

LOW-EFFECT HABITAT CONSERVATION PLAN

for the

**ISSUANCE OF AN INCIDENTAL TAKE PERMIT UNDER SECTION 10(a)(1)(B)
OF THE ENDANGERED SPECIES ACT**

for the

**FEDERALLY ENDANGERED MOUNT HERMON JUNE BEETLE ZAYANTE
BAND WINGED GRASSHOPPER AND BEN LOMOND SPINEFLOWER**

for the

**CITY OF SANTA CRUZ
GRAHAM HILL WATER TREATMENT PLANT
OPERATIONS, MAINTENANCE, AND CONSTRUCTION ACTIVITIES**

June 2013

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EXECUTIVE SUMMARY

The City of Santa Cruz (“City”) has applied for a permit from the U.S. Fish and Wildlife Service (Service) pursuant to section 10(a)(1)(B) of the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 *et seq.*) to incidentally take the federally endangered Mount Hermon June beetle (*Polyphylla barbata*), the federally endangered Zayante band-winged grasshopper (*Trimerotropis infantilis*), and the federally endangered Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*). The incidental take is anticipated to occur as a result of the City’s covered activities within the Plan Area located at the Graham Hill Water Treatment Plant (Facility). These activities include all current and future activities of the City in relation to Operation and Maintenance (O&M) activities and construction activities at the Facility. The City proposes to mitigate the effects to the Mount Hermon June beetle (MHJB) by fully implementing the Habitat Conservation Plan (Plan or HCP). The Plan emphasizes protection of habitat through impact avoidance and implementation of measures designed to minimize impacts to MHJB. To mitigate for unavoidable impacts to MHJB, the City will protect suitable sandhills habitat demonstrated to be occupied by the MHJB at its Bonny Doon property and/or purchase credits from the Service approved Zayante Sandhills Conservation Bank, or other such Service approved bank if one is approved in the future. Habitat protection will be assured or credits will be purchased prior to the initiation of any ground disturbing or construction related activities that may result in take.

This Plan has been prepared in consultation with the Service to fulfill the requirements of Section 10(a)(2)(A) of the Act as part of a Section 10(a)(1)(B) take permit being sought for the covered activities within the Plan Area.

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1.0 INTRODUCTION

The Mount Hermon June beetle (*Polyphylla barbata*) (MHJB) was federally listed as endangered on January 24, 1997 (USFWS 1997). The Zayante band-winged grasshopper (*Trimerotropis infantilis*) (ZBWG) was federally listed as an endangered species in 1997. The Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*) (BLS) was federally listed as endangered in 1994 (USFWS 1994). The City has applied for a permit from the Service pursuant to section 10(a)(1)(B) of the Endangered Species Act of 1973 as amended (16 U.S.C. 1531 *et seq.*) to incidentally take the federally endangered MHJB, ZBWG, and BLS. The take of MHJB would occur as a result of operations at the Facility located in Santa Cruz County within the known geographic range of the MHJB. The MHJB is endemic to the Zayante Sand hills ecosystem, elements of which are found at the Facility. Potential take of MHJB and ZBWG could also result as a result of management activities conducted on the habitat preserve to be established for MHJB.

This HCP incorporates minimization and mitigation measures to offset impacts to the MHJB associated with O&M activities and construction activities at the Facility, and to offset impacts related to management of the habitat preserve.

1.1 Background and Purpose

The City of Santa Cruz Water Department is a municipal utility that is currently owned and operated by the City. The City is located on the central coast of California where the San Lorenzo River flows into Monterey Bay at the northern end of the state's Central Coast hydrologic region. The city provides water service to an area approximately 30 square miles in size, including the entire City of Santa Cruz, adjoining unincorporated areas of Santa Cruz County, a small part of the City of Capitola, and coastal agricultural lands north of the city. The Santa Cruz water system has four main production elements to meet the production needs of this area. These elements are as follows:

- 1) The North Coast Sources
- 2) The San Lorenzo River
- 3) Loch Lomond Reservoir
- 4) The Live Oak wells

As part of the system, the City operates the Facility which was put in service in 1960, and currently has a capacity of 24 mgd (million gallons per day) and the Live Oak Groundwater Treatment Plant, with a capacity of 1 mgd. The Facility is a conventional treatment plant and processes all water from the City's surface sources for delivery to service area customers. The Facility consists of the treatment plant and associated office and facility buildings. In addition to the plant and facilities, a paved access road, security

entry gate, and driveway and parking areas are located on the site. Several acres on the site do not have buildings or paved areas and are left in their natural vegetative condition. The ongoing operation of the Facility and the associated O&M and construction related activities will be the subject of this HCP.

The adoption of this HCP will ensure the Water Department's ability to provide protections to MHJB and its habitat while at the same time meeting the goals outlined in the Department's mission statement below.

“To provide a safe, clean, and continuous supply of water for municipal and fire protection purposes that meets or exceeds local, State, and Federal standards for public health and environmental quality, and to provide courteous, responsive, and efficient service in the most cost-effective manner to our customers.”

1.2 Permit Holder and Permit Duration

The City of Santa Cruz is the applicant for the incidental take permit. The duration of the section 10(a)(1)(B) permit for this project is thirty (30) years from the date of issuance. The permit would allow the City or their successors to incidentally take, either directly or indirectly, MHJB and ZBWG within the geographical boundaries of the Plan Area identified in the HCP over that time period.

1.3 Plan Area

The Plan Area consists of the 12.71 acres of the Facility property located at 715 Graham Hill Road, Santa Cruz, California, 95060. The project parcel (APN 060-141-05) is located within the Felton 7.5' U.S. Geological Survey (USGS) topographic quadrangle, in 37° 0'4.13"N 122° 1'58.80"W T11S R2W La Carbonera Rancho. The Plan Area includes 5.7 acres of suitable habitat composed of areas of Zayante rock outcrop and Watsonville soils, and areas with just Zayante rock outcrop soils. There is currently 0.88 acre of occupied habitat out of the 5.7 acres in the Plan Area at the Facility.

In addition, the Plan Area includes 17.0 acres at the City of Santa Cruz's Laguna Creek watershed property (APN 080-241-18) in Bonny Doon. Although this parcel measures a total of 171.4 acres, only the southwestern portion of the parcel, which is characterized by Zayante soils and sandhills habitat, will be used as a mitigation area. This property is adjacent to the Bonny Doon Preserve that is managed by the California Department of Fish & Wildlife (CDFW). It is located within the southwestern corner of Section 18 of T10S R2W of the Davenport 7.5' USGS topographic quadrangle. Surveys during the summer and fall of 2011 by entomologist Dr. Richard Arnold confirmed that the MHJB inhabits this location and that the ZBWG does not currently occur there. Botanist Kathy Lyons conducted surveys for listed plants indigenous to the Zayante Sandhills at this location and confirmed the presence of the BLS at the Bonny Doon mitigation site.

1.4 Regulatory Framework

1.4.1 Federal Endangered Species Act

The Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*), provides for the protection and conservation of fish, wildlife, and plants that have been federally listed as threatened or endangered. Activities otherwise prohibited by section 9 of the Act and subject to the civil and criminal enforcement provisions of section 11 of the Act may be authorized for Federal entities pursuant to the requirements of section 7 of the Act and for other persons pursuant to section 10 of the Act. Section 10(a)(2)(A) of the Act states that no permit may be issued authorizing any taking referred to in Section 10(a)(1)(B) unless the applicant submits to the Secretary (the Secretary of the Interior) a HCP that specifies:

- 1) the impact which will likely result from such taking;
- 2) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps;
- 3) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and
- 4) such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan.

All HCPs must meet the following criteria in order to receive a permit:

- 1) the taking will be incidental;
- 2) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
- 3) the applicant will ensure that adequate funding for the plan will be provided;
- 4) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and
- 5) the measures, if any required under subparagraph (A)(iv) will be met.

This Plan has been prepared in consultation with the Service to fulfill the requirements of Section 10(a)(2)(A) of the Act as part of a Section 10(a)(1)(B) take permit being sought for the covered activities within the Plan Area.

1.4.2 Section 10(a)(1)(B) Process – HCP Plan Requirements

The section 10 process for obtaining an incidental take permit has three primary phases:

- 1) the HCP development phase;
- 2) the formal permit processing phase; and
- 3) the post-issuance phase.

