows and seeps, grasslands, vernal pools/mesic. Flowers April-	None: Not observed during surveys.

Scientific Name Common Name	Status Federal/State/ CNPS List	Habitat and Notes	Potential for Occurrence
		July.	
<i>Plagiobothrys lithocaryus</i> Mayacamas popcorn-flower	-/-/L1B	Chaparral, cismontane woodland, grassland (mesic). Flowers April-May.	None. Not observed during surveys.
<i>Pleuropogon hooverianus</i> North Coast semaphore grass	-/CT/L1B	Broadleaved upland forest, meadows and seeps, North Coast coniferous forest/open areas, mesic. Flowers April-August.	None: Not observed during surveys.
<i>Potamogeton epihydrus</i> ssp. <i>nuttallii</i> Nuttalls' ribbon-leaved pondweed	-/-/L2	Marshes and swamps (assorted shallow freshwater). Flowers July-September.	None: No habitat on site. Not observed during surveys.
<i>Sanguisorba officinalis</i> Great burnet	-/-/L2	Bogs and fens, broadleaved upland forest, meadows and seeps, marshes and swamps, North coast coniferous forest, riparian forest on rocky serpentine seepage areas and along stream borders. Flowers July-October.	None: No habitat on site. Not observed during surveys.
<i>Viburnum ellipticum</i> Oval-leaved viburnum	-/-/L2	Chaparral, cismontane woodland, lower montane coniferous forest. Flowers May-June.	None: Not observed during surveys.

NOTES:

U.S. FISH AND WILDLIFE SERVICE

- FE = federally listed Endangered
- FT = federally listed Threatened

CALIFORNIA DEPT. OF FISH AND GAME

- CE = California listed Endangered
- CR = California listed as Rare
- CT = California listed as Threatened

CALIFORNIA NATIVE PLANT SOCIETY

- List 1: Plants of highest priority
- List 1A: Plants presumed extinct in California
- List 1B: Plants rare and endangered in California and elsewhere
- List 2: Plants rare and endangered in California but more common elsewhere
- List 3: Plants about which additional data are needed

The following plant communities do not occur on the site: closed-cone coniferous forest, coastal prairie, coastal salt marsh, marshes and swamps, upper montane coniferous forest, coastal bluff scrub, coastal prairie, bogs and fens and riparian forest. No specialized substrates, such as sandy or alkaline soils nor thermal springs occur on the site. Based on a lack of presence of these substrates and communities, the following plant species, endemic to these communities, are not expected to occur on the property: grass alisma (*Alisma gramineum*), scabrid alpine tarplant

(*Anisocarpus scabridus*), Nuttalls' ribbon-leaved pondweed (*Potamogeton epihydrus* ssp. *nuttallii*) and great burnet (*Sanguisorba officinalis*).

No federally listed plants were observed on the project site. Therefore, no further action is required.

However, two special status plant species, Sonoma canescent manzanita and glandular western flax, both listed as CNPS List 1.B.2 plants (1B = rare threatened or endangered in California and elsewhere, .2 = fairly endangered in California) were observed on the site. Sonoma canescent manzanita occurs along the east and west sides of the runway (see Figure 2, the Vegetation Communities map) in five different areas. Borrow site #2 supports 450 individuals and Borrow Site #1 supports 100 individuals. The existing borrow sites have been managed for the removal of large woody debris and this has created habitat for Sonoma canescent manzanita. A few mature plants were examined just to the east of Borrow Site 2 that stood approximately 15 feet tall; however, the great majority of plants were less than 18 inches tall. No individuals were observed in the chaparral stand located on the south side of the airport. A few small populations were located on the west side of the airfield and are shown on the vegetation map.

Glandular western flax occurs in the southern portion of the airport, in area that appears to be used for motorcycle recreation. This area will not be impacted by the proposed project.

Federally Listed Animal Species: A review of the USFWS list for federally listed species potentially occurring in the area, as reported on the Willits, Burbeck, Longvale, Greenough Ridge, Willits Ridge, Laughline Range, Brushy Mtn, Foster Mtn and Redwood Valley topographic quadrangles, reveals 10 species; however, of these 10 species, only 2 species have the potential to occur in the vicinity based on the habitats present; another two species, Central California coast steelhead (*Oncorhynchus mykiss*) and California red-legged frog (*Rana draytonii*), although not expected to occur on the site, are also discussed due to their prominence in today's regulatory environment (please refer to Table 3). We have included several additional species that have potential to occur on or near the site based on the habitats present, and include nesting passerines and raptors, protected under the federal Migratory Bird Treaty Act. The occurrence of these groups in the immediate vicinity of the project site is discussed under the *Special-Status Species, Status, General Ecology and Project Area Occurrence*, below, and the potential effects of the construction of the project on these species are discussed in the Effects Determination chapter.

State Listed Animal Species: Of the 50 special-status animal species potentially occurring in Mendocino County, 10 species were identified as reported occurring in the vicinity of the project area (CNDDDB 2009).

Table 3: Potentially Occurring Special-Status Animal Species in the Project Area

Common Name Scientific Name	Status USFWS/ CDFG	Habitat Affinities and Reported Localities in the Project Area	Occurrence Potential
Federally-Listed Species			
Fish			

Common Name Scientific Name	Status USFWS/ CDFG	Habitat Affinities and Reported Localities in the Project Area	Occurrence Potential
steelhead central California ESU <i>Oncorhynchus mykiss irideus</i>	FT/-	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cold water and well oxygenated waters.	None: no suitable habitat present.
Amphibians			
California red-legged frog <i>Rana draytonii</i>	FT/-	Prefers semi-permanent and permanent stream pools, ponds and creeks with emergent and/or riparian vegetation. Occupies upland habitat especially during the wet winter months.	None: no suitable habitat present.
Birds			
Cooper's hawk <i>Accipiter cooperii</i>	MBTA/CSC	Nests in coniferous forests and riparian corridors.	None: no suitable nesting habitat present on the site.
Northern goshawk <i>Accipiter gentilis</i>	MBTA/CSC	Within and in vicinity of coniferous forest. Uses old nests and maintains alternate nest sites. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffery pine and aspens are typical nest trees.	None: no suitable nesting habitat present on the site.
sharp-shinned hawk <i>Accipiter striatus</i>	MBTA	Nests in coniferous forests and riparian corridors.	None: no suitable nesting habitat present on the site.
Yellow warbler <i>Dendroica petechia brewsteri</i>	MBTA/CSC	Nests in riparian corridors	Moderate: suitable nesting habitat present on the site
Yellow-breasted chat <i>Icteria virens</i>	MBTA/CSC	Nests in riparian corridors	Low: suitable nesting habitat present on the site
Northern spotted owl <i>Strix occidentalis</i>	FT	Dense coniferous and hardwood forest, shaded, steep sided canyons.	None: no suitable nesting habitat present on the site
State-Listed Species			
Amphibians			
foothill yellow-legged frog <i>Rana boylei</i>	-/CSC	Prefers permanent stream pools, and creeks with emergent and/or riparian vegetation.	None: no suitable habitat present.
Reptiles			
northwestern pond turtle <i>Actinemys marmorata marmorata</i>	SC/CSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes and irrigation ditches with basking sites and a vegetated shoreline. Requires upland sites for egg-laying.	None: no suitable habitat present.

