

**BIOLOGICAL RESOURCES ASSESSMENT
FOR THE
±3.52-ACRE MORROW LANE STUDY AREA
CITY OF CHICO, BUTTE COUNTY, CALIFORNIA**



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APRIL 2020

Initial Study for BCM Construction on Morrow Lane - Appendix A

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Biological Resources Assessment for the ±3.52-ACRE MORROW LANE STUDY AREA

INTRODUCTION

Project Location

Salix Consulting, Inc. (Salix) has prepared a Biological Resources Assessment for the ±3.52-acre Morrow Lane study area located in the vicinity of Skyway Road and Notre Dame Boulevard, within the city limits of the City of Chico, Butte County, California. The study area is bounded on the north by Morrow Lane, and on the east by Comanche Court. An empty lot borders the study area along its western edge, and industrial properties are located directly to the south. The approximate coordinates for the center of the property are 39°42'39.07" N and 121°47'35.10" W. It is situated within Section 6 Township 21N Range 2E of the Chico, California 7.5-minute USGS topographic quadrangle (Figure 1).

Project Setting

The site occurs in the Sacramento Valley along the west edge of the northern Sierra Nevada mountain foothills. It is situated near the southeastern edge of the City of Chico, approximately 400 feet northeast of Highway 99 (HWY 99). The site is in a suburban extension surrounded by agricultural land to the southwest and undeveloped land to the northeast. Warehouses and commercial/industrial properties are located north, south, and west of the site within the immediate vicinity, while property directly to the east is mainly suburban residential. The site is mostly flat, with elevations ranging from approximately 220 feet near the northwest corner to 225 feet at the southwest corner (Figure 2).

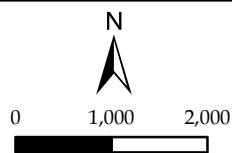
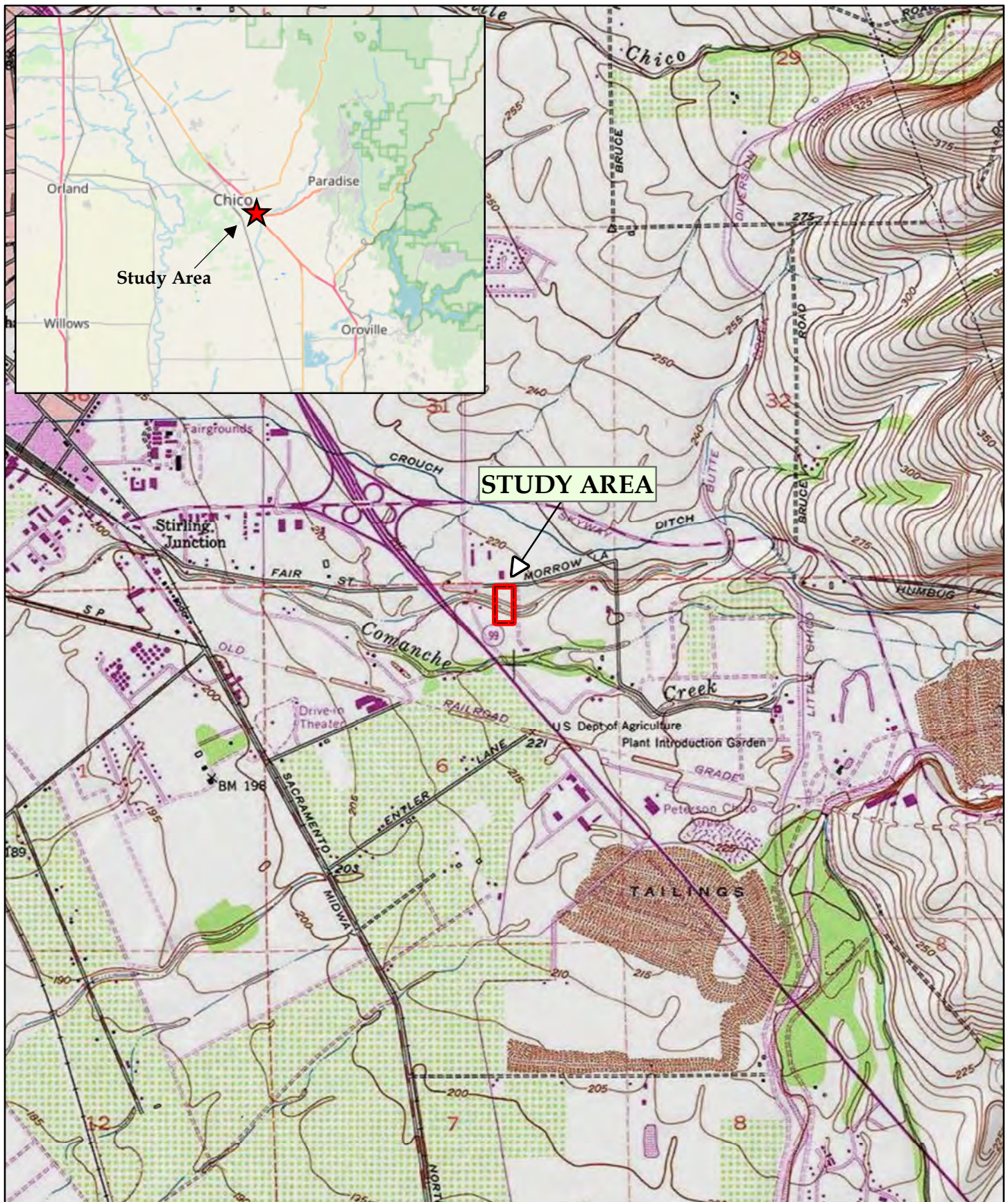
Objectives of Biological Resources Assessment

- Identify and describe the biological communities present in the study area;
- Evaluate and identify if any sensitive habitats or special-status plant and animal species exist or could exist on the site;
- Conduct an analysis to determine if waters of the U.S. are present, and
- Provide conclusions and recommendations.

METHODS

Literature Review

For this analysis, Salix biologists reviewed aerial photographs, USGS maps, and engineering drawings of the proposed tentative map. In addition, the site was flown with an unmanned aerial vehicle (UAV) to obtain an orthomosaic aerial photograph as well as oblique photos of the site. Information on soils of the study area was obtained



Source Maps: USGS Topographic Map
Chico Quad 1:24,000
S6 T21N R2E

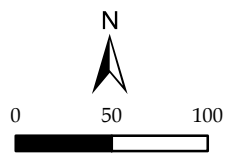
Figure 1

SITE AND VICINITY MAP

Morrow Lane

City of Chico, Butte County, CA

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 Study Area
(±3.52 acres)

Figure 2

AERIAL MAP

Morrow Lane

City of Chico, Butte County, CA

from the U.S. Department of Agriculture – National Resource Conservation Service’s online Web Soil Survey (NRCS 2020). Standard publications on life history, habitat requirements, and distribution of regionally occurring plant and animal species were reviewed as needed for identification and to determine the likelihood of occurrence for special-status species.

Special-Status Species Reports

To assist with the determination of which special-status species could occur within or near the study area Salix biologists queried the California Natural Diversity Data Base (CDFW 2020) and the California Native Plant Society Inventory (CNPS 2020) and the USFWS Information for Planning and Consultation (USFWS IPaC 2020) database for reported occurrences of special-status fish, wildlife, and plant species in the region surrounding the study area. The seven-quadrangle search area included the Chico, Nelson, Ord Ferry, Nord, Shippee, Richardson Springs, and Hamlin Canyon USGS quadrangles. In addition, Salix biologists reviewed the California Department of Fish and Wildlife list of Species of Special Concern for the project vicinity.