During the HCP development phase, the project applicant prepares a plan that integrates the proposed project or activity with the protection of listed species. An HCP submitted in support of an incidental take permit application must include the following information:

- impacts likely to result from the proposed taking of the species for which permit coverage is requested;
- measures that will be implemented to monitor, mitigate for, and minimize impacts;
- funding that will be made available to undertake such measures;
- procedures to deal with unforeseen circumstances;
- alternative actions considered that would not result in take; and
- additional measures the Service may require as necessary or appropriate for purposes of the plan.

The Service has determined this document to be a “Low-Effect” HCP. A low-effect HCP is one “involving: (1) minor or negligible effects on federally-listed, proposed or candidate species and their habitats ... and (2) minor or negligible effects on other environmental values or resources. ‘Low-effect’ incidental take permits are those permits that, despite their authorization of some small level of incidental take, individually or cumulatively have a minor or negligible effect on species covered ...” (USFWS 1996).

A low-effect HCP is defined as having:

- minor or negligible effects on federally listed, proposed, or candidate species and their habitats that are covered under the HCP; and
- minor or negligible effects on other environmental resources.

The impacts are assessed on both a project and cumulative basis. Implementation of low-effect HCPs and their associated incidental take permits, despite authorization of some small level of incidental take, individually and cumulatively have a minor or negligible effect on the species covered in the HCP. The determination of whether an HCP qualifies for the low-effect category is based on the anticipated impacts of the project prior to implementation of the mitigation plan. The purpose of the low-effect HCP is to expedite handling of HCPs for activities with inherently low impacts; it is not intended for projects with significant potential impacts that are subsequently reduced through mitigation programs. Environmental compliance under the National Environmental Protection Act (NEPA) for low-effect HCPs is achieved via a categorical exclusion because the incidental take permit issued involves no individual or cumulative significant effects on the environment.

The HCP development phase concludes and the permit-processing phase begins when a complete application package is submitted to the appropriate permit-issuing office of the Service. The complete application package for a low-effect HCP consists of:

- 1) an HCP;
- 2) a completed permit application; and
- 3) a \$100 permit fee from the applicant, except where the applicant is a governmental entity, in which case the applicant is exempt from the fee requirement.

The Service must publish a Notice of Receipt of a Permit Application in the Federal Register; prepare a section 7 Biological Opinion; prepare a Set of Findings that evaluates the action 10(a)(1)(B) permit application in the context of permit issuance criteria (see below); and prepare an Environmental Action Statement, a brief document that serves as the Service's record of compliance with NEPA for categorically excluded actions (see below). An implementing agreement is not required for a low-effect HCP. A section 10 (a)(1)(B) incidental take permit is granted upon determination by the Service that all requirements for permit issuance have been met.

After receipt of a complete application, a low-effect HCP and permit application is typically processed within approximately 12 months. This schedule includes the Federal Register notification and a 30-day public comment period.

During the post-issuance phase, the permittee and other responsible entities implement the HCP and the Service monitors the permittee's compliance with the HCP and the long-term progress and success of the HCP.

1.4.3 National Environmental Policy Act

The National Environmental Policy Act (NEPA) was enacted by Congress in 1969 to ensure that federal agencies consider the environmental impacts of their actions and decisions. NEPA requires the federal government to use all practicable means and measures to protect environmental values and makes environmental protection a part of the mandate of every federal agency and department. NEPA requires analysis and a detailed statement of the environmental impact of any proposed federal action that significantly affects the quality of the human environment. NEPA regulations require that the Service ensures that permits issued pursuant to an HCP have been evaluated consistent with NEPA requirements, and that the public has been provided with an opportunity to participate in the determination of the scope of analysis and to review and comment on the NEPA documentation.

HCPs, such as this one, which qualify as “low-effect” according to the Service’s 1996 HCP Handbook, are categorically excluded from NEPA analysis (Department of Interior Manual 516DM2, Appendix 1, and Manual 516DM6, Appendix 1).

2.0 COVERED ACTIVITIES

2.1 Introduction

This low-effect HCP addresses covered activities necessary for the City’s Facility to meet the water demands of its customers now and into the future. These demands entail the efficient delivery of quality drinking water. The covered activities are the result of the daily O&M of the facilities as well as any future Facility expansion that may be required to meet regulatory requirements or necessary changes in treatment capacity of the Facility. The City is seeking Take Authorization for the following covered activities under section 10 (a)(1)(B) of the ESA.

2.2 Operations and Maintenance Activities

O&M activities at the facility include all of the day-to-day operations necessary for the safe and efficient delivery of quality drinking water to the citizens of Santa Cruz. These O&M activities generally include inspection and monitoring of the facilities, weed management, native planting, vehicle access, facility maintenance and pipeline repair. These activities are described in detail below.

- **Inspection and monitoring of the facilities.** The operation and maintenance of the facilities requires that inspection and monitoring take place on a routine or periodic basis depending on the particular facility. The inspection and monitoring will include but not be limited to visual inspection or testing of

facilities to ensure safe and reliable operation. Leak detection, safety assessments, and facility efficiency may all be tested as part of this activity.

- **Ponderosa pine mulching.** Mulching around the base of ponderosa pines (*Pinus ponderosa*) is conducted to reduce fuel ladder potential and reduce necessity for weed control activities in vicinity of trees. Ponderosa pine seedlings are retained and released from surrounding vegetation (including native coast live oaks (*Quercus agrifolia*) and Douglas fir (*Pseudotsuga menziesii*)) as possible. In general, due to their complex, deep root systems and drought tolerance, natives are retained on road cuts and steep slopes to maximize slope stability and water conservation. Specifically, oaks, native grasses (purple needlegrass (*Nassella pulchra*), California oatgrass (*Danthonia californica*)) and other understory/perennial shrubs (sticky monkeyflower (*Mimulus aurantiacus*), toyon (*Heteromeles arbutifolia*), etc.) are retained and introduced as possible to stabilize naturally friable soils on site and reduce landscape water use. There is a focus on exotic/invasive plant control for fire hazard reduction, security, and facility access/maintenance retention.
- **Landscape Management.** Landscape management at the Facility is conducted to protect production facilities and associated property. Landscape management includes security maintenance (i.e., sitelines, fencelines, etc.), maintenance of safe employee working conditions (i.e., poison oak (*Toxicodendron diversilobum*) removal, clearing around accessways, valves, and other equipment), fire hazard control, erosion control, exotic/invasive plant species control (see Weed management below) and retention of native tree species (see Native planting below). Landscape management may include the use of tractor mounted mower, weed whip, lopping, chainsaw, hand pulling or torch.

Landscape management is conducted on an ongoing basis throughout the year, and may involve work periods of a few hours to a few weeks depending on the activity. Landscape management includes:

- mulching in the fall;
- planting of natives during the late fall/early winter;
- chainsaw work on an as needed basis throughout the year in response to trees falling on fence lines and exotics removal needs (i.e., acacia, etc.);
- spraying/torching primarily in the spring/early summer;
- lopping throughout the year as necessary;

- weed whipping throughout the year as necessary;
 - mowing in the spring/summer/fall; and
 - limited hand pulling of exotic plants, primarily in the winter.
- **Weed management.** Weed management occurs throughout the site on an ongoing basis to prevent encroachment on native vegetation (ponderosa pine, coast live oak, etc.) by exotic species such as cotoneaster (*Coneaster* sp.), rattlesnake grass (*Glyceria canadensis*), woodsorrel (*Oxalis* sp.), etc. Weed management occurs primarily in the spring and summer periods and is performed with limited herbicide applications (per limitations of the City's Integrated Pest Management policy), torch, hand pulling, mulching with wood chips, and weed whip. Exotic/invasive plant removal is conducted on road cuts and steep slopes using methods that minimize soil disturbance.
- **Native planting.** Natives are planted throughout the site as necessary to re-establish the historic flora and exclude exotic species. Natives include ponderosa pine, coast live oak, monkeyflower, and other species characteristic of dry, upland south facing slopes in the coastal zone of the Santa Cruz Mountains. Planting is done by hand with standard tools including trowels and shovels. Revegetation may be watered by hand, and is only rarely irrigated with drip systems.
- **Vehicle access.** An unsurfaced access road traverses the site and is primarily utilized by utility/pickup trucks to get access to the tank and electric controls at the top of the promontory adjacent to the site occupied by MHJB. Vehicle use of this access road occurs on an infrequent, though ongoing basis.
- **Facility maintenance.** Maintenance activities at the Facility may include rehabilitation, replacement, repair and maintenance of existing infrastructure and related facilities such as water measurement devices, scientific measuring devices, and water quality monitoring stations.
- **Pipeline repair.** Several water pipelines cross the property. These are critical pieces of infrastructure for the City's water delivery system. Pipeline rights-of-way are regularly inspected for leaks and the rights-of-way are maintained to allow for inspection of the pipeline(s). Usually, an 8-foot swath is mowed or weed-whipped to allow inspection. Inspection occurs on an ongoing basis. Inspection is conducted by Water Department and includes walking the route by foot.

