RESTORATION AND MANAGEMENT PLAN

for

Friends of the Dunes

Humboldt Coastal Nature Center

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Humboldt Coastal Nature Center
FRIENDS OF THE DUNES

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Table of Contents

INTRODUCTION **1**
Project Location and Focal Area 1
Plan Updates 1
Site History 2
RESTORATION GOALS **6**
Restoration History 6
Community Outreach 7
IMPLEMENTATION PLAN **7**
Restoration Manager 8
Adaptive Management 8
TREATMENT OF INVASIVE VEGETATION **9**
Prioritization of Restoration Areas 9
Monitoring 10
European Beachgrass 12
Yellow Bush Lupine 13
Iceplant 14
Jubata Grass 15
Star Mustard 15
Annual Grasses 16
Native Landscaping on the Grounds of the Humboldt Coastal Nature Center 17
RESOURCE PROTECTION MEASURES **18**
Special Status Species Plant Populations 18
Geomorphic Processes 21
Wetlands 22
Cultural Resources 23
RESTORATION SCHEDULE **23**
PERFORMANCE REVIEW **23**
Monitoring 23
Reports 24

REFERENCES **25**

EXHIBITS
1 PROJECT LOCATION **4**
2 FOCAL AREA **5**
3 INVASIVE NON-NATIVE VEGETATION **11**

APPENDICES
I GRANT SOURCES AND FUNDER AGREEMENTS **28**
II STAMPS FAMILY TRUST PROPERTY EASEMENT LANGUAGE **29**
III ENVIRONMENTAL COMPLIANCE **30**
IV INADVERTENT ARCHAEOLOGICAL DISCOVERY PROTOCOL **31**

INTRODUCTION

This Restoration and Management Plan (plan) will continue the restoration activities at the Humboldt Coastal Nature Center Land Trust (HCNC) that began in 2008. The plan addresses threatened and endangered species habitat, and also identifies monitoring methods and schedules in relation to restoration activities.

This plan is consistent with agreements entered into by Friends of the Dunes (FOD) and various funders of the project (Appendix I). The portions of this plan occurring on the Stamps Family Trust property, where FOD has a restoration easement, must be submitted to a family representative for approval prior to implementation.

For the purpose of this plan, we suggest the following definitions taken from Hesp and Walker (2013) and Pickart and Hesp (2019). The *foredune* is the first ridge above the beach and oriented parallel to the beach. Foredunes can be incipient or established (incipient dunes are transient and both types may be present). The foredune is commonly punctuated by *blowouts* which may elongate into long-walled parabolic dunes. The zone between the beach and the deflation plain is referred to as the "*foredune-blowout-parabolic dune complex*" hereafter referred to as the "foredune complex." *Dune swales* are deflation basins that form behind parabolic dunes or large areas of mobile or "transgressive" dunes. They are seasonally flooded by a rising water table (Pickart and Sawyer 1998). We define the *backdune* as semi-stabilized dunes located east of the foredune complex. These may consist of formerly more mobile transgressive dunes that have been partially stabilized by a combination of native and exotic vegetation.

PROJECT LOCATION AND FOCAL AREA

The entirety of the plan area is located on the Samoa peninsula (North Spit) in the unincorporated town of Manila, Humboldt County, CA (See Exhibit 1). FOD acknowledges that all of the restoration work described in this plan occurs on unceded Ancestral Lands of the Wiyot People, and FOD will work in dialogue with the Blue Lake Rancheria, the Wiyot Tribe, and the Bear River of the Rohnerville Rancheria to ensure that cultural resources are protected while implementing this plan.

This plan describes control of invasive vegetation and the restoration of degraded areas on the HCNC property, which is the Focal Area (see Exhibit 2). Recent invasions of annual grasses have increased the need for restoration activities to address all habitat that is not forested or wetland—approximately 91.5 acres, plus the approximately 1.5 acres of native landscaping on and around the Humboldt Coastal Nature Center. The Restoration Goals section of this plan further defines the priority areas for implementation.

PLAN UPDATES

Minor updates and adjustments to this plan will occur under an adaptive management framework (see Adaptive Management). If there are any future, permanent conservation land acquisitions by FOD that are outside the Focal Area, or any new restoration activities not covered under the adaptive management framework of this plan, these new activities and locations will be incorporated into Restoration and Management Plan amendments.

Note that the Samoa Dunes and Wetlands Conservation Area (aka Dog Ranch) is temporarily held in conservation ownership by FOD as of the adoption date of this plan, and is not included in this plan. This is because FOD is the interim landowner of the Samoa Dunes and Wetlands Conservation Area, and is not seeking to conduct habitat restoration under a Coastal Development Permit on this new conservation property, but rather to transfer the property to its permanent conservation landowners.

Amendments made to this plan must be approved by the FOD Stewardship Committee, FOD's Board of Directors, and the Stamps Family Trust (for work on their 15-acre easement parcel), and submitted to the Humboldt County Planning Department for approval.

Every 7 years, FOD will convene a Technical Advisory Committee consisting of qualified restoration professionals, potentially to include staff of the California Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, and the Bureau of Land Management, to review progress made under this plan and to make any recommendations for potential plan updates. Friends of the Dunes will also share any significant plan revisions with the Tribal Historic Preservation Officers (THPOs) of the Blue Lake Rancheria, the Wiyot Tribe, and the Bear River of the Rohnerville Rancheria, and will incorporate mitigation measures suggested by the THPOs to protect cultural resources.

SITE HISTORY

The HCNC Land Trust is part of the larger Humboldt Bay coastal dunes system, which includes the north and south spits of Humboldt Bay and is a part of the Wiyot Tribe's ancestral territory. Past Wiyot land uses on the Samoa Peninsula included permanent winter villages along the Bay shore, camps for seasonal gathering and processing of surf fish and shellfish, and ceremonial places tied to the World Renewal dances. The Wiyot practiced horticulture as evidenced by *Boduroush,* commonly known as "Indian Potatoes", which do not normally grow so close to the *shou'r* (ocean), among other geophytes that are found at Ma-le'l where they were planted and tended more than a hundred years ago. They also regularly used fire to keep vegetation open and improve hazel sticks used in basketmaking and the harvest of hazel nuts, among other environmental and cultural benefits. Today, the Wiyot continue to tend the bulbs at the old village site and work with the Friends of the Dunes to restore the dune habitat in recognition and appreciation of their long held connections to the land and their ancestors. Wiyot Tribe ethnobotanist Adam Canter works with tribal youth to reconnect Native people with their traditional food plants, in hopes of ameliorating serious public health problems among Native Americans, such as type 2 diabetes.

Past historic uses have included a chicken ranch and a pig farm.

In 1983 the Stamps property was purchased by Charles and Rachael Stamps, who passed ownership to the Stamps Family Trust until FOD purchased the property in 2007. The Stamps Family Trust retained a 15-acre restoration easement. In 2008, three neighboring properties were also purchased. Funding from the California State Coastal Conservancy, the State of California Wildlife Conservation Board, the U. S. Fish and Wildlife Service's (USFWS) North American Wetlands Conservation Act Program, a Humboldt County Title III

Grant, and community donors funded the initial purchase. In 2014, the approximately 3.6-acre Barr parcel was purchased with funding from the CA Natural Resource Agency, bringing the total to approximately 122 acres, referred to as HCNC lands.

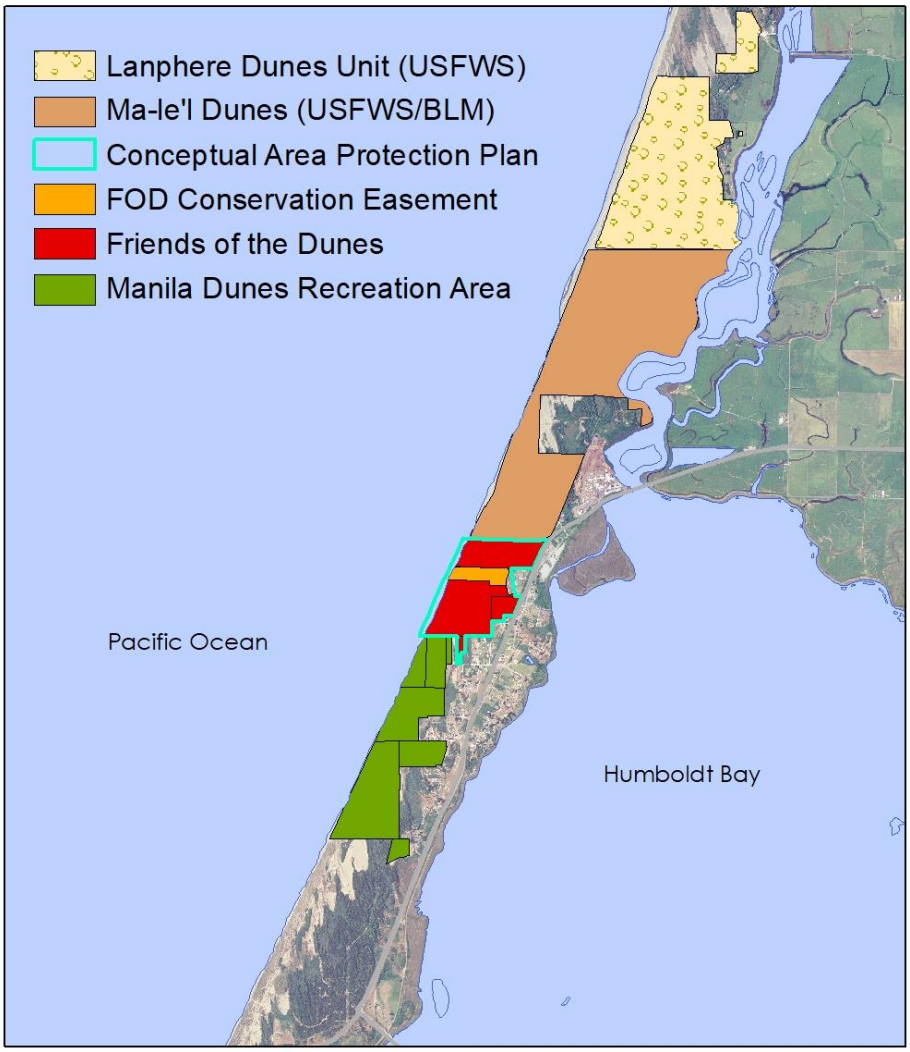
Some HCNC lands have been modified by past earthmoving activities. In the 1960s commercial water lines were constructed across the coastal side of the property, just east of the foredune complex. This right-of-way for the Humboldt Bay Municipal Water District (HBMWD or water district) allows for maintenance of their easement along the buried pipeline, and will continue to be a source of disturbance to the native vegetation and a constraint on restoration of ecological processes in that corridor. Sand mining occurred in the 1970s in the southeastern side of the property, and the disturbed settings still show soil compaction, landscape cuts, graded areas, and an old access road that was constructed during the previous management. Similarly, construction of the Stamps home resulted in the grading and modification of the main sand ridge along the eastern margin of the HCNC lands to create the building site and related parking areas.