Common Name Scientific Name	Status USFWS/ CDFG	Habitat Affinities and Reported Localities in the Project Area	Occurrence Potential
Mammals			
Sonoma tree vole <i>Arborimus pomo</i>	-/CSC	North coast fog belt from Oregon to Sonoma County, in Douglas fir, redwood and montane hardwood-conifer forests.	None: no suitable habitat present on the site.
Humboldt marten <i>Martes americana humboldtensis</i>	-/CSC	Occurs only in the coastal redwood zone from Oregon south to Sonoma County.	None: no suitable habitat present on the site.
Pacific fisher <i>Martes pennanti</i>	FC/CSC	Occurs in intermediate to large tree stages of coniferous forest and deciduous riparian areas with high percent canopy closure.	None: no suitable habitat present on the site.
American badger <i>Taxidea taxus</i>	-/CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	None: no suitable habitat present on the site.

U.S. FISH AND WILDLIFE SERVICE

FE = federally listed Endangered
 FT = federally listed Threatened
 SC¹ = federal Species of Concern
 MBTA = Migratory Bird Treaty Act.

CALIFORNIA DEPT. OF FISH AND GAME

CE = California listed Endangered
 CT = California listed as Threatened
 CSC = California Special Concern species

Critical Habitat: Mendocino County supports several square miles of Critical Habitat for a variety of species, including northern spotted owl (*Strix occidentalis*), whose habitat units occur solely on federal lands, marbled murrelet (*Brachyramphus marmoratus*), western snowy plover (*Charadrius alexandrinus nivosus*) and tidewater goby (*Eucyclogobius newberryi*). None of these species or their critical habitat occurs within 4 miles of the proposed project site.

Special-Status Species, Status, General Ecology and Project Area Occurrence

The following is a discussion of the special-status species, their status and habitat requirements, that are known or are considered to have potential to be present in the vicinity of the project area, based on the reported occurrences in the CNDDDB (2007). We have also included those species that are prominent in today's regulatory environment, including freshwater shrimp and California red-legged frog.

Central California coastal steelhead (*Oncorhynchus mykiss*)
Status. federally listed Threatened

General Ecology and Distribution. Steelhead enter streams from the ocean when rains have increased the stream flows (Moyle 2002). Spawning typically occurs in tributaries to mainstream rivers, after which they return to the ocean. A key characteristic of all breeding streams is cool temperatures, typically between 0° Celsius (winter) and 26°-27° C (summer) (Moyle 2002).

Project Area Occurrence. Although perennial freshwater streams occur on the site, no reported occurrences for the species are listed within this portion of Mendocino County (CNDDB 2009). The intermittent drainages on the site flow into several creeks that ultimately flow into the Eel River, 22 miles north of the project site.

California Red-legged Frog (*Rana draytonii*) (CRF)

Status. Federally listed Threatened, California Special Concern species and Fully Protected under CDFG code 5050.

General Ecology and Distribution. California red-legged frogs breed primarily in ponds, but will also breed in slow moving streams, or deep pools in intermittent streams. Inhabited ponds are typically permanent, at least 2 feet (0.6 meters) in depth, and contain emergent and shoreline vegetation. Sufficient pond depth and shoreline cover are both critical, because they provide means of escape from predators of the frogs (Stebbins 1985, Tatarian 2008). Non-breeding CRF have been found in both aquatic and upland habitats. Although the majority of individuals prefer dense, shrubby or emergent vegetation, closely associated with deep (>0.7 meters) still, or slow moving water, some individuals use habitats that are removed from aquatic habitats (Tatarian 2008).

Shaffer et al. (2004) found that *R. aurora* and *R. draytonii* overlap over a several-km region south of Elk Creek in southern Mendocino County (Fig. 1). They found only pure *R. aurora* from Big River north, only pure *R. draytonii* from Mills Creek south (Shaffer et al. 2004).

Project Area Occurrence. No suitable breeding habitat occurs on the site, and no reported occurrences are listed within this portion of Mendocino County. Therefore, no impacts to this species will occur from this project.

Nesting Passerine Birds – including western bluebird, California quail and acorn woodpeckers, among others

Status: Protected under the Federal Migratory Bird Treaty Act and Fish and Game Code 3503.

General Ecology and Distribution: As early as February, passerines begin courtship and once paired, they begin nest building, often around the beginning of March. Nest structures vary in shapes, sizes and composition and can include stick nests, mud nests, matted reeds and cavity nests. For example, black phoebes may build a stick nest under the eaves of a building. Depending on environmental conditions, young birds may fledge from the nest as early as May and, if the prey base is large, the adults may lay a second clutch of eggs. The nesting season occurs from March 1 to the end of August, or when the young have fledged.

Project Area Occurrence: Several passerine (perching birds) species may nest on the site in the various habitats, including acorn woodpeckers in the oak woodlands, and California quail in the chaparral. If work is to occur during the nesting season, a nesting bird survey shall be conducted before removal of any of these habitats to ensure no take of individual will occur.

Other Nesting Raptors – including Coopers hawk, Sharp-shinned hawk, white-tailed kite, American kestrel

Status: Protected under the Federal Migratory Bird Treaty Act and Fish and Game Code 3503.5, and California fully protected species

General Ecology and Distribution: Raptors nest in a variety of substrates including, cavities, ledges and stick nests. For example, Cooper's hawks are small bird hunters, hunting on the edges of forests in broken forest and grassland habitats where passerines forage for seeds and insects. Nests occur in heavily forested areas near a water source. Research sites on nesting Cooper's hawks rarely show the nests more than a quarter of a mile away from water, whether it is a cattle tank, stream or seep (Snyder and Snyder 1975). Trees typically used by Cooper's hawks include cottonwoods, coast live oaks and black oaks (Call 1978), as well as second growth conifer stands or deciduous riparian areas. The breeding season occurs in late March-June, depending on the climate, with young fledging by mid-July. The nesting season occurs from March 1 to the end of August, or when the young have fledged

Project Area Occurrence: No nests large enough to support nesting raptors were observed during the field survey. There is a high likelihood that Cooper's hawk and sharp-shinned hawk may nest in the Douglas fir-tan oak forest habitat surrounding the project site.

