# ENVIRONMENTAL ASSESSMENT

Conveyance of 38.77 ± Acres of Fee Property to Federal Trust,
Resighini Rancheria Tribal Council, Klamath,
Del Norte County, California

June 2010

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Conveyance of 38.77± Acres of Fee Property to Federal Trust

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# 1.0 SUMMARY

## 1.1 Introduction

This Environmental Assessment (EA) has been prepared by the Resighini Rancheria (formerly the Coast Indian Community of Yurok Indians of the Resighini Rancheria) located at 158 Klamath Beach Road, Klamath, California. The Resighini Rancheria (hereafter "Tribe" or "Rancheria") is acting as the Applicant Agency for this proposed action. This EA documents the potential environmental effects of the proposed conveyance of 38.77± acres of fee land into Federal trust status for the Resighini Rancheria. Proposed uses of the property include the construction of 20 single family units, a tribal cemetery and associated infrastructure.

This Environmental Assessment (EA) has been prepared to comply with the National Environmental Policy Act (NEPA) (40 CFR § 1500-1508), 43 CFR Part 46 Implementation of the National Environmental Policy Act (NEPA) of 1969; Final Rule (FR Vol. 73, No. 200 / Wednesday, October 15, 2008) and the Bureau of Indian Affairs (BIA) NEPA Handbook, 59 IAM. This EA documents the environmental review of the proposed conveyance of 38.77± acres of fee land into Federal trust status for the Resighini Rancheria. The BIA is the principal federal agency with jurisdiction over Indian land conveyances and other trust matters. The BIA as Lead Agency will use this EA to determine if the approval of the conveyance of the 38.77± acres of property from fee to trust land would result in significant effects to the human environment. The purpose of this Environmental Assessment (EA) is to satisfy the environmental review process of NEPA as set forth under the Bureau of Indian Affairs Manual 59 IAM as well as to document the need for the Tribe to acquire new land. It provides a detailed description of the Proposed Action and an analysis of the potential consequences associated with development of the proposed project. This document also includes a discussion and analysis of project alternatives, impact avoidance, Best Management Practices (BMP's) and mitigation measures. These mitigation measures are incorporated into the Proposed Action section.

This EA documents the potential environmental effects of the proposed conveyance of 38.77± acres of fee land into Federal trust status for the Tribe. By converting the subject parcels of fee land to Federal trust status, it effectively removes the land from property tax rolls, exempts it from local zoning jurisdiction and other State or local regulations. The federal trust status process is designed to help Tribes recoup some of the land they lost in the late 19th and early 20th centuries, when the government's allotment policy cost tribes two-thirds of their land.

To obtain trust status, a federally recognized Indian tribe or community must petition the U.S. Secretary of the Interior to accept land owned by the tribe into trust. Once the subject property is accepted, it acquires "quasi-sovereign nation" status, and local/regional jurisdictions no longer have land use or other types of police power authority over it. The legal process of petitioning the U.S. Secretary of the Interior is found in 25 C.F.R. Part 151. Once accepted in "Trust", the property will be considered "Indian Country". Indian Country means: 1) land within the limits of an Indian Reservation; or 2) land that is either held in trust by the United States for the benefit of the tribe or individual or held by a tribe or individual subject to restriction by the United States against alienation and over which the Tribe exercises governmental power. In this case, the property will be held in trust by the United States for the benefit of the Tribe.

The Rancheria is a federally recognized Indian Tribe organized under the authority of the Indian Reorganization Act (IRA) of 1934. In 1975, members of the Tribe adopted a Constitution and

have been actively involved in developing its Tribal government and protecting its land base. The people of the Tribe are ethnographically known as among those identified as Yurok.

The Tribe is organized pursuant to an IRA Constitution and is governed by a General Council made up of all adult members of the Tribe and the general business of the Tribal Government is conducted by an elected five-member Business Council including a President (a.k.a. Chairman), Vice-President (a.k.a. Vice-Chairman), Secretary, Treasurer, and a Council member, all with two year terms of office. Each member of the Business Council has equal voting rights.

The Tribe has a current membership of 120, with 22 members and 4 non-members living on the Reservation. The majority of the members of the Tribe live in close proximity to the Rancheria and some have expressed a strong interest in returning to the Rancheria with the recent addition of 38.77± acres of land slated for residential development which is located outside of the flood plain.

## 1.2 Project Description

The Tribe's Rancheria consists of 228 acres in trust lands and 207 acres in Fee lands for a total of 435 acres. Currently all lands within the Rancheria are also located within the larger Yurok Indian Reservation boundaries which include large landowners such as Green Diamond Timber Company. The Resighini Rancheria is the only Indian Rancheria in the State of California that is situated within the exterior boundaries of a Reservation granted to a separate federally recognized Indian Tribe (Yurok Tribe of California).

Proposed is the conveyance of 38.77± acres of property from "fee" to "Federal trust" status for the Tribe. The property is currently owned in fee simple status by the Tribe. The 38.77± acres of property are located contiguous to the Resighini Rancheria, lands already held in federal trust by the BIA for the Tribe. The Resighini Rancheria Tribal Council has planned future uses for the subject property which includes the development of up to 20 single-family housing units, a Tribal cemetery and associated infrastructure on one-acre parcels creating a one-housing unit to a ratio of density of 1.84 acre, with the balance of the property to be used for open space.

The Rancheria currently includes five wood frame single-family residential units and three trailer house units for a total of eight single-family households. Most of the Rancheria is located within the 100-year floodplain and thus the need for construction of new housing. Other structures on the Rancheria consist of a former casino building, Tribal offices, and two multi-purpose buildings that include offices, educational facilities, and a conference room that functions as a multi-purpose area used for meetings and for general use for gatherings of the Tribe for special events. There is also a large barn structure located east of the entrance to the Rancheria on the south side of Klamath Beach Road and a water pump shed structure. Also located within the Rancheria is a campground with camp host open for public use with 50 camping spaces.

## 1.3 Location and Environmental Setting

*Project Location*

The Resighini Rancheria is located in Del Norte County, California to the east of U.S. Highway 101 northbound off of the Klamath Beach Road off-ramp (Exit number 768) and can also be accessed off of U.S. Highway 101 southbound via Klamath Beach Road off-ramp. The boundaries of the Rancheria border U.S. Highway 101 and the Klamath River overpass and bridge to the west, the Klamath River to the north and east and forested land owned by the

Green Diamond Resource Company and other privately owned lands to the south. The Rancheria is located in the southwestern quarter of Section 14, Township 13N, Range 1E, Humboldt Baseline and Meridian, and is shown on the USGS Topographic Quadrangle Map, Requa, California 1997. Please refer to **Figure 1-1** for the regional location of the Rancheria. The Rancheria is located approximately 1 mile south of the town of Klamath, which is located on the north side of the Klamath River Bridge along U.S. Highway 101 and approximately 26 miles south of Crescent City, California, the County Seat of Del Norte County. **Figure 1-2** is the project vicinity map with key geographic features.

The Rancheria and the proposed action are located approximately 4 miles east of the mouth of the Klamath River on the south bank of the river adjacent to the east of U.S. Highway 101 and the overpass leading to the Klamath River Bridge. In the vicinity of the project, the Klamath River meanders from the north bank to the south bank creating small islands toward the mouth of the river that fluctuate in size and shape over time. Along the Klamath River from the project area west to the mouth of the Klamath River there are several stream confluences including Waukell and Junior Creeks that traverse the Rancheria.

The north-coastal zone of California has a temperate climate characterized by mild winters and cool summers with heavy rain falling from late fall to early spring. Other than the potential for seasonal flooding along the Klamath River, this area offers weather conditions that are suitable for year-round human habitation.

The local natural environment includes trees such as Coast Redwood, Sitka Spruce, Western Hemlock, and Douglas fir. Understory vegetation includes Tanoak, California Hazel, Vine Maple, Big Leaf Maple, and Cascara. Berries and edible fruits include salmonberry, evergreen huckleberry, red huckleberry, and thimbleberry. Mammals include Roosevelt elk, black bear, black-tailed deer, raccoon, and brush rabbit. Vegetation located along streamsides and creeks include Big Leaf Maple, Red Alder, and Vine Maple.

Fish species include king salmon, silver (coho) salmon, cutthroat trout, and rainbow trout. Historically, members of the Resighini and the Yurok Tribe have utilized several ancient trails that connect the inland villages to the ocean environment in the vicinity of the mouth of the Klamath River. In this region, mammal species include gray whales, river otters, seals, sea lions, Roosevelt elk, and mountain lion. Aquatic plants found generally in marshes and lagoons include bulrush, cattail, and yellow pond-lily.

## 1.4 Purpose and Need for the Proposed Action

The purpose of this action is to continue to expand the Tribe's land base to satisfy Tribal needs in the areas of Tribal self-determination, housing, economic self-sufficiency and alleviation of poverty. Most if not all of the trust lands of the Resighini Rancheria are within the 100-year floodplain creating a situation where investment in housing, economic development and basic community facilities is a hardship as most funding agencies are reticent to providing funding opportunities for facilities located within a 100-year floodplain.

In addition, the U.S. Army Corps of Engineers constructed a series of dikes after the 1964 flood east of the Rancheria to protect non-Indian property resources. As a result of the dike construction, the configuration of the Klamath River changed creating an artificial overflow that bisects Resighini Rancheria lands rendering those trust lands unsuitable for housing.

Figure 1-1 Regional Location Resighini Rancheria

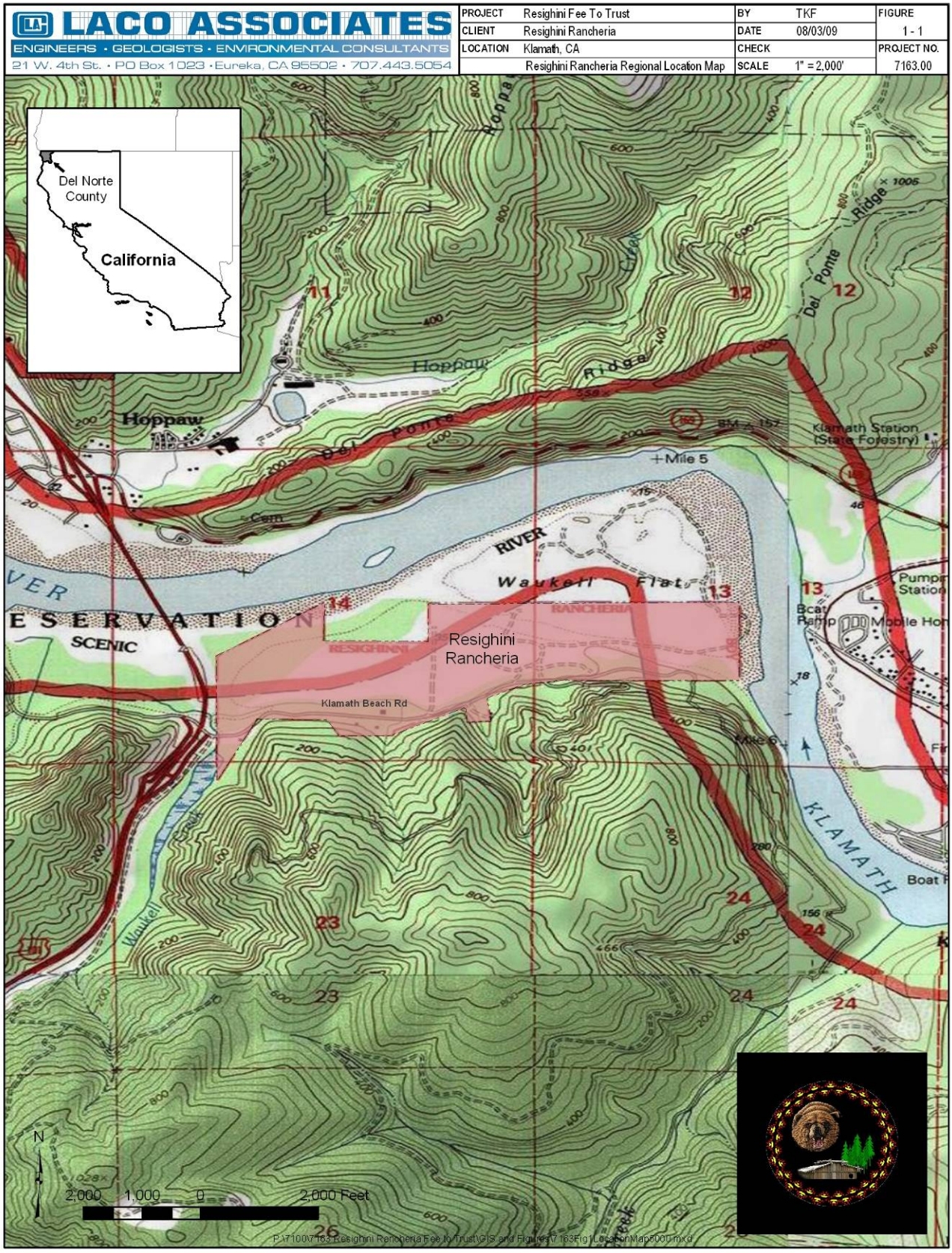
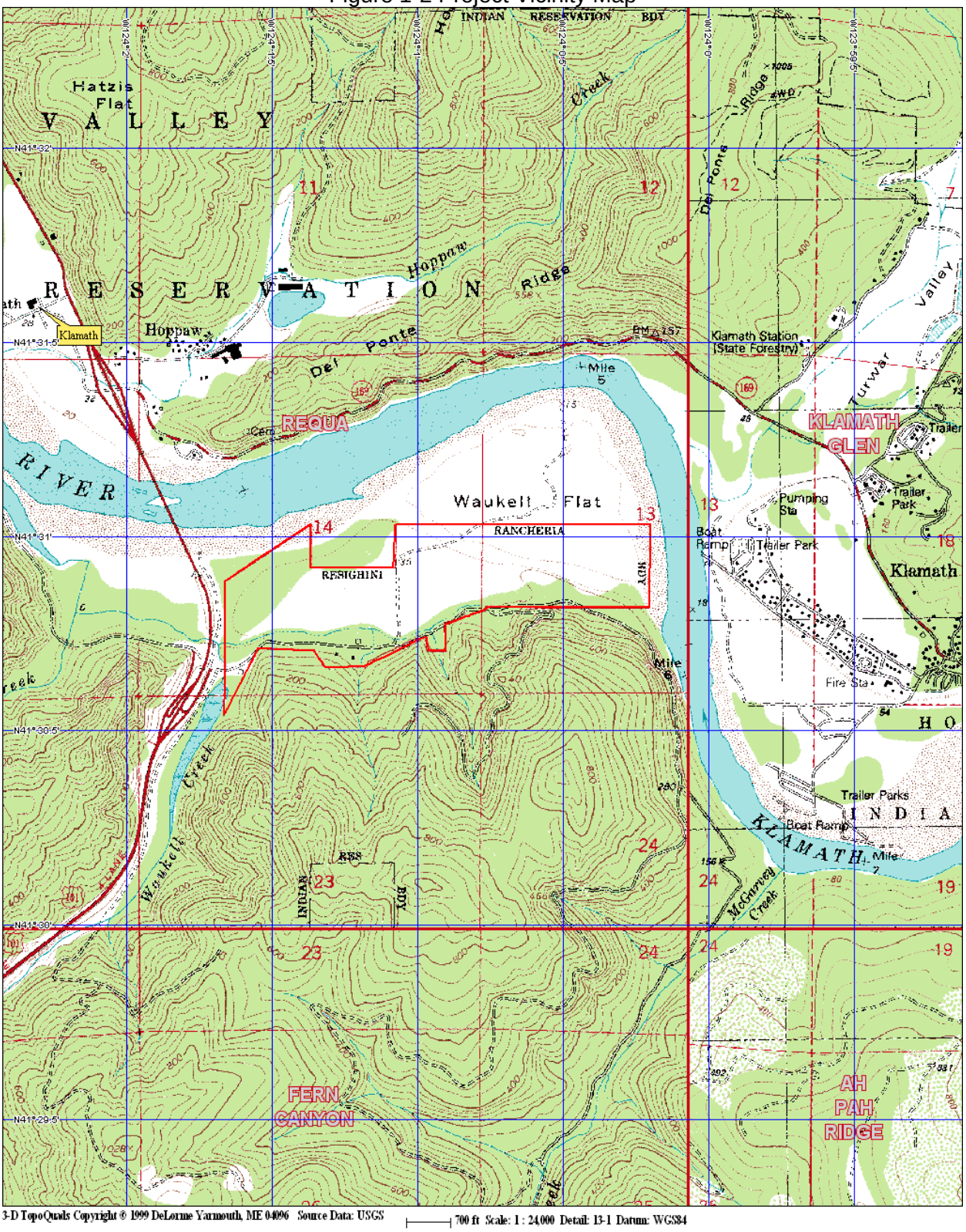


Figure 1-2 Project Vicinity Map



The contiguous nature of the property shaped the Tribe's desire to convey the 38.77± acres proposed for conveyance from fee status to Federal trust land, as evaluated in this Environmental Assessment. Since the parcel is located adjacent to the community core which includes educational facilities and access to Tribal programs, the subject parcel is ideally suited for the eventual development of up to 20 single-family units for members of the Tribe as it is not within the 100-year flood zone. According to the Indian Housing Plan (IHP), a five-year housing plan for the Tribe, 20 housing units are needed just to meet the demand for affordable housing. Other portions of the parcel are ideally suited for open space, recreation, and cemetery uses.

In addition to the Tribe's desire to acquire the subject property because it is contiguous to the Resighini Rancheria, the conveyance of this property is an important opportunity for the Tribe to incorporate the land into its limited Tribal land holdings. If the fee to trust transfer occurs, the Tribe will be able to utilize its ancestral territory for housing, cultural purposes, and wildlife habitat; the fee to trust transfer allows the Tribal Government to exert civil jurisdiction; and make all future land use and zoning decisions and allow for financing through grants and loans housing units to serve this underprivileged segment of Del Norte County's population.

## 1.5 Summary of the Environmental Review Process

This EA has been prepared to analyze and document the potential environmental consequences associated with the proposed transfer of the 38.77± acres into federal trust status for the Tribe and the associated development of 20 single-family units for members of the Tribe. The Bureau of Indian Affairs will use this document to determine if the proposed project would result in adverse effects to the environment. A notice published in a newspaper of general circulation will invite public comments on the Environmental Assessment for the proposed action. The comment period, as well as information regarding access to the Environmental Assessment, will be disclosed in the notice. The Lead Agency will determine that either a Finding of No Significant Impact (FONSI) is appropriate or if an Environmental Impact Statement (EIS) is required.

The BIA NEPA Handbook 59 IAM 3 indicates that the following requirements must be met for consistency with NEPA:

- The NEPA of 1969 and the implementation of regulations issued by the Council on Environmental Quality (CEQ) procedural provisions of NEPA (40 CFR Parts 1500 – 1508).
- BIA Manual 59 IAM 3, issued October 25, 1999, listing the statutory authorities, and specifies the roles and responsibilities of Bureau officials for compliance with NEPA.

## 1.6 Environmental Issues Evaluated

Regulations promulgated by a variety of government agencies at the federal, state, and local level are cited and discussed in different portions of this document. These regulations result in the identification of environmental effects and their mitigation. Compliance with these regulations will be discussed in the Environmental Consequences section as the rationale for determining that an adverse effect would be avoided. All potential environmental impacts that have been identified can be mitigated to less than significant levels with the incorporation of the measures that are proposed herein. The following laws, statutes, executive orders, and regulations have been evaluated in this EA:

### *1.6.1 Environmental Protection Agency (EPA)*

EPA has taken a position in the Tribal Authority Rule under the Clean Air Act (CAA) based on several provisions of the statute and legislative history - that the CAA constitutes a delegation of Congressional authority to eligible tribes to run air programs over their entire reservations, including fee lands. Under that regulation, tribes may also run programs on non-reservation lands over which they can demonstrate jurisdiction. However, EPA's Indian policy states that "*Until Tribal Governments are willing and able to assume full responsibility for delegable programs, the Agency will retain responsibility for managing programs for reservations unless the State has an express grant of jurisdiction from Congress sufficient to support delegation to the State Government.*" Thus, EPA maintains jurisdiction on the Trust lands of the Resighini Rancheria over air quality until such time that the Tribe chooses to assume jurisdiction. For the Resighini Rancheria, the National Ambient Air Quality Standards and not the North Coast Unified Air Quality Management District standards apply.

The National Pollution Discharge Elimination System (NPDES) is a national program for regulating and administering permits for all discharges to receiving waters. Discharges to receiving waters on Indian lands in California are regulated by the EPA. All construction projects encompassing one acre or more on Federal Land, including Indian lands/reservations, must be covered by the EPA's NPDES General Storm Water Discharge Permit for Construction Activities. Since development of the parcel could involve the construction of up to 20 single-family units in the foreseeable future, the requirements of a NPDES permit will apply to the as a condition of the construction of the single-family housing units.

Other Federal regulations under the jurisdiction of EPA that have been analyzed in this EA include, but are not limited to, the following:

- The Clean Water Act
- The Resource Conservation and Recovery Act
- The Safe Drinking Water Act

### *1.6.2 Federal Emergency Management Agency (FEMA)*

Any development in floodplains and floodways is regulated by the Federal Emergency Management Administration (FEMA). The subject properties are a "Mapped Community" and FEMA has jurisdiction on the subject Tribal lands. However, the majority of the subject parcel is not located within the 100-year flood zone (FIRM Panel No. 06015C0475E, September 26, 2008). In fact, the use of the proposed property for housing was one of the primary reasons the subject land was considered for acquisition as all other land holdings of the Tribe are within Flood Zone A.