The home built by the Stamps in 1985 is a unique bunker style structure with an arch shape that was sunk into a natural dune ridge and utilizes a natural soil roof. A layer of used tires on top of the roof provided stability for the sandy soil cover. The roof was replaced once during the time it was a home, and up to several hundred tires were discarded on the property as a result. The tires have since been removed.

Besides these land use disturbances, both the extended Stamps family and neighbors have been intermittently using these properties to gain access to the dunes and beach for recreation and in the process have created a large number of casual trails. A trails plan for the HCNC Land Trust was approved and implemented in 2010. The public access plan takes into account the information within this plan, especially concerning endangered plant populations and sensitive dune areas. In addition to physical disturbance on the property, there have been deliberate introductions of non-native invasive plant species in an effort to stabilize sand and alter natural geologic processes. Intentionally and unintentionally introduced non-native invasive plants have dispersed onto the property from adjacent areas, have spread significantly, and now dominate much of the property. As a result of this spread of invasive, non-native plants, there has been significant degradation of the native plant communities present throughout the property.

<u>EXHIBIT 1</u> Project Location

Project Location



MAP DATE: 5/2/2019
UTM Zone 10, NAD 27
BASEMAP: naip_-1_1n_s_ca023_2005_1.sid

0 0.2 0.4 0.8 1.2 1.6 Miles

EXHIBIT 2 Focal Area



RESTORATION GOALS

The restoration areas range from low to high levels of invasion by non-native invasive species including: European beachgrass (*Ammophila arenaria*), yellow bush lupine (*Lupinus arboreus*), and iceplant (C*. edulis* and C. *edulis* X C. *chilensis*), as well as a number of species of invasive annual (and two perennial) grasses including ripgut brome (*Bromus diandrus*), rattlesnake grass (*Briza maxima*), fescue grasses (*Festuca spp.)*, yellow hairgrass (*Aira praecox*), and the perennial velvet grass (*Holcus lanatus*) and vernal sweetgrass (*Anthoxanthum odoratum*). These annual and perennial grasses will be referred to collectively as "annual grasses." The previous focal area was approximately 34.5 acres in 2008, before annual grass invasion covered large portions of dunes. In addition to these invasive plants, a few small populations of star mustard (*Coincya monensis)* and one small population of blue gum trees (*Eucalyptus globulus*) were present on the property. Due to increased presence of the various grass species, restoration goals are focused on areas within the property that have high value (see <u>Prioritization of Restoration Areas</u>).

These infestations have reduced native species diversity of the area, diminished habitat for native plant and animal species and altered dune topography and processes (Pickart and Barbour 2007). The ultimate goal of this plan is restoration of the natural diversity of plants, wildlife and natural dune processes, while respecting land use of neighboring properties, community members, and the water district easement. Natural dune processes play a role in allowing natural succession of native plant species, as vegetation patterns are correlated with dune morphology and sand movement (Pickart and Sawyer 1998). Current research is exploring the impact of invasive vegetation on coastal resiliency in the face of climate change and sea level rise. Only minimal maintenance of the restored property should be needed in perpetuity once natural processes are restored, and invasive species populations are removed. Maintenance will include but is not limited to annual monitoring and removal of invasive plant populations.

Restoration of degraded dunes has been well researched at the nearby Lanphere and Ma-le'l Dunes Units of the Humboldt Bay National Wildlife Refuge (Lanphere Dunes Unit and Ma-le'l Dunes North Unit), Manila Dunes Recreation Area, and dunes managed by the Bureau of Land Management (BLM) including Ma-le'l Dunes South, the Eureka Dunes Rare Plant Protection Area, the Samoa Open Riding Area, and the South Spit of Humboldt Bay (Pickart et al. 1998a; Pickart et al. 1998b; Pickart and Sawyer 1998; USFWS 2018; Wheeler pers. comm. 2017). Most of the technical information in this restoration plan is based upon the methods and findings outlined in Pickart (2013) and Pickart and Sawyer (1998).

<u>RESTORATION HISTORY</u>

In 2008, the first phase of renovation of the Stamps' home was initiated. This involved creation of public restrooms, parking lots, offices for FOD staff, an education room and a gift shop in the Humboldt Coastal Nature Center. During construction, the tires on and near the building, as well as additional trash from previous dump sites were removed under a grant from the Integrated Waste Management Board. Future plans include a second story of offices, larger gift shop and education room with a public library. The small population of blue gum trees (*Eucalyptus globulus*) was removed from the property in 2010.

Between 2008 and 2019, over 100 acres were treated or retreated for invasive plant species removal on H CNC Lands. Almost all of the areas east of the waterline trail were treated for yellow bush lupine, while almost all areas west of the waterline trail (excluding the foredune) were treated for iceplant (Walter pers. comm. 2017). Photo-documentation shows increases in dune mat habitat after the removal of yellow bush lupine and iceplant. Iceplant is limited to sparse occurrences in areas it was previously rampant, and lupine recurs with less frequency as the long-lived seed bank is slowly diminished by restoration efforts. Restoration annual reports shared with the Humboldt County Planning Department contain a detailed restoration history.

COMMUNITY OUTREACH

FOD has utilized community volunteers for restoration activities since 1982 at dune properties on the North Spit. The Dune Ecosystem Restoration Team (DERT) is a core volunteer program that was created by FOD in 2002. DERT volunteers meet regularly on weekend dates to provide labor for on-the-ground restoration activities in coastal locations in Humboldt County, including HCNC. In addition, a Drop-in Restoration program allows dedicated individuals to become trained restoration technicians capable of removing invasive species at their convenience once they have participated in training with the Restoration Manager that includes plant identification and proper restoration techniques, and Wiyot cultural awareness and protocols for inadvertent discovery and protection of archaeological resources (Appendix IV).

IMPLEMENTATION PLAN

Restoration activities will begin on the first priority acres of the approximately 91.5 acre restoration focal area and approximately 1.5 acres of the invaded native plant landscaping area around the Humboldt Coastal Nature Center. Manual labor for invasive vegetation control will be provided by community volunteers, California Conservation Corps (CCC) crews, High Rock Conservation Camp (California Department of Forestry and Fire Protection – CAL FIRE) crews, and trained restoration technicians. A Restoration Manager will guide the overall direction of the restoration activities and provide training for the restoration technicians and other work crews. Access to the site will be from the main trailhead at 220 Stamps Lane. If vehicle access is needed, the coastal sites will be accessible from Lupin Avenue along the Humboldt Bay Municipal Water District (HBMWD or water district) water line road near the western edge of the property.

Manual removal methods will follow those outlined in Pickart and Sawyer (1998) and in studies done by the US Fish and Wildlife Service (USFWS 2013). Heavy equipment removal methods are not appropriate beyond the area adjacent to the building at 220 Stamps Lane due to the impact it would have on the topography of the dunes and the presence of federally listed endangered species. All restoration efforts will be carried out in accordance with State, Federal and local environmental regulations (Appendix III) and Protocols for Inadvertent Archaeological Discoveries consistent with State laws and best practices (Appendix IV).

FOD has completed baseline data collection of invasive and endangered plant species distributions for all lands identified in this Restoration Plan, including the most recently acquired former Barr parcel. Any new restoration activities not covered under the adaptive management framework of this plan [see Adaptive Management] or any new locations not in the Conceptual Area Protection Plan will be incorporated into Restoration Plan amendments. Implementation of restoration activities on any newly acquired FOD properties will only begin upon the completion of baseline data collection of invasive and endangered plant species distributions, and a corresponding amendment to this Restoration Plan that incorporates the newly-gathered data.

RESTORATION MANAGER

Friends of the Dunes will maintain—as part of its professional staff, or as provided by a partnering organization, or on a volunteer basis—a Restoration Manager or Acting Restoration Manager to oversee the implementation of the restoration activities prescribed and detailed in this plan. In order to meet the responsibilities and goals of this plan, the Restoration Manager's qualifications will include:

1. The ability to accomplish accurate field identification of native and non-native plant species in Humboldt Bay's coastal dune ecosystems, including the ability to identify rare, threatened, and endangered native plant species, the ability to identify wetland plant species and jurisdictional wetlands, and the ability to identify invasive plant species outlined in the Treatment of Invasive Vegetation section of this plan.
2. Familiarity with the principles of natural resource land management and ecological restoration, including the ability to implement a restoration and management plan.
3. Excellent verbal and written communication, including the ability to speak to, train, and motivate volunteer groups and work crews of various sizes and diverse backgrounds.
4. Familiarity with the Wiyot perspective of land acknowledgement, the Inadvertent Archaeological Discovery Protocol (Appendix IV), confidentiality of archaeological site locations and other sensitive information, and ability to identify potential Wiyot archaeological deposits (e.g., flaked-stone artifacts, fire-affected rock, discarded shellfish dietary remains).

