Appendix B

Biological Resources Analysis

Biological Resources Analysis
Frenchmans Creek Water Intake Replacement Project

San Mateo County, California

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Prepared for:

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1. Introduction

The Lucky Star Investment Group, LLC proposes to complete the installation of a water intake system in Frenchmans Creek in Half Moon Bay located on a parcel of land at 37B Frenchmans Creek Road, Half Moon Bay, San Mateo County (see Figure 1 and 2). The project proponents are in possession of water rights documentation allowing the diversion at a rate of 0.06 cubic feet per second of water from Frenchmans Creek from January 1 to March 31 of each year for irrigation.

The project proponents, intending to replace an old water pumping system began the work unaware that they needed permits from the Army Corps of Engineers, the California Department of Fish and Game, and the Regional Water Quality Control Board. Most of the work had been completed when the project came to the attention of the California Department of Fish and Game at which time the project proponent was notified that the aforementioned permits were necessary to have been fully executed before any of the work could commence and that no further work, other than placing erosion control devices, could occur until the permits are obtained.

The work completed involved (see attached diagram – Figure 3):

1. Excavation of a 20 feet long by 8 feet deep by 18-inch wide trench, dug into the east bank of Frenchmans Creek
2. Placement of 3 large, black polyethylene tubes in the trench. Two of the tubes were “settling tanks” into which the water would be gravity fed in order to settle the sediment out before the water ultimately would run into the third tank where it would be pumped out into holding tanks situated in the upland agricultural area using a 1 hp submersible pump.
3. A backhoe was used to excavate a 7 to 10 feet long by 18 inch wide trench in the east bank extending from the first settlement tank into the creek bed.
4. With the use of hand shovels, a 36-inch diameter black polyvinyl chloride (pvc) catch basin was embedded 1.5 ft deep into the creek bed and placed around the water intake pipe to protect it.

Work yet to be completed is as follows:

1. Fitting of the new intake structured with a protective fish screen to help avoid entrainment of fish and other aquatic wildlife.
2. Installation of a 1 hp submersible pump within the 3rd black polyethylene tube to pump the water out to the holding tanks in the upland agricultural area.

Approximately 20 linear ft of riparian vegetation was cleared from the creek bank by hand (using shovels).This work will require clearing of riparian habitat from the creek with the use of hand tools.

These activities will disturb about 0.5 cubic yards of the creek. A restoration and revegetation plan will be prepared for the project.

2. Project Setting

Frenchmans Creek originates from Montara Mountain from an elevation of approximately 1,500 feet and flows south to the Pacific Ocean. The creek is perennial and retains a natural configuration with a narrow but diverse riparian corridor in the upper reaches. As it descend to Half Moon Bay, patches of coastal scrub habitat have been cleared for agricultural purposes and where it passes through agricultural areas the riparian corridor becomes increasingly sparse. In the lower reaches, native riparian trees have been replaced with exotic species such as eucalyptus (see Figure 2).

3. Analysis Method

Information about special-status species was obtained from the California Natural Diversity Database (CNDDB 2010), existing literature, and websites maintained by state and federal agencies including species listed on the U. S. Fish and Wildlife Services (USFWS) online database for federal threatened, endangered and potential candidate species (USFWS 2010), and the California Native Plant Society online website (CNPS 2010) was also consulted for listed plants reported in the region of the project site. On December 3, 2009 and August 20, 2010 a search was made of the project site and vicinity to document the following: all plant and wildlife species observed; habitat for listed federal and state species; and habitats present. Habitat and site features were photographed.

Plants observed during the two site visits are listed in Table 1 and wildlife species observed are listed in Table 2.

4. Plant Communities and Associated Wildlife

The plant community descriptions and nomenclature conventions used in this analysis utilize the California Department of Fish and Game, California Wildlife Habitat Relationships System (CWHR). This classification scheme is based on the 59 wildlife habitats described in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988) which may be used as a model to predict what wildlife species may inhabit specific plant communities. Supplemental information was obtained from *California Vegetation* (Holland and Keil, 1995). During the reconnaissance survey, plant and wildlife species observations were documented and are listed below in Tables 1 and 2.

Within the project vicinity narrow bands of agricultural field lie on either side of the creek outside of a sparse riparian corridor. Beyond the agricultural fields lies coastal scrub habitat. Riparian vegetation at the project site extends from 25 to 50 from top of bank outward on each side of the creek. As applicable to the CWHR the habitat at the water intake project site can best be described as valley foothill riparian. The immediate adjacent uplands are classified as Orchard / Vineyard, and the habitat beyond that is classified as coastal scrub. Although the project site does not extend into the coastal scrub habitat and the project will not have an impact on coastal scrub habitat, since the portion of the project proponents property situated immediately upland of the creek was likely coast scrub before it was cleared for agriculture, it is included in the habitat descriptions below.

Valley Foothill Riparian

Valley and foothill riparian communities are found adjacent to rivers and streams. Riparian vegetation consists of one or more species of deciduous trees, shrubs, and herbs that grow on the banks of most streams, lakes, and springs (Holland and Keil 1995). Riparian vegetation provides wildlife habitat in the form of food, shelter, and breeding sites. Tree canopies shade aquatic habitat and lower water temperatures which is necessary for salmonid spawning and rearing.

Examples of typical riparian vegetation in well vegetated valley foothill riparian habitat include coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), buckeye (*Aesculus californica*); understory plants such as snowberry (*Symphoricarpos albus*) and poison oak; and grasses such as purple needlegrass (*Nassella pulchra*) and California fescue (*Festuca californica*).

The dominant tree species at the project site is white alder (Alnus rhombifolia) , typically a sub-canopy tree in riparian woodlands. Willows ranging from emergent to mature are interspersed throughout the corridor. The understory is comprised of a mix of native plants such as wild cucumber, mugwort, poison oak, elk clover, California blackberry, and a few species of ferns and non-native plants such as wild radish, sow thistle, and Queen Anne's lace. A large patch of mature camellia shrubs is situated in the project area on the southeast bank of the creek. According to the landowner, the camellias were harvested by the previous owner for cut flower sales.