### *1.6.3 Endangered Species Act*

A Biological Evaluation (BE) is contained in the Appendices of this document. Consultation under the Federal Endangered Species Act with the U.S. Fish and Wildlife Service in respect to the BE will be undertaken.

### *1.6.4 American Indian Religious Freedom Act*

The Resighini Rancheria Tribal Council, based upon a cultural resource survey conducted on the subject properties, personal knowledge of the site, and elder recollections, confirmed that the proposed change in land title does not impact upon or interfere with any known sacred or religious sites or geographic sites, artifacts, burial grounds or religious practices. Consequently, the proposed project will not violate the American Indian Religious Freedom Act of 1978.

### *1.6.5 National Historic Preservation Act*

A cultural resource investigation was conducted adjacent to and including a portion of the subject property in February 2008. The Lead Agency will conduct a formal consultation with the State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act regarding the protection of significant cultural resources documented at the site.

## *1.7 Document Contact Information*

The following contact information is provided to to all interested agencies, groups and persons:

Lead Agency: United States Department of Interior, Bureau of Indian Affairs, Pacific Region Office, 2800 Cottage Way, Room W-2820 Sacramento, CA 95825, (916) 978-6051, John Rydzik, Chief of Environmental, Cultural, Resource Management and Safety.

Applicant: Resighini Rancheria Tribal Council, 156 E. Klamath Beach Road, P.O. Box 529, Klamath, CA, 95548-0529, (707) 482-243, Rick Dowd, President.

Document Preparer: LACO Associates, 21 W. 4th Street, Eureka, CA (707) 443-5054, L. Robert Ulibarri, AICP, Registered Environmental Assessor (REA #02616), Senior Project Manager.

# 2.0 PROJECT ALTERNATIVES

An important element of planning for proposed federal actions is the investigation and evaluation of alternatives to the proposed project or action to assist decision makers in selecting the best alternative. This analysis is the heart of an environmental assessment. 59 IAM 3, as prescribed by the Bureau of Indian Affairs requires the Lead Agency to consider alternatives to the proposed action as defined in 59 IAM 3 Section 4.4(D)(1). For this proposed action, three alternatives are presented: 1) Proposed Action (Preferred Alternative), 2) Alternative Sites, and 3) the "No Action" alternative. The following issues and topical areas have been identified as criteria to evaluate alternatives to the project:

1. Topography, Soil Types and Geological Setting.
2. Water Quality.
3. Air Quality.
4. Wildlife and Vegetation.
5. Historical, Cultural and Archaeological Resources.
6. Community Infrastructure.
7. Transportation Networks.
8. Land Use Plans;
9. Sound and Noise.
10. Aesthetic Values.
11. Employment and Income.
12. Attitudes, Expectations and Cultural Values.

Based on the application of the above, the proposed action and alternative actions are presented below:

## 2.1 PROPOSED ACTION

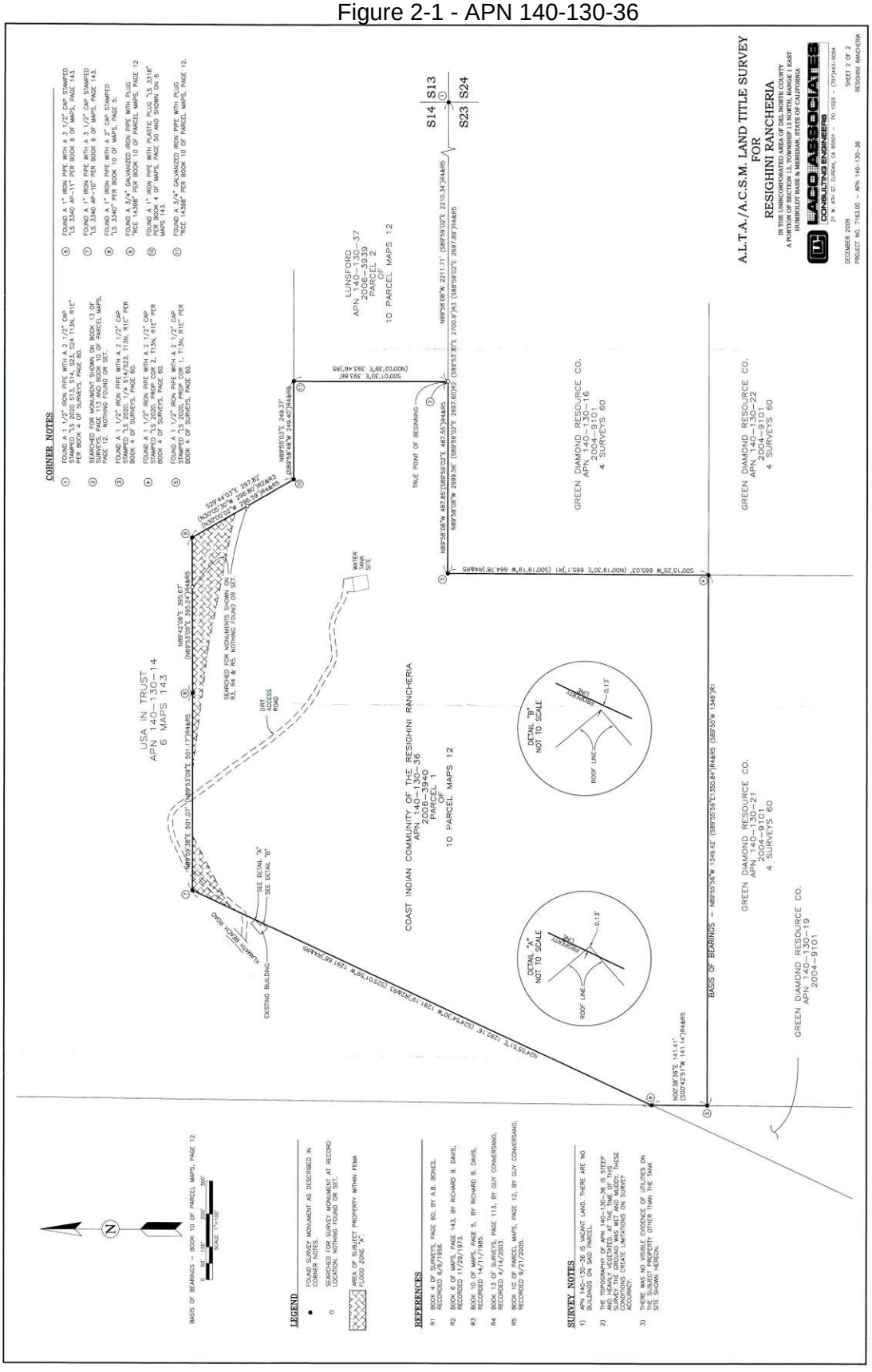
### *2.1.1 Land Trust Action and Secretarial Determination*

The proposed action includes the conveyance of property that is composed of approximately 38.77±-acres of land in Del Norte County, California from fee simple to federal trust status. The affected parcel includes APN 140-130-36 (**Figure 2-1**). The process and procedures for acquiring land is found in 25 C.F.R. Part 151 - Land Acquisition Section C.F.R. 151.10 applies to "On Reservation" fee-to-trust acquisitions. Section 25 C.F.R. 151.10 applies when "evaluating requests for the acquisition of land in trust status when the land is located within or contiguous to an Indian reservation, and the acquisition is not mandated."

As a contiguous parcel, the acquisition would be considered "on Reservation"; however, the authority of the Secretary to acquire the property in Trust is discretionary. The definitions in 25 C.F.R. 151.2(f) provides the following definition of Indian Reservation:

> *(f) Unless another definition is required by the act of Congress authorizing a particular trust acquisition, Indian reservation means that area of land over which the tribe is recognized by the United States as having governmental jurisdiction, except that, in the State of Oklahoma or where there has been a final judicial determination that a reservation has been disestablished or diminished, Indian reservation means that area of land constituting the former reservation of the tribe as defined by the Secretary.*

Figure 2-1 - APN 140-130-36



Therefore, the Resighini Rancheria fee-to-trust acquisition would be considered an on reservation acquisition to the extent that the property is contiguous to existing Trust lands.

### *2.1.2 Proposed Housing Development*

Development of and construction on the subject parcel is proposed. 20 single-family units are proposed for construction creating a density of one housing unit per 1.84 acre area. A preliminary layout of the proposed site development is provided in **Figure 2-2**.

The 20 single-family homes would be constructed utilizing various programs from the Native American Housing Assistance and Self Determination Act (NAHASDA), the Indian Housing Improvement Program (HIP) and other federal financing. The NAHASDA Act of 1996 is designed to provide Federal assistance for Indian tribes in a manner that recognizes the right of tribal self-governance. NAHASDA reorganized the system of Federal housing assistance to Native Americans by eliminating several separate programs of assistance and replacing them with a single block grant program. The method of determining housing assistance under NAHASDA varies amongst programs, but is generally specified in an Indian Housing Plan (IHP) and the Annual Performance Review (APR). The IHP is a 5-year plan developed by the Tribe.

Once accepted into trust, the Tribe will complete the final design of the housing development including drinking water sources, septic wastewater disposal, road access improvements and Tribal cemetery and other related infrastructure development. Previous experience in the development of housing on the Resighini Rancheria indicates that the process of developing the proposed site is at least a fifteen-year process.

The NASHADA 2009 formula funding allocation for the Tribe is $49,715 and the Total Development Cost (TDC) for the area around Resighini Rancheria is $289,224 according to HUD. Given the limited level of formula funding, six years would be need to construct just one housing unit. The Tribe has expectations, that once the proposed parcels is conveyed to trust, it would allow the Tribe to apply for competitive funding under NAHASDA, allowing individual members to qualify for HUD Section 184 housing loans, and would improve the Tribe's ability to qualify for a higher HIP allocation.

A Roadway Elevation Project and Flood Mitigation Project is currently being implemented within the boundaries of the Rancheria and upon a County roadway (Klamath Beach Road – BIA Route 511) located within the Rancheria. Work will also be done on the non-County Roadway (Tribal Office Road – BIA Route 308) leading to Tribal offices and facilities. The Rancheria has also prepared the Plans, Specifications and Estimates for the roadway projects under a Self-Determination Act Contract under Indian Reservation Roads Program. The intent of the project is to alleviate periodic seasonal flooding of the subject roadways that occurs at the base of the northbound Highway 101 off-ramp to Klamath Beach Road. In addition, the flood mitigation project will replace the existing undersized culverts that handle the flows of Waukell and Junior Creeks beneath

Figure 2-2. Conceptual Housing Layout

the roadways and results in flooding conditions that create access constraints for the existing residents of the Rancheria.

The proposed completion date for the Roadway Elevation Project and Flood Mitigation Project is late fall of 2010 and is designed to compliment the proposed construction of the 20 single-family units described herein.

Development of utility infrastructure such as water and wastewater would also require additional time. For this reason, a ten-year planning horizon is necessary for the proposed housing development. The actual development of the housing area is forecasted at fifteen-years after the property is conveyed to trust status.

The Tribe intends to contract with Indian Health Service (IHS) to provide design, technical assistance, feasibility studies, environmental impact, archaeological, and construction & inspection for projects undertaken on the Rancheria in regards to waste water treatment, septic repair, and domestic water supply.

All facilities will meet the Uniform Building Code (UBC) requirements for the site including the seismic design criteria.

## 2.2 Alternative Sites Considered (But Discarded):

Several parcels of land were examined by Tribal staff and realty agencies during the effort to identify acceptable land acquisition areas. A number of factors are considered by the Bureau of Indian Affairs when the determination to approve a project of this nature is made. Attributes of the proposed site must be clear of any environmental hazards; the site must meet rigid standards for access, utility availability, title clearance, proximity to the Tribal population, and the contiguous nature of property to existing trust land.

Most of the alternative sites reviewed would be considered adjacent and non-contiguous. When the proposed acquisition is outside of the reservation and not contiguous to it the BIA must comply with the requirements of 25 C.F.R. § 151.11. Section 151.11 provides:

> The Secretary shall consider the following requirements in evaluating tribal requests for the acquisition of lands in trust status, when the land is located outside of and noncontiguous to the tribe's reservation, and the acquisition is not mandated:
>
> (a) The criteria listed in § 151.10 (a) through (c) and (e) through (h);
>
> (b) The location of the land relative to state boundaries and its distance from the boundaries of the tribe's reservation shall be considered as follows: As the distance between the tribe's reservation and the land to be acquired increases, the Secretary shall give greater scrutiny to the tribe's justification of anticipated benefits from the acquisition (emphasis added). The Secretary shall give greater weight to the concerns raised pursuant to paragraph (d) of this section.

> (c) Where land is being acquired for business purposes, the tribe shall provide a plan which specifies the anticipated economic benefits associated with the proposed use.
>
> (d) Contact with state and local governments pursuant to § 151.10 (e) and (f) shall be completed as follows: Upon receipt of a tribe's written request to have lands taken in trust, the Secretary shall notify the state and local governments having regulatory jurisdiction over the land to be acquired. The notice shall inform the state and local government that each will be given 30 days in which to provide written comment as to the acquisition's potential impacts on regulatory jurisdiction, real property taxes and special assessments.

By memorandum issued February 5, 2002 by the Deputy Assistant Secretary (Indian Affairs directed the BIA that the Office of the Assistant Secretary) Indian Affairs would review the acquisition decisions for all off reservation acquisitions and by subsequent correspondence on February 12, 2002 advised the BIA to refer its decisions regarding whether lands are contiguous or adjacent to a reservation to the appropriate Solicitor's Office for review and concurrence in the determination.

Of the several parcels reviewed regarding purchase cost, adjacent or off-reservation status, and developability, the subject parcel was the most viable choice. Based on costs and infrastructure constraints of other sites considered including historical flooding, Alternative 2 would be infeasible, and is no longer considered as a viable alternative to the proposed project. For this reason, Alternative 2 has been rejected as a viable alternative.

## 2.3 No Action Alternative:

The “No Action” alternative would maintain the status quo of the site as “fee land,” subject to local tax rolls, zoning and other regulations for the Tribe. It would not be conveyed to Federal trust. Funding opportunities for new housing would be unyielding and the development of a tribal cemetery might require formulation of a Cemetery District under State law. Section 8252 of the California Health and Safety Code states:

> “It is unlawful for any corporation, co-partnership, firm, trust, association, or individual to engage in or transact any of the businesses of a cemetery within this State except by means of a corporation duly organized for such purposes.”

Thus, the no-action alternative is considered unacceptable by the Tribe since it fails to meet the goal of self-sufficiency of the Resighini Rancheria and is contrary to the Constitution of the Tribe.

# 3.0 DESCRIPTION OF AFFECTED ENVIRONMENT

This section provides a description of the existing environment at the project site and serves as the environmental baseline for impact analysis.

## 3.1 LAND RESOURCES

### *3.1.1 Topography*

The proposed project site is situated near the mouth of the Klamath River. The terrain of the proposed project site consists mainly of hillsides, gullies, and ridges. Elevation on the property ranges from approximately 52 feet to 312 feet (United States Geologic Survey (USGS) topographic map of the area: Requa Quadrangle). Stormwater on the property drains into a drainage gully flanking the western portion of the site and feeding into Waukell Creek and an unnamed seasonal drainage to the east. Vegetation is primarily short, non-native annual grasses, forested hill slopes as well as scattered forbs. The land has been used timber production for over 100-years. With the exception the associated access roads on the property, there are no significant disturbances to the sites proposed for conveyance to Federal trust land. See **Figure 3-1** for the topographical features of the subject properties.

### *3.1.2 Soil Types and Characteristics*

Soils at the project site have not yet been classified by the Natural Resources Conservation Service (NRCS). However, based on a geotechnical investigation conducted for the proposed road and flood improvement project, it appears that native topsoil remains essentially undisturbed over the entire site. Underlying the topsoil, native soils are classified as sandy silt (ML) and silty sand (SM), and silt (ML). Soils below the topsoil were observed to be soft or loose, dark gray, non-sticky, and non-plastic.

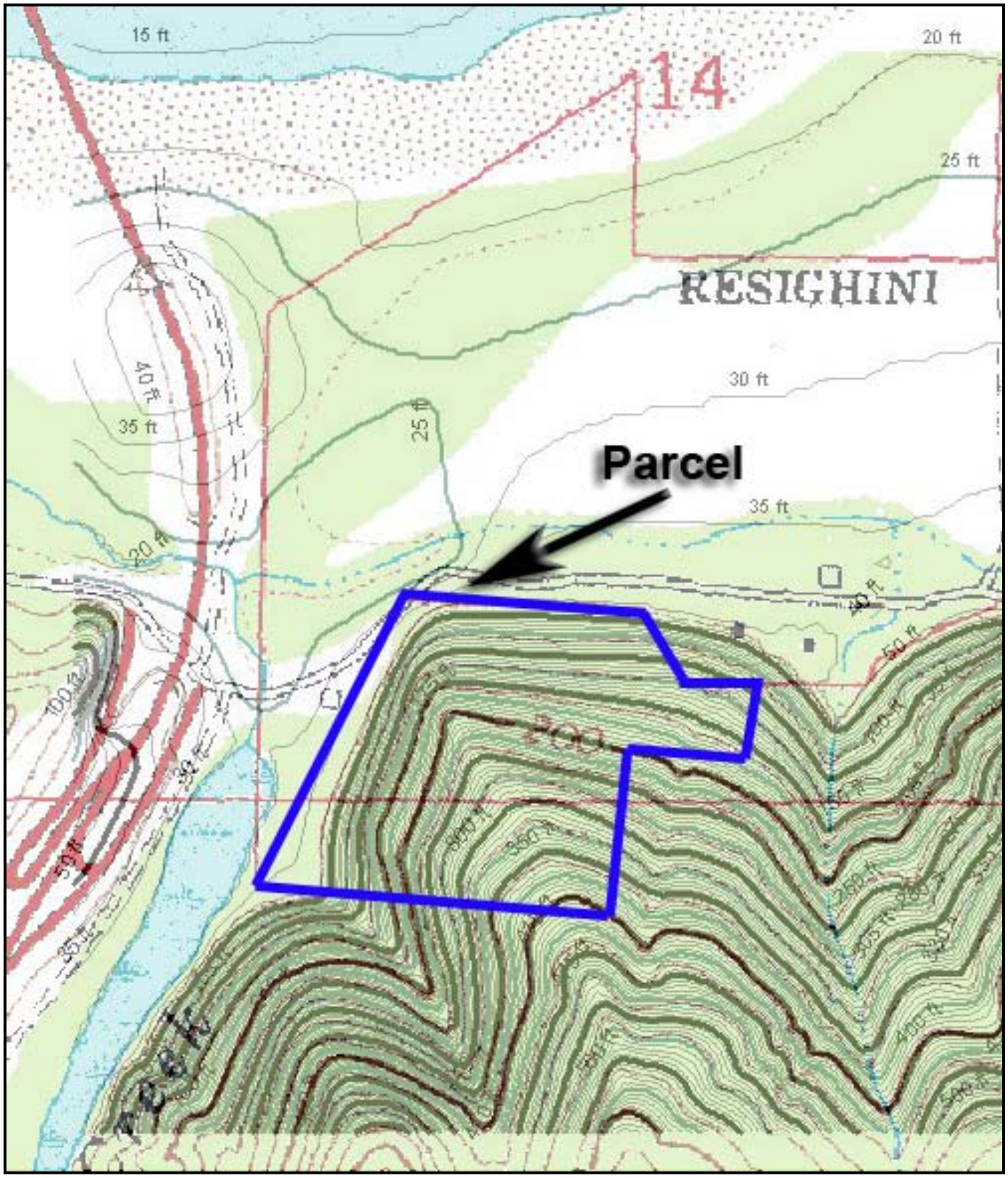
Site soils are interpreted to be high water (floodplain) deposits from the adjacent creeks and the Klamath River. Silty soils (ML) grade downward into silty sand (SM) materials. Soils were soft or loose to the total depth explored (21.5 feet).

The soil of the forested hill slope (project site) is characterized as the Melbourne series, which has a loam/clay loam surface/subsoil texture, derived from sandstone and shale parent materials. This series has a hilly to steep topography with 50-70% slopes, a moderate erosion hazard, good general drainage, and moderate permeability.

### *3.1.3 Geologic Setting*

The Rancheria is located within the northern Coast Ranges Geologic Province (CGS, 2002), a seismically active region in which large earthquakes are expected to occur during the economic life span (50 years) of these developments. Published geologic mapping (CDMG, 1964) indicates the project area to be underlain by Quaternary alluvium, consisting of poorly consolidated silts, sands, and gravels. Topographically, the project site is situated on a gently sloping surface with a generally north to northwestern slope aspect. Slope gradients in the study area are generally less than ten percent with slightly

Figure 3-1 Topographical Features of the Subject Property



steeper slopes at the west and east ends of Klamath Beach Road, and immediately adjacent to Waukell Creek and Junior Creek.

### *3.1.4 Seismic Hazards*

The site is not situated within an Alquist-Priolo earthquake hazard zone. The Big Lagoon - Bald Mountain fault is located between about 10 and 20 miles southwest offshore, and is the closest recognized active fault to this site. The upper-bound earthquake considered likely to occur on the Big Lagoon - Bald Mountain fault, a Type B fault that has an estimated slip rate of 0.5 millimeters per year, is an estimated maximum moment magnitude ($M_W$) of 7.3 (ICBO-CDMG, 1998).

The Cascadia subduction zone is another significant seismic source with a potential to affect this site. The Cascadia subduction zone marks the boundary between the North American plate and the subducting Gorda and Juan De Fuca plates. The Cascadia subduction zone extends from offshore of Cape Mendocino in Humboldt County, California, to Victoria Island in British Columbia, and is considered capable of generating an upper-bound earthquake with a $M_W$ of 8.3 on its southern Gorda segment.

