Brunswick Industrial Site and East Bennett Road Right of Way (ROW)

Biological Resources Assessment

Prepared for:
Rise Grass Valley, Inc.
PO Box 271
Grass Valley, CA 95945

Prepared by:
Greg Matuzak, Principal Biologist
Greg Matuzak Environmental Consulting LLC
471 Sutton Way, Suite #210
Grass Valley, CA 95945
Email: gmatuzak@gmail.com

January 2021

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

INFORMATION SUMMARY

Report Date: January 2021

Report Preparer: Mr. Greg Matuzak
Greg Matuzak Environmental Consulting LLC

Project Site: Brunswick Industrial Site
East Bennett Rd Corridor

Project Site Location: SECTION 36, T.16N, R.8E & SECTION 31, T.16N, R.9E
SECTION 25, T.16N, R.8E

BRUNSWICK INDUSTRIAL SITE		
Assessor Parcel Number	**Site Address**	**Lot Size (Acres)**
009-630-037	12603 East Bennett Road	21.8 AC
009-630-039	12301 Millsite Road	15.07 AC
006-441-003	12503 Brunswick Road	15.19 AC
006-441-004	12625 Brunswick Road	0.85 AC
006-441-005	12791 Brunswick Road	50.01 AC
006-441-034	12381 Brunswick Road	16.01 AC
Brunswick Industrial Site - Land Total:		**118.93 AC**
East Bennett Road ROW:		**10.3 AC**
Brunswick Area - Land Total:		**129.23 AC**

Property Owner / Applicant: Rise Grass Valley, Inc.
PO Box 271
Grass Valley, CA 95945

Principal Investigators: Greg Matuzak, Principal
Greg Matuzak Environmental Consulting LLC
471 Sutton Way, Suite #210
Grass Valley, CA 95945
E: gmatuzak@gmail.com

Wendy Boes
Botanical Consultant
21802 Purdon Road
Nevada City, CA 95959
E: wlbcarrot@gmail.com

Report Summary

The Biological Resources Assessment Report includes the biological results of the background research, biological resources field surveys, data analysis, and impact assessment for the Brunswick Industrial Site and East Bennett Road Right of Way. The key findings of this report include the following:

- Perennial marsh wetlands and a large manmade pond within the Brunswick Industrial Site contains potentially suitable habitat for several special-status aquatic wildlife species, including the California State ESA (CESA) listed (threatened) California black rail (*Laterallus jamaicensis coturiculus*), the federally listed California red-legged frog (*Rana aurora draytonii*), and the Western pond turtle (*Emys marmorata*), a California State Species of Concern. None of these species have been observed within the Brunswick Industrial Site.
- The South Fork of Wolf Creek within the western section of the Brunswick Industrial Site includes a perennial stream and riparian vegetation. The stream contains marginal suitable habitat for the foothill yellow-legged frog (*Rana boylii*), a Threatened Species listed under CESA. This species has never been observed within the Brunswick Industrial Site or along the East Bennett Road Right of Way.
- A single California Native Plant Society (CNPS) List 4 Species, the Humboldt lily (*Lilium humboldtii ssp. humboldtii*) was documented and mapped within the Brunswick Industrial Site during plant surveys. A single occurrence of the Humboldt lily consisting of 3 individuals was documented in the Brunswick Industrial Site during 2019 field surveys and a single occurrence of the species consisting of 12 individuals was documented within the East Bennett Road ROW.
- Woodland and grassland within the Brunswick Industrial Site and along the East Bennett Road Right of Way contains suitable nesting habitat for raptors and birds, However, none of these species were observed within the Brunswick Industrial Site or along the East Bennett Road Right of Way to date.
- The disturbed and developed areas within the Brunswick Industrial Site contain suitable habitat for the coast horned lizard (*Phrynosoma blainvillii*), a California Species of Concern, and the historic mining structure within the Brunswick Industrial Site contains roosting habitat for bats, including the Townsend's big-eared bat (*Corynorhinus townsendii*), a California Species of Concern. Neither the horned lizard, nor the Townsend's big-eared bat has been observed at the project site.
- A total of 9.60 acres of "waters of the U.S.", including wetlands, and "waters of the State of California", were identified and mapped within the Brunswick Industrial Site and along the East Bennett Road Right of Way. The 9.60 acres of wetland-waters include 8.72 acres of mapped wetlands and 0.88 acres of mapped "other waters of the U.S.," including South Fork Wolf Creek, a perennial drainage along

the western edge of Brunswick Road, as well as several intermittent and ephemeral streams.

- Estimates of permanent disturbance related impacts to "waters of the U.S.", including wetlands, within the Brunswick Industrial Site include 0.627 acres of permanent fill to "waters of the U.S.," including wetlands. This includes an estimated 0.01 acres of fill along approximately 15 linear feet of the south bank of the South Fork Wolf Creek, an estimated 0.05 acres of fill along approximately 188 linear feet along a mapped ephemeral stream, and 0.567 acres of permanent fill to wetlands. A potentially jurisdictional small roadside wetland along the East Bennett Road Right of Way would not be impacted by the Project nor would the perennial drainage be impacted along the western edge of Brunswick Road within the southeastern border of the Brunswick Industrial Site.
- Estimates of temporary disturbance related impacts to "waters of the U.S.", including wetlands, within the Brunswick Industrial Site includes 0.0427 acres of temporary impacts to a total of 89.5 linear feet of mapped streams within the Brunswick Industrial Site. A small roadside wetland along the East Bennett Road Right of Way would not be disturbed by the Project.

1 INTRODUCTION

At the request of Rise Grass Valley Inc. ("Rise Grass Valley" or "Rise"), Mr. Greg Matuzak was retained to prepare a Biological Resources Assessment Report ("Biological Report") for the Brunswick Industrial Site and East Bennett Road Right of Way ("Brunswick Area") located in Grass Valley, Nevada County, California (see Appendix A). The East Bennett Road Right of Way ("East Bennett Road ROW") is an approximate 1.25-mile public right of way. The Biological Report includes an evaluation of sensitive biological resources within the Brunswick Area, including sensitive biological resources under the jurisdiction of the California Department of Fish and Wildlife ("CDFW"), United States Fish and Wildlife Service ("USFWS"), United States Army Corps of Engineers ("Corps"), and the Nevada County Planning Department. Preparation of the Biological Report included background research, field biological resources surveys, and reporting as detailed herein. Additionally, this Biological Report references and incorporates the findings of a stand-alone *Brunswick Industrial Site Aquatic Resources Delineation of Waters of the United States and State of California* report (Matuzak, 2020) that was developed for the entirety of the Brunswick Area.

Mr. Greg Matuzak, Principal and owner of Greg Matuzak Environmental Consulting LLC is a wetlands ecologist and wildlife biologist with 20 years of experience conducting aquatic resources delineations and biological resources assessments in Northern California. Mr. Matuzak is 40-hour Wetland Delineation Certified (Wetland Training Institute) and has conducted aquatic resources delineations for 100's of linear miles of projects and 1000s of acres of site development projects. Additionally, Mr. Matuzak has conducted special-status biological resources surveys and developed biological resources assessments for dozens of projects in Nevada County. Mr. Matuzak has lived and worked in Nevada County for over 13 years. Ms. Wendy Boes is a local Nevada County botanist and most recently worked for the Tahoe National Forest as a botanist. Ms. Boes is an independent consultant, GIS specialist, and conducts field data collection and GIS mapping for field related projects. Mr. Matuzak and Ms. Boes were responsible for the field data collection and assessment developed as part of the development of this Biological Report. Both Mr. Matuzak and Ms. Boes are on the Nevada County Planning Department's list of Qualified Biological Resources Consultants.

1.1 Project Setting

The Biological Report includes a full coverage assessment of the 118.93-acre Brunswick Industrial Site and the 10.3-acre East Bennett Road ROW for a total Brunswick Area of 129.23 acres; see Appendix A for Brunswick Area Overview Figures. The recorded owner of the surface land which comprises the Brunswick Industrial Site is Rise Grass Valley while the East Bennett Road ROW is a public right of way.

The Brunswick Industrial Site is bordered by Brunswick Road along the eastern boundary and East Bennett Road along the northern boundary. The Brunswick Industrial Site is surrounded by private developed and undeveloped residential and industrial districts zoning and land uses. The East Bennett Road ROW study area is surrounded by private residential and industrial districts zoning and land uses, as well as public open space. The East Bennett Road ROW study area includes an easement area from East Bennett Road to the Centennial Industrial Site. The easement area crosses private industrial property that is heavily disturbed by industrial operations.

1.2 Project Understanding

Rise Grass Valley proposes to reinitiate underground mining and ore processing of the Idaho-Maryland Mine in Nevada County, CA. The proposed facilities and operations to support underground mining will be located on the Brunswick Industrial Site consisting of six contiguous parcels zoned Light Industrial ("M-1"). The project comprises four primary elements: (1) dewatering the existing underground mine workings, (2) mining existing and new underground mine workings, (3) processing ore and rock, and (4) placing engineered fill at the Centennial and Brunswick Industrial Sites.

The Brunswick Industrial Site is approximately 2 miles from the center of the city of Grass Valley and State Route 49. Several shaft entrances are located on the Brunswick Industrial Site from historic mine operations, including the Brunswick and Union Hill shafts. Other portions of the site include graveled or paved areas from previous land uses.

The project site plan for the Brunswick Industrial Site comprises five areas: aboveground site facilities, underground mining, treated and potable water pipelines, the Brunswick engineered fill area, and outfall for the treated water to South Fork Wolf Creek (see Appendix J for a figure showing the proposed site plan for the Brunswick Area). In total, approximately 60 acres of the 118.93-acre site will be subject to surface use and/or development for the aboveground facilities and fill placement to support dewatering, mining, and processing.

The groundwater from the mine will be pumped via a pipeline to an existing clay-lined settling pond for water treatment. An aboveground pipe will convey treatedwater from the water treatment facility at the Brunswick Industrial Site along an existing access road on the property to an outfall located at South Fork Wolf Creek. The pipe and discharge point are located entirely within the property boundaries. Initial dewatering of the underground workings and subsequent operational dewatering of the mine are estimated to have a maximum discharge rate of 5.6 cubic feet per second (cfs). The existing culvert that daylights creating the South Fork Wolf Creek within the Brunswick Industrial Site will be upgraded with a new culvert to replace the existing culvert.

All discharges from the water treatment plant to South Fork Wolf Creek will be discharged into South Fork Wolf Creek per the requirements of the Central Valley Regional Water Quality Control Board, National Pollutant Discharge Elimination System, Number CAG995002. The water discharged into South Fork Wolf Creek is expected to be as good or better quality than the water typically flowing through South Fork Wolf Creek.

A buried potable water pipeline will be installed to provide water to residences along the portion of the Brunswick Area containing the East Bennett Road ROW. The existing Nevada Irrigation District (NID) potable water pipeline will be extended within the East Bennet Road ROW to provide potable water service to residences currently on wells that may be affected by the project.

1.3 Previous Biological Resources Assessments of the Brunswick Site

Several previous reports were developed for a separate project that included the Brunswick Site and was completed by a different company that held a lease on the property. The previous assessments of the Brunswick Site included a special-status plant survey report and wildlife habitat evaluation report. In addition, the previously proposed Idaho-Maryland Mine Project's (which included the Brunswick Site) potential impacts on biological resources were evaluated per the California Environmental Quality Act (CEQA) guidelines requirements in 2008 when the impact assessment was completed. A Draft Environmental Impact Report (Draft EIR) was previously developed and included appendices for the previously assessed Idaho-Maryland Mine Project (ESA, 2008). Background biological resources surveys reporting developed as part of the baseline for the 2008 Draft EIR and previous regulatory agency coordination included the following:

- *Idaho-Maryland Mine Special-Status Plant Survey Report* (ESA, 2006). The ESA report includes the Brunswick Industrial Site as well as other areas associated with the overall proposed mining operations at the time.
- *Idaho-Maryland Mine Special-Status Wildlife Habitat Evaluation Report* (ESA, 2006). The ESA report includes the Brunswick Industrial Site as well as other areas associated with the overall proposed mining operations at the time.
- *Delineation of Section 404 Jurisdictional Areas Idaho-Maryland Mine, Nevada County, California* developed by WRA, Inc., dated April 2008 with follow up mapping submitted to the United States Army Corps of Engineers ("Corps") on June 5, 2008. The WRA, Inc. mapping and reporting of the Brunswick Industrial Site, includes the areas located to the west of the large clay lined pond.
- *Draft EIR Idaho-Maryland Mine Project* (ESA, 2008). The Draft EIR included previous reporting for the Brunswick Industrial Site included as appendices.

In addition, Brunswick Area reporting has been completed by the current landowner and applicant (Rise Grass Valley) for potential "waters of the U.S.," including wetlands, that may be subject to CWA Section 404 jurisdiction within the Brunswick Area. This reporting was developed as part of the development of the evaluation of the Brunswick Area and includes the identification of the presence of CNPS ranked plants and special-status plant species within the Brunswick Area and the findings of those reports are included directly and by reference into this Biological Report. The Brunswick Area biological resources reporting included directly and by reference into this Biological Report includes the following:

- Brunswick Industrial Site and East Bennett Road ROW Aquatic Resources Delineation of Waters of the United States and State of California (Greg Matuzak Environmental Consulting LLC, 2020a).
- Brunswick Site Special Status Plant Survey Report (Wendy Boes Botanical Consultant, August 2020).

1.4 Biological Resources Assessment Purpose

The purpose of the Biological Report is to identify the location and extent of sensitive biological resources within the Brunswick Area, including special-status plant and wildlife species. Additionally, this Biological Report includes an impact assessment to such sensitive biological resources based on the Project Understanding outlined in Section 1.2 above. Section 6 includes avoidance, minimization, and mitigation measures to ensure that the Brunswick Area disturbance, based on the Project Understanding, would not have a significant impact on such sensitive biological resources. This Biological Report also satisfies the Nevada County General Plan and Nevada County Land Use and Development Code requirements for the development of such biological resource assessments.

2 REGULATORY OVERVIEW

2.1 Federal Regulations

2.1.1 Section 404 of the Clean Water Act

The U.S. Army Corps of Engineers ("Corps") and the Environmental Protection Agency ("EPA") regulate the discharge of dredge or fill material into "waters of the U.S." under Section 404 of the Clean Water Act. "Waters of the U.S." include wetlands and lakes, rivers, streams, and their tributaries. Wetlands are defined for regulatory purposes as areas "…inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated solid conditions" as specified in 33 Code of Federal Regulations [CFR] 328.3, 40 CFR 230.3.

Generally, wetlands include swamps, marshes, bogs, and similar areas. Lakes, rivers, and streams are defined as "other waters of the U.S." Jurisdictional limits of these features are typically noted by the Ordinary High Water Mark ("OHWM"). The OHWM is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as mark a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR 328 and 33 CFR 329).

Isolated ponds or seasonal depressions had been previously regulated as waters of the U.S. However, in *Solid Waste Agency of Northwestern Cook County* (SWANCC) *v. USACE et al.* (January 8, 2001), the U.S. Supreme Court ruled that certain "isolated" wetlands (e.g., non- navigable, isolated, and intrastate) do not fall under the jurisdiction of the CWA and are no longer under the jurisdiction of the Corps. Some circuit courts (e.g., *U.S. v. Deaton*, 2003; *U.S. Rapanos*, 2003; *Northern California River Watch v. City of Healdsburg*, 2006), though, have ruled that SWANCC does not prevent CWA jurisdiction if a "significant nexus" such as a hydrologic connection exists, whether it be man-made (e.g., roadside ditch) or natural tributary to navigable waters, or direct seepage from the wetland to the navigable water, a surface or underground hydraulic connection, an ecological connection (e.g., the same bird, mammal, and fish populations are supported by both the wetland and the navigable water), and changes to chemical concentrations in the navigable water is present due to water from the wetland.

Areas considered to be non-jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions with no outlet for drainage (33 CFR, Part 328).

The *Clean Water Rule* is a 2015 regulation published by the EPA and Corps to clarify water resources management in the United States under a provision of the CWA. The regulation defined the scope of federal water protection in a more consistent manner, particularly over streams and wetlands, which have a significant hydrological and ecological connection to traditional navigable waters, interstate waters, and territorial seas. It is also referred to as the *Waters of the United States* rule, which defines all bodies of water that fall under U.S. federal jurisdiction. The rule has been contested in litigation and in 2017 the Trump administration announced its intent to review and rescind or revise the rule. Following a Supreme Court ruling on January 22, 2018 that lifted a nationwide stay on the rule, the Trump administration formally suspended the rule until February 6, 2020, thereby giving the EPA time to issue a draft proposal of replacement water regulatory requirements.

On October 22, 2019, the EPA and the Corps published a final rule to repeal the 2015 Clean Water Rule: Definition of "Waters of the United States" ("2015 Rule"), which amended portions of the Code of Federal Regulations (CFR), and to restore the regulatory text that existed prior to the 2015 Rule. The final rule will become effective on December 23, 2019. The EPA and the Corps will implement the pre-2015 Rule regulations informed by applicable agency guidance documents and consistent with Supreme Court decisions and longstanding agency practice.

However, on April 21, 2020, the EPA and the Corps published the Navigable Waters Protection Rule to define "Waters of the United States" in the *Federal Register*. For the first time, the agencies have streamlined the definition so that it includes four simple categories of jurisdictional waters, provides clear exclusions for many water features that traditionally have not been regulated, and defines terms in the regulatory text that have never been defined before. Congress, in the CWA, explicitly directed the Agencies to protect "navigable waters." The Navigable Waters Protection Rule regulates traditional navigable waters and the core tributary systems that provide perennial or intermittent flow into them.

Under the final rule, four clear categories of waters are federally regulated:

- The territorial seas and traditional navigable waters,
- Perennial and intermittent tributaries to those waters,
- Certain lakes, ponds, and impoundments, and
- Wetlands adjacent to jurisdictional waters

Therefore, as of June 22, 2020, the final rule details 12 categories of exclusions, features that are not "waters of the United States," such as features that only contain water in direct response to rainfall (e.g., ephemeral features); groundwater; many ditches; prior converted cropland; and waste treatment systems. The final rule clarifies key elements

related to the scope of federal CWA jurisdiction, including:

- Providing clarity and consistency by removing the proposed separate categories for jurisdictional ditches and impoundments.
- Refining the proposed definition of "typical year," which provides important regional and temporal flexibility and ensures jurisdiction is being accurately determined in times that are not too wet and not too dry.
- Defining "adjacent wetlands" as wetlands that are meaningfully connected to other jurisdictional waters, for example, by directly abutting or having regular surface water communication with jurisdictional waters.

The Navigable Waters Protection Rule is the second step in a two-step process to review and revise the definition of "waters of the United States" consistent with the February 2017 Presidential Executive Order entitled "Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the 'Waters of the United States.'" This final rule became effective on June 22, 2020 and will replaces the Step One Rule published in October, 2019 as outlined above.

2.1.2 Section 401 of the Clean Water Act

Section 401 of the CWA requires an applicant, for any federal permit which may result in a discharge into waters of the U.S., to obtain a certification from the state that the discharge will comply with provisions of the CWA. The nine regions of the State Water Quality Control Board administer this program. Any condition of water quality certification would be incorporated into the Corps permit. California has a policy of no-net-loss of wetlands and typically requires mitigation for impacts to wetlands before it will issue a water quality certification. This Project is located under the jurisdiction of Region 5, the Central Valley Regional Water Quality Control Board ("RWQCB").

2.1.3 Endangered Species Act of 1973

For the Brunswick Area, consultation with the USFWS would be necessary if a proposed action may affect a federally listed species or occupied habitat. This consultation would proceed under Section 7 of the Endangered Species Act (ESA) if a federal action is part of the proposed action or through Section 10 of the ESA if no such nexus were available (USFWS, 1973). There are three federally protected plant species listed under the ESA that have previously been documented within 5 miles of the Brunswick Area (CDFW 2019a). Scadden Flat checkerbloom (*Sidalcea stipularis*), Stebbins' morning glory (*Calystegia stebbinsii*), and Pine Hill flannelbush (*Fremontodendron decumbens*) are ESA listed species as Endangered. None of these species is known to occur within the Brunswick Area. California red-legged frog (*Rana aurora draytonii*) is federally listed as threatened and though the species has not previously been documented in the Brunswick Area

watershed or within 5 miles of the site, the species is known to occur north of the Brunswick Area in Nevada County and therefore, this species is included in the assessment of special-status wildlife species as part of this Biological Report.

2.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BAGEPA) (16 USC Section 668) protects bald and golden eagles and their nests from direct "take" (i.e. harm or harassment as described above). BAGEPA prohibits the take or commerce of any part of the bald or golden eagles (USFWS, 1940). The USFWS administers the Act and reviews actions that may affect species protected under the Act.

2.2 State Regulations

2.2.1 California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) has jurisdiction over plant and wildlife species listed as threatened or endangered under section 2080 of the CDFW Code. The California Endangered Species Act (CESA) prohibits take of state-listed threatened and endangered species. The state Act differs from the federal Act in that it does not include habitat destruction in its definition of *take*. The CDFW defines *take* as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CDFW may authorize *take* under the CESA through Section 2081 agreements. If the results of a biological survey indicate that a state-listed species would be affected by the project, the CDFW would issue an Agreement under Section 2081 of the CDFW Code and would establish a Memorandum of Understanding for the protection of state-listed species. CDFW maintains lists for Candidate-Endangered Species and Candidate-Threatened Species. Scadden Flat checkerbloom (*Sidalcea stipularis*) and Stebbins' morning glory (*Calystegia stebbinsii*) are State ESA listed species as Endangered, while Pine Hill flannelbush (*Fremontodendron decumbens*) is designated as a State Rare Species. All three plants have been known to occur within 5 miles of the Brunswick Area (CDFW 2019a), but none of these species has been documented within the Brunswick Area.

The foothill yellow-legged frog (*Rana boylii*) is listed as a Threatened species under the State ESA and is discussed in this Biological Report given the presence of several perennial, intermittent, and ephemeral streams within the Brunswick Area. The California black rail (*Laterallus jamaicensis coturniculus*) has been previously documented within 5 miles of the Brunswick Area and is listed as Threatened under the State ESA. This species is known to occur in freshwater marsh wetlands with a perennial water source. Neither of these two species have been documented within the Brunswick Area. However, both

species are discussed within this Biological Report given the presence of such perennial water sources within the Brunswick Industrial Site.

The western bumble bee (*Bombus occidentalis occidentalis*) is a CESA Candidate for listing as Endangered; however, the species was last documented within 5 miles of the Brunswick Area in 1968 (considered part of its historical distribution) and is currently only known (current distribution known from 2003 – 2017) from a few locations in the Sierra Nevada, none of which are within western Nevada County where the Brunswick Area is located (CDFW 2019b); therefore, it is unlikely the species would occur within the Brunswick Area.

2.2.2 Streambed Alteration Agreements: CDFG Code Section 1600 et seq.

CDFW has jurisdictional authority over substantial alterations to the bed or bank of rivers, streams, and lakes under Sections 1600–1616. CDFW has the authority to regulate all work under the jurisdiction of the State of California that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.

The perennial and intermittent streams within the Brunswick Site would most likely be regulated by CDFW. Therefore, a CDFW Streambed Alteration Agreement may be required for encroachment into the bed and bank of the streams located within the Brunswick Site.

2.2.3 Porter-Cologne Water Quality Control Act & Section 1601 and Section 1607 of CDFG Code

These acts and codes pertain to projects with potential impacts to water quality or waterways. The Brunswick Area does contain waters of the State as defined by the State Water Resources Board (State Board 2014) and they correspond to the features mapped within the Brunswick Area (see Greg Matuzak Environmental Consulting LLC, 2019).