Roosting bats – including pallid bat, silver-haired bat, *Myotis* species and others

Status: California Species of Concern and Fish and Game Code 5050

General Ecology and Distribution : Bats that use trees fall into three categories; 1) solitary, obligate tree-roosting bats that roost in the foliage or bark such as Western red-bat (*Lasiurus blossevillii*), a California Special Concern (CSC) species, or hoary bat (*Lasiurus cinereus*), 2) frequent tree-roosting bats that form colonies of varying size in tree cavities, such as silver-haired bats (*Lasionycteris noctivagans*), and 3) more versatile bat species that will use a wide variety of roosts from buildings to bridges to trees, such as various *Myotis* species, pallid bat (*Antrozous pallidus*), another CSC species, and others. Solitary-roosting bats consist either of single males or females either alone or with young. Colonial-roosting bats form maternity colonies in cavities or crevices where young are left behind while females forage, then return to nurse their young.

Project Area Occurrence: No trees suitable for roosting bats were observed within or adjacent to the project area.

F. EFFECTS DETERMINATION

The previous chapter described the known or potential presence and distribution of special-status biological resources potentially occurring on the project site and provided an overall context for assessing impacts to biological resources from each project. This chapter identifies the potential effects to special-status species by project construction, and describes mitigation measures to ensure that project implementation does not adversely affect any listed species or its habitat, or any candidate species that may be listed during the life of the project.

Direct effects and mitigation measures are presented per species. *Indirect, Interrelated, Interdependent and Cumulative Effects* are discussed jointly for the species.

F1. Direct Impacts to Wetlands and Waters of the U.S.

Project Direct Impact 1: A total of 615 linear feet of other waters of the U.S. occur on the site. The project has been designed to avoid impacts to drainages. Implementation of the best management practices for sediment and erosion control (see below) are designed to avoid impacts to any of the on-site and off-site streams

The project will avoid impacts to any wetlands. However, there is the potential for the project to impact approximately 0.009 acres of one small seasonal wetland (SW-1) at the base of the borrow site #1 if this area cannot be avoided during construction. This seasonal wetland area could be re-established after the soil material has been excavated and this would be considered a temporary loss. Placement of fill could be authorized under the USACE's nationwide permit program under Section 404 of the Clean Water Act. A permit from the USACE would be required along with a Section 401 water quality certification or waiver from the California Regional Water Quality Control Board (RWQCB).

Project Mitigation 1: If impacts to seasonal wetland SW-1 cannot be avoided then mitigation to compensate for the temporary loss of 0.009 acres of seasonal wetland would be required. One option for mitigation would be to re-establish the wetland after the soil material has been removed. This seasonal wetland occurs as a depression within a drainage ditch at the base of the borrow site. The wetland could be re-created by creating a similar depression and allowing water to collect from the water shed area in the same way it is currently being collected. The same or similar wetland plants would be planted and the site would be monitored for a minimum of 5 years. A detailed mitigation plan would be developed as part of the nationwide permit application. The mitigation plan would include:

- A description of the existing wetland and a description of the plan to re-create the new wetland area after construction is completed.
- A seeding and planting plan for the newly created wetland.
- Performance criteria to determine when and how the wetland will be successfully re-established.
- A monitoring program to include weeding, watering, and vegetation data collection to demonstrate that the wetland area is meeting the performance and success criteria.

- Monitoring shall be for a minimum of 5 years. An annual report shall be submitted to the USACE and RWQCB. Final success will be based on the wetland area meeting the same functions and values of the existing wetland area and having a dominance of wetland plants, presence of wetland hydrology and wetland soils such that it meets the USACE definition of a wetland.
- A contingency plan in the event that the newly created wetland does meet the performance and success criteria.

If reestablishment of the seasonal wetland on-site is not feasible because of FAA considerations then a suitable off-site alternative for creating new wetlands as compensation would be another alternative. A mitigation plan with the above information would need to be prepared and approved by the USACE and RWQCB. The newly created wetland would have to have the same or similar functions and values and be in-kind establishment.

Stormwater Best Management Practices (BMPs). No debris or sediment shall fall into the waters of the U.S. Proposed erosion and sediment control BMPs include seeding, mulching, erosion control blankets, and sediment retention devices. An erosion control plan will be developed as part of the Storm Water Pollution Prevention Plan (SWPPP) that covers erosion control during construction and a post-construction stormwater management plan with best management practices detailed for the project will be provided as part of the Section 401 water quality certification for the project. The Section 401 water quality certification is part of the Section 404 permit requirements from the U. S. Army Corps of Engineers for the placement of fill into waters of the U. S.

Unless properly protected, the slopes of the contoured sites could be subject to erosion rates that are significantly higher than those that occur under existing conditions. In the wooded areas on the project site, the current erosion rates are most likely very low, due to the amount of duff layer present and because of rainfall interception by the tree canopy. Without precautions, the fill slopes could erode, and the resulting sediment could enter the drainageways where it could eventually reach downstream receiving waters, including the tributary to the Eel River. The sediment could degrade the quality of receiving waters and adversely affect aquatic organisms.

A storm water pollution prevention plan and the erosion control plan will be required for the project and will take into consideration the site conditions and address any concerns sufficiently. In general, the following BMPS will be required at a minimum:

- Require the project proponent to have a Professional Engineer (civil) or a qualified erosion control specialist periodically inspect the BMP installation work.
- Remove and properly dispose of accumulated sediment from behind the silt fences and fiber rolls when it reaches one-third the height of the barrier. Repair the erosion control blanket and reseed as required.
- During the vegetation establishment period, periodically inspect the condition and performance of the BMPs and make corrective actions as required.