For the purposes of this report, special-status species are those that fall into one or more of the following categories:

- Listed as endangered or threatened under the federal Endangered Species Act (or candidate species, or formally proposed for listing);
- Listed as endangered or threatened under the California Endangered Species Act (or proposed for listing);
- Designated as rare, protected, or fully protected pursuant to California Fish and Game Code;
- Designated a Species of Special Concern by the California Department of Fish and Wildlife, or
- Designated as Ranks 1, 2, or 3 on lists maintained by the California Native Plant Society.

Field Assessments

Field assessments of the study area were conducted by Salix biologists Jeff Glazner and Joelle Soch on January 20, 2020 to characterize existing conditions, to assess the potential for sensitive plant and wildlife resources to occur, conduct an inventory of trees within the study area, and to determine if waters of the U.S. were present onsite. During the field assessments, biological communities were mapped and assessed for the potential to support special-status species, plants and animals observed were documented, and ground photos were taken. The UAV was utilized to obtain an orthomosaic aerial photo which is used in this document.

Plants observed are listed in Appendix A. Wildlife observed is listed within the Wildlife Occurrence and Use section below. Plant names are according to The Jepson Manual: Vascular Plants of California, Second Edition (Baldwin et. al. 2012) and updated literature that supersedes the Jepson Manual. Standard manuals were used as needed to identify wildlife species observed.

SURVEY AND LITERATURE SEARCH RESULTS

Soils

Two soil units have been mapped within the study area: Redsluff gravelly loam, 0 to 2 percent slopes, and Redtough-Redswale, 0 to 2 percent slopes. The components of each complex are described below (NRCS 2020).

Redsluff gravelly loam, 0 to 2 percent slopes

The Redsluff, gravelly loam component, which makes up 80 percent of the map unit, is found on low fan terraces of the Sacramento Valley. The parent material consists of fine-loamy alluvium derived from igneous, metamorphic and sedimentary rock over gravelly alluvium derived from volcanic rock. Its natural drainage class is moderately well drained, and water movement in the most restrictive layer is moderately high. Available water to depth of 60 inches (or restricted depth) is low. The soil is rarely flooded, is not ponded, and does not meet hydric criteria. A seasonal zone of water saturation is at 35 inches during January, February. Organic matter content in the surface horizon is about 4 percent.

Redtough-Redswale, 0 to 2 percent slopes

Redtough, loam (50%)

The Redtough, loam component, which makes up 50 percent of the map unit, is found on mounds on high fan terraces of the Sacramento Valley. Its parent material consists of loamy alluvium over cemented cobbly and gravelly alluvium derived from volcanic rock. Its natural drainage class is somewhat poorly drained, and water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. The soil is not flooded or ponded, and does not meet hydric criteria. A seasonal zone of water saturation is at 8 inches during January, February. Organic matter content in the surface horizon is about 2 percent.

Redswale, cobbly loam (35%)

The Redswale, cobbly loam component, which makes up 35 percent of the map unit, is found on swales on high fan terraces of the Sacramento Valley. Its parent material consists of cobbly and loamy alluvium over cemented cobbly and gravelly alluvium derived from volcanic rock. Its natural drainage class is poorly drained and water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. The soil, which is not flooded but is frequently ponded, does not meet hydric criteria. A seasonal zone of water saturation is at 0 inches during January, February. Organic matter content in the surface horizon is about 4 percent.

Climate

The study area has a Mediterranean climate with cool, wet winters and hot, dry summers. The average high temperature is 75.3°, with the hottest months being July and

August, which each average 94° in high temperature. The low temperatures for these months averages 60° and 58°, respectively. The coolest months are December and January, with highs averaging 56° and 55°, respectively. The low temperature for each of these months averages 35°. Annual precipitation averages 26.6 inches, nearly all of which occurs as rainfall between October and April. The wettest months are December, January, and February, each averaging more than 4.5 inches of rainfall (U.S. Climate Data 2020).

Hydrology

The site is in the Comanche Creek HUC12 watershed (180201580301) which is part of the greater Butte Creek HUC8 watershed (18020158). A wetland swale which was formerly part of a regional stream and tributary to Comanche Creek transects the study area from east to west before exiting the parcel along the western boundary. Water through the drainage was mostly diverted as the surrounding area developed and the feature is now a remnant with very little conveyance. Any water that continues through the swale flows west for approximately 400 feet before entering a storm drainage system and flowing in a westerly direction underneath Notre Dame Boulevard and HWY 99 for approximately 850 feet. Water exits a culvert on the west side of HWY 99 and flows southwest for approximately 0.25 miles before draining into Comanche Creek. Comanche Creek flows through agricultural property in a southwesterly direction for approximately 10.8 miles before draining into an unnamed intermittent stream. Water in the intermittent stream flows south for approximately 29 miles, joining other tributaries while passing through Eddy Lake and a series of sloughs before ultimately draining into Butte Creek

Biological Communities

Two biological communities are present within the study area – ruderal and oak woodland, while a small portion of the site along the eastern edge is paved (Figure 3). Aerial photos of the property are presented in Figure 4a and ground photos of the property are presented in Figures 4b and 4c. Potential waters of the U.S. are embedded within the oak woodland and are discussed briefly below under “Potential Waters of the U.S.”

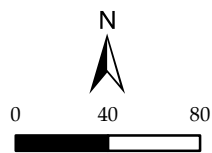
Ruderal

A majority of the study area (approximately 2.5 acres in the northern and southern portions) is ruderal. Ruderal habitats are areas of ongoing disturbed ground (such as dirt roads, areas of general vehicular use, residential and storage areas, and frequent surface disturbance such as disking) dominated by weedy annual species adapted to disturbance. Common species throughout the ruderal areas include Italian ryegrass (*Festuca perennis*), ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), rose clover (*Trifolium hirtum*), dove’s foot geranium (*Geranium molle*), turkey mullein (*Croton setiger*), curly dock (*Rumex crispus*), prickly lettuce (*Lactuca serriola*), ruby sand-spurrey (*Spergularia rubra*), and yellow starthistle (*Centaurea solstitialis*) (Figure 4b).

Oak Woodland

Habitat Components

- Ruderal (± 2.5 acres)
- Paved (± 0.2 acre)
- Oak Woodland (± 0.8 acre)



- Study Area (± 3.52 acres)
- Wetland Swale (± 0.08 acres)

Figure 3

HABITAT COMPONENTS

Morrow Lane

City of Chico, Butte County CA

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Looking southwest over study area. *Photo Date 01-20-20.*



Looking northwest over study area. *Photo Date 01-20-20.*





Looking northeast across ruderal habitat in the northern portion of the study area. *Photo Date 01-20-20.*



Looking north at edge of ruderal habitat along Comanche Court at eastern boundary of study area. *Photo Date 01-20-20.*





Looking east along the wetland swale and oak woodland in the center of the study area. *Photo Date 01-20-20.*



Looking north across oak woodland in the southwest corner of the study area. *Photo Date 01-20-20.*





Looking west along the wetland swale and oak woodland from Comanche Court. *Photo Date 01-20-20.*



Water enters the swale through two culverts underneath Comanche Court at the study area's eastern boundary. *Photo Date 01-20-20.*



Approximately 0.8 acre of oak woodland bisects the center of the study area from east to west. The overstory in this portion of the study area is composed almost entirely of valley oak (*Quercus lobata*), though some interior live oak (*Quercus wislizeni*), Fremont cottonwood (*Populus fremontii*), and Chinese pistache (*Pistacia chinensis*) are also present (Figure 4c). A drainage feature embedded in the oak woodland is discussed further below under Potential Waters of the U.S.