### *3.1.5 Mineral Resources*

Aggregate resources have been extracted on the Resighini Rancheria for many years. The Army Corps of Engineers removed about 800,000 cubic yards of aggregate from a large gravel bar in the Lower Klamath River in 1965 to build the flood levee at Klamath Glen, with reportedly "no change in the basic river geometry" as a result of that extraction (Caltrans 1989).

During construction of the Redwood Park Bypass, which started in 1984 and was completed in 1992, aggregate from the Rancheria was extracted for base and sub-base material by Tudor-Saliba Corporation. During the 1980s, about 600,000 cubic yards of gravel were extracted from a few bars (Caltrans 1989).

A recent proposal by Caltrans calls for the removal of up to 500,000 cubic yards of aggregate from gravel bars on the mainstem or from Turwar Creek, southeast of the Resighini Rancheria. These stream sections are thought to be in an aggraded condition: the Klamath River is reportedly aggrading at the rate of 100,000 to 150,000 cubic yards per year in the proposed reach while Turwar Creek has shown "substantial aggradation in the channel" over the last thirty years.

The Resighini Rancheria intends to continue gravel extraction as an economic enterprise of the Tribe, subject to permitting requirements and the Tribe’s Water Quality Ordinance.

## 3.2 WATER RESOURCES

The major water feature for the Resighini Rancheria is the Klamath River (HUC 18010209). Streamflow in the lower Klamath River reflects the cumulative effects of both water diversion and regulation in the basin. Major diversions in the upper Klamath subbasin are associated with agricultural activities and the primary diversion in the

Trinity subbasin is associated with the Central Valley Project. Flow regulation occurs at both Iron Gate Dam and Lewiston Dam. Effects of diversion and regulation are localized, and are partially mitigated in the lower Klamath by basin inflow from unregulated areas.

In the vicinity of the project, the Klamath River meanders from the north bank to the south bank creating small islands toward the mouth of the river that fluctuate in size and shape over time. Along the Klamath River, from the project area west to the mouth of the Klamath River, there are several stream confluences including Waukell and Junior Creeks that traverse the Rancheria.

Discharge patterns in the lower Klamath tributaries are the result of natural rainfall, snowmelt, and runoff conditions. Diversions do not affect water supply in these tributaries and flow is not regulated.

Extremely high flows occur periodically as a result of high intensity rainfall events. Historical flood events (1955, 1964, 1974, and 1983) created debris jams and caused massive aggradation at most tributary mouths.

The Resighini Rancheria lies within the tidal zone for the Klamath River and the estuary habitat.

Potential production from existing habitat in the lower Klamath River and tributaries is significant. Fall Chinook salmon have access to about 100 miles of spawning and rearing habitat, coho salmon have access to about 130 miles of habitat, steelhead have access to about 150 miles of habitat, and green sturgeon have access to the lower 45 miles of mainstem habitat (CH2M Hill 1985).

### *3.2.1 Surface Water*

The project site includes Junior and Waukell Creeks. These creeks are both low-gradient, small-order tributaries to the Klamath River. Both creeks have been negatively impacted by historic land use, including road building, placement of undersized culverts, historic logging, culverting and ditching (particularly on Junior Creek), and persistent invasive species incursion. Salmonid species have been observed within the project area repeatedly. Fish surveys performed for the past two years have shown that Coho salmon, steelhead and cutthroat trout, and many other native fish utilize the project area during winter, high-flow months. These surveys have shown that Waukell and Junior Creeks provide important rearing and foraging habitat for juvenile salmonids and trout, as well as other native fish species.

Studies by the Yurok Tribal Environmental Program have shown that high numbers of juvenile fish have been found inhabiting both creeks during the winter months, but that fish do not inhabit either creek during summer months. This is to be expected because during winter, the water quality in both creeks is excellent fish habitat due to the low temperatures and available fish access in the creeks. Furthermore, cold temperatures support high dissolved oxygen content. Due to the dense adjacent riparian habitat and relatively low amount of impervious surfaces in the area, suspended sediment is low in these creeks. Conversely, water quality found in both Waukell and Junior Creeks during the summer

months has been found to be uninhabitable by fish and other aquatic organisms. In fact, Junior Creek typically dries up during summer months.

### *3.2.2 Groundwater*

The Lower Klamath River Valley Groundwater Basin is located inland from the coast and includes the communities of Requa, Klamath, and Klamath Glen. The basin consists of Quaternary alluvial deposits, terrace deposits, and dune and beach sand deposits from the Klamath River and its tributaries. The basin is bounded on all sides by the Franciscan Formation (Strand 1963). Much of the basin is located within the Yurok Indian Reservation. Annual precipitation ranges from 67 to 79 inches, increasing to the east. Estimates of groundwater extraction are based on a survey conducted by the California Department of Water Resources in 1996. The survey included land use and sources of water. Estimates of groundwater extraction for agricultural and municipal/industrial uses are 410 and 160 acre-feet, respectively. Deep percolation from applied water is estimated to be 210 acre-feet.

### *3.2.3 Flooding*

The Rancheria is within a flood-prone area, and the hazard of flooding is significant. The flood elevation of the 100-year flood on the nearby Klamath River has been estimated based on interpolation of the Army Corps of Engineers (ACOE) information to be approximately 45 feet (MSL), or about 20 to 25 feet higher than the existing Klamath Beach Road roadway. Flooding on Waukell Creek has also reportedly affected Klamath Beach Road, where it has crossed the creek in past storm events.

### *3.2.4 Wetlands*

Much of the land adjacent to the proposed action area is assumed to be low-value seasonal wetlands (See **Figure 3-2** – Area of Hydric Soils). Wetland site investigations conducted in 2005 through 2008 examined the soils and vegetation in the proposed area for wetland indicators. Positive indicators of hydric soils and at least mesophytic vegetation are found over most of the proposed Roadway Elevation Project and Flood Mitigation Project. However, the upland area where the housing project is proposed to be sited has little or no habitat value as wetlands. The wetlands areas are largely located at the base of the subject parcel are highly disturbed from previous timber harvest operations, and are poor-quality herbaceous wetlands. Due to the quality of these wetlands, their functions are limited.

### *3.2.5 Water Quality*

Water quality on the Klamath mainstem including the Klamath Glen HSA has been the focus of regulators.

More than 33,000 salmon and steelhead died in the lower Klamath River in late September 2002 on their way to spawning areas upstream. According to the California Department of Fish and Game, the cause of death was infection by protozoan and bacterial pathogens. Two factors that may have contributed to the disease incidence are low streamflow and high water temperature.

Figure 3-2 – Area of Hydric Soils

Survey of dead fish conducted by the California Department of Fish and Game found that, of the salmonid species, 95.2 percent were Chinook salmon, 0.5 percent were coho salmon, and 4.3 percent were steelhead trout. The cause of death was infection by the ciliated protozoan *Ichthy- opthirius multifilis* (Ich) and the bacterial pathogen *Flavobacter columnare* (Columnaris). Although both pathogens commonly occur naturally worldwide and are always present in the Klamath River and other aquatic systems, high water temperature, low flow, and crowding provided conditions favorable to their rapid proliferation and transmission (California Department of Fish and Game, 2003).

September streamflows throughout the Klamath Basin were low, among the four lowest September flows recorded on the main stem since 1960. The low streamflows were caused by below-average snow pack and long-term drought, with resulting reduced ground-water discharge to streams.

On the basis of historical climate data from the Klamath Basin and historical water temperature data from an adjacent basin, September 2002 water temperatures were above the long-term average. Temperatures in the Klamath River above the fish die-off reach exceeded 65 degrees Fahrenheit for nearly all of September; multiple days of exposure by fish to temperatures at or above that level can greatly increase disease incidence.

On May 29, 2008, the US EPA listed the mainstem Klamath River as impaired for microcystin toxins in the reach including the Copco I, Copco II, and Iron Gate reservoirs and the river waters in between.

This is an addition to California's 2006 Section 303(d) List of Impaired Waterbodies. The 2006 303(d) list already identified each segment of the Klamath River within California as impaired due to excessive nutrients, organic enrichment/low dissolved oxygen, and temperature. The listings do not extend to any water bodies located within Indian country, as defined in 18 USC §1151. For the Resighini Rancheria and several other Tribes in the basin, the formulation of the Klamath Basin Tribal Water Quality Working Group addresses water quality issues of the Klamath within Indian Country. The members of the Resighini Rancheria have a primary interest in the protection, control and conservation of the water resources which flow into and through the Rancheria and the quality of such waters must be protected to insure the health, economic, aesthetic and cultural well-being of the people of the Rancheria. As a consequence, the Rancheria has prepared a Draft Revised Tribal Water Quality Ordinance which regulates the water quality of tributaries within the Rancheria and portions of the Klamath Glen HSA.

Staff members of the North Coast Regional Water Quality Control Board (Regional Water Board) are in the process of developing total maximum daily loads (TMDLs) for the Klamath River in California. Pursuant to a consent decree entered into by the U.S. Environmental Protection Agency, the Klamath River TMDLs are scheduled to be approved by December 2010.

Throughout the Klamath River watershed in California, many individuals, groups, and agencies have been working to enhance and restore fish habitat and water quality. These groups include, but are not limited to, the United States Forest

Service, the United States Fish and Wildlife Service, NOAA-Fisheries, the United State Bureau of Reclamation, the Natural Resource Conservation Service, the Klamath River Basin Fisheries Task Force, the California Department of Fish and Game, the California Department of Water Resources, the Klamath, Hoopa, Karuk, and Yurok Tribes, the Quartz Valley Indian Reservation, the Resighini Rancheria, the Five Counties Salmonid Conservation Program, local resource conservation districts, the Mid-Klamath Watershed Council, Klamath Riverkeeper, Friends of the River, the Klamath Forest Alliance, the Nature Conservancy, local irrigation districts, local watershed groups, and private timber companies. The past and present efforts of these stakeholders have improved water quality conditions in the Klamath River and its tributaries.

## 3.3 AIR QUALITY

The air quality of the Rancheria is excellent because of its proximity to the Pacific Ocean which brings forth southeastern winds. The airshed in all of the Rancheria is considered quite pristine. The vehicle traffic and population concentration areas along Highway 101 are the primary air pollution sources. Because of the rural character of the Rancheria, limited population, and lack of industrial development, the ambient air quality is well below established Federal standards.

The North Coast Unified Air Quality Management District is responsible for regulating both point and area sources of air emissions, including qualifying industrial and commercial businesses, all open burning operations including agricultural, prescribed and residential burning and grading activities on serpentine surfaces within non-Tribal lands. The AQMD enforces its Rules and Regulations, which implement federal and state air quality requirements, through a permit system that functions independently of the County planning process. Because the County is an attainment area (or is unclassified) for all criteria pollutants, both federal and state, it is not required to prepare an Air Quality Management Plan. Instead, the District's focus is on the prevention of significant deterioration in air quality, and this goal is pursued mainly through the District's permitting process and the regulation of point sources of air emissions. The AQMD reviews all planning and environmental documents submitted for review and comment and actively participates in the planning process where District permits are determined necessary and/or where projects are otherwise subject to District regulation or a significant potential source of air emissions. The primary sources of air contaminants in Del Norte County are associated with vehicles, unpaved roads and vegetation burning (including fire places and wood stoves). Vehicles, unpaved roads, solid fuel combustion from agricultural, forest, and range management, and residential burning are major contributors of PM-10 emissions.

### *3.3.1 Criteria Air Pollutants*

Efforts to reduce air emissions are required by the Federal Clean Air Act and the California Clean Air Act. The federal government, primarily through the Environmental Protection Agency (EPA), sets federal health standards for air emissions. The EPA also oversees state and local actions and implements programs for toxic air pollutants, heavy-duty trucks, locomotives, ships, aircraft, off-road diesel equipment, and other types of industrial equipment. In California, the California Air Resources Board (CARB) sets state air quality standards and implements programs to improve air quality. The state air quality standards are equal to or more stringent than the federal air quality standards.

Regional air pollution control districts are responsible for monitoring air quality and implementing plans, programs, and air pollution control measures to meet federal and state air quality standards. The North Coast Unified Air Quality Management District (NCUAQMD) is the regional air pollution control district for areas within Humboldt, Del Norte, and Trinity counties. The NCUAQMD's mission is to improve the health and quality of life for all northern California residents through cooperative and effective air quality programs.

On the Resighini Rancheria, neither the U.S. Environmental Protection Agency nor the Tribe has performed air quality conformity determinations. As a Federal agency, the Bureau of Indian Affairs (Lead Agency) must complete conformity determinations for those project actions over which they exert continuing management responsibility and control. It should be noted that pursuant to the Clean Air Act as amended, air quality jurisdiction falls with the Tribe if programmatic jurisdiction is delegated by the U.S. Environmental Protection Agency. Resighini Rancheria is a recipient of a General Assistance Program grant from EPA and operates several environmental programs but has not assumed air quality jurisdiction. Therefore, EPA maintains air quality jurisdiction for the Reservation and not the State. Instead of State standards, the National Ambient Air Quality Standards (NAAQS) apply. This issue is not unique to the Resighini Rancheria as it is the same at most of the 114 Indian Reservations or Rancheria's in California.

## *3.4* BIOLOGICAL RESOURCES

Since there are no special status botanical species in the impact area, there will be no impacts on such species. Since the current habitat conditions are degraded such that there is little possibility of special status species colonizing the site. However, off site impacts to the protected fishery could occur and can be mitigated to a level of insignificance. A Biological Evaluation (BE) has been prepared by the NRM to assess the existing environment associated with fisheries, botanical species and wildlife species for the Roadway Elevation Project and Flood Mitigation Project and can be applied to the subject parcel as well. This BE is summarized in the appropriate sections of this EA. All mitigation measures or other recommendations have been incorporated into this EA. Appendix A is a copy of the BE.

### *3.4.1 Regulatory Involvement*

If it is determined that there may be potential impacts to federally listed or candidate species under the jurisdiction of the USFWS, a Section 7 Permit for federal actions is required. If there is a potential for an incidental "taking" of any species meeting this Agency's criteria, then a formal or informal consultation with the USFWS will be required by the Bureau of Indian Affairs (Lead Agency). While there is minimal potential for an incidental "taking", as defined by the Federal Endangered Species Act, preventative measures have been outlined in the design of this project that will minimize the potential for any incidental "taking". Preliminary discussions with officials of the USFWS have confirmed that these measures will be adequate to minimize the potential for an incidental "taking".

### *3.4.2 Habitat Types*

Three distinct habitats are within the Resighini Rancheria. They include the lower Klamath River and tributaries, ephemeral areas, and forested hill slope. The proposed project lies within the upland forested hill slope area of the Rancheria.

### *3.4.3 Wildlife*

The Rancheria site includes Junior and Waukell Creeks. These creeks are both low-gradient, small-order tributaries to the Klamath River. Both creeks have been negatively impacted by historic land use, including road building, placement of undersized culverts, historic logging, culverting and ditching (particularly on Junior Creek), and persistent invasive species incursion. Salmonid species have been observed within the project area repeatedly. Fish surveys performed for the past two years have shown that Coho salmon, steelhead and cutthroat trout, and many other native fish utilize the project area during winter, high-flow months (Voight 2008). These surveys have shown that Waukell and Junior Creeks provide important rearing and foraging habitat for juvenile salmonids and trout, as well as other native fish species (Voight 2008). Additionally, several species of rare birds have been observed in and around the project area, again reinforcing the idea that the project area provides important rearing and foraging habitat for aquatic and terrestrial animals. In addition, the project site may include seasonal wetlands. The potential wetlands are associated with the creeks and are adjacent to the existing road system. The potential wetlands are highly disturbed, managed (mowed), poor-quality emergent wetlands. Due to the poor quality of these wetlands, their functions are limited.

Prior to a field evaluation, a scoping of the potential issues was accomplished by first compiling and reviewing the list of protected species with a known potential to inhabit the project location. This list is a cumulative list made up of species identified by U.S. Fish and Wildlife Service (USFWS), the County list (October 2007), and the DFG Natural Diversity Database (CNDDB), *RareFind 3* (DFG 2007). By convention, the USFWS and CDFG data is categorized by USGS quadrangle. For completeness, the resulting list compiles all protected species within the County, the Project USGS 7.5 feet quadrangle and all contiguous quadrangles. Fisheries data was collected from the Yurok Tribal Environmental Program, who have been conducting recent intensive fish trapping at multiple locations in the Waukell Creek watershed and other tributaries in the lower Klamath River watershed. In addition, we consulted local residents and tribal members for anecdotal species accounts and historical species data.

This analysis resulted in a total of 13 bird, 13 mammal, five amphibian, three invertebrate, and nine fish species (43 species total). Of these, eight have federal listing, and 13 are DFG species of special concern.

The project area supports habitat for nine fish species and five amphibian species. Those species which have habitat within the Rancheria are considered in this EA.

Aquatic species for which the project area supports potential habitat include:

Coho salmon - *Oncorhynchus kisutch*
Cutthroat trout - *Onchorhyncus clarki clarki*
Brown trout - *Salmo trutta*
Steelhead trout - *Oncorhynchus mykiss*
Pacific lamprey – *Lampetra tridentata*
Speckled dace – *Rhinichthys osculus*
Small scale sucker – *Catostomus rimiculus*
Three spined stickleback – *Gasterosteus aculeatus*
Prickly sculpin – *Cottus asper*
Pacific Eulachon (candlefish) – *Thaleichthys pacificus*

Salmonids prefer low-gradient streams and rivers that contain large woody debris, gravel, and cold, clean water. It has been found in recent years that salmonids also need slow velocity, food-rich resource areas for rearing and over wintering while in the juvenile stage of their lives. Waukelll and Junior Creeks are both low-gradient, small-order tributaries located near the mouth of the Klamath River. Both creeks are known to be heavily utilized by juvenile salmonids and other native fish during winter months, when high-flow events in the mainstem Klamath River force juvenile fish and other aquatic species into lower velocity and backwater areas. The low-velocity habitats found in Waukell and Junior Creeks provide important rearing and foraging habitat for juvenile fish and so serve to increase the survival and growth rates of salmonids.

Large populations of Coho, Chinook, cutthroat and steelhead trout, lamprey, and other native fish salmonids have been documented in Waukell and Junior Creeks during winter months. However, they move into the mainstem of the river when velocities decrease, which coincides with the summer months. Surveys of the creeks confirm this behavior and have shown that fish do not inhabit Waukell and Junior Creeks in the summer. In addition to low flow conditions, summer fish absence has been attributed to poor water quality and high water temperatures in Junior and Waukell Creeks during the warmer times of the year. Because construction associated with the proposed project will occur during the dry season, it is unlikely that there will be direct significant effects on salmonids from this project. Construction activities must cease by October 15, so any returning salmonids to these creeks will not likely be affected. To ensure that potential project direct impacts are avoided, activities will conclude before the onset of seasonal rains, or before October 15, whichever comes first. The October 15 cutoff date will ensure that no construction activities are occurring when salmonids are entering tributaries for spawning and that the stream channels have a chance for recovery before the onset of winter rains.

Amphibian species within the Rancheria include:

Western tailed frog – *Ascaphus truei*
Southern torrent salamander – *Rhyacotriton variegatus*
Del Norte salamander – *Plethodon elongatus*
Foothill yellow legged frog – *Rana boylii*
Northern red legged frog – *Rana aurora*

Amphibian habitat is typified by moist areas, with complex cover provided by large woody debris, rocks, and undercut banks. Additionally, amphibians require

cold, clean water and low velocity water flow habitats. Both Junior and Waukell Creeks provide these habitat features. Though surveys for these amphibians have not been conducted, they may occupy in the riparian habitat off the site. Specimens have been found in riverine habitats in areas surrounding and along the edges of the mainstem Klamath River. Given the seasonal decreases in water quality and increases in water temperature associated with summer months, it is likely that resident amphibians will move out of the small tributary areas and into colder, cleaner habitats found in the mainstem river. Consequently, like the seasonal salmonids, the amphibians are unlikely to be significantly affected by the proposed project.

The plant community on this site supports a diverse wildlife population, particularly the avian species. Habitat is provided for nesting and rearing sites and food sources as well as cover and concealment from predators and the elements. Deer, chickaree and deer mice have been observed on the site. Other mammals such as mice, gophers and rabbit frequent open space at the site. Some animals such as black bear (*Ursus americanus*), raccoon (*Procyon lator*), coyote (*Canis latrans*), and skunk (*Mephitis mephitis*) occur frequently on sites which are in the proximity of human-associated activity.

### *3.4.4 Vegetation*

The proposed action is situated outside of the floodplain of the Klamath River. The Rancheria is an active gravel bar dominated by sandy and silty soils (LACO, 2008). The proposed area supports willow dominated forest, redwood forest, and willow/alder corridors. The site is within the developed footprint of the Rancheria and is a disturbed feature in the landscape due to recent logging activities. The existing conditions are highly modified from natural conditions, and the site has a long history of human use (see Section 3.2 – Cultural Resources). Current land uses of the site include residential, recreational and governmental.

The site does not support high quality suitable habitat for any sensitive botanical species. However, the following listed species occur in near stream and wetland habitats in the near the site at the lowland areas. For this reason, the site may be suitable habitat for:

Thurber's reed grass - *Calamagrostis crassiglumis*-
Lagoon sedge - *Carex lenticularis* var. *limnophila*
Bristle-stalked sedge - *Carex leptalea*
Green yellow sedge - *Carex viridula* var. *viridula*
Oregon coast paintbrush - *Castilleja affinis* ssp. *litoralis*
Pacific gilia - *Gilia capitata* ssp. *pacifica*
Marsh pea - *Lathyrus palustris*
Leafy-stemmed - mitrewort*Mitella caulescens*
Seacoast ragwort - *Packera bolanderi* var. *bolanderi*
Fibrous pondweed - *Potamogeton foliosus* var. *fibrillosus*
Arctic starflower - *Trientalis arctica*

### *3.4.5 Sensitive Species and Habitats*

None of the special status species were encountered during field surveys. The habitat for the listed species on the site is severely degraded by canary reed

grass and dominating hardwoods. For this reason, none of the listed species are likely to occur in this impacted habitat type.