BMPs to prevent erosion into the tributary to Bull Creek on the west side of the slide area are included and applies to the proposed fill slope to protect the aforementioned perennial stream and wetland:

- If practicable, design the fill slope such that a minimum 10- to 20-foot setback is maintained between the toe of the fill and the stream and wetland.
- Install temporary construction barrier fencing at the outer edge of the work area to preclude inadvertent equipment intrusion into the stream and wetland.
- Install a silt fence on-contour along the downslope perimeter of the work area. The fence should be supported with T-bar fence posts or their equivalent, rather than wood stakes. The silt fence material should be backed with hardware cloth. The fabric should be installed in minimum 6-inch deep trenches, or as specified by the manufacturer.
- Assuming that native topsoil (i.e., “A” horizon) exists in the borrow areas, salvage the topsoil there such that a 6- to 12-inch thick layer can be applied to the finish subgrade of the fill slope.* (The plant litter layer/debris also should be retained as much as practicable.) Stockpile the topsoil such that it is no more than 5 feet deep and protect it from water and wind erosion as required.
- Apply the salvaged topsoil to the subgrade and incorporate it approximately 3 to 6 inches into the subgrade material by chiseling with dozer-mounted ripper shanks.
- Track walk the finished grade up and down the slope with a dozer. The track walking should be executed such that the surface soil is loose and does not have a “glazed” appearance.
- Broadcast a mix of native perennial and naturalized, non-native grass seed onto the soil. The mix (possibly also including forbs and a legume) and seeding rates should be determined through consultation with a qualified botanist.
- Install 7.5 inch diameter, 100% biodegradable fiber rolls (e.g., burlap-encased Earth Saver rice “Straw Wattles”) on-contour. The spacing of the fiber rolls and of the wood stakes should be according to the manufacturer’s specifications for the slope conditions. The fiber rolls should be inserted into minimum 3-inch deep trenches. The ends of adjoining wattles should overlap a minimum of 18 inches, side by side, not top and bottom. (The fiber rolls will be abandoned in-place to decompose.)
- Install 100% biodegradable erosion control blankets, such as North American Green S150BN or SC150 BN (depending on the slope gradient) according to the manufacturer’s specifications.
- Require the project proponent to have a Professional Engineer (civil) or a qualified erosion control specialist periodically inspect the BMP installation work.
- During the vegetation establishment period, periodically inspect the condition and performance of the BMPs and make corrective actions as required.
- Remove and properly dispose of accumulated sediment from behind the silt fence and fiber rolls when it reaches one-third the height of the barrier. Repair the blanket and reseed as required.

* If a sufficient amount of native topsoil is not available, a 6- to 12-inch thick layer of municipal compost should be applied to the subgrade and incorporated approximately 6 inches into the

subgrade material by chiseling with dozer-mounted ripper shanks. This material then should be track walked.

Additional BMPs to prevent erosion into the small tributary to Bull Creek located on the east side of the access road are as follows:

- Blade the access road such that it is outsloped approximately 3%.
- Construct water bars along the road at approximate 50-foot intervals to intercept the runoff and discharge it to vegetated areas.
- Install fiber rolls on-contour on the outside slope of the road. (These will need to be “staggered” to allow their installation to be on-contour.)
- Install a silt fence as required at the base of the road, where it turns to the west, to contain runoff that runs along the road.

This is a less than significant impact with the above mitigation measures incorporated.

F2. Direct Impacts to Nesting Birds

Project Direct Impacts 2: Individuals nesting in the Douglas fir-tan oak forest, chaparral, or non-native grasslands on the site could be taken if construction occurs during the nesting season (February through August).

Project Mitigation 2: The following mitigation measures should be followed in order to avoid or minimize impacts to birds that may potentially nest in the trees:

- 1) Grading or removal of nesting trees should be conducted outside the nesting season, which occurs between approximately February 15 and August 15.
- 2) If grading between August 15 and February 15 is infeasible and groundbreaking must occur within the nesting season, a pre-construction nesting bird (both passerine and raptor) survey of the grasslands and adjacent trees shall be performed by a qualified biologist within 7 days of ground breaking. If no nesting birds are observed no further action is required and grading shall occur within one week of the survey to prevent “take” of individual birds that could begin nesting after the survey.
- 3) If active bird nests (either passerine and/or raptor) are observed during the pre-construction survey, a disturbance-free buffer zone shall be established around the nest tree(s) until the young have fledged, as determined by a qualified biologist.
- 4) The radius of the required buffer zone can vary depending on the species, (i.e., 75-100 feet for passerines and 200-300 feet for raptors), with the dimensions of any required buffer zones to be determined by a qualified biologist in consultation with CDFG.
- 5) To delineate the buffer zone around a nesting tree, orange construction fencing shall be placed at the specified radius from the base of the tree within which no machinery or workers shall intrude.
- 6) After the fencing is in place there will be no restrictions on grading or construction activities outside the prescribed buffer zones.

This is a less than significant impact with the above mitigation measures incorporated:

F3. Direct Impacts to State Species of Concern

Project Direct Impact 3: The proposed project could result in the removal of approximately 550 individuals of Sonoma canescent manzanita (*Arctostaphylos canescens* ssp. *sonomensis*). A total of 730 individuals of this species were observed in the Ells-Willits airport project area. Sonoma canescent manzanita stands within the project area are distributed primarily along the east side of the runway (see vegetation map) in areas that have been managed for the removal of large woody debris. It appears that Sonoma canescent manzanita may be a pioneer species that establishes itself prior to the re-establishment of the Douglas fir-tanoak forest. It likely makes a refuge for small trees in an exposed landscape. As these trees develop they eventually shade out the manzanita within the canopy and the manzanita remains on the margins. Present management appears to have favored this species.

Project Mitigation 3: Approximately 550 individuals of Sonoma canescent manzanita will potentially be removed by the excavation of the two borrow sites. Another 180 individuals occur in other areas that will not be impacted by the proposed project. Since this species appears to favor areas where the Douglas fir-tanoak forest have been cleared for allowing clearance for airplanes there is opportunity to replace the 550 individuals and more by re-planting on the borrow sites after the soil material has been removed. Mitigation shall include:

- A six-inch layer of the top soil material from the borrow sites will be removed and stockpiled. After the soil material has been removed from the borrow sites the six-inches of top soil material will be replaced. This will allow for any root material and microrhizae to be replaced and aid in re-establishment of the impact manzanita stands.
- Collection of seeds from the plants to be removed prior at the appropriate time for seed collection, which would be in the summer (June to September).
- Seeds will be propagated in a greenhouse and the individuals grown will be re-planted after the borrow material has been removed.
- A minimum of 660 individuals will be replanted into the borrow areas to replace the plants that will be removed as a result of the soil excavation. This will allow for an 80 percent survival rate and ensure that at a minimum 550 plants survive and replace the individuals that will be removed as a result of construction.
- The plants will be maintained by weeding and watering for a minimum of two (2) years. The plants will be monitored for a minimum of five (5) years and information on survival rates, general success, health and vigor of the mitigation efforts will be reported in an annual report to be submitted to the California Department of Fish and Game (DFG).
- A detailed mitigation plan will be prepared and approved by DFG. The plan will include a set of performance criteria on which the mitigation will be considered successful.
- A contingency plan in the event that the plantings are unsuccessful will be provided. This will be included in a detailed mitigation plan to be approved by DFG for the project.

This is a less than significant impact with the above mitigation measures incorporated.