ADAPTIVE MANAGEMENT

Measures will be taken to monitor the outcome of treated areas and if invasive species are not responding to treatments, alternative control methods will be considered. If native vegetation does not re-colonize the newly available habitat after the removal of invasive vegetation then planting of native species will be considered as part of the restoration strategy. Planting of native species such as shore pines in appropriate non-wetland areas to shade out invasive species may also be considered as part of an adaptive management approach, particularly in increasingly invaded back dune areas.

Colonization by rare and endangered species will also be monitored as resources allow, and if these species don't respond positively to restoration actions, assisted dispersal will

be considered to encourage expansion of current populations and possibly introduction of new populations into suitable habitat.

If site conditions change rapidly (e.g. newly discovered populations of invasive species, or rapid spread of established populations, etc.) and funding or other issues require a change in priority of restoration areas, FOD will document the rationale for changes of policy. Prioritization of invasive species will be determined using the WHIPPET method (defined in Prioritization of Restoration Areas) as plant populations change. All changes in priorities must be submitted to and approved by the FOD Stewardship Committee, the FOD Board and the Stamps Family Trust as it pertains to their property. All adaptive management policies will follow appropriate measures to protect all special status species and avoid wetlands, as outlined in this plan.

There are certain treatments that would not be conducted under the adaptive management framework established in this plan, and FOD would not pursue these treatments without an amended Restoration and Management Plan approved by the Humboldt County Planning Department. These include:

1. Use of herbicide treatments to manage non-native invasive plants. Herbicides would not be used under this plan or its adaptive management framework.
2. Use of prescribed fire treatments on standing vegetation on HCNC lands. Prescribed fire for the purposes of treating populations of standing invasive species would not be used as a treatment under this plan or its adaptive management framework. Note that flaming is a different and distinct treatment from prescribed fire and would be a permissible treatment under this plan. Note that using fire to eliminate piles of previously removed and dried non-native species is not a prescribed fire treatment applied to standing vegetation, and would be permissible under this plan.
3. Use of heavy equipment to remove standing invasive species. Heavy equipment removal methods on standing invasive species beyond the area adjacent to the building at 220 Stamps Lane would present potential impacts to the topography of the dunes and on federally listed endangered species, and would not be accomplished under this plan or its adaptive management framework. Note that potentially using a truck authorized by the water district on the waterline road to assist in transporting piles of previously removed non-native species off the property would be permissible under this plan's adaptive management framework.

TREATMENT OF INVASIVE VEGETATION

This plan includes the treatment of approximately 91.5 acres of invaded dune habitats and approximately 1.5 acres of the invaded native plant landscaping area around the Humboldt Coastal Nature Center. Willow-dominated wetlands areas and forested dunes have been excluded from the current treatment area. Following removal of the invasive species, areas will continue to be monitored for new infestations.

PRIORITIZATION OF RESTORATION AREAS

Areas prioritized for removal of invasive vegetation were placed into first and second priority categories under this plan using steps inspired by the WHIPPET method (Skurka

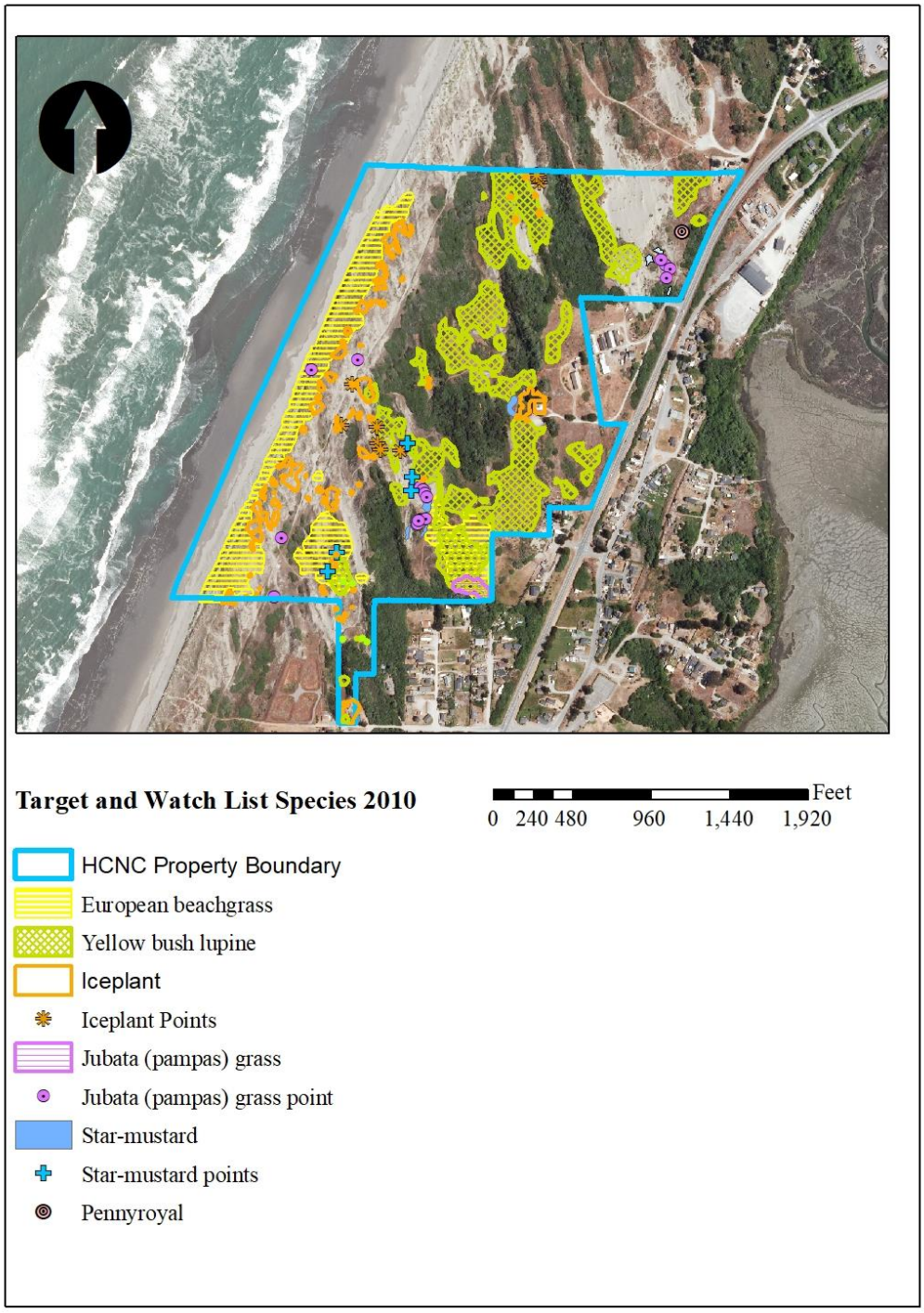
2010). Prioritization is based on the relative impact of an invasive species to the population or natural community in question, invasiveness of the species, and feasibility of eradication. Due to the long-lived seed banks of yellow bush lupine, prioritization to remove them is high to prevent continued seed release. Additionally, annual grass seeds have the ability to spread rapidly between seasons, making them highly invasive. Priority is also given to new or limited occurrences of highly invasive species following the concept of early detection and rapid response, and to areas with valuable populations of special status species including wildlife.

The first priority includes areas in close proximity to endangered species populations and areas in need of rapid response for new/limited occurrences of highly invasive species. The second priority consists of those areas in close proximity to potential endangered species habitat. One area of yellow bush lupine was not prioritized in accordance with the above protocol, as it is part of educational restoration activities near the FOD HCNC building. One area of beachgrass near the south east corner of the FOD property is also not prioritized, based on FOD's sensitivity to the community concerns of neighboring landowners. Also based on FOD's sensitivity to the community concerns of neighboring landowners, one area of iceplant on the former Barr parcel is prioritized only to prevent further spread, as described in the Iceplant section below.

MONITORING

Photo-monitoring plots have been established in former European beachgrass, iceplant, and yellow bush lupine areas, and are photographed every three years. Photo point documentation is digitally recorded using GPS with designated points. Each photo point has a unique alpha-numeric code along with a description of the photo, direction the photo was taken and the date of the photo. This documentation will be recorded through the monitoring reports. Other monitoring is described in specific species sections below, and information about monitoring reports appears in the **Performance Review** section of this plan, located at the end of the plan.

EXHIBIT 3 Invasive Non-Native Vegetation



EUROPEAN BEACHGRASS

European beachgrass (*Ammophila arenaria*) is native to Europe and was widely distributed to stabilize and establish sand dunes for property protection and erosion control (Global Invasive Species Database 2018). It is very competitive, displaces native vegetation communities, and forms dense monospecific stands very different from the sparse native coastal vegetation (Pickart 1997). It is a strong competitor partly because it can rapidly accrete sand, survive burial, resist drought conditions, and produce vigorous rhizomes (Hertling & Lubke 2000; Hilton *et al.* 2005).

Objective

Control all 6.44 acres of European beachgrass on the foredune. Note that there are no patches of European beachgrass on the former Barr parcel, and this parcel does not include foredune areas.