2.2.4 State Water Resources Control Board Wetland Policy (April 2019)

On April 2, 2019, the State Water Resources Control Board (State Water Board) adopted rules to protect wetlands and other environmentally sensitive waterways throughout the state. More than 90 percent of California's historic wetlands have been lost to development and other human activity. Wetlands are a critical natural resource that protect and improve water quality, provide habitat for fish and wildlife, and buffer developed areas from flooding and sea-level rise. The newly adopted rules provide a common, statewide definition of what constitutes a wetland. They also provide consistency in the way the State Water Board and nine regional water boards regulate

activities to protect wetlands and other waterways, such as rivers and streams, and bays and estuaries. The State of California waters of the state are, by definition, broader than "waters of the United States" covered by federal regulation. The newly adopted rules do not change that and will ensure that waters of the state will continue to be protected even if protections for federal waters are narrowed by administrative actions or the courts.

The new definition clarifies what is considered a wetland – and what is not – for the entire state, provides a common framework for monitoring and reporting the quality of California's remaining wetlands, helps ensure no overall net loss, and promote an increase, in the quantity, quality, and sustainability of waters of the state, including wetlands, improves transparency and consistency across the State Water Board and the nine Regional Water Quality Control Boards in how discharges of dredged or fill material in sensitive waterways are monitored and regulated, and avoids duplicative work and streamline requirements to cover all waters of the state, so both state and federal environmental concerns are addressed at once.

2.2.5 California Department of Fish and Game Code Sections 3503, 3503.5, and 3800: Nesting Migratory Bird and Raptors

Sections 3503, 3503.5, and 3800 of the CDFG Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that project-related disturbance within active nesting territories be reduced or eliminated during critical phases of the nesting cycle (approximately March 1 – August 31). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g. killing or abandonment of eggs or young), or the loss of habitat upon which birds are dependent, is considered "taking", and is potentially punishable by fines and/or imprisonment (LCC 2013).

2.2.6 California Special Species of Concern, Fully Protected, and Special Status Species

California designates Species of Special Concern (SSC) as species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational or educational values. These species do not have the same legal protection as listed species but may be added to official lists in the future (CDFW 2014). For example, the coast horned lizard (*Phrynosoma blainvillii*) is designated as SSC and the species is evaluated as part of this Biological Report since it has been identified within 5 miles of the Brunswick Area.

In the 1960's California created a designation to provide additional protection to rare species. This designation remains today and is referred to as "Fully Protected" species, and those listed "may not be taken or possessed at any time" (CDFW 2014). The California

black rail (*Laterallus jamaicensis coturniculus*) for instance has been previously documented within Nevada County, including within 3 miles to the southeast and southwest of the Brunswick Area. This species is designated as threatened by the State of California as well as a Fully Protected species.

California special status species are identified by the California Natural Diversity Database (CNDDB) and includes those species considered to be of greatest conservation need by the CDFW.

2.2.7 California Environmental Quality Act Guidelines Section 15380

California Environmental Quality Act (CEQA) Guidelines section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specific criteria. This section was included in the guidelines to deal primarily with situations in which a public agency is reviewing a project that may have a significant effect on, for example a "candidate species" that has not yet been listed by the USFWS or CDFW. CEQA, therefore, enables an agency to protect a species from significant project impacts until the respective government agencies have had an opportunity to list the species as protected, if warranted (CNRA 2012).

Plants appearing on the California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) are considered to meet CEQA's Section 15380 criteria. Ranks include: 1A) plants presumed extirpated in California and either rare or extinct elsewhere, 1B) plant rare, threatened, or endangered in California and elsewhere, 2A) plants presumed extirpated in California, but more common elsewhere, and 2B) plants rare, threatened, or endangered in California, but more common elsewhere. Impacts to these species would therefore be considered "significant" requiring mitigation.

2.2.8 State Oak Woodland Regulations

State laws that regulate protection of oak woodlands include Professional Forester's Law (PFL) and CEQA according to Public Resources Code Section 21083.4. Oak woodlands are defined as areas having 10% oak canopy cover or greater. "Oaks" are defined in Public Resources Code Section 21083.4 as a native tree species in the genus *Quercus*, that is 5 inches diameter at breast height (DBH) or greater. The Oak Woodlands Conservation Act (SB 1334) provides funding for the conservation and protection of oak woodlands in California. Oak trees and oak woodland habitats are protected under both the State and the Nevada County landmark groves and landmark oak tree regulations as discussed below. The Brunswick Area does not contain any protected oak trees or oak resources per the State of California policies for the protection of oak woodlands as set

forth in Public Resources Code Section 21083.4 and the Nevada County Land Use and Development Code.

2.3 Local Regulations

2.3.1 Nevada County Landmark Groves and Landmark OakTree Regulations

The Nevada County Land Use and Development Code, Chapter II; Zoning Regulations, Section L-II 4.3.18 for Trees. Landmark trees are any native oak tree species (*Quercus* species) with a trunk diameter of 36" or greater at diameter breast height (dbh or 4'6"). Identifies landmark groves as hardwood tree groves with 33+% canopy closure, or groves whose size, visual impact, or association with a historically significant structure or event has caused it to be marked for preservation by the county, state, or federal government.

Projects shall be approved only when they do not remove or disturb defined trees or groves, unless a Management Plan is prepared consistent with paragraph 3 below or other standards are met consistent with paragraph 3 below. Exempted from this standard shall be trees or groves determined to be dead, dying, or a public safety hazard by a certified professional arborist, licensed landscape architect, registered professional forester, or qualified biologist or botanist (referred to herein as a qualified professional). In addition, exemption shall apply to those trees that must be removed to ensure fire safe access or provide adequate fuel reduction as determined by the California Department of Forestry or local fire district. Tree removal may also be allowed where necessary to provide for site access and public utilities or public right-of-way.

If the above standard effectively precludes development of the project or a revised project, or adversely affects another environmentally-sensitive resource, a Management Plan shall be prepared by a certified arborist, registered forester, qualified biologist or botanist, or landscape architect. Said Plan shall evaluate the impact of the project on defined trees and groves and recommend project modifications that avoid or minimize impacts. Emphasis shall be placed on protecting groups of trees rather than individuals. Defined trees that must be removed shall be replaced on an inch for an inch replacement of the removed tree(s). The total of replacement trees shall be required to have a combined diameter of the tree(s) removed. The Management Plan shall provide for the long-term maintenance of the replacement trees.

Management Plans shall emphasize protection of two varieties of oak: blue oak (*Quercus douglasii*) and valley oak (*Quercus lobata*). Both are of very limited distribution in Nevada County and considered to be sensitive plants worthy of special protection. However, no such protected oak resources were identified within the Brunswick Area and thus a Management Plan would not be required to be developed for the protection of such landmark oak trees and/or landmark oak groves within the Brunswick Area.

2.3.2 Nevada County Water Courses, Wetlands, and Riparian Areas Management Plan

Per the Nevada County Land Use and Development Code, Chapter II; Zoning Regulations, Section L-II 4.3 17C.3 (Ordinance Number 2033) requires a Management Plan be prepared for projects in non-disturbance buffers, including areas that are within 100 feet of the high water mark of perennial streams, watercourses, and wetlands, 50 feet from the high water mark of intermittent watercourses, and 100 feet upslope or 20 feet downslope from an NID canal (Nevada County 2000. Land Use and Development Code, Chapter II: Zoning Regulations. Effective July 27, 2000). Therefore, the development of such a Management Plan would be required for any potential future development within such non-disturbance buffers. The development of such a Management Plan would meet the requirements of the Nevada County Land Use and Development Code.

2.3.3 Rare, Threatened, and Endangered Species and Their Habitat

The Nevada County Land Use and Development Code, Section L-II 4.3.12, includes regulations intended to avoid the impact of development on rare, threatened, endangered, and special status species and their habitat, or where avoidance is not possible, to minimize or compensate for such impacts and to retain their habitat as non-disturbance open space. The regulations indicate that a project may only be approved when it is determined by Nevada County that it will not adversely affect rare, threatened, or endangered species or their habitat and that it will result in no net loss of habitat function or value for the defined species. When it is determined that a project will adversely affect a defined species or their habitat, the regulations require that a site-specific habitat management plan be prepared.

2.3.4 Nevada County General Plan

Brunswick Site land use changes and/or any subsequent development would be required to comply with the goals and policies outlined in the Nevada County General Plan and thus are included here.

The following goals and policies regarding relevant biological resources are set forth in Chapter 13: Wildlife and Vegetation of the Nevada County General Plan.

Goal 13.1 Identify and manage significant areas to achieve sustainable habitat.

Objective 13.1 Discourage intrusion and encroachment by incompatible land uses in significant and sensitive habitats.

Policy 13.1 Where significant environmental features, as defined in Policy 1.17, are identified during review of projects, the County shall require all portions of the project site that contain or influence said areas to be retained as non-disturbance open space through clustered development on suitable portions of the project site, or other means

where mandatory clustering cannot be achieved. The intent and emphasis of such open space designation and non-disturbance is to promote continued viability of contiguous or inter-dependent habitats by avoiding fragmentation of existing habitat areas and preserving movement corridors between related habitats. Vegetation management for the benefit of habitat preservation or restoration shall be considered consistent with the intent of this policy.

Policy 13.2 As part of the Comprehensive Site Development Standards, include standards to minimize removal of existing vegetation and require installation and long-term maintenance of landscaping in Chapter 13: Wildlife and Vegetation Element Nevada County General Plan Volume I - Page 13-5 setbacks and buffer areas. These standards shall be applicable to all discretionary projects and to all ministerial projects other than a single-family residence located on an individual lot. Tree removal may be allowed where necessary to comply with public right-of-way development or dedication, or development of required site access and public utilities. Individual trees or groups of trees shall be protected during construction to prevent damage to the trees and their root systems. Vegetation in proximity to structures shall conform to applicable fire protection standards.

Policy 13.2A Project review standards shall include a requirement to conduct a site-specific biological inventory to determine the presence of special status species or habitat for such species that may be affected by a proposed project. The results of the biological inventory shall be used as the basis for establishing land use siting and design tools required to achieve the objective of no net loss of habitat function or value for special status species. Where a Habitat Management Plan is deemed appropriate, the Plan shall be prepared to comply with the requirements of the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA). The plan shall provide the background data, impact analysis, and mitigation programs necessary to obtain a FESA Section 10(a) and CESA Section 2081 permit authorizing incidental take of federal and state listed threatened and endangered species that occur in areas proposed for future development. Prior to implementation of an adopted Habitat Management Plan, project applicants proposing the development of a project that would impact a federal or state listed species, or a species that is proposed for listing, shall be individually responsible for obtaining federal and state incidental take permits on a project-by-project basis.

Policy 13.3 As part of the Comprehensive Site Development Standards, require the maximum feasible use of drought tolerant native plant species for landscaping of all new multi-family residential, commercial, industrial, and public projects. Invasive, non-native plants, as determined by a landscape architect or other similar expert, that may displace native vegetation on adjoining undeveloped lands shall not be used. Landscaping with native trees and shrubs shall be encouraged to provide suitable habitat for native wildlife, particularly in proposed open space uses of future development.

Policy 13.4 Encourage long-term sustainability and maintenance of landscaped areas.

Policy 13.4A No net loss of habitat functions or values shall be caused by development where rare and endangered species and wetlands of over 1 acre, in aggregate, are identified during the review of proposed projects. No net loss shall be achieved through avoidance of the resource, or through creation or restoration of habitat of superior or comparable quality, in accordance with guidelines of the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

Policy 13.4B Habitat that is required to be protected, restored, or created as mitigation for a project's impacts shall be monitored and maintained in accord with a County-approved Habitat Management Plan.

Objective 13.2 Minimize impacts to corridors to ensure movement of wildlife.

Objective 13.3 Provide for the integrity and continuity of wildlife environments.

Objective 13.5 Support, where feasible, the continued diversity and sustain ability of the habitat resource through restoration and protection.

Objective 13.7 Identify and preserve heritage and landmark trees and groves where appropriate.

Policy 13.9 Development in the vicinity of significant oak groves of all oak species shall be designed and sited to maximize the long-term preservation of the trees and the integrity of their natural setting. The County shall adopt a regulation to protect native heritage oak trees and significant oak groves. All native oak tree species with a trunk diameter of 36" or greater shall be protected.

3 METHODOLOGY

In order to evaluate the Brunswick Area for the presence of any sensitive biological resources, baseline information from databases and reporting for similar projects in the City of Grass Valley and Nevada County was collected and reviewed prior to conducting reconnaissance-level field biological surveys. The database searches, background research, and habitat level field surveys characterized the baseline conditions of the Brunswick Area. Baseline information also included previous biological resources survey reporting (ESA, 2006) conducted as part of the Draft EIR (ESA, 2008) developed for a similar development of the Idaho-Maryland Mine that included portions of the Brunswick Industrial Site.

Based on the baseline conditions of the Brunswick Area, an assessment was implemented to determine if any special-status plant or wildlife species use the Brunswick Area at any time during their life cycle. The baseline conditions also identified the presence of any sensitive habitat or communities, including "waters of the U.S.," including wetlands, that had been identified and mapped within the Aquatic Resources Delineation Report developed for the Brunswick Area (Matuzak, 2019a).

3.1 Sensitive Biological Resources Background Review

The following information was used to identify potential sensitive biological resources, including the presence of CNPS ranked plants and special-status plant and wildlife species, within the Brunswick Area region that could be found to use the Brunswick Area:

- California Department of Fish and Wildlife's California Natural Diversity Database records search of 5-mile buffer around the Brunswick Area (CDFW, 2019a);
- The California Native Plant Society's online Inventory of Rare and Endangered Plants of California for the Brunswick Area and Nevada County (CNPS, 2019);
- The U.S. Fish and Wildlife Service Information, Planning, and Consultation System (IPaC) for endangered, threatened, and proposed listed species for the Brunswick Area (USFWS, 2019);
- National Wetland Inventory map of the Brunswick Area (NWI, 2019);
- United States Department of Agriculture (USDA) Soils Mapper of the Brunswick Area (USDA, 2019);
- Natural Resources Conservation Service (NRCS) Hydric Soils List for Nevada County (NRCS, 2019);
- Nevada County General Plan (Nevada County, 1996 with subsequent amendments through 2012);

- Draft Environmental Impact Report, including Appendices, for the Idaho-Maryland Mine Project (ESA Associates, October 2008);
- Idaho-Maryland Mine Special-Status Plant Survey Report (ESA Associates, August 2006);
- Idaho-Maryland Mine Special-Status Wildlife Habitat Evaluation Report (ESA Associates, August 2006);
- Brunswick Industrial Site and East Bennett Road ROW Aquatic Resources Delineation of Waters of the United States and State of California (Matuzak, 2020); and
- Brunswick Site Special Status Plant Survey Report (Boes, 2020).

3.2 Reconnaissance Level Biological Resources Field Surveys

Reconnaissance level biological resources field surveys were conducted on foot for the entirety of the Brunswick Area (129.23 acres) by Greg Matuzak, Principal Biologist and owner of Greg Matuzak Environmental Consulting LLC, and Wendy Boes, a local Nevada County botanist, on December 9th through 12th and 17th and 18th, 2018. Follow up reconnaissance level biological resources field surveys were conducted by Greg Matuzak for potential special-status wildlife species habitats on December 30th, 2018 and by Wendy Boes for the special-status plant species habitat on January 3rd, 2019. The purpose of the surveys completed in December 2018 and January 2019 was to identify habitat and vegetation types and to determine the potential for any special-status plant and wildlife species identified in the desktop analysis and background research to occur within the Brunswick Area.

Further evaluation of the Brunswick Area was conducted on July 1st and 14th, and August 16th, 2019 by Ms. Boes who implemented botanical surveys within the entirety of the Brunswick Area. The follow up botanical surveys were conducted during the time of year when the target special-status plant species with potential to occur within the Brunswick Area are known to be in bloom and identification of each is most likely. Wendy Boes most recently served as a US Forest Service botanist with the local Tahoe National Forest and has also been a local botanical expert consultant in the greater project area for many years. During the site visits and surveys conducted in July 2019, Greg Matuzak also conducted reconnaissance-level wildlife surveys on July 14th and 16th, 2019 to document the presence of such species within the Brunswick Area and to document suitable habit for such species within the Brunswick Area.

Additionally, Mr. Greg Matuzak conducted a follow up review of targeted areas within the central and eastern sections of the Brunswick Industrial Site on August 27, 2020 to reevaluate the potential presence of wetlands and streams not previously mapped as

part of the December 2018 and July 2019 wetland assessment field related surveys (see Greg Matuzak Environmental Consulting LLC, 2020).

Mr. Matuzak conducted a habitat assessment and Visual Encounter Surveys (VES) for foothill yellow-legged frogs within the South Fork Wolf Creek in the Brunswick Industrial Site as well as within the portions of the creek that flow through public property downstream within the Empire Mine State Historic Park on August 29th, 2019. The VES methodology is based on a CDFW approved protocol following Yarnell et al. (January 2014) for evaluating the abundance, distribution, and habitat associations of foothill yellow-legged frogs within rivers and streams and to provide the necessary data to coordinate other stream reach study efforts, where feasible, such as instream flow studies where hydrodynamic modeling will be used. Given the intensity of the implementation of the VES methodology, it also provides the ability to assess the presence of other aquatic resources within the stream study area and to assess the overall habitat quality of the study stretch in terms of the potential of the stream to provide the necessary habitat structure and streambed substrate for macroinvertebrates, fish, and other aquatic resources.

The presence of streams and wetlands within the Brunswick Area that could be regulated by state and/or federal agencies were identified and mapped simultaneously and independently from the development of this Biological Report. See the stand-alone Aquatic Resources Delineation report (Matuzak, 2020). The entirety of the Brunswick Area was surveyed on foot and a list of plant and wildlife species observed during the field surveys was compiled (see Appendix E for species lists). A Photo Log is included in Appendix G, which documents the Brunswick Area during the field surveys.

3.3 Brunswick Area Characterization

The Brunswick Industrial Site has been disturbed by historic mining and lumber mill practices, public access, and ongoing management for many years which is the baseline condition for the Brunswick Industrial Site. Within the Brunswick Industrial Site, the dumping of soils, landscape materials, and other miscellaneous items has also occurred for many years and the current circumstances are the baseline conditions. A large section of the Brunswick Industrial Site located in the eastern areas along Brunswick Road would be characterized as disturbed and/or developed given the amount of pavement and impervious surfaces in those areas as well as the remaining infrastructure related to historic mining and mill operations. Areas not subject to this regular type of previous disturbance are dominated by native habitat and, therefore, are also the baseline condition within the Brunswick Industrial Site.

The portion of the Brunswick Area that includes the East Bennett Road ROW contains a developed and paved public road and ROW that has been used for decades. In

addition, the shoulders of East Bennett Road that are included as part of the East Bennett Road ROW are also developed given the grading and fill material associated with the development of the road.

All vascular plant species identified at the time of the survey were recorded using keys and descriptions in *The Jepson Manual* (Baldwin et al., 2012). Vegetation types were classified by ESA Associates (2006) during the previous environmental review process (hereby incorporated by reference). ESA Associates mapped and classified wildlife habitats/vegetation types using the California Department of Fish and Game's (CDFG) *A Guide to Wildlife Habitats* (Mayer and Laudenslayer, 1988). The classifications and mapping completed by ESA was found to be far more detailed than the existing CDFW California Wildlife Habitat Relationships (CWHR) layers that were evaluated for the Brunswick Area and therefore, the ESA Associates vegetation descriptions were used for a more detailed documentation of vegetation types and as a springboard for the descriptions within this Biological Report (see Appendix D for a Vegetation Community Map for the Brunswick Industrial Site). A list of plant and wildlife species identified within the Brunswick Area as part of the development of this Biological Report is located in Appendix E.

4 ENVIRONMENTAL SETTING

4.1 Environmental Setting

The Brunswick Area is located in Nevada County, CA in the northern-central Sierra Nevada foothills. The Sierra Nevada foothills lie between the western edge of the Sierra Nevada and the eastern border of the Central Valley. The foothills form a belt 10 to 30 miles wide that ranges from 500 to 5,000 feet in elevation in a series of northwest to north-northwest aligned ridges that decline in elevation from northeast to southwest. Many rapidly flowing rivers and streams run westerly in deeply incised canyons with bedrock channels to the Central Valley and eventually to the Pacific Ocean. Alluvial fans, floodplains, and terraces are not extensive; and all but the largest streams are generally dry during the summer. Dominant vegetation communities include grasslands, oak woodlands, and chaparral.

Vegetation communities within the Brunswick Area are typical of the lower Sierra Nevada foothills. However, the terrain within the Brunswick Area is not typical of the lower Sierra Nevada foothills that normally vary between flat ridges and valleys to gently and moderately sloping hillsides given the high level of development and disturbance within the Brunswick Area. The Brunswick Industrial Site elevation ranges from approximately 2,675 to 2,950 feet above mean sea level (MSL) and the East Bennett Road ROW elevation ranges from approximately 2,650 to 2,850 to feet above MSL.

Natural hydrological sources for the Brunswick Area include precipitation and surface run-off from adjacent lands. Mean annual rainfall in the area is 53.74 inches (NRCS, 2018). During rain events over the previous month prior to the field surveys, very little surface water and no snow was identified. However, evidence of surface moisture was still present in some areas. Water stained leaves and damp surface soil/leaf litter was observed and some mapped wetland features had surface ponding.

The Brunswick Area is located in an area containing South Fork Wolf Creek, a perennial stream. Several intermittent and ephemeral streams connect directly to South Fork Wolf Creek within the Brunswick Industrial Site. South Fork Wolf Creek also flows to the south of the East Bennett Road ROW within the Brunswick Area. South Fork Wolf Creek contains associated riparian woodland and scrub and large tracks of wet meadow wetlands dominant in the northwestern section of the Brunswick Industrial Site.

South Fork Wolf Creek surfaces within the Brunswick Industrial Site south of a large man-made clay lined pond and flows northwest across the Brunswick Area. South Fork Wolf Creek daylights from an existing 48" diameter culvert which is approximately 1,600 feet long (Regional Water Quality Control Board Order No. 88-185, December 18th, 1990). The 48" culvert appears is fed by surface drainage and road runoff on both the east and west sides of Brunswick Road, which crosses Brunswick Road through a culvert.

Additionally, perennial surface drainage from the west side of Brunswick Road drains north to the 48" culvert inlet. The 48" culvert was flowing water in December 2018 as well as during the July and August 2019 site surveys (see Photo Log in Appendix E).

4.2 Brunswick Area Soil Types

Brunswick Industrial Site

The USDA Soil Survey Mapper (USDA, 2019) identifies several soil types within the Brunswick Industrial Site. USDA soil mapping for the Brunswick Industrial Site is included in Appendix B and indicates that the Brunswick Industrial Site includes 10 soil types: Aiken loam on 9 to 15 percent slopes (AfC), Aiken loam on 15 to 30 percent slopes (AfD), Aiken loam on 30 to 50 percent slopes (AfE), Alluvial land, clayey (Ao), Cohasset loam, summits, on 2 to 15 percent slopes (CmB), Cohasset loam, shoulders, on 3 to 20 percent slopes (CmC), Cohasset loam, backslopes, on 5 to 30 percent slopes (CmD), Cohasset cobbly loam on 5 to 30 percent slopes (CoD), Placer diggings (Pr), and Sites loam on 15 to 30 percent slopes (SID). These soil types are described in detail below and are shown in Appendix B:

- **Aiken loam on 9 to 15 percent slopes (AfC).** The Aiken series consists of deep, well-drained soils typically occurring on ridgetops and side slopes of andesitic flows. These soils form from the weathering of volcanic rock. Drainage is moderately slow with a medium rate of surface runoff. The Aiken series is not hydric. A typical profile for this series consists of dark to reddish brown (5YR 3/3) loam from 0 to 11 inches. This layer is underlain by a yellowish red (5YR 4/6) loam from 11 to 21 inches. A dark red (2.5 YR 3/6) loam is present from 21 to 29 inches followed by a clay loam layer of the same color from 29 to 42 inches. From 42 to 52 inches is yellowish red (5YR 4/6) clay loam which is underlain by a reddish brown (SYR 4/4) clay loam. This layer is underlain by bedrock.