Paved

The study area bisects the centerline of Comanche Court and the western half of the road is within the study area. This paved area is 0.2 acre.

Potential Waters of the U.S

A wetland delineation has been conducted on the site and will be submitted under separate cover. Approximately 0.083 acre of potential waters of the U.S. have been identified on the site in the form of an ephemeral stream which was formerly part of a minor tributary to Comanche Creek before diversion caused by surrounding development and flood control measures turned the feature into a topographical remnant with little actual conveyance. The swale bisects the center of the study area from east to west, entering through two adjacent culverts underneath Comanche Court at the eastern boundary of the site before continuing in a northwesterly direction and exiting along the western boundary of the site. Apart from a woodland corridor composed mainly of valley oak trees and some scattered Fremont cottonwood, Oregon ash, and red willow, the banks of the drainage support minimal vegetation. Non-woody vegetation surrounding the feature is mostly limited to herbaceous weedy species found in the adjacent grasslands. The surface of the drainage is dense and covered in a layer of leaf litter and organic detritus, with almost no vegetation (Figure 4d).

Wildlife Occurrence and Use

Due to the study area's location in an active industrial urban area, its generally disturbed nature, and the presence of frequent human activity, quality habitat and species diversity are lacking. However, the site is used by many common species and provides habitat and forage for animals that are adapted to urban settings. The ruderal grassland in the northern portion of the site provides foraging habitat for a variety of resident and migratory songbirds, upland birds, raptors, and small to mid-sized mammals. Furthermore, trees within the oak woodland provide suitable nesting habitat for many common species, and resident and migratory songbirds may nest on the property. Mid-sized mammals such as coyote would prey on the small mammals, but are not likely to inhabit the study area due to the lack of cover and the high level of human activity. Wildlife activity was very low during the winter field assessment. Species observed included white-crowned sparrow, northern flicker, American crow, mourning dove, anna's hummingbird, brewer's blackbird, California scrub jay, dark-eyed junco and western gray squirrel.

Special-Status Species

To determine potentially-occurring special-status species, the standard databases from the USFWS, CDFW (the CNDDDB), and CNPS were queried and reviewed. These searches provided a list of regionally occurring species and were used to determine which species have some potential to occur within or near the study area. Appendix B lists potentially-occurring special-status plants, and Appendix C lists potentially-occurring special-status animals compiled from our queries as described above. The field survey and the best professional judgment of Salix biologists were used to further refine the tables in Appendices B and C. Additionally, plant species found on the CNPS List 4 are not considered further in the document. Figure 5a shows the approximate locations of reported occurrences of CNDDDB special-status plants within a five-mile radius of the study area, and Figure 5b shows the same for reported occurrences of special-status animals.

Plants









Of the 22 potentially occurring plant species identified in the CNDDDB query (Appendix C), eight (8) were identified as occurring within a five-mile radius of the study area (Figure 5a) and are marked with an asterisk (*) in the lists below.

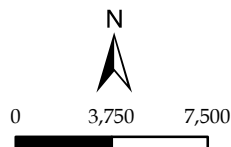
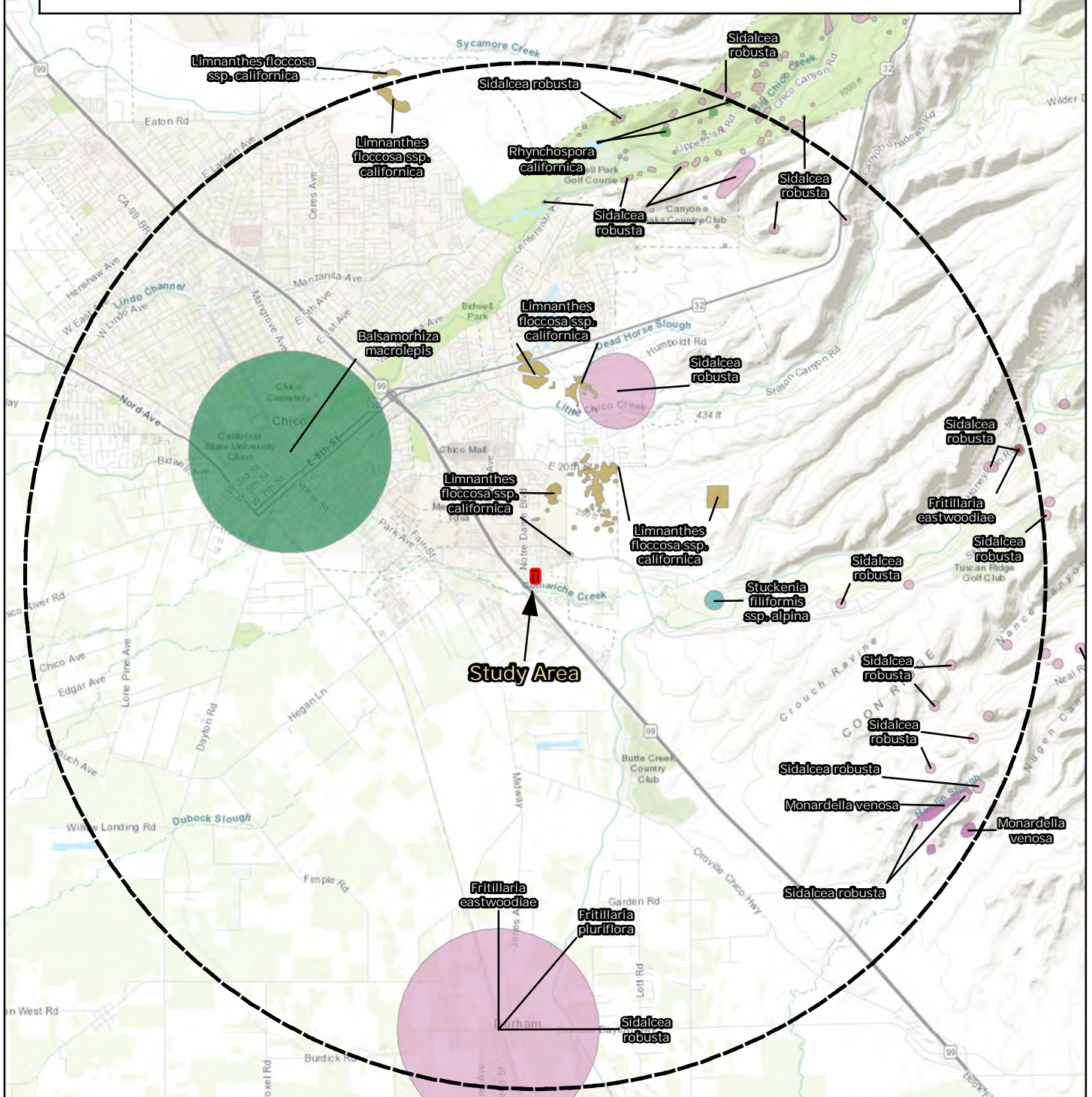
The following 12 species were determined to have no potential to occur onsite due to the absence of suitable wet habitats (such as wetlands, ponds, marshes, swamps, or vernal pools) within the study area.