Performance and Success Criteria

Performance criteria for European beachgrass removal will be met if total cover is less than 35% in treated areas after one year. Success criteria will be achieved if total cover of targeted areas is less than 1% after three years of treatment.

Methods

Removal of European beachgrass will be conducted with repeated digs of both above ground stems and buried rhizomes to a depth of approximately 10 to 12 inches. Digging occurs year round, with the majority of work happening during the growing season. This begins when plants emerge from dormancy, which is usually no earlier than February, but may be as late as March, through October. The first dig is the most labor intensive. Subsequent digs will be carried out with decreasing frequencies until resprouts of beachgrass are no longer emerging. Required frequency of digs is dependent upon variations in location, crew availability, and weather.

Shovels and trowels will be used to assist in the removal of the rhizome. As the grass is dug, it will be gathered into piles. Contingent on funding, weather and resources, grass piles will be burned as soon as they are dry, as the piles can become partially buried by sand if left in place too long. Piles will be no larger than 5 x 5 feet, the optimal size for burning. All burning will be conducted in accordance with appropriate regulations, permits, weather conditions and with consideration of air quality impacts to surrounding neighbors.

Removal of beachgrass will occur in a checkerboard pattern by removing patches no larger than 200 feet long (north to south), and leaving untreated alternating patches of approximately the same size intact along the foredune as a measure to reduce erosion potential, consistent with the Humboldt County Beach and Dunes Plan (HCBDP). A strip of beachgrass 2 to 12 feet wide will be left in place on the ocean side of the restored area as another measure to reduce erosion potential consistent with the HCBDP. Once the native vegetation is showing signs of re-colonization within restored areas—anticipated within 1 to 3 years—the remaining strips will be removed, and the checkerboard patches of beachgrass will be treated in the same way. The timeline for European beachgrass removal is contingent on labor and funding sources. Revegetation by native species is expected to

occur naturally in newly restored areas, based on previous restoration on the HCNC property and on results at neighboring dune properties (Manila Dunes Recreation Area, the Lanphere Dunes Unit, Ma-le'l North Dunes Unit, BLM Ma-le'l South Dunes, and the South Spit of Humboldt Bay).

Lower than average native vegetation cover is expected the first few years following beachgrass removal. Previous work has shown that instability (sand movement) of treated areas will not be a significant or long term problem (Pickart and Sawyer 1998). However, removal of beachgrass from a continuous foredune is expected to result in an increased number of blowouts. Blowouts are a natural feature of our high energy coastline, and are the source for future long-walled parabolic dunes that migrate inland. These dunes build volume and broaden the foredune complex (McDonald 2015). Blowouts may occasionally encroach on wetland swales; however, new swales develop in areas of deflation. A recent peer-reviewed study has demonstrated that the net area of wetlands has increased over time in the deflation plain of restored dune areas at Lanphere Dunes (Pickart and Hesp 2019). The HCNC property has less dynamic sand movement overall than Lanphere Dunes; field analysis of the existing deflation plain at the HCNC property compared against historic aerial imagery appears to indicate there is no noticeable encroachment of sand into wetlands on the HCNC property (Pickart pers. comm. 2019). In the dunes of the HCNC and other areas on the Samoa Peninsula, an analysis conducted by GHD in 2014 found that there were no significant observable changes in dune forms over time, although there was an increase in vegetation such as willow tree and wax myrtle stands over time, suggesting a net increase in wetlands subsequent to the commencement of restoration activities (GHD 2014).

YELLOW BUSH LUPINE

Yellow bush lupine (*Lupinus arboreus*) is a short-lived perennial shrub native to central and southern California. It was introduced to northern California's coastal dunes and now occurs as an invasive species in dune habitat (USFWS 2017). Once yellow bush lupine becomes established, it increases nitrogen levels which then facilitate invasion of other species (Pickart *et al.* 1998). This leads to a shift in the vegetation community to a combination of lupine shrubs, weedy grasses, or adventive natives, especially coyote brush (Pickart et al. 1998).

Objective

Control remaining yellow bush lupine individuals occurring within the focal area.

Performance and Success Criteria

Performance criteria will be met if yellow bush lupine cover is less than 3% the same year it is treated. Due to its extensive seed bank, it is expected that yellow bush lupine seedlings will continue to emerge for at least ten years following initial treatment (Pickart 2004). Success will be met when yellow bush lupine cover is less than 1% in treatment areas.

Methods

Yellow bush lupine will be treated manually, with most efforts occurring in the spring prior to its release of seeds. For small plants, approximately 2-3 feet in height, the entire plant

(including the tap root) will be removed by pulling up on the plant from its base. This is the most effective method of removal with 100% fatality. Larger plants will be cut at the base below stem nodes using a hand tool. After the initial cut of the main stalk the remaining stump will be chopped to deter re-sprouting. Cut lupine will be placed in piles, in dune swales when possible. Any lupine cut within 200 feet of Lupin Avenue would be immediately removed from the property rather than left in piles. Dry piles may be burned in accordance with appropriate permits, weather conditions and with consideration of air quality impacts to surrounding neighbors. Yellow bush lupine will continue to be removed annually, in accordance with prioritized areas, until the seed bank is depleted.

Other weed species are often associated with yellow bush lupine due to a nutrient-rich duff layer that typically occurs in these areas. Removal of the duff layer is often necessary to promote natural re-vegetation of native species. Duff removal can be achieved by raking up surface litter using hand tools, placing litter on tarps and removing it from the site. Duff removal is a time consuming and costly management practice that will be implemented when funding allows.

ICEPLANT

Two species of iceplant (*Carpobrotus edulis* and *C. chilensis*) occur that readily hybridize with each other occur on HCNC lands. Iceplant can form large, low-growing mats that displace native species, and over time, increase the organic matter of the soil making it suitable for other nonnative species (Chenot 2014).

Objective

Control all iceplant sprouts and clonal mats (approximately 0.5 acres) within the focal area. Note that the method of control is removal throughout the HCNC property, with the exception of one altered treatment approach on the area of the former Barr parcel noted in methods, below.

Performance and Success Criteria

Performance and success criteria will be achieved if total cover of targeted areas is less than 3% the first year following treatment and less than 1% cover following annual maintenance treatments.

Methods

All iceplant growing in clonal mats or as sparse individuals will be removed manually, with the exception of the approximately 0.15-acre iceplant patch growing on the former Barr parcel within 100 feet of Lupin Avenue or within 100 feet of an adjacent residential property boundary, which will be managed instead to prevent the iceplant's further spread.

For the removal treatment, large mats will be "rolled" as roots are cut on the underside. Less dense areas of iceplant will be pulled up in strands. Areas of removal are picked through meticulously to limit dead plant portions left on the sand. These removal methods are close to being 100% successful after one treatment, but follow-up should take place for

small plant parts that are missed and may begin rooting and growing, and for new plants establishing from seed.

Iceplant should be placed in piles no larger than 10 x 10 feet within the infested area or in dune hollows when possible. Piles should be checked a couple times during the year following removal to pull up and remove strands that have re-growth, especially around edges of piles. Piles may be burned upon completely drying or carried off site to be composted. Treated areas will be allowed to naturally revegetate.

Due to neighborhood concerns regarding the former Barr parcel, the iceplant currently existing within 100 feet of Lupin Ave or the adjacent private residential property line will be photodocumented and GPS-documented, left in place at its current extent, and managed to prevent further spread. Any iceplant growth beyond the documented extent will be removed to protect surrounding habitat. Such iceplant removal in the proximity of 200 feet from Lupin Avenue or neighboring residential property lines would be transported immediately from the property via the Lupin Avenue access point and disposed of off-site rather than left to dry in piles.

JUBATA GRASS

Objective

Prevent new invasions of Jubata Grass (*Cortaderia jubata*) on the HCNC Lands.

Performance and Success Criteria

Performance and success criteria will be met if new Jubata Grass plants are unable to seed.

Methods

All jubata grass will be removed manually. Treatment will involve using shovels, Pulaskis and other hand tools to remove vegetation and dig up root bases. The root base will either be carried off the property or placed atop an invasive vegetation pile. The reproductive portions will be detached and placed in plastic bags, before seeds are released. As native shore pines stabilize dunes, jubata grass may be shaded out, and less numerous with time.

Monitoring

Surveys for jubata grass will be conducted in potential habitat areas. All new occurrences will be recorded using a GPS and reviewed for management.

STAR MUSTARD

Star mustard (*Coincya monensis*) is a medium sized herbaceous plant in the mustard family that is native to Europe and has invaded areas in the eastern USA. The population on and near HCNC is the only known population on the west coast. Eradication efforts commenced shortly after it was first discovered in 1997 and are ongoing in coordination with the USFWS.

Objective
Remove any detected star mustard plants.

Performance and Success Criteria
Performance criteria will be met if all star mustard plants are detected and removed prior to seed dispersal annually. Success criteria will be met when star mustard is extirpated on HCNC lands.

Methods
Thorough monthly surveys of four populations covering approximately 0.5 acres and the surrounding areas should occur year-round. Star mustard is easily pulled out of the sandy substrate by hand. Plants are immediately placed into plastic bags to be discarded off site.

Results from annual surveys conducted by USFWS show there were almost 7,000 plants on HCNC properties in 2003, and as of 2007 the population had been reduced to approximately 40 plants. Since then, occurrences have fluctuated from zero to over 500 individuals a year. Approximately 80 individuals were found in 2017.

Monitoring
New populations will be documented upon discovery. Continued surveying for new and recurring populations should occur annually until eradication has been attained, and then rechecked intermittently. FOD will continue to work cooperatively with the USFWS to remove star mustard from the north spit.