- **Aiken loam on 15 to 30 percent slopes (AfD).** The description of this soil is the same as the AfC description, only it is found on steeper slopes.

- **Aiken loam on 30 to 50 percent slopes (AfE).** The description of this soil is the same as the AfC description, only it is found on steeper slopes than AfD soils.

- **Alluvial land, clayey (Ao).** This series consists of moderately well-drained soils in floodplains and drainages. These soils formed from alluvium derived from granitic or mixed metabasic rocks. Permeability and runoff are both slow. This is a hydric soil. A typical soil for alluvial soils consists of 3 to 10 inches of sandy loam or loam underlain by 30 to 45 inches of a clay loam.

- **Cohasset loam, summits, on 2 to 15 percent slopes (CmB).** The Cohasset series consists of well drained soils on ridgetops and side slopes. These soils formed from weathered volcanic rock. Drainage is moderate and runoff is slow to rapid. These soils are not hydric. A typical profile for the Cohasset series consists of pine and fir needles from 0 to 3 inches. This layer is underlain by a dark reddish brown (ranges from 5YR 3/2, 3/3, 3/4) cobbly loam from 0 to 24 inches. This layer is underlain by a dark reddish brown (5YR 3/4 or 4/4) cobbly clay loam from 24 to 96 inches. At 96 inches is a weathered andesitic conglomerate.

- **Cohasset loam, shoulders, on 3 to 20 percent slopes (CmC).** The description of this soil is the same as the CmB description, only it is found on steeper slopes and shoulders.

- **Cohasset loam, backslopes, on 5 to 30 percent slopes (CmD).** The description of this soil is the same as the CmB description above, only it is found on steeper slopes and backslopes.

- **Cohasset cobbly loam on 5 to 30 percent slopes (CoD).** The description of this soil is the same as the CmB description above, only it is found on steeper slopes and is a cobbly loam rather than a Cohasset loam like CmB, CmC, and CmD above, containing a mixture of cobbles within the loamy soil.

- **Placer diggings (Pr).** The Placer diggings series consists of remnant tertiary river deposits associated with hydraulic mining and placer mining operations as well natural deposits within stream channels. Areas with this soil type are 90 to 100 percent rock, cobble or gravel. 50 to 75 percent of these lands have a mixture of rock, cobbles, gravel and soil. This soil contains unnamed hydric inclusions in drainages and depressions.

- **Sites loam on 15 to 30 percent slopes (SID).** The Sites series consists of well drained soils that occur in mountain uplands. The soils formed from weathered residuum of metabasic and metasedimentary rocks. Drainage is moderately soil and runoff is slow to very high. This soil is not hydric. A typical profile for this complex consists of dark reddish brown loam (5YR 3/4) from 0 to 3 inches. This layer is underlain by yellowish red loam (5YR 4/6) from 3 to 12 inches. From 12 to 23 inches is a layer of red (2.5 YR 4/6) clay loam. This layer is underlain by red (10R 4/6) clay from 23 to 56 inches and red (10R 4/8) light clay from 53 to 69 inches. From 68 to 78 inches is a red (2Y 4/8) clay loam underlain at 78 inches by a layer of weathered metasedimentary rock.

East Bennett Road ROW Section of Brunswick Area

The USDA Soil Survey Mapper (USDA, 2019) indicates that the East Bennett Road ROW includes 10 soil types: Aiken loam on 9 to 15 percent slopes (AfC), Aiken loam on 30 to 50 percent slopes (AfE), Boomer loam, hard bedrock, 7 to 28 percent slopes (BoD), Boomer-Rock outcrop complex on 5 to 30 percent slopes (BrD), Boomer-Rock outcrop complex on 30 to 50 percent slopes (BrE), Cohasset loam on 15 to 30 percent slopes (CmD), Cut and fill land (Ct), Placer diggings (Pr), Sierra sandy loam on 15 to 30 percent slopes (SfD), and Sites loam on 15 to 30 percent slopes (SID). These soil types are described in detail below and are shown in Appendix B:

- **Aiken loam on 9 to 15 percent slopes (AfC).** The soil series description for Aiken loam on 9 to 15 percent slopes is above within the descriptions for the Brunswick Industrial Site.

- **Aiken loam on 30 to 50 percent slopes (AfE).** The soil series description for Aiken loam on 30 to 50 percent slopes is above within the descriptions for the Brunswick Industrial Site.

- **Boomer-Rock outcrop complex on 5 to 30 percent slopes (BrD).** The Boomer-Rock outcrop series consists of well-drained soils in upland areas. These soils formed from weathered metavolcanic rock. Drainage is moderately slow and runoff is slow to rapid. These soils are not hydric. A typical profile for this series consists of a brown (5YR 3/4) gravelly loam from 0 to 11 inches. This layer is underlain by a dark reddish brown (2.SYR 3/4) loam from 11 to 18 inches. From
  18 to 29 inches is a dark red (2.5YR 3/6) clay loam layer which is underlain by a reddish yellow clay loam to 33 inches. This layer is underlain by a yellowish red (SYR 4/8) clay loam with dark red (2.5 YR 3/6) films from 29 to 37 inches followed by a hard fractured diabase at 47 inches.

- **Boomer-Rock outcrop complex on 30 to 50 percent slopes (BrE).** This soil description is the same as for BrD but is found on steeper slopes.

- **Boomer loam, hard bedroack, 7 to 28 percent slopes (BoD).** This soil description is similar to BrD described above. Runoff is medium to rapid on this soil.

- **Cohasset loam on 15 to 30 percent slopes (CmD).** The soil series description for Cohasset loam on 15 to 30 percent slopes is above within the descriptions for the Brunswick Industrial Site.

- **Cut and fill land (Ct).** This soil type consists of areas that have been altered by activities other than mining of milling such that there are no intact soil characteristics. This soil is not hydric.

- **Placer diggings (Pr).** The soil series description for Placer diggings is above within the descriptions for the Brunswick Industrial Site.

- **Sierra sandy loam on 15 to 30 percent slopes (SfD)**. The Sierra series consists of deep to very deep, well drained soils that formed in material weathered from intrusive igneous rocks. Sierra soils are on foothills and have slopes of 0 to 70 percent. The typical profile for this type of soil from 0 to 8 inches is brown (7.5YR 5/4) coarse sandy loam, dark reddish brown (5YR 3/4) moist; massive; slightly hard, friable; many very fine roots; many very fine and fine pores; moderately acid (pH 5.7); clear smooth boundary. From 8 to 20 inches it is known to be reddish brown (5YR 5/4) loam, yellowish red (5YR 3/6) moist; massive; hard, friable, slightly sticky, slightly plastic; many very fine roots; many very fine, common fine, few medium and coarse pores; few thin discontinuous clay films line pores, colloids mainly bridging mineral grains; moderately acid (pH 5.9); gradual smooth boundary.

- **Sites loam on 15 to 30 percent slopes (SID)**. The soil series description for Sites loam is above within the descriptions for the Brunswick Industrial Site.

4.3 Brunswick Area Vegetation Communities

Vegetation community types within the Brunswick Area are described below. Table 1.0 includes a list of each vegetation community identified and the associated mapped acreage (see Appendix D for the Vegetation Community Map).

TABLE 1.0 VEGETATION COMMUNITIES AND ACREAGES

Vegetation Community	Acres within Brunswick Area
Montane Hardwood-Conifer	15.63
Montane Hardwood	1.65
Ponderosa Pine	4.85
Sierran Mixed Conifer	35.98
Annual Grassland	8.15
Manmade Pond	7.28
Wet Meadow	9.36
Developed	29.49
Disturbed	16.84
Total	**129.23**

Developed

The entirety of the East Bennett Road ROW is considered developed given it contains pavement and shoulders that include fill material used as part of the construction of the road. In addition, the area connecting the northwestern end of East Bennett Road with

the Centennial Industrial Site is also considered developed given the paved and gravel access as well as the historic industrial uses within that area.

Within the Brunswick Industrial Site, a large portion of the eastern section of the site is mapped as developed as it contains asphalt, gravel, and pavement. The areas within the Brunswick Industrial Site mapped as developed contain little to no vegetation and the sparse vegetation present is considered ruderal and dominated by non-native and mostly invasive grassland species. The central area of the mapped developed section of the Brunswick Industrial Site contains artificial depressions that include some wetland and riparian species from the ponding of water that occurs within those artificial topographical low areas.

Disturbed

A small area within the northeast corner of the Brunswick Industrial Site and a large area within the southern/southeastern section of the site is mapped as disturbed. Those areas contain a mix of fill material, asphalt, and gravel that have created a mix of non-native ruderal grassland vegetation and areas of barren ground. The southern disturbed area also contains some historic artificial depressions that include some wetland and riparian species given the ponding of water that occurs within those artificial topographical low areas, but those areas are dominated mostly by invasive Himalayan blackberry shrubs (*Rubus armenicus*).

Montane Hardwood

Montane hardwood habitat is identified on the Brunswick Industrial Site within and adjacent to a drainage area within the northeastern section of the site. Montane hardwood is characterized here by stands of an overstory of native oak trees mixed with some riparian species (*Salix* sp.). There is often homogeneity in the canopy structure, and canopy closure is variable between seasons as the dominant overstories species is deciduous, ranging from 5-45%. Due to the historic disturbance, there is abundant Himalayan blackberry in the understory along with other nonnatives including bristly dogtail (*Cynosurus echinatus)* and hedgenettle (*Torilis arvensis)*.

Montane Hardwood-Conifer

Montane hardwood-conifer habitat in the Sierra Nevada occurs at elevations between 1,000 and 4,000 feet above MSL and is comprised of a mosaic of hardwoods and conifers. The Brunswick Industrial Site is likely a midpoint on the gradient between hardwood forest and conifer forest containing both hardwood and conifer tree species, often in a mosaic pattern with small pure stands of conifers interspersed with small stands of hardwoods. Species associated with montane hardwood-conifer include ponderosa pine, California black oak, canyon live oak, madrone and Douglas fir. This vegetation community has been mapped within the northwestern section of the Brunswick Industrial Site along the

South Fork Wolf Creek corridor and in two smaller areas along the southern side of East Bennett Road.

Annual Grassland

Annual grassland are open vegetation types that are dominated by annual plant species, often nonnative. These species can occur within the understory of other vegetation types like oak woodlands, but where annual grasslands are mapped there is little to no overstory or shrub cover. This vegetation type is common within the northwestern section of the Brunswick Industrial Site where there has been historic disturbance and little to no water source other than rainfall. The fall rainfall will spark germination and plants will grow through the cool months and in spring will grow rapidly and flower, fruit and senesce. Common to the environmental setting of this habitat type are yellow star thistle (*Centaurea solstitalis),* garden burnett (*Poterium sanguisorba),* soft chess (*Bromus hordeaceous),* bisnaga (*Ammi visnaga),* and patches of Himalayan blackberry.

Ponderosa Pine

Ponderosa pine (*Pinus ponderosa)* habitat is found within the northeastern corner of the Brunswick Industrial Site. The structure and composition of the ponderosa pine forest varies widely according to the amount of soil moisture available during the summer. The canopy closure tends to be low in the Brunswick Areas ranging from 5-35%. In the Brunswick Industrial Site, California black oak (*Quercus kelloggii)*, madrone (*Arbutus menziesii)*, foothill pine (*Pinus sabieniana)*, and incense cedar (*Calocedrus decurrens)* are common associates of ponderosa pine. A variety of understory shrub species occur throughout the ponderosa pine forest. In the Brunswick Areas the more common understory shrubs are white leaf manzanita (*Arctostaphylos viscida* ssp. *viscida)*, poison oak *(Toxicodendron diversilobum)*, and honeysuckle (*Lonicera hispidula)*. These understory shrubs form often dense, impenetrable stands, especially on open rocky slopes, and in areas of recent disturbance.

Sierran Mixed Conifer

The Sierran mixed conifer forest is generally a multi strata forest dominated by conifers with hardwood as a component of the understory. This vegetation type is found along the hillslope on the western and southern portions of the Brunswick Industrial Site. The forest here is more mesic, occurring on mostly east facing slopes. It is dominated by Douglas fir, incense cedar, and black oak. It has high canopy closure. It often has a midstory strata of madrone, hazelnut (*Corylus cornuta ssp. californica)* and younger black oak. The understory has high litter cover and Himalayan blackberry and honeysuckle area common in the understory.

Montane Riparian

A structural gradient generally occurs from neighboring vegetation into montane riparian, resulting in oaks or pines grading in with the more riparian species. This vegetation type is characterized by two different ecological conditions, (1) placer diggings where small depressions within the disturbed and developed mapped areas of the Brunswick Industrial Site pond water long enough for riparian species such as willows (*Salix* sp.) to occur and (2) along a narrow stretch of the South Fork Wolf Creek.

The montane riparian in the placer diggings and areas created from earth movement are characterized by black cottonwood (*Populus tremuloides),* red willow (*Salix laevigata),* arroyo willow *(Salix lasiolepis),* and occasionally ponderosa pine in the overstory. Dense thickets are often resultant with Himalayan blackberry and Baltic rush (*Juncus balticus* ssp. *atar)* in the herbaceous layer.

The montane riparian vegetation along both sides of the South Fork Wolf Creek is dominated by white alder (*Alnus rhombifolia),* red willow (*Salix laevigata), and* arroyo willow *(Salix lasiolepis)* with other overstory species from adjacent vegetation types, including California black oak, pine and Douglas fir. The understory of montane riparian along the stream is dominated by Himalayan blackberry. This vegetation type forms a very narrow band along both sides of the creek between the mapped montane conifer-hardwood and annual grassland and wet meadow vegetation communities.

Wet Meadow

Wet meadows generally contain a single vegetation stratum and are generally dominated by forbs and gramanoids. Shrub and trees are sometimes present but generally make up a small portion of this vegetation type. This is typically a diverse plant community driven by hydrologic influences. The wet meadows in the northwestern section of the Brunswick Industrial Site are within areas mapped as alluvial, clayey soil types. These wet meadows are characterized by *Agrostis, Juncus* spp.*,* Baltic rush, and common velvet grass (*Holcus lanatus*).

Freshwater Emergent Marsh Wetlands

Freshwater emergent marsh wetlands are characterized by hydrophyllic plants and generally standing water. All emergent wetlands have soils that are saturated to the extent that the soils are always anaerobic. There are freshwater emergent marsh wetlands mapped in small depressional areas mostly within developed or disturbed areas of the Brunswick Industrial Site. Within the Brunswick Industrial Site, this habitat type is dominated by arroyo willow, red willow, and pacific rush (*Juncus effuses* ssp. *pacificus)*.

5 RESULTS

Special-status species were considered for the Brunswick Area based on a current review of the CNDDB and database information provided by the United States Fish and Wildlife Service and California Native Plant Society as well as the reconnaissance-level biological resources surveys. Table 2.0 below includes the vegetation communities identified and mapped within the Brunswick Area as well as the potential special-status species that could occur within each of the vegetation communities (see Appendix D for a map of the vegetation communities within the Brunswick Industrial Site).

For the purposes of this Biological Report, special-status species is defined as those species that are:

- listed as threatened or endangered, or proposed or candidates for listing by the USFWS or National Marine Fisheries Service;
- listed as threatened or endangered and candidates for listing by CDFW;
- identified as Fully Protected species or species of special concern by CDFW;
- identified as Medium or High priority species by the Western Bat Working Group; and
- plant species considered to be rare, threatened, or endangered in California by the CNPS and CDFW [California Rare Plant Rank (CRPR) 1 and 2]:

- CRPR 1A: Plants presumed extinct.
- CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
- CRPR 2A: Plants extirpated in California, but common elsewhere.
- CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.

The study area does not contain any mapped CDFW sensitive communities (see Appendix I for a CDFW CNDDB map of the study area and a 5-mile buffer). Therefore, CDFW sensitive communities are not discussed within this reporting effort further given the lack of mapping provided for such sensitive communities by CDFW within and adjacent to the Brunswick Area.

TABLE 2.0 SPECIAL-STATUS SPECIES ASSOCIATED WITH VEGETATION COMMUNITIES

Vegetation Community	Associated Special-Status Species
Montane Hardwood-Conifer	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Montane Hardwood	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Ponderosa Pine	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Sierran Mixed Conifer	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
South Fork Wolf Creek and Montane Riparian	Sierra blue grass (Rank 1B.3) Foothill yellow-legged frog (CSC), Western pond turtle (CSC), migratory birds (CDFW)
Disturbed and Developed	Coast horned lizard (CSC), Townsend's big-eared bat (CSC)
Annual Grassland	Brownish beaked-rush (Rank 2B.2)
Wet Meadow	Brownish beaked-rush (Rank 2B.2) and finger rush (Rank 1B.1)

5.1 Aquatic Resources Delineation Results

A total of 9.60 acres of "waters of the U.S.", including wetlands, and "waters of the State of California", were identified and mapped within the Brunswick Area. The 9.60 acres of wetland-waters include 8.72 acres of mapped wetlands and 0.88 acres of mapped "other waters of the U.S.," including South Fork Wolf Creek, as well as several intermittent and ephemeral streams.

The 8.72 acres of wetlands identified and mapped within the Brunswick Industrial Site includes:

- 6.97 acres of wet meadow wetlands (4 features mapped);
- 0.50 acres of freshwater emergent marsh wetlands (6 features mapped);
- 1.16 acres of riparian wetlands (3 features mapped); and
- 0.09 acres of roadside wetlands along the East Bennett Road ROW (1 feature mapped).
-

Table 2 includes the list of wetlands delineated and mapped within the Brunswick Area, including the wetland type, wetland identification number which corresponds to the delineation figures shown in Appendix F, and size of each feature.

Table 2. Wetlands Delineated Within Brunswick Industrial Site and Along the East Bennett Road ROW

No.	Wetland Type	Wetland ID Number	Size (Acres)
1	Meadow wetland	WM-1	0.02
2	Meadow wetland	WM-2	0.01
3	Meadow wetland	WM-3	0.01
4	Meadow wetland	WM-4	6.93
5	Marsh	MA-1	0.1
6	Marsh	MA-2	0.3
7	Marsh	MA-3	0.02
8	Marsh	MA-4	0.007
9	Marsh	MA-5	0.05
10	Marsh	MA-6	0.02
11	Riparian	RI-1	0.03
12	Riparian	RI-2	0.76
13	Riparian	RI-3	0.37
14	Roadside Wetland	RW-1	0.09
14			**8.72**

The 0.88 acres (4,392 linear feet) of streams identified and mapped within the Brunswick Industrial Site includes:

- One (1) perennial stream, the South Fork Wolf Creek, totaling 0.59 acres over 2,563 linear feet;
- One (1) perennial drainage along the western edge of Brunswick Road, totaling 0.16 acres over 701 linear feet;
- Five (5) intermittent streams totaling 0.07 acres over 745 linear feet; and
- Two (2) ephemeral streams that only flow during and immediately after precipitation events totaling 0.06 acres over 383 linear feet.
-

Table 3 includes the list of streams delineated and mapped within the Brunswick Area, including the stream type, stream identification number which corresponds to the delineation figures shown in Appendix F, and size of each feature.

Table 3. Streams Delineated Within Brunswick Industrial Site

No.	Stream Type	Wetland ID Number	Size (Acres)
1	Perennial Stream	South Fork Wolf Creek – 1	0.59
2	Perennial Drainage	P – 1	0.16
3	Intermittent Stream	I – 1	0.05
4	Intermittent Stream	I – 2	0.002
5	Intermittent Stream	I – 3	0.006
6	Intermittent Stream	I – 4	0.003
7	Intermittent Stream	I – 5	0.004
8	Ephemeral Stream	E – 1	0.01
9	Ephemeral Stream	E – 2	0.05
9			**0.88**

A targeted review of site conditions within the central and eastern sections of the Brunswick Industrial Site was conducted on August 27, 2020. The purpose of this review was to reevaluate site conditions for the potential presence of wetlands within the site based on the July 2020 Madrone Ecological Consulting peer review and a perennial drainage along Brunswick Road that were not previously mapped as part of the December 2018 and July and August 2019 field surveys. Except for the perineal drainage that runs along Brunswick Road this survey did not identify any additional potential CWA regulated wetlands. These survey areas contained a lack of the required indicators of wetland hydrology and hydric soils required by the Corps to be regulated under the CWA. As identified above, a perennial drainage was mapped that runs along the western edge of Brunswick Road in a northerly direction before entering a culvert that crosses through the central section of the Brunswick Industrial Site before exiting the large

culvert and creating the South Fork Wolf Creek. The perennial drainage appears to cross Brunswick Road from the east and most likely is fed by perennial springs coming from the eastern hillsides before entering the perennial drainage along the western side of Brunswick Road.

5.2 CNPS Ranked Plants and Special-Status Plant Species

CDFW's California Natural Diversity Database Biogeographic Information and Observation System (BIOS) 9 Quad search included the Grass Valley, Nevada City, North Bloomfield, Chicago Park, Colfax, Rough and Ready, Lake Combie, French Corral and Wolf 7.5-minute USGS quadrangles (CDFW, 2019). Based on the results of the searches 23 special-status plant species were identified as occurring within the 9 Quad search. Ten of these plant species were dropped from further consideration due to a lack of suitable habitat in the analysis area (Brunswick Area), the Brunswick Area being substantially outside of the known range and distribution for the plant species, or both (see the stand-alone Brunswick Site Special Status Plant Survey Report developed by Wendy Boes Botanical Consultant, 2019). The plant species dropped from further consideration include the following:

- Jepson's onion (*Allium jepsonii*)
- Mosquin's clarkia (*Clarkia mosquinii*)
- Ahart's buckwheat (*Eriogonum umbellatum var. ahartii*)
- Jepson's coyote thistle (*Eryngium jepsonii)*
- Minute pocket moss (*Fissidens pauperculus*)
- Yosimite tarplant (*Jensia yosimitana)*
- Inundated bog club-moss (*Lycopodiella inundata)*
- Follett's monardella (*Monardella follettii*)
- Sticky pyrrocoma (*Pyrrocoma lucida*)
- Oval-leaved viburnum (*Viburnum ellipticum)*

The CNBS ranked plants and special-status plant species with at least a low potential to occur within the Brunswick Area per the results of the 9 Quad search and CNDDB 5-mile buffer search are evaluated in the CNPS ranked plant and special-status plant table included in Appendix H. The plant species field surveys were conducted at a time when all potentially occurring CNPS ranked and special-status plant species could be identified if they were present, with the exception of Butte County fritillary. A nearby reference population of finger rush was visited on June 24th, 2019 prior to commencing field surveys to ensure this species was still detectable, which was confirmed. No other reference sites were required to be visited given the botanists local knowledge of the other target species as part of the survey effort.

A single CNPS ranked plant species was identified within the Brunswick Area, the CNPS list 4.2 Humboldt lily (*Lilium humboldtii ssp. humboldtii*), which was documented during the biological resource surveys completed in July and August 2019 (see Appendix F).

CNPS ranked plants and special-status plant species, finger rush (*Juncus digitatus*), Cedar Crest popcornflower (*Plagiobothrys glyptocarpus* var. *modestus*), brownish beaked-rush (*Rhynchospora capitellata*), Sierra blue grass (*Poa sierra*), and Scadden Flat checkerbloom (*Sidalcea stipularis*) have a moderate potential to occur within the Brunswick Area. However, given that the Brunswick Area does not contain gabbro or serpentine soils of the Dubakella and Secca-Rock complex soils, Stebbins' morning-glory (*Calystegia stebbinsii*), chaparral sedge *(Carex xerophila)*, Pine Hill flannelbush *(Fremontodendron decumbens)*, and Red Hills soaproot *(Chlorogalum grandiflorum)* have a very low potential to occur within the Brunswick Area. None of the foregoing CNPS ranked plants or special-status plant species were found during the surveys conducted.