Coastal Scrub

Coastal scrub habitat is comprised of dense cover of low to moderate-sized shrubs reaching up to 7 ft in height. Smaller understory plants consist of perennial herbs and sub-shrubs. The type of plant species present in coastal scrub stands changes largely depending on the amount of regional rainfall and coastal influence. Northern coastal scrub habitat ranges along the coast from Humboldt County to the San Francisco Bay Area. There are two recognized types of northern coastal scrub. The less wide ranging of the two occurs mostly at exposed, oceanside sites and consists of bush lupines and other lupine species. The other type includes a overstory of plants such as ceanothus, bush monkey flower, coyote brush, and coffeeberry among other species. Dominant plants in the understory include bracken fern and sword fern, cow parsnip, Indian paintbrush, yerba buena and California oatgrass.

Around Half Moon Bay, western hazelnut, Pacific bayberry and sagebrush are present in the coastal scrub habitat (de Becker; Mayfield and Shadle 1983). Plants observed in the adjacent coastal scrub included coyote brush, bush monkey flower, manzanita, salal, and lupine.

Deciduous Orchard

The CWHR scheme describes deciduous orchards in California as typically open single species tree dominated habitats. Deciduous orchards in California are usually

found on flat alluvial soils in the valley floors, in rolling foothill areas, and sometimes on relatively steep slopes (CDFG 2009). These orchards include trees, such as, almonds, apples, apricots, cherries, figs, nectarines, peaches, pears, pecans, pistachios, plums, pomegranates, prunes and walnuts (CDFG 2009). Depending on the tree species and age, mature tree heights can range from 10 to 60 feet. Deciduous orchards are planted in linear rows with spacing to allow intensive management including the spraying of pesticides or herbicides, to facilitate irrigation, pruning, and fruit harvesting. Unless a deciduous orchard has been abandoned, as trees become old, damaged, or diseased they are usually replaced in order to continue productivity. In managed orchards, most tree species are replaced at approximately 20 to 40 years old (CDFG 2009). The understory in deciduous orchards most often contains herbaceous non-native annual plant species comprised of grasses such as soft chess, annual ryegrass, wild oats, red brome, red fescue, barnyard grass, among others (CDFG 2009). Forbs commonly found include wild mustard, fiddleneck, and filaree.

Deciduous orchards can provide shelter for wildlife species during hot summer months but provide much less cover from rain and cold during the winter months when leaves have dropped (CDFG 2009). Examples of wildlife reported to commonly feed on nuts include northern flicker, scrub jay, American crown, plain titmouse, Brewer's blackbird, house finch, gray squirrel and California ground squirrel. Some other orchard crops such as apples, cherries, figs, pears and prunes are also eaten by these same species plus others such as band-tailed pigeon, western bluebird, American robin, varied thrush, northern mockingbird, cedar waxwing, yellow-rumped warbler, black-headed grosbeak, Bullock's oriole, western gray squirrel, coyote, raccoon, and mule-deer (CDFG 2009). Deciduous orchards are unlikely to provide suitable habitat for rare plants due long to disturbed soil conditions, long term herbicide use, and the predominance of exotic species that successfully out-compete native vegetation for resources such as space, nutrients and water.

Until recently the agricultural field upland of the creek was fallow. Numerous cherry trees were planted within the past year in rows typical of a managed orchard. Other vegetation in the orchard area included plant species common to routinely disturbed areas such as scarlet pimpernel, dandelion, plantain, mustard, wild radish, thistle, and spurge.

Plants and Wildlife Species Observed During Surveys

Wildlife species observed on the Water Intake Project site during the December 3, 2009 and August 13, 2010 surveys are listed in Table 1 below.

TABLE 1. Plants Observed on August 13, 2010 Survey

Scientific Name	Common Name
Agoseris sp.	Dandelion
Alnus rhombifolia	White Alder
Anagallis arvensis	Scarlet pimpernel
Anaphalis margaritacea	Pearly everlasting
Aralia californica	Elk clover
Artemisia douglasiana	Mugwort
Athyrium filix-femina	Common ladyfern
Brassica sp.	Mustard
Camellia sp.	camellia
Carduus sp.	Thistle
Chamaesyce sp.	Spurge
Daucus carota	Queen Anne's lace
Eucalyptus spp.	Eucalyptus
Foeniculum vulgare	Fennel
Hedera helix	English Ivy
Hemizonia sp.	Tarweed
Hordeum sp.	Barley
Lamium sp.	Nettle
Lolium multiflorum	Annual rye grass
Malva sp.	Mallow
Marah sp.	Wild cucumber
Plantago sp.	Plantain
Raphanus sativus	Wild radish
Rubus ursinus	California blackberry
Rumex crispus	Curly dock
Salix sp.	Willows
Solanum sp.	Nightshade / nettle
Sonchus sp.	Sow thistle
Toxicodendron diversilobum	Poison oak

TABLE 2. Wildlife Observed During August 13, 2010 Survey

Common Name	Scientific Name
Birds	
Gull	*Larus sp.*
Anna's hummingbird	*Calypte anna*
Scrub jay	*Aphelocoma coerulescens*
Wrentit	*Chamaea fasciata*
Chestnut-backed chickadee	*Parus rufescens*
Bushtit	*Psaltriparus minimus*
Bewick's wren	*Thryomanes bewickii*
Wilson's warbler	*Wilsonia pusilla*
Song sparrow	*Melospiza melodia*
Lesser goldfinch	*Carduelis psaltria*
House finch	*Carpodacus mexicanus*

5. Listed Species With Potential to Occur at Project Site

Federal, State and California Native Plant Society special status plant species recorded for the Half Moon Bay, Montara Mountain, San Mateo, Half Moon Bay, Woodside, La Honda, and San Gregorio U.S.G.S. 7.5 minute quadrangles, which are the topographical maps applicable to the Burlingame region, are included in Table 3. Based upon the types of habitat that each listed species occupies, and on observations made during the December 3, 2009 and August 13, 2010 site surveys, each plant and wildlife species was evaluated for its potential to occur in the vicinity of the project site. If the possibility of occurrence of some species was eliminated, the table includes a brief discussion of how this assessment was derived. Only species considered to have potential to occur or having suitable habitat present are discussed in the following section.