ANNUAL GRASSES
A number of nonnative grass species in addition to European beachgrass have invaded HCNC lands. These include, but are not limited to, ripgut brome (*Bromus diandrus*), rattlesnake grass (*Briza maxima*), fescue grasses (*Festuca spp.)*, yellow hairgrass (*Aira praecox*), and the perennial velvet grass (*Holcus lanatus*) and vernal sweetgrass (*Anthoxanthum odoratum*). Although the latter two of these species are perennial, we refer to them collectively as invasive annual grasses for convenience in differentiating them from European beachgrass. Throughout the North Spit of Humboldt Bay invasive annual grasses overstabilize dunes and outcompete native dune mat species (USFWS 2013). In areas where ripgut brome was removed at the Lanphere Dunes, there was a dramatic increase in native cover and species diversity, including increased numbers of the federally endangered Humboldt Bay wallflower (USFWS 2015).

Invasive annual grasses were mapped on the HCNC property in 1998 and 2009, expanding significantly in distribution during that period (USFWS 2013), and professional, third-party field observations indicate that they have continued to expand since then (Goldsmith pers. comm. 2018). Annual grasses are secondary invaders after Yellow bush lupine alters soils, and the longtime presence of yellow bush lupine on HCNC lands has likely contributed to the expansion of annual grasses. For this reason, restoration of soils through duff removal is the most effective treatment. This suite of species exist in large quantities with some areas being denser than others. Fields to the east and northeast of the property, as well as

along the Highway 255 corridor, contain extensive annual grass populations and seed sources.

Annual grasses have been studied and removed from neighboring dune properties, including a 20 year removal program at Lanphere Dunes. This has shown that through annual removal of invasive grasses before their seed drops, populations were reduced, native dune mat was restored, and populations of endangered plants increased in density (USFWS 2013, USFWS 2015). However, propagule pressure from surrounding populations on private land means that efforts must continue until source populations are controlled.

Objective
Remove annual grasses from dune mat habitat where its cover is medium to very dense, and in areas that support threatened and endangered plant species. In the suite of invasive annual grass species, priority will be given to the removal of ripgut brome (*Bromus diandrus*) and rattlesnake grass (*Briza maxima*).

Performance and Success Criteria
Performance criteria will be met if high priority areas are treated annually and coverage of invasive grasses is reduced.

Methods
Annual grasses will be removed by hand and the vegetation will immediately be placed in plastic garbage bags for disposal off site. Control methods to be considered in the future are the removal of duff (top layer of soil) from areas that have been severely degraded, grass flaming, weed whacking, and using black tarps to smother plants.

Monitoring
Close attention should be paid to new populations, especially in areas with high human activity, high habitat value, or areas that are being actively restored.

NATIVE LANDSCAPING ON GROUNDS OF THE HUMBOLDT COASTAL NATURE CENTER

Since the founding of the Humboldt Coastal Nature Center, there has been a realization that there is an opportunity to use the grounds immediately around the building as a showcase for native plants of the coastal dunes. At the same time, there has been a concurrent realization that this heavily trafficked area on the developed border of the HCNC property serves as a vector for multiple invasive plant species that will require ongoing control. For these reasons, and because these lands immediately around the Nature Center are included in the focal area, the same land ownership, and the Coastal Zone, the practices anticipated and associated with managing this area are being incorporated into the Restoration and Management Plan, even though goals and outcomes are slightly different (i.e., the native landscaping project complements the surrounding natural ecosystem and educational opportunities at the Nature Center rather than attempting a full ecological restoration of

this partially built landscape). There are no threatened or endangered plant species present in the landscaping area of the Humboldt Coastal Nature Center.

Objective
Treat heavily invaded areas of annual grasses, oxalis, and burr clover to prevent spread into adjacent habitat. Remove annual grasses by hand, with a priority focus around native planted areas and walkways where there are the greatest educational opportunities. Stabilize the roof of the Humboldt Coastal Nature Center with native plantings. For all plantings, utilize a native plant palette and native plant seedlings.

Performance and Success Criteria
Performance and success criteria will be met if landscaping areas are treated regularly, coverage of invasive grasses, oxalis, and burr clover is reduced or prevented from further spread into adjacent habitat, and native plant cover increases along walkways and continues to stabilize the roof of the Nature Center.

Methods
Annual grasses and oxalis will be removed by hand and the vegetation will be placed in plastic garbage bags for disposal off site. String trimming will be conducted in heavily invaded areas that do not have low-growing native plants to prevent the spread of highly invasive plants into adjacent habitat. Flaming will be conducted in areas around the edges of parking lots and walkways in the wet season only, to prevent the spread of these highly invasive plants into adjacent habitat. Control methods to be considered in the future are the removal of duff (top layer of soil) from areas that have been severely degraded and using black tarps to smother invasive plants in areas without native plants.

Monitoring
Close attention should be paid to new populations of invasive plants, especially in areas with high human activity, to prevent the spread to adjacent habitat. The roof of the Humboldt Coastal Nature Center should continue to be monitored closely to ensure that it retains cover.

RESOURCE PROTECTION MEASURES

SPECIAL STATUS SPECIES PLANT POPULATIONS

There are four special status plant species that can be found on the Humboldt Coastal Nature Center lands. Pink sand verbena (*Abronia umbellate var. breviflora)* is a perennial herbaceous plant that is threatened by non-native plants, vehicles, and development-related habitat loss. It is listed under the California Native Plant Society (CNPS) as a 1B.1 species. Dark-eyed gilia (*Gilia millefoliata)* is a small, annual flowering species that is threatened by vehicles, development-related habitat loss, grazing and non-native plants, and is listed as a 1B.2 species by CNPS, and a 2B by the state of California. Restoration activities will benefit these species' recovery by directly addressing two of the principal

threats to the recovery of these species: habitat loss and competition with non-native, invasive species.

As of 2019, there are two federally-listed endangered species, beach layia (*Layia carnosa)* and the Humboldt Bay wallflower (*Erysimum menziesii)* present on the HCNC property. Beach layia is an annual herbaceous species rarely growing more than two inches above the ground, while the wallflower is a monocarpic perennial herbaceous plant. Both species are threatened by loss of habitat due to development, vehicles, and invasive non-native plants. The Humboldt Bay wallflower is the most sensitive, also being threatened by deer browsing, sand mining, and foot traffic (CNPS 2017). Reproduction may also be hindered by infestation of a fungus that causes white rust disease in the Humboldt Bay wallflower population (Pickart et al. 2018). Restoration activities will benefit these species' recovery by directly addressing two of the principal threats to the recovery of these species: habitat loss and competition with non-native, invasive species.

Monitoring and mapping of Humboldt Bay wallflower was conducted by FOD in 2008, and most recently by USFWS in 2015 (Pickart et al. 2018). Beach layia was mapped by the USFWS in 1999 and again in 2017.

Objective

Increase native, special status plant species habitat through invasive plant removal, avoid unintended impacts to potential occurrences of endangered and rare plants from restoration activities, and work with partners including the USFWS to record response of endangered plants to restoration activities.

Methods

Special status plant populations will be beneficially impacted by restoration activities through the creation of suitable habitat for these species to populate. Suitable habitat will be created by removing invasive plants. Restoration activities will be accomplished with no adverse impacts to visible pink sand verbena, dark-eyed gilia, Humboldt Bay wallflower and beach layia (i.e. non-seedling, juvenile or reproductive individuals), because controlled activities in and adjacent to mapped special status plant populations will be carried out with guidance from the Restoration Manager, and under supervision of the Restoration Manager or trained restoration technicians, and by trained volunteers. Methods for avoiding impacts are outlined below. Unintended effects to small, unseen individual seedlings could potentially occur during restoration activities.

The probability of a Humboldt Bay wallflower individual surviving to reproduction is correlated with its size. The probability of any new seedling surviving to reproduction is less than 1% (Pickart 2004). Based on this information, any unintended effects to small, non-visible individual Humboldt Bay wallflower seedlings will be negligible in terms of reduced reproductive success in this population. The methods and protocols to avoid impacts to visible Humboldt Bay wallflower individuals are outlined below.

Effects to beach layia will be minimized to negligible levels by avoiding areas with dense layia populations or restricting restoration until the period following seed dispersal,

combined with proper restoration techniques when plants are not flowering or dispersing seed.

Effects to dark-eyed gilia and pink sand verbena will be minimized to negligible levels by the Restoration Manager surveying restoration work sites in advance for occurrences of these species and identifying any occurrences, avoidance of restoration in areas of occurrence when possible, and plant identification training conducted by the Restoration Manager for restoration technicians and restoration volunteers to aid in impact avoidance.

The following methods will be used to avoid and minimize disturbing the endangered, threatened, or rare plant populations identified above:

- Restoration areas will be surveyed in advance by Friends of the Dunes' Restoration Manager, and any special-status plant populations encountered will be clearly identified before the commencement of restoration work.
- Restoration technicians and work crews will be trained to identify and avoid special-status plants using photos or live plants in the field.
- Any digging in occupied areas will be overseen by the Restoration Manager or trained restoration technicians to avoid the disturbance or removal of endangered plant species.
  (a) Layia: Plants are most sensitive during the flowering period (typically March to July) when flowers could be crushed preventing seed dispersal. During this season, restoration work will avoid areas with dense layia populations, and the treatment method will be limited to hand pulling or manual digging of invasive species in these areas. Any layia populations present will be clearly identified for those conducting restoration activities.
  (b) Wallflower: Restoration activities will generally avoid areas with individual plants. When wallflowers are present in areas of active restoration, all visible plants will be marked with a pin flag by the Restoration Manager to avoid trampling. The treatment method in these areas will be limited to hand pulling or manual digging of invasive species.
  (c) Dark-eyed gilia and pink sand verbena: When dark-eyed gilia or pink sand verbena are present in areas of active restoration, they will be clearly identified by the Restoration Manager to prevent the disturbance or removal of these species. Restoration activities will generally avoid areas with individual plants. If treatment occurs in areas with dark-eyed gilia or pink sand verbena, the treatment method in these areas will be limited to hand pulling or manual digging of invasive species.
- Flaming will not be utilized in areas occupied by endangered, threatened, or rare plants.
- Piles of removed plants will be located on open sand.
- Removal of yellow bush lupine in endangered plant areas will take place outside of the beach layia flowering period. However, if mature lupine pods are present in these areas the Restoration Manager or trained restoration technician will carefully remove them.
- Any inadvertently affected wallflower individual will be documented.