- Brazilian watermeal (*Wolffia brasiliensis*)
- Ahart's paronychia (*Paronychia ahartii*)
- California beaked-rush (*Rhynchospora californica*)*
- Hoover's spurge (*Euphorbia hooveri*)
- Butte County golden clover (*Trifolium jokerstii*)
- Red Bluff dwarf rush (*Juncus leiospermus leiospermus*)
- Butte County meadowfoam (*Limnanthes floccose* ssp. *californica*)*
- Woolly rose-mallow (*Hibiscus lasiocarpus* ssp. *occidentalis*)
- California satintail (*Imperata brevifolia*)
- Hairy Orcutt grass (*Orcuttia pilosa*)
- Greene's tuctoria (*Tuctoria greenei*)
- Slender-leaved pondweed (*Stuckenia filiformis* ssp. *alpina*)*

Seven (7) species identified in the CNDDDB query were also determined to have no potential for occurring onsite due to the absence of suitable habitat (open grassy/rocky slopes, gravelly streambeds, undisturbed valley/foothill grassland, foothill/cismontane woodland, blue oak/chaparral transition, or undisturbed mesic areas). These include:

CNDDDB Special-Status Plant Species

- | | | |
|--|--|--|
|  <i>Balsamorhiza macrolepis</i> |  <i>Limnanthes floccosa</i> ssp. <i>californica</i> |  <i>Sidalcea robusta</i> |
|  <i>Fritillaria eastwoodiae</i> |  <i>Monardella venosa</i> |  <i>Stuckenia filiformis</i> ssp. <i>alpina</i> |
|  <i>Fritillaria pluriflora</i> |  <i>Rhynchospora californica</i> | |





-  Study Area
-  5-Mile Radius

Figure 5a

















CNDDDB OCCURRENCES MAP

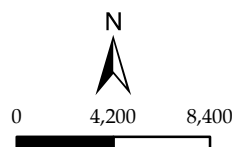
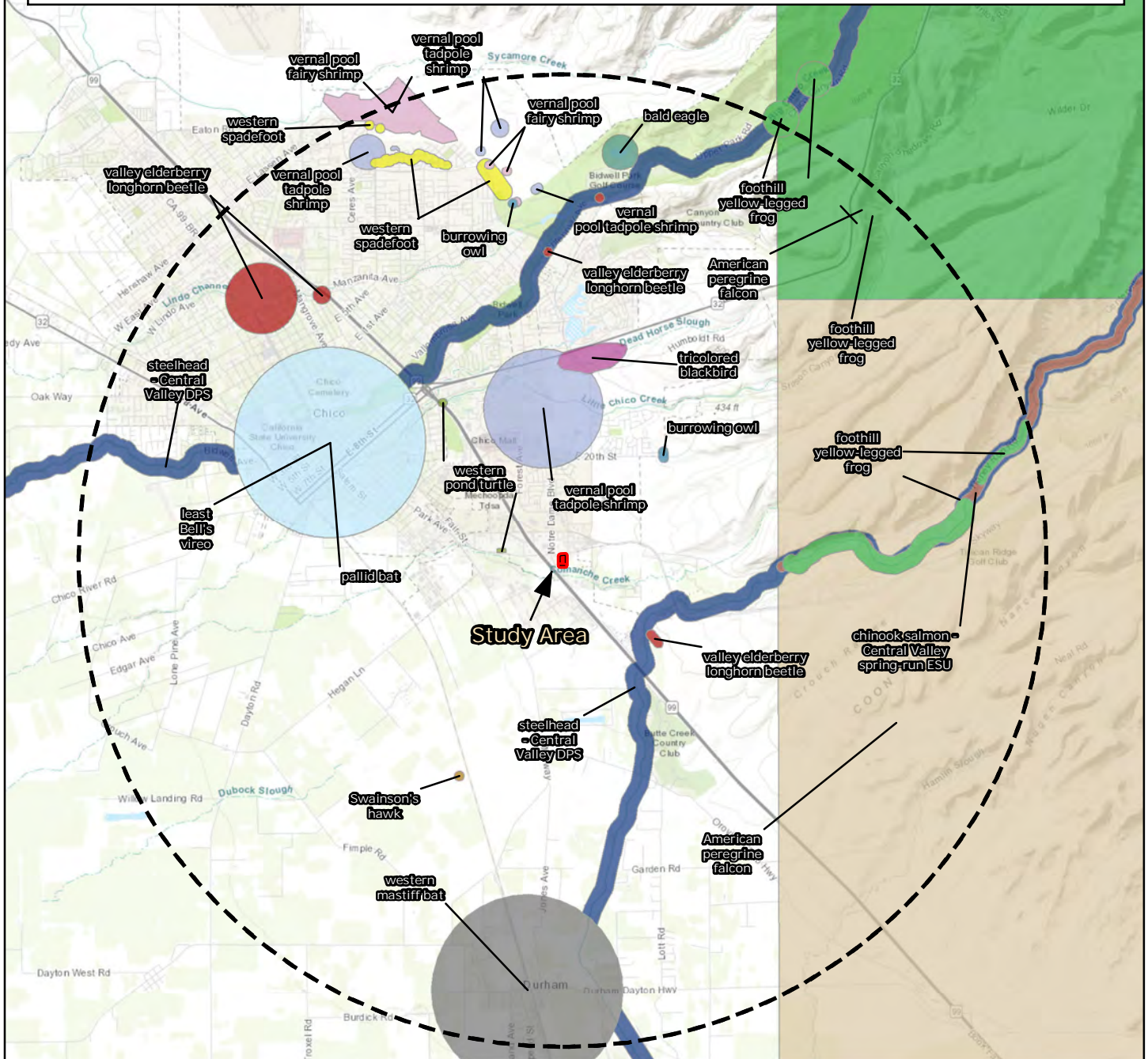
Morrow Lane

City of Chico, Butte County CA

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CNDDDB Special-Status Animal Species

	American peregrine falcon		least Bell's vireo		vernal pool tadpole shrimp
	Swainson's hawk		pallid bat		western mastiff bat
	bald eagle		steelhead - Central Valley DPS		western pond turtle
	burrowing owl		tricolored blackbird		western spadefoot
	chinook salmon - Central Valley spring-run ESU		valley elderberry longhorn beetle		
	foothill yellow-legged frog		vernal pool fairy shrimp		





 Study Area
 5-Mile Radius

Figure 5b

CNDDDB OCCURRENCES MAP

Morrow Lane

City of Chico, Butte County CA

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- Big-scale balsam-root (*Balsamorhiza macrolepis*)*
- Silky cryptantha (*Cryptantha crinita*)
- Veiny monardella (*Monardella venosa*)*
- Butte County fritillary (*Fritillaria eastwoodiae*)*
- Butte County checkerbloom (*Sidalcea robusta*)*
- White-stemmed clarkia (*Clarkia gracilis albicaulis*)
- Pink creamsacs (*Castilleja rubicundula* ssp. *rubicundula*)

Three (3) species identified in the CNDDDB query were also determined to have no potential for occurring onsite due to the absence of suitable substrates (such as alkaline, adobe, or serpentine soil). These include:

- Ferris' milkvetch (*Astragalus tener ferrisiae*)
- Adobe-lily (*Fritillaria pluriflora*)*
- Recurved larkspur (*Delphinium recurvatum*)

In summary, 22 special-status plants known from the region surrounding the study area (Appendix C), including eight (8) species that are known from within a five-mile radius (Figure 5a), require habitats or substrates that do not occur within the study area, were determined to have no potential for occurring onsite, and were eliminated from further consideration.