Special Status Plant Species

Federal and state listed special status plant species recorded for the Half Moon Bay quadrange, the quadrangle in which the project site is situated, and the Montara Mountain, San Mateo, Woodside, San Gregorio, and La Honda U.S.G.S. 7.5 minute quadrangles, topographical maps applicable to the project site region, are included in Table 3 below. Based upon the types of habitat that each listed species occurs on and also based on the December 3, 2009 and August 13, 2010 site survey, the habitat suitability for each species on the list was assessed. An explanation for deriving potential presence or absence of special status plant species is included in Table 3.

Western Leatherwood

Western leatherwood (*Dirca occidentalis*) is a CNPS List 1B plant that occurs in a variety of habitats including broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodlands, north coast coniferous forest, and in riparian forests and woodlands. This shrub occurs at elevations between 160 and 1,300 feet and blooms from January to April. The nearest CNDDB record (occurrence 10) is for plants collected in 1954 in a wooded canyon above Lake Pilarcitos Dam approximately 3.2 miles north. No Dirca species were observed during site surveys.

Kellogg's Horkelia

Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*) is a CNPS List 1 B plant with no federal or state special status listing. This perennial herb occurs in openings in closed-cone coniferous forest, chaparral, coastal dunes, and in coastal scrub in sandy or gravelly soil. It blooms between April to September and is found at elevations between 30 and 670 feet. This plant could occur in the coastal scrub upland of the habitat site; however no coastal scrub will be disturbed during the project. The nearest CNDDB record (occurrence 39) is for a small number of plants observed in 2000 in grassland approximately 0.75 miles southeast of the project site. No specific location or information is provided in the record. No Horkelia species were observed during biological resource surveys.

Choris' Popcorn Flower

Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*) is a CNPS List 1 B plant with no federal or state special status listing. This annual herb is found in chaparral, coastal prairie, and coastal scrub in mesic (perpetually wet) soil. It occurs at elevations between 45 to 525 feet and blooms between March to June. The nearest CNDDB record (occurrence 8) is for plants observed in 1995 in a mesic (perpetually wet) area on ocean bluffs just south of the town of Half Moon Bay; approximately 3.5 miles south of the project site. This plant could occur in the coastal scrub upland of the habitat site; however no coastal scrub will be disturbed during the project. No popcorn flower species were observed during biological resource surveys of the project site.

Hickman's cinquefoil

Hickman's cinquefoil (*Potentilla hickmanii*) is a federal and state listed endangered species and a CNPS List 1B plant. This perennial herb grows in coastal bluff scrub, closed cone coniferous forest, vernally mesic meadows and seeps, and freshwater marshes and swamps. It blooms between April and August at elevations from 30 to 450 feet. The nearest CNDDB record (occurrence 1) is for plants collected in 1933on an ocean bluff near Moss Beach approximately 4.6 miles north west of the project site. This plant could occur in the coastal scrub upland of the habitat site; however no coastal scrub will be disturbed during the project. This species was not observed during biological resource surveys of the project site.

San Francisco Campion

San Francisco campion (*Silene verecunda* ssp. *verecunda*) is a CNPS List 1 B plant with no federal or state special status listing. This perennial herb is found in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and in valley and foothill grasslands in sandy soil. It is found at elevations between 95 to 2,120 feet and blooms from March to August. The nearest CNDDB record (occurrence 11) is for plants collected in 1900 near the top of Montara Mountain, approximately 2.8 miles north of the project site. This plant could occur in the coastal scrub upland of the habitat site; however no coastal scrub will be disturbed during the project. This species was not observed during biological resource surveys of the project site.

Special Status Wildlife Species

Federal and state listed special status wildlife species recorded for the Half Moon Bay which is the quadrangle in which the project site is situated, Montara Mountain, San Mateo, Woodside, San Gregorio, and La Honda U.S.G.S. 7.5 minute quadrangles, the topographical maps applicable to the project site region, are included in Table 4 below. Based upon the types of habitat that each listed species occurs on and also based on the

December 2009 and August 2010 site survey, the habitat suitability for each species on the list was assessed. An explanation for deriving potential presence or absence of special status wildlife species is included in Table 4.

The federal Endangered Species Act (ESA) requires the government to designate "critical habitat" for any species it lists. Critical habitats are specific geographical areas occupied by the species for which the habitat has been designated and areas that contain physical or biological features essential to conservation and those features may require special management considerations or protections. The ESA also requires the government to develop and implement recovery plans to promote conservation of threatened and endangered species. Not all federally listed species have recovery plans or critical habitat designated; species with potential to occur in the vicinity of the study creeks that have recovery plans or critical habitat listings or other special designations are included in the discussions below.

Tidewater goby

The tidewater goby (*Eucyclogobius newberryi*) is a federally endangered species and a State species of special concern. The tidewater goby is a small, elongate, gray brown fish endemic to California and is typically found in coastal lagoons, estuaries, and marshes with relatively low salinities (USFWS 2008). Habitats in Richardson Bay where these gobies may be found are characterized by brackish shallow lagoons and lower stream reaches where the water is fairly still but not stagnant. This species can withstand a variety of habitat conditions with variable salinity levels, water temperatures, and dissolved oxygen levels (op cit) and are typically found in less than 1 meter (3.3 ft) of water. They rarely move into marine or freshwater habitats (USFWS 2005). The tidewater gobie is extremely sensitive to short-term adverse environmental conditions and its decline can be attributed to the filling of marshes and coast wetlands for urban, agricultural and industrial development, pollution and degraded water quality, upstream water diversion and the introduction of exotic fish species (most notably sunfishes and black basses) (USFWS 2008).