## *3.5 CULTURAL RESOURCES*

As a federal action, the proposed undertaking must comply with NEPA and Section 106 (Codified as 36 CFR Part 800) of the National Historic Preservation Act, and must consider effects to historic properties. An archaeological survey was commissioned by the Tribe. Tasks completed as a part of the archaeological survey included a records search with the California Historic Resources Information System (CHRIS), a pedestrian survey of the entire project site, and a written report. The written report is a confidential document that is protected under the Archaeological Resources Protection Act of 1979 (16 USC Chapter 1b; § 470hh) and is not available to the general public. The report however, has been provided to cognizant agencies including the Bureau of Indian Affairs and the State Historic Preservation Officer (SHPO).

The proposed project is subject to BIA review and consultation by the BIA with the SHPO. As such, the project is considered a federal undertaking triggering the necessity to comply with the NEPA of 1969 as amended and Section 106 of the NHPA of 1966 as amended. NEPA defers to the regulatory authority of NHPA (16 U.S.C. 470) when addressing historic properties. Section 106 of the NHPA requires that, before beginning an undertaking, a federal agency, or those they fund or permit, must take into account the effects of the undertaking on historic properties and afford the ACHP and other interested parties an opportunity to comment on these actions.

Section 106 of the NHPA prescribes specific criteria for determining whether a project would adversely affect a historic property, as defined in 36 CFR 800.5. An impact is considered significant when prehistoric or historic archaeological sites, structures, or objects listed in or eligible for listing in the NRHP are subjected to the following effects:

- Physical destruction of or damage to all or part of the property
- Alteration of a property
- Removal of the property from its historic location
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features
- Neglect of a property that causes its deterioration
- Transfer, lease, or sale of the property

Cultural resource significance is evaluated in terms of eligibility for listing in the NRHP. NRHP Significance criteria applied to evaluate the cultural resources in this study are defined in 36.CFR 60.4 as follows: The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history
B. That are associated with the lives of persons significant in our past

C. That embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
D. That have yielded, or may be likely to yield, information important in prehistory or history

Specific regulations regarding compliance with Section 106 state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency is ultimately responsible for ensuring that the Section 106 process is completed according to statute.

On January 14, 2008, Kevin Smith, B.A., Matthew Steele, B.A., Ryan Brown, B.A., and Erik Whiteman, M.A., RPA, completed a Cultural Resource Investigation of the Roadway Elevation Project and Flood Mitigation Project which is inclusive and adjacent to the housing area. The project area is located east of U.S. Highway 101 on Southeast Klamath Beach Road and can be accessed by exiting U.S. Highway 101 at the Resighini Rancheria Casino exit, 0.3 miles south of the Klamath River Bridge.

The background research for this project included an examination of the archaeological site records, maps, and project files at the North Coast Information Center (NCIC), one of the regional information centers of the California Historical Resources Information System (CHRIS). The NCIC is located at 15900 U.S. Highway 101 N, Klamath, California 95548. Jennifer Burns, M.A. and James Roscoe, M.A. conducted the record search on December 19, 2007.

Records of previous cultural resource studies and previously recorded cultural resources were consulted. Additionally, the following inventories were consulted: the Historic Property Directory, the National Register of Historic Places (NRHP), and Determinations of Eligibility for the National Register of Historic Places, Historic Spots in California, California Historical Landmarks, and California Points of Historical Interest, California Register of Historical Places, and the California Inventory of Historic Resources.

The records search at the NCIC revealed that seven cultural resource studies have been conducted within ½ mile of the project area. Four previously recorded archaeological or cultural sites were documented within ½ mile of the project area.

### *3.5.1 Ethnography and History*

The project area is in the lower drainage of Waukell Creek, a small stream of approximately 4 miles in length that drains into the south side of the Klamath River approximately 4 miles from its mouth. To the west is Saugep Creek, which served as an early day corridor for a trail connecting the Klamath River with the coast. To the east is Waukell Flat, formed on an inward bend of the river, which has been the site of a Yurok (Polikla) Village, an Indian Agency, a squatters' site, and more recently, the Resighini Rancheria.

Early Northwest California archaeological research was focused on identifying Native American assemblages and delineating a prehistoric chronology (Loud 1918; Elsasser and Heizer 1966; Fredrickson 1984). More recent studies have broadened their view to address such issues as paleo-environmental

reconstruction (West, cf. Hildebrandt and Hayes 1983), technology and adaptive responses to environment (Hildebrandt 1983, 1984; Levulett and Hildebrandt 1984; Hildebrandt and Hayes 1983; Hildebrandt and Roscoe 2003; Hildebrandt and Swensen 1985), and trade (Huges 1978; Levulett and Hildebrandt 1987).

One of the few excavations in the region was conducted in the 1960's by Richard Gould at the village of Taiga'n at Point St. George (CA-DNO-11) (Gould 1966). Current work is being conducted by Shannon Tushingam at the Jedidiah Smith Campground (CA-DNO-26) and Tolowa Dunes (CA-DNO-XX3-XX11) (Tushingham 2005). The seminal work defining early period assemblages in the North Coast Ranges of California was the Pilot Ridge-South Fork Mountain (PR-SFM) project sponsored by Six Rivers National Forest for logging and road building undertakings in compliance with NHPA Section 106 (Hildebrandt and Hayes 1983, 1984). These studies have provided insight into some of the major environmental and archaeological trends within the region over the past 8,000 years. Descriptions of these periods are summarized within the Cultural Resources Investigation. The periods described are:

- Paleoindian Period (13,500 to 8,500 B.P.)
- Lower Archaic (8,500 to 5,000 B.P.)
- Middle Archaic Period (5,000 to 2,500 B.P.)
- Upper Archaic Period (2,500 to 1,100 B.P.)
- Late or Emergent Period (1,100 to 150 B.P.)
- Post Contact (150 B.P. to Present Day)

The Cultural Resources Investigation provides an extensive history of the Yurok people along the Klamath River and the Pacific Ocean and includes details of the organizational structure of this Tribe. The Cultural Resources Investigation also provides the history of the Resighini and information regarding the formation of the Rancheria.

The locale is part of the traditional territory of the Yurok Indian Tribe. Standard published sources map "Wo-kel" as the tenth village upstream from the mouth of the Klamath River (Pilling 1978:139) and "wo'ke'l" as a "town" between "wo'kel-pul wroi," a "gully" now called Waukell Creek, and "wo'kel-pets wroi," a "creek," just east of the village (Waterman 1920:map 9). Waterman's information apparently came from at least two sources, "Spot's List of Villages," and "Mrs. Jim Marshall" (Kroeber and Waterman 1917-1918:18-19). A well-known Yurok, Robert Spott, along with E. F. Benedict, mapped "Wah-kel" village as part of the "Territory of the Yurok People" in 1949, showing it southeast and across the Klamath from "Hoh-pau" village (Spott and Benedict 1949:4). According to Waterman, "wo'ke'l" was:

> "A town. This was a small place, situated on a large flat. The river has eaten a quarter of a mile into this flat, during flood waters, and the whole village site has gone down the river. It is not of much importance. My informants remember only two houses (Waterman 1920:234)".

Since the arrival of settlers in the area, at least three major floods have been recorded, all of which would have washed over the Waukell area (Rohde and

Rohde 1994:66-73) and almost certainly burying or removing vestiges of the village.

Although Waukell Village may have lacked importance as a community, it was reportedly a significant stop on a main river-to-coast transportation corridor. A remarkable but often overlooked account from 1889-1891 describes this route. Clarence Pearsall, a timber cruiser, examined the redwood forests along the lower Klamath River during that time. In 1889 Pearsall visited Osegon Village on the coast. Pearsall and his wife met an officer from Fort Gaston, Captain Dougherty, while at Osegon, noting that the Hoopa Reservation's jurisdiction at the time included the village (Pearsall 1928:1602). After a trip to South Dakota, where he was present at the Wounded Knee Massacre (Pearsall 1928:1605-1606), Pearsall and his wife returned to the Klamath River in 1891, where they visited the Indians at Äh'-päh Village before joining the group for a trip to the coast:

> "At length the time arrived for the Äh'-päh Indians' annual pilgrimage to the coast to visit their friends the Osagons, gather salal and huckleberries, and exchange raffia and fibres from the roots of the sugar pine for dried fish, mussels and clams for the winter….With all preparations completed, we dropped down the river to Big Wau-kell Creek, left the canoes in charge of an Indian called Wau-kell and proceeded up Little Wau-kell Creek and across the mountains over an Indian trail that led through the forest, to the Osagon village on the coast. *This trail, a favorite one of the Indians, had been in use, they claimed, so long that even their fathers could not remember the time when it did not exist. From the number of arrows and sharpened sticks that had been shot into the bark of the so-called medicine trees by the Indians on their various pilgrimages, to insure them a safe journey and protect them from sickness, concluded that the trail must indeed be very old"…*[emphasis added].

The Klamath Reservation was opened to settlement in 1892. By August 1894 some "744 allotments had been made to date from the mouth of the Klamath to the mouth of the Trinity" (Bearss 1982:128). In December 1938 the Indian Service purchased the former "Ressigini" [*sic*] ranch, which comprised "228 acres of fertile farm land" (Arcata Union 1938). The property was on the former site of the Wau-Kell agency of the Klamath Reservation. In addition to the land purchase, funding was provided to build "two sets of improvements" on the site, each to include "a residence, barn, chicken houses, water supply, toilets, and needed fencing." Construction was expected to start before the end of the year (Arcata Union1938).

The land, which "was deeded in trust to the Indians of Del Norte and Humboldt Counties" (Tiller 2005:460), was first called the Coast Indian Community of Yurok Indians of the Resighini Rancheria (Wikipedia 2008). Its name was later changed to the Resighini Rancheria. The property was involved in termination proceedings during the 1970s, but the process was reversed by *Tillie Hardwick v. United States of America* in 1983. According to tribal information, the Rancheria now comprises 228 acres in trust and 207 acres in fee land for a total of 435 acres (pursuant to communication with Donald D. Valenzuela, Tribal Manager, October, 2009).

Floods in 1955 and 1964 washed through the lower Klamath, including the Rancheria area, with tremendous destructive effect (Rohde and Rohde 1994:67-73). During the 1955 flood, the newly-built Fehely Mill, located on the south side of the Klamath above the Douglas Memorial Bridge, was washed away (Rohde and Rohde 1994:67-68). U.S. Highway 101, which originally reached the Klamath via the drainage of Richardson Creek, was rerouted down the drainage of Waukell Creek, further disrupting the landscape that had already suffered so often from floods.

### *3.5.2 Historic, Cultural, and Religious Properties*

An intensive archaeological field reconnaissance of the Roadway Elevation Project and Flood Mitigation Project, which is inclusive and adjacent to the housing area, was conducted by Kevin Smith, B.A., Mathew Steele, B.A., Ryan Brown, B.A., and Erik Whiteman M.A., on January 14, 2008. The archaeological field investigation involved an intensive survey of the entire project APE including berms, inspection of cut banks for buried subsurface soils or deposits, exposed mineral soils, which offered the best ground visibility, and sample inspection of areas within the brush. The archaeological survey of the project area was conducted on a fifteen meter abreast transects interval walked in a north-south direction with 1 by 1 meter surface scrapes every 10 meters. Once the surface survey was completed, areas deemed sensitive or that appeared to warrant additional inspection were surveyed further. Erik Whiteman surveyed the banks of Waukell Creek for approximately ¼ mile upstream of the road crossing. Flats and landings that could potentially be used for equipment staging and material storage were surveyed as well.

Special attention was given to rodent burrows, cut banks, and areas where land surface features appeared to be unusual (rises, depressions, etc). Surface visibility ranged from 10-75 percent and was limited by long wetland grasses, Himalayan blackberry bushes, and thick patches of sandbar willow. In areas of poor surface visibility, duff and vegetation was swept aside at 15 meter intervals to examine the ground surface. Hoe and shovel scrapes were used to examine subsurface soils. Cultural materials that were expected included but were not limited to chert and obsidian tools, lithic debris, ground stone implements, milling stone features, locally darkened soil, shell and/or bone debris, and pit features. Expected historic cultural resource indicators included ceramic, glass, and metal artifacts, structures, and pits. The Cultural Resources Investigation was designed to satisfy environmental requirements specified in Section 106 of NHPA by: (1) identifying and recording significant cultural resources within the project area and APE, (2) offering a preliminary significance evaluation of the identified cultural resources in accordance with a Phase I investigation, (3) assessing the potential impacts to cultural resources resulting from the implementation of proposed project activities, and (4) offering recommendations designed to protect resource integrity, as warranted. A historic fruit orchard (RA-RR-1) consisting of apple, cherry, and a single fig tree is located within the APE. This site was recorded on the appropriate Department of Parks and Recreation forms (DPR 523). One obsidian cobble was located in disturbed context among the imported gravels of the service building parking lot. The obsidian appears to be modern in origin and was located in a heavily disturbed context. Ubiquitous modern refuse is common

throughout the project area, including seats, tires, and batteries from automobiles, a carved wooden sign, stacked wooden beams (machined with modern nails), plastic bottles, other various litter, and several aluminum cans.

It is the opinion of Roscoe and Associates that the orchard, listed as site RA-RR-01, does not meet the criteria for inclusion in the CRHR as a significant historical resource nor the NRHP as a significant historical property. The site is not associated with an important event on the local or national level; therefore, this site is not considered significant under Criterion A. The site is not significant under Criterion B because extensive archival research revealed that it is not likely to be directly associated with an important person. This site cannot be considered significant under Criterion C because it does not posses a particular quality such as the oldest type or best available example of its type. It is not eligible under Criterion D because it does not posses data to address important research questions. No further archaeological studies are recommended at this time. However, there is a possibility that cultural resources may be uncovered during the construction of the planned residential development.

## *3.6 SOCIOECONOMIC CONDITIONS*

According to the U.S. Census 2000, Del Norte County had a civilian labor force of 10,079 persons in 2000. 1,070 persons in the labor force were unemployed in 2000, creating an unemployment rate of 10.7 percent. In 2006, Del Norte prison jobs accounted for approximately 18 percent of total county employment. 31.5 percent of the labor force was employed in service occupations, and 24.3 percent were employed in management, professional, and related occupations.

Other types of employment included: sales and office occupations (21.7 percent of the labor force), production, transportation, and material moving occupations (9.4 percent of the labor force), construction, extraction, and maintenance occupations (8.8 percent of the population), and farming, fishing, and forestry occupations (4.3 percent of the population). The median household income for Del Norte County in 2000 was $29,642. 16.4 percent of families and 20.2 percent of individuals in Del Norte County were living below the poverty level in 2000. For the Resighini Rancheria, the following characteristics from the 2000 Census is provided.

| Subject | Number | Percent |
|---|---|---|
| | | |
| **Total population** | **36** | **100.0** |
| | | |
| **SEX AND AGE** | | |
| Male | 20 | 55.6 |
| Female | 16 | 44.4 |
| | | |
| Under 5 years | 8 | 22.2 |
| 5 to 9 years | 3 | 8.3 |
| 10 to 14 years | 3 | 8.3 |
| 15 to 19 years | 4 | 11.1 |
| 20 to 24 years | 2 | 5.6 |
| 25 to 34 years | 3 | 8.3 |
| 35 to 44 years | 9 | 25.0 |
| 45 to 54 years | 2 | 5.6 |
| 55 to 59 years | 1 | 2.8 |
| 60 to 64 years | 0 | 0.0 |
| 65 to 74 years | 0 | 0.0 |
| 75 to 84 years | 0 | 0.0 |
| 85 years and over | 1 | 2.8 |
| | | |
| Median age (years) | 19.0 | (X) |

### *3.6.1 Employment and Income*

According to the US Census, the Resighini Rancheria experienced a 20 percent unemployment rate in 2000. This is almost double the unemployment rate for Del Norte County.

| Subject | Number | Percent |
|---|---|---|
| | | |
| **EMPLOYMENT STATUS** | | |
| **Population 16 years and over** | **20** | **100.0** |
| In labor force | 20 | 100.0 |
| Civilian labor force | 20 | 100.0 |
| Employed | 16 | 80.0 |
| Unemployed | 4 | 20.0 |
| Percent of civilian labor force | 20.0 | (X) |
| Armed Forces | 0 | 0.0 |
| Not in labor force | 0 | 0.0 |
| | | |
| **Females 16 years and over** | **9** | **100.0** |
| In labor force | 9 | 100.0 |
| Civilian labor force | 9 | 100.0 |
| Employed | 9 | 100.0 |

### *3.6.2 Demographic Trends*

The California Department of Finance (DOF) projects that the population of Del Norte County will increase by approximately 1.5 percent to 36,077 persons by the year 2020. In the year 2020, the DOF projects that approximately 63.07 percent will be white, 19.02 percent of the population will be Hispanic, 2.3 percent will be Asian or Pacific Islander, 4.7 percent will be black, and 7.2 percent will be American Indian.

## *3.7 Attitudes, Expectations, Lifestyle, and Cultural Values*

## *3.8 Community Infrastructure*

### *3.8.1 Fire Protection*

The Klamath Fire Protection District (KFPD) provides first response fire and medical service to the Resighini Rancheria through a contract between the Fire District and the Rancheria. The KFPD is operated by 15 local residents, approximately 12 of which are “active” firefighters, all of which work on a volunteer basis. KFPD’s main office is located at 16081 Highway 101, in Klamath, with three additional fire stations located throughout the Klamath region. Within Del Norte County, KFPD claims it can respond to incidents in the entire district within 15 minutes, with half of the District receiving a response time of only ten minutes. (Del Norte Fire Safe Plan, Fire Safe Council, 2005)

### *3.8.2 Law Enforcement*

The Del Norte County Sheriff’s Office is responsible for providing law enforcement to all areas of Del Norte County. The Sheriff’s Office has a patrol division, jail division, civil office, court security and county-side emergency communication. Search and Rescue operations are also provided by the Del Norte Sheriff. Located in Crescent City, the Del Norte County Sheriff Department

is approximately 25 miles from the Resighini Rancheria. The Klamath Tribal Police Office, operated by the Yurok Tribal Police Department, is located less than 4 minutes from the Rancheria and can provide emergency assistance to the site within ten minutes. (YurokTribe.org/departments/police/police.htm)

### *3.8.3 Schools*

The project area is located within the vicinity of several schools including Margaret Keating Elementary School (K-5), Crescent Elk Middle School (6-8) Del Norte High School (9-12), Sunset Continuation High School (9-12), and Klamath River Early College.

The two closest schools are Margaret Keating located approximately 3.5 miles from the site and Klamath River Early College 1.5 miles.

### *3.8.4 Solid Waste Disposal*

The Del Norte Solid Waste Management Authority oversees solid waste and recycling services in Del Norte County. Del Norte Disposal, Inc. is the contract solid waste and recycling provider for the Solid Waste Authority. The Solid Waste Management Authority operates the Del Norte County Transfer Station at 1700 State Street that is used by Del Norte Disposal, Inc.

Solid waste from Del Norte County is landfilled at the Dry Creek Landfill, located near Medford, Oregon. As of 2006, the landfill had a remaining capacity of 47.5 million tons, which is estimated to provide at least 50 years of operational life. The Rancheria's Environmental Program also manages several recycling programs for the community.

### *3.8.5 Gas & Electric Services*

PacifiCorp provides electricity service to Del Norte County. PacifiCorp provides energy through its trade names, Pacific Power and Rocky Mountain Power, and provides service encompassing 136,000 square miles in six states (Washington, Oregon, California, Idaho, Utah, and Wyoming). MidAmerica Energy Holdings acquired the company in 2006. Del Norte County is served by the Pacific Power trade name.

Suburban Propane in Crescent City provides propane gas service.

### *3.8.6 Communications Service*

Verizon provides telephone services in Del Norte County. Verizon provides long distance services, wireless services, Internet access (dial-up), and other business solutions to residential and commercial consumers. Verizon Telephone lines are located adjacent to the project site along Klamath Beach Road.

### *3.8.7 Water Service*

Through the American Recovery and Reinvestment Act (ARRA), the Resighini Rancheria will be receiving approximately $195,000 for two projects to increase the availability and reliability of water for the Rancheria. The projects include the installation of a temporary community water line and the installation of a

community well. Both the well and the water line will provide a safe, reliable water support to the Rancheria. (Bureau of Reclamation's ARRA Drought Funding Project Summary)

### *3.8.8 Sanitary Sewer Services*

The proposed project site is not currently served by a sanitary sewer system. On- site sewage systems in Del Norte County generally serve rural and other low-density areas. Private aerobic or septic systems are used in most parts of the unincorporated areas of the County and are proposed for the housing development.

The Arcata Field Office of the Indian Health Service is currently completing a series of percolation tests and will complete a feasibility study for on-site septic system disposal.

## *3.9 RESOURCE USE PATTERNS*

### *3.9.1 Hunting, Fishing, Gathering*

The proposed housing site is not currently being used for hunting or gathering. Off site and within Rancheria lands, gathering and fishing activities are exercised on a regular basis.

### *3.9.2 Timber*

The Rancheria's boundaries are abutted by U.S. Highway 101 on the west side, the Klamath River on the north, and a private industrial timberland owner, the Green Diamond Resource Company, on the south and eastern sides. Typically, when Green Diamond Resource Company harvests timber in this vicinity, it harvests approximately 3 harvest units and extracts on the order of two million board feet of timber product in a given season. The harvesting season is limited to the summer months for regulatory reasons. The harvesting of 3 units would require the use of access and appurtenant roads for a period of about two consecutive summer months. Green Diamond Resource Company presently operates on and manages the land that is adjacent to the Rancheria, but management typically entails harvesting in these units every several years, and not every consecutive year. When harvesting does take place, heavy logging equipment is transported to the site from U.S. Highway 101, to Klamath Beach Road (East), and then to the harvest site via the access road, Simpson Road. The reverse route is followed when logs are transported to mills. Harvesting requires that access be permitted between Simpson Road and U.S. Highway 101.