Animals

Of the 28 animal species identified in the CNDDDB and USFWS queries (Appendix C), 16 were identified as occurring within a five-mile radius of the study area (Figure 5b) and are marked with an asterisk (*) in the lists below.

None of the fish, amphibian, or other aquatic species occurring within a 5-mile radius or identified in the CNDDDB and USFWS queries were determined to have any potential for occurring onsite due to the absence of suitable aquatic habitat (such as vernal pools, wetlands, streams, ponds, marshes, sloughs, or other bodies of water). These include:

- Vernal pool fairy shrimp (*Branchinecta lynchi*)*
- Vernal pool tadpole shrimp (*Lepidurus packardii*)*
- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Steelhead, Central Valley ESU (*Oncorhynchus mykiss irideus*)*
- Chinook salmon - Central Valley spring-run ESU (*Oncorhynchus tshawytscha*)*
- Delta smelt (*Hypomesus transpacificus*) – (site is outside of species' known range)
- Western spadefoot (*Spea hammondi*)*
- California red-legged frog (*Rana draytonii*)
- Foothill yellow-legged frog (*Rana boylei*)*

- Western pond turtle (*Actinemys marmorata*)*
- Giant garter snake (*Thamnophis gigas*)

Ten (10) of the bird species occurring within a 5-mile radius (* below) or identified in the CNDDDB and USFWS queries were determined to have no potential to occur onsite due to the absence of suitable nesting habitat (such as woodlands near body of water or open grassland, banks/cliffs, tall buildings, dense riparian vegetation, or shrubbery). These include:

- Bald eagle (*Haliaeetus leucocephalus*)*
- Swainson's hawk (*Buteo swainsoni*)*
- American peregrine falcon (*Falco peregrinus anatum*)*
- California black rail (*Laterallus jamaicensis coturnculus*)
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
- Loggerhead shrike (*Lanius ludovicianus*)
- Least Bell's vireo (*Vireo bellii pusillus*)*
- Bank swallow (*Riparia riparia*)
- Yellow warbler (*Setophaga petechia*)
- Tricolored blackbird (*Agelaius tricolor*)*

Six (6) other species occurring within a 5-mile radius (* below) or identified in the CNDDDB and USFWS queries were also determined to have no potential for occurring within the study area due to the lack of suitable habitat (such as elderberry shrubs, loose/sandy soils among shrubs, cliffs, tunnels, abandoned buildings, rocky outcrops, or crevices) as well as to the highly disturbed nature of the site and its proximity to high human activity. These include:

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)*
- Coast horned lizard (*Phrynosoma blainvillii*)
- Western mastiff bat (*Eumops perotis californicus*)*
- Western red bat (*Lasiurus blossevillii*)
- Pallid bat (*Antrozous pallidus*)*
- American badger (*Taxidea taxus*)

In summary, of the 28 special-status animals identified through the CNDDDB query and other literature as occurring within the broader region surrounding the study area, 16 were identified as occurring within a five-mile radius of the study area. Twenty-seven (27) of these species were determined to have no potential for occurring onsite due to the absence of suitable habitat such as vernal pool or other wet/aquatic habitats, a host plant, or suitable nesting habitat. In one case (delta smelt), the site is located outside of the species' known range.

One (1) animal species was determined to be unlikely to occur within the study area, burrowing owl. It is listed in Table 1 below and discussed further following the table.

Table 1. Special-Status Species Determined to Have SOME POTENTIAL to Occur Within the Morrow Lane Study Area					
Species	Status*			Habitat	Potential for Occurrence Within Study Area**
	Federal	State	CNPS		
Birds					
Burrowing owl* <i>Athene cunicularia</i>	-	SSC	-	Open landscapes in Sacramento Valley.	Unlikely. Marginal habitat present, but site is highly disturbed, and nesting is unlikely. Species is reported to occur within 5 miles of the study area.

*Status Codes:

State

SSC

California Species of Concern

**Definitions for the Potential to Occur:

Unlikely: Minimal or marginal quality habitat in the study area.

Burrowing owl* (*Athene cunicularia*), an SSC species, occurs in association with open, dry grasslands, deserts, agricultural areas, and rangeland throughout the Central Valley. They often occur where numerous burrowing mammals are present and frequently occupy California ground squirrel burrows (Shuford and Gardali 2008). Burrowing owls may also use man-made structures such as debris piles, culverts, and cement piles for cover. Distinctive burrow characteristics for burrowing owl are not known. However, given the size of this owl, burrow entrances are expected to be at least seven centimeters in diameter. Circumstantial evidence of burrowing owl occurrence typically consists of the presence of molted feathers, cast pellets, prey remains, or excrement near a burrow entrance. Breeding of burrowing owl occurs from March to late August and incubation lasts between 28 to 30 days. Young are fledged at about 44 days but remain near the burrow and join the adults to forage at dusk.

The CNDDDB documents the nearest reported occurrence of the burrowing owl approximately 1.4 miles northeast of the study area near a development on the southeastern outskirts of Chico in February 2006 (Figure 5). Although marginal habitat for the burrowing owl exists within the study area, the species was not observed during the field assessment and it is unlikely to occupy the site due to the high level of human activity in the area. None were observed during the site visit in January.

RECOMMENDATIONS

Waters of the United States

The site contains areas being evaluated as potential waters of the U.S. If these areas are deemed to be waters of the U.S. and any are proposed to be filled by the proposed project, a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers and a Clean Water Act Section 401 water quality certification from the Regional Water Quality Control Board would both be required.

Streams, Pond, and Riparian Habitat

Impacts to the bed, bank, or channel of streams or ponds require a Lake & Streambed Alteration Agreement (LSAA) from the California Department of Fish and Wildlife (CDFW). An ephemeral stream that bisects the study area is not likely be under the jurisdiction of the CDFW and thus, a LSAA would not be required.

Tree Conservation

Native oak trees (blue oak, canyon live oak, or interior live oak) and non-oak native trees (California buckeye, madrone, toyon, redbud, California bay or Pacific dogwood) that are 6-inches diameter at breast height (DBH) or greater as well as any oak, sycamore, Oregon ash or big leaf maple that is 12-inches DBH or greater are all afforded various levels of protection through the City of Chico Tree Preservation Ordinance. An arborist report describing the tree resources within the site has been prepared under separate cover. The applicant should consult with the City to determine which provisions of the Tree Ordinance are applicable.

Special-Status Plants

Twenty-two (22) special-status plant species were identified through the IPaC and CNDDDB database searches as occurring within the seven-quadrangle region surrounding the site. However, due to the lack of suitable habitats or soil substrates, none of these species have any potential to occur within the study area. No further studies are recommended.

Special-Status Wildlife

Of 28 special-status animal species identified through the IPaC and CNDDDB database searches as occurring within the seven-quadrangle region surrounding the site, only one species, the burrowing owl, was determined to have any potential to occur within the study area. Very marginal habitat for burrowing owl occurs throughout the study area in association with the annual grassland. Prior to any future work activities or ground disturbance on site, a pre-construction burrowing-owl survey should be conducted to determine presence/absence of the species within and directly adjacent to proposed work areas. Pre construction surveys should be conducted according to the California Burrowing Owl Consortium's 1993 *Burrowing Owl Survey Protocol and Mitigation Guidelines*. In the event that active burrows are found during the pre-construction surveys, CDFW should be contacted to determine avoidance measures and mitigation responsibilities.