The tidewater goby reproduces from late April or May to November or December depending on weather and rainfall. Reproduction occurs on clean, sandy substrates and begins when the male digs burrow in the sand then the female deposits an average of 400 eggs into the burrow. Within then days the larvae emerge and proceed to live in vegetated areas within a lagoon (USFWS 2008).

The project site is not within USFWS designated critical habitat. The nearest critical habitat unit (Unit SM-1) for the tidewater gobie is around the mouth of San Gregorio Creek. The tidewater gobie is not likely to occur in this reach of Frenchmans Creek as these fish rarely move into fresh water habitats. The project site is approximately 1.5 miles upstream of the Pacific Ocean. The nearest CNDDB record (occurrence 23) is for fish found at the mouth of San Gregorio

Creek and up to 1 mile up the creek in 1996. This area is approximately 12.3 miles south of the project site.

Steelhead

Steelhead (*Oncorhynchus mykiss irideus*) in Frenchmans Creek are included by the National Marine Fisheries Service (NMFS) in the Central California Coast Evolutionarily Significant Unit (ESU) and are listed as a federal threatened species. The ESU includes all naturally spawned populations of steelhead (and their progeny) from the Russian River south to Aptos Creek in Santa Cruz County and the drainages of the San Francisco and San Pablo Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers and their tributaries. The project site is located within designated critical habitat for the Central California Coast Steelhead ESU (Calfish 2010); a draft recovery plan for this species is under development by NMFS .

Steelhead are anadromous meaning that the adults return to their natal streams to spawn after 1-3 years at sea. Unlike other Pacific salmon, adults do not automatically die after spawning--some (mostly females) survive, return to the ocean, and may spawn again one or two years later. Most steelhead of the Central California Coast ESU begin their spawning runs in the winter months of November and as late as the end of April. Juveniles spend from one to three or more years rearing in their natal stream before migrating to sea as smolts. After entering the sea, steelhead grow rapidly to adult size, as do other salmon species.

Successful spawning and juvenile rearing requires certain types of habitat, including coarse, clean, well-oxygenated gravel for spawning and incubation. Excessive accumulations of fine sediment directly affect the viability of eggs, embryos, and juveniles (Reiser and Bjornn 1979; Barnhart 1986). After emerging from the gravel, juveniles require cool, clean water that persists through the dry season, a supply of invertebrate food, and shelter for resting and protection from predators.
Spawning and juvenile rearing usually take place in the upper reaches of smaller tributaries where suitable spawning gravel is present and cooler water persists throughout the summer months. Steelhead have been observed in project area in Frenchmans Creek (CNDDB occurrence 10). Steelhead could be affected by the proposed project therefore it is recommended that consultation with National Marine Fisheries is initiated.

California Red-legged Frog

The California red-legged frog (*Rana aurora draytonii*) is a federal listed threatened species and a state species of special concern. This frog is the subject of the USFWS *Recovery Plan for the California Red-legged Frog*. The California red-legged frog is a large cryptically colored frog that blends in well with its surroundings making detection of this species particularly difficult. This frog

historically occurred in coastal habitats from the vicinity of Point Reyes National Seashore and inland from the vicinity of Redding southward to northwestern Baja California, Mexico. The species has been extirpated from seventy percent of its historic range; its current distribution has been reduced to isolated localities in the Sierra Nevada, northern Coast Range, and northern Transverse Range (USFWS 1996).

Beginning with commercial hunting for the restaurant industry prior to the turn of the century, this species has been subjected to a variety of pressures that have resulted in its decline and disappearance over the majority of its historic range (Jennings and Hayes 1994). Other factors that have contributed to the decline of California red-legged frog include degradation and loss of habitat through urbanization, mining, improper management of grazing, recreation, invasion of nonnative plants, impoundments, water diversions, degraded water quality, and the introduction of exotic predators such as bullfrogs, crayfish, and a variety of non-native fishes (Jennings and Hayes 1994, USFWS 1996).

The California red-legged frog inhabits a variety of aquatic, upland, and riparian environments, including ephemeral and permanent ponds, seasonal wetlands, perennial creeks, intermittent streams, manmade aquatic features (e.g. stock ponds), riparian corridors, blackberry thickets, non-native annual grasslands, and oak savannahs (USFWS 1996). The preferred habitat consists of deep-water pools with dense stands of overhanging willows and an intermixed fringe of cattails. Well vegetated upland habitats in proximity of a riparian corridor may provide sheltering habitat during the winter (USFWS 2005). Breeding occurs during winter and early spring (late November through April). Adults have a highly variable diet including pacific tree frogs, and occasionally, mice. During the dry summer months these frogs estivate in small mammal burrows and moist leaf litter. California red-legged frogs have been recorded to cover distances from ¼ mile to more than over 2 miles without apparent regard to topography, vegetation type, or riparian corridors (USFWS 2005).

There are several records for occurrences of California red-legged frog within five miles of the project site; the nearest record (occurrence 853) is for a frog sighted in a wetland on a large private parcel of land near El Granada approximately 2.1 miles northwest of the project site. The project site is also within USFWS designated critical habitat (USFWS 2010).

San Francisco Garter Snake

The San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) is a Federal endangered species and a state endangered and fully protected species. No Critical Habitat has been designated for this species. This shy snake is found near freshwater streams, ponds, and seasonal water bodies where they forage primarily for California red-legged frogs and pacific tree frogs. They seek cover in emergent bankside vegetation such as cattails, bulrushes and spike rush and sun

themselves in the uplands. They utilize rodent burrows for shelter, estivation during hot summer months, and hibernation during the cold winter months (USFWS 2010). The San Francisco garter snake (SFGS) occurs in San Mateo County and in the northernmost portion of Santa Cruz County.