A description of the CNPS ranked plants and special-status plant species previously known to occur within 5 miles of the Brunswick Site (CNDDB, 2019) are discussed below, as well as the Cedar Crest popcorn flower given the species was determined to have a potential to occur within the Brunswick Area given the suitability of habitats for the species within the Brunswick Area though it has not been previously documented within 5 miles of the Brunswick Area (see Appendix I for a CNDDB 5-mile buffer figure). A description of CNPS ranked plants and special-status plant species with a low likelihood of occurring within the Brunswick Area is presented in Appendix H.

Sierra arching sedge (Carex cyrtostachya) – California Native Plant Society List 1B.2

Sierra arching sedge inhabits lower montane mesic coniferous forest, meadows and seeps, marshes and swamps, riparian forests (margin), from 2,000- 4,460 feet. Within the known distributional and elevational range for this species, though nearest known occurrence 16 miles to the north. This species was recently described so the full extent of its range and distribution are unlikely yet known. Suitable marginal habitat is present within the mesic forests located in the Brunswick Industrial Site; however, the species was not identified within the Brunswick Area during surveys implemented as part of the development of this Biological Report. Therefore, the potential for this species to occur within the Brunswick Area is considered low.

Scadden Flat checkerbloom (Sidalcea stipularis) – Federally and CA State Endangered and California Native Plant Society List 1B.1

Scadden Flat checkerbloom inhabits marshes and swamps between July and August. It is found in wet montane marshes fed by springs, normally between 2,295 and 2,395 feet above MSL. Suitable habitat for this species occurs within the perennial marsh wetlands in the Brunswick Area. The species has been documented over 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Additionally, this species was not

documented during the 2006 surveys that included the Brunswick Industrial Site nor was the species identified during field surveys conducted in December 2018 or in July and August 2019 within the Brunswick Area. Therefore, the potential for this species to occur within the Brunswick Area is considered moderate.

Pine Hill flannelbush (Fremontodendron decumbens) – Federally Endangered and CA State Rare and California Native Plant Society List 1B.2

Pine Hill flannelbush inhabits rocky ridges on gabbro and serpentine soils within chaparral and cismontane woodlands. This species is endemic to these soil types and is normally documented between 1,390 and 2,495 feet above MSL. Potential for occurrence of this species is considered low given the lack of openings and mixed chaparral vegetation in gabbroic soils within the Brunswick Area. The Pine Hill flannelbush was not found within the Brunswick Area during any of the field surveys conducted in December 2018 or in July and August 2019 within the Brunswick Area.

Stebbins' morning glory (Calystegia stebbinsii) – CA State and Federally Endangered and California Native Plant Society List 1B.1

Stebbins' morning glory inhabits chaparral and cismontane woodland. It is found in red clay soils of the pine hill formation on gabbro or serpentine soils in open areas, normally between 980 and 4,330 feet above MSL. The species is known from a location approximately 4.5 miles to west of the Brunswick Area on gabbroic chaparral on Oceola Ridge. This species was not identified during field surveys conducted in December 2018 or July and August 2019. Potential for occurrence of this species is considered low given the lack of openings and mixed chaparral vegetation in gabbroic soils within the Brunswick Area.

Cedar Crest popcorn flower (Plagiobothrys glyptocarpus var. modestus) – California Native Plant Society List 3

The species is known to occur within cismontane woodland as well as valley and foothill grasslands (mesic), from 2,850-2,855 feet. This species is known from historic collections in 1919 and 1937 from nearby Cedar Ridge less than a mile south of the Brunswick Industrial site and from historic collections in Nevada City. Suitable habitat for this species is present within the woodland areas within the Brunswick Industrial Site. This species was not identified during field surveys conducted in December 2018 or July and August 2019 surveys and given the species has not been documented within 5 miles of the Brunswick Area since 1937, the potential of this species to occur within the Brunswick Area is considered moderate.

Dubious pea (Lathyrus sulphureus var. argillaceus) – California Native Plant Society List 3

Dubious pea inhabits lower and upper montane coniferous forest and cismontane woodlands, normally between 490 and 3,050 feet above MSL. The species has been previously identified within 5 miles to the Brunswick Area. This species has a low potential to occur in forested areas of the Brunswick Area. This species was not identified during the December 2018 or July and August 2019 surveys; however, the blooming period for this species is April to May. Focused special-status plant surveys will be conducted within the Brunswick Area during the April to May blooming period prior to any disturbance within the Brunswick Area to determine the species presence or absence.

Finger rush (Juncus digitatus) – California Native Plant Society List 1B.1

Finger rush inhabits open chaparral habitat surrounded by mixed oak/conifer woodland on low gradient, north-facing, and vernally moist slopes. This species also associates with sandy clay loam soil within substrates underlain by granitic bedrock. This species is found between 2,165 and 2,590 feet above MSL. There is a low potential for the occurrence of this species in gravelly, seasonally moist openings within the Brunswick Industrial Site. The species is known less than one mile to the north of the Brunswick Area near the intersection of Idaho-Maryland Road and Brunswick Road (species identified in 2011). This species was not identified during the December 2018 or July and August 2019 surveys; however, the blooming period for this species is April to June. Focused special-status plant surveys will be conducted within the Brunswick Area during the April to June blooming period prior to any disturbance within the Brunswick Area to determine the species presence or absence.

Brownish beaked-rush (Rhynchospora capitellata) – California Native Plant Society List 2B.2

Brownish beaked-rush inhabits meadows and seeps, marshes and swamps, and it is found in upper and lower montane coniferous forests, normally between 145 and 6,560 feet above MSL. This species is normally identified on mesic sites and has been identified within 3 miles west of the Brunswick Site in a marshy area along the northwest corner of the Nevada County Fairgrounds along Hwy 20 in 1973. The species was not identified during field surveys conducted in December 2018 or July and August 2019. However, suitable habitat for this species occurs within the perennial marsh wetlands within the Brunswick Industrial Site, but the species has not been identified within 5 miles of the Brunswick Area since 1973. The likelihood of this species occurring within the Brunswick Area is considered moderate.

Chaparral sedge (Carex xerophila) – California Native Plant Society List 1B.2

Chaparral sedge inhabits openings within chaparral habitat, cismontane woodland, and lower montane coniferous forests. This species is found in areas containing serpentine and

gabbroic microhabitats between 1,400 and 2,525 feet above MSL. This species has been identified within approximately 4 miles of the Brunswick Site on Oceola Ridge in gabbroic chaparral. The species was not identified during field surveys conducted in December 2018 or July and August 2019 within the Brunswick Site. Potential for occurrence of this species is considered low given the lack of openings and mixed chaparral vegetation in gabbroic soils within the Brunswick Area.

Red Hills soaproot (Chlorogalum grandiflorum) – California Native Plant Society List 1B.2

Red Hills soaproot is found in chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, between 800 and 5,545 feet above MSL and blooms between May and June. The species was not documented within 5 miles of the Brunswick Site (CNDDB 2019); however, it is known over 10 miles south in Bunch Canyon south of Colfax, with no known occurrences to north. The species was not observed during the 2019 field surveys. Potential for occurrence of this species is considered low and not expected to occur on the Brunswick Area given the lack of openings and mixed chaparral vegetation in gabbroic soils within the Brunswick Area.

Sierra blue grass (Poa sierra) – California Native Plant Society List 1B.3

Sierra blue grass is found in openings in lower montane coniferous forest, between 1,195 and 4,920 feet above MSL and blooms between April and July. There is only marginal suitable habitat for this species in the Brunswick Industrial Site, primarily in the montane hardwood and montane hardwood-conifer forests, and in the forested areas along the South Fork Wolf Creek. The species was not documented within 5 miles of the Brunswick Area (CNDDB 2019); however, it has been documented at Steephollow Creek in a collection from 1964. The species was not observed during the 2019 field surveys and the potential for the species to occur within the Brunswick Area is considered moderate.

Cantelow's lewisia (Lewisia cantelovii) – California Native Plant Society List 1B.2

Cantelow's lewisia is found in moist, granitic areas in broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest mesic, sometimes serpentinite seeps between 1,080 and 4,495 feet above MSL. The species blooms between May and October. There is a low potential for occurrence of this species within the rocky outcrops with seeps within the Brunswick Industrial Site though habitat for this species is very limited within the Brunswick Area. There are records for this species in the Middle Yuba and South Yuba river canyons within 7 miles of the Brunswick Area. The species was not documented within 5 miles of the Brunswick Site (CNDDB, 2019). The species was not observed during 2019 field surveys.

Butte County fritillary (Fritillaria eastwoodiae) – California Native Plant Society List 3.2

Butte County fritillary is found in openings in chaparral, cismontane woodland, and lower montane coniferous forest, sometimes serpentinite between 160 and 4,920 feet above MSL. The species blooms between March and June and there is potential for occurrence in open areas in the Brunswick Industrial Site. There is a 1979 record for this species on the south side of the South Yuba River canyon approximately 7 miles north of the Brunswick Site, and other occurrences on the Washington Ridge; however, the species has not been documented within 5 miles of the Brunswick Area. The species was not documented during the surveys conducted within the Brunswick Area as part of the development of this Biological Report and the potential for the species to occur within the Brunswick Area is considered low.

5.3 CNPS List 4 Species (*not rare or threatened)* Identified within the Brunswick Area

California Native Plant Species (CNPS) with a rank of List 4 are not listed at either the state or federal level, are not rare nor are they threatened or endangered.

Humboldt lily (Lilium humboldtii ssp. humboldtii) - Federal Status: not listed; State Status: not listed; CNPS Status: 4.2

Humboldt lily is known to occur in openings in chaparral, cismontane woodland and lower montane coniferous forests. It is known from Amador, Butte, Calaveras, El Dorado, Fresno, Mariposa, Nevada, Placer, Tehama, Tuolumne, and Yuba Counties at elevations ranging between 295 and 4,200 feet above MSL. Its threats include development, urbanization, horticultural collecting, deer browsing, nonnative plants, and road maintenance (CNPS, 2019). Humboldt lily is a perennial bulb that blooms May through August. It can reach 7 to 8 ft in height and has bright orange lily flowers. The Brunswick Industrial Site has suitable habitat for the species and a single occurrence consisting of 10 individuals within an area less than 110 square feet was documented within a disturbed area of the Brunswick Industrial Site and a single occurrence consisting of a few individuals was documented within the East Bennett Road ROW (see Appendix F for mapped locations of the species within the Brunswick Area).

5.4 Special-Status Wildlife Species

The CNDDB database 5-mile buffer search revealed six (6) special-status wildlife species that have previously been identified and mapped within 5 miles of the Brunswick Area (see Appendix I). The species previously identified within 5 miles of the Brunswick Area include:

- California black rail
- Cooper's hawk

- Coast horned lizard
- Western bumble bee
- Foothill yellow-legged frog
- Townsend's big-eared bat

None of these species were identified within the Brunswick Area during biological resources surveys conducted in December 2018, July 2019, and August 2019. In addition, no USFWS Designated Critical Habitat (DCH) has been mapped by USFWS for any federally listed species within the vicinity of the Brunswick Area.

Given the presence of a large manmade pond and perennial freshwater marsh wetlands within the Brunswick Industrial Site and the presence of the South Fork Wolf Creek within the western section of the Brunswick Industrial Site, western pond turtle and California red-legged frog are also included as special-status aquatic wildlife species with the potential to occur within the Brunswick Area though neither of these species was identified during the surveys conducted within the Brunswick Area as part of the development of this Biological Report.

The following is a description of the special-status wildlife species previously identified within 5 miles of the Brunswick Area. In addition, the western pond turtle and California red-legged frog are also evaluated given the presence of a large manmade pond, a perennial stream, and freshwater emergent marsh wetlands within the Brunswick Area. Additionally, two species of bat, the hoary bat (*Lasiurus cinereus*) and the pallid bat (*Antrozous pallidus*) are included in the assessment below given the have a low potential to occur within the Brunswick Area; however, neither bat species has been previously identified within 5 miles of the Brunswick Area (CDFW 2019a).

Townsend's big-eared bat (Corynorhinus townsendii) – CA State Species of Concern

The Townsend's Big-eared bat species inhabits lower montane coniferous and mixed conifer forest habitats where abandoned buildings and structures occur for roosting. This species has been identified within 3 miles southwest of the Brunswick Area within an abandoned building at the Empire Mine State Historic Park. Only the existing historic mill tower, which is located in the northeastern portion of the Brunswick Industrial Site, contains potential suitable roosting area for this species. However, the species was not identified during any of the field surveys and only limited suitable roosting sites for this species occurs given that only one abandoned structure is located within the Brunswick Area. Therefore, the potential for this species to occur within the Brunswick Area is considered low.

Coast horned lizard (Phrynosoma blainvillii) – CA State Species of Concern

The coast horned lizard occurs in open sandy areas, scattered low bushes, chaparral, manzanita, and oak woodland habitats. It is found in the Sierra Nevada foothills from Butte County to Kern County and throughout the central and southern California coast. Coast horned lizards forage on the ground in open areas, usually between shrubs and often near ant nests. The species relies on camouflage for protections. Predators and extreme heat are avoided by burrowing into loose soil. Periods of inactivity and winter hibernation are spent burrowed in the soil under surface objects such as logs or rocks, in mammal burrows, or in crevices (Zeiner et al., 2000). They inhabit mostly open country, especially sandy areas, washes, flood plains and wind-blown deposits in a wide variety of habitats and can be found at elevations up to 8,000 feet (2,438 meters) (CaliforniaHerps, 2014).

This species has been documented between 3 and 5 miles of the Brunswick Area to the west, northwest, and southwest. There is potential suitable habitat within the open disturbed and developed locations within the Brunswick Industrial Site. As the Brunswick Industrial Site includes the required open areas of exposed, sandy soils for this species, this species has a moderate potential to occur within the Brunswick Area even though no coast horned lizards were observed during the December 2018 or early January 2019 site visits or during reconnaissance-level biological surveys conducted in July 2019 within the Brunswick Area.

Western pond turtle (Emys marmorata) – CA State Species of Concern

Western pond turtles associate with permanent ponds, lakes, streams, irrigation ditches, and permanent pools along intermittent streams. They are most commonly associated with permanent or nearly permanent water in a wide variety of habitats. This species requires basking sites such as partial submerged logs, rocks, mats of floating vegetation, or open mud banks. During the spring or early summer, females move overland up to 325 ft to find suitable sites for egg laying. The South Fork Wolf Creek, a perennial stream, large manmade pond, and the perennial freshwater marsh wetlands within the Brunswick Industrial Site are considered suitable habitat for this species.

This species has not been identified within 5 miles of the Brunswick Area however, and it was not identified during field surveys conducted. The potential for this species to occur within the Brunswick Area is considered high.

Foothill yellow-legged frog (Rana boylii) – Listed as Threatened under CESA

Foothill yellow-legged frogs inhabit partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. The species requires at least some cobble-sized substrate for egg laying. The species requires at least 15 weeks to attain metamorphosis. These frogs are ectothermic, so ambient temperature affects the likelihood of detection

during species specific Visual Encounter Survey (VES) method surveys. Whether the life form is larval or subadult, both stages will shelter in place under substrate and emerge and become active with warmth (i.e., detection probability increases with temperature).

This species has been identified approximately 3.9 miles to the southeast of the Brunswick Area within Greenhorn Creek, but it has not been previously identified within South Fork Wolf Creek. However, the species was not identified during focused VES method surveys for this species conducted on August 29, 2019 within South Fork Wolf Creek within the Brunswick Area as well as within the portions of the creek that flow through public property downstream within the Empire Mine State Historic Park (see Greg Matuzak Environmental Consulting LLC, 2020b).

The stretches of South Fork Wolf Creek within the Brunswick Industrial Site from the large 48" culvert creating the stream and downstream seven hundred (700) feet from the culvert does not contain suitable habitat for the species given the silty nature of the bed of the stream and lack of rocky stream habitat in that area. However, from approximately 700 feet downstream of the 48" culvert to the northwestern boundary of the Brunswick Industrial Site (approximately 2,000 feet of South Fork Wolf Creek) there is marginal suitable habitat for the species. Given the species has not been previously identified within the South Fork Wolf Creek watershed and only marginal suitable habitat occurs within the Brunswick Area for the species, there is a low likelihood this species occurs within the South Fork Wolf Creek.

CA red-legged Frog (Rana aurora draytonii) – Federal Threatened and CA State Species of Concern

CA red-legged frog (CRLF) is known in Nevada County in the North Bloomfield USFS Quadrangle within the Rock Creek watershed. CRLF has not been identified within 5 miles of the Brunswick Area and designated critical habitat for this federally threatened species has not been mapped for this species within the vicinity of the Brunswick Area. The species was not identified during field surveys conducted though focused surveys for this species were not implemented as part of the development of this Biological Report. Potential suitable reproductive habitat for this species may occur within the larger marsh wetlands with perennial water/ponding and the large manmade pond within the Brunswick Industrial Site. Additionally, if suitable breeding locations are located within 1.25 miles of the Brunswick Area and connected by barrier-free dispersal habitat that is at least 300 feet in width, then suitable dispersal habitat could be located within the Brunswick Area. It is unknown whether suitable breeding locations are located within 1.25 miles of the Brunswick Area. However, given that CRLF have not been identified in the Grass Valley USGS Quadrangle, the watershed associated with the Brunswick Area, or within 5 miles of the Brunswick Area, the potential for this species to occur is considered extremely low.

California black rail (Laterallus jamaicensis coturiculus) – CA State Threatened

California black rail inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. The species requires water depths of approximately 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat. The species has been identified within 3 miles to the southeast and the southwest of the Brunswick Area. The species was not identified during field surveys. Suitable habitat for this species occurs within the larger marsh wetlands within the southwestern section of the Brunswick Industrial Site where there is permanent ponding of water and dense vegetation along the edges of those wetland features. The potential for this species to occur within the Brunswick Area is considered very low given the developed nature of the Brunswick Industrial Site where suitable habitat for the species is located.

Cooper's hawk (Accipiter cooperii) – CDFW

Cooper's hawks are forest and woodland birds. These hawks are a regular sight in parks, quiet neighborhoods, over fields, at backyard feeders, and even along busy streets if there are trees present. The species has been documented successfully nesting approximately 5 miles to the northeast of the Brunswick Area in 2014. The species is known to occur and nest in Sierra mixed conifer forest and other mixed conifer vegetation communities. Given these vegetation community types occur within and directly adjacent to the Brunswick Area, this species has a moderate potential to occur and nest within the ponderosa pine, Sierran mixed conifer, and montane hardwood habitats within and directly adjacent to the Brunswick Area. Suitable nesting and foraging habitat occur within the forested areas of the Brunswick Industrial Site as well as within the ponderosa pine habitat located adjacent to the East Bennett Road ROW. This species was not identified within the Brunswick Area during the surveys implemented as part of the development of this Biological Report.

Western bumble bee (Bombus occidentalis occidentalis) – Candidate for CESA Listing as Endangered

The western bumble bee is a CESA Candidate for listing as Endangered and is under review by the USFWS; however, the species was last documented within 5 miles of the Centennial Site in 1968 (considered its historical distribution) and is currently only known (current distribution defined by CDFW as known locations where the species has been identified between 2003 – 2017) from a few locations in the Sierra Nevada, none of which are within western Nevada County where the Centennial Site is located (CDFW 2019b). Therefore, it is unlikely the species would occur within the Centennial Site.

Hoary bat (*Lasiurus cinereus*) and Pallid bat (*Antrozous pallidus*)

The hoary bat is considered a Medium Risk species by the Western Bat Working Group and the pallid bat is a CDFW species of special concern. Neither species has been previously identified within 5 miles of the Brunswick Area (CDFW 2019a). However, the Brunswick Area does provide roosting habitat for both species within the riparian and woodlands located within the Brunswick Area. Therefore, if either species is present within the Brunswick Area during the proposed disturbance, bat day roosts could be impacted.

Nesting raptors and other migratory bird species - Protected under CA State DFG Code Sections 3503, 3503.5, and 3800

There is a moderate to high potential for nesting raptors and other nesting migratory bird species to occur within and directly adjacent to the Brunswick Area. The Brunswick Area contains suitable nesting habitat for bird species, such as tree nesting species (Cooper's hawk and other common raptors) and ground nesting species like the spotted towhee (*Pipilo maculatus*) and dark-eyed junco (*Junco hyemalis*). Additional species that are known to nest in shrub and tree habitat have the potential to nest within the Brunswick Area. The nesting season for Cooper's hawk, common raptors, and nesting birds within the Brunswick Area occurs between March 1st and August 31st.

Critical Deer Habitat

Known migratory deer ranges outlined in the Nevada County General Plan was reviewed for deer migration corridors, critical range, and critical fawning areas. Per the Migratory Deer Ranges Nevada County General Plan map, the Brunswick Area is located in an area of potential Deer Winter Range. The field surveys did not record any observations of deer. The Brunswick Area does not contain any known major deer migration corridors, known deer holding areas, nor critical deer fawning areas.

Protected Oak Resources by the State of California and Nevada County

The Nevada County Land Use and Development Code, Chapter II; Zoning Regulations, Section L-II 4.3.18 for Trees. Landmark trees are any native oak tree species (*Quercus* species) with a trunk diameter of 36" or greater at diameter breast height (dbh or 4'6"). Identifies landmark groves as hardwood tree groves with 33+% canopy closure, or groves whose size, visual impact, or association with a historically significant structure or event has caused it to be marked for preservation by the county, state, or federal government. Projects shall be approved only when they do not remove or disturb defined trees or groves, unless a Management Plan is prepared consistent with the Nevada County Land Use and Development Code for such trees. This Biological Report does not include an assessment of or proposed mitigation for potential impacts to such protected oak resources given the Brunswick Area does not contain protected oak resources per the Nevada County Land Use and Development Code, which would require such an

assessment and Management Plan.

Additionally, the Brunswick Area does not contain protected oak resources per the State of California oak woodlands protections set forth in Public Resources Code Section 21083.4. Though the Brunswick Area contains several species of native oak trees, the conifer and hardwood woodlands within the Brunswick Area are dominated by ponderosa pine, incense cedar, Douglas fir, and madrone. The most dominant native oak tree within the Brunswick Area is the California black oak and it was not identified in the densities required to grant them protection under State of California law (10% canopy cover requirement) or under the Nevada County Land Use and Development Code (minimum 33% canopy cover). Therefore, protected oak resources are not discussed further in this Biological Report.

5.5 Brunswick Area Disturbance Impacts to Sensitive Biological Resources

Based on the Project Understanding outlined within Section 1.3 and the proposed disturbance site plan included in Appendix J, Table 3.0 includes estimated acreage impacts to vegetation communities as mapped within the Brunswick Area.

TABLE 3.0 ESTIMATED ACREAGE IMPACTS TO VEGETATION COMMUNITIES

Vegetation Community	Estimated Acreage Impacts	Associated Special-Status Species
Montane Hardwood-Conifer	1.24	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Montane Hardwood	0.06	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Ponderosa Pine	0.93	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Sierran Mixed Conifer	16.44	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Manmade Pond	7.28	Western pond turtle (CSC), California red-legged frog (ESA listed), migratory birds (CDFW)
Disturbed and Developed	33.44	Coast horned lizard (CSC), Townsend's big-eared bat (CSC)
Annual Grassland	0.26	Brownish beaked-rush (Rank 2B.2)
Wet Meadow	0.26	Brownish beaked-rush (Rank 2B.2) and finger rush (Rank 1B.1)
Total Acreage Disturbance	**60**	

Table 4.0 and Table 5.0 below include the estimated disturbance on mapped wetlands and streams within the Brunswick Area per the Brunswick Industrial Site and East Bennett Road ROW Aquatic Resources Delineation of Waters of the United States and State of California (Greg Matuzak Environmental Consulting LLC, 2020) and Site Plan in Appendix J.