Nesting Raptors and Migratory Birds

The site may provide suitable nesting habitat for some common raptors and other birds protected by the Migratory Bird Treaty Act. Take of any active nest is prohibited under California Fish and Game Code sections 3503, 3503.5, and 3513. If tree removal or other ground disturbance takes place during the breeding/nesting season (February 1 through August 31), disturbance of nesting activities could occur. To avoid impacts to nesting birds, disturbance should occur outside of the typical nesting season. If disturbance occurs at any time during the nesting season, a pre-construction survey should be conducted by a qualified biologist within two weeks prior to initiation of proposed development activities. If active nests are found during the pre-construction survey, buffer zones will be established around any identified nests, and the nests will be monitored by a qualified biologist until the offspring have fledged. Consultation with the City of Chico, and if necessary, CDFW, may be warranted.

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Appendix A.
Plant Species Observed Within the Morrow Lane Study Area

Appendix A

Morrow Lane - Plants Observed - January 2020

Angiosperms - Dicots

Anacardiaceae - Cashew or Sumac Family

**Pistacia chinensis* Chinese pistachio

Aristolochiaceae - Pipevine Family

Aristolochia californica California pipevine

Asteraceae (Compositae) - Sunflower Family

**Centaurea solstitialis* Yellow starthistle

Erigeron canadensis Canadian horseweed

**Lactuca serriola* Prickly lettuce

**Senecio vulgaris* Common groundsel

**Sonchus asper subsp. asper* Prickly sow-thistle

Brassicaceae (Cruciferae) - Mustard Family

**Brassica nigra* Black mustard

Caryophyllaceae - Pink Family

**Spergularia rubra* Ruby sand-spurrey

**Stellaria media* Common chickweed

Euphorbiaceae - Spurge Family

Croton setiger Turkey mullein

Fabaceae (Leguminosae) - Legume Family

Acmispon americanus Spanish lotus

**Trifolium hirtum* Rose clover

**Vicia sp.* Vetch

Fagaceae - Oak Family

Quercus lobata Valley oak

Quercus wislizeni Interior live oak

Geraniaceae - Geranium Family

**Erodium botrys* Broad-leaf filaree

**Erodium cicutarium* Red-stem filaree

**Geranium molle* Dove's-foot geranium

Lamiaceae (Labiatae) - Mint Family

**Lamium amplexicaule* Deadnettle

Onagraceae - Evening Primrose Family

Epilobium brachycarpum Summer cottonweed

Plantaginaceae - Plantain Family

**Kickxia elatine* Sharppoint fluvellin

Polygonaceae - Buckwheat Family

**Polygonum aviculare* Common knotweed

**Rumex crispus* Curly dock

Rhamnaceae - Buckthorn Family

Frangula californica subsp. californica California coffeeberry

* Indicates a non-native species

Page 1 of 2

Rosaceae - Rose Family**Pyrus calleryana*

Callery pear

Rutaceae - Rue Family**Citrus sinensis*

Sweet orange

Salicaceae - Willow Family*Populus fremontii*

Fremont cottonwood

Theaceae - Tea Family**Camellia*

Camellia

Vitaceae - Grape Family*Vitis californica*

California wild grape

Angiosperms -Monocots

Poaceae (Gramineae) - Grass Family**Bromus diandrus*

Ripgut grass

**Bromus hordeaceus*

Soft chess

**Cynodon dactylon*

Bermudagrass

**Festuca perennis*

Italian ryegrass

Panicum capillare

Witchgrass

Typhaceae - Cattail Family*Typha latifolia*

Broad-leaved cattail

Appendix B.
Potentially-Occurring Special-Status Plants in the Region of the Morrow Lane Study Area

Appendix B

Morrow Lane Potentially-Occurring Special-Status Plant Species

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Araceae				
<i>Wolffia brasiliensis</i> Brazilian watermeal	Fed: - State: - CNPS: Rank 2B.3	April-December	Grows in mats on the surface of calm water bodies, such as ponds, marshes, swamps.	None. No suitable habitat (water body) present on site.
Asteraceae (Compositae)				
<i>Balsamorhiza macrolepis</i> Big-scale balsam-root	Fed: - State: - CNPS: Rank 1B.2	March-June	Cismontane woodland; valley and foothill grassland; [sometimes serpentinite].	None. No suitable habitat (open, undisturbed grassland) present on site.
Boraginaceae				
<i>Cryptantha crinita</i> Silky cryptantha	Fed: - State: - CNPS: Rank 1B.2	April-May	Cismontane woodland; lower montane coniferous forest; riparian forest; riparian woodland; valley and foothill grassland; [gravelly streambeds].	None. No suitable habitat (gravelly streambeds) present on site.
Caryophyllaceae				
<i>Paronychia ahartii</i> Ahart's paronychia	Fed: - State: - CNPS: Rank 1B.1	March-June	Cismontane woodland; valley and foothill grassland; vernal pools.	None. No suitable habitat (vernal pools) present on site.
Cyperaceae				
<i>Rhynchospora californica</i> California beaked-rush	Fed: - State: - CNPS: Rank 1B.1	May-July	Lower montane coniferous forest; meadows (seeps); marshes and swamps (freshwater).	None. No suitable habitat (wetlands) present on site.
Euphorbiaceae				
<i>Euphorbia hooveri</i> Hoover's spurge	Fed: FT State: - CNPS: Rank 1B.2	July-October	Vernal pools.	None. No suitable habitat (vernal pools) present on site.

Appendix D

Morrow Lane Potentially-Occurring Special-Status Plant Species

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Fabaceae (Leguminosae)				
<i>Astragalus tener ferrisiae</i> Ferris' milkvetch	Fed: - State: - CNPS: Rank 1B.1	April-May	Meadows (vernally mesic); valley and foothill grassland (subalkaline flats).	None. No suitable habitat (alkaline and wetland areas) present on site.
<i>Trifolium jokerstii</i> Butte County golden clover	Fed: - State: - CNPS: Rank 1B.2	March-May	Valley and foothill grassland (mesic); vernal pools	None. No suitable habitat (vernal pools) present on site.
Juncaceae				
<i>Juncus leiospermus leiospermus</i> Red Bluff dwarf rush	Fed: - State: - CNPS: Rank 1B.1	March-May	Vernal pools and wetland swales.	None. No suitable habitat (vernal pools) present on site.
Lamiaceae (Labiatae)				
<i>Monardella venosa</i> Veiny monardella	Fed: - State: - CNPS: Rank 1B.1	May-July	Valley and foothill grassland (heavy clay).	None. No suitable habitat (undisturbed valley or foothill grassland with clay) present on site.
Liliaceae				
<i>Fritillaria eastwoodiae</i> Butte County fritillary	Fed: - State: - CNPS: Rank 3.2	March-June	Chaparral; cismontane woodland; lower montane coniferous forest (openings); [sometimes serpentinite]	None. No suitable habitat (undisturbed chaparral, cismontane woodland, or lower montane coniferous forest) present on site.
<i>Fritillaria pluriflora</i> Adobe-lily	Fed: - State: - CNPS: Rank 1B.2	February-April	Chaparral; cismontane woodland; valley and foothill grassland; [often adobe].	None. No suitable habitat (undisturbed cismontane woodland, valley or foothill grassland with adobe soils) present on site.