The San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) is a Federal endangered species and a state endangered and fully protected species. No Critical Habitat has been designated for this species. This subspecies historically occurred in scattered wetland areas on the San Francisco Peninsula from about the San Francisco County line south along the eastern and western bases of the Santa Cruz Mountains, to the Upper Crystal Springs Reservoir, along the coast south to Año Nuevo Point, San Mateo County, and Waddell Creek, Santa Cruz County (USFWS 2008). Though their numbers have dwindled due to habitat loss, fragmentation, predation by introduced predators such as bullfrogs, and capture by snake enthusiasts, the habitat range is considered to be the same. This snake is much more colorful than other *T. sirtalis* subspecies that occur in the area. The San Francisco garter snake prefer a densely vegetated pond near an open hillside where they can sun themselves, feed, and find cover in rodent burrows; however they will utilize less ideal habitat and can also be found near freshwater streams, ponds, and seasonal water bodies where they forage primarily for California red-legged frogs and pacific tree frogs (USFWS 2008) They seek cover in emergent bankside vegetation such as cattails, bulrushes and spike rush and sun themselves in the uplands. They utilize rodent burrows for shelter, estivation during hot summer months, and hibernation during the cold winter months. Females give live birth to an average of 16 young from June through September. The San Francisco garter snake has been documented several hundred yards away from wetlands hibernating in upland small mammal burrows (op. cit).

The California Department of Fish and Game has designated the project site as potential habitat for the San Francisco Garter Snake; therefore consultation with USFWS should be initiated. There are records for this species in the Pilarcitos Creek Watershed.

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a state species of special concern. It occurs throughout most of California in lower elevations in a wide variety of habitats including grasslands, shrublands, woodlands, and forests. Day roost and hibernation roost sites include caves, rock or bridge crevices, buildings, and hollow trees. At night they roost usually in the open near foliage or in open buildings. Pallid bats leave their day roost an hour after sunset capturing their prey on foliage or on the ground. They hibernate in the winter near the summer day roost. Maternity colonies form in early April and may have between a dozen to 100 individuals (Harris 2005). The young are born from April to July.

Habitat in the form of hollow trees may be within the project area. If tree removal is planned for the project pre-construction surveys should be conducted by a qualified biologist. If the biologist finds a maternity roost, then consultation should take place with CDFG.

San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat (SFDW) (Neotoma fuscipes annectens) is a State listed species of special concern. The SFDW is one of ten subspecies of dusky-footed woodrat found in California. The approximate range of this subspecies extends from the San Francisco Bay south to Elkhorn Slough and directly east of the Santa Cruz Mountain range (Hall 1981). These nocturnal animals inhabit wooded environments that provide moderate canopy with an evergreen understory where they can feed on native vegetation including live oak, coffeeberry, alder, and elderberry (Brylski 2005). They build stick houses approximately 1 meter in diameter by piling sticks and houses are often clustered together. Nests are constructed inside the houses and breeding occurs from December to September with mid-spring being the peak of the season.

There is habitat for the San Francisco dusky-footed woodrat on site and a potential nest was observed in a grove of mature Camellia plants on the west side of the site (see Photo 1). The nearest record for this species (occurrence 2) is for a woodrat observed in 2007 in Albert Canyon near Pilarcitos Creek approximately 3 miles east of the project site.

6. Recommendations and Comments

1. Bird nests, eggs and young are protected under California Fish and Game Codes (§3503, §3503.5, and §3800) and are also protected under the Federal Migratory Bird Treaty Act (50 CFR 10.13). Only non-native species such as feral pigeon (*Columba livia*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*) are exempt from protection. The California Department of Fish and Game requires that if projects take place between January 15 and October 1 of any year, in compliance with the Migratory Bird Treaty Act, a qualified biologist should conduct preconstruction nesting surveys within 48 hours of construction for nesting passerines (small songbirds) and raptors. If nests are located the biologist, in consultation with CDFG, should establish a buffer around the nest to remain in place until the young have fledged.

2. Under the Federal Clean Water Act Section 401 which protects water quality Lucky Star Investments, LLC will need to obtain a 401 Water Quality Certification from the San Francisco Regional Water Quality Board and a 404 permit from the U. S. Army Corps of Engineers. The project will also require a Streambed Alteration Agreement from the California Department of Fish and Game.

3. Consultation should be sought with the U. S. Fish and Wildlife Service regarding California red-legged frog, and San Francisco Garter Snake

4. Consultation should be sought with the National Marine Fisheries Service regarding steelhead which are known to occur in Frenchmans Creek.

5. A pre-construction survey for San Francisco dusky-footed woodrat should be conducted by a qualified biologist to ascertain that no woodrat nests are within the proposed work area and that nests nearby are adequately protected.

6. If tree removal or tree snags are proposed for the project, a qualified biologist should conduct pre-construction surveys to ascertain that no maternity roosts will be disturbed.

7. Erosion control measures should be placed prior to construction and maintained in working condition in order to preserve water quality.

8. Work in the creek should be restricted to periods of low flow in order to decrease the risk of sedimentation resulting from project activities. Water flow should be diverted around the work area during construction in order to maintain water quality.

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Photographs

Photo 1. Probable San Francisco dusky-footed woodrat nest at project site.

Photo 2. Settling tanks in upper bank

Photo 3. Water intake in creek (barely perceptible circular structure near edge of water)

Photo 4. Upper south bank of Frenchmans Creek in project site area.