The control of invasive vegetation and restoration of dune mat using the methods proposed in this plan has been highly successful in restoring endangered plant habitat at the nearby Lanphere Dunes and Ma-le'l Dunes North Units of the Humboldt Bay National Wildlife

Refuge, the Bureau of Land Management's Ma-le'l Dunes South Area of Critical Environmental Concern, the Manila Dunes Recreation Area, and the HCNC property. Removal of invasive species (particularly *Ammophila*) in beach layia habitat improves the resiliency of the local population by limiting over stabilization, and improves layia habitat (USFWS 2018). Humboldt Bay wallflower has been spreading steadily into unoccupied suitable habitats at the Lanphere Dunes Unit where invasive plants were removed (Pickart et al. 2018). Similarly, FOD staff and long-time volunteers have observed wallflower moving into recently exposed sand near regularly used trails, or within restoration areas (Fortner pers. comm. 2018).

GEOMORPHIC PROCESSES

All restoration activities are designed to improve native species habitat. Sand movement and geomorphic processes (also known as 'morphodynamics') present in restored dunes are anticipated to be consistent with uninvaded local dune systems with native vegetation. Although invasive species removal may result in temporary and localized sand movement, recent restoration work accomplished in the patchwork protocol proposed by this Restoration Plan has not affected dune erosion on the north spit (Pickart 2013). Additional research on restored dunes along the Eureka littoral cell demonstrates that foredunes built by native plants in areas where European beachgrass has been removed are broader and equivalent in height to invaded dunes (McDonald 2015). However, increases in storm surges, high wind and unpredictable weather events as a result of climate change may impact dune areas, and cause higher than expected levels of sand movement in both restored and invaded dunes.

The following methods will be used to avoid and minimize erosion during the process of restoration:

- Work crews and volunteers will be overseen by the Restoration Manager or by trained restoration technicians, with special attention to work occurring on dune slopes.
- Routes taken to off-trail restoration sites will be through stabilized or semi-stabilized dunes whenever possible.
- Revegetation will be considered in areas where sand mobilization occurs.
- Removal of European beachgrass will occur in a checkerboard pattern by removing patches no larger than 200 feet long (north to south), and leaving alternating patches of approximately the same size intact along the foredune as a measure to reduce erosion potential. Once the native vegetation is showing signs of re-colonization—anticipated within 1 to 3 years—the remaining checkerboard patches of beachgrass will be removed.
- When removing European beachgrass, a strip of beachgrass 2 to 12 feet wide will be left in place on the ocean side of the restored area as another measure to reduce erosion potential. Once the native vegetation is showing signs of re-colonization—anticipated within 1 to 3 years—the remaining strips will be removed.

- Due to neighborhood concerns regarding the former Barr parcel, the iceplant currently existing within 100 feet of Lupin Ave or the adjacent private residential property line will be photodocumented and GPS-documented, left in place at its current extent, and managed to prevent further spread. Any iceplant growth beyond the documented extent will be removed to protect surrounding habitat.

WETLANDS

Wetlands are present throughout the property, and require special considerations to protect their function, vegetation, and wildlife. Wetlands will be defined as, if under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation (State Water Resources Control Board 2018). Blowouts associated with restored, naturally-functioning dunes may occasionally encroach on wetland swales; however, new swales develop in areas of deflation. A recent peer-reviewed study has demonstrated that the area of wetlands has increased over time in restored dune habitats at Lanphere Dunes (Pickart and Hesp 2019). While the HCNC property has less dynamic sand movement overall than Lanphere Dunes, field analysis of the existing deflation plain at the HCNC property compared against historic aerial imagery appears to indicate there is no noticeable encroachment of sand into wetlands on the HCNC property (Pickart pers. comm. 2019), perhaps because of the slow pace of restoration necessitated by engaging community volunteers to conduct the restoration work and the longstanding practices of conducting restoration in a checkerboard pattern and leaving a strip of European beachgrass on the seaward side of each foredune restored area until colonization by native plants has occurred. These findings are consistent with an analysis conducted by GHD, which found that there were no significant observable changes in dune forms on the HCNC property or other areas on the Samoa Peninsula over time, although there was an increase in vegetation such as willow tree and wax myrtle stands over time, suggesting a net increase in wetlands subsequent to the commencement of restoration activities (GHD 2014).

The following methods will be used to avoid and minimize impacts to wetlands during restoration activities:

- Restoration activities will occur outside of wetlands on the HCNC property. Wetlands have been excluded from the treatment area.
- The Restoration Manager will be able to identify wetland traits and vegetation, and restoration technicians, work crews, and volunteers will be trained to identify wetland traits and vegetation to ensure avoidance of wetlands during or on the way to restoration activities.
- Work crews and volunteers will be overseen by the Restoration Manager or by restoration technicians when working adjacent to an area with wetland vegetation.
- Routes to off-trail work sites will avoid wetlands.

CULTURAL RESOURCES

Consultations with Wiyot tribal representatives and prior archaeological studies on the Samoa Peninsula reveal there are many cultural sites spanning several thousands of years of human occupation "since time immemorial." Cultural resources management will be integrated into this plan by the following:

- As funding allows, the Executive Director will coordinate with the Wiyot area THPOs to obtain the services of a qualified professional archaeologist with local experience to design a research plan and supervise a complete, systematic survey of the property included in this Restoration Plan. Work shall be performed in accordance with the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716), and guidance on formal site recordation per the California Historical Resources Information System (CHRIS) Survey coverage may be completed in blocks of land, based on priorities for restoration activities and on predictive models of archaeological sensitivity.

- The Executive Director and Restoration Manager shall be trained to recognize archaeological sites and how to implement the inadvertent discovery protocol.

- The Restoration Manager shall provide volunteers, as part of the orientation before every restoration event, a Wiyot Land Acknowledgement and the inadvertent discovery protocol.

- For archaeological sites recorded on the property, the Executive Director and Restoration Manager shall coordinate with THPOs and implement avoidance of ground disturbing restoration activities in these areas in order to protect cultural resources.

RESTORATION SCHEDULE

The timeline of completion of restoration activities is dependent upon available funding, contract requirements, FOD staffing, and the amount of volunteer labor. When adequate funding and staffing is available, supervised volunteer restoration workdays will occur on HCNC lands at least once a month and restoration staff members will supplement volunteer work.

PERFORMANCE REVIEW

MONITORING

Endangered species population monitoring was conducted in the spring of 2008 for Humboldt Bay wallflower populations by the FOD Restoration Manager. Endangered species population surveying, monitoring, and mapping was conducted by USFWS staff in the spring of 2015 for Humboldt Bay wallflower populations on the Humboldt Coastal Nature Center property, as well as on other dune conservation lands on the north spit of Humboldt Bay (Pickart et al. 2018). Beach layia was mapped and sampled in 2017 by

USFWS staff and the results are documented in the Beach Layia Species Status Assessment (USFWS 2018). Monitoring of beach layia and Humboldt Bay wallflower will occur as needed to track response to restoration activities. Results from endangered plant species monitoring will be shared with local dune managers (USFWS, BLM, Manila Community Services District) as well as the Dunes Cooperative Management Group.

REPORTS

A report describing the results of any monitoring activities, a description of restoration areas, volunteer hours, funding sources, and adaptive management needs will be completed by FOD and submitted to the FOD Board, the Humboldt County Planning Department, and the Wiyot area THPOs annually.

As part of this plan's reporting schedule, a photo-documentation report will be submitted to the FOD Board and Humboldt County Planning Department every three years, and to the Wiyot area THPOs upon request.

Every 7 years, FOD will convene a Technical Advisory Committee consisting of qualified restoration professionals, potentially to include staff of the California Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, the Bureau of Land Management, and Wiyot Tribal representatives (from Wiyot, Bear River and/or Blue Lake) to review progress made under this plan and to make any recommendations for potential plan updates. A summary of the Technical Advisory Committee's findings will be included in the monitoring report for the year the committee was convened.

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APPENDIX I

GRANT SOURCES AND FUNDER AGREEMENTS

California Wildlife Conservation Board Grant Agreement for Acquisition of Fee Interest
Grant Agreement Number: WC-6090WG
… the Property shall be held and used for the purposes of wildlife habitat preservation, restoration and management, wildlife-oriented education and research, and for compatible public or private uses, all as may be consistent with wildlife habitat preservation and protection of sensitive biological resources (individually and collectively, the "Purposes of Grant").

California State Coastal Conservancy Grant Agreement No. 06-029
The real property was acquired by the grantee (FOD) pursuant to a grant of funds from the State Coastal Conservancy, an agency of the State of California, for the purpose of public access and outdoor recreation, open space and habitat conservation, and development of a coastal dunes interpretive and visitor center.