Within the project site, logging occurred as recently as two-years ago and as a result, there are no significant merchantable stands of timber.

### *3.9.3 Agriculture*

A small number of residents of the Rancheria (less that 4 percent) earn an income from agricultural ventures.

### *3.9.4 Mining*

There are no known mineral or energy resources of local, regional, or national importance on the proposed project site. Therefore, no impacts to mineral or energy resources would occur as a result of the proposed project.

### *3.9.5 Recreation*

The Rancheria is a community with residential, recreational, and commercial uses. There are a growing number of residents here that live on the Rancheria all year. There is a RV Park for people to visit and camp along the historic, beautiful, and majestic Klamath River. The Rancheria has its business offices at the Rancheria where it holds meetings and administrates all of the residents' agreements and business licenses. Tribal laws, including those for health and safety, are administered through the Tribal Offices at the Rancheria. The wellbeing of the Rancheria depends on the continued safety of the people who work, live, and visit the Rancheria. Economically, the Rancheria benefits substantially from the continued use of the RV Park.

### *3.9.6 Transportation Network*

Southeast Klamath Beach Road is approximately 1.20 miles long within the Rancheria. Traffic data from BIA indicates that Klamath Beach Road has a total length of 3.76 miles. This includes a 2.56 mile segment of Klamath Beach Road that is located to the west of U.S. Highway 101. According to the Indian Reservation Road Inventory the total Average Daily Trips (ADT) for Klamath Beach Road is 450 ADT. All other Rancheria Roads have ADT's ranging from 55 to 79 (IRR Pacific Region 2008).

Currently within the Rancheria there is the closed casino structure consisting of approximately 6,000 square feet, eight single-family residential units, two multi-purpose buildings totaling approximately 1,500 that are currently unused, the Tribal Offices building consisting of approximately 1,500 square feet and a Campground/Recreational Vehicle Park area that includes 50 camping spaces. The current estimated ADT for the single-family residences is 77 ADT. The current estimated ADT for the Tribal Offices building is 17 ADT. The Campground is estimated to have an ADT equal to that of the number of camping spaces provided, which is 50 ADT.

The projected new ADT that would result during build-out of 20 single family units is estimated at 225 ADT. The ADT of 225 is considered to be minimal in the context of the project area in that there is little other development in the vicinity and this level of traffic will not impact the existing roadways in the vicinity of the project, U.S. Highway 101 and the improved, elevated Klamath Beach Road and Tribal Offices Road.

### *3.9.7 Land Use Plans*

Currently, the Resighini Rancheria does not have a zoning ordinance or land use plan that regulates land use activities. The proposed property is currently under the jurisdiction of Del Norte County and is zoned A-E (Agricultural Exclusive).

The Bureau of Indian Affairs will, if the land is accepted into "Tribal Trust" status, apply 25 CFR provisions on the subject parcel. 25 CFR, Subchapter A - Procedures; Practice, Section 1.4, State and local regulations of the use of Indian property provides:

> *Except as provided in paragraph (b) of this section, none of the laws ordinances, codes, resolutions, rules or other regulations of any State or political subdivision thereof limiting zoning or otherwise governing, regulations, or controlling the use or development of any real or personal property, including water rights, shall be applicable to any such property leased from or held or used under agreement with and belonging to any Indian or Indian trust by the United States or is subject to a restriction against alienation imposed by the United States.*
>
> *The Secretary of the Interior or his authorized representative may in specific cases or in specific geographic areas adopt or make applicable to Indian lands all or any part of such laws, ordinances, codes, resolutions, rules or other regulations referred to in paragraph (a) of this section as he shall determine to be in the best interest of the Indian owner or owners in achieving the highest and best use of such property. In determining whether, or to what extent, such laws, ordinances, codes, resolutions, rules or other regulations shall be adopted or made applicable, the secretary or his authorized representative may consult with the Indian owner or owners and may consider the use of and restrictions or limitations on the use of other property in the vicinity and such other factors as he shall deem appropriate.*

## *3.10 OTHER VALUES*

### *3.10.1 Wilderness*

The proposed project site is not located in a natural wilderness area.

### *3.10.2 Sound and Noise*

The proposed project will generate noise mainly in the form of vehicles traveling to the planned development. Since no construction or development is proposed as part of this direct effects action, there would be no construction-level, or post-operational noise associated with the proposed project, nor would any new or existing sensitive receptors be created or impacted; therefore, no significant sound or noise impacts would occur as a result of the proposed project.

For the indirect effects of the future housing development, some minor construction-level, or post-operational noise associated with the proposed project will be generated, however no new significant sensitive receptors will be created or impacted.

### *3.10.3 Public Health and Safety*

The Potawot Health Village, along with a network of satellite clinics, provides health care services to the Resighini Rancheria and other Indian reservations. Among the services included at the Potawot Health Village is complete primary

care, obstetrics, vision, dental, public and community health, nutrition, child and family services, a pharmacy, as well as tobacco awareness and diabetes prevention programs. The Potawot Health Village is located in Arcata, approximately 55 miles from the Rancheria.

### *3.10.4 Aesthetics*

There are portions of U.S. Highway 101 in Del Norte County that are designated Scenic Highways and also, portions of the Klamath River that are designated as a Wild and Scenic River by the Department of Interior. However, this project will not change the aesthetics of either the adjacent U.S. Highway 101 or the Klamath River. In fact, the proposed land acquisition project will have no effect on the aesthetics of the subject parcel, the Rancheria. Aesthetic changes posed by the proposed project are considered negligible.

### *3.10.5 Hazardous and Chemical Wastes*

Laco Associates conducted a Phase 1 Environmental Site Assessment (ESA) on the subject property. A Phase 1 ESA is designed to identify obvious recognized environmental conditions in connection with the previous and current land uses and ownership of the subject site. Laco Associates performed this Phase 1 ESA's in conformance with the American Society for Testing and Materials (ASTM) E 1527-05 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The purpose of the Phase I Report is to comply with the requirements of the Bureau of Indian Affairs Departmental Manual 602 (DM 602) for the proposed acquisition of real property by the Bureau of Indian Affairs to be held in Trust by the United States for Federally-recognized Indian Tribes.

Based on a combination of field reconnaissance and database research, no mapped sites were found in the search of reasonably ascertainable government records either on the target properties or within the ASTM E 1527-05 search radius, nor does the subject property exhibit any characteristics that indicate the presence of contamination on site or contamination impacts to properties within ½ - mile of the site.

The conveyance of the properties from fee-to-trust status can go forward without the need for a Phase II Report and the acquisition of the properties does comply with the requirements of the Bureau of Indian Affairs Departmental Manual 602 (DM 602).

The Bureau of Indian Affairs has the responsibility to confirm the findings of the Phase 1 ESA and certify that the provisions of DM 602 are met.

# 4.0 ENVIRONMENTAL CONSEQUENCES

This section of the EA analyzes the effects of the proposed conveyance of 38.77± acres of property from "fee" to "federal trust" status for the Resighini Rancheria. The eventual development of 20 single-family housing units for members of the Tribe is also analyzed.

For the purposes of this analysis, both direct and indirect impacts were reviewed. Direct effects, are those are caused by the proposed action and occur at the same time and place (i.e. the trust conveyance). Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (i.e. construction of 20 single-family housing units). Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (40 CFR 1508.8)

Apart from the removal of the property from local tax rolls, the trust conveyance of the property as a direct effect might be considered insignificant as the loss of property taxes by the County is $91.98 per annum for AP 140-130-36. No significant impacts to the natural and human environments are anticipated to occur with the proposed trust conveyance as the action is "administrative" with development not a consideration.

The proposed action includes land parcels currently owned in fee simple status by the Tribe and would be developed for housing in the foreseeable future. The build-out development of the housing area is forecasted to occur approximately fifteen-years after the property is conveyed to trust status once financing is secured under NAHASDA and/or private financing. This indirect effect of the trust conveyance is discussed below:

## *4.1 LAND RESOURCES*

The direct effects of the proposed action (trust conveyance) will not have an impact to topography, soil types & characteristics, geologic setting and mineral resources. The indirect effect of construction of the housing would impact land resources as building foot prints and roadways are constructed.

*Soil Types and Characteristics*
The construction of the proposed project would remove native vegetation and grasses and vegetation and involve grading and earth moving activities. This would increase the potential for erosion impacts. Therefore, implementation of the best management practices (BMP) would be required.

> *BMP 1: An erosion and sedimentation control plan for the proposed project shall be prepared by a qualified civil or geotechnical engineer and implemented during the construction of the proposed project. The erosion and sedimentation control plan shall include best management practices to reduce potential erosion and sedimentation impacts.*

With the implementation of the above BMP, impacts related to erosion would be reduced to less than significant levels during the construction of the project. After construction of the proposed project, native soils would be covered by landscaping and vegetation or by impervious surfaces, such as buildings, concrete or asphalt. This would stabilize soils and reduce the potential for erosion.

*Seismic Hazards*
The proposed area would be subject to ground shaking if a seismic hazard were to occur. Compliance with the Uniform Building Code and standard engineering design techniques would help to reduce potential impacts related to ground shaking. These site conditions would increase the potential for geotechnical hazards. Therefore, BMPs would be required.

> *BMP 2: Prior to construction, a final geotechnical investigation shall be prepared for the proposed project. The design of the project shall incorporate the engineering recommendations from the geotechnical investigation. Recommendations may include (but are not limited to) the export of unstable soils, the use of engineering fill, foundation and retaining wall design requirements, and other related engineering design measures to lessen potential geotechnical hazards at the site.*

With the implementation of the above BMP, impacts would be considered less than significant.

*Mineral Resources*
There are no known mineral or energy resources of local, regional, or national importance on the proposed project site. Therefore, no impacts to mineral or energy resources would occur as a result of the proposed project.

*No-Action Alternative*
Under the No Action Alternative, the proposed property would remain in fee status. Existing environmental conditions on the site would remain unchanged.

## *4.2 WATER RESOURCES*

The direct effects of the proposed action (trust conveyance) will not have an impact to water quality.

The indirect effects on water quality due to urbanization are typical of those for any housing development. In general, urbanization has a direct impact on water resources and water quality. Urbanization introduces impervious surfaces to the landscape, including concrete, asphalt, and other building materials. This reduces the amount of pervious surfaces, which are vital for groundwater percolation and the recharge of groundwater aquifers. In addition, urbanization reduces natural vegetation, which plays an important role in reducing erosion and sedimentation, and filtering pollutants from water as it percolates the soil. Urbanization also decreases water quality by increasing the amount of pollutants that enter waterways. Pollutants, including silt, herbicides, pesticides, fertilizers, trash, grease, oil, hydrocarbons, and heavy metals are constantly introduced to a developed environment. Stormwater often carries these pollutants from streets, parking lots, and landscaped areas to urban drainage systems that flow to natural streams, rivers, and lakes. These pollutants can pose a serious threat to the water quality of the streams, rivers, and lakes, and can have a negative impact on the ecology.

The construction of the proposed project would involve the removal of native vegetation through grading and earth moving activities. This would expose native soils and increase the potential for erosion and sedimentation, which could have a negative impact on stormwater runoff and off-site water bodies. In addition, construction sites can

also introduce water pollutants to stormwater runoff, including paints, solvents, concrete, drywall, pesticides and fertilizers, construction debris and trash, and spilled oil, fuel, and other fluids from construction vehicles. These activities will be covered by the EPA's NPDES General Storm Water Discharge Permit for Construction Activities that the Tribe will obtain. Therefore, best management practices would be required.

*BMP 3: The following best management practices shall be implemented during the construction of the proposed project site to reduce potential water quality impacts:*

- *Phase grading operations to reduce disturbed areas and time of exposure. Avoid grading and excavation during wet weather.*
- *Construct diversion dikes and drainage swales to channel runoff around the construction site.*
- *Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive of unnecessary disturbances and exposure.*
- *Plant vegetation on exposed slopes or use erosion control blankets (e.g., jute matting, glass fiber or excelsior matting, mulch netting) to reduce the potential for erosion.*
- *Once grading is complete, stabilize the disturbed areas with permanent vegetation as soon as possible.*
- *Cover stockpiled soil and landscaping materials with secured plastic sheeting and divert runoff around them.*
- *Protect drainage courses, creeks, or catch basins with straw bales, silt fences, and/or temporary drainage swales.*
- *Protect storm drain inlets from sediment-laden runoff with sand bags barriers, filter fabric fences, block and gravel filters, and excavated drop inlet sediment traps.*
- *Prevent construction vehicles from tracking soil onto adjacent streets by constructing a temporary stone pad with a filter fabric underliner near the exit where dirt and mud can be washed from vehicles.*
- *Use dry-sweep methods to clean sediments from streets, driveways, and paved areas of the construction site.*
- *Maintain all construction vehicles and equipment. Inspect frequently for and repair leaks.*
- *Designate specific areas of the construction site, located well away from creeks or storm drain inlets, for auto and equipment parking and routine vehicle maintenance.*
- *Perform major maintenance, repair, and vehicle and equipment washing off site or in designated and controlled area. Clean up spills immediately.*
- *When vehicle fluids or materials such as paints, solvents, fertilizers, and other materials are spilled, cleanup immediately. Use dry cleanup techniques whenever possible.*
- *Store wet and dry building materials that have the potential to pollute runoff under cover and/or surrounded by berms when rain is forecast or during wet weather months.*
- *Cover and maintain dumpsters.*
- *Collect and properly dispose of construction debris, plant and organic material, trash, and hazardous materials as soon as possible.*
- *Plan roadwork and pavement construction to avoid stormwater pollution*

*during wet weather months.*

With the implementation of the above best management practices measures, water quality impacts during construction would be reduced to a less than significant level.

After construction of the proposed project, the site would include housing units and paved surfaces, and landscaping with vegetation and ground cover. This would greatly reduce the potential for water quality impacts related to erosion and sedimentation. However, the conceptual plan for the housing development indicates the development would introduce impervious surfaces to the proposed project site. These impervious surfaces would increase the amount and rate of stormwater runoff on the site. This could result in potentially significant impacts to the existing storm drain system along Klamath Beach Road. In addition, the introduction of access roads on the proposed project site would also increase the potential for stormwater quality impacts. Access roads would collect oil, grease, transmission and brake fluid, solvents, heavy metals, and other pollutants that are typically concentrated on surface streets. Because these pollutants are typically washed directly from impervious surface areas and are transported to storm drains and creeks, the increase of impervious surfaces on the site would result in potentially adverse water quality impacts. Therefore, best management practices specified below would be required.

*BMP 4: The drainage plan for the proposed project shall include feasible post construction stormwater quality control measures. Such measures shall include any combination of the following techniques:*

- *Design the proposed project to locate impervious surfaces as far away from natural drainage channels as possible and utilize vegetation and grass swales to decrease runoff velocity and filter stormwater pollutants.*
- *Install drop inlets that channel stormwater to a sedimentation trap and then to a new detention pond. Detention ponds should be designed to allow sediments and pollutants to settle, to release runoff at pre-development levels, and to filter nutrients in the runoff by including wetland plants.*
- *Install and regularly maintain catch basin or inlet inserts, grease/oil water separators, or media filters to capture and filter stormwater pollutants.*

With the implementation of the above BMPs, stormwater quality impacts would be considered less than significant.

*Wetlands*
The direct effects of the proposed action (trust conveyance) will not impact wetlands.

The subject site includes dominant hydrophytic vegetation contained in the inventory of vascular plants. Hydrology on the site and hydric soils are present. A portion of the site therefore qualifies as a jurisdictional wetland under the Army Corps of Engineers (ACOE) and the Environmental Protection Agency (EPA) definition. Because the site possibly contains jurisdictional wetland, a setback buffer zone will need to be incorporated in the design of the proposed housing project as a best management practice.

*No-Action Alternative*

Under the No Action Alternative, the proposed property would not be developed and existing water resource and water quality conditions would remain unchanged. No impacts related to water resources would occur with the No Project Alternative.

## *4.3 AIR QUALITY*

The direct effects of the proposed action (trust conveyance) will not impact air quality thresholds.

Due to the indirect effects of the project, air quality impacts will require evaluation. The 1990 amendments to federal Clean Air Act Section 176 required the EPA to promulgate rules to ensure that federal actions conform to the appropriate State Implementation Plan (SIP). These rules, known together as the *General Conformity Rule* (40 CFR §§ 51.850-.860 and 40 CFR §§ 93.150-160), require any federal agency responsible for an action in a non-attainment or maintenance area to determine that the action is either exempt from the General Conformity Rule's requirements or positively determine that the action conforms to the applicable SIP. In addition to the roughly 30 presumptive exemptions established and available in the General Conformity Rule, an agency may establish that forecast emission rates would be less than the specified emission rate thresholds, known as *de minimis* limits. An action is exempt from a conformity determination if an applicability analysis shows that the total direct and indirect emissions from the project would be less than the applicable *de minimis* thresholds and would not be regionally significant, which are defined as representing 10 percent or more of an area's emissions inventory or budget.

The proposed housing project would result in the emission of pollutants, and would therefore contribute cumulatively to the regional and local pollutant concentrations. However, for a cumulative impact to be significant, the contribution must be substantial or considerable. It has been determined that anticipated emissions related to the proposed housing project would be less than significant using the State of California's URBEMIS Software for screening potential impacts to air quality. The unmitigated area and operational emissions derived from the URBEMIS modeling indicate the following:

| | ROG | NOx | CO | $SO_2$ | $PM_{10}$ |
|---|---|---|---|---|---|
| Single Family Housing (20) | | | | | |
| Total Emissions (lbs/day) | 4.24 | 4.53 | 33.00 | 0.04 | 3.11 |

In order to address short-term emission issues during construction, the best management practices are incorporated in the project design.

The construction of the proposed project would involve grading and earth moving activities. These activities would generate construction emissions of particulate matter ($PM_{10}$ and $PM_{2.5}$) that could drift off-site into the North Coast Unified Air Quality Management District (NCUAQMD) jurisdiction. Any addition to the current $PM_{10}$ problem could be considered significant. However, the NCUAQMD has determined that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the perspective of the NCUAQMD, compliance with the control measures described in BMP 5 below would constitute sufficient best management practices to reduce $PM_{10}$ and $PM_{2.5}$ impacts to a level considered less than significant.

*BMP 5: The following control measures shall be implemented during the construction of the proposed project to reduce construction emissions of* $PM_{10}$ and $_{2.5}$*:*

- *All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover, or vegetative ground cover.*
- *All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.*
- *All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.*
- *When materials are transported off-site, all materials shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of container shall be maintained*
- *All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden).Following the addition of materials to, or the removal of materials from, the surface or outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer or suppressant. Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each work day.*
- *Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.*
- *Limit traffic speeds on unpaved roads to 15 mph.*
- *Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.*
- *Suspend excavation and grading activities when winds exceed 20 mph.*
- *Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.*

With the implementation of the above measures, construction emission impacts would be considered less than significant.

*No-Action Alternative*
Under the No Action Alternative, the proposed property would not be developed and would remain in fee status. Existing environmental conditions on the site would remain unchanged.

## *4.4 LIVING RESOURCES*

As a direct effect, the proposed trust conveyance is not expected to impact rare or endangered plant or animal species.

For indirect effects, the project will potentially result in significant impact to various tree nesting raptors if construction occurs during the breeding season and breeding pairs

have established nests in suitable habitat within or adjacent to the project site. Future construction would stay a minimum of 100 feet from the outer edge of the riparian canopy protecting these species and the riparian habitat.

The mitigation guidelines outlined above will result in no effect on most regional special status plants and animal species populations, and a less than significant effect on the remaining populations. The project will result in a less than significant impact to native wildlife habitat, wildlife movements and sensitive biological communities, including riparian areas, wetlands and other Waters of the United States.

No-Action Alternative
Under the No Action Alternative, the proposed property would not be developed and would remain in fee status. Existing environmental conditions on the site would remain unchanged.

## *4.5 CULTURAL RESOURCES*

It is possible that unrecorded prehistoric and historic cultural resources exist in parts of the parcel that includes the planned residential development based upon a recent survey report, historic and ethnographic information, and consideration of settlement patterns. However, the proposed conveyance of the property will not have a direct impact on resources.

Subsurface testing of the site revealed a diffuse, but diverse range of subsurface deposits of cultural remains. Based on the findings of the archaeological testing and evaluation, and the criteria established in 36 Code of Federal Regulations 60.4, the site may contain resources eligible for nomination for inclusion in the National Register of Historic Places. The cultural resources report also recommended that any future development of the subject property be designed to avoid adverse impact to the nine sites within the subject property. The indirect effects will not impact cultural resources as avoidance has been employed in the conceptual design of the housing project.

In the event of any inadvertent discovery of cultural resources during development of access roads and the housing project, all such finds shall be subject to the implementing regulations under Section 106 of the NHPA (36 CFR Part 800) and the Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. 470 aa-mm) and its implementing regulations on Indian Trust lands (25 CFR 262).

*Mitigation Measures*
Since there is a possibility of unknown cultural resources, the Tribe will include the following requirement in the contract specifications for the construction of the proposed housing project to mitigate impacts:

> *BMP 6: In the event that any prehistoric, historic, or paleontological resources are discovered during construction-related earth moving activities, all work within 50 feet of the resources will be halted and the Tribe shall consult with a qualified archaeologist and the BIA Regional Archaeologist to access the significance of the find. If any find is determined to be significant by the qualified archaeologist and the BIA Regional Archaeologist, then representatives from the Tribe will meet to determine the appropriate course of action.*

*No-Action Alternative*
Under the No Action Alternative, the proposed property would not be developed and would remain in fee status. Existing environmental conditions on the site would remain unchanged. The No-Action Alternative would not offer additional protection of possible cultural sites that is provided by trust conveyance of the property.