TABLE 3

Special-Status Plant Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status			Habitat	Occurrences
	Federal	State	CNPS		
Acanthomintha duttonii San Mateo thorn-mint	FE	SE	1B	Chaparral, valley and foothill grassland in serpentine soil Bloom Apr-June; elev. 50-300m	No suitable habitat present.
Allium peninsulare var. franciscanum Franciscan onion	--	--	1B	Cismontane woodland, valley and foothill grassland. Found in clay or serpentine soils. Dry Hillsides. Bloom May-June; elev. 100-300 m	No suitable habitat present.
Amsinckia lunaris Bent-flowered fiddleneck	--	--	1B	Coastal bluff scrub, cismontane woodland, valley and foothill grassland Bloom Mar-Jun; elev. 3-500 m	No suitable habitat present. The nearest CNDDB and only CNDDB record (occurrence 5) for the nine quadrant search is for plants observed in 1994 approximately 5.5 miles northeast of the project site east of Crystal Springs Reservoir and Interstate 280.in Hillsborough, No Amsinckia species observed during surveys.
Arctostaphylos andersonii Santa Cruz mountains manzanita	--	--	1B	Broadleafed upland forests, chaparral, north coast coniferous forest in openings and edges Bloom Nov-Apr; elev. 60-730 m	No suitable habitat present. No manzanita present on project site.
Arctostaphylos montaraensis Montara manzanita	--	--	1B	Chaparral (maritime), coastal scrub Bloom Jan – Mar; elev. 150 - 500 m	No suitable habitat present. No manzanita present on project site.
Arctostaphylos regismontana Kings mountain manzanita	--	--	1B	Broadleafed upland forest, chaparral, north coast coniferous forest in granitic or sandstone soil. Bloom Jan-Apr; elev. 305-730m	No suitable habitat present. No manzanita present on project site.

TABLE 3

Special-Status Plant Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status			Habitat	Occurrences
	Federal	State	CNPS		
Astragalus pycnostachyus var. pycnostachyus Coastal marsh milk-vetch	--	--	1B	Coastal dunes, coastal salt marshes, marshes and swamps Bloom Apr-Oct; elev. 0-30 m	No suitable habitat present.
California macrophylla Round-leaved filaree	--	--	1B	Cismontane woodland, valley and foothill grasslands in clay soil Bloom Mar-May; elev. 15-1200m	No suitable habitat present.
Centromadia parryi ssp. *parryi* Pappose tarplant	--	--	1B	Chaparral, coastal prairie, meadows and seeps, marshes and swamps, valley and foothill grasslands in vernally mesic sites often in alkaline soils. Bloom May-Nov; elev. 2-420m	No suitable habitat present.
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	--	--	1B	Coastal bluff scrub, coast dunes, coastal prairie, coastal scrub Bloom Apr-Aug; elev. 3-215 m	No suitable habitat present.
Cirsium andrewsii Franciscan thistle	--	--	1B	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub in mesic sometimes serpentinite soils Bloom Mar-Jul; elev. 0-150m	No suitable habitat present in project site. Habitat possibly present in upland sites outside of project area but not within the project site. Nearest CNDDB record (occurrence 3) is 6.3 miles north and east for plants observed in a drainage south of Point Pedro.
Cirsium fontinale var. *fontinale* Crystal Springs fountain thistle	FE	SE	1B	Chaparral in openings, cismontane woodlands, valley and foothill grasslands in serpentinite seeps Bloom June-Oct; elev. 90 – 175 m	No suitable habitat present.

TABLE 3
Special-Status Plant Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status			Habitat	Occurrences
	Federal	State	CNPS		
Collinsia multicolor San Francisco collinsia	--	--	1B	Closed-cone coniferous forest, coastal scrub; on decomposed shale (mudstone) with mixed humus. Bloom Mar-May; elev. 30-250 m	No suitable habitat present. The nearest CNDDB record (occurrence 12) is for plants observed in 1941 in San Mateo Creek below Crystal Springs Reservoir Dam.4.6 miles northeast of the project site
Cordylanthus maritimus ssp. palustris Point Reyes bird's-beak	--	--	1B	Coastal salt marshes and swamps Bloom June-Oct; elev. 0-10 m	No suitable habitat present.
Dirca occidentalis Western leatherwood	--	--	1B	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodlands, north coast coniferous forest, riparian forest, riparian woodlands (mesic) Bloom Jan-Apr; elev. 50-395m	Habitat is present but no Dirca species were observed during plant surveys. The nearest CNDDB record (occurrence 10) is for plants collected in 1954 in a wooded canyon above Lake Pilarcitos Dam approximately 3.2 miles north.
Eriophyllum latilobum San Mateo woolly sunflower	FE	SE	1B	Cismontane woodland, often in serpentine, on road cuts Bloom May-June; elev. 45-150m	No suitable habitat present.
Fritillaria biflora var. *ineziana* Hillsborough chocolate lily	--	--	1B	Cismontane woodlands, valley and foothill grasslands (serpentine) Bloom Mar-Apr; elev. 90-160 m	No suitable habitat present.
Fritillaria liliacea Fragrant fritillary	--	--	1B	Cismontane woodlands, coastal prairie, coastal scrub, valley and foothill grasslands (often serpentine) Bloom Feb-Apr; elev. 3-410m	No suitable habitat present. Suitable habitat in the adjacent coast scrub upland which is outside of the impact area. The nearest CNDDB record (occurrence 27) is for plants found at the headwaters of Pilarcitos Creek approximately 3.7 miles north in 1931.

TABLE 3

Special-Status Plant Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status			Habitat	Occurrences
	Federal	State	CNPS		
Grindelia hirsutula var. maritima San Francisco gumplant	--	--	1B	Coastal bluff scrub, coastal sage scrub, valley and foothill grasslands, in sand or serpentine slopes, sea bluffs Bloom Jun-Sep; elev. 15-400m	No suitable habitat present.
Hesperevax sparsiflora var. *brevifolia* Short-leaved evax	--	--	1B	Coastal bluff scrub, coastal dunes; on sandy bluffs and flats Bloom Mar-Jun; elev. 0-215m	No suitable habitat present.
Hesperolinon congestum Marin western flax	FT	ST	1B	Chaparral, valley and foothill grassland in serpentine soils. Bloom Apr-Jul; elev. 5-370 m	No suitable habitat present.
Horkelia cuneata ssp. *sericea* Kellogg's horkelia	--	--	1B	Openings in closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub in sandy or gravelly soil; openings in old dunes and coastal sand hills Bloom Apr-Sep; elev. 10-200m	No suitable habitat present. Suitable habitat in the adjacent coast scrub upland outside of the impact area. The nearest CNDDB record (occurrence 39) is for a small number of plants observed in 2000 in a grassland approximately 0.75 miles southeast of the project site.
Horkelia marinensis Point Reyes horkelia	--	--	1B	Coastal dunes, coastal prairie, coastal scrub in sandy soil Bloom May-Sep; elev. 5-350m	No suitable habitat present. Suitable habitat may be present in the adjacent coast scrub upland outside of the project area. The nearest CNDDB record (occurrence 26) is for plants observed in 1962 Suitable habitat in the adjacent coast scrub upland. The nearest CNDDB record (occurrence 26) is for plants observed in 1962 west of San Bruno in Junipero Serra Park, approximately 8 miles north of the project site.