TABLE 4.0 AREA OF DISTURBANCE TO MAPPED WETLANDS WITHIN THE BRUNSWICK AREA

No.	Wetland Type	Wetland ID Number	Size (Acres)	Area of Disturbance (Acres)
1	Meadow wetland	WM-1	0.02	0.02
2	Meadow wetland	WM-2	0.01	0.01
3	Meadow wetland	WM-3	0.01	0.01
4	Meadow wetland	WM-4	6.93	-------
5	Marsh	MA-1	0.1	0.1
6	Marsh	MA-2	0.3	0.3
7	Marsh	MA-3	0.02	0.02
8	Marsh	MA-4	0.007	0.007
9	Marsh	MA-5	0.05	0.05
10	Marsh	MA-6	0.02	0.02
11	Riparian	RI-1	0.03	0.03
12	Riparian	RI-2	0.76	-------
13	Riparian	RI-3	0.37	-------
14	Roadside Wetland	RW-1	0.09	-------
14	-------	**TOTAL**	**8.72**	**0.57 acres**

TABLE 5.0 AREA OF DISTURBANCE TO MAPPED STREAMS WITHIN THE BRUNSWICK AREA

No.	Stream Type	Stream ID Number	Size (Acres)	Estimated Disturbance (acres and linear feet)
1	Perennial Stream	South Fork Wolf Creek – 1	0.59	15 lf. (0.01 acres) * 40 lf. (0.04 acres) *
2	Perennial Drainage	P – 1	0.16	-------
3	Intermittent Stream	I – 1	0.05	-------
4	Intermittent Stream	I – 2	0.002	-------
5	Intermittent Stream	I – 3	0.006	-------
6	Intermittent Stream	I – 4	0.003	-------
7	Intermittent Stream	I – 5	0.004	33.5 lf. (0.002 acres)
8	Ephemeral Stream	E – 1	0.01	16 lf. (0.0007 acres)
9	Ephemeral Stream	E – 2	0.05	188 lf. (0.05 acres)
9	-------	**TOTAL**	**0.88**	293 lf. (0.103 acres) **

* impacts estimated at 0.01 acres (permanent) and 0.04 acres (temporary)
** impacts estimated at 0.062 acres (permanent) and 0.041 acres (temporary)

A targeted review of site conditions within the central and eastern sections of the Brunswick Industrial Site was conducted on August 27, 2020. The purpose of this review was to reevaluate site conditions for the potential presence of wetlands within the site based on the July 2020 Madrone Ecological Consulting peer review and a perennial drainage along Brunswick Road that were not previously mapped as part of the December 2018 and July and August 2019 field surveys. Except for the perineal drainage that runs along Brunswick Road this survey did not identify any additional potential CWA regulated wetlands. These survey areas contained a lack of the required indicators of wetland hydrology and hydric soils required by the Corps to be regulated under the CWA. As identified above, a perennial drainage was mapped that runs along the western edge of Brunswick Road in a northerly direction before entering a culvert that crosses through the central section of the Brunswick Industrial Site before exiting the large culvert and creating the South Fork Wolf Creek. The perennial drainage appears to cross Brunswick Road from the east and most likely is fed by perennial springs coming from the eastern hillsides before entering the perennial drainage along the western side of Brunswick Road.

Given that the Brunswick Industrial Site has had no significant disturbance since 2008 and the hydrology of the site has remained similar to that identified in 2008, only a small change in the number and extent of wetlands within the Brunswick Area is to be expected. The changes that have occurred in terms of the number and extent of wetland features within the Brunswick Area could be partially explained by the change in weather patterns, including several years of drought condition, over the past decade followed by years of average to high rainfall the past 3 years. In addition, the change in extent to the riparian wetland RI-2 was due to more accurate mapping of the feature compared to the 2008 WRA delineation. It is noted that the RI-2 feature in this Delineation Report has been mapped conservatively; a greater reduction within both sides of the feature would be possible with additional access to the lower reaches of the incised channel where it is assumed that indicators of wetland hydrology, hydrophytic vegetation, and indicators of hydric soils are located.

The proposed 5.6 cfs discharge to South Fork Wolf Creek will remain within the 5.6 cfs discharge limit and in compliance with the NPDES discharge requirements will ensure that the proposed discharge to South Fork Wolf Creek will not have an adverse effect on South Fork Wolf Creek aquatic ecosystem and any sensitive aquatic biological resources, including to BMI and the food web (see Greg Matuzak Environmental Consulting LLC, 2020b for additional information regarding sensitive biological resources within South Fork Wolf Creek). Under these conditions, potential bank erosion, bed scour, and channel avulsion would not be substantial and water quality standards for constituents and parameters of concern would remain in compliance. Therefore, negative impacts to aquatic resources from excess siltation and turbidity, as well as from the exceeding safe

threshold limits caused by the proposed discharge, would be avoided and minimized from the implementation of the proposed discharge to the South Fork Wolf Creek.

The stretch of South Fork Wolf Creek from the discharge point to the City of Grass Valley Ophir Street culvert exhibits a functioning aquatic ecosystem as several small fish were identified within the stream, several invertebrates were identified along the surface of the stream, and Pacific tree frogs were identified along the edges of the stream within riparian zone vegetation. However, the stream stretches assessed in the analysis only contain marginal suitable habitat for special-status aquatic species, such as the foothill yellow-legged frog and the western pond turtle, and it is very unlikely that such species would inhabit the stretches of South Fork Wolf Creek covered under the assessment conducted specifically for South Fork Wolf Creek (see Greg Matuzak Environmental Consulting LLC, 2020b). South Fork Wolf Creek does not contain suitable habitat for any other CESA or FESA listed species or any other sensitive biological resources as defined by CDFW. Therefore, remaining in compliance with NPDES permit regulated discharge requirements and incorporation of the project stormwater design will ensure that the South Fork Wolf Creek will not be adversely affected by the discharge to the creek and its associated aquatic biological resources.

6 CONCLUSIONS AND RECOMMENDATIONS:

These conclusions and recommendations are based on the findings of this Biological Report and the impact assessment based on the Project Understanding outlined in Section 1.3 above and the site plan attached in Appendix J. Approximately 60 acres of disturbance within the Brunswick Industrial Site is proposed (see Table 3.0). Therefore, the impact assessment and recommendations below are based on the proposed 59.91 acres of disturbance included in the Site Plan attached in Appendix J. Within the East Bennett Road ROW, potential temporary impacts from the construction of an NID potable water pipeline would be maintained within the pavement of the road and would have no impact on any vegetation. For sensitive biological resources that have the potential to be impacted by such disturbance, avoidance, minimization, and mitigation measures are proposed to ensure that such disturbance does not cause a significant impact on any sensitive biological resources within the Brunswick Area.

Proposed Avoidance, Minimization, and Mitigation Measures

6.1 Potential Impacts to Special-Status Plant Species

CNPS ranked plants and special-status plant surveys were conducted in December 2018 and early January 2019 as well as July and August 2019, which is in the blooming period for most CNPS ranked plants and special-status plant species with potential to occur within the Brunswick Area. The blooming period for CNPS ranked plants and special-status plant species within the Brunswick Area range between March and October (see Appendix H). The Humboldt lily, a CNPS List 4.2 special-status plant species, was identified within the Brunswick Industrial Site and along the East Bennett Road ROW in July and August 2019 (Boes, 2020, see Appendix F) and the species within the Brunswick Industrial Site will be removed as part of the planned development within the Brunswick Industrial Site (see Site Plan attached in Appendix J). No other CNPS ranked plants or special-status plants were documented within the Brunswick Area during the site visits and surveys conducted as part of the development of this Biological Report. Therefore, the Brunswick Area contains a single plant species listed by CNPS based on the results of the July and August 2019 surveys of the Brunswick Area.

Based on Table 3.0, which identifies the acreage impacts to vegetation communities within the Brunswick Area, those vegetation communities have been identified to contain suitable habitat for special-status plant species. Therefore, the proposed disturbance within those vegetation communities mapped within the Brunswick Area could impact special-status plant species, if present during such disturbance. Therefore, prior to the implementation of future ground disturbing activities within the Brunswick Area, an additional special-status plant survey will be required to identify potential early blooming season

(April to May) special-status plant species within the Brunswick Area given that surveys were not conducted during that time of the year prior to the development of this Biological Report. The additional special-status plant surveys shall be conducted prior to such disturbance activities to document the presence or absence of each of the early blooming special-status plant species with potential to occur within the Brunswick Area.

If any special-status plant species is documented within or directly adjacent to areas proposed for disturbance within the Brunswick Area that are CNPS list 1A, 1B, 2A, or 2B per CEQA Guidelines Section 15380, or are listed under the ESA and/or CESA (see Section 2.2.7 of this Biological Report), protection of such plants would include complete avoidance, transplantation, and/or on- or offsite restoration of the special-status plant species that could be impacted by such site disturbance. These protective measures for such plants would be included as part of the required development of a Habitat Management Plan (HMP) as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12, which includes regulations intended to avoid the impact of development on rare, threatened, endangered, and special-status species and their habitat, or where avoidance is not possible, to minimize or compensate for such impacts and to retain their habitat as non-disturbance open space. The HMP would include the avoidance, minimization, and mitigation measures outlined below as part of compliance with the Nevada County Land Use and Development Code, Section L-II4.3.12.

Additionally, if an ESA listed special-status plant species is identified within the Brunswick Area and would be impacted by disturbance within the Brunswick Area, then a consultation with USFWS would be required as part of any future project permitting within the Brunswick Area and therefore, additional avoidance, minimization, mitigation, and monitoring requirements may be included as part of the development of a Biological Assessment (BA) to be submitted to the USFWS and a Biological Opinion (BO) developed by the USFWS through the ESA consultation process, whether Section 7 or Section 10 of the ESA.

At a minimum, the HMP would include the following protective measures for special-status plant species with the potential to be impacted by the proposed disturbance within the Brunswick Area:

- a map of the location of special-status species that may be disturbed or need to be protected;
- location of environmental protection fencing to be placed around the individual plants to be protected;
- identification of the location of protected plants on design and construction drawings;

- environmental awareness training for all personnel working on the project during initial site disturbance to discuss the location of the protected plants and the measures to be taken to avoid impacts to them; and
- weekly site monitoring by a qualified biologist to ensure that the special-status plants are being protected during site disturbance and construction.

Where individuals would be potentially affected directly by site disturbance and transplantation of individual plants is required to minimize and mitigate for impacts to such species, the following should be integrated into the HMP:

- remove bulbs of individual plants to be directly impacted during the dormant season;
- relocate the bulbs to a site with similar soil, hydrologic, vegetation type and aspect within the Brunswick Industrial Site; and
- identify the location(s) for dormant season relocation and site selection for transplantation.

The HMP would also include a requirement to meet the following criteria:

- metrics of successful establishment, which would include a minimum of 80% survival of the transplants after 2 years of transplanting the species.

If the 80% survival is not established after 2 years, transplants of individuals grown from seed should be planted with similar soil, hydrologic, vegetation type and aspect within the Brunswick Industrial Site. Transplantation shall occur in the season deemed to have the greatest potential for success, generally the fall, after rains have commenced. Transplants will be monitored every month for the first six months, then subsequently, every two months for the first two years. After two summer seasons of monitoring identifies successful establishment of 50% of the initial transplants, transplant seedlings will have been deemed successful.

Disturbance related impacts to CNPS list 3 and list 4 species ***would not*** be considered a "significant" impact requiring additional mitigation under CEQA Guidelines Section 15380.

6.2 Potential Impacts to Special-Status Wildlife Species

The Townsend's big-eared bat and coast horned lizard are the terrestrial special-status wildlife species with at least some potential to occur within the Brunswick Area, even though neither species has been observed on the Project Site. These species are in addition to potential nesting raptors, and special-status aquatic species that have some potential to occur within the Brunswick Area as discussed in detail below.

Townsend's big-eared bat (and other bat species, including hoary and pallid bats)

Occurrence: The Townsend's big-eared bat has the potential to roost within the abandoned structures, such as the large cement silo structure within the Brunswick Area. Hoary and pallid bats roost in riparian and forested woodlands. However, these species have not been documented within the Brunswick Area and they each have a low potential to occur within the Brunswick Area.

Mitigation: Prior to disturbance of any structures or riparian and forested woodlands within the Brunswick Area and no more than seven (7) days prior to such disturbance, a pre-construction bat roosting survey should be conducted to identify the presence or absence of roosting bats. If any Townsend's big-eared bats (or any other species of bat, including the hoary and pallid bat) are identified during roosting surveys, passive removal the roosting bats prior to disturbance to structures and riparian and forested woodlands should be implemented to avoid impacts to this species. Passive removal includes allowing roosting bats to freely leave the roost site (riparian and forested woodlands and any structure). Once the roosting bats have been passively removed from the structure(s) and riparian and forested woodlands, the structure(s) would be closed off from recurring bat roosting within the structure and the proposed work within the structure(s) would no longer pose a risk to individuals of the species. For riparian and forested woodlands containing bat roosts, the removal of trees associated with such woodlands would only occur once the bats leave the day roosts. Furthermore, if a maternal (breeding) roost is documented, no disturbance will occur until the breeding roost has dispersed from the structure or riparian and forested woodlands they are found in.

Coast horned lizard

Occurrence: There is potential suitable habitat within the open disturbed and developed sections of the Brunswick Area. In addition, the Brunswick Area includes the required open areas of exposed, sandy soils for this species within those habitat types. Therefore, this species has a moderate potential to occur within the Brunswick Area though the species has not been identified within the Brunswick Area.

Mitigation: Prior to disturbance within the areas of the Brunswick Area that contain disturbed or developed surfaces and annual grassland vegetation community, and no more than seven (7) days prior to such disturbance, a pre-construction survey for the species shall be conducted prior to any disturbance within those disturbed and developed areas of the Brunswick Area in order to avoid direct impacts to the species. If the species is documented during pre-construction surveys, a qualified wildlife biologist (approved by CDFW) would have the authority to move individual coast horned lizards

outside of the proposed disturbance area(s) in order to avoid an impact to this species. Once the coast horned lizard(s) have been removed from the disturbance area(s) and out of harms way, the proposed work would no longer pose a risk to individuals of the species.

6.3 Potential Impacts to Special-Status Aquatic Species

Foothill yellow-legged frog

Occurrence: Marginal suitable habitat for this species occurs within the Brunswick Area (South Fork Wolf Creek). However, the species was not identified during focused VES survey methods within the South Fork Wolf Creek conducted in August 2019 and therefore, it is highly unlikely that any individuals of the species would occur within the Brunswick Area.

Mitigation: To ensure that any disturbance directly within or directly adjacent to South Fork Wolf Creek (within the riparian zone) within the Brunswick Area and downstream within the Empire Mine State Historic Park, doesn't have an impact on this species, a pre-construction survey for the species should be implemented to avoid any potential impacts to this species if it were present at the time of the proposed disturbance, including prior to the proposed treated mine water discharge to the creek (see Greg Matuzak Environmental Consulting LLC, 2020b). The pre-construction survey shall be conducted following CDFW recommended VES methods as implemented in August 2019 and shall be implemented no more than fourteen (14 days) prior to disturbance within and directly adjacent to the South Fork Wolf Creek (within the riparian zone).

If this species is documented during pre-construction VES method surveys (egg masses, juveniles, or adults), disturbance to the stream and species should be completely avoided given the species is listed as Threatened under CESA. If the species is documented during the pre-construction VES surveys, CDFW shall be contacted immediately. An Incidental Take Permit (ITP) may be required from CDFW as part of the development of conservation measures to ensure avoidance and minimization of potential impacts to any frogs identified within South Fork Wolf Creek. The ITP may allow a CDFW qualified wildlife biologist with a CDFW handling permit for the species to move individuals out of the disturbance areas to avoid impacting this species and/or other potential conservation measures to avoid and minimize impacts to the species (see Section 6.6 below for additional information related to an ITP).

Western Pond Turtle

Occurrence: The South Fork Wolf Creek (perennial stream), the large manmade pond, and the marsh wetlands within the Brunswick Area that contain perennial water/ponding are considered suitable habitat for this species. The species has not been documented

within 5 miles of the Brunswick Area and has not been identified within the Brunswick Area during the biological resources species surveys conducted within the Brunswick Area. The species therefore is considered to have a high potential to occur within the Brunswick Area.

Avoidance: If the species is found within the Brunswick Area, any development within these perennial water sources or within 325 feet of these perennial water sources during spring and early summer (March through July) should be avoided to minimize any potential impacts to this species.

Mitigation: If these perennial water sources can't be avoided from direct impacts or if these perennial water sources can't be avoided by a minimum of 325 feet during the spring and early summer months listed above, a pre-construction survey shall be conducted to identify the presence or absence of this species within the areas to be disturbed no more than seven (7) days prior to the proposed disturbance within the species suitable habitat. If this species is documented during pre-construction surveys, it should be allowed to move out of the way of the disturbance zone on its own or a qualified wildlife biologist with a CDFW handling permit for the species can move individuals out of the disturbance areas to avoid impacting this species.

California red-legged frog (CRLF)

Occurrence: Potential suitable reproductive habitat for this species may occur within the larger marsh wetlands with perennial water/ponding and within the large manmade pond within the Brunswick Area (see Photo Log in Appendix G). It is unknown if there are suitable breeding locations within 1.25 miles of the Brunswick Area and connected by barrier-free dispersal habitat that is at least 300 feet in width, which would be required for suitable dispersal habitat to be located within the Brunswick Area. However, the species has not been documented within the Brunswick Area, it has not been documented in the watershed, and was not documented during the biological resources surveys conducted within the Brunswick Area. Therefore, this species has a very low potential to occur within the Brunswick Area.

Avoidance: Given potential suitable reproductive habitat for this species may occur within the larger marsh wetlands with perennial water/ponding and within the large manmade pond within the Brunswick Area, avoidance of these aquatic resources within the Brunswick Area by a minimum of 328 feet (100 meters) would ensure that the species would not be impacted if present.

Mitigation: If avoidance of these aquatic resources by a minimum of 328 feet (100 meters) within the Brunswick Area is not feasible, then pre-construction surveys for CRLF shall be implemented to ensure that no CRLF are present during the proposed disturbance within the species suitable habitat. A qualified wildlife biologist approved by USFWS would be required to implement the pre-construction surveys. The *Revised Guidance on Site*

Assessment and Field Surveys for the California Red-legged Frog (USFWS Guidance, August 2005) should be implemented as part of the pre-construction surveys to avoid disturbance and take of the species. If no CRLF are identified during the pre-construction surveys, then the proposed disturbance within 328 feet (100 meters) of suitable breeding habitat for the species could occur with no further requirements.

If CRLF are identified during the pre-construction surveys, coordination and consultations with the USFWS would be required through an ESA Section 7 or Section 10 process. As part of the consultation process, specific avoidance, minimization, and mitigation measures would be required to be implemented, which could include, but may not be limited to the following: additional pre-construction surveys and daily monitoring to ensure that the proposed site disturbance will not disturb individual CRLF, environmental awareness training to contractors working within or adjacent to CRLF habitat, and exclusionary fencing installation between CRLF aquatic habitat and disturbance areas.

Additionally, a Habitat Management Plan (HMP) would also be required for any state or federally listed special-status wildlife species if documented within the Brunswick Area. The HMP would be developed for the special-status species as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12 and it would include the avoidance, minimization, and mitigation measures outlined above and as part of any coordination or consultation with the USFWS compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12.

California black rail

Potential habitat for this species occurs within the larger marsh wetlands within the Brunswick Area where there is permanent ponding of water and dense vegetation. Therefore, to identify the presence or absence of the species within the Brunswick Area for any proposed disturbance within or immediately adjacent to those larger wetlands, pre-construction surveys for the species shall occur prior to the implementation of any such disturbance within or directly adjacent to the species habitat. The pre-construction surveys would include conducting call back/response surveys. This species is most active between 2 hours before and 3 hours after sunrise; therefore, surveys should start at sunrise and continue no later than 0930. If evening surveys are to be conducted, they should be paired with a morning survey, and all sites should have surveys conducted at both time periods. The preferred method for conducting surveys via the call-back/response protocol of Evens et al (1991). If a positive call back is identified during the surveys, then the species is assumed to be present and the area should be avoided from disturbance in order to avoid impacts to individuals of the species, if feasible.

Occurrence: Potential suitable habitat for this species occurs within the larger marsh wetlands within the Brunswick Area where there is permanent ponding of water and dense vegetation. The species has not been documented within the Brunswick Area but

has been previously identified within 5 miles to the southeast and southwest of the Brunswick Area. This species has a low likelihood of occurring within the Brunswick Area.

Avoidance: Avoidance of direct disturbance to the larger, perennial marsh wetlands within the Brunswick Area would ensure that the species would not be impacted if present.

Mitigation: To identify the presence or absence of this species within the Brunswick Area for any proposed disturbance within or immediately adjacent to those larger, perennial marsh wetlands, pre-construction surveys for the species shall occur prior to the implementation of any such disturbance within or directly adjacent to the species habitat. The pre-construction surveys for this species shall occur no more than fourteen (14) days prior to any such disturbance within or directly adjacent to the species habitat. The pre-construction surveys would include conducting call back/response surveys. This species is most active between 2 hours before and 3 hours after sunrise; therefore, surveys should start at sunrise and continue no later than 0930. If evening surveys are to be conducted, they should be paired with a morning survey, and all sites should have surveys conducted at both time periods. The preferred method for conducting surveys via the call-back/response protocol of Evens et al (1991). If a positive call back is identified during the surveys, then the species is assumed to be present and the area should be avoided from disturbance in order to avoid impacts to individuals of the species, if feasible.

Given the species is a CESA listed species, coordination with CDFW shall occur if a positive response to the call-back/response surveys occurs and if any proposed disturbance may impact the species. Any area containing this species would likely need to be avoided in order to avoid impacts to and take of this species, if feasible, or additional mitigation measures would be required in coordination with CDFW to minimize and avoid impacts to such species. Additional avoidance measures could include, but may not be limited to the following: environmental awareness training, daily construction monitoring by a CDFW qualified biologist when disturbance related activities occur within or directly adjacent to the species habitat, and exclusionary fencing installation between the species habitat and the proposed disturbance areas. Additionally, an ITP could be required by CDFW if complete avoidance of the species is not feasible. Areas where no positive response to the call-back/response surveys are assumed to not contain individuals of the species and therefore, disturbance in those areas would have no impact on this species.

6.4 Potential Impacts to Cooper's Hawk, Nesting Raptors, Bird Species

Given the Brunswick Area contains many larger trees and many of those trees contain suitable habitat for nesting raptors, including suitable nesting sites for Cooper's hawk,

removal of such trees should be done outside the breeding season, if possible, to avoid potential impacts to such nesting raptor species. The breeding season for raptors and MBTA protected bird species in the vicinity of the Brunswick Area is generally from February 1 to August 30. Vegetation clearing or tree removal outside of the breeding season for such bird species would not require the implementation of any avoidance, minimization, or mitigation measures. However, construction or development activities during the breeding season could disturb or remove occupied nests of raptors and would require the implementation of a pre-construction survey within 250 feet of the any disturbance area within the Brunswick Area for nesting raptors within 7 days prior to disturbance.

Occurrence: The Brunswick Area contains many larger trees and many of those trees contain suitable habitat for nesting raptors, including suitable nesting sites for Cooper's hawk. In addition, the Brunswick Area also includes smaller riparian trees and shrubs as well as grasslands that provide suitable nesting habitat for other protected bird species. The breeding season for raptors and other protected bird species in the vicinity of the Brunswick Area is generally from February 1 to August 31 but varies depending on the species and localized weather patterns.

Avoidance: Vegetation clearing or tree removal outside of the breeding season for such bird species and/or avoidance of such potential nesting habitat would not require the implementation of any avoidance, minimization, or mitigation measures.

Mitigation: Construction or disturbance activities during the breeding season could disturb or remove occupied nests of raptors and/or protected bird species and would require the implementation of a pre-construction survey within and adjacent to any proposed disturbance area within the Brunswick Area for nesting raptors and other protected bird species within seven (7) days prior to disturbance. The nesting survey radius around the proposed disturbance would be identified prior to the implementation of the protected bird nesting surveys by a CDFW qualified biologist and would be based on the habitat type, habitat quality, and type of disturbance proposed within or adjacent to nesting habitat.