F4. Indirect Effects

The proposed slide repair and use of borrow areas will not induce growth in the area or increase the population density significantly. No pattern of land use will change. The proposed project will

not change the hydrological processes, such as infiltration capacity, and surface runoff. No sediment load, or organic matter input, will occur to the nearby creeks or streams.

F5. Interrelated Effects

No interrelated effects would occur as the result of this project.

F6. Interdependent Effects

No interdependent effects would occur from this proposed project.

F7. Cumulative Effects

The proposed project will result in the cumulative loss of seasonal wetlands, Sonoma canescent manzanita and some bird nesting habitat in the area. However, mitigation is proposed for seasonal wetlands and the Manzanita on site and no net loss of acreage or individuals will occur.

LITERATURE CITED

- CALIFORNIA NATURAL DIVERSITY DATA BASE. 2009. REVIEW OF THE WILLITS, BURBECK, LONGVALE, GREENOUGH RIDGE, WILLITS RIDGE, LAUGHLINE RANGE, BRUSHY MTN, FOSTER MTN AND REDWOOD VALLEY 7.5-MINUTE TOPOGRAPHIC QUADRANGLES.
- CALIFORNIA DEPARTMENT OF FISH AND GAME (CDFG). 2003. VEGETATION CLASSIFICATION AND MAPPING PROGRAM, LIST OF CALIFORNIA TERRESTRIAL NATURAL COMMUNITIES RECOGNIZED BY THE CALIFORNIA NATURAL DIVERSITY DATA BASE, SEPTEMBER 2003 EDITION.
- JANE VALERIUS ENVIRONMENTAL CONSULTING. 2009. PRELIMINARY DELINEATION OF WATERS OF THE UNITED STATES, WILLITS AIRPORT PROJECT, CITY OF WILLITS, MENDOCINO COUNTY, CA. TECHNICAL LETTER REPORT PREPARED FOR DAVE DIETZ, HUNT AND MEAD. JULY.
- MOYLE, P.B. 2002. INLAND FISHES OF CALIFORNIA. UNIVERSITY OF CALIFORNIA PRESS, BERKELEY, CALIFORNIA.
- MCCULLOUGH, D. 1996. METAPOPOPULATIONS AND WILDLIFE CONSERVATION. ISLAND PRESS. 429PP.
- SAWYER, J.O. AND T. KEELER-WOLF. 1995. A MANUAL OF CALIFORNIA VEGETATION. CALIFORNIA NATIVE PLANT SOCIETY, SACRAMENTO. 471 PP.
- SHAFFER, H.B., G.M. FELLERS, S. RANDAL VOSS, J. OLIVER AND G.B. PAULY. 2004. SPECIES BOUNDARIES, PHYLOGEOGRAPHY AND CONSERVATION GENETICS OF THE RED-LEGGED FROG (*RANA AURORA/DRAYTONII*) COMPLEX. MOLECULAR ECOLOGY 13: 2667–2677.
- STEBBINS, R. C. 1985. A FIELD GUIDE TO WESTERN REPTILES AND AMPHIBIANS. HOUGHTON MIFFLIN COMPANY.
- TATARIAN, P. 2008. MOVEMENT PATTERNS OF THE CALIFORNIA RED-LEGGED FROG IN AN INLAND CALIFORNIA ENVIRONMENT. HERPETOLOGICAL CONSERVATION AND BIOLOGY 3(2):155-169.
- TOBIN, D.P. 2001. INVENTORY OF RARE AND ENDANGERED VASCULAR PLANTS OF CALIFORNIA. CALIFORNIA NATIVE PLANT SOCIETY, SACRAMENTO, CALIFORNIA. SPECIAL PUBLICATION NO. 1, SIXTH ED. 384 PP
- WHITTAKER, R. 1998. ISLAND BIOGEOGRAPHY: ECOLOGY, EVOLUTION AND CONSERVATION. OXFORD UNIVERSITY PRESS. 285PP.



Fig. 5: Grassland along access road.



Fig. 6: Borrow Site #1 looking northeast.



Fig. 7: Drainage on southeast corner.



Fig. 8: Borrow site 2 looking north.



Fig. 9: Access road to slide repair. .



Fig. 10: Wetland seep in northwest corner.

APPENDIX A

SPECIAL STATUS WILDLIFE SPECIES WITH NO POTENTIAL TO OCCUR ON THE PROJECT SITE

**APPENDIX A: SPECIAL-STATUS SPECIES WITH NO POTENTIAL TO OCCUR
IN THE PROJECT AREA
(Federally Listed/Proposed Threatened and Endangered Species for Mendocino County,
with Candidates Included)**

Common Name Scientific Name	Status USFWS/ CDFG	Habitat Affinities
Invertebrates		
Black abalone <i>Haliotis cracherodii</i>	PE	Inhabits the Pacific Ocean.
Lotis blue butterfly <i>Lycaeides argyrognomon lotis</i>	E	Inhabits
Behren's silverspot <i>Speyeria zerene behrensii</i>	FE	Prefers coastal terrace prairie, and known from a single source population at Point Arena.
Fish		
Tidewater goby <i>Eucyclogobius newberryi</i>	FE	Occurs in areas of precipitous coastlines that preclude the formation of lagoons at stream mouths have created three natural gaps in the distribution of the goby
Coho salmon - Central Ca coast <i>Oncorhynchus kisutch</i>	FE	Occurs from Punta Gorda, in northern California, to the San Lorenzo River, in Santa Cruz County, and includes coho salmon populations from several tributaries of San Francisco Bay (e.g., Corte Madera and Mill Valley Creek).
Northern California steelhead <i>Oncorhynchus mykiss</i>	FT	Inhabit streams where dissolved oxygen concentration is at least 7 parts per million. In streams, deep low-velocity pools are important wintering habitats. Spawning habitat consists of gravel substrates free of excessive silt
California coastal Chinook salmon <i>Oncorhynchus tshawytscha</i>	FT	Critical habitat for this ESU occurs from the Klamath River south to the Russian River.
Amphibians		
Tailed frog <i>Ascaphus truei</i>		Inhabits clear, rocky, swift, cool streams in forested habitats. In the West this frog is found primarily in older forest of Douglas Fir, Pine, and Spruce.
Reptiles		
Loggerhead turtle <i>Caretta caretta</i>	FT	Inhabits the Pacific Ocean