TABLE 3

Special-Status Plant Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status			Habitat	Occurrences
	Federal	State	CNPS		
Leptosiphon croceus Coast yellow leptosiphon	--	--	1B	Coastal bluff scrub, coastal prairie Bloom Apr-May; elev. 10-150m	No suitable habitat present. The nearest CNDDB record (occurrence 2) is for plants growing on a cliff above the beach near Moss Beach approximately 5 miles northwest of the project site.
Leptosiphon rosaceus Rose leptosiphon	--	--	1B	Coastal bluff scrub Bloom Apr-Jul; elev. 0-100m	No suitable habitat present.
Lessingia arachnoidea Crystal Springs lessingia	--	--	1B	Cismontane woodland, coastal scrub, valley and foothill grassland (often serpentine / roadsides) Bloom Jul-Oct; elev. 60-200m	No suitable habitat present. There are several CNDDB records for this species in the vicinity of Crystal Springs Reservoir approximately 4.6 miles east of the project site.
Malacothamnus aboriginum Indian Valley bush-mallow	--	--	1B	Chaparral, cismontane woodlands in rocky, granitic soils, often in burned areas Bloom Apr-Oct 150-1700m	No suitable habitat present.
Malacothamnus arcuatus Arcuate bush-mallow	--	--	1B	Chaparral, cismontane woodland Bloom Apr-Sep; elev. 15-355	No suitable habitat present.
Malacothamnus davidsonii Davidson's bush mallow	--	--	1B	Chaparral, cismontane woodland, coastal scrub, riparian woodland. Bloom Jun-Jan; elev. 185-855m	No Malacothamnus species on observed on the project site during surveys.
Malacothamnus hallii Hall's bush mallow	--	--	1B	Chaparral, coastal scrub Bloom May-Oct; elev. 10-760m	No Malacothamnus species on observed on the project site during surveys.

TABLE 3

Special-Status Plant Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status			Habitat	Occurrences
	Federal	State	CNPS		
Monolopia gracilens Woodland woolythreads	--	--	1B	Broadleafed upland forest in openings, chaparral in openings, cismontane woodland, north coast coniferous forest in openings, valley and foothill grassland in serpentine Bloom Mar-Jul; elev. 100-1200m	No suitable habitat present.
Pentachaeta bellidiflora White-rayed pentachaeta	FE	SE	1B	Cismontane woodlands, valley and foothill grasslands (often in serpentine) Bloom Mar-May; elev. 35-620m	No suitable habitat present.
Plagiobothrys chorisianus var. chorisianus Choris' popcorn-flower	--	--	1B	Chaparral, coastal prairie, coastal scrub in mesic soil Bloom Mar-Jun; elev. 15-160m	No suitable habitat present. Suitable habitat may be present in the adjacent coast scrub upland outside of the project area. The nearest CNDDB record (occurrence 8) is for plants observed in 1995 in a mesic (wet) area on ocean bluffs just south of the town of Half Moon Bay; approximately 3.5 miles south of the project site.
Polemonium carneum Oregon polemonium	--	--	2	Coastal prairie, coastal scrub, lower montane coniferous forest Bloom Apr-Sep; elev. 0-1830m	No suitable habitat present. Suitable habitat may be present in the adjacent coast scrub upland outside of the project area. The nearest CNDDB record (occurrence 2) is for plants collected in 1916 near Pilarcitos Dam, approximately 3.5 miles north of the project site.
Potentilla hickmanii Hickman's cinquefoil	FE	SE	1B	Coastal bluff scrub, closed cone coniferous forest, vernally mesic meadows and seeps, freshwater marshes and swamps Bloom Apr-Aug; elev. 10-135m	Not likely to occur. No Potentilla was observed during survey. The nearest CNDDB record (occurrence 1) is for plants collected in 1933on an ocean bluff near Moss Beach approximately 4.6 miles north west of the project site.

TABLE 3

Special-Status Plant Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status			Habitat	Occurrences
	Federal	State	CNPS		
Silene verecunda ssp. verecunda San Francisco campion	--	--	1B	Coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grasslands in sandy soil Bloom Mar-Aug; elev. 30-645m	No suitable habitat present. Suitable habitat may be present in the adjacent coast scrub upland outside of the project area. The nearest CNDDB record (occurrence 11) is for plants collected in 1900 near the top of Montara Mountain, approximately 2.8 miles north of the project site.
Trifolium depauperatum var. hydrophilum Saline clover	--	--	1B	Marshes and swamps, valley and foothill grasslands (mesic, alkaline soils), vernal pools Bloom Apr-Jun; elev. 0-300m	No suitable habitat present.
Triphysaria floribunda San Francisco owl's-clover	--	--	1B	Coastal prairie, coastal scrub, valley and foothill grassland usually in serpentine soil Bloom Apr-Jun; elev. 10-160m	No suitable habitat present. Suitable habitat may be present in the adjacent coast scrub upland outside of the project area. The nearest CNDDB record (occurrence 16) is for plants observed in 1991 near San Andreas Lake approximately 6.6 miles north of the project site.
Triquetrella californica Coastal triquetrella	--	--	1B	Coastal bluff scrub, coastal scrub Bloom Moss; elev. 10-100	No suitable habitat present. Suitable habitat may be present in the adjacent coast scrub upland outside of the project area. The nearest CNDDB record (occurrence 8) for this moss is a 2006 observation on Sweeney Ridge west of Crystal Springs Reservoir, approximately 7.4 miles north of the project site.