Pipeline repairs are conducted on an as-needed basis as identified through the staff inspections. Repairs may be required as a result of damage to the pipeline through natural causes (earthquakes, landslides, etc.) or through deterioration of

infrastructure over time. Repair projects are designed by engineers as necessary with appropriate permits obtained before work is started. Any discharge from the pipeline is to land and is absorbed into the ground and involves minimal or no runoff to storm sewers or receiving waters.

2.3 Construction Activities

Changes in regulatory requirements, growing demands for water, or the updating and replacement of aging facilities may require a variety of construction activities to be included as covered activities. These activities covered under the plan will be restricted to the current property boundary of the facility and will be designed to minimize impacts to covered species. Even with appropriate minimization measures, the scope of some of these activities (i.e., grading, clearing, boring, and facility demolition/expansion) is such that they will require authorization for Take under the HCP. Construction related activities considered to be covered activities under the plan include the following:

- **Grading/clearing.** Grading and clearing activities will occur from time to time in order to allow better vehicle access to various areas of the site, provide increased parking for future staff, prepare staging areas for future construction related materials, or to prepare proper pads for new facilities. These activities will often involve large earthmoving equipment and the removal or redistribution of soil around the site.
- **Construction of new facilities.** In order to respond to evolving demands placed on the facility, the need for system expansion may arise in the future and this may entail the construction of new service buildings, new containment structures, new pipelines, and other necessary facilities. This construction may involve the demolition of old structures to be replaced by new structures. Aside from the grading and clearing outlined above, these activities have the potential to alter the vegetation communities and hydrology of the site.

2.4 Conservation Activities at the Bonny Doon Mitigation Site

The Bonny Doon mitigation site may require fencing to protect it, periodic removal of invasive plants, planting of plants indigenous to the sandhills, and vegetation clearing or other activities to comply with state and local fire prevention regulations. These and other ground disturbing activities could impact life stages of the MHJB (and ZBWG should it occur at the site over time) and require authorization for take under the ITP. Such activities could also adversely affect the endangered BLS. Although surveys by entomologist Richard Arnold during the summer and fall of 2011 did not find the endangered ZBWG on the mitigation site, there is the possibility that site protection or habitat management activities that are undertaken to benefit the MHJB could attract

ZBWG to the site. If that occurs, subsequent management activities could potentially cause impacts to ZBWG.

3.0 ENVIRONMENTAL SETTING

3.1 Habitat

The plant community within the Plan Area at the Facility is a remnant stand of ponderosa pine forest. Coast live oaks and coyote bush (*Baccharis pilularis*) are also prevalent. The understory primarily consists of forbs and grasses. The plant community within the Plan area at the Bonny Doon mitigation site is sand chaparral, characterized by an understory of predominately silverleaf manzanita (*Arctostaphylos silvicola*) with scattered ponderosa pine trees.

3.2 Covered Wildlife Species

3.2.1 Mount Hermon June Beetle (*Polyphylla barbata*)

Status and Distribution

The MHJB is a federally listed endangered species. Although the scientific name *Polyphylla barbata* has been used since its original description, in the literature the beetle has commonly been referred to as the Mount Hermon June beetle or the Barbate June beetle.

Throughout most of its range, the primary threats to the beetle are sand mining and urbanization. In a few instances, other types of land uses, such as agricultural conversion, recreation activities, plus pesticide use, alteration of fire cycles, and possibly even collectors, have also threatened the beetle. For these reasons, the beetle was recognized as an endangered species by the Service in 1997 (USFWS 1997) and a recovery plan was published by the Service in 1998 (USFWS 1998a). Critical habitat has not yet been proposed by the Service for the MHJB; however, the MHJB's geographic distribution largely coincides with the critical habitat for the endangered Zayante band-winged grasshopper designated by the Service (USFWS 2001).

The State of California does not recognize insects as endangered or threatened species pursuant to the State's Fish & Game Code. However, the MHJB does receive consideration under the California Environmental Quality Act (CEQA) since it satisfies the definition of a rare species under this statute. Habitat for the MHJB also receives consideration under the Sensitive Habitat Ordinance of the County of Santa Cruz.

The MHJB is restricted to the Zayante sandy soils that are found in the Scotts Valley-Mount Hermon-Felton-Ben Lomond-Santa Cruz area of the Santa Cruz Mountains. During the summer of 2008 it was also observed at a couple of locations in the Bonny Doon area (Arnold, pers. observ.; McGraw, pers. comm.). Historically, MHJB localities

were referred to as sandhills (Cazier 1938; Young 1988), but more recently this area has been called the Zayante Sandhills (USFWS 1998a). Arnold (2004a) reviewed museum specimens and other reported records for the beetle and determined that it had been observed at about 70 locations within this area.

Habitat Characteristics

Habitats in the Zayante Sandhills where MHJB has been found include northern maritime chaparral, ponderosa pine forest, sand parkland (which is a mixture of the aforementioned habitats with a shrub/subshrub and grass/forb understory), and mixed deciduous-evergreen forest. In addition, adults have been found in disturbed sandy areas where remnants of these habitats still occur. Ponderosa pine grows at all known MHJB locations and for this reason was a presumed larval food plant of the beetle. However, recent analyses of partially-digested plant fragments in fecal pellets of MHJB larvae by Kirsten Hill (2005) indicate that larvae feed on other plant species. Even if ponderosa pine is not a food plant, it is a useful indicator of suitable habitat for the MHJB.

Occurrences Within the Project Area

Arnold conducted presence-absence surveys for MHJB at the Facility in both 2004 and 2008. The 2004 survey was limited to the southern portion of the water treatment facility immediately next to an existing, above-ground water tank. The portion of the water treatment facility, immediately south of the water tank to the paved service road currently supports a mixture of plant species native to the Zayante Sandhills as well as some non-native plants. One adult male MHJB was observed on July 1, 2004.

An additional presence-absence survey was conducted on the evenings of June 12 and 19, and July 9, 2008. These surveys were conducted at 13 locations scattered throughout the entire Facility property. Four adult males of the MHJB were observed in two traps, located in the same portion of the site as Arnold's 2004 survey. These findings indicate that a very small population of the MHJB persists at the site, but is restricted to the extreme southern portion of the site. Copies of both survey reports are provided in Appendix A of this HCP.

On June 14, 2011, Arnold surveyed the Bonny Doon mitigation site. Only the 5.4-acre sandhills portion in the southwestern corner of the parcel was surveyed. Six adult males were observed at four trap locations.

Life History

Adult males measure about 0.75 inch in length and females are slightly longer. The adult male has a black head and dark brown elytra (leathery forewings) that are covered with brown hairs. The elytra also have stripes that are broken and irregular rather than continuous and well defined as in related species of June beetles. Larvae are grub-shaped (scarabaeiform) and vary in color from cream to pale yellow for the body segments and darker brown for the head.

The MHJB is univoltine, i.e., it has only one generation per year. As its common name suggests, adult emergence and seasonal activity normally starts in May or June and

continues through about mid-August; although, seasonal activity may vary from year to year depending on weather conditions. Adults are nocturnal, with most of their activity between about 8:45 and 9:30 pm. Adult males actively fly low to the ground in search of females, which are flightless. Presumably the female emits a pheromone for the males to find her.

Lifespan data from a brief capture-recapture study suggest that adult males live no longer than one week (Arnold 2000a). Dispersal data from the same capture-recapture study indicate that most adult males are quite sedentary, with home ranges of no more than a few acres. Similar data on lifespan and dispersal of females is lacking at this time since they are less frequently observed.

Specific life history information for the MHJB is unknown, but can be inferred from related species. Presumably the entire life cycle (egg, larva, pupa, and adult) takes two to three years to complete. The majority of the life cycle is spent as a subterranean larval stage that feeds on plant roots (Furniss and Carolin 1977).

3.2.2 Zayante Band-Winged Grasshopper (*Trimerotropis infantilis*)

Status and Distribution

The ZBWG was recognized as an endangered species by the Service (1997) in 1997 because of historical loss of habitat and several actual or potential future actions that could further reduce the amount of suitable habitat that currently supports the grasshopper. It occurs primarily in the open sand parkland plant community of the Zayante sand hills. Today, this habitat is limited in acreage and highly fragmented, resulting in overall small patches of habitat which supports small populations of the ZBWG.