## *4.6 COMMUNITY INFRASTRUCTURE*

Since no construction or development is proposed as part of an administrative land conveyance action, no significant impacts on the Yurok Tribal, or other local non-tribal communities' infrastructure would occur as a result of direct effect.

The indirect effect of development of the site for 20-single family units could have an impact as the demand for community infrastructure will increase.

*Mitigation Measures*

*Fire Protection*
The proposed project would increase the demand for fire protection and emergency medical services in the area. Therefore, protective measures would be required:

> BMP 7: The proposed housing development shall be designed in compliance with the following fire safety standards: All structures shall be designed in compliance with the Uniform Fire Code. Compliance with the Uniform Fire Code may require the use of fire-safe building materials.
>
> - *Emergency access shall be ensured by a minimum 18-foot road or driveway width with surfaces accommodating conventional vehicles and 40,000 pound loads, grades not exceeding 16 percent, curve radii of at least 50 feet, dead ends meeting maximum length requirements with turnouts and turnarounds, and roadway structures and gate entrances that do not obstruct clear passage of authorized vehicles.*
> - *Signing and building numbering shall facilitate locating a fire and avoiding delays in response times by being sufficiently visible, non-duplicative, and indicative of location and any traffic access limitations.*
> - *Emergency water sources shall be available and accessible in adequate quantities to combat wildfire with labeled hydrants meeting uniform specifications.*
> - *The proposed housing development shall be landscaped and maintained to reduce the risk of wildland fire hazards. Flammable vegetation shall not be planted adjacent to structures and in the general vicinity of the development. Fuel modification practices shall be practiced to reduce the volume and density of flammable vegetation on the proposed project site.*

*Law Enforcement*
The proposed project would not directly increase the demand for law enforcement services in the area, though the future construction of 20 single-family homes would increase the demand on law enforcement in the area. This increase in demand could have an impact on the Del Norte County Sheriff's Department ability to provide adequate services in the surrounding area.

*BMP 8: The proposed housing development will be served by the Del Norte County Sheriff's Department.*

*Emergency Medical Services*
First response fire and emergency medical care in the project vicinity is provided by the Klamath Fire Protection District (KFPD) through a contract between the Fire District and the Rancheria. The KFPD is operated by 15 local residents, approximately 12 of which are "active" firefighters, all of which work on a volunteer basis. KFPD's main office is located at 16081 Highway 101, in Klamath, with three additional fire stations located throughout the Klamath region. Within Del Norte County, KFPD claims it can respond to incidents in the entire district within 15 minutes, with half of the District receiving a response time of only ten minutes. No impacts to emergency medical services would likely occur as a result of the proposed project if the same BMP's for fire protection are employed.

*Schools*
The proposed project would involve the construction of new housing but is not anticipated to result in a significant increase in the population of the area. For the proposed residential units planned, if children of school-age are residents, Title VIII of the Elementary and Secondary Education Act of 1965 will provide special funding from the U.S. Department of Education to the local school districts. This program is commonly known as Indian Impact Aid.

Many local school districts across the United States include within their boundaries parcels of land that are owned by the Federal Government or that have been removed from the local tax rolls by the Federal Government, including Indian lands. These school districts face special challenges — they must provide a quality education to the children living on the Indian and other Federal lands and meet the requirements of the No Child Left Behind Act, while sometimes operating with less local revenue than is available to other school districts, because the Federal property is exempt from local property taxes.

Since 1950, Congress has provided financial assistance to these local school districts through the Impact Aid Program. Impact Aid was designed to assist local school districts that have lost property tax revenue due to the presence of tax-exempt Federal property, or that have experienced increased expenditures due to the enrollment of federally connected children, including children living on Indian lands. Local schools will be eligible for this special funding once the property is conveyed to trust. Therefore, no impacts to schools would likely occur as a result of the proposed project.

*Solid Waste Disposal*
The proposed project would not substantially increase the amount of solid waste generated at the proposed project site and disposed of at the Dry Creek Landfill, located near Medford, Oregon. Therefore, no significant impacts to the capacity of regional landfills would likely occur as a result of the proposed project.

The Del Norte Solid Waste Management Authority oversees solid waste and recycling services in Del Norte County. Del Norte Disposal, Inc. is the contract solid waste and recycling provider for the Solid Waste Authority. The Solid Waste Management Authority operates the Del Norte County Transfer Station at 1700 State Street that is used by Del Norte Disposal, Inc.

Solid waste from Del Norte County is landfilled at the Dry Creek Landfill. As of 2006, the landfill had a remaining capacity of 47.5 million tons, which is estimated to provide at least 50 years of operational life. The Rancheria's Environmental Program also manages several recycling programs for the community.

*Gas & Electric Services*
Electricity is supplied to Del Norte County by PacificCorp. Several trade names, such as Pacific Power and Rocky Mountain Power, are used by PacifiCorp to provide services to six states. The project site will be served by the Pacific Power trade name. All the necessary utility easements and rights-of-way access pursuant to 25 U.S.C. §81 will need to be granted in order for the utility to extend service. Propane gas service is available from Blue Star Gas Company as well as Suburban Propane in Crescent City. Capacity is not an issue. Therefore, no impacts to gas and electrical services would likely occur as a result of the proposed project.

*Communications Service*
All basic telecommunications services, including cellular communications, are provided by Verizon. Verizon provides telecommunication services to the Rancheria's existing residences, and community buildings. Existing telephone lines are located adjacent to the project site along Klamath Beach Road. Therefore, Verizon has adequate capacity to serve the community development activities of the proposed project.

*Water Service*
Water service for the Rancheria is planned to be constructed.. Through the American Recovery and Reinvestment Act (ARRA), the Resighini Rancheria will be receiving approximately $195,000 for two projects to increase the availability and reliability of water for the Rancheria. The projects include the installation of a temporary community water line and the installation of a community well. Both the well and the water line will provide a safe, reliable water source to the Rancheria. The planned development of the water line and community well will provide additional water to the site to support the community development activates associated with the proposed project. Appropriate treatment facilities to meet the criteria of the Safe Drinking Water Act may need to be established in the future. (Bureau of Reclamation's ARRA Drought Funding Project Summary).

*Sanitary Sewer Services*
The proposed project site is not currently served by a sanitary sewer system. However, the Indian Health Service is in the process of completing a feasibility study for on-site septic systems that will serve the project site. Private aerobic or septic systems are used in most parts of the unincorporated areas of the County and would be proposed for the housing development. The septic systems that will meet those requirements outlined in the *Manual of Septic Tank Practice*.

*No-Action Alternative*
Under the No Action Alternative, the proposed property would not be developed and would remain in fee status. Existing environmental conditions on the site would remain unchanged.

## *4.7 TRANSPORTATION NETWORKS*

Since no construction or development that would increase vehicular trips to, or from, the project site is part of the direct effects action, no significant impacts to local or regional transportation networks would occur as a result of the proposed fee to trust conveyance.

Indirect effects will increase traffic impacts to Klamath Beach Road. Access roads for internal circulation to the planned residential housing will also be developed in the future in order to accommodate residential traffic to the site.

*Mitigation Measures*
The Tribe will continue to fund Rancheria improvements for access roads to minimize traffic impacts. In addition, the new proposed access road will cross jurisdictional boundaries. The Tribe will secure the appropriate encroachment permits and develop access roads to the construction standards of those jurisdictions. No additional mitigation measures would be required.

*No-Action Alternative*
Under the No Action Alternative, the proposed property would remain in fee status. Existing environmental conditions on the site would remain unchanged.

## *4.8 SOUND AND NOISE*

Since no construction or development is proposed as part of this direct effects action, there would be no construction-level, or post-operational noise associated with the proposed project, nor would any new or existing sensitive receptors be created or impacted; therefore, no significant sound or noise impacts would occur as a result of the proposed project.

For the indirect effects of the future housing development, some minor construction-level, or post-operational noise associated with the proposed project will be generated, however no new significant sensitive receptors will be created or impacted.

*Mitigation Measures*
Construction noise will be mitigated by limiting construction to daylight hours so as not to impact the quiet enjoyment of local residents.

*No-Action Alternative*
Under the No Action Alternative, the proposed property would remain in fee status. Existing environmental conditions on the site would remain unchanged.

## *4.9 AESTHETIC VALUE*

Since no construction or development is proposed as part of this direct effects action, the ridgelines, hillsides and other prominent visual features on the project site would remain the same, and would not be impacted. As a result, no significant impacts to the existing aesthetic value of the subject parcels would occur as a result of the proposed project.

*Mitigation Measures*
The surrounding terrain is characterized by hilly and mountainous terrain. Views in the immediate vicinity are limited in scope due to elevation of the site, topography, and

vegetation adjacent to the roadway. For the off-Rancheria viewshed, motorists on U.S. 101 are afforded limited long-distance views, where the views are obstructed in places by landform and vegetation barriers. There are no vantage points within the project vicinity that offer clear unobstructed views of the area of indirect effect except very short range views from locations immediately adjacent to the site and those adjacent sites are located totally within the Rancheria. No mitigation measures are required.

*No-Action Alternative*
Under the No Action Alternative, the proposed property would remain in fee status. Existing environmental conditions on the site would remain unchanged.

## *4.10 ATTITUDES, EXPECTATIONS AND CULTURAL VALUES*

Since no construction or development is proposed as part of this direct effects action, there would be no measurable impacts upon the attitudes, expectations, and cultural values of local community members as a result of the proposed project.

*Mitigation Measures*
The proposed master planned development would not have a negative impact on the attitudes, expectations, lifestyles, and cultural values of the Tribe. In addition, the proposed project would expand the Tribe's housing base by creating opportunities for Tribal members to realize the American dream of home ownership. Therefore, impacts on the lifestyle of the Tribe and off-Rancheria residents would be considered beneficial. No mitigation measures are required.

*No-Action Alternative*
Under the No Action Alternative, the proposed property would remain in fee status. Existing environmental conditions on the site would remain unchanged.

## *4.11 SOCIOECONOMIC IMPACTS*

The proposed land conveyance (direct effects) and the housing development (indirect effects) would have no significant adverse economic impacts on social organization, or employment or income. Property taxes assessed for the property question were $91.98 in 2009. According to the State Controller's Office, the Del Norte County assessment roll, which contained 14,128 assessments, had a total enrolled value of **$**17,849,039 in 2008-2009. The loss of property taxes by the County as a result of the trust conveyance would be 0.0000051%.

*Mitigation Measures*
No mitigation measures are required.

*No-Action Alternative*
Under the No Action Alternative, the proposed property would remain in fee status. Existing environmental conditions on the site would remain unchanged and the Tribe would continue to pay property taxes annually in the amount of $91.98.

## *4.12 ENVIRONMENTAL JUSTICE*

Environmental Justice issues encompass a broad range of impacts covered by NEPA, including impacts on the natural and physical environment and related social, cultural, and economic effects. Environmental Justice concerns may arise from impacts to such things as human health on minority populations, low-income populations, and Indian Tribes. Executive Order 12898 (Environmental Justice, 59 Fed. Reg. 7629 [1994]) requires each federal agency to achieve environmental justice by addressing "disproportionately high and adverse human health and environmental effects on minority and low-income populations."

The question of whether a proposed project raises environmental justice issues is highly sensitive to the history or circumstances of a particular community or population, the particular type of environmental or human health impact, and the nature of the proposed project itself. There is no standardized methodology for identification or analysis of Environmental Justice issues.

The demographics of the affected area have been examined to determine whether minority populations, low-income populations, or Indian tribes are present in the area impacted by the proposed project. Based on the demographics of the area, a determination was made that the trust conveyance of the subject property and subsequent development of housing will not cause a disproportionately high or adverse impact on human health or environmental effects on minority populations, low-income populations, or the Tribe.

There is no indication that either the construction or operation of the housing development would impact a higher minority population component or low-income population component than the general population of the surrounding area.

The proposed project would create new housing opportunities, and there is evidence to indicate that the housing units created would be made available to Tribal members, other Native Americans and residents of the Rancheria - a significant portion of which could be considered minority and low-income populations.

*No-Action Alternative*
Under the No Action Alternative the site would remain unchanged and continue to be used in its present capacity.

## *4.13 CUMULATIVE IMPACTS*

NEPA guidance documents require the evaluation of environmental consequences including cumulative impacts. Cumulative impacts are broadly defined as those that "result from the incremental impacts of an action when added to other past and reasonably foreseeable future actions" (40 CFR 1508.7). Cumulative impacts by their nature can be difficult to identify and quantify. This section accounts for past actions within the Resighini Rancheria, and factors in the foreseeable future as well as the direct consequences of posed action.

The following cumulative impacts and the associated mitigation measures are projected to occur because of the proposed undertaking and those in the immediate vicinity.

### *4.13.1 Air Resources*

The construction of the proposed project will result in the net increase of particulate matter during construction. The project will feature construction specifications in the design specifically to limit the creation of particulate emissions during construction. It has been ascertained that the proposed project will comply with the Clean Air Act and as such, no significant cumulative impacts to air quality are anticipated based on URBEMIS computer modeling.

### *4.13.2 Biological Resources*

Impacts to the biological environment occur incrementally through destruction of habitat. Since the region is either developed or at least disturbed from previous agricultural uses, the potential for major impacts is limited. Therefore, some cumulative impacts to biological resources will occur but the housing development must be in compliance with the Endangered Species Act based on the regulatory requirements of funding agencies such as HUD and the BIA Housing Improvement Program and will not be significant in scope.

### *4.13.3 Water Resources*

The proposed action will not result in a cumulative noncompliance of floodplain or water quality regulations. Capacity of water for the project will need to be demonstrated prior to development in order to meet the drinking water demands.

The proposed project will represent an increase in the overall quantity of impervious surfaces within the project vicinity. Project features designed to protect water quality include the compliance with the NPDES permit requirements. The drainage facilities that will be constructed are designed to prevent adverse effects to surface and groundwater quality. No significant cumulative impacts to hydrology and water quality are anticipated.

### *4.13.4 Geology and Soil*

The proposed project is not expected to result in any substantial geotechnical hazards or impacts related to construction of structures and internal roads. Applicable Federal regulations regarding control of erosion will be adhered to.

### *4.13.5 Noise*

The proposed project will generate noise mainly in the form of vehicles traveling to the planned development. There will be some noise increase, but probably not measurable. Thus, Cumulative impacts to noise will be less than significant.

### *4.13.6 Cultural Resources*

The proposed trust acquisition will not impact eligible or listed historic properties, thus cumulative impacts are not anticipated.

### *4.13.7 Socioeconomic Conditions*

The proposed action will eliminate the Tribe's payment to the County of Del Norte for property taxes. However, the amount is minimal compared to the overall

amount collected by the County. Therefore, a less than significant cumulative impact is anticipated.

In addition to the social benefits of new housing opportunities, there may be cumulative environmental impacts associated with residential development spurred by the preferred alternative and the infrastructure created by the proposed project. There may also be some cumulative impacts associated with additional Tribal economic development endeavors.

The proposed action will solve the Tribe's need for housing which in turn will create demand for public health, social services, and infrastructure. However, Tribal programs are readily available on or near the Rancheria and can accommodate the projected demand. The proposed action will foster the Tribe's goal of self-determination in housing.

### *4.13.8 Land Use*

The proposed project is expected to result in changes related to land-use due of the conveyance of 38.77± acres of property from "fee" to "Federal trust" status for the Tribe. The property is currently owned in fee simple status by the Tribe. The 38.77± acres of property are located contiguous to the Resighini Rancheria, lands already held in federal trust by the BIA for the Tribe. If the land is converted from "fee" to "Federal Trust", the vacant lands will be developed in the future with 20 single-family homes, a Tribal cemetery and associated infrastructure on one-acre parcels creating a one-housing unit to a ratio of density of 1.84 acre, with the balance of the property to be used for open space

Therefore, the conversion of the 38.77± acres constituting the proposed action will have a cumulative effect on land use.

### *4.13.9 Public Services*

It is likely that secondary development would be located in close proximity to existing public services. There will be slight increases in the need for Police Protection, Fire Suppression, and Emergency Medical Services. These increases will not impact the overall ability to provide continued levels of services at the current condition, as some additional personnel will be funded by the Tribe. The incremental construction of the proposed action on the demand for public services will not cause the existing capacity to become inadequate.

### *4.13.10 Utilities*

The planned housing development may increase demand for additional development in the surrounding area which would utilize local utilities. There will be slight increases in utility usage such as water, wastewater, electricity, gas, and telephone service. These impacts would not be significant as some of the utilities exist in the area and, therefore, no significant cumulative impacts will occur to local utilities.

### *4.13.11 Public Health and Safety*

The Tribe has adopted the National Building Officials and Code Administrators building, electrical, fire and safety standards for all facilities. All potential development in the Rancheria will be subject to these regulations and codes. Therefore, there will be no cumulative impact on health and safety.

There are no hazardous materials on the project site and it is not anticipated that hazardous materials will be used or stored on site. The proposed action will not contribute cumulatively to the demand for hazardous material handling capacity.

## 5.0 LIST OF PREPARERS

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## 6.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS CONTACTED

The Following Agencies Have Been Contacted and/or Provided a Copy of the Environmental Assessment

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Del County Roads Dept.
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National Marine Fisheries, NOAA
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Resighini Rancheria Tribal Council
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Appendix A
Biological Evaluation

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# Biological Evaluation of the Resighini Rancheria Klamath Beach Road and Culvert Improvement Project

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## Contents

## 1 Summary

Natural Resources Management Corporation (NRM) staff conducted a Biological Evaluation (BE) for the proposed road improvement project on the Resighini Rancheria (Rancheria). In this BE, we evaluate potential effects of the proposed project on candidate, sensitive, or special status species, including endangered, rare, or threatened species, as specified under Section 15380 of the National Environmental Policy Act (NEPA), and Section 7 of the Endangered Species Act (ESA), as well as local regulations. We assessed whether any such species or habitat suitable for such species are likely to be adversely impacted by the proposed project and proposed mitigations to avoid, or reduce to a level below significance, impacts to the species or habitats.

Results from this BE indicate that there will be an overall positive effect on terrestrial and aquatic wildlife species inhabiting the project region. Construction activities, if timed correctly, will have no significant impact on terrestrial or aquatic species, and will be temporary in nature. The increase in the height of the roadbed will be beneficial for aquatic and terrestrial species by decreasing flooding and instream flow backup, which can lead to contamination of aquatic resources and increase non-point source pollution inputs. Replacing the two undersized culverts with larger, properly-sized culverts will allow juvenile fish and other aquatic species to continue to use Junior and Waukell Creeks and will improve habitat for these species. These activities will also aid in ensuring fish passage and migration to upstream habitats. Additionally, the daylighting of a section of Junior Creek will increase available foraging habitat for terrestrial and aquatic species.

Our BE further concluded that there will be no impact on special status plant species. No special status plants are known from the project area, and surveys of the project area yielded negative results. The habitats that will be temporarily impacted by the project do represent habitat for some special status species, but invasive reed canary grass dominates the site, degrading overall habitat quality. The project includes a vegetation restoration component; thus, the project will have a positive effect on native plant communities.

Finally, we conclude that the project will result in the conversion of existing low-quality, seasonal wetlands to higher-quality perennial wetlands. The negative impacts on the special status habitat will be off-set by the positive effects of the restoration work. Furthermore, the project will likely result in a net gain in wetland acres.

## 2 Introduction

Klamath Beach Road is the only egress to Highway 101 from the Rancheria. This road floods during storm events in the areas around Waukell and Junior Creeks, and residents are often stranded during moderate to severe flood events. This poses both routine inconvenience and health and safety hazards. The road alignment also poses safety hazards. Currently, the roads that service the tribal offices, the campground, and the residential areas converge on a wide x-shaped, shared intersection. This configuration is dangerous for many reasons and is not acceptable to current road building standards. The road realignment will improve safety at the

intersections of the various branch roads that access the Rancheria property from Klamath Beach Road. This goal of the road project is to increase public safety through flood attenuation and road realignment.

The flooding is exacerbated because of road and culvert conditions. The road grade currently drops from an elevation of about 29 ft at the intersection with the highway exit ramp to about 24 ft near the Waukell Creek crossing. The dip in elevation at this depression in the road historically caused floodwaters to impound behind the road bank from Junior and Waukell Creeks. Water is impounded during moderate flow events under existing conditions primarily because the crossings are undersized. The downstream flooding is compounded by backwater flooding during high tide. Floodwaters top the road and flow across the dip in the road.

Flooding is also partially exacerbated because Junior Creek is contained in a very long, undersized culvert. The existing culvert will be removed, and the creek will be daylighted. Daylighting will increase the floodplain area, improve natural infiltration, and reestablish a natural stream channel. Each of these project features will increase Junior Creek's flood retention capacity. Daylighting will also have the added effect of improving wildlife habitat.

## 2.1 Project Description

The Rancheria project involves increasing the road elevation, realigning Klamath Beach Road, replacing road crossings on Waukell and Junior Creeks that are currently undersized, metal, circular culverts, and daylighting a section of Junior Creek. The project proposes to raise the existing Klamath Beach Road surface in the vicinity of Waukell Creek to about 28.5 feet. This represents an increase of about 4.5 feet at the lowest point of the existing grade. The road will have compacted shoulders for foot traffic.

The round metal culverts in Waukell and Junior Creeks will be replaced with adequately-sized culverts. The existing culverts are undersized and have the effect of impounding upstream drainage during high flow events. This effect is compounded during high tides, as the creek system is tidally influenced. The existing undersized-culverts on Waukell and Junior Creeks will be replaced with appropriately-sized ellipse and pipe-arch culverts, respectively. These will also ameliorate flooding by allowing passage of a higher volume of floodwaters. The sizing was based on a 100-year flood event. In addition, the new culverts will improve fish passage conditions.