Appendix D

Morrow Lane Potentially-Occurring Special-Status Plant Species

Family	Taxon	Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Limnanthaceae						
	<i>Limnanthes floccosa californica</i>		Fed: FE	March-May	Valley and foothill grassland (mesic); vernal pools.	None. No suitable habitat (vernal pools or wetland swales) present on site.
	Butte County meadowfoam		State: CE			
			CNPS: Rank 1B.1			
Malvaceae						
	<i>Hibiscus lasiocarpus occidentalis</i>		Fed: -	June-September	Marshes and swamps (freshwater).	None. No suitable habitat (wetlands) present on site.
	Wooly rose-mallow		State: -			
			CNPS: Rank 1B.2			
	<i>Sidalcea robusta</i>		Fed: -	April-June	Chaparral; cismontane woodland.	None. No suitable habitat (blue oak/chaparral transition) present on site.
	Bute County checkerbloom		State: -			
			CNPS: Rank 1B.2			
Onagraceae						
	<i>Clarkia gracilis albicaulis</i>		Fed: -	May-July	Chaparral; cismontane woodland; [sometimes serpentinite].	None. No suitable habitat (foothill woodland) present on site.
	White-stemmed clarkia		State: -			
			CNPS: Rank 1B.2			
Orobanchaceae						
	<i>Castilleja rubicundula rubicundula</i>		Fed: -	April-June	Chaparral; cismontane woodland; valley and foothill grassland; meadows and seeps.	None. No suitable habitat (open, undisturbed mesic areas) present on site.
	Pink creamsacs		State: -			
			CNPS: Rank 1B.2			
Poaceae (Gramineae)						
	<i>Imperata brevifolia</i>		Fed: -	January-May	Chaparral; coastal scrub; Mojavean desert scrub; meadows and seeps; riparian scrub.	None. No suitable habitat (wetlands) present on site.
	California satintail		State: -			
			CNPS: Rank 2B.1			

Appendix D

Morrow Lane Potentially-Occurring Special-Status Plant Species

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
<i>Orcuttia pilosa</i> Hairy Orcutt grass	Fed: FE State: CE CNPS: Rank 1B.1	May-September	Vernal pools.	None. No suitable habitat (vernal pools) present on site.
<i>Tuctoria greenei</i> Greene's tuctoria	Fed: FE State: CR CNPS: Rank 1B.1	May-July	Vernal pools	None. No suitable habitat (vernal pools) present on site.
Potamogetonaceae				
<i>Stuckenia filiformis alpina</i> Slender-leaved pondweed	Fed: FSW State: - CNPS: Rank 2B.2	May-July	Marshes and swamps (assorted shallow freshwater).	None. No suitable habitat (wetlands) present on site.
Ranunculaceae				
<i>Delphinium recurvatum</i> Recurved larkspur	Fed: - State: - CNPS: Rank 1B.2	March-June	Chenopod scrub; cismontane woodland; valley and foothill grassland; [alkaline].	None. No suitable habitat (alkaline soils) present on site.

*Status

Federal:
 FE - Federal Endangered
 FT - Federal Threatened
 FPE - Federal Proposed Endangered
 FPT - Federal Proposed Threatened
 FC - Federal Candidate
 FSS - Forest Service Sensitive
 FSW - Forest Service Watchlist

State:
 CE - California Endangered
 CT - California Threatened
 CR - California Rare
 CSC - California Species of Special Concern

CNPS (California Native Plant Society - List.RED Code):
 Rank 1A - Extinct
 Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
 Rank 2A- Plants extinct in California, but more common elsewhere
 Rank 2B - Plants rare, threatened, or endangered in California, more common elsewhere
 Rank 3 - Plants about which more information is needed, a review list
 Rank 4 - Plants of limited distribution, a watch list
 RED Code
 1 - Seriously endangered (>80% of occurrences threatened)
 2 - Fairly endangered (20 to 80% of occurrences threatened)
 3 - Not very endangered (<20% of occurrences threatened)

Appendix C.
Potentially-Occurring Special-Status Animals in the Region of the Morrow Lane
Study Area

Appendix C

Morrow Lane Potentially-Occurring Special-Status Animal Species

	Status*	Habitat	Probability on Project Site
Invertebrates			
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Fed: FT State: - Other: -	Vernal pools and other temporary bodies of water in southern and Central Valley of California. Most common in smaller grass or mud bottomed swales or basalt flow depression pools in unplowed grasslands.	None. No suitable habitat (vernal pools) present on site.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	Fed: FE State: - Other: -	Found in vernal pools in the Central Valley of California and in the San Francisco Bay area. Inhabits vernal pools with clear to highly turbid water.	None. No suitable habitat (vernal pools) present on site.
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	Fed: FE State: - Other: -	Endemic to the Central Valley and southern coastal regions of California. Prefers larger, turbid, cool-water vernal pools located in alluvial swales.	None. No suitable habitat (vernal pools) present on site.
Insects			
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	Fed: FT State: - Other: *	Requires host plant, elderberry (<i>Sambucus nigra</i>) for its life cycle. Shrubs must have live stem diameters at ground level of 1.0 inch or greater. Occurs in Great Valley and lower foothills.	None. No suitable habitat (elderberry shrubs) present on site.
Fish			
Steelhead, Central Valley ESU <i>Oncorhynchus mykiss irideus</i>	Fed: FT State: - Other: -	Occurs below man-made impassable barriers in the Sacramento and San Joaquin rivers and tributaries. Adults migrate from ocean to natal freshwater streams to spawn. Yuba River has essentially the only remaining wild steelhead fishery in Central Valley.	None. No suitable habitat (perennial streams) present on site.
Chinook salmon - Central Valley spring-run ES <i>Oncorhynchus tshawytscha</i>	Fed: FT State: CT Other: *	Occurs in water bodies with cool, fast-flowing water and gravel suitable for spawning. Found primarily in 4 tributaries of the Sacramento River: Butte Creek, Big Chico Creek, Deer Creek, and Mill Creek.	None. No suitable habitat (perennial streams) present on site.
Delta smelt <i>Hypomesus transpacificus</i>	Fed: FT State: CT Other: -	Endemic to the Sacramento-San Joaquin Delta in coastal and brackish waters. Occurs seasonally in Suisun and San Pablo bays. Spawning usually occurs in dead-end sloughs and shallow channels.	None. No suitable habitat (coastal or brackish waters) present on site. Site occurs outside of the species known range.