Throughout most of its range, the primary threats to the grasshopper are loss of habitat via sand mining and urbanization, plus habitat degradation due to invasive plants and unnatural succession. In a few instances, other land uses including agricultural conversion, recreation (hikers, horseback riders, mountain bikers and off-road vehicles) have resulted in loss or degradation of habitat. Because of the small sizes of existing habitat remnants known to support the ZBWG, herbicide or insecticide use, as well as insect collectors could potentially damage the ZBWG or its habitat (U.S. Fish & Wildlife Service 1997, 1998a, and 2001). Also, the grasshopper's small population numbers raise concerns about long-term population viability.

A total of 10,560 acres was designated as critical habitat for the ZBWG by the Service (2001). This acreage generally lies between Highways 9 and 17 in the Felton-Mount Hermon-Ben Lomond-Scotts Valley area of Santa Cruz County. The critical habitat includes 610 acres of state or county-owned park lands and 9,950 acres of privately-owned lands. However, most of this acreage includes unsuitable habitats or developed and altered lands that do not currently support the ZBWG.

In 1998 a recovery plan was published by the Service (1998a) that treated two endangered insects (ZBWG and Mount Hermon June beetle) and three endangered plants that occur in the Zayante sand hills of Santa Cruz County. This recovery plan described three actions necessary to downlist or delist the ZBWG, namely:

- a) protection of the 10 known collection sites (consisting of 7 discrete areas) of sand parkland habitat via fee-title acquisition, conservation easement, or Habitat Conservation Plans;
- b) development and implementation of a management plan for the Quail Hollow Ranch County Park (County of Santa Cruz); and
- c) population numbers of the ZBWG are stable or increasing.

Rentz and Weissman (1984) described the species using specimens collected in Alma, Santa Cruz, the Santa Cruz Mountains, and from the Olympia Quarry in Felton. Arnold (1999) reviewed museum specimens and other reported records for the grasshopper and concluded that the ZBWG had historically been observed at about 20 locations within the Zayante sand hills. However, in a few instances different wording on specimen labels or in written accounts that described these sites may have actually referred to the same locations. Bona fide occurrences the ZBWG were found to be restricted to the loose and fine-grained Zayante sandy soils (Bowman and Estrada 1980) that occur in the Scotts Valley-Mount Hermon- Felton-Ben Lomond-Santa Cruz area of the Santa Cruz Mountains (i.e. the sandhills). Today the ZBWG is known from five primary locations in the Zayante sand hills (BUGGY Data Base 2011; Hoekstra 1998).

Habitat

Six plant communities characterize the Zayante sand hills, including: silverleaf manzanita chaparral with pondersoa pine, sand chaparral, and mixed silverleaf manzanita chaparral, ponderosa pine forest, dense sand parkland, and open sand parkland. These communities intergrade and occur in a mosaic pattern at some locations in the Zayante sandhills. The preferred habitat of the ZBWG is barren or sparsely-vegetated, sunlit sand, features of the open sand parkland plant community. This community is characterized by a diverse assemblage of specialty herbs indigenous to the Zayante sand hills, including the endangered Santa Cruz Wallflower (*Erysimum teretifolium*).

Chu (2002) examined microhabitats and food plant preferences of ZBWG at the North and South Ridge areas of Quail Hollow Quarry. She found ZBWG associated with more open sand (i.e., less total vegetative cover) areas and characterized by fewer invasive plant taxa. ZBWG frass (i.e., excrement) pellets were examined microscopically to identify the plants fed upon by the grasshopper. The species composition of plant fragments in the frass was compared to the plant species diversity at locations where grasshoppers were captured. The frass significantly contained a higher percentage of native plant species than were found in surrounding the plant community, which indicates that these native plants were preferred food plants of the ZBWG.

Occurrences Within the Plan Area

At this time the ZBWG is not known to occur within the Plan Area. Due to the absence of open sand parkland at the Facility, habitat conditions are not suitable to support the grasshopper there. Presence-absence surveys were conducted for the grasshopper during its activity period in the summer and fall of 2011 at the Bonny Doon mitigation site, but it was not observed. Instead, *Trimerotropis thalassica*, an inhabitant of the sand chaparral community, was observed there.

Life History

Trimerotropis infantilis is one of the smaller species in this genus, hence the specific epithet (Rentz and Weissman 1984). Adult males measure about 0.50 to 0.75 inch in length, while females are slightly longer, approximately 0.75 to 0.9 inch. The body and forewings are pale gray to light brown with dark bands on the forewings. Basal areas of the hindwings are pale yellow. A cream-colored, mask-like marking surrounds the eyes. Tibia of the hindlegs are grey-blue like several other members of the genus *Trimerotropis*.

The ZBWG is univoltine, i.e., it has only one generation per year. Immatures, known as nymphs, look like adults except for the absence of wings. The nymphs are diurnal and are observed as early as May, while the adults become more prevalent beginning in July. Adults are also diurnal and remain active until the first ground-soaking rains, generally in late October or early November (Arnold 2000b, 2002a, 2002b, and 2004b).

Specific life history information for the ZBWG is unknown, but can be inferred from related species. Grasshoppers undergo an incomplete (i.e., hemimetabolous) metamorphosis, meaning that they develop from an egg to the adult through a sequence of progressively larger nymphal stages, without a larval or pupal stage as do insects that have a complete (i.e., holometabolous) metamorphosis. Presumably the entire life cycle (egg, nymph, and adult) is completed within one year. Eggs are laid in the soil and the majority of the life cycle is probably spent as a subterranean egg.

3.3 Covered Plant Species

3.3.1 Ben Lomond Spineflower ((*Chorizanthe pungens* var. *hartwegiana*))

Status and Distribution

The Ben Lomond spineflower (BLS) was listed as endangered by the Service in 1994 due to habitat destruction due to residential and golf course development, agricultural land conversion, sand mining, military activities, and encroachment by invasive plant species. BLS occurs in lower montane coniferous forest and maritime ponderosa pine sandhills. The Service published a recovery plan for BLS in 1998. (USFWS 1998b).

Habitat

In California, the spineflower genus (*Chorizanthe*) in the buckwheat family (Polygonaceae) comprises species of wiry annual herbs that inhabit dry sandy soils along

the coast and inland. Because of the patchy and limited distribution of such soils, many species of *Chorizanthe* tend to be highly localized in their distribution.

BLS is confined to outcrops of sandstone soils in the Santa Cruz Mountains from Big Basin State Park to the Felton area in the Santa Cruz Mountains. These sandstone soils support several unique plant communities, including the ponderosa pine-dominated Ben Lomond sandhills. The majority of occurrences of BLS are found on privately owned lands within the area generally bounded by the communities of Ben Lomond, Glenwood, Scotts Valley, and Felton.

Occurrences Within the Plan Area

Botanist Kathy Lyons of the Biotic Resources Group conducted surveys of the Bonny Doon mitigation site and confirmed the presence of 13 populations of BLS. BLS does not occur at the Facility.

Life History

Ben Lomond spineflower has dark pinkish to purple scarious margins on the involucre lobes and a slightly ascending to erect habit. The heads are medium in size (1 to 1.5 cm (0.4 to 0.6 in) in diameter) and distinctly aggregate. The plant is found on sandy soils that are the basis for the Ben Lomond sandhills communities in the Santa Cruz Mountains, mostly on privately owned land.

3.4 Other Zayante Sandhills Endangered Species

The Zayante Sandhills region near the water treatment facility support several special status plant and animal taxa, including four federally endangered species. Table 1 lists these taxa and their federal and state conservation statuses.

Table 1. Special-status Species of the Zayante Sandhills				
Common Name	Scientific Name	Conservation Status		
		Federal	State	CNPS
Mount Hermon June beetle	<i>Polyphylla barbata</i>	Endangered		
Zayante Band-Winged grasshopper	<i>Trimerotropis infantilis</i>	Endangered		
Ben Lomond Spineflower	<i>Chorizanthe pungens</i> var. <i>hartwegiana</i>	- Endangered		
Santa Cruz wallflower	<i>Erysimum teretifolium</i>	Endangered	Endangered	1B
Santa Cruz cypress	<i>Cupressus abramsiana</i>	Endangered	Endangered	
Silverleaf Manzanita	<i>Arctostaphylos silvicola</i>			1B
Ben Lomond buckwheat	<i>Eriogonum nudum</i> var. <i>decurrens</i>			1B

Note: CNPS is the California Native Plant Society, an organization whose lists of rare plants are often treated as endangered species by resource agencies.