The project proposes to daylight approximately 231ft of Junior Creek, which is currently in an underground circular culvert (Appendix B, Sheet 17 of EA). The culvert will be removed and replaced with a more appropriately sized culvert. The area will be re-contoured and returned to open stream channel. The restored channel and adjacent floodplain will be planted with native, locally collected, riparian vegetation.

The project will realign the intersections of the various access roads. The realignment will separate the intersections for each of these access roads and align them perpendicular to one another. Each intersection will be controlled by signage.

Road construction will require deconstructing the existing road surface, removing the existing culverts, installing a temporary access point and crossing, installing new culverts and engineered headwalls, importing and placing aggregate road base fill, grading, compacting, and other road construction activities, and paving asphalt over the new roadbed. The work will be conducted according to the California Stormwater Quality Association Best Management Practices (BMP), and a Storm Water Pollution Prevention Plan (SWPPP) will be implemented on the project.

### 2.2 Project Location

The Resighini Rancheria is 238 acres of trust land and approximately 80 acres of fee land (318 acres total) located on the south side of the Klamath River, approximately four miles from the Pacific Ocean, Del Norte County, California. The Rancheria is located on the lower Klamath River on the floodplain adjacent to Highway 101 (Figure 1) and includes tribal offices, a casino, residential and ancillary structures, and a campground/RV park. The project includes the access from Highway 101 and intersecting roads (Figure 2).

### 2.3 Regulatory Jurisdiction

A portion of the project is located on the Resighini Rancheria, and a portion is on an unincorporated area of the County of Del Norte, California. The project lies in the California Coastal Zone and affects a California Department of Fish and Game (CDFG) regulated water course. Coho salmon (*Oncorhynchus kisutch*) and other federally listed aquatic species are known to occur in Junior and Waukell Creeks. The project will affect wetlands. The agencies and governmental bodies that may exert jurisdiction over this project include the Resighini Rancheria Environmental Protection Authority (Resighini EPA) and Tribal Council, the County of Del Norte, the U.S. Army Corps of Engineers (USACE), and the U.S. Environmental Protection Agency (USEPA). Other resource and responsible agencies that may require consultation include the California Department of Fish and Game (CDFG), the National Oceanic & Atmospheric Administration (NOAA) Fisheries, the U.S. Fish and Wildlife Service (USFWS), the California Coastal Commission (Coastal Commission), and the Regional Water Quality Control Board (RWQCB).

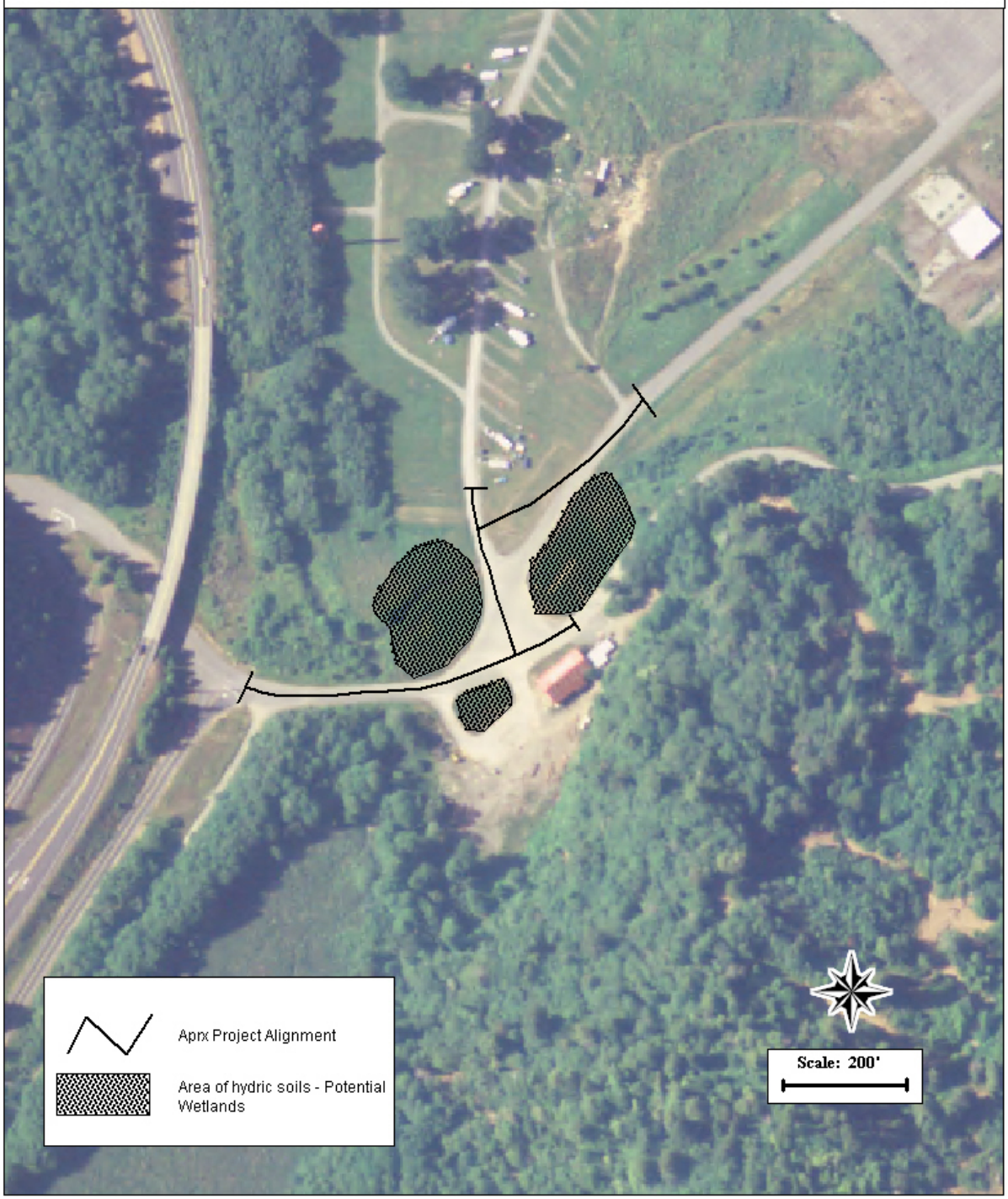
### 2.4 Environmental Conditions

The project is situated in the upper floodplain of the Klamath River at about river mile four. The site is dominated by sandy and silty soils (see Geotechnical Report, LACO Associates 2008). The project area supports willow dominated riparian forest, redwood forest, and willow/alder riparian corridors associated with small-order streams and wetlands. The region supports several unique plant communities, such as dune and bluff scrub vegetation communities, as well as several rare plant and animal species.

The project site is in the developed area of the Rancheria and is a disturbed feature in the landscape (NRM 2005). The existing conditions are highly modified, and the site has a long history of human use (see Cultural Resources Investigation, Roscoe and Associates 2008).

**Figure 1. Project Location. Resighini Rancheria Wetland & Riparian Forest Mitigation Project Del Norte County, California - Requa USGS 7.5' quadrangle, T13N, R1E, Sec 13 & 14, HB&M Restoration site is in the northwest portion of the property.**

**Figure 2. Klamath Beach Road Improvement Impact Area. The highlighted road segments will be replaced under the proposed project. The alignment depicted here is conceptual and does not represent the engineered alignment. Please see engineers designs for actual alignment.**



Current use of the site includes residential, recreational, business, and governmental (Tribal Offices).

The project site includes Junior and Waukell Creeks. These creeks are both low-gradient, small-order tributaries to the Klamath River. Both creeks have been negatively impacted by historic land use, including road building, placement of undersized culverts, historic logging, culverting and ditching (particularly on Junior Creek), and invasive species invasion.

Salmonid species have been observed within the project area. Fish surveys performed in 2006 and 2007 have shown that Coho salmon, steelhead and cutthroat trout, and many other native fish use the project area during winter, high-flow months (Voight 2008). These surveys have shown that Waukell and Junior Creeks provide important rearing and foraging habitat for juvenile salmonids and trout, as well as other native fish species. Additionally, several species of birds have been observed in and around the project area, reinforcing the idea that the project provides important rearing and foraging habitat for aquatic and terrestrial animals.

In addition, the project site may include seasonal wetlands. The potential wetlands are associated with the creeks and are adjacent to the existing road system. The potential wetlands are highly disturbed, managed (mowed), poor-quality herbaceous wetlands. Due to the quality of these wetlands, their functions are limited.

The special status species evaluated in this BE are summarized in Tables 1 and 2. This BE addresses only those species for which the site supports habitat. Species that were considered for evaluation but were rejected are listed in Appendix A. In total, 75 species were considered. We determined that 20 species warranted evaluation.

## 3 General Methodology and Scope of the Biological Evaluation

In this BE, we consider the proposed project's direct, indirect, and cumulative impacts to special status plant and animal species, habitats special status species may occupy, and special status habitats (e.g., wetlands). To do this, we conducted a pre-field scoping analysis to determine which species and habitats of concern might occur in the project area. In addition, we reviewed the various environmental reports currently underway and developed over the history of the project as well as those of related and/or proximal projects (Yurok fish study, for example). Following this scoping phase, we conducted an on-site assessment for presence of sensitive species and suitable habitat for listed species. Our impact assessment is based on the results of this work.

### 3.1 Project Impacts

Impacts to biological resources resulting from project implementation must be considered under NEPA (40 CFR 1500-1508). In this BE, we assess direct, indirect, and cumulative impacts associated with the project.

### 3.1.1 Direct Impacts

Direct impacts are physical changes to the environment caused by project implementation. The project will create temporary negative impacts in approximately 75 and 350 feet of instream channel habitat in Waukell and Junior Creeks, respectively. Direct impacts will be caused by culvert removal, stream bank excavation, headwall excavation and fill, and culvert installation. In addition, road construction activities have the potential to directly impact instream habitat through the introduction of road fill and other pollutants associated with the road building equipment.

The project will install approximately 1,030 linear feet of new road, accounting for approximately 7,344 sq. ft. more impervious surface than existing conditions. The footprint of this area will be entirely in upland disturbed habitats, so this does not represent an impact on biological resources.

The direct construction impacts will be short-duration and temporary. No permanent new direct impacts will occur as a result of the project because the development footprint is in an existing disturbed site.

Direct positive impacts are expected to occur to instream habitat as a result of the project. Positive, long-term beneficial impacts include adequately sized culverts, improved fish passage, reduction in reed canary grass population, increased floodplain area on Junior Creek, and reduced flooding.

### 3.1.2 Indirect Impacts

Indirect impacts are physical changes to the environment resulting from the project that are indirectly related to the project. Such impacts are measurable effects on ecological relationships that are separated from the direct impacts by two or more causal connections (CEQA 15064(d)(3). Alternatively, indirect impacts may be defined as those impacts that result from the project, but are separated from implementation in space or time (NEPA 40 CFR 1500-1508). Indirect impacts are considered only if the change is a reasonably foreseeable impact.

The concrete asphalt used to pave the road may negatively impact aquatic habitats. Organic asphalts are composed of petroleum distillates and may contain sulfur and a variety of heavy metals. Precipitation and erosion of the road surface will cause components and particles to enter the creeks. These chemicals may indirectly impact the quality of these habitats. Although Asphalt surface leachate may be released at very low levels (ASCE 1998, Dubey & Townsend 2007) and may be ameliorated by the soil filtration (Azizian et al. 2003).

Changes in overall stream hydrology are the primary potential indirect impact that may result from the Project. These indirect impacts will be positive effects that improve the functionality of the stream habitats. Specifically, positive indirect impacts include increased infiltration rates, improvement in hydrologic connections between streams, increased channel capacity, decreased flood potential, decreased problems associated with sediment transport and accumulation of fines, increases in bank stability, and increases in groundwater recharge from newly daylighted areas. In addition, the project includes a Riparian Habitat and Floodplain

Restoration Plan for the Junior Creek daylighting, and a SWPPP for ensuring sediments on the site are stabilized after the construction is completed. Both of these plans will indirectly improve hydrologic regimes within the creeks.

### 3.1.3 Cumulative Impacts

Cumulative impacts are the additive impacts of the project and past, present, and foreseeable future projects. Such impacts may not individually significantly affect biological resources, but in combination with other regional impacts may culminate in a significant effect on the environment.

The principal impacts associated with this project are either short-term or positive. As such, their affect on the environment, when considered in the context of other foreseeable projects, is either cumulatively negligible or positive. The cumulative effects analysis is based on projects within the watershed.

Green Diamond Lumber Company owns and manages timberlands in the upper Waukell watershed. The harvest history, historic mill and associated lumber industry infrastructure in the watershed have in part shaped the existing conditions. One hypothesis suggests that historic logging has increased the levels of sedimentation in the Waukell Creek drainage. Green Diamond adheres to the most up-to-date silviculture and resource land management practices, which include provisions for managing sediment loads entering watercourses. Though it is unknown what impact future logging may have on the project, it is certain that the project will not likely affect logging. If flood levels are attenuated, the project will improve watershed conditions, reducing the level of cumulative effects in the multi-project context.

Another more pertinent project with which the current project may have additive effects is the Yurok Tribal Environmental Program's restoration plan for the Waukell Creek watershed (Gale 2007). The project is in the planning area for the watershed plan. Activities proposed under the watershed plan include stormproofing treatment of road networks and upslope sediment sources, improvement of instream and riparian habitats, removal of exotic vegetation, revegetation of stream banks with native plants, shrubs and trees, implementation of long term management plans, reestablishment of deep open-water and wetland areas where appropriate, and installation of features and structures to increase habitat complexity. These activities, in addition to the road improvement and culvert replacement project, will create a net positive cumulative effect in the Waukell Creek watershed.

Cumulative improvements associated with the watershed planning include increased habitat quality and quantity, increased water quality, reestablishment of natural hydraulics, decreases in sediment inputs from upstream, decreases in flood potential and stranding during high flow events, increase in overall wetland area, and reestablishment of natural infiltration rates throughout the watershed. However, timing of the instream activities should be coordinated between these projects to prevent negative cumulative effects from multiple projects being performed at once. Working in several spots within the watershed could create short duration increases in sediment load and erosion, and upstream activities could undermine downstream project success.

Finally, the Bureau of Indian Affairs (BIA) has indicated its desire to have the remainder of Klamath Beach Road repaved. This potential future project does not currently meet the definition of a "project" per CEQA (Title 14 Section 15378) or a "proposed action" per NEPA (40CFR 1508.23). For this reason, we do not assess this activity in depth. Rather, we present here a general discussion of the potential impacts if this reasonably foreseeable future action does become a project.

The potential future project would extend the new paving from the proposed project terminus on Klamath Beach Road to the gravel mining access gate at the eastern end of the road. If the project was phased, the direct impacts of the project may be minimized; however, there are several potential impacts that may culminate with the proposed project, which may result in significant impacts on aquatic organisms. Leachate from the asphalt used to resurface the road could impact aquatic habitats and affect the species that use them; however, the future road project would likely incorporate mitigation measures to reduce or eliminate these impacts. Also, the project will not encroach on unaltered habitat or cause growth promoting activities. For these reasons, the overall cumulative impacts would likely be limited.

## 4 Special-Status Species & Habitats

In this section, we focus on potential impacts to special status plant and animal species. Special status species are those species, both botanical and animal, recognized by the CDFG as rare, threatened, or endangered, as well as species of special concern. Endangered species are those in danger of extinction throughout all or a significant portion of their range. Threatened species are those the state determines are likely to become endangered without conservation measures. Rare species are those plant species not listed under California Endangered Species Act (CESA) or the Native Plant Protection Act (NPPA) but either warrant protection or require consideration in environmental impact documents per CDFG Code. Species of special concern include those species that 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers, and known threats to their persistence currently exist.

First and foremost, we consider here species that have federal listing status. Federal species are listed as endangered, threatened, or candidate species under the Endangered Species Act (ESA), and the list is maintained by the USFWS and NOAA Fisheries.

In addition, we address impacts to special status habitats in this section. Special status habitats are those habitats that are regulated by federal, state, or local governments. Such habitats include streams and wetlands. Regulatory jurisdictions are provided under the Sections 401 and 404 of the Clean Water Act (CWA), Section 1600 of the Fish and Game Code, and the County of Del Norte General Plan.

## 4.1 Botanical Species

### 4.1.1 Methods

Our scoping strategies for special-status botanical species were consistent with *Guidelines for Assessing the Effects of Proposed Projects of Rare, Threatened, and Endangered Plants and Plant Communities* (DFG 2000a) and the *California Environmental Quality Act* (State of California 2001). We consulted the USFWS lists for the County of Del Norte as well as the project USGS 7.5' quadrangle (Requa; USFWS 2007 Doc. Nos. 127546649-153152 and 127809219-153518, respectively). Also prior to fieldwork, we queried the current inventories of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (CNPS 2008) and the California Department of Fish & Game's (DFG) Natural Diversity Database (CNDDB), *RareFind 3* (DFG 2008). Queries were performed on the quadrangle containing the project and all adjacent quadrangles. However, since the database queries only result in those species that historically have been recorded in the specified quadrangle, they do not account for species that have not been recorded but for which habitat may be present in the project area. Except where noted, botanical names follow The Jepson Manual (Hickman 1993).

We conducted a site visit to assess the site's habitats and suitability for the special status species and to survey for those species for which the field visit was seasonally appropriate. I conducted a survey of the site on April 3, 2008. I used a random meander survey and recorded all species and habitats I encountered. I covered the entire project area during my survey, and my survey coverage was heavy in the areas that will be impacted by the project. I spent approximately two survey hours examining the site. My survey efforts included all habitat types on the property.

Scoping resulted in a target list composed of 32 botanical species (Appendix A). Of these, 11 have the potential to occur in the habitat types found on the project area (Table 1). The remaining 21 botanical species included in Appendix A do not occur in the immediate project area, and the area does not support habitat for these species. For this reason, these 21 species are considered no further in this BE.

### 4.1.2 Botanical Species

Species accounts for all botanical species are summarized in Appendix A. There were no species formally listed by the state or federal governments as rare, threatened, or endangered species with CDFG special status are considered in Table1.

The project area supports coastal stream and wetland habitats. Each of the CDFG special status species summarized in Table 1 has some association with these habitat types. However, the instream and bank habitats are severely impacted by the non-native reed canary grass. This grass forms monotypic stands, crowding out other species. The remaining project area seasonal wetland habitats are regularly mowed and managed as lawn.

The site's degraded conditions relative to native and rare plant habitat are unlikely to support any of the special status species. In addition, the site has received at least two botanical

surveys, and none of the special status species have been detected (current work and NRM 2005).

**Table 1.** Botanical species for which habitat is present in the project area.

| Botanical - Common Name | Status | Species/Habitat Present | Impact Assessment |
|---|---|---|---|
| ***Calamagrostis crassiglumis*** **- Thurber's reed grass** | 2.1 | No/Low quality habitat impacted by reed canary grass | No Impact |
| ***Carex lenticularis*** **var. *limnophila*** **- lagoon sedge** | 2.2 | No/Low quality habitat impacted by reed canary grass | No Impact |
| ***Carex leptalea*** **- bristle-stalked sedge** | 2.2 | No/Low quality habitat impacted by reed canary grass | No Impact |
| ***Carex viridula*** **var. *viridula*** **- green yellow sedge** | 2.3 | No/Low quality habitat impacted by reed canary grass | No Impact |
| ***Castilleja affinis*** **ssp. *litoralis*** **- Oregon coast paintbrush** | 2.2 | No/Marginal | No Impact |
| ***Gilia capitata*** **ssp. *pacifica*** **- Pacific gilia** | 1B.2 | No/Yes | No Impact |
| ***Lathyrus palustris*** **- marsh pea** | 2.2 | No/Low quality habitat impacted by reed canary grass | No Impact |
| ***Mitella caulescens*** **- leafy-stemmed mitrewort** | 4.2 | No/Low quality habitat impacted by reed canary grass | No Impact |
| ***Packera bolanderi*** **var. *bolanderi*** **- seacoast ragwort** | 2.2 | No/Low quality habitat impacted by reed canary grass | No Impact |
| ***Potamogeton foliosus*** **var. *fibrillosus*** **- fibrous pondweed** | 2.3 | No/No habitat impacted by reed canary grass | No Impact |
| ***Trientalis arctica*** **- arctic starflower** | 2.2 | No/Low quality habitat impacted by reed canary grass | No Impact |

Legend of status categories: 1A = presumed extinct,1B = plants rare, threatened, or endangered in CA and elsewhere,2=plants rare, threatened, or endangered in CA but common elsewhere,3=plants about which we need more info.,4=plants of limited distribution. 0.1 = seriously threatened in CA, 0.2 fairly threatened in CA, 0.3 =not very threatened in CA.

#### 4.1.2.1 Federally Listed Species

None of the botanical species considered in this report have federal listing status.

#### 4.1.2.2 State Listed Species

None of the plant species considered here have state listing status.

**Project Impacts** – The project will have no effect on rare, threatened, endangered, and special status species because none of the species occur on the site and the habitat is highly degraded.

### 4.2 Animal Species

We observed several bird species in the project region during a field visit on April 3, 2008. These birds included rufous hummingbirds, an immature red-tailed hawk, several osprey, California quail, barn swallows, American robin, white-crowned sparrows, American crows, turkey vultures, a purple finch, a dark-eyed junco, and a belted kingfisher. Of these only the turkey vulture and barn swallows were observed in the immediate project vicinity.