If any nesting raptors or protected birds are identified during such pre-construction surveys, trees or shrubs or grasslands with active nests should be not be removed or disturbed and a no-disturbance buffer should be established around the nesting site to avoid disturbance or destruction of the nest site until after the breeding season or after a qualified wildlife biologist determines that the young have fledged. The extent of these buffers would be determined by a CDFW qualified wildlife biologist and would depend on the special-status species present, the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors should be analyzed by a qualified wildlife biologist to make an appropriate decision on buffer

distances based on the species and level of disturbance proposed in the vicinity of an active nest.

6.5 Potential Impacts to Clean Water Act Regulated "Waters of the U.S.," Including Wetlands

Each of the mapped wetland features and stream features included as part of the Brunswick Industrial Site and East Bennett Road ROW Aquatic Resources Delineation Report (Greg Matuzak Environmental Consulting LLC, 2020a) are assumed to fall under Corps jurisdiction pursuant to Section 404 of the CWA. The RWQCB pursuant to Section 401 of the CWA also has jurisdiction over areas subject to regulation by the Corps under Section 404 of the CWA. As detailed in the CWA, any proposed action that would place fill or dredge material within areas identified as Corps jurisdictional wetlands or waters would require a Department of the Army Section 404 permit and a RWQCB Section 401 Water Quality Certification, or waiver thereof, prior to the placement of fill or dredge material within such features. Fill or dredge impacts to any features regulated under Sections 404 and 401 of the CWA would be required to be mitigated at a minimum of a 1:1 ratio. Compensatory mitigation would be included as a Section 404 and Section 401 permit condition to be implemented prior to the placement of such dredge and fill material within a "waters of the U.S.," including wetlands, and would ensure the no net loss of such features within the Brunswick Area.

Project Related Impacts

The proposed disturbance within the Brunswick Area as outlined in Section 1.3 and identified within the Site Plan attached in Appendix J, such disturbance is estimated to fill 0.57 acres of mapped wetlands, which would be permanent impacts to mapped wetlands within the Brunswick Area (see Table 4.0). The proposed discharge within the perennial stream would include a pipeline and outfall within the bank of the creek. Approximately 15 linear feet of the southern bank of the creek would be impacted. Though the pipeline would be a "temporary impact" to the riparian vegetation during construction of the pipeline, which would be revegetated within the riparian zone post construction, the outfall would have a very small permanent impact within the bank of the creek (approximately 450 square feet for outfall and energy dissipation).

The South Fork Wolf Creek culvert replacement where the existing culvert daylights within the Brunswick Industrial Site would have an estimated 40 ft. x 40 ft. area of impact (1,600 square feet). This would be a temporary impact during replacement. Existing conditions would be re-established once culvert is replaced to the extent feasible.

Additionally, the ephemeral stream connecting South Fork Wolf Creek from upstream would be filled as part of the proposed project disturbance (total of 188 linear feet and 0.05 acres). Therefore, the proposed disturbance to "waters of the U.S.," including

wetlands, within the Brunswick Area is estimated to be 0.63 acres of permanent impacts and 0.043 acres of temporary impacts. A total of 293 linear feet of mapped streams would be impacted from the proposed disturbance (203 linear feet of permanent impacts and 89.5 linear feet of temporary impacts). Specific to South Fork Wolf Creek, impacts are estimated to be 0.01 acres of permanent impacts and 0.04 acres of temporary impacts due to the proposed outfall and updated culvert within the South Fork Wolf Creek (see Table 5.0). Final impact calculations to such "waters of the U.S.," including wetlands, within the Brunswick Area will be based on an approval of the aquatic resources mapped within the Brunswick Area by the Corps and the proposed disturbance within and directly adjacent to such aquatic resources based on the final design. Given the recently passed Navigable Waters Protection Rule, ephemeral streams currently mapped within the Brunswick Area may no longer contain protections under the CWA.

Individual Permit

Under the CWA, any fill within "waters of the U.S.," including wetlands of 0.5 acres or greater would not meet the general conditions of any previously authorized Nationwide Permit and therefore, an Individual Permit (IP) or a Letter of Permission (LOP) would be required prior to the filling of 0.5 acres or greater of such CWA regulated features. Typically, an IP has the longest timeline compared to an LOP and a Nationwide Permit for approval given it includes a 404(b)(1) alternatives analysis that demonstrates that the proposed project has minimized and reduced impacts to the aquatic environment. If the fill and dredge acreage impacts can be reduced to less than 0.5 acres, then the proposed disturbance within the Brunswick Area would most likely fit under a pre-authorized Nationwide Permit (potentially a Nationwide Permit #44 for Mining Activities).

Once an application is deemed complete for an Individual Permit process with the Corps, The Corps Sacramento District states that a minimum of 120 days is required for an IP approval. As part of any IP or LOP process a functional assessment of the wetlands and waters to be impacted by the proposed site disturbance should be conducted and based on the results of the functional assessment and coordination with the Corps, an approved Compensatory Mitigation Plan that mitigates for impacts to such CWA regulated features at a minimum of a 1:1 ratio is required. Compensatory mitigation can include but is not limited to the following: onsite and/or offsite wetland creation and/or restoration, payment of an in-lieu fee, and/or purchase of mitigation credits at an approved Corps wetland mitigation or conservation bank.

6.6 Potential Impacts to Stream and Riparian Zones Under CDFW Jurisdiction

Substantial alteration to perennial, intermittent, and ephemeral streams and adjacent riparian habitat within the Brunswick Area would likely fall under CDFW jurisdiction as these areas each contain a bed and bank. Any proposed alteration of any stream would most likely require a Streambed Alteration Agreement from the CDFW pursuant to Section 1600 *et. seq.* of the California Fish and Wildlife Code prior to construction, including any disturbance within the South Fork Wolf Creek or other mapped streams within the Brunswick Industrial Site.

Project Related Impacts

The proposed disturbance within the Brunswick Area would cause an estimated 0.06 acres of permanent impacts and 0.043 acres of temporary impacts to a total of 293 linear feet of mapped streams within the Brunswick Industrial Site. Specific to South Fork Wolf Creek, impacts are estimated to be 0.01 acres of permanent impacts and 0.04 acres of temporary impacts due to the proposed outfall and updated culvert within the South Fork Wolf Creek (see Table 5.0). Additionally, small impacts to the adjacent riparian zone to the South Fork Wolf Creek would impact some riparian vegetation temporarily, but those areas would be revegetated and restored to pre-project contours, where feasible. Therefore, the proposed disturbance within the mapped stream zones within the Brunswick Area would be subject to CDFW jurisdiction and a Streambed Alteration Agreement from the CDFW pursuant to Section 1600 *et. seq.* of the California Fish and Wildlife Code would be required prior to disturbance within such CDFW jurisdiction. Based on coordination with CDFW through the Streambed Alteration Agreement development process, an ITP may be required as a condition to the Streambed Alteration Agreement if there is a potential that any CESA listed or candidate for listing may occur within the Brunswick Area and be impacted by the proposed disturbance, including potential discharge impacts to the South Fork Wolf Creek within the Brunswick Area and downstream of the Brunswick Area.

Any temporary impacts to the stream within the Brunswick Area, would be required to be restored to pre-construction contours. Site restoration would include all exposed/disturbed areas and access points within any stream as a result of the disturbance activities (pipeline, outfall, new culvert, etc.). These areas shall be restored using locally native grass and/or forb seeds, locally native grass plugs and/or a mix of quick growing sterile non-native grass with locally native grass/forb seeds. Seeded areas shall be covered with broadcast straw and/or seeded erosion control blankets.

6.7 Compliance with the Nevada County Land Use and Development Code

Aquatic Resources Management Plan

An Aquatic Resources Management Plan has been developed for the Brunswick Area to comply with Nevada County Land Use and Development Code, Chapter II; Zoning Regulations, Section L-II 4.3 17C.3 (Ordinance Number 2033) requiring such a Management Plan be prepared for projects in non-disturbance buffers, including areas that are within 100 feet of the high water mark of perennial streams, watercourses, and wetlands, 50 feet from the high water mark of intermittent watercourses, and 100 feet upslope or 20 feet downslope from an NID canal (Nevada County 2000. Land Use and Development Code, Chapter II: Zoning Regulations. Effective July 27, 2000). Therefore, the development of such a Management Plan is required for the proposed project related disturbance within the Brunswick Area given the proposed impacts to such aquatic resources and their non-disturbance buffers. The development of such a Management Plan for the proposed disturbance within the Brunswick Area would meet the requirements of the Nevada County Land Use and Development Code, Chapter II; Zoning Regulations, Section L-II 4.3 17C.3 (Ordinance Number 2033).

A comprehensive analysis of the projects consistency with applicable goals and policies of the County Land Use and Development Code has been provided under separate cover (Benchmark Resources 2020).

7 REFERENCES

Baldwin, B.G., Goldman, D.H., Keil, D.J., Patterson, R., Rosatti, T.J., and Wilken, D.H. 2012. The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press.

Boes, Wendy. 2019. Brunswick Site Special Status Plant Survey Report (Wendy Boes Botanical Consultant, August 2019).

Burt, William Henry. 1980. A Field Guide to the Mammals of North America north of Mexico. New York, New York: Houghton Mifflin Company, 1980.

Calflora. Information on California Plant for Education, Research and Conservation. [web application]. 2019.

California Department of Fish and Game (CDFG). 2004. Fish and Game Code Sections 1600-1616.

California Department of Fish and Wildlife (CDFW). 2019. Lake and Streambed Alteration Program.

California Department of Fish and Wildlife (CDFW). 2019. California Wildlife Habitat Relationships (CWHR).

California Department of Fish and Game (CDFG). 1987. Five-Year Status Report: California Black Rail. Non-Game Bird and Mammal Section, Wildlife Management Division, Department of Fish and Game. California.

California Department of Fish and Game (CDFG). 2011. Special - 898 Taxa. California Natural Diversity Database, The Natural Resources Agency, Biogeographic Branch, Department of Fish and Game. California.

California Department of Fish and Wildlife (CDFW). 2019a. RareFind Verion 3: Search of 3-mile buffer around Brunswick Area. California Natural Diversity Database (CNDDB), California Department of Fish and Wildlife. Sacramento, California.

California Department of Fish and Wildlife (CDFW). 2019b. Evaluation of the Petition from the Xerces Society, Defenders of Wildlife, and the Center for Food Safety to List Four Species of Bumble Bees as Endangered Under the California Endangered Species Act (Report to the Fish and Game Commission). California Department of Fish and Wildlife. Sacramento, California (April 14, 2019).

California Department of Fish and Wildlife (CDFW). 2019. Threatened and Endangered Species. California Department of Fish and Wildlife. Sacramento, California.

CaliforniaHerps.com (CaliforniaHerps). 2019. A Guide to Amphibians and Reptiles in California. CaliforniaHerps.com. California.

California Native Plant Society (CNPS). 2000. A Manual of California Vegetation. [web based version]. California Native Plant Society. Information Center for the Environment, University of California Davis.

California Native Plant Society (CNPS). 2019. Online Inventory of Rare, Threatened, and Endangered Plants of California, V9-02. California Native Plant Society. California.

Cornell Law School. 2001. Solid Waste Agency of Northern Cook City. V. Army Corps Of Engineers (99-1178) 531 U.S. 159 (2001) 191 F.3d 845, reversed. Legal Information Institute.

Drake University. 2007. Rapanos v. United States: "Waters of the United States" Under the Clean Water Act (2003). Drake Journal of Agricultural Law, Volume 12, Number 3.

Environmental Laboratory: US Army Corps of Engineers (Corps). 1987. Corps of Engineers Wetlands Delineation Manual.

Environmental Protection Agency (EPA). 1972. Summary of the Clean Water (CWA) Act-33 U.S.C. §1251 et seq. (1972). EPA Laws and Regulations.

ESA Associates. 2006. Idaho-Maryland Mine Special-Status Wildlife Habitat Evaluation Report. August 2006.

ESA Associates. 2006. Idaho-Maryland Mine Project Special-Status Plan Survey Report. August 2006.

ESA Associates. 2008. Draft Environmental Impact Report Idaho-Maryland Mine Project October 2008.

Evens, J., Page, G.W., Laymon, S.A. and R.W. Stallcup. 1991. Distribution, Relative Abundance and Status of the California Black Rail in Western North America. The Condor 93(4) 952 November 1991.

Jennings, M.R.; Hayes, M.P. Amphibian and Reptile Species of Special Concern in California. 1994. Inland Fisheries Division, California Department of Fish and Game. Rancho Cordova, California.

Jepson Herbarium, The. (Jespson eFlora). 2019. The Jepson Herbarium, University of California, Berkeley. Berkeley, California.

Legislative Counsel of California (LCC). 2004. Senate Bill 1334- Oak Woodlands Conservation Act. Official California Legislative Information. California.

Legislative Counsel of California (LCC). 2013. California Law: California fish and Game Code. Official California Legislative Information. California.

Matuzak, Greg. 2020a. Brunswick Industrial Site and East Bennett Road ROW Aquatic Resources Delineation of Waters of the United States and State of California (Greg Matuzak Environmental Consulting LLC, 2020a).

Matuzak, Greg. 2020b. Updated Technical Memorandum for the Idaho-Maryland Mine Project – South Fork Wolf Creek Discharge Biological Resources Assessment (Greg Matuzak Environmental Consulting LLC, 2020b).

Mayer, K. E. and William F. Laudenslayer, Jr. 1988. A Guide to Wildlife Habitats of California. State of California, Resources Agency, Department of Fish and Game Sacramento, CA. 166 pp.

Natural Resources Conservation Service. 2018. Weather for City of Grass Valley, California.

Nevada County. 1996. Nevada County General Plan Volumes 1-3 (including subsequent amendments). Planning Department, Nevada County Community Development Agency.

Regional Water Quality Control Board, Central Valley Region. 1990. Order No. 88-185, Waste Discharge Requirements for Bohemia, Incorporated, Grass Valley Mill, Nevada County. December 18th, 1990.

Sawyer, J.O., Keeler-Wolf, T., Evans, J.M. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society.

Shuford, W. D., and T. Gardali, editors. 2008. California bird species of special concern: a ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Spautz, H., Nur, N., Stralberg, D. 2005. California Black Rail (*Laterallus jamaicensis coturniculus*): Distribution and Abundance in Relation to Habitat and Landscape Features in the San Francisco Bay Estuary. USDA Forest Service General Technical Report: PSW-GTR-191.

United States Department of Agriculture (USDA). 2019. National Resources Conservation District (NRCS) - Web Soil Survey.

United States Army Corps of Engineers (Corps). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). U. S. Army Corps of Engineers – Engineer Research and Development Center. May 2010.

United States Fish and Wildlife Service (USFWS). 1918. Migratory Bird Treaty Act of 1918. 1918.

United States Fish and Wildlife Service (USFWS). 1940. The Bald and Golden Eagle Protection Act.

United States Fish and Wildlife Service (USFWS). 1973. Endangered Species Act.

United States Fish and Wildlife Service (USFWS). 1996. Determination of Endangered Status for Four Plants and Threatened Status for One Plant From the Central Sierran Foothills of California. U.S. Fish & Wildlife Federal Register. October 18, 1996.

United States Fish and Wildlife Service (USFWS). 2019. Federal Endangered and Threatened Species Information for Planning and Consultation (IPaC) for the Brunswick Site and Nevada County. Sacramento Fish and Wildlife Service.

United States Fish and Wildlife Service (USFWS). 2019. National Wetland Inventory.

WRA, Inc. 2008. Delineation of Section 404 Jurisdictional Areas Idaho-Maryland Mine, Nevada County, California. Follow up mapping submitted to the United States Army Corps of Engineers on June 5, 2008.

Yarnell, S.M., Peek, R.A. and A.J. Lind. 2014. Draft: Visual Encounter Survey Protocol for *Rana boylii* in Lotic Environments. January 2014.

Appendix A

Project Overview Area Figures

Figure. Brunswick Industrial Site

Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R8E Section 36 &
T16N, R9E Section 31

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

SCALE: 1 inch = 500 feet

Legend

= Brunswick Industrial Site 118.93 ac.

Figure. East Bennett Road Right of Way Overview

Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R8E Section 25

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

SCALE: 1 inch = 600 feet

This delineation has been conducted in accordancewith the 1987 Corps of Engineers Wetlands Delineation Manual and the Western Mountains Regional Supplement (2010). The identification of ordinary high water mark (OHWM) was based on A Guide to Ordinary High Water Mark (OHWM) for Non-Perennial Streams in the Western Mountains (2014).

Created January 1, 2019

Appendix B

USDA Soils Maps

Map Scale: 1:8,350 if printed on A landscape (11" x 8.5") sheet.

N

0 100 200 400 600 Meters

0 400 800 1600 2400 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Nevada County Area, California
Survey Area Data: Version 11, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 20, 2017—Aug 8, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AfC	Aiken loam, 9 to 15 percent slopes, high precip	12.91	10.9%
AfD	Aiken loam, 15 to 30 percent slopes, N Low Mid Montane	0.71	0.6%
AfE	Aiken loam, 30 to 50 percent slopes	17.7	14.9%
Ao	Alluvial land, clayey	13.8	11.7%
CmB	Cohasset loam, summits, 2 to 15 percent slopes	1.41	1.2%
CmC	Cohasset loam, shoulders, 3 to 20 percent slopes	24.7	20.9%
CmD	Cohasset loam, backslopes, 5 to 30 percent slopes	4.7	3.6%
CoD	Cohasset cobbly loam, 5 to 30 percent slopes	1.9	1.6%
Pr	Placer diggings	40.8	34.5%
SlD	Sites silt loam, 15 to 30 percent slopes, N low montane	0.3	0.2%
Totals for Area of Interest		**118.93**	**100.0%**


121° 2' 27" W
121° 0' 54" W
669200
669400
669600
669800
670000
670200
670400
670600
670800
671000
671200
39° 13' 19" N
39° 12' 32" N
4343300
4343100
4342900
4342700
4342500
4342300
4342100
4341900
Brunswick
Crown Point Cir
Bet Rd
Ct
BrD
SID
BrE
SfD
BoD
SfD
AfE
SID
CmD
AfC
Pr
Soil Map may not be valid at this scale.
Map Scale: 1:10,200 if printed on A landscape (11" x 8.5") sheet.
N
0 150 300 600 900 Meters
0 450 900 1800 2700 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Nevada County Area, California
Survey Area Data: Version 11, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 20, 2017—Aug 8, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

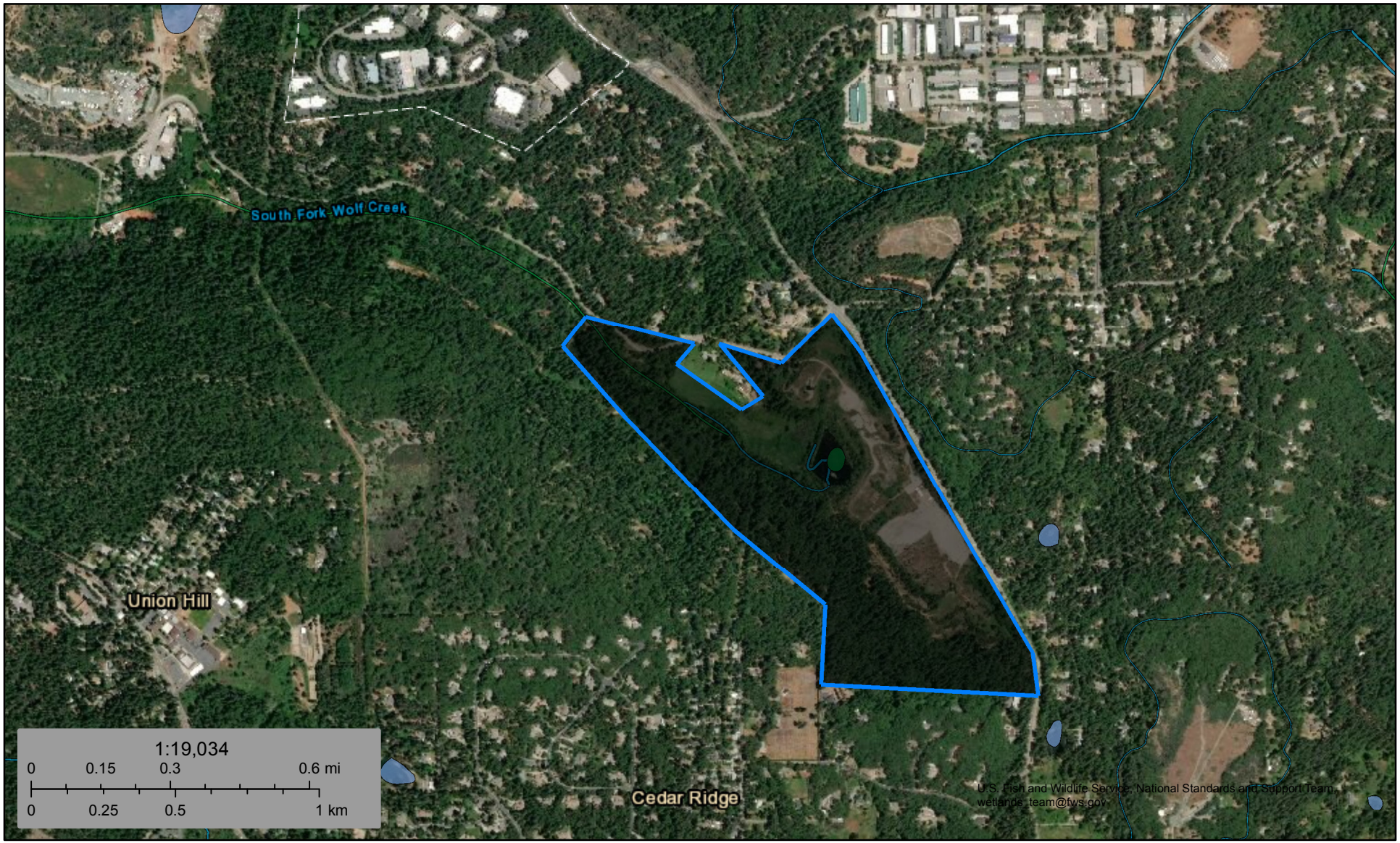
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AfC	Aiken loam, 9 to 15 percent slopes, high precip	0.3	3.8%
AfE	Aiken loam, 30 to 50 percent slopes	0.6	7.0%
BoD	Boomer loam, hard bedrock, 7 to 28 percent slopes	2.7	24.9%
BrD	Boomer, hard bedrock - Rock outcrop complex, 5 to 30 percent slopes	0.2	1.9%
BrE	Boomer, hard bedrock - Rock outcrop complex, 15 to 60 percent slopes	1.0	12.8%
CmD	Cohasset loam, backslopes, 5 to 30 percent slopes	1.1	10.3%
Ct	Cut and fill land	1.1	9.1%
Pr	Placer diggings	1.1	8.7%
SfD	Sierra sandy loam, 15 to 30 percent slopes	0.1	0.7%
SlD	Sites silt loam, 15 to 30 percent slopes, N low montane	2.1	20.8%
Totals for Area of Interest		**10.3**	**100.0%**

Appendix C

National Wetland Inventory (NWI) Maps

U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI - Brunswick Industrial Site