Common Name Scientific Name	Status USFWS/ CDFG	Habitat Affinities
Green turtle <i>Chelonia mydas</i> (incl. <i>agassizi</i>)	FT	Inhabits the Pacific Ocean
Leatherback turtle <i>Dermochelys coriacea</i>	FE	Inhabits the Pacific Ocean
Olive Ridley sea turtle <i>Lepidochelys olivacea</i>	FT	Inhabits the Pacific Ocean
Birds		
Marbled murrelet <i>Brachyramphus marmoratus</i>	FT	Nests in mature and old-growth forests, large core areas of old-growth, low amounts of edge habitat, in proximity to the marine environment.
Western snowy plover <i>Charadrius alexandrinus californicus</i>	FT	Nests typically occur in flat, open areas with sandy or saline substrates. Vegetation and driftwood are usually sparse or absent.
Yellow-billed cuckoo <i>Coccyzus americanus</i>	FC	Typically nests in meandering riparian systems with healthy hydraulics that is constantly eroding and depositing and creating young riparian habitat.
California brown pelican <i>Pelecanus occidentalis californicus</i>	FE	Nests on rocky protected areas in bays and along the coast of California.
Short-tailed albatross <i>Phoebastris albatrus</i>	FE	Inhabits the Pacific Ocean.
Northern spotted owl <i>Strix occidentalis caurina</i>	FT	Nests in dense coniferous and hardwood forest, shaded, steep sided canyons.
Mammals		
Point Arena mountain beaver <i>Aplodontia rufa nigra</i>	FE	Live in underground burrows dug in forest openings and dense thickets, feeding on various plants, including nettles, blackberry, poison oak, and coyote brush. Found on cool, moist, north-facing slopes in moderately dense coastal scrub.
sei whale <i>Balaenoptera borealis</i>	FE	Inhabits the Pacific Ocean
fin whale <i>Balaenoptera physalus</i>	FE	Inhabits the Pacific Ocean
Steller (=northern) sea-lion <i>Eumetopias jubatus</i>	FT	Inhabits the Pacific Ocean

Common Name <i>Scientific Name</i>	Status USFWS/ CDFG	Habitat Affinities
Pacific fisher, West Coast DPS <i>Martes pennanti</i>	FC	Intermediate to large-tree stages of coniferous forests & deciduous riparian areas with high percentage of canopy closure. This species uses cavities, snags, logs & rocky area for cover and denning. Needs large areas of mature, dense forest.
humpback whale <i>Megaptera novaengliae</i>	FE	Inhabits the Pacific Ocean
sperm whale <i>Physeter macrocephalus</i>	FE	Inhabits the Pacific Ocean

APPENDIX B

PLANT SPECIES OBSERVED ON THE WILLITS AIRPORT PROJECT SITE

**APPENDIX B: Plants observed on the
Willits Airport Project Site. April through June 2009.**

Family	Scientific Name	Common Name	Exotic^a
Equisetaceae - Horsetail			
	<i>Equisetum arvense</i>	Common Horsetail	
	<i>Equisetum telmateia</i> ssp. <i>braunii</i>	Giant Horsetail	
PTEROPHYTA - Ferns and other non-seed plants			
Pteridaceae - Brake Fern			
	<i>Pentagramma triangularis</i> ssp. <i>triangularis</i>	Goldenback Fern	
Blechnaceae - Deer Fern			
	<i>Woodwardia fimbriata</i>	Giant Chain Fern	
Dennstaedtiaceae- Bracken			
	<i>Pteridium aquilinum</i>	Bracken Fern	
Dryopteridaceae -Wood Fern			
	<i>Athyrium filix-femina</i>	Lady Fern	
	<i>Dryopteris arguta</i> <i>Polystichum munitum</i> (P. <i>imbricans</i>)	Wood Fern Western Sword Fern	
CONIFEROPHYTA - Conifers			
Pinaceae - Pine			
	<i>Pinus ponderosa</i>	Ponderosa piine	
	<i>Pseudotsuga menziesii</i>	Douglas Fir	
ANTHOPHYTA - Dicotyledones			
Anacardiaceae - Sumac			
	<i>Toxicodendron diversilobum</i>	Poison Oak	
Apiaceae - Carrot			
	<i>Daucus pusillus</i>	Rattlesnake Weed	
	<i>Osmorhiza chilensis</i>	Sweet Cicley	
	<i>Sanicula crassicaulis</i>	Gamble Weed	
	<i>Torilis arvensis</i>	Japanese Hedge Parsley	x
Asteraceae - Aster			
	<i>Achillea millefolium</i>	Yarrow	
	<i>Achyrrachaena mollis</i>	Blow Wives	
	<i>Anthemis cotula</i>	Mayweed	
	<i>Artemisia douglasiana</i>	Mugwort	
	<i>Baccharis pilularis</i>	Coyote Brush	
	<i>Baccharis salicifolia</i>	Seep-Willow	
	<i>Carduus pycnocephalus</i>	Italian Thistle	x*
	<i>Centaurea melitensis</i>	Napa Thistle, Tocalote	x*
	<i>Centaurea solstitialis</i>	Yellow Star-Thistle	x*
	<i>Cirsium vulgare</i>	Bull Thistle	x
	<i>Filago californica</i>	California cottonrose	
	<i>Filago gallica</i>	Narrowleaf cottonrose	x
	<i>Gnaphalium purpureum</i>	Cudweed	
	<i>Hypochaeris glabra</i>	Smooth Cat's Ear	x

Family	Scientific Name	Common Name	Exotic ^a
	<i>Hypochaeris radicata</i>	Hairy Cat's Ear	x
	<i>Lactuca serriola</i>	Prickly Lettuce	x
	<i>Lasthenia californica</i>	Goldfields	
	<i>Leontodon taraxicoides</i>	Hawkbit	
	<i>Leucanthemum vulgare</i>	Ox-Eye Daisy	
	<i>Madia exigua</i>	Litter Tarweed	
	<i>Madia gracilis</i>	Slender Tarweed	
	<i>Madia madioides</i>	Woodland Tarweed	
	<i>Madia sativa</i>	Coast Tarweed	
	<i>Microseris douglasii</i>	Douglas microseris	
	<i>Senecio jacobaea</i>	Tansy Ragwort	
	<i>Soliva sessilis</i>	Soliva	
	<i>Sonchus asper</i>	Sow Thistle	x
Boraginaceae - Borage			
	<i>Myosotis discolor</i>	Blue Scorpion Grass	x
	<i>Plagiobothrys stipitatus</i> var. <i>micranthuss</i>	Slender popcornflower	
Brassicaceae - Mustard			
	<i>Brassica rapa</i>	Field Mustard	x
	<i>Cardamine californica</i>	Milk Maids	
	<i>Cardamine oligosperma</i>	Bitter cress	
	<i>Lepidium nitidum</i>	Shining Peppergrass	
Campanulaceae - Bluebell			
	<i>Githopsis specularioides</i>	Common bluecup	
	<i>Heterocodon rariflorum</i>	Rareflower heterocodon	
Caprifoliaceae - Honeysuckle			
	<i>Symphoricarpos mollis</i>	Creeping Snowberry	
Caryophyllaceae - Pink			
	<i>Cerastium glomeratum</i>	Mouse-ear Chickweed	x
	<i>Petrohagia prolifera</i>		
	<i>Silene gallica</i>	Windmill Pink	x
Convolvulaceae - Morning-Glory			
	<i>Calystegia purpurata</i> ssp. <i>purpurata</i>	Pacific false bindweed	
	<i>Calycanthus subacaulis</i> ssp. <i>subacaulis</i>	Hill Morning Glory	
Crassulaceae - Stonecrop Family			
	<i>Crassula connata</i>	Pigmy Weed	
Ericaceae - Heath			
	<i>Arbutus menziesii</i>	Madrone	
	<i>Arctostaphylos canescens</i> spp. <i>sonomensis</i>	Sonoma Manzanita	
	<i>Arctostaphylos manzanita</i> ssp. <i>manzanita</i>	Manzanita	
	<i>Arctostaphylos stanfordiana</i> ssp. <i>stanfordiana</i>	Stanford Manzanita	
Fabaceae - Pea			
	<i>Cytisus scoparius</i>	Scotch Broom	x*
	<i>Lathyrus angulatus</i>	angled pea	