Since the water treatment facility does not support open sand parkland habitat (Arnold, pers. observ.), the ZBWG, Santa Cruz wallflower, and Ben Lomond spineflower, which are indigenous to such habitat, would not be expected to occur there. Santa Cruz cypress, Ben Lomond buckwheat, and silverleaf manzanita were not observed during a habitat assessment survey at the property (Arnold, pers. observ.). However, silverleaf manzanita and Ben Lomond spineflower occur at the Bonny Doon mitigation site, and it is possible that ZBWG could occur there in the future.

4.0 IMPACT ASSESSMENT

4.1 Introduction

The effect of the HCP on MHJB is considered minor because the impacts from covered activities would generally be very small, the population of MHJB at the Facility is quite small in area and numbers, and the HCP prioritizes avoidance and minimization of impacts. The HCP further provides offsetting mitigation for any unavoidable impacts.

Most of the impacts from covered activities are expected to occur as a result of O&M activities at the Facility and leave the surrounding area undisturbed. These O&M activities are typically temporary in nature, with active human presence limited to the period of the activity (which may range from hours to days at the most). Following the O&M activities, the City will apply appropriate conservation measures for the restoration of disturbed habitat where appropriate. As a result, the O&M activities result in a temporary ecological disturbance instead of a permanent impact to the landscape. Due to the limited scale of the project and associated impacts, population-level effects are

limited, and allow opportunity for habitat re-establishment in some areas. Most potential impacts to MHJB are expected to result from access road maintenance or repair of existing facilities; however some additional impacts could occur from construction of new facilities.

It is also possible for covered activities in the habitat preserve to cause impacts to MHJB and BLS. Covered activities at the habitat preserve could also impact ZBWG, should it occur at the site in the future.

4.2 Direct and Indirect Impacts

Direct and indirect impacts to MHJB and its habitat are expected to occur at the Facility and the Bonny Doon mitigation site as a result of covered activities. O&M activities and construction-related activities will have direct impacts as a result of removal of MHJB habitat. Indirect impacts may occur as a result of fugitive dust created by O&M or construction activities. Habitat management activities at the habitat preserve may disturb the soil where life stages of the MHJB could be affected, or create dust during the adult activity period. Habitat management activities at the habitat preserve could similarly affect BLS, and also ZBWG should that species show up in the future. Management activities at the habitat preserve will be timed to avoid the bloom period for BLS and the flight season for ZBWG to minimize potential adverse effects. Both the direct and indirect impacts of the covered activities are expected to be minimal and will be minimized and mitigated according to the measures in Section 5.2.

4.3 Cumulative Effects

Operations and maintenance and future construction activities at the Facility will result in a negligible cumulative impact to the MHJB. Although up to 0.88 acre of MHJB occupied habitat and up to 4.82 acres of additional suitable habitat could be impacted under the HCP, this potential impact is not expected to affect the range-wide survival of the beetle due to the occurrence and abundance of this species and its habitat at several nearby locations, as well as elsewhere throughout its entire geographic range. In addition, any affected acreage will be compensated for through the permanent protection of prime habitat at the Bonny Doon mitigation site or at a conservation bank that is known to support the endangered beetle. Management activities conducted at the habitat preserve are not expected to contribute to cumulative effects on covered species.

4.4 Effects on Critical Habitat

There is currently no Critical Habitat designated for MHJB or BLS. Designated Critical Habitat for ZBWG does not occur at the City's Facility or at the habitat preserve. Covered activities will therefore have no effect on Critical Habitat.

5.0 CONSERVATION STRATEGY

5.1 Biological Goals and Objectives

Section 10(a)(2)(A) of the Act requires that an HCP specify the measures that the permittee will take to minimize and mitigate to the maximum extent practicable the impacts of the taking of any federally listed animal species as a result of activities addressed by the plan. As part of the "Five Point" HCP Policy adopted by the Services in 2000, HCPs must also establish measurable biological goals and objectives (65 Fed. Reg. 35242 (June 1, 2000)). The purpose of the biological goals is to ensure that the operating conservation program in the HCP is consistent with the conservation and recovery goals established for the species. The goals are also intended to provide to the applicant an understanding of why these actions are necessary. These goals are developed based upon the species' biology, threats to the species, the potential effects of the covered activities, and the scope of the HCP.

The following biological goals and objectives were developed based on the MHJB's biology and potential impacts of the covered activities within the scope of this HCP. They include on-site measures that will minimize take of the MHJB at the project site and off-site measures that will protect in perpetuity habitat with high conversation value for the beetle.

Goal 1: Avoid and minimize, to the extent practical, take of the MHJB within the project site.

Objective 1.1: Minimize removal of plant taxa indigenous to the Zayante Sandhills that grow at the project site.

Objective 1.2: Revegetate temporarily disturbed portions of the project site with plant taxa indigenous to the Zayante Sandhills and avoid landscaping with turf grass, weed matting, aggregate, and mulch.

Objective 1.3: Within the impact area at the project site, minimize outdoor night lighting during the flight season of the MHJB or use light bulbs that are certified to not attract nocturnally-active insects.

Goal 2: Protect habitat for the MHJB at an off-site location with high conservation value for the beetle.

Objective 2.1: Permanently protect sandhills habitat known to support the MHJB at the City of Santa Cruz's Bonny Doon site and/or provide funds for the purchase of conservation credits at the Ben Lomond Sandhills Preserve of the Zayante Sandhills Conservation Bank that would be commensurate with the potential impacts from covered activities, to protect, manage, and monitor habitat of the MHJB in perpetuity.

5.2 Minimization and Mitigation Measures

Section 10 of the Endangered Species Act requires that all applicants submit HCPs that “minimize and mitigate” the impacts of take authorized by an incidental take permit, and that issuance of the permit will not “appreciably reduce the likelihood of the survival and recovery of the species in the wild.” In general, HCPs should include mitigation programs that are based on sound biological rationale, practicable, and commensurate with the impacts of the project on species for which take is requested. Additionally, the Service encourages applicants to develop HCPs that contribute to the recovery of a listed species. If any of the covered activities of this HCP might result in permanent habitat loss, then the mitigation strategy must include compensatory mitigation consisting of the permanent preservation of suitable habitat or similar measures.

In accordance with these guidelines and the requirements of the Endangered Species Act, the conservation program of this HCP is intended to achieve its biological goals and objectives and to ensure that the impacts of covered activities on the MHJB are minimized and mitigated to the maximum extent practicable.

5.2.1 Measures to Minimize Impacts

The following measures are designed to minimize the effects of the covered activities on the MHJB by reducing incidental take of individuals and the degradation of habitat at the water treatment plant Facility, and to minimize effects to MHJB, ZBWG, and BLS from management activities undertaken at the habitat preserve.

Locate Project Activities On and Adjacent to Current Development

To the extent practical, the covered activities of this HCP that occur on the portion of the site characterized by Zayante sands will be located either within the footprint of the existing water treatment facilities (i.e., existing buildings, water tanks, service roads, pipelines, etc.) or immediately adjacent to the existing water treatment facilities.

Delineate Boundaries of the Impact Area

Temporary fencing and signs will be erected before any vegetation clearing, excavation, or grading activities occur to clearly delineate the boundaries of the project’s impact area.

Warning signs will be posted on the temporary fencing to alert workers not to proceed beyond the fence. All protective fencing will remain in place until the operation and maintenance or construction activities have been completed. Signs will include the following language:

"NOTICE: SENSITIVE HABITAT AREA. DO NOT ENTER."

Cover Exposed Soils

Adult males of the MHJB actively search for breeding females during the evenings between about May 15 and August 15. During this period, both sexes burrow into duff and Zayante sandy soils during the daytime. If construction or other ground disturbing activities occur during any portion of the MHJB flight season, all exposed Zayante soils within the impact area will be covered by tarps, plywood, erosion control fabric, or another suitable impervious material. Exposed soils should be covered between the hours of 7 p.m. and 7 a.m. daily. This will prevent adult males from burrowing into the exposed soils and subsequently being injured or killed by soil disturbance (i.e., digging, grading, covering, etc.).

Dust Control

Appropriate dust control measures, such as periodically wetting down of work areas, will be used as necessary during excavation or any soil disturbing activities in the impact area or any other covered activities that generate dust.