December 7, 2018

Wetlands

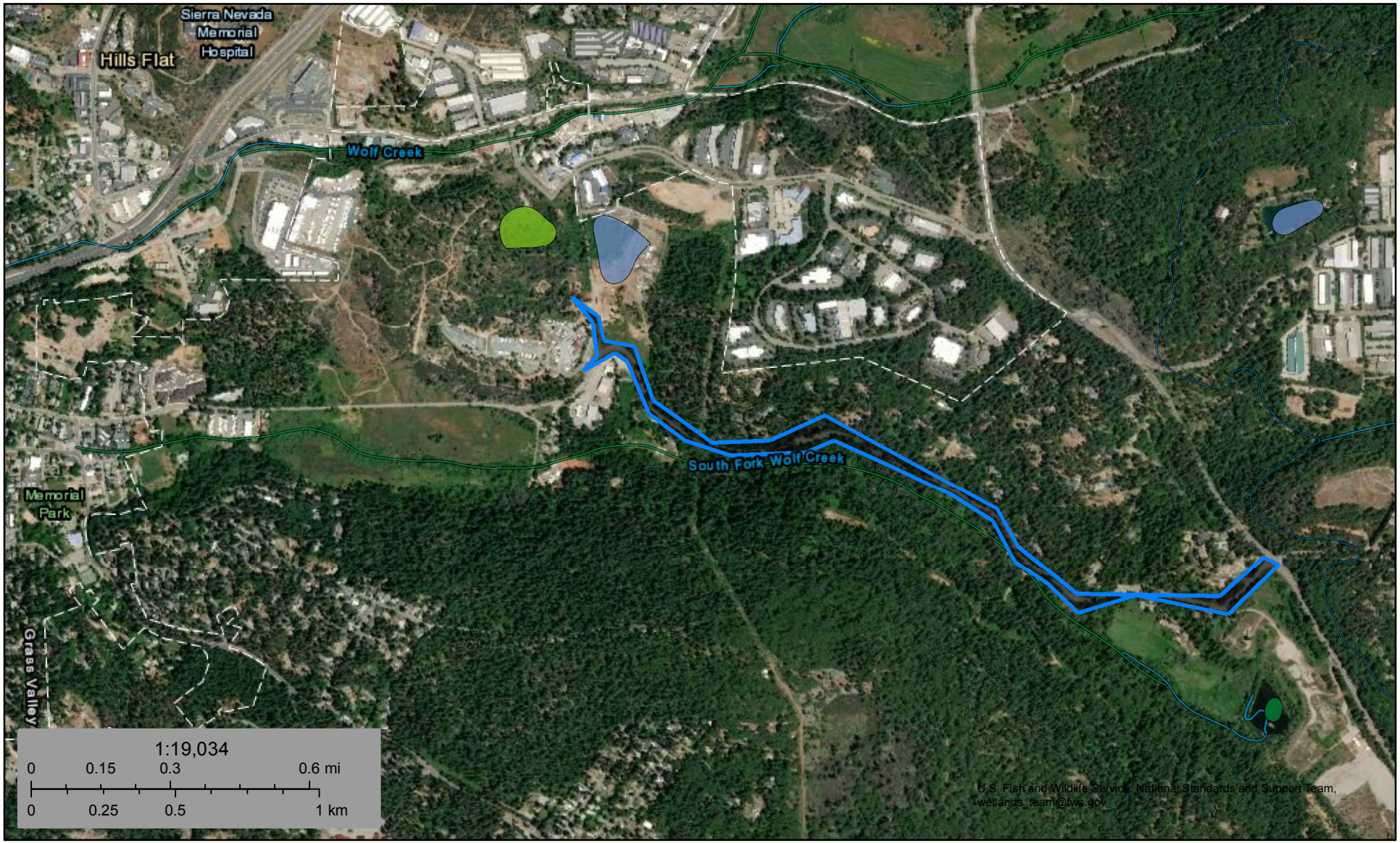
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

U.S. Fish and Wildlife Service

National Wetlands Inventory

East Bennett Road Right of Way



December 7, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Appendix D

Vegetation Community Map

Figure. Vegetation Types in Study Area

Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R8E Section 36 &
T16N, R9E Section 31

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

SCALE: 1 inch = 500 feet

Legend

= Brunswick Industrial Site

Vegetation Type

- Annual Grassland
- Developed
- Disturbed
- Manmade Pond
- Montane Hardwood-Conifer
- Montane Hardwood
- Pondorosa Pine
- Sierran Mixed Conifer
- Wet Meadow

Appendix E

Plants Observed During Site Surveys

VASCULAR PLANTS OCCURRING IN STUDY AREA

Scientific Name	Common Name	Origin	Form	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Acer macrophyllum	Bigleaf maple	native	Tree	-	FACU	-
Agoseris retrorsa	Spear leaved agoseris	native	perennial herb	-	-	-
Agrostis gigantea	Creeping bentgrass	non-native	perennial grass	-	FAC	-
Ailanthus altissima	Tree of heaven	non-native (invasive)	Tree	-	FACU	Moderate
Aira caryophyllea	Silvery hairgrass	non-native (invasive)	annual grass	-	FACU	-
Allium amplectens	Narrow leaved onion	native	perennial herb (bulb)	-	-	-
Alnus rhombifolia	White alder	native	Tree	-	FACW	-
Ammi visnaga	Visnaga	non-native	annual, biennial herb	-	-	-
Anaphalis margaritacea	Pearly everlasting	native	perennial herb	-	FACU	-
Andropogon virginicus var. virginicus	Broomsedge bluestem	non-native	perennial grass	-	FAC	-
Arbutus menziesii	Madrone	native	Tree	-	-	-
Arctostaphylos mewukka ssp. mewukka	Indian manzanita	native	Shrub	-	-	-
Arctostaphylos viscida ssp. viscida	Smooth white leaf manzanita	native	tree, shrub	-	-	-
Artemisia douglasiana	California mugwort	native	perennial herb	-	FACW	-
Asclepias speciosa	Showy milkweed	native	perennial herb	-	FAC	-
Avena sp.	-	-	-	-	-	-
Baccharis pilularis	Coyote brush	native	Shrub	-	-	-
Berberis aquifolium var. repens	Creeping Oregon grape	native	Shrub	-	FACU	-
Brodiaea minor	Low brodiaea	native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Brodiaea sierrae	Sierra foothills brodiaea	native	perennial herb	Rank 4.3	-	-
Bromus hordeaceus	Soft chess	non-native (invasive)	annual grass	-	FACU	Limited
Bromus madritensis	Foxtail chess, foxtail brome	non-native	annual grass	-	FACU	-
Calocedrus decurrens	Incense cedar	native	Tree	-	-	-
Calycadenia multiglandulosa	Rosin weed	native	annual herb	-	-	-
Carex feta	Green sheathed sedge	native	perennial grasslike herb	-	FACW	-
Ceanothus cuneatus	Buck brush	native	Shrub	-	-	-
Ceanothus integerrimus	Deer brush	native	Shrub	-	-	-
Ceanothus lemmonii	Lemmon's ceanothus	native	Shrub	-	-	-
Centaurea solstitialis	Yellow starthistle	non-native (invasive)	annual herb	-	-	High
Centaurium tenuiflorum	Slender centaury	non-native	annual herb	-	FACW	-
Centranthus sp.	-	-	-	-	-	-
Centromadia fitchii	Spikeweed	native	annual herb	-	FACU	-
Chlorogalum pomeridianum	Amole	native	perennial herb	-	-	-
Chondrilla juncea	Skeleton weed	non-native (invasive)	perennial herb	-	-	Moderate
Cichorium intybus	Chicory	non-native	perennial herb	-	FACU	-
Cirsium vulgare	Bullthistle	non-native (invasive)	perennial herb	-	FACU	Moderate
Cornus nuttallii	Mountain dogwood	native	Shrub	-	FACU	-
Cornus sericea	American dogwood	native	Shrub	-	FACW	-
Cortaderia jubata	Andean pampas grass	non-native (invasive)	perennial grass	-	FACU	High
Crataegus monogyna	Hawthorn	non-native (invasive)	Shrub	-	FAC	Limited
Croton setiger	Turkey-mullein	native	perennial herb	-	-	-
Cynodon dactylon	Bermuda grass	non-native (invasive)	perennial grass	-	FACU	Moderate
Cynosurus echinatus	Dogtail grass	non-native (invasive)	annual grass	-	-	Moderate
Cyperus eragrostis	Tall cyperus	native	perennial grasslike herb	-	FACW	-
Dactylis glomerata	Orchardgrass	non-native (invasive)	perennial grass	-	FACU	Limited

Scientific Name	Common Name	Origin	Form	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Danthonia californica	California oatgrass	native	perennial grass	-	FAC	-
Deschampsia elongata	Hairgrass	native	perennial grass	-	FACW	-
Elymus caput-medusae	Medusa head	non-native	annual grass	-	-	-
Elymus elymoides	Squirrel tail grass	native	perennial grass	-	FACU	-
Elymus hispidus	Intermediate wheatgrass	non-native	perennial grass	-	-	-
Epilobium sp.	-	-	-	-	-	-
Epipactis gigantea	Stream orchid	native	perennial herb	-	OBL	-
Eriodictyon californicum	Yerba santa	native	Shrub	-	-	-
Eriophyllum lanatum	Wooly sunflower	native	perennial herb	-	-	-
Euthamia occidentalis	Western goldenrod	native	perennial herb	-	FACW	-
Festuca arundinacea	Reed fescue	non-native (invasive)	perennial grass	-	FAC	Moderate
Festuca idahoensis	Blue fescue	native	perennial grass	-	FACU	-
Festuca microstachys	Small fescue	native	annual grass	-	-	-
Ficus sp.	-	-	-	-	-	-
Frangula californica ssp. tomentella	Hoary coffeeberry	native	Shrub	-	-	-
Frangula rubra	Red buckthorn	native	Shrub	-	-	-
Galium porrigens	Climbing bedstraw	native	vine, shrub	-	-	-
Garrya fremontii	Fremont's silk tassel	native	Shrub	-	-	-
Grindelia camporum	Gumweed	native	perennial herb	-	FACW	-
Grindelia sp.	-	-	-	-	-	-
Hedera helix	English ivy	non-native (invasive)	vine, shrub	-	FACU	-

Scientific Name	Common Name	Origin	Form	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Hemizonella minima	Opposite leaved tarweed	native	annual herb	-	-	-
Hirschfeldia incana	Mustard	non-native (invasive)	perennial herb	-	-	Moderate
Holcus lanatus	Common velvetgrass	non-native (invasive)	perennial grass	-	FAC	Moderate
Hypericum perforatum ssp. perforatum	Klamathweed	non-native	perennial herb	-	FACU	-
Hypochaeris radicata	Hairy cats ear	non-native (invasive)	perennial herb	-	FACU	Moderate
Juncus articulatus ssp. articulatus	Jointed rush	native	perennial grasslike herb	-	OBL	-
Juncus balticus ssp. ater	Baltic rush	native	perennial grasslike herb	-	FACW	-
Juncus confusus	Colorado rush	native	perennial grasslike herb	-	FAC	-
Juncus effusus ssp. pacificus	Pacific rush	native	perennial grasslike herb	-	FACW	-
Juncus trilocularis	-	native	annual grasslike herb	-	-	-
Lactuca serriola	Prickly lettuce	non-native (invasive)	annual herb	-	FACU	-
Lathyrus latifolius	Sweet pea	non-native	perennial herb	-	-	-
Leontodon saxatilis	Hawkbit	non-native	annual herb	-	FACU	-
Leucanthemum vulgare	Oxe eye daisy	non-native (invasive)	perennial herb	-	FACU	Moderate
Lonicera hispidula	Pink honeysuckle	native	vine, shrub	-	FACU	-
Lonicera interrupta	Chaparral honeysuckle	native	vine, shrub	-	-	-
Lotus corniculatus	Bird's foot trefoil	non-native (invasive)	perennial herb	-	FAC	-
Lysimachia arvensis	Scarlet pimpernel	non-native	annual herb	-	FAC	-
Madia gracilis	Gumweed	native	annual herb	-	-	-
Melica californica	California melic	native	perennial grass	-	-	-
Melilotus albus	White sweetclover	non-native (invasive)	annual, biennial herb	-	-	-
Muhlenbergia rigens	Deergrass	native	perennial grass	-	UPL	-

Scientific Name	Common Name	Origin	Form	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Parthenocissus sp.	-	-	-	-	-	-
Penstemon heterophyllus	Foothill penstemon	native	perennial herb	-	-	-
Pickeringia montana	Chaparral pea	native	Shrub	-	-	-
Pinus ponderosa	Yellow pine	native	Tree	-	FACU	-
Plantago lanceolata	Ribwort	non-native (invasive)	perennial herb	-	FACU	Limited
Polygala cornuta	Sierra milkwort	native	perennial herb	-	FACW	-
Polypogon sp.	-	-	-	-	-	-
Populus fremontii ssp. fremontii	Cottonwood	native	Tree	-	FAC	-
Poterium sanguisorba	Garden burnet	non-native	perennial herb	-	UPL	-
Prunella vulgaris	Self heal	native	perennial herb	-	FACU	-
Prunus subcordata	Sierra plum	native	tree, shrub	-	-	-
Pyracantha sp.	-	-	-	-	-	-
Quercus garryana var. semota	Oregon white oak	native	Tree	-	FACU	-
Rhamnus crocea	Redberry	native	Shrub	-	-	-
Rosa canina	Dog rose	non-native	Shrub	-	-	-
Rubus armeniacus	Himalayan blackberry	non-native (invasive)	Shrub	-	FAC	High
Rubus leucodermis	White bark raspberry	native	Shrub	-	FACU	-
Rumex crispus	Curly dock	non-native (invasive)	perennial herb	-	FAC	Limited
Salix exigua	Narrowleaf willow	native	tree, shrub	-	FACW	-
Salix laevigata	Polished willow	native	Tree	-	FACW	-
Salix lasiolepis	Arroyo willow	native	tree, shrub	-	FACW	-
Salvia sonomensis	Sonoma sage	native	perennial herb	-	-	-
Schoenoplectus acutus var. occidentalis	Tule	native	perennial grasslike herb	-	OBL	-
Scutellaria tuberosa	Dannie's scullcap	native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Solidago sp.	-	-	-	-	-	-
Toxicodendron diversilobum	Poison oak	native	vine, shrub	-	FAC	-
Tragopogon dubius	Goat's beard	non-native (invasive)	perennial herb	-	-	-
Trichostema lanceolatum	Vinegarweed	native	annual herb	-	FACU	-
Trifolium hirtum	Rose clover	non-native (invasive)	annual herb	-	-	Limited
Trifolium sp.	-	-	-	-	-	-
Triteleia hyacinthina	Wild hyacinth	native	perennial herb	-	FAC	-
Typha domingensis	Cattail	native	perennial herb	-	OBL	-
Verbascum blattaria	Moth mullein	non-native	perennial herb	-	UPL	-
Verbascum thapsus	Woolly mullein	non-native (invasive)	perennial herb	-	FACU	Limited
Vitis californica	California wild grape	native	vine, shrub	-	FACU	-
Wyethia angustifolia	Narrow leaved mule ears	native	perennial herb	-	FACU	-
Wyethia bolanderi	Bolander's wyethia	native	perennial herb	-	-	-

Appendix F

Humboldt Lily CNPS List 4 Species Location Figure

Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R9E Section 31 &
T16N R8E Sections 36

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

Figure. CRPR 4 Plant: Humboldt Lily

SCALE: 1 inch = 500 feet

Legend

Brunswick Industrial Site

Special-Status Plant

Humboldt Lily

Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R8E Section 25

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

Figure. CRPR List 4 Plant: Humbold Lily
East Bennett Road Right-of-Way (ROW)

SCALE: 1 inch = 100 feet

Legend

= Humboldt Lily

= East Bennett Street ROW

Created October 25, 2019

Appendix G

Photo Log

Photos of the December 2018 and July/August 2019 Surveys of the Brunswick Site

Photo 1: Looking south and southeast within the Brunswick Industrial Site. Forested area is mapped as Sierran Mixed Conifer vegetation community type.

Photo 2: Southern/southeastern section of the Brunswick Industrial Site. Forested area is mapped as Sierran Mixed Conifer vegetation community type.

Photo 3: Eastern section of the Brunswick Industrial Site looking northeast from southern area of the site. The large area containing mostly asphalt is mapped as developed.

Photo 4: Mapped Wet Meadow Wetland within the area mapped as disturbed within the Brunswick Industrial Site.

Photo 5: Mapped freshwater marsh wetland mapped within the southwestern area of the Brunswick Site. Soils were saturated and contained characteristics of hydric soils.

Photo 6: Mapped freshwater marsh wetland just south of the South Fork Wolf Creek culvert outlet. Wetland area contains standing water and dominated by freshwater marsh wetland hydrophytic vegetation.

Photo 7: Mapped South Fork of Wolf Creek with origination from outside the Brunswick Industrial Site. Water present within the stream channel coming from existing culvert.

Photo 8: Existing culvert daylights within the Brunswick Industrial Site at the South Fork Wolf Creek just upstream from Photo 7.

Photo 9: Large mapped manmade pond within the Brunswick Industrial Site. Historical pond used during operation of the mill.

Photo 10: Area mapped as disturbed within the central west section of the Brunswick Industrial Site. This area contains remnants of historic impacts to the site.

Photo 11: Mapped riparian wetland within the central section of the Brunswick Industrial Site that is mapped as disturbed within the vegetation community map.

Photo 12: Small freshwater marsh wetland within the eastern, developed section of the Brunswick Industrial Site. Water runs off of the adjacent Brunswick Road into the site.

Photo 13: Large area of asphalt within the eastern section of the Brunswick Site is mapped as developed with ponderosa pine vegetation community mapped adjacent.

Photo 14: Mapped wet meadow vegetation community within the northwestern open section of the Brunswick Industrial Site. Photo taken in August 2019.

Photo 15: Wet meadow vegetation community with South Fork Wolf Creek along the left edge of the wet meadow and montane hardwood-conifer vegetation community along left edge of the photo within the northwestern section of the Brunswick Industrial Site.

Photo 16: Edge of mapped annual grassland and montane hardwood vegetation communities and mapped ponderosa pine vegetation community in the distance within the northeastern section of the Brunswick Industrial Site.

Photo 17: Historic mining infrastructure in background is located within the developed northeastern section of the Brunswick Industrial Site with montane hardwood vegetation community in the foreground.

Photo 18: Edge of mapped annual grassland and montane hardwood vegetation communities and mapped ponderosa pine vegetation community in the distance within the northeastern section of the Brunswick Industrial Site.

Photo 19: South Fork Wolf Creek in the northeastern corner of the Brunswick Industrial Site. Suitable habitat present for the foothill yellow-legged frog in this area of the site.

Photo 20: South Fork Wolf Creek below the culvert outfall within the Brunswick Industrial Site. Marginal suitable habitat present for the foothill yellow-legged frog in this area.

Photos of East Bennett Road ROW

Photo 21: Mapped Roadside Wetland along East Bennett Road. Wetland area contained standing water and dominated by hydrophytic vegetation.

Photo 22. East Bennett Road ROW. No drainages or wetlands along this section of Project Area. Entire area is developed and within a ponderosa pine vegetation community.

Photo 23. Manmade drainage along north side of East Bennett Rd. ROW. Drainage located outside of ROW and drains to the south side of East Bennett Rd. ROW.

Photo 24. Riparian wet area adjacent to the East Bennett Rd. ROW on north side of road. ROW is developed within this area of the site.

Photo 25. Non-jurisdictional roadside swale along northern side of E. Bennett Rd. ROW

Photo 26. South side culvert/drainage along East Bennett Road ROW. Located towards lower end of E. Bennett Road ROW and within the developed part of the ROW.

Appendix H

Species Table for CNPS Ranked Plants and Special-Status Plant and Wildlife Species

Common and Scientific Name	Legal Status[1] Federal/State/ CNPS	Habitat Association	Identification Period	Potential for Species/Habitat Presence
Stebbins' morning-glory *Calystegia stebbinsii*	--/--/1.B2	Gabbroic or serpentinite soils. Openings in chaparral, cismontane woodland, lower montane coniferous forest, from 980-4,330 feet.	Apr- Jul	**Low** Known 4 miles to east on gabbroic chaparral on Oceola Ridge. Gabbroic soils not present in study area. Was not observed during targeted 2019 field surveys.
Sierra arching sedge *Carex cyrtostachya*	--/--/1B.2	Lower montane mesic coniferous forest, meadows and seeps, marshes and swamps, Riparian forests (margin), from 2,000-4,460 feet.	May -Aug	**Low.** Potential for occurrence in mesic forests. Within the known distributional and elevational range for this species, though nearest known occurrence 16 miles to the north. This species was recently described so the full extent of its range and distribution are unlikely yet known. Marginal habitat present in study area, and it was not observed during 2019 field surveys.
Chaparral sedge *Carex xerophila*	--/--/1B.2	Chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, from 1,400 – 2,525 feet.	Mar- Jun	**Low.** Known 4 miles away on Oceola Ridge in gabbroic chaparral. Gabbroic soils not present in study area. Was not observed during 2019 field surveys.
Red Hills soaproot *Chlorogalum grandiflorum*	--/--/1B.2	Chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, from 800 – 5,545 feet.	May-Jun	**Low.** Known over 10 miles south in Bunch Canyon south of Colfax, with no known occurrences to north. Gabbroic soils not present in study area. Was not observed during 2019 field surveys.
Pine Hill flannelbush *Fremontodendron decumbens*	FE/CR/1B.2	Chaparral, cismontane woodland on serpentinite and gabbroic substrates, from 1,390 – 2,495 feet.	Apr- July	**Low.** Known from two miles to the north. Gabbroic soils not present in study area. Was not observed during targeted 2019 field surveys.
Butte County fritillary *Fritillaria eastwoodiae*	--/--/3.2	Openings in chaparral, cismontane woodland, and lower montane coniferous forest, sometimes serpentinite, from 160-4,920 feet.	Mar-Jun	**Low.** Potential for occurrence in open areas in the study area. There is a 1979 record for this species on the south side of the South Yuba River canyon approximately 7 miles north of the study area, and other occurrences on the Washington Ridge. Surveys were not conducted during the appropriate phenological period for this species (April-May).

Common and Scientific Name	Legal Status[1] Federal/State/ CNPS	Habitat Association	Identification Period	Potential for Species/Habitat Presence
Finger rush *Juncus digitatus*	--/--/1B.1	Seasonal wet areas, cismontane woodland openings, openings in lower montane coniferous forest, xeric vernal pools, from 2,165-2,590 feet.	Apr-Jun	**Low.** Potential for the occurrence in gravelly, seasonally moist openings. Known less than one mile to the north near the intersection of Idaho Maryland and Brunswick. Was not observed during 2019 field surveys.
Dubious pea *Lathyrus sulphureus* var. *argillaceus*	--/--/3	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest, from 490-3,050 feet.	Apr-May	**Low.** Potential to occur in forested areas. Known within 3 miles of study areas from a 1926 collection. Also known to SW 5 miles away near Wolf Mountain. Plant list from 2006 surveys have a *Lathyrus sulfureus* with no variety designation, but not observed during 2019 surveys.
Cantelow's lewisia *Lewisia cantelovii*	--/--/1B.2	Moist, granitic areas in broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest mesic, sometimes serpentinite seeps, from 1,080-4,495 feet.	May-Oct	**Low.** Potential for occurrence in any rocky outcrops with seeps on the parcel. There are records for this species in the Middle Yuba and South Yuba river canyons within 7 miles of the study area. The preferred habitat for this species in the study area has been disturbed and is of reduced quality. Was not observed during 2019 field surveys.
Cedar Crest popcornflower *Plagiobothrys glyptocarpus* var. *modestus*	--/--/3	Cismontane woodland, valley and foothill grasslands (mesic), from 2,850-2.855 feet.	Apr-Jun	**Moderate.** Known from historic collection potentially from nearby Cedar Ridge. Also known from historic collections in Nevada City. Suitable habitat for this species is present. Was not observed during 2019 field surveys.
Sierra blue grass *Poa sierrae*	--/--/1B.3	Openings in lower montane coniferous forest, 1,195-4,920 feet.	Apr-Jul	**Moderate.** There is only marginal suitable habitat for this species in the study area, primarily in the Sierran mixed conifer, ponderosa pine forest, and in the forested areas along South Fork of Wolf Creek. Known 7 miles to the east of the study area at Steephollow Creek from a collection from 1964. Was not observed during 2019 field surveys.