Appendix C

Morrow Lane Potentially-Occurring Special-Status Animal Species

	Status*	Habitat	Probability on Project Site
Amphibians			
Western spadefoot <i>Spea hammondi</i>	Fed: - State: SSC Other: -	Found primarily in grassland habitats, but may occur in valley and foothill woodlands. Requires vernal pools, seasonal wetlands, or stock ponds for breeding and egg laying. Prefers more turbid pools for predator avoidance.	None. No suitable habitat (aquatic features such as vernal pools, seasonal wetlands, or stock ponds) present on site.
California red-legged frog <i>Rana draytonii</i>	Fed: FT State: SSC Other: -	Occurs in lowlands and foothills in deeper pools and slow-moving streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	None. No suitable habitat (aquatic features such as deep pools or slow-moving streams) present on site.
Foothill yellow-legged frog <i>Rana boylei</i>	Fed: - State: CC Other: *	Found in partially shaded, shallow streams with rocky substrates. Needs some cobble-sized rocks as a substrate for egg laying. Requires water for 15 weeks for larval transformation.	None. No suitable habitat (aquatic features such as partially shaded, shallow streams with rocky substrates) present on site.
Reptiles			
Western pond turtle <i>Actinemys marmorata</i>	Fed: - State: SSC Other: -	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying.	None. No suitable habitat (ponds) present on site.
Coast horned lizard <i>Phrynosoma blainvillii</i>	Fed: - State: SSC Other: -	Open lowlands, washes, and sandy areas with an exposed gravelly-sandy substrate containing scattered shrubs. Edge of Sacramento Valley and in the Sierra Nevada foothills. Also observed in riparian woodland clearings and dry uniform chamise chaparral.	None. No suitable habitat (sandy or loose, friable soils among scattered shrubs in undisturbed areas) present on site.
Giant garter snake <i>Thamnophis gigas</i>	Fed: FT State: CT Other: -	Primarily associated with marshes and sloughs, less with slow-moving creeks, and absent from larger rivers. Nocturnal retreats include mammal burrows and crevices. During the day, basks on emergent vegetation such as cattails and tules.	None. Site lacks suitable habitat (waterways) and is disturbed by high human activity.
Birds			
Bald eagle <i>Haliaeetus leucocephalus</i>	Fed: - State: CE Other: CFP	Occurs along shorelines, lake margins, and rivers. Nests in large, old-growth or dominant trees with open branches.	None. No suitable habitat (old-growth trees near a shoreline, lake, or river) present on site. Site lacks adjacent water body.

Appendix C

Morrow Lane Potentially-Occurring Special-Status Animal Species

	Status*	Habitat	Probability on Project Site
Swainson's hawk <i>Buteo swainsoni</i>	Fed: - State: CT Other: *	Breeds in open areas with scattered trees; prefers riparian and sparse oak woodland habitats. Requires nearby grasslands, grain fields, or alfalfa for foraging. Rare breeding species in Central Valley.	None. No suitable habitat (riparian or woodland habitats adjacent to open grasslands) present on site and site is disturbed by high human activity.
American peregrine falcon <i>Falco peregrinus anatum</i>	Fed: - State: CFP Other: *	Nests on cliffs, banks, dunes, mounds, and tall man-made structures.	None. No suitable habitat (cliffs or tall buidilings) present on site or in surrounding area.
California black rail <i>Laterallus jamaicensis coturnculus</i>	Fed: - State: CT Other: CFP	Inhabits salt, fresh, and brackish water marshes with little daily and/or annual water fluctuations. In freshwater habitats, preference is for dense bulrush and cattails. Several scattered populations documented from Butte Co. to southern Nevada Co.	None. No suitable habitat (wetlands) present on site or in surrounding area.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	Fed: FT State: CE Other: -	Inhabits riparian forests along the broad, lower floodplains of larger rivers. Nests in thickets of willows and cottonwoods with an understory of blackberry, nettle, or wild grape.	None. No suitable habitat present on site. Site's riparian area lacks water and necessary diversity.
Burrowing owl <i>Athene cunicularia</i>	Fed: - State: SSC Other: *	Found in annual grasslands. Nests in burrows dug by small mammals, primarily ground squirrels.	Unlikely. Site may contain marginal habitat but is compromised by regular human activity.
Loggerhead shrike <i>Lanius ludovicianus</i>	Fed: - State: CSC Other: *	Found in broken woodlands, shrubland, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	None. No suitable nesting habitat (dense brush or shrubs) present on site.
Least Bell's vireo <i>Vireo bellii pusillus</i>	Fed: FE State: CE Other:	Rare, local summer resident below 2000 ft in low, dense foothill riparian habitat. Inhabits low, dense growth along water. Typically associated with willows, cottonwoods, and blackberry thickets.	None. No suitable habitat (dense foothill riparian areas including willows, cottonwoods and blackberry thickets) present on site.
Bank swallow <i>Riparia riparia</i>	Fed: - State: CT Other: *	Colonial nester near riparian and oher lowland habitats. Requires vertical banks or cliffs with fine-textured, sandy soils near streams, rivers, and lakes.	None. No suitable habitat (vertical banks near water) present on site.

Appendix C

Morrow Lane Potentially-Occurring Special-Status Animal Species

	Status*	Habitat	Probability on Project Site
Yellow warbler <i>Setophaga petechia</i>	Fed: - State: SSC Other: *	Breeds in riparian vegetation throughout California; populations in Sacramento and San Joaquin valleys are declining. Common in eastern Sierran riparian habitats below 8,000 feet.	None. No suitable habitat (dense riparian vegetation) present on site.
Tricolored blackbird <i>Agelaius tricolor</i>	Fed: - State: CT Other: CSC	Colonial nester in dense cattails, tules, brambles or other dense vegetation. Requires open water, dense vegetation, and open grassy areas for foraging.	None. No suitable nesting habitat (dense cattails, tules, brambles or other dense vegetation) present on site.

Mammals

Western mastiff bat <i>Eumops perotis californicus</i>	Fed: - State: CSC Other: *	Mostly found in open, dry habitats including annual grasslands, chaparral, and open oak and pine forests; roosts in cliff faces, high trees, tunnels, and buildings, also utilizes large cracks in boulders and abandoned buildings.	None. No structures or roosting areas (cliff faces, high trees, tunnels, boulder cracks, or abandoned buildings) present on site.
Western red bat <i>Lasiurus blossevillii</i>	Fed: - State: SSC Other: *	Forests and woodlands up to conifer forests. Roosts primarily in trees and occasionally shrubs.	None. Site occurs in urban area lacking sufficient cover and is disturbed by high human activity.
Pallid bat <i>Antrozous pallidus</i>	Fed: - State: SSC Other: *	Occurs in grasslands, woodlands, deserts & urban habitats; open habitat required for foraging. Common in dry habitats with rocky outcrops, cliffs, and crevices for roosting. Roosts include caves, mines, bridges & occasionally hollow trees, buildings.	None. No structures or roosting areas (such as rocky outcrops, cliffs, and crevices) present on site.
American badger <i>Taxidea taxus</i>	Fed: - State: CSC Other: -	Occurs in dry, open soils in herbaceous, shrub, and forest habitats. Needs friable, uncultivated soil. Preys on rodents.	None. Site occurs in an urban area with high human activity.

Appendix C

Morrow Lane Potentially-Occurring Special-Status Animal Species

Status*		Habitat	Probability on Project Site
*Status	Federal:	State:	Other:
	FE - Federal Endangered	CE - California Endangered	Some species have protection under the other designations, such as the California Department of Forestry Sensitive Species, Bureau of Land Management Sensitive Species, U.S.D.A. Forest Service Sensitive Species, and the Migratory Bird Treaty Act. Raptors and their nests are protected by provisions of the California Fish and Game Code. Certain areas, such as wintering areas of the monarch butterfly, may be protected by policies of the California Department of Fish and Game. WL - CDFG Watch List
	FT - Federal Threatened	CT - California Threatened	
	FPE - Federal Proposed Endangered	CR - California Rare	
	FPT - Federal Proposed Threatened	CC - California Candidate	
	FC - Federal Candidate	CFP - California Fully Protected	
	FPD - Federal Proposed for Delisting	CSC - California Species of Special Concern	