New Outdoor Lighting

Adult MHJBs are active at dusk and may be distracted by incandescent, mercury vapor, sodium, and black light sources, which can disrupt normal behaviors and breeding activities. Thus any new outdoor lighting installed as part of this project will use bulbs certified to not attract nocturnal insects.

Landscaping Elements That Degrade MHJB Habitat

Because MHJB adults emerge from the soil to attract and search for mates, turf grass, dense ground covers (such as ivy), weed matting, aggregate, and mulch can degrade habitat conditions and will not be used in this project. As described below, material for revegetation should use plants endemic to the Zayante Sandhills.

Time Habitat Management Activities to Avoid Key Times of the Year

To minimize effects to BLS, habitat management activities will be conducted outside of the bloom period, which is from April through August. If monitoring of the habitat preserve detects the presence of ZBWG, the window to avoid habitat management activities will be extended until the end of October.

5.2.2 Measures to Mitigate Impacts

To mitigate for unavoidable impacts of covered activities, the Water Department will, as a primary strategy, provide for the long-term protection and management of MHJB habitat located on the City of Santa Cruz Bonny Doon property. As a secondary strategy,

the Water Department may purchase conservation credits at the Zayante Sandhills Conservation Bank. The Water Department will also revegetate any area of temporary habitat loss on Zayante sandy soils at the water treatment facility with plants native to the Zayante Sandhills. The next two sections describe these mitigation measures in more detail.

Protect Sandhills Habitat at the City's Property in Bonny Doon

The City of Santa Cruz owns a site in Bonny Doon that supports high quality MHJB sandhills habitat. A survey conducted in the summer of 2011 confirmed that the MHJB occurs there. The Water Department will compensate for any future impacts by permanently protecting sandhills habitat occupied by the MHJB at its Bonny Doon property. To ensure mitigation in advance for impacts related to City activities covered by this HCP or other ESA take authorizations, the City will protect and manage in perpetuity 17 acres at the Bonny Doon property.

The proposed covered activities of this HCP would be authorized to impact a maximum of 5.7 acres of habitat that could potentially be used by the MHJB. The covered activities could also permanently impact life stages of the MHJB and temporarily remove their habitat if vegetation clearing and grading occurs. Impacts will be mitigated at a ratio of 1:1. This level of mitigation is commensurate with the level of impacts to MHJB habitat at the water treatment facility property because the habitat quality at the Bonny Doon property is of high quality and connects to adjacent properties that also support high quality sandhills habitat compared to the degraded habitat at the Water Department property; thus the conservation value of the habitat at the Bonny Doon site is much greater than that of the Water Department property. Maximum impacts at the water treatment facility would result in 5.7 acres of habitat mitigation at the Bonny Doon mitigation site. The remaining approximately 11.3 acres would be available to mitigate for other City activities impacting MHJB, and could be credited to the Water Department through a future HCP or Section 7 consultation.

The Water Department will be responsible for all species monitoring, habitat protection, vegetation management, and other conservation-related activities that occur at the Bonny Doon mitigation site. An annual report will be prepared for submission to the Service as described in Section 6.2 of this HCP.

Purchase Conservation Credits at the Zayante Sandhills Conservation Bank

The Water Department may compensate for any future impacts to MHJB by purchasing, at a 1:1 ratio, conservation credits from the Ben Lomond Sandhills Preserve of the Zayante Sandhills Conservation Bank. This level of mitigation is commensurate with the level of impacts to MHJB habitat at the water treatment facility property because the habitat quality at the conservation bank is prime compared to the degraded habitat at the Water Department property; thus the conservation value of the bank habitat is much greater than that of the property. Should the Water Department decide to purchase credits, it will ensure that conservation occurs in lock step with any impacts from covered activities by purchasing conservation credits sufficient to mitigate for a particular impact

before carrying out the covered activity. The Water Department will purchase conservation credits on an as-needed basis over the life of the HCP.

The Zayante Sandhills Conservation Bank was approved by the Service and the County of Santa Cruz to provide mitigation for impacts to the MHJB and other special-status plants and animals of the Zayante Sandhills from projects within the Felton USGS quad.

The operator of the conservation bank, PCO, LLC, will be responsible for all species monitoring, habitat management, and other conservation related activities that occur at the Ben Lomond Sandhills Preserve.

Revegetate the Area of Temporary Habitat Loss with Native Sandhills Plants

Some areas at the water treatment facility will be temporarily cleared of vegetation or graded but will not support any new structures or other hardscape after a covered activity has been completed. After completion of such covered activities the impact area(s) will be revegetated with plants native to the Zayante Sandhills. Suggested sandhills plants include sticky monkeyflower, deer weed (*Lotus scoparius*), silver bush lupine (*Lupinus albifrons* var. *albifrons*), ponderosa pine, and coast live oak. Other sandhill endemic plants may be appropriate depending upon the location of the impact area and soil conditions. These native plants will provide suitable habitat conditions for MHJBs that might eventually colonize the temporarily impacted portion of the impact area. As previously noted, revegetated areas should not include any landscape elements that degrade habitat for the MHJB, including mulch, bark, weed matting, rock, aggregate, or turf grass.

6.0 PLAN IMPLEMENTATION

6.1 Monitoring

Compliance monitoring by a qualified biologist will occur during all construction activities and O&M activities in suitable or occupied MHJB habitat. The biologist will ensure that all project areas are clearly delineated and impacts are restricted to those areas, that exposed Zayante soils are properly covered at night between May 15 and August 15, and that observed life stages of the MHJB are properly relocated. The qualified biologist will also be responsible for effects monitoring, which will include the calculation of areas of habitat disturbance and the number, if any, of individual MHJB relocated. All information gathered by the biologist will be included in the annual report to the Service.

If the Bonny Doon site is utilized for mitigation, a management plan will be developed within 6 months of permit issuance. The management plan will be subject to Service approval and will describe the management and monitoring of the habitat and MHJB population that will be conducted at that site. The management plan will also include measures to minimize adverse effects to MHJB, BLS, and ZBWG resulting from habitat management and monitoring.

6.2 Reporting

Reporting will include an annual summary describing the quality and type (i.e., temporary versus permanent) of MHJB habitat impacts, and will describe the type of mitigation utilized to offset the MHJB impacts (i.e., the number of credits purchased from the Zayante Sandhills Conservation Bank). If the Bonny Doon site is utilized for mitigation, then the various monitoring activities completed during the prior period will be described as well as results of MHJB monitoring. The annual report is due to the Service by March 15 of each year.

6.3 Disposition of Dead or Injured Specimens

Upon locating individuals of Covered Species that are dead or injured as a direct result of activities conducted by the City, initial notification will be made to the Ventura Fish and Wildlife Office at (805) 644-1766 within 3 working days of its finding. Written notification will be made within 5 calendar days and will include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information. Written notification will be sent to the Ventura Fish and Wildlife Office at 2493 Portola Road Suite B, Ventura, California 93003. Dead or injured specimens of the MHJB will be submitted to the designated repository at the University of California, Berkeley.

6.4 Funding

Estimated costs to implement the conservation strategy described in this HCP are itemized in Table 2. The Water Department may access various sources of funding, but primarily intends to rely on water rate payer fees to cover costs. The Water Department commits to fully fund its commitments under the HCP. Specifically, the Water Department will ensure there is a line item in the City's annual budget to cover initial setup costs and associated annual costs of monitoring and reporting, and for the purchase of credits from the Zayante Bank, as applicable. Prior to using the Bonny Doon site for mitigation, the Water Department will establish a non-wasting endowment, the size of which would be determined through a Property Analysis Record (PAR) or similar analysis, to be held by the City or an approved third party, with sufficient funds to cover costs associated with long-term management of the Bonny Doon mitigation site.

The Water Department will promptly notify the Service of any material change in its financial ability to fulfill its obligations under the HCP. In addition to providing any such notice, the Water Department will include in its Annual Report to the Service such reasonably available financial information to demonstrate the its ability to fulfill its obligations.