Common and Scientific Name	Legal Status[1] Federal/State/ CNPS	Habitat Association	Identification Period	Potential for Species/Habitat Presence
Brownish beaked-rush *Rhynchospora capitellata*	--/--/2B.2	Wet areas (marshes, swamps, meadows, and seeps) in montane coniferous forest, from 145-6,560 feet.	Jul-Aug	**Moderate.** Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 field surveys.
Scadden Flat checkerbloom *Sidalcea stipularis*	--/CE/1B.1	Marshes and swamps (montane freshwater), from 2,295-2,395 feet.	Jul-Aug	**Moderate.** Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 field surveys.

[1]Status explanations:

FE = Federally Endangered
CR = State Rare
CE = State Endangered
-- = no listing.

California Native Plant Society Rare Plant Rank (formerly known as CNPS lists)
1B = Rank 1B species: rare, threatened, or endangered in California and elsewhere.
2B = Rank 2B species: rare, threatened, or endangered in California but more common elsewhere.
3 = Rank 3 species are taxonomically problematic and lack the necessary information to assign them to one of the other ranks.
4 = Rank 4 plants are of limited distribution or infrequent throughout a broader area in California; should be monitored regularly.
Source: CNPS 2019; CNDDB 2019; USFWS 2019, and Calflora 2019.

Common and Scientific Name	Legal Status[1] Federal/State	Habitat Requirements	Potential for Species/Habitat Presence
Amphibians			
California red-legged frog *Rana draytonii*	FT/SSC	Found in permanent and semi-permanent aquatic habitats, such as creeks and ponds, with emergent and submergent vegetation. May aestivate in rodent burrows or cracks during dry periods. Along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County.	**Very Low**; however, the perennial aquatic resources such as the freshwater emergent marsh habitats and a large manmade pond within the Brunswick Industrial Site contain marginal suitable habitat for the species.
Foothill yellow-legged frog *Rana boylii*	SCT/SCC	Perennial rocky (pebble or cobble) streams with cool, clear water in a variety of habitats from valley and foothill oak woodland, riparian forest, ponderosa pine, mixed conifer, coastal scrub, and mixed chaparral at elevations ranging from 0 to 6,370 feet. Occurs in the Klamath, Cascade, north Coast, south Coast, and Transverse Ranges; through the Sierra Nevada foothills up to approximately 6,000 feet south to Kern County	**Very Low**; however, the South Fork Wolf Creek within the western section of the Brunswick Industrial Site contains marginal suitable habitat for the species.
Reptiles			
Western pond turtle *Emys marmorata*	--/SSC	Thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation, below 6,000 feet in elevation. Populations extend throughout the coast and central valley of California.	**High** potential for occurrence in areas near water, including South Fork Wolf Creek and perennial aquatic resources such as the freshwater emergent marsh habitats and manmade pond within the Brunswick Industrial Site.
Coast horned lizard *Phrynosoma blainvillii*	--/SSC	Associated with open patches of sandy soils in washes, chaparral, scrub, and grasslands.	**Moderate** potential for occurrence in areas with appropriate habitat within the Brunswick Industrial Site, including open disturbed areas.
Mammals			
Townsend's big-eared bat *Corynorhinus townsendii*	--/SSC	Associated with lower montane coniferous and mixed conifer forest habitats where abandoned buildings and structures occur for roosting.	**Low** potential for occurrence in areas containing abandoned structures, including the existing mill structure in the Brunswick Industrial Site.

Common and Scientific Name	Legal Status[1] Federal/State	Habitat Requirements	Potential for Species/Habitat Presence
Birds			
California black rail *Laterallus jamaicensis coturiculus*	--/CT	California black rail inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. The species requires water depths of approximately 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat.	**Very Low**; however, the perennial aquatic resources such as the freshwater emergent marsh habitats within the Brunswick Industrial Site contain marginal suitable habitat for the species.
Cooper's hawk *Accipiter cooperii*	MBTA/CDFW Watch List	Cooper's hawks are forest and woodland birds. These hawks are a regular sight in parks, quiet neighborhoods, over fields, at backyard feeders, and even along busy streets if there are trees present.	**Moderate** potential to occur; within the woodland habitats in the Brunswick Industrial Site. Project area contains suitable nesting habitat for the species.
Invertebrates			
Western bumble bee *Bombus occidentalis*	--/SCT	Western bumble bee was documented approximately 3 miles northeast of Nevada City (4+ miles from the Centennial Site) in 1968. It is known from a single collection on May 20th of that year. This species is of conservation concern and is listed as S1, Critically Imperiled, by NatureServe and is listed on the CNDDB.	**Unlikely to occur** in the Brunswick Industrial Site or surrounding region.

[1]Status explanations:

-- = no listing.

Federal

BCC = federal Bird of Conservation Concern

FPT = federal proposed threatened under the federal Endangered Species
FT = listed as threatened under the federal Endangered Species Act.

State

FP = state fully protected

SCT = state candidate for listing as threatened under the California Endangered Species
SE = listed as endangered under the California Endangered Species Act.

SSC = state species of special concern

ST = listed as threatened under the California Endangered Species Act.

Source: CNDDB 2019 and USFWS 2019

Appendix I

CNDDB 5-Mile Buffer Figure

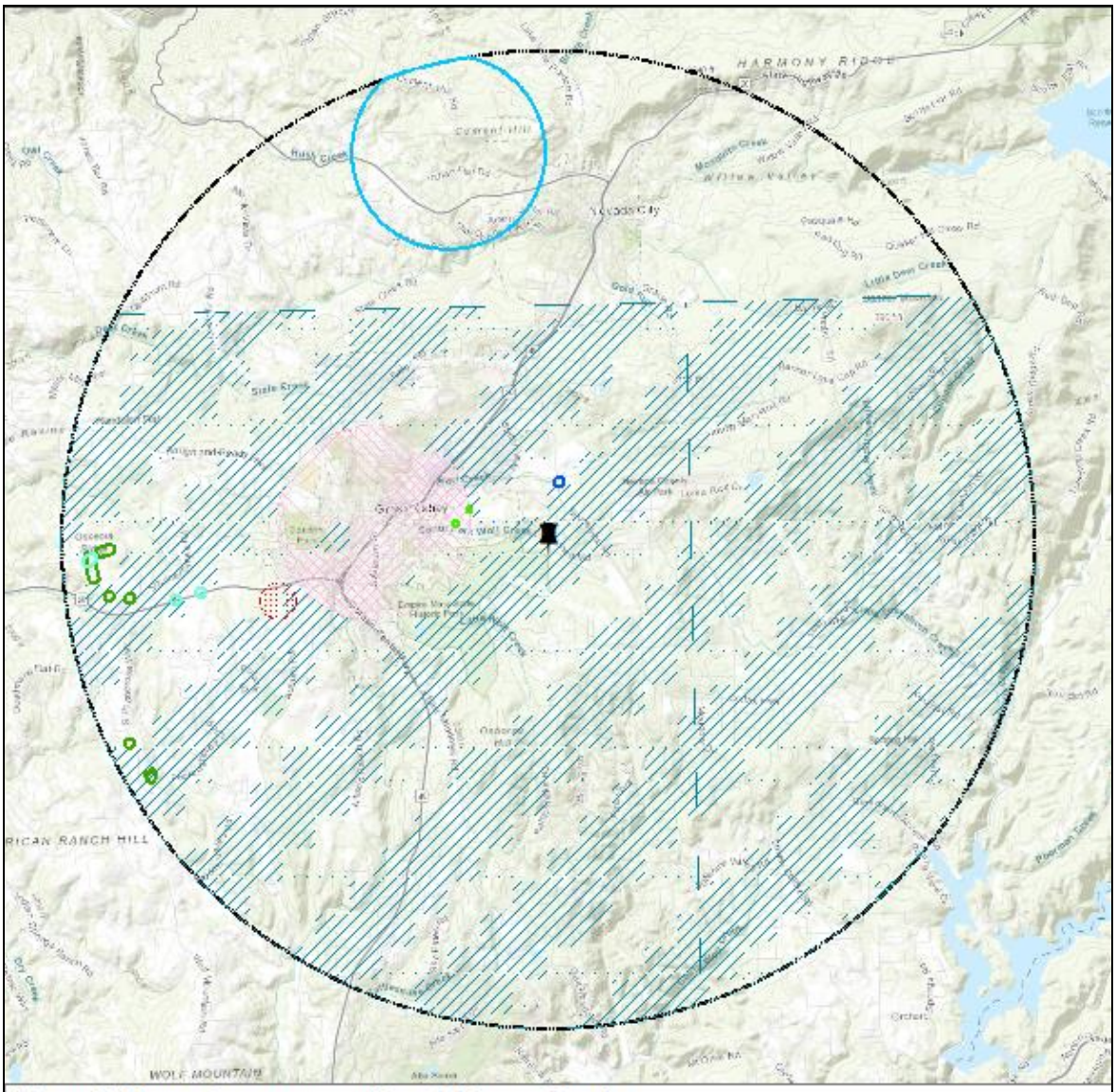


Figure X. Known Occurrences of Special Status Species

Legend

FiveMileProjectBuffer

Project Area

Common Name, Scientific Name, FESA, CESA, CNPS

Brandegee's clarkia, Clarkia biloba ssp. brandegeeae, none, none, 4.2

Pine Hill flannelbush, Fremontodendron decumbens, Endangered, Rare, 1B.2

Scadden Flat checkerbloom, Sidalcea stipularis, none, Endangered, 1B.1

Stebbins' morning-glory, Calystegia stebbinsii, Endangered, Endangered, 1B.1

brownish beaked-rush, Rynchospora capitellata, none, none, 2B.2

chaparral sedge, Carex xerophila, none, none, 1B.2

dubious pea, Lathyrus sulphureus var. argillaceus, none, none, 3

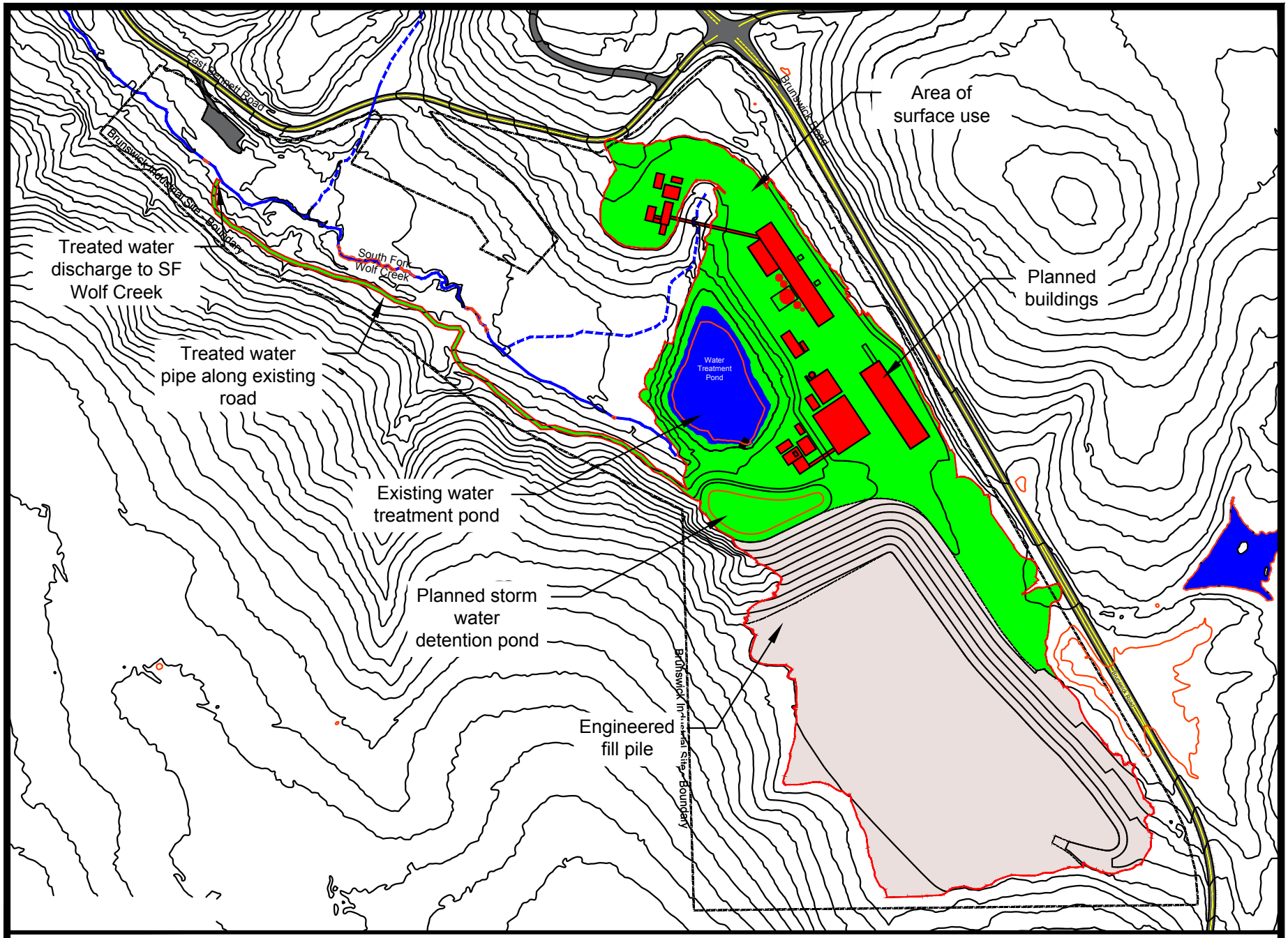
finger rush, Juncus digitatus, none, none, 1B1

0 1 2 Miles

1 in = 1 miles

Appendix J

Site Plan – Proposed Brunswick Area Disturbance



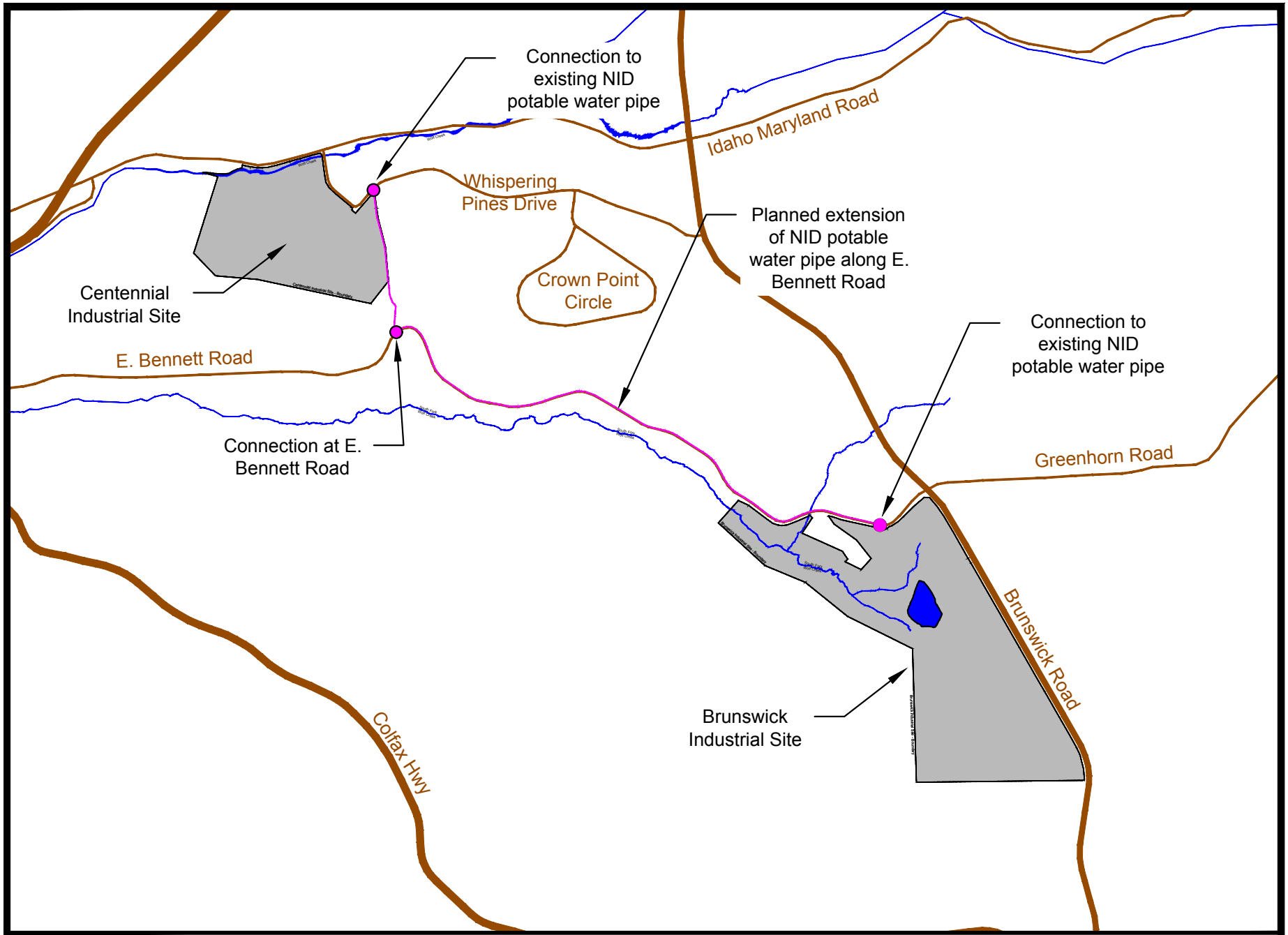
Idaho-Maryland Gold Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

SCALE 1"=500'
500 ft

Brunswick Industrial Site

Site Plan

Showing final topography
Elevation contours at 10 ft intervals



Idaho-Maryland Gold Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

SCALE 1"=1500'
1250 ft

NID potable water pipe extesion

Showing route of new pipe along E. Bennett Road

Appendix K

USFWS iPac Reports

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Nevada County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS

California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Flowering Plants

NAME	STATUS
Pine Hill Flannelbush Fremontodendron californicum ssp. decumbens No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4818	Endangered
Stebbins' Morning-glory Calystegia stebbinsii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3991	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

California Spotted Owl Strix occidentalis occidentalis — Breeds Mar 10 to Jun 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/7266

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Williamson's Sapsucker Sphyrapicus thyroideus — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8832

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

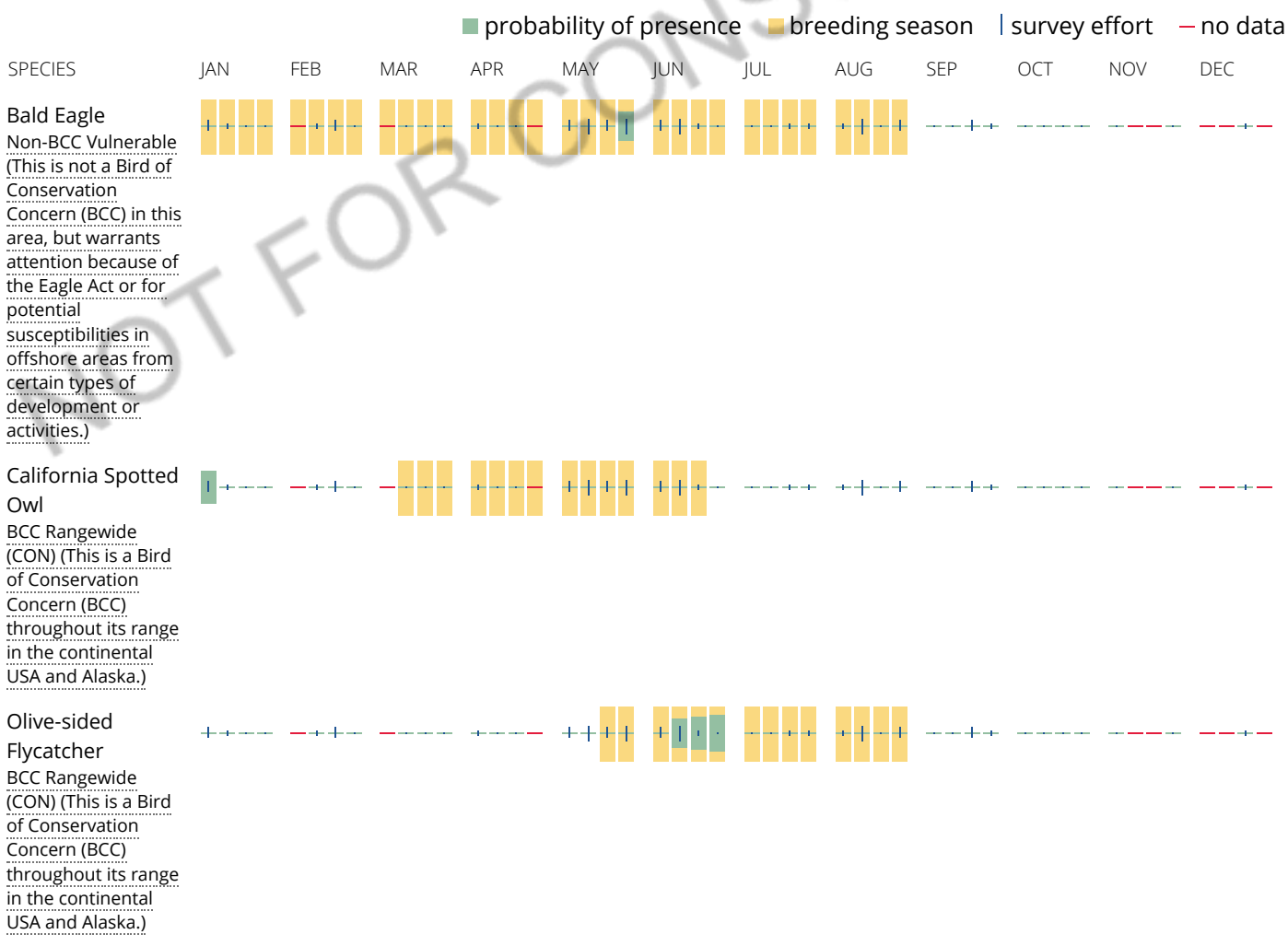
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

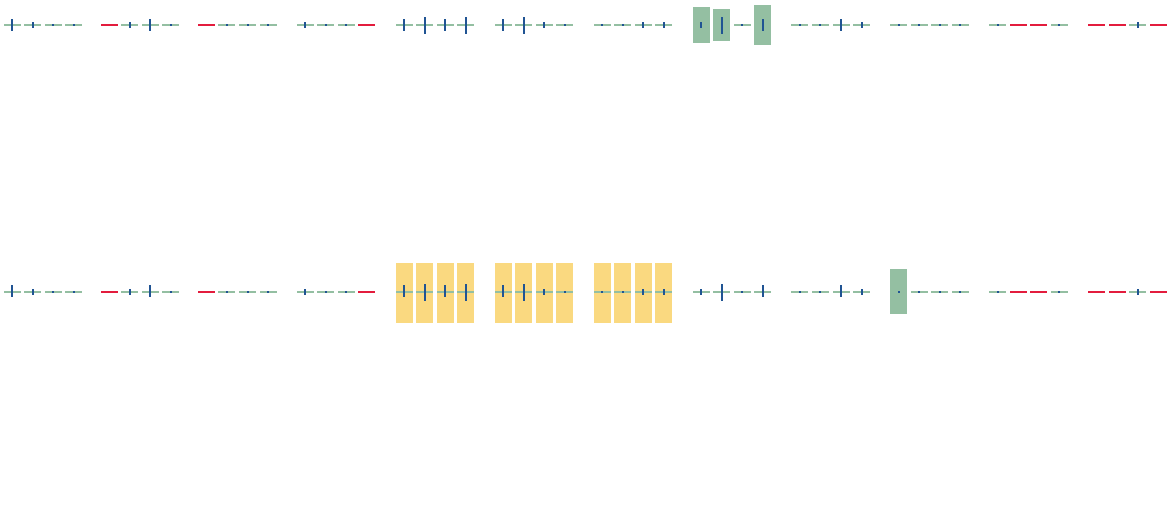
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Williamson's Sapsucker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to

confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

- PFOC
- PSSA

RIVERINE

- R4SBC
- R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.