Family	Scientific Name	Common Name	Exotic ^a
	<i>Lotus corniculatus</i>	Bird's-foot trefoil	
	<i>Lotus humistratus</i>	Hill lotus	
	<i>Lotus micranthus</i>	Small flower lotus	
	<i>Lotus pinnatus</i>	Meadow bird's-foot trefoil	
	<i>Lotus scoparius</i>	California Broom	
	<i>Lupinus bicolor</i>	Miniature Lupine	
	<i>Medicago polymorpha</i>	California Burclover	x
	<i>Trifolium albopurpureum</i> var. <i>albopurpureum</i>	Rancheria Clover	
	<i>Trifolium barbigerum</i>	Gray's Clover	
	<i>Trifolium bifidum</i> var. <i>bifidum</i>	Pinole Clover	
	<i>Trifolium depauperatum</i> var. <i>depauperatum</i>	Dwarf Sack Clover	
	<i>Trifolium dubium</i>	Shamrock Clover	x
	<i>Trifolium furcatum</i>	Bull Clover	
	<i>Trifolium glomeratum</i>	Clusted clover	
	<i>Trifolium hirtum</i>	Rose Clover	x
	<i>Trifolium microcephalum</i>	Small-headed Clover	
	<i>Trifolium microdon</i>	Square-head Clover	
	<i>Trifolium subterraneum</i>	Subterranean Clover	x*
	<i>Trifolium variegatum</i>	Whitetip Clover	
	<i>Trifolium willdenovii</i>	Tomcat Clover	
	<i>Vicia sativa</i> ssp. <i>sativa</i>	Spring Vetch	x
Fagaceae - Beech			
	<i>Lithocarpus densiflorus</i> var. <i>densiflorus</i>	Tanoak	
	<i>Quercus garryana</i> var. <i>garryana</i>	Oregon Oak, Garry Oak	
	<i>Quercus kelloggii</i>	Black Oak	
	<i>Quercus parvula</i> var. <i>shrevei</i>	Shreve Oak	
Gentianaceae - Gentian			
	<i>Centaureum muehlenbergii</i>	Centaury	
	<i>Cicendia quadrangularis</i>	Oregon timwort	
Geraniaceae - Geranium			
	<i>Erodium botrys</i>	Broadleaf Filaree	x
	<i>Erodium cicutarium</i>	Red-stemmed Filaree	x
	<i>Geranium dissectum</i>	Cut-leaf Geranium	x
	<i>Geranium molle</i>	Dove-foot Geranium	x
Hypericaceae - St. John's Wort			
	<i>Hypericum perforatum</i>	Klamath Weed	x*
Lamiaceae - Mint			
	<i>Mentha pulegium</i>	Penny Royal	x*
	<i>Pogogyne zizyphoroides</i>	Sacramento pogogyne	
	<i>Prunella vulgaris</i> var. <i>lanceolata</i>	Self-Heal	
	<i>Satureja douglasii</i>	Yerba Buena	
	<i>Stachys ajugoides</i> var. <i>rigida</i>		
	<i>Trichostema laxum</i>	Turpentine weed	

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Linaceae - Flax	<i>Hesperolinon micranthum</i>	Dwarf Flax	
	<i>Linum bienne</i>	Common flax	x
Lythraceae - Loosestrife	<i>Lythrum hyssopifolium</i>	Loosestrife	x
	<i>Sidalcea diploscypha</i>	Fringed checkerbloom	
Oleaceae - Olive	<i>Fraxinus latifolia</i>	Oregon Ash	
	<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	Northern Willow Herb	
Onagraceae - Evening Primrose	<i>Epilobium minutum</i>		
	<i>Eschscholzia californica</i>	California Poppy	
Papaveraceae - Poppy	<i>Platystemon californicus</i>	Cream Cups	
	<i>Plantago erecta</i>	Foothill plantain	
Plantaginaceae - Plantain	<i>Plantago lanceolata</i>	English Plantain	x
	<i>Collomia heterophylla</i>	Varied-Leaf Collomia	
Polemoniaceae - Phlox	<i>Linanthus bicolor</i>	Bicolored Linanthus	
	<i>Navarretia intertexta</i>	Needle-leaved Navarretia	
	<i>Navarretia squarrosa</i>	Skunkweed	
	<i>Phlox gracilis</i>	Slender Phlox	
	<i>Polygala californica</i>	California Milkwort	
Polygonaceae - Buckwheat	<i>Rumex acetosella</i>	Sheep Sorrel	x
	<i>Calandrinia ciliata</i>	Red Maids	
Portulacaceae - Purslane (3 taxa)	<i>Claytonia exigua</i> ssp. <i>glauca</i>	Serpentine springbeauty	
	<i>Claytonia parviflora</i>	Streambank springbeauty	
	<i>Anagallis arvensis</i>	Scarlet Pimpernel	x
Primulaceae - Primrose	<i>Trientalis latifolia</i>	Star Flower	
	<i>Ranunculus occidentalis</i>	Western Buttercup	
Rhamnaceae - Buckthorn	<i>Ceanothus foliosus</i> var. <i>foliosus</i>	Wavyleaf ceanothus	
	<i>Ceanothus integerrimus</i>	Deer Brush	
	<i>Ceanothus velutinus</i> var. <i>hookeri</i>	Tabacco Brush	
Rosaceae - Rose	<i>Agrimonia gryposepala</i>	Common Agrimony	
	<i>Aphanes occidentalis</i>	Lady's Mantle	
	<i>Fragaria vesca</i>	Wood Strawberry	