Status Legend for Listed Plants

Federal:
FE = Listed as endangered under the Federal Endangered Species Act
FT = Listed as threatened under the Federal Endangered Species Act

State:
SE = Listed as endangered under the California Endangered Species Act
ST = Listed as threatened under the California Endangered Species Act
SC = Species of special concern under the California Endangered Species Act

California Native Plant Society:
1B = Rare, threatened or endangered in California
2 = Rare, threatened or endangered in California
3 = More information needed regarding occurrences

TABLE 4

Special-Status Wildlife Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status		Habitat Association	Occurrences
	Federal	State		
Invertebrates				
Callophrys mossii bayensis San Bruno elfin butterfly	FE	--	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north-facing slopes that receive little sun and are within the fog belt	No suitable habitat present.
Plebejus icarioides missionensis Mission blue butterfly	FE	--	Inhabits grasslands of the San Francisco Peninsula.	No suitable habitat present.
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE	--	Restricted to foggy, coastal dunes/hills of the Point Reyes Peninsula. Extirpated from coastal San Mateo County. Larval food plant is thought to be *Viola adunca*	Considered extirpated from San Mateo County.
Euphydryas editha bayensis Bay checkerspot butterfly	FT	--	Restricted to native grasslands or outcrops of serpentine soil in the vicinity of San Francisco Bay.	No suitable habitat present.
Fish				
Eucyclogobius newberryi Tidewater goby	FE	--	Brackish water habitats along the California coast. Found in shallow lagoons and lower stream reaches in still but not stagnate water with high oxygen levels.	Not likely to occur as these fish rarely move into fresh water habitats. The nearest CNDDB record (occurrence 23) is for fish found at the mouth of San Gregorio Creek and up to 1 mile up the creek in 1996. This area is approximately 12.3 miles south. The project is not within designated critical habitat (USFWS 2008).

TABLE 4

Special-Status Wildlife Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status		Habitat Association	Occurrences
	Federal	State		
Oncorhynchus mykiss Central California Coastal ESU (DPS) Central Valley ESU	FT	--	Requires beds of loose, silt-free, well-oxygenated coarse gravel for spawning. After hatching, juveniles spend at least one summer in the freshwater rearing areas, so the stream must have either perennial flow or cool intermittent pools with subsurface flow, shade, food, and shelter during the dry season.	Known to occur in this reach of Frenchmans Creek (CNDDB occurrence 10). The project site is within critical habitat for this steelhead ESU.
Amphibians				
Rana boylii Foothill yellow-legged frog	--	SC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg laying.	Not likely to occur. The stream substrate is sediment laden. The nearest CNDDB record (occurrence 272) is for frogs observed in Pescadero Creek approximately 18 miles south of the project site.
Rana aurora draytonii California red-legged frog	FT	SC	Occurs in a variety of ponds, sloughs, low-gradient streams, and low-salinity lagoons. Adults may forage in, and migrate through, terrestrial grasslands, riparian woodlands, and forests, but require weedy, slow moving or standing water that persists through most of the dry season for successful reproduction. Introduced bullfrogs and predatory fish are implicated in the decline of red-legged frogs throughout their range.	The project site is within critical habitat.
Reptiles				

TABLE 4

Special-Status Wildlife Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status		Habitat Association	Occurrences
	Federal	State		
Actinemys marmorata Western pond turtle	--	SC	Ponds, marshes rivers, streams, and irrigation ditches that have emergent or riparian vegetation and sunny basking sites. Upland nesting habitat consists of friable soil exposed to full sun.	Not likely to occur. The CNDDB records for San Mateo County are for the vicinity of Crystal Springs Reservoir which is approximately 8 miles west of the project site.
Thamnophis sirtalis tetrataenia San Francisco garter snake	FE	SE FP	Occurs in vicinity of freshwater marshes, ponds and slow moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also important.	California Department of Fish and Game has determined that the site is suitable habitat for the San Francisco garter snake.
Birds				
Charadrius alexandrinus nivosus Western snowy plover	FT	--	Sandy beaches, salt pond levees and shores of large alkali lakes.	No suitable habitat present.
Athene cunicularia Burrowing owl	--	SC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	No suitable habitat present.
Geothlypis trichas sinuosa Saltmarsh common yellowthroat	--	SC	Resident of the San Francisco Bay region, in fresh and salt water marshes.	No suitable habitat present.
Mammals				
Antrozous pallidus Pallid bat	--	SC	Roosts in caves, mine tunnels, crevices in rocks, bridges, buildings, and hollowed trees.	Habitat is present in the form of hollowed trees. No tree removal is planned as part of the project.
Neotoma fuscipes annectens San Francisco Dusky footed woodrat	--	SC	Forest habitats of moderate canopy and moderate to dense understory.	Potentially present on site. Woodrat nest observed in camellia trees adjacent to project site.

TABLE 4

Special-Status Wildlife Species List – Lucky Star Investments Group – Water Intake Replacement Project Region

Species	Status		Habitat Association	Occurrences
	Federal	State		
Taxidea taxus American badger	--	SC	Dry open stages of most shrub, forest and herbaceous habitats with friable soils.	No suitable habitat present.

Status Legend

Federal:
FE = Listed as endangered under the Federal Endangered Species Act
FT = Listed as threatened under the Federal Endangered Species Act
FM = Protected under the Federal Marine Mammal Act
State:
SE = Listed as endangered under the California Endangered Species Act
ST = Listed as threatened under the California Endangered Species Act
SC = Species of special concern under the California Endangered Species Act
FP = Fully Protected under the California Endangered Species Act