Natural Resources Conservation Service – Wildlife Habitat Incentive Program
This plan addressed 5 acres total, split between two (2) treatment units equaling 2.5 acres each.

US Fish & Wildlife Service – Coastal Program
USFWS provided $25,000 in funds primarily from the Coastal Program at Humboldt Bay with approximately $5,000 of the funding provided by the Endangered Species Program. Funds were provided to support the development of a restoration and management plan for the acquired properties and to begin control of invasive species as specified within the Cooperative Agreement. USFWS funds were used in 2008-2009 to control 3.5 acres of invasive species. USFWS is providing an additional $23,000 in funds for Community-Supported Native Plant and Pollinator Habitat Restoration, awarded in 2021 for a three-year period.

State Coastal Conservancy: NFWF – Humboldt Bay Dunes Restoration Project
This grant funded restoration on the FOD Humboldt Coastal Nature Center and adjacent dune preserve properties from 2015 to 2017. Work crews and volunteers utilized manual methods (shovels and hand removal) to remove invasive plants.

APPENDIX II

STAMPS PROPERTY EASEMENT LANGUAGE

Restoration Easement:

"An exclusive easement for ingress and egress to allow grantee (FOD), its successors and assigns, to enter hereinafter described portion of Grantor's remaining land, for the purpose of restoration of coastal dune and forest habitat and removal of non-native plants to enhance natural diversity.

The holder of said easement shall provide a minimum of one week prior written notice to the owner of record of the subject parcel of its intent to enter for restoration activities.

Permitted restoration activities shall be limited to those designated in a Restoration Plan Agreement to be prepared by Grantee and approved by grantor, which agreement shall be recorded and shall be binding on successors and assigns of grantor and grantee."

APPENDIX III

ENVIRONMENTAL COMPLIANCE

Special permits, authorizations, and notifications anticipated to be required for site restoration activities include the following:

- *USFWS Intra-Service Informal Consultation*: The USFWS wrote an Informal Intra-Service Consultation for the project as per Section 7 of the Endangered Species Act. The document was completed in June 2008.

- *Coastal Development Permit, Humboldt County*: A CDP permit application was approved in 2007 for restoration of approximately 30.5 acres and establishing existing trails on 38 acres purchased by FOD and 15 acres with a restoration easement owned by the Stamps Family Trust. An amendment to this application was made in October of 2008 to include an additional 34.7 acres to be restored and trail work on adjacent property purchased by FOD in September of 2008.

- *Burn Permit*: A non-standard burn permit to be submitted to the Arcata Fire Protection District will need yearly renewal. An additional permit must be acquired from the California Department of Fire to be attached to the non-standard burn permit on an annual basis. The North Coast Unified Air Quality Management District must be phoned to determine if it is a burn day for Zone 1 prior to burning and the Arcata Fire Department must be notified prior to burning on a daily basis.

- *Humboldt County Planning Department*: The Humboldt County Beach and Dunes Management Plan, passed by Humboldt County in 1994, prohibits 4-wheel drive vehicles from the dunes and wave slope. If a vehicle is necessary for restoration activities a permit must be obtained from the Humboldt County Planning Department.

- Coordination with the Tribal Historic Preservation Officers (THPOs) of the Wiyot area Tribes, including the Wiyot Tribe, the Bear River Band of the Rohnerville Rancheria, and the Blue Lake Rancheria, regarding *Inadvertent Archaeological Discovery Protocol for Friends of the Dunes Ground Disturbing Projects in the Samoa Peninsula Dunes* (see Appendix IV), restoration plan updates, training, etc.

APPENDIX IV

INADVERTENT ARCHAEOLOGICAL DISCOVERY PROTOCOL

FOR FRIENDS OF THE DUNES GROUND DISTURBING PROJECTS

IN THE SAMOA PENINSULA DUNES

Drafted by
Janet P. Eidsness, M.A.
Blue Lake Rancheria Tribal Historic Preservation Officer
September 3, 2021

Background

Humboldt Bay is the ancestral heartland of the Wiyot Indians, whose native language is affiliated with the Algonquian language family. The Wiyots had occupied the area from Little River on the north to Bear River Ridge on the south, for at least 2000 years by the time the first recorded European maritime explorers entered the Bay in 1806 and the first American towns were established in 1850. There are hundreds of known and undiscovered archaeological sites around Humboldt Bay that evidence Wiyot history and prehistory. Today, citizens of Wiyot ancestry are affiliated with three federally-recognized tribes located in the ancestral homeland: the Wiyot Tribe; the Bear River Band of the Rohnerville Rancheria; and the Blue Lake Rancheria.

Applicable Laws

A number of State and Federal historic preservation laws, regulations and policies address the need to manage potentially significant and/or sensitive (e.g., human remains) archaeological and Native American resources identified during advance project or permit review or discovered inadvertently.

- California Environmental Quality Act (CEQA) and Assembly Bill (AB) 52– Requires analysis by the Lead Agency under CEQA, to determine if a proposed project will cause a significant impact to "historical resources" including archaeological and Native American sites. Project approval may be conditional, for example, avoidance or mitigation (data recovery) of known archaeological resources, monitoring of ground disturbing activities in identified sensitive areas by local Tribal Representatives and/or professional archaeologists, and implementation of protocols for inadvertent archaeological discoveries. Passage of AB 52 in 2014 requires notification to Tribe(s) of projects in their area of traditional and cultural affiliation to identify and protect Tribal Cultural Resources.

- Section 106 of the National Historic Preservation Act (NHPA) – Requires analysis by the Lead Federal Agency and consultation with the California State Historic Preservation Officer (SHPO), Advisory Council on Historic Preservation (ACHP), culturally affiliated Native American Tribes, and others, as appropriate, to "resolve adverse effects" on "historic properties" including archaeological and Native American sites. Section 106 is

the key Federal historic preservation law, and final approval of the undertaking may be conditional as specified in a legally binding Agreement among the parties.

Several laws and their implementing regulations spell out evaluation criteria to determine what constitutes a significant 'site' or a significant 'discovery':

- California Register of Historical Resources criteria (California Code of Regulations, Title 14, Chapter 3, Section 15064.5), for archaeological and Native American resources qualifying for consideration under CEQA;

- Tribal Cultural Resources are: (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe that are listed, or determined to be eligible for listing, in the national or state register of historical resources, or listed in a local register of historic resources; or (2) resources that the lead agency determines, in its discretion, are tribal cultural resources (Section 21074 of the Public Resources Code); and

- National Register of Historic Places criteria (36 CFR 63), qualifying for consideration under Section 106 review and NEPA;

State laws call for specific procedures and timelines to be followed in cases when human remains are discovered on private or non-Federal public land in California. It includes penalties (felony) for violating the rules for reporting discoveries, or for possessing or receiving Native American remains or grave goods:

- requirements for handling inadvertent discoveries of human remains, including those determined to be Native American with or without associated grave goods, found on private or non-Federal public lands (per Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code (PRC).

- penalties for illegally possessing or obtaining Native American remains or associated grave goods (PRC 5097.99 as amended by SB 447).

Another California law imposes strong civil penalties for maliciously digging, destroying or defacing a California Indian cultural or sacred site:

- *California Native American Historic Resource Protection Act of 2002* (SB 1816, adding Chapter 1.76 to Division 5 of the PRC), imposes civil penalties including imprisonment and fines up to $50,000 per violation, for persons who unlawfully and maliciously excavate upon, remove, destroy, injure, or deface a Native American historic, cultural, or sacred site that is listed or may be listed in the California Register of Historic Resources.

Standard Mitigation Language

The following language may be employed by the Friends of the Dunes (FOD) when cultural resources screening (e.g., comment by Wiyot area Tribal Historic Preservation Officers (THPOs), formal record searches, current cultural resources studies) indicates a particular project, permit, leasehold or franchise area under its jurisdiction does not have known archaeological sites, however, unknown buried artifacts and archaeological deposits may exist and be impacted by the proposed action.

CR-1 Should an archaeological resource be inadvertently discovered during ground-disturbing activities, the THPO appointed by the Blue Lake Rancheria, Bear River Band of Rohnerville Rancheria and the Wiyot Tribe shall be immediately notified and a qualified archaeologist with local experience retained to consult with the FOD, the three THPOs, the Permittee and other applicable regulatory agencies to employ best practices for assessing the significance of the find, developing and implementing a mitigation plan if avoidance is not feasible, and reporting in accordance with these Standard Operating Procedures (SOP) below.

CR-2 Should human remains be inadvertently discovered during ground-disturbing activities, work at the discovery locale shall be halted immediately, the FOD Executive Director and County Coroner contacted, and the FOD's SOP shall be followed, consistent with state law.

Standard Operating Procedures

The following standard operating procedures for addressing inadvertent archaeological discoveries shall apply to all phases and aspects of work carried out under the authority of the FOD that involve ground-disturbing activities within its jurisdiction. In all cases, these SOPs shall apply to employees, officers and agents, including volunteers and contractors whose activities may potentially expose and impact significant or sensitive resources.

The intent is to avoid or minimize direct or indirect impacts to significant archaeological or Native American discoveries that may qualify for inclusion in the California Register of Historical Resources and/or the National Register of Historic Places, or as a Tribal Cultural Resource.

These Protocols are intended to serve as standard guidelines for compliance with CEQA and NHPA Section 106 requirements for handling inadvertent archaeological discoveries.