Table 2. Estimated costs to implement the Water Department's conservation strategy.					
Item or Activity	Conservation Strategy	Units		Costs (\$)	
		Type	Number	Per Unit	Total
Minimization Measures at Facility					
	Install construction fencing	Construction Fencing	800 ft.	3	2,400.00
	Install signs	Signs	16	20	320.00
	Cover exposed soils	Geojute – 4' x 147' roll	64	80	5,120.00
	Dust control	Spray water with hose	100 applications	5	500.00
	Outdoor lights	Non-attracting insect light bulbs	4	25	100.00
	Subtotal				8,440.00 (note actual costs will vary depending upon size of project at Facility)
Mitigation Measures					
	Revegetation at Facility	1 gallon shrubs	50	10	500.00
	Sandhills habitat protection and management at Bonny Doon	Initial & Capital Costs (see PAR for details)	Various		33,009.00
Management and Monitoring at Habitat Preserve					
	MHJB Monitoring	Hour	528	150.00	79,200.00
	BLS Monitoring	Hour	220	85.00	18,700.00
	Fence Repair	Linear Feet	3,000	0.60	1,800.00
	Sign Replacement	Sign	90	25.00	2,250.00
	Reporting	Hour	240	73.00	17,520.00
	Habitat Maintenance	Hour	1,500	30.00	45,000.00
	Subtotal				197,979.00
	Grand Total				206,419.00

7.0 CHANGED AND UNFORESEEN CIRCUMSTANCES

7.1 Changed Circumstances Defined

Changed Circumstances are defined under the “No Surprises” rule as changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by the Applicant and the Service and that can be planned for in the HCP (e.g., the listing of a new species, or the new discovery of a currently listed species within the Plan Area). The Service and the City agree that the Changed Circumstances defined in the following subsections represent all Changed Circumstances to be addressed by the City.

7.1.1 The New Listing of Species not Covered by the Plan

The City recognizes, as noted in the Service’s discussion of its “Habitat Conservation Plan Assurances (‘No Surprises’) Rule,” (USFWS 1998b), that the future listing of a species whose conservation was not provided for in the Plan to a level sufficient to include the species as a Covered Species can be viewed as a Changed Circumstance. In the event that a species which is not a covered species pursuant to this Plan is listed by the Service subsequent to the issuance of the section 10 permit pursuant to this HCP, such listing may be considered a Changed Circumstance. In the event of a new listing of one or more species not covered by this Plan, the Service and the City will identify actions that might cause take, and the City will avoid such actions in the implementation of covered activities until approval of an amendment to the Plan to address the newly listed species, or until such measures are no longer required.

7.1.2 The New Discovery of Other Listed Species in the Plan Area

Table 1 lists special-status species of the Zayante Sandhills. It is possible that at some point during the duration of the permit, these, or other listed species, may be discovered at the Project Site. In the event of the new discovery of a listed species in the Plan Area of one or more species not covered by this Plan, the Service and the City will identify actions that might cause take, and the City will avoid such actions in the implementation of covered activities until approval of an amendment to the Plan to address the newly discovered listed species in the Plan Area, or until such measures are no longer required. Given the degraded nature and isolation of the habitat in the Plan Area, the new discovery of other listed species is not expected to occur during the term of the permit.

7.2 Unforeseen Circumstances

7.2.1 No Surprises Rule

The primary purpose of this HCP is to conserve the MHJB and to minimize and mitigate to the maximum extent practicable impacts to the MHJB resulting from City O&M Activities at the Facility. Accordingly, if this HCP meets the criteria for issuance of a Permit under Section 10 of the ESA, the Applicant will receive the assurances under the “No Surprises” rule of the United States Department of the Interior at 50 C.F.R. 17.22(b)(5)(1999) and 17.32(b)(5) for the MHJB covered under this HCP, upon approval of this HCP and issuance of a Permit to the City and for so long as the HCP is being properly implemented. Pursuant to such rule, in the event the Service makes a finding of Unforeseen Circumstances, the Service will not require the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water or other natural resources beyond the level agreed to in this HCP with respect to MHJB without the consent of the City.

Definition of Unforeseen Circumstances and Relevant Factors

The U.S. Department of Interior’s “No Surprises” rule provides at 50 C.F.R. 17.22(b)(5)(iii)(2003) and 17.32(b)(5)(iii)(2003) that:

- A.) In negotiating Unforeseen Circumstances, the Director will not require the commitment of additional land, water or financial compensation or additional restrictions on the use of land, water or other natural resources beyond the level otherwise agreed upon for the species covered by the conservation plan without the consent of the permittee.
- B.) If additional conservation and mitigation measures are deemed necessary to respond to Unforeseen Circumstances, the Director may require additional measures of the permittee where the conservation plan is being properly implemented, but only if such measures are limited to modifications within conserved habitat areas, if any, or to the conservation program for the affected species, and maintain the original terms of the conservation plan to the maximum extent possible. Additional conservation and mitigation measures will not involve the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources otherwise available for development or use under the original terms of the conservation plan without the consent of the permittee.

Further, any additional measures required of the City by the Service in the event of an Unforeseen Circumstances finding must maintain the original terms of this HCP to the maximum extent possible and must be limited to modifications within the conserved habitat areas and to the Subregional Plan’s operating conservation program for MHJB.

- A.) Defined – For purposes of this HCP “Unforeseen Circumstances” (defined in 50 C.F.R. Section 17.3) (2003) means changes in circumstances affecting a

species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of the MHJB. The term "Unforeseen Circumstances" as defined in this HCP is intended to have the same meaning as it is used in 50 C.F.R. § 17.3 and in California Fish and Game Code section 2805(k).

B.) Relevant Factors - Pursuant to the "No Surprises" rule at 50 C.F.R.

17.22(b)(5)(iii)(C)(2003), the Service has the burden of demonstrating that Unforeseen Circumstances exist, using the best scientific and commercial data available. The findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the MHJB. The Service will consider, but not be limited to, the following factors:

- the size of the current range of the MHJB;
- the percentage of the MHJB range adversely affected by this HCP;
- the percentage of MHJB range that has been conserved by this HCP;
- the ecological significance of that portion of the MHJB range affected by this HCP;
- the level of knowledge about the MHJB and the degree of specificity of the MHJB's conservation program under this HCP; and
- whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the MHJB in the wild.

C.) Notice - If either of the Wildlife Agencies (the Service or CDFW) or the Applicant becomes aware of the existence of a potential Unforeseen Circumstance, each shall immediately notify the other of the existence of a potential Unforeseen Circumstance. Except where there is a substantial threat of imminent, significant adverse impacts to MHJB, the Service will provide the Applicant and CDFW thirty (30) calendar days notice of a proposed written finding of Unforeseen Circumstances prior to adopting the finding, during which time the Wildlife Agencies will meet with the Applicant to discuss the proposed finding, to provide the Applicant with an opportunity to submit information to rebut or propose amendments to the proposed finding, and to consider any proposed changes to the conservation strategies for the HCP. During the time necessary to determine the nature and extent of any

additional or modified mitigation, the Applicant will avoid contributing to appreciably reducing the likelihood of the survival and recovery of the MHJB.

Effects of Unforeseen Circumstances on Take Authorization

Notwithstanding the limits on conservation and mitigation measures identified above under Section 5.0 the Permit for this HCP may be revoked if the Service determines that continuation of the covered activities would be inconsistent with the criterion set forth in 16 U.S.C. § 1539(a)(2)(B)(iv), as provided in 50 C.F.R. 17.22(b)(8) and 17.32(b)(8) (USFWS 2004), and the inconsistency has not been remedied. Nothing in this HCP shall preclude the Service and any Federal, State, local or Tribal government agency, or a private entity, from taking additional actions at their own expense to protect or conserve the MHJB. The existence of Unforeseen Circumstances does not authorize the Applicant to violate any Federal, State or local laws, ordinances, regulations or policies.

7.3 Amendments

7.3.1 Minor Amendments

The Service or the City may propose minor modifications to the HCP by providing notice to the other party. Such notice shall include a statement of the reason for the proposed modification and an analysis of its environmental effects, including its effects on operations under the HCP and on covered species. Minor amendments are permissible without amending the underlying section 10(a)(1)(B) permit provided that the Service determines that the changes do not 1) cause additional take of MHJB that was not analyzed in connection with the original HCP, 2) result in operations under the HCP that are significantly different from those analyzed in connection with the original HCP, or 3) have adverse effects on the environment that are new or significantly different from those analyzed in connection with the original HCP.

7.3.2 Major Amendments

Amendments that do not fit the definition of a minor amendment will be processed as major amendments in accordance with all applicable legal requirements, including but not limited to the Federal Endangered Species Act, the National Environmental Policy Act, and the Service's permit regulations. Major permit amendments require written notification to the Service and the same justification and supporting information for compliance with a standard incidental take permit application, including conservation planning requirements and compliance with issuance criteria.

When the Service or the Applicant believes that a formal amendment to the HCP is required, consultation with the Service will include the Service's Regional Office. The Applicant will prepare the appropriate documentation for submission to the Service. The documentation will include a description of the event or activity and an assessment of its

impacts. The amendment will describe changes to the mitigation measures to ensure that MHJB is appropriately protected.