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	<i>Heteromeles arbutifolia</i>	Toyon	
	<i>Potentilla glandulosa</i> ssp. <i>glandulosa</i>	Sticky Cinquefoil	
	<i>Rosa canina</i>	Dog Rose	
	<i>Rosa gymnocarpa</i>	Wood Rose	
	<i>Rubus discolor</i>	Himalayan Blackberry	x
	<i>Rubus leucodermis</i>	Western Raspberry	
	<i>Rubus ursinus</i>	California Blackberry	
Rubiaceae - Madder			
	<i>Galium aparine</i>	Goose Grass	x
	<i>Galium californicum</i> ssp. <i>californicum</i>	California Bedstraw	
	<i>Galium parisiense</i>	Wall Bedstraw	x
	<i>Galium porrigens</i>	Climbing Bedstraw	
Salicaceae - Willow			
	<i>Salix lasiolepis</i>	Arroyo Willow	
	<i>Salix scouleriana</i>	Scouler's Willow	
	<i>Salix sitchensis</i>	Sitka Willow	
Scrophulariaceae - Figwort			
	<i>Castilleja attenuata</i>	Valley Tassels	
	<i>Castilleja exserta</i> ssp. <i>exeerta</i>	Purple Owl's Clover	
	<i>Gratiola ebracteata</i>	Hedge-hyssop	
	<i>Mimulus guttatus</i>	Large Monkeyflower	
	<i>Mimulus moschatus</i>	Mush Monkeyflower	
	<i>Triphysaria eriantha</i> ssp. <i>eriantha</i>	Butter-and-eggs	
	<i>Triphysaria pusilla</i>	Little owl's-clover	
	<i>Verbascum thapsus</i>	Wooly Mullein	x
	<i>Veronica americana</i>	American Brooklime	
	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	Purslane Speedwell	
Valerianaceae - Valerian			
	<i>Plectritis brachystemon</i>	Plectritis	
Verbenaceae - Vervain			
	<i>Verbena lasiostachys</i> var. <i>lasiostachys</i>		
Violaceae - Violet			
	<i>Viola ocellata</i>	Two-eyed Violet	
MONOCOTYLEDONES - Monocots			
Alismataceae - Water Plantain			
	<i>Alisma</i> sp.	Water plantain	
Cyperaceae - Sedge			
	<i>Carex athrostachya</i>	Long-bract Sedge	
	<i>Carex bolanderi</i>	Bolander's Sedge	
	<i>Carex densa</i>	Dense Sedge	
	<i>Carex feta</i>	Green-sheath sedge	
	<i>Carex fracta</i>	Fragile-sheath Sedge	
	<i>Carex hassii</i>	False Golden Sedge	

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	<i>Carex hardfordii</i>	Monterey Sedge	
	<i>Carex praegracilis</i>	Clustered Field Sedge	
	<i>Carex preslii</i>	Presl's Sedge	
	<i>Carex serratodons</i>	Two-toothed Sedge	
	<i>Carex tumulicola</i>	Foothill Sedge	
	<i>Eleocharis macrostachya</i>	Pale Spikerush	
Iridaceae - Iris			
	<i>Sisyrinchium bellum</i>	Blue-eyed Grass	
Juncaceae - Rush			
	<i>Juncus bufonius</i>	Toad Rush	
	<i>Juncus covellei</i>	Covelle's Rush	
	<i>Juncus effusus</i> var. <i>pacificus</i>	Soft rush	
	<i>Juncus occidentalis</i>	Western rush	
	<i>Juncus patens</i>	Common Rush	
	<i>Juncus xiphioides</i>	Iris-leaved rush	
	<i>Luzula comosa</i>	Wood Rush	
Lilaceae - Lily			
	<i>Brodiaea terrestris</i>	Ground Brodiaea	
	<i>Calochortus vestae</i>	Mariposa lily	
	<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	Soap Plant	
	<i>Dichelostemma capitatum</i> ssp. <i>capitatum</i>	Blue Dicks	
	<i>Trillium chloropetalum</i>	Giant Trillium	
	<i>Triteleia hyacinthina</i>	White Brodiaea	
	<i>Zigadenus micranthus</i> var. <i>micranthus</i>	Death Camas	
Poaceae - Grass Family			
	<i>Agrostis stolonifera</i>	Creeping Bent	
	<i>Aira caryophyllea</i>	European Hairgrass	x
	<i>Avena barbata</i>	Slender Wild Oat	x
	<i>Avena fatua</i>	Wild Oat	x
	<i>Briza minor</i>	Little Quaking Grass	x
	<i>Bromus diandrus</i>	Ripgut Grass	x
	<i>Bromus hordeaceus</i>	Soft Chess	x
	<i>Bromus madritensis</i> ssp. <i>rubens</i>	Foxtail Chess	x
	<i>Cynosurus echinatus</i>	Hedgehog Dogtail Grass	x
	<i>Danthonia californica</i> var. <i>americana</i>	California Oat Grass	
	<i>Deschampsia danthonioides</i>	Annual Hairgrass	
	<i>Deschampsia elongata</i>	Slender Hairgrass	
	<i>Elymus glaucus</i> ssp. <i>glaucus</i>	Blue Wildrye	
	<i>Festuca arundinacea</i>	Tall Fescue	x
	<i>Festuca californica</i>	California Fescue	
	<i>Festuca pratensis</i>	Meadow Fescue	x
	<i>Holcus lanatus</i>	Velvet Grass	
	<i>Hordeum brachyantherum</i> ssp.	Meadow Barley	

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	<i>brachyantherum</i>		
	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean Barley	x
	<i>Hordium vulgare</i>	Barley	
	<i>Nassella pulchra</i>	Purple Needle Grass	
	<i>Phalaris aquatica</i>	Harding Grass	x
	<i>Phleum pratense</i>	Timothy Grass	x
	<i>Poa annua</i>	Annual Bluegrass	
	<i>Poa trivialis</i>	Rough Bluegrass	
	<i>Polypogon monspeliensis</i>	Rabbitfoot Grass	x
	<i>Vulpia bromoides</i>	Six's Weeks Fescue	x
	<i>Vulpia microstachys</i> var. <i>ciliata</i>	Eastwood fescue	
Typhaceae - Cattail			
	<i>Typha latifolia</i>	Broad-Leaved Cattail	

Note:

A = Exotic species followed by an asterisk have the potential to become invasive.