Responsibility for Retaining Services of As-Needed Professional Archaeologist

If an inadvertent discovery of archeological resources, human remains and/or grave goods occurs, the FOD shall be responsible for retaining as-needed services of a qualified Archaeologist, meaning the individual meets the Secretary of the Interior's Professional Standards for an Archaeological Principal Investigator and/or is listed as Registered Professional Archaeologist (see website at www.rpanet.org). The professional will provide as-needed services to conduct rapid assessments of potentially significant archaeological finds discovered on FOD property and, in coordination with FOD and Wiyot area THPOs, may be asked to provide compile standard site record forms (DPR 523 series) to be filed at the Northwest

Information Center (NWIC) of the California Archaeological Resources Information System (CHRIS).

Designated Points of Contact (POC) for Notification of Discoveries

The FOD and other applicable permitting local, state or federal agencies shall each designate a representative who shall act as its official Point of Contact (POC) and who shall be notified immediately upon the inadvertent discovery of an archaeological find or the inadvertent discovery of human remains and /or grave goods during Project implementation.

The federally-recognized Blue Lake Rancheria, Bear River Band of the Rohnerville Rancheria and Wiyot Tribe each has citizens that recognize Wiyot ancestry. Each Tribe's appointed THPO is designated as the POC (below) and shall be immediately notified by the FOD POC should an archaeological site (with or without human remains) be inadvertently discovered.

Designated Tribal and FOD Points-of-Contact (updated 9/3/21)

Tribe	Address	Telephone	Cultural Staff
Blue Lake Rancheria	428 Chartin Road P.O. Box 428 Blue Lake, CA 95525	(707) 668-5101 x1037 Janet cell (530) 623-0663 Jacob cell (707) 498-4453	Janet Eidsness, THPO Jacob Pounds, Asst. THPO
Bear River Band of the Rohnerville Rancheria	266 Keisner Road Loleta, CA 95551	(707) 733-1900 x233 Fax (707) 733-1972 Cell (707) 502-5233	Edwin Smith, Acting THPO
Wiyot Tribe	1000 Wiyot Drive Loleta, CA 95551	(707) 733-5055 Fax (707) 733-5601 Cell (707) 499-3943	Ted Hernandez, THPO
Friends of the Dunes Coastal Nature Center 220 Stamps Lane Manila (Arcata)	P.O. Box 186 Arcata, CA 95518	Office (707) 444-1397 Fax (707) 444-0447 Cell (707) 382-0525 ,	Mike Cipra, Exec. Director

Interested Tribal Representatives shall be invited to inspect a discovery site and meet with the FOD and other applicable delegated POCs and Consulting Professional Archaeologist, as appropriate, to make a rapid assessment of the potential significance of a find and participate in the development and implementation of a Treatment Plan, as appropriate.

Note: In the event that Native American skeletal remains are discovered, State law specifies that the "Most Likely Descendent (MLD)" appointed by the NAHC has the authority to make

recommendations for the final treatment and disposition of said remains and associated grave goods – see below.

A. SOP for Inadvertent Archaeological Discovery (General)

1. Ground-disturbing activities shall be immediately stopped if potentially significant historic or archaeological materials are discovered. Examples include, but are not limited to, concentrations of historic artifacts (e.g., bottles, ceramics) or prehistoric artifacts (chipped chert or obsidian, arrow points, groundstone mortars and pestles), culturally altered ash-stained midden soils associated with pre-contact Native American habitation sites, concentrations of fire-altered rock and/or burned or charred organic materials, and historic structure remains such as stone-lined building foundations, wells or privy pits. Ground-disturbing project activities may continue in other areas that are outside the discovery locale.

2. An "exclusion zone" where unauthorized equipment and personnel are not permitted shall be established (e.g., taped off) around the discovery area plus a reasonable buffer zone by the Restoration Manageror authorized representative, or party who made the discovery and initiated these SOP.

3. The discovery locale shall be secured (e.g., 24-hour surveillance) as directed by the FOD if, in consultation with the Wiyot area THPOs, it is considered prudent to avoid further disturbances.

4. The party who made the discovery and initiated these SOP, shall be responsible for immediately contacting by telephone the parties listed below to report the find:
   (a) the FOD authorized POC and
   (b) other applicable POC, while remembering that only those "with a need to know" should be informed per confidentiality rules.

5. Upon learning about a discovery, the FOD POC shall be responsible for immediately contacting by telephone the POCs listed below to initiate the consultation process for its treatment and disposition:
   (a) THPOs with Blue Lake Rancheria, Bear River Band and Wiyot Tribe; and
   Other applicable agencies if involved in Project permitting (e.g., Humboldt County Planning Department, Coastal Commission, California Department of Fish & Wildlife, etc.).

6. Ground-disturbing project work at the find locality shall be suspended temporarily while FOD, the three THPOs, consulting archaeologist and other applicable parties consult about appropriate treatment and disposition of the find. Ideally, the discovery locale will be avoided and left in place. If not feasible due to project demands, a Treatment Plan will be developed within three working days of discovery notification. Where the project can be modified to avoid disturbing the find (e.g., through project

redesign), this may be the preferred option. Should Native American remains be encountered, the provisions of State laws shall apply (see below). The Treatment Plan shall reference appropriate laws and include provisions for analyses, reporting, and final disposition of data recovery documentation and any collected artifacts or other archaeological constituents. Ideally, the field phase of the Treatment Plan may be accomplished within five (5) days after its approval, however, circumstances may require longer periods for data recovery.

7. The FOD employees, officers and agents, including contractors, permittees and volunteers shall be obligated to protect significant cultural resource discoveries and may be subject to prosecution if applicable State or Federal laws are violated. In no event shall unauthorized persons collect artifacts.

8. Any and all inadvertent discoveries shall be considered strictly confidential, with information about their location and nature being disclosed only to those with a need to know. The FOD authorized representative shall be responsible for coordinating with any requests by or contacts to the media about a discovery.

9. These SOPs shall be communicated to the field work force (including volunteers, contractors, employees, officers and agents), and such communications may be made and documented at weekly tailgate safety briefings.

10. Ground-disturbing work at a discovery locale may not be resumed until authorized in writing by the FOD upon recommendation of the Wiyot area THPOs.

11. In cases where a known or suspected Native American burial or human remains are uncovered:
    (a) The following contacts shall be notified immediately: Humboldt County Coroner (707-445-7242) and the property owner of the discovery site, and
    (b) The SOP for Inadvertent Discovery of Native American Remains and Grave Goods (B below) shall be followed.

B. SOP for Inadvertent Discovery of Native American Remains and Grave Goods

In the event that known or suspected Native American remains are encountered, the above procedures of SOP paragraph A for Inadvertent Archaeological Discovery (General) shall be followed, as well as:

1. If human remains are encountered, they shall be treated with dignity and respect. Discovery of Native American remains is a very sensitive issue and serious concern of affiliated Native Americans. Information about such a discovery shall be held in confidence by all project personnel on a need-to-know basis. The rights of Native Americans to practice ceremonial observances on sites, in labs and around artifacts shall be upheld.

2. Violators of Section 7050.5 of the California Health and Safety Code may be subject to prosecution to the full extent of applicable law (felony offense).

In addition, the provisions of California law (Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code) will be followed:

1. The Coroner has two working days to examine the remains after being notified of the discovery. If the remains are Native American, the Coroner has 24 hours to notify the Native American Heritage Commission (NAHC) in Sacramento at (916) 653-4082.

2. The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) of the deceased Native American. (Note: NAHC policy holds that the Native American Monitor will not be designated the MLD.)

3. Within 48 hours of their notification by the NAHC, the MLD will be granted permission by the property owner of the discovery locale to inspect the discovery site if they so choose.

4. Within 48 hours of their notification by the NAHC, the MLD may recommend to the owner of the property (discovery site) the means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The recommendation may include the scientific removal and non-destructive or destructive analysis of human remains and items associated with Native American burials. Only those osteological analyses (if any) recommended by the MLD may be considered and carried out.

5. Whenever the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the property owner rejects the recommendation of the MLD and mediation between the parties by NAHC fails to provide measures acceptable to the property owner, he/she shall cause the re-burial of the human remains and associated grave offerings with appropriate dignity on the property in a location not subject to further subsurface disturbance.

C. SOP for Documenting Inadvertent Archaeological Discoveries

1. The party who made the discovery and initiated these SOP, or other person delegated by the FOD Executive Director, shall make written notes available to the FOD describing: the circumstances, date, time, location and nature of the discovery; date and time each POC was informed about the discovery; and when and how security measures were implemented.

2. The FOD shall prepare or authorize the preparation of a summary report which shall include: the time and nature of the discovery; who and when parties were notified; outcome of consultations with appropriate agencies and Native American representatives; how, when and by whom the approved Treatment Plan was carried out; and final disposition of any collected archaeological specimens.

3. If applicable, the authorized representative shall record how the discovery downtime affected the immediate and near-term contracted work schedule, for purposes of negotiating contract changes where applicable.

4. If applicable, Monitoring Archaeologists and Tribal Representatives shall maintain daily fieldnotes, and upon completion, submit a written report to the FOD and the three Wiyot area THPOs.

5. Treatment Plans and corresponding Data Recovery Reports shall be authored by professionals who meet the Federal criteria for Principal Investigator Archaeologist and reference the *Secretary of the Interior's Standards and Guidelines for Archaeological Documentation* (48 FR 44734-44737).

6. Final disposition of all collected archaeological materials shall be documented in the final Data Recovery Report and its disposition decided in consultation with Tribal representatives. The general policy shall be to NOT collect any artifacts, but to leave objects in place and perhaps cover them with sand.

7. Final Data Recovery Reports along with updated confidential, standard California site record forms (DPR 523 series) shall be filed at the NWIC and the FOD, with report copies provided to the three Wiyot area THPOs.

8. Confidential information concerning the discovery location, treatment and final disposition of Native American remains shall be prepared by the THPOs and forwarded to the Sacred Sites Inventory maintained by the NAHC.