7.4 Suspension or Revocation

The Service may suspend or revoke the Permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (See 50 C.F.R. sections 13.27-13.29, 17.22(b)(8), 17.32(b)(8)). Such suspension or revocation may apply to the entire Permit, or only to specified portions of the Permit Area or covered activities. In the event of suspension or revocation, Applicant's obligations under the HCP will continue until the Service determines that all Take of Covered Species that occurred under the Permits has been fully mitigated in accordance with the HCP.

7.5 Renewal of the Section 10(a)(1)(B) Permit

Upon expiration, the Section 10(a)(1)(B) permit may be renewed without the issuance of a new permit, provided that the permit is renewable, and that biological circumstances and other pertinent factors affecting covered species are not significantly different than those described in the original HCP. To renew the permit, the City shall submit to the Service, in writing:

- a request to renew the permit;
- reference to the original permit number;
- certification that all statements and information provided in the original HCP and permit application, together with any approved HCP amendments, are still true and correct, and inclusion of a list of changes;
- a description of any take that has occurred under the existing permit; and
- a description of any portions of the project still to be completed, if applicable, or what activities under the original permit the renewal is intended to cover.

If the Service concurs with the information provided in the request, it shall renew the permit consistent with permit renewal procedures required by Federal regulation (50 C.F.R. § 13.22). If the City files a renewal request and the request is on file with the issuing Service office at least 30 days prior to the permits expiration, the permit shall remain valid while the renewal is being processed, provided the existing permit is renewable. However, the City may not take listed species beyond the quantity authorized by the original permit. If the City fails to file a renewal request within 30 days prior to permit expiration, the permit shall become invalid upon expiration. The City and the mitigation bank operator must have complied with all annual reporting requirements to

qualify for a permit renewal. Changes to the HCP that would qualify as a formal amendment will be handled in accordance with section 6.4.2.

7.6 Permit Transfer

In the event that the landowner transfers ownership of a property covered by the HCP, the Service will regard the new owner as having the same rights and obligations with respect to the permits as the original landowner, provided the new owner agrees through the execution of a Certificate of Inclusion to be bound by the terms and conditions of the HCP as it affects the Facility property.

7.7 Other Measures

Section 10(a)(2)(A)(iv) of the ESA states that a HCP must specify other measures that the Director may require as being necessary or appropriate for purposes of the plan. When conservation plans involve multiple parties, the Service may require that an Implementing Agreement be drafted and signed by each party to the HCP. The Service has determined this document to be a “low-effect” HCP with negligible or minor effects on listed species, whereby an Implementation Agreement is not required. No other measures that the Director may require have been identified for this HCP.

8.0 ALTERNATIVES TO THE PROPOSED ACTION CONSIDERED

8.1 Alternative #1 – No Action Alternative

An alternative to this HCP is the no action alternative. Under the no action alternative, no permit would be issued. This would mean that the City O&M Activities located in MHJB Habitat at the Facility would remain subject to “take” prohibitions of the ESA, and the Applicant would need to avoid take of MHJB. Complete avoidance of impacts will not be possible for some of the Applicant’s activities at the Facility. As such, the Applicant would be required to obtain Incidental Take permits for those activities with unavoidable impacts. This process would occur on a project-by-project basis, but without a set of comprehensive conservation measures in advance. The result would be that the Applicant would only mitigate for impacts to occupied MHJB habitat. This approach has the potential to miss or to inadequately examine conservation issues and measures which may be too ill defined, unrecognized or vague to enable a clear and meaningful impact analysis or to articulate the needed mitigation measures.

8.2 Alternative #2 – Project-by-project Alternative

The other alternative considered was the project-by-project approach to permitting that still relied on the conservation measures identified in this HCP as the standard set of

measures to be used for individual permitting. Like the No Action alternative, this alternative would not address MHJB incidental take permitting at a programmatic level. Under this alternative, the Applicant's activities occurring in MHJB habitat at the Facility would remain subject to the "take" prohibitions and permitting under the ESA. Although utilizing the comprehensive conservation measures for all activities would avoid the application of haphazard conservation measures, this type of permitting for individual activities that disturb minor amounts of habitat is much too inefficient and cumbersome. This alternative would also result in an unnecessary economic burden on the Applicant.

The proposed plan addresses MHJB from a habitat basis at a programmatic level, and therefore provides more comprehensive conservation. In addition, the HCP provides the Applicant with long-term predictability concerning the nature of its operations for which incidental takings are permitted, avoiding potential facility-compromising delays.

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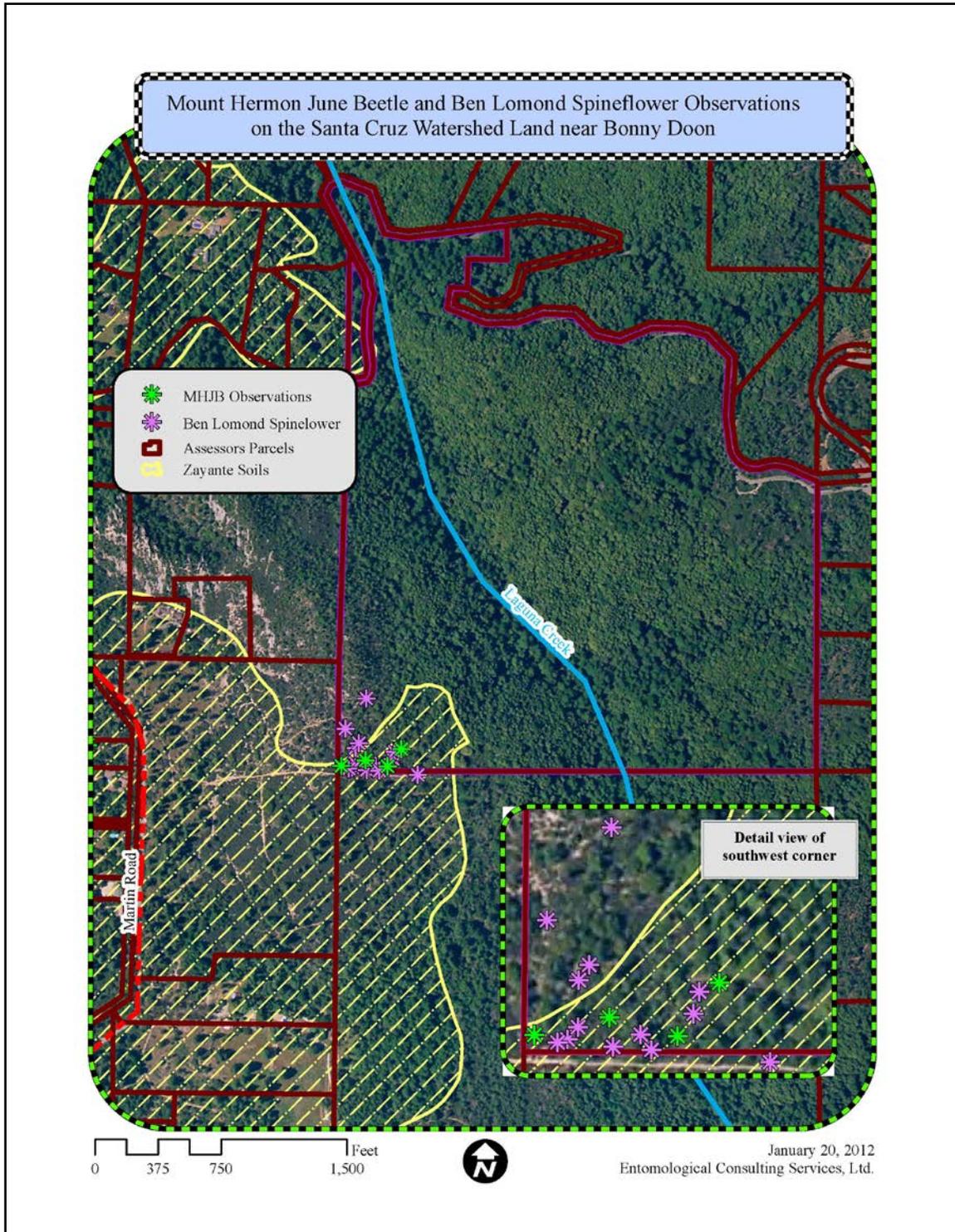
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Appendix A: MHJB and Spineflower Survey Results Map



Appendix B: Zayante Sandhills Conservation Bank Map