#### 4.2.1 Methods

Prior to the on-site investigation, we compiled a list of special status animal species from the following sources: CNDDB *RareFind 3* (DFG 2007), a literature review, landowner information, and our general knowledge of the life histories and habitat requirements of locally occurring species of special concern. Additionally, current data was retrieved from the Yurok Tribal Environmental Program, which conducts fish presence surveys.

As a result of our regional scoping, we considered a total of 40 animal species of interest. The species of interest include 13 birds, 13 mammals, nine fish, and five amphibians/reptiles (Table 2). Of these 40 species, 12 species were evaluated and discussed below. These species include five amphibians, four fish, and three bird species. We discuss impacts to animal species functional groups below. Functional groups were based on similarity in habitat requirements. As such, disparate animal groups may be included in the same functional group.

#### 4.2.2 Animal Species Accounts

Species accounts for all animal species evaluated are summarized in Table 2. Other species that have been encountered in the region can be found in Appendix A. In this section, we focus on species listed by the state as rare, threatened, or endangered, as well as those species that are proposed or considered for listing under these designations. Federally listed species are also considered here. Species listed by both state and federal agencies are described only once.

#### 4.2.2.1 Federally Listed Species

Species are considered by functional group based on their habitat associations. For this reason, species accounts are not included under this section. Instead, this section lists the federally listed species. They are: Coho salmon and its critical habitat, and steelhead trout and its critical habitat. Critical habitat for Coho salmon was designated by National Marine Fisheries Service (NMFS) on May 5, 1999, and critical habitat for steelhead trout was designated NMFS on February 16, 2000.

#### 4.2.2.2 State Listed Species

The species listed by the sate as rare, threatened or endangered are listed here and described according to functional group below. The bald eagle is listed by the state as endangered.

**Table 2.** Results of the animal species assessment for the Resighini Rancheria Road Improvement Project.

| Species | Status | RESULTS: Presence/Habitat on Project Site | Impact Assessment |
|---|---|---|---|
| **Fish** | | | |
| **brown trout** | | Yes/Yes | Less than significant effect with mitigations incorporated |
| **coastal cutthroat trout** | SC | Yes | Less than significant effect with mitigations incorporated |
| **Coho salmon** | FT No Cal/So Oregon ESU | Yes | Less than significant effect with mitigations incorporated |
| **steelhead trout** | FT No Ca. ESU | Yes | Less than significant effect with mitigations incorporated |
| **Amphibians** | | | |
| **western tailed frog** | SC | No individuals found – habitat present | Less than significant |
| **northern red-legged frog** | SC | No individuals found – habitat present | Less than significant |
| **foothill yellow legged** | SC | No individuals found – habitat present | Less than significant |
| **Del Norte salamander** | SC | No individuals found – habitat present | Less than significant |
| **southern torrent (seep) salamander** | SC | No individuals found – habitat present | Less than significant |

Legend of status catergories: FT = federally threatened, ESU = Evolutionary Significant Unit, No/Ca = Northern California, So. Oregon = Southern Oregon, SC = California State Species of Concern

#### 4.2.2.3 Species Accounts - State Species of Special Concern

Species that are listed as state species of special concern, as well as species listed by the California Department of Fish and Game that do not otherwise have a listing status (e.g., brown trout, Table 2.) are considered in this section. Species are discussed here according to guild association. For this reason, species are not provided individual species accounts, and impacts are considered across the guild unless species specific impact assessment is warranted.

### 4.2.3 Animal Functional Groups

#### 4.2.3.1 Aquatic Species

**SALMONIDS** - We consider the salmonids as a group here due to the overlap in their habitat type and use. Species descriptions for each follow, but the impact assessment and mitigation proposal are considered for the group.

There is the potential for the direct impact or incidental take/harassment of protected salmonid and other aquatic species during construction activities. These construction activities include the placement of fill onto the existing roadway, removal and replacement of two existing culverts, alteration of the instream channel by an excavator and other heavy equipment, and rerouting of the stream channel for the duration of project activities. These activities have the potential to impact aquatic species in a variety of ways, including, dispersion from noise from heavy equipment, decreases in water quality, impaction of vegetation, decrease in food resources from construction activities, increases in sediment transport and erosion events, and alteration of the instream channel from construction activities and culvert removal and replacement. These impacts may result in the harassment or incidental take of protected salmonid species and other aquatic animals. The project has been designed to minimize these impacts. The following measures will be implemented. Construction activities will be conducted during low flow summer months, best management practices will be utilized to minimize erosion and sediment problems, the creek will be dewatered and all aquatic animals will be removed, heavy equipment will be utilized as efficiently as possible to decrease the time in the stream channel, and erosion control measures will be put into place for the duration of the project.

**Coho salmon – *Oncorhyncus kisutch* Status FT (So. OR/No. CA ESU), SC**

The traditional range of the Coho salmon runs from both sides of the North Pacific ocean, from Hokkaido, Japan and eastern Russia, around the Bering Sea to mainland Alaska, and south to Monterey Bay, CA. Coho salmon are anadromous fish that are born in freshwater, travel to the ocean to mature, and return to freshwater to spawn and die. Smolts typically migrate to sea in the spring of their second year, after spending this time in freshwater rivers and tributaries (Hassler 1987). It is during this first year that small, immature “fry” as they are called, must gain weight and strength to survive while traveling to, and living in the ocean environment (Hassler 1987). Young often spend the first winter in off-channel sloughs. Some fish leave fresh water in the spring, spend summer in brackish estuarine ponds and then migrate back into fresh water in the fall. Coho salmon live in the salt water for one or two years before returning to spawn. Some precocious males known as "jacks" return as two-year-old spawners. Spawning males develop a strongly hooked snout and large teeth.

The U.S. National Marine Fisheries Service has identified 7 populations, technically called Evolutionary Significant Units (ESUs), of Coho salmon in Washington, Oregon, and California (Coho salmon ESUs). Three of these ESUs are listed under the U.S. Endangered Species Act (ESA). These are the Lower Columbia River (Threatened), Southern Oregon and Northern California Coasts (Threatened), and Central Californa Coast (Endangered) (Hassler 1987). The Southern Oregon and Northern California (SONC) ESU includes all naturally spawned

populations of Coho salmon in coastal streams between Cape Blanco, OR and Punta Gorda, CA. The Coho salmon population in the southern Oregon/Northern California region has declined from an estimated 150,000 to 400,000 naturally spawning fish in the 1940s to less than 10,000 naturally producing adults today. The dramatic reduction in the Coho salmon population has been due to many natural and man-made conditions, including long-term trends in atmospheric conditions, such as El Nino, which causes extremes in annual rainfall on the northern California coast, the predation of Coho salmon by the California Sea Lion and Pacific Harbor Seal, and commercial timber harvesting.

Habitat within the project area

There is exceptional seasonal habitat available within the project area. While it was once thought that Coho fry stayed in their natal streams until moving out to sea, it has recently been discovered that juvenile Coho and other small salmonids heavily utilize off channel habitats, low gradient streams, lakes and ponds during high flow events and winter months (Ebersole et al 2006). Utilization of these areas in such abundance was not previously known, and as more data emerges it is apparent that these habitats are vital for juvenile fish growth and survival. One Coho found in Junior Creek pond was measured to be 199 mm fork length, while similar aged fish in areas further upstream near the Scott and Shasta River were found to have fork lengths nearer to 100 mm (Voight 2008).

Recent surveys performed in other areas found large densities of Coho salmon fry and fingerlings in habitats as simple as gravel pits, with additional 1+ Coho salmon being found as well (Bryant 1988). It has also been shown that Coho will choose low velocity areas, such as Waukell Creek, Junior Creek and Junior Creek pond, when given a choice, and exhibited higher growth and survival rates in these habitats as compared to fish that remained in mainstem habitats (Kruzic et al. 2001). These habitats are vitally important during winter high flows, when small juvenile fish can potentially be blown downstream in large rivers, or exhaust themselves by trying to stay in the channel. Beechie et al. 2005 found that densities of Chinook, Chum and Coho salmon were highest in low velocity points.

Juvenile Coho salmon have been found in Junior and Waukell Creek, and Junior Creek pond, indicating that there is habitat available and seasonally utilized within the project area. Trapping efforts found juvenile Coho and other fish migrating from the mainstem Klamath River to all of these areas during high winter flows, as well as remaining in these areas for several weeks at a time (Voigt 2008). Additionally, fish marked in areas of the mid Klamath watershed were found inhabiting these low velocity areas after being seen upstream only a few weeks prior. This shows the importance of the habitat in this area for fish coming from all over the watershed. These trapping areas also showed that even areas of habitat that are only available for a few days are utilized during high flow events, and that juvenile fish will move migrate into and out of areas every few days if necessary (Voight 2008).

**Steelhead Trout – *Onchorhyncus mykiss* Status Northern California FT**

In North America Steelhead trout are found in Pacific Ocean drainages from southern California through Alaska. In the state of California, known populations occur in coastal rivers and

streams from Malibu Creek in Los Angeles County up to the Smith River near the Oregon border and the Sacramento River system (McEwan and Jackson 1996). Like salmon, steelhead are anadromous and return to their original hatching ground to spawn. Similar to Atlantic salmon, but unlike Pacific salmon, steelhead are iteroparous and may make several spawning trips between fresh and salt water (Hartman 1965). Similar to salmon different populations of steelhead migrate upriver at different times of the year. "Summer run steelhead" migrate upstream between May and October before their reproductive organs are fully mature. They mature in freshwater before spawning in the spring. "Winter run steelhead" mature fully in the ocean before migrating between November and April, and spawn shortly after returning to freshwater (Hartman 1965). In California most steelhead spawn from December through April in small streams and tributaries where cool, well oxygenated water is available year round.

Populations of steelhead trout have declined due to a number of human and natural causes, including habitat loss, dams, water pollution and increased water temperature due to water withdrawal. In California, steelhead were once abundant in coastal and Central Valley rivers and streams. A rough estimate of the total statewide steelhead population is 250,000 adults. This is less than half the population of 30 years ago (McEwan and Jackson 1996). The major factor causing steelhead population decline is freshwater habitat loss and degradation. This has resulted from three main factors: inadequate stream flows, blocked access to historic spawning and rearing areas due to dams, and human activities that discharge sediment and debris into waterways.

Habitat within the project Area

It has been shown that during winter months with high flows, steelhead prefer pool habitats, especially deeper, low velocity pools with rocky substrate and large woody debris for cover (Hartman 1965,Fontaine 1988). Steelhead prefer these habitats during the winter months because deeper pools with cover prevent displacement of these fish during high flows. Juvenile Steelhead Trout were found in all of the areas that will be improved during this project (Voight 2008). Instream fish trapping that occurred during 2006 and 2007 by the Yurok Tribal Fisheries Program found Steelhead migrating throughout the project area, utilizing low velocity stream habitat, ephemeral side channels, and Junior Creek pond. There is exceptional seasonal habitat available within the project area.

**Coastal cutthroat trout – *Onchorhyncus clarki clarki* STATUS SC**

Distribution and Abundance

The coastal cutthroat trout is one of three native cutthroat subspecies in California. Coastal cutthroat trout are found from Northern California all the way to the Prince William Sound in Alaska. In California, the native range of the coastal cutthroat begins near the Eel River drainage and includes drainages north to Oregon and beyond into Alaska (Behnke 1992). Many of the populations are anadromous, "sea-run" cutthroat, however this species also exhibits potamodromous stream-dwelling, potamodromous lake-dwelling, and headwater stream-resident life history forms (Giger 1972). Adults tend to enter freshwater streams during the fall and feed on the eggs from other salmon. Spawning occurs from December through May, and

fry spend 1 to 2 weeks in the gravel before emerging. Coastal Cutthroat have been seen to spend between 1 and 9 years in freshwater before migrating to estuaries and eventually the ocean, usually around age 3 (Giger 1972).

Although much of the native range is still occupied, their numbers have suffered declines. In most areas where cutthroat exist, fishing opportunities have been limited by restrictions to protect anadromous salmonids. Coastal Cutthroat populations are being impacted by several anthropogenic activities, including but not limited to, water pollution, habitat degregation and loss, water withdrawal and the removal of large woody debris and other instream habitat cover structures (Behnke 1992). Stream and estuarian habitat has been degraded by siltation and loss of cover and pool habitat from logging, failing roads, agricultural development, and channelization for flood control.

Habitat within the project area

There is exceptional seasonal habitat available within the project area. Coastal Cutthroat trout have been found in Waukell Creek, Junior Creek, and Junior Creek pond. 7 trap sites were established in Waukell Creek to examine juvenile fish usage of these areas. Cutthroat trout were routinely found in the lower Waukell Creek slough, the Junior Creek Mill Pond and Junior Creek (Gale 2007). Ebersole et al. 2006 found that smolt size was influenced by overwintering location and that juveniles rearing in low gradient, low velocity areas exhibited higher growth rates and emigrated as larger smolts. Ebersole also found that in Pacific Northwest streams, high stream flows associated with winter storms are believed to be a primary factor that limits overwintering survival (Ebersole et al. 2006). Based on these findings, it is my determination that there is high quality habitat available for cutthroat trout in all of these areas.

**Brown Trout - *Salmo trutta***

The brown trout is normally considered to be native to Europe and Asia but the natural distribution of the migratory forms may be, in fact, circumpolar. There are also landlocked populations far from the oceans, for example in Greece and Estonia. The fish is not considered to be endangered although, in some cases, individual stocks are under various degrees of stress mainly through habitat degradation, overharvest and artificial propagation leading to introgression (Froese and Pauly 2005). *S. trutta morpha fario* prefers cold (though in comparison with other trout, this species has a somewhat higher temperature preference of about 60-65 F, or 15.5-18.3 C), well-oxygenated upland waters, especially large streams in mountainous areas. Cover is important to trout, and they are more likely to be found where there are submerged rocks, undercut banks, and overhanging vegetation (Forese and Pauly 2005). Brown trout may live for several years although, as with the Atlantic salmon, there is a high proportion of death of males after spawning and probably fewer than 20% of female smelts recover from spawning. Brown trout are active both by day and by night and are opportunistic feeders. While in fresh water, the diet will frequently include invertebrates from the streambed, small fish, frogs, and insects flying near the water's surface. The spawning behavior of brown trout is similar to that of the closely related Atlantic salmon.

Habitat within the project area

Brown trout have been found within the project area. As with other salmonids, brown trout utilize these creeks for foraging and rearing activities, and can be expected to be found seasonally in both Waukell and Junior Creeks.

**Other Fish Species**

In addition, several species of native fish have been documented living in Waukell and Junior Creek and Junior Creek Pond. These species are not described in detail because populations are stable. The Yurok Tribal Fisheries program has been conducting fish trapping in these areas beginning in the fall of 2006 in an attempt to better understand the role that lower watershed, small tributaries play in salmonid growth and survival. Pacific Lamprey, Speckled Dace, Smallscale suckers, Three-spined Stickleback, and Prickly sculpins were all found in the project area. The Speckled Dace is the only species of these that could potentially be influenced by project activities, since they are known to breed during the spring and summer in freshwater. Incidental take and direct impacts to these species will be avoided by removing all fish in the project area and transplanting them to areas not impacted by project activities. Additionally, the project area will be blocked off, both upstream and downstream, to ensure that fish and other aquatic species do not reenter the project area.

**AMPHIBIANS**

**Western tailed frog – *Ascaphus truei* – Status SC**

Western tailed frogs are stream dwelling animals that inhabit moist riparian areas, on and under rock substrates in and near perennial streams, rivers and creeks. They generally do not inhabit lakes or ponds although they sometimes disperse into forest stands during warm, wet weather conditions. Rocky streambeds provide cover for adults, eggs and larvae (Karracker et al. 2006, Stebbins 2003). Adults are known to over-winter under boulders and cobbles in cold, flowing streams Populations range from near Anchor Bay, Mendocino County, California, north along the coast and east to near Big Bend, Shasta County, and north through western Oregon and farther north through the Cascade and Coast Mountains Washington and coastal British Columbia (Blaustein et al.1995, Stebbins 2003, FRAWG 2005).

Adults are active from April to October depending on locality, and breeding occurs in summer and early fall. Eggs are laid in June and July and hatch during August and September (Jones et al. 2005). Western tailed frogs respire through their skin; their lungs are very reduced in size. Their diet consists of terrestrial and aquatic invertebrates; tadpoles may require two to five years for complete metamorphosis. *Ascaphus* is the only genus of North American frogs which fertilize their ova internally through copulation. Populations have been seen to be decrease post logging, and it is believed that sedimentation and the warming of stream temperatures caused by timber harvesting and road building, are leading factors in their decline.

<u>Habitat within the project area</u>

Western tailed frogs probably occur throughout the adjacent area, as forested foraging habitat is plentiful in the region.

**Southern Torrent Salamander – *Rhyacotriton variegatus* – Status SC**

In California, this species occurs throughout humid coastal drainages from near Pt. Arena in southern Mendocino Co., to the Oregon border in the coniferous belt, and north into Oregon along the coast and inland into the Cascade Mountains (Stebbins 2003). A single record exists from the Sacramento River drainage near Dunsmuir, Siskiyou Co. Habitat includes cold, clear, well-shaded streams, waterfalls and seepages, particularly those running through talus and under rocks all year. *R. variegatus* is found primarily on north-facing slopes in the southern part of their range where forests are warmer and drier (FRAWG 2005, Stebbins 2003). Adults are active even at very low temperatures, as cold as 5-10 degrees C, and are extremely moisture dependant (Blaustein et al. 1995). Aquatic larvae live in clear shallow water and still, mucky water in creeks, often with accumulated leaves. Southern torrent salamanders are severely impacted by clear-cutting of old-growth forests near drainages. According to Stebbins (2003), approximately 50 - 90 percent of suitable habitat in California has been altered or eliminated through over-harvesting of old-growth forests and destruction of small seeps and springs.

Habitat within the project area

Southern torrent salamanders probably occur throughout the adjacent area, as forested foraging habitat is plentiful in the region.

**Northern red-legged frog – *Rana aurora* - Status SC**

This species occurs from one introduced locality in SE Alaska, coastally south through British Columbia, Washington and Oregon, west of the Cascade Range, and coastally into northern California (Del Norte, Humboldt, and Mendocino Counties) (Stebbins 2003). This species breeds, forages and migrates along brackish sloughs, but does not utilize brackish sloughs for breeding. They do breed in freshwater pools and ponds really only meters away from brackish sloughs, throughout the Humboldt Bay area (Norman, pers. observ. 2003).They also breed in ditches, pasture puddles, creek margins, estuaries, and other wetland habitats (marshes, vernal pools between dune hummocks). *Carex, Salix* and (sword) ferns, for cover in open and closed-canopy areas, are especially utilized for an opportunistic “sit and wait” predation mode (FRAWG 2005, Stebbins 2003, Wright and Wright 1979).

Habitat within the project area

Northern Red Legged frogs probably occur throughout the adjacent area, as forested foraging habitat is plentiful in the region.

**foothill yellow-legged frog – *Rana boylii*–SC**

This frog is listed in California as a Species of Special Concern and Forest Service Sensitive because of declining populations outside of old-growth (Blaustein et al 1995). These declines are attributed to altered stream flow regimes, habitat loss, changes in water quality (e.g. changes in temperature and pH), and introduced exotic predators (FRAWG 2005, USFS 1998). Historically, the frog ranged over most of California below 6000 feet elevation, west of the deserts and the Sierra-Cascade crest, excluding the Central Valley. The frog has completely disappeared from southern California and from about 45% of its historical range over the entire

state (http://biology.usgs.gov). This species is found in shallow, low-gradient water with a rock-dominated substrate. Breeding sites occur in shallow, slow flowing water with at least some pebble and cobble, and with at least some shading (≥20%). Cobble is the dominate nest-attachment in northern California (FRAWG 2005, Blaustein et. al 1995).

This species is also occasionally found in other riparian habitats including moderately vegetated backwaters, isolated pools, and slow moving rivers with mud substrates *(ice.ucdavis.edu).* They are not found far from the waters edge (CDFG 1988, Nussbaum et al.1983). Museum records (http://biology.usgs.gov) and surveys by forest biologists have confirmed occurrence of foothill yellow-legged frog on the Mendocino, Klamath, Shasta-Trinity and Six Rivers National Forests.

As stated previously, these frogs are sensitive to changes in flow regime. High flows from floods or dam releases, can scour egg masses from the substrate. Decreased flows may force frogs into permanent pools where they are more susceptible to predation. High levels of silt may inhibit the attachment of the egg masses to the substrate or may adversely affect embryo development (Ashton et al. 1997).

Habitat within the project area

Habitat may occur within the project area due to the fact that foothill yellow legged frogs will use slow moving rivers with mud substrates, which is similar habitat to that at Junior and Waukell Creeks.

**Del Norte salamander – *Plethodon elongatus* – Status SC**

Del Norte salamanders are found along the coast in far northwest California from near Orick, Humboldt County, and east to near Seiad Valley, Siskiyou County, south to near Salyer, Trinity County, and north into coastal southwest Oregon. They are a California Species of Special Concern. Populations can decline due to clear-cutting of forested habitats, especially in drier inland locations. They are fully terrestrial and strongly associated with moist talus in humid shaded and closed-canopy forests of mixed hardwoods and conifers (Blaustein et al. 1995, Petranka 1998, Stebbins 2003, FRAWG 2005). They can also be found in rock rubble of old riverbeds, and under bark and logs on forest floor, usually in rocky areas and can be especially abundant in older forests. Del Norte salamanders are active on rainy or wet nights mostly in the fall through spring. They tend to be inactive in summer, retreating underground, though they have been seen in shaded areas under wet streamside rocks in the dry summer months (FRAWG 2005, Welsh et al. 2005).

Habitat within the project area

This species is common in the Klamath Glen and Township and Requa areas and throughout Del Norte County and habitat is likely to be found within the project area.

**Project Impacts**

Direct Impacts

Since construction will occur during the summertime low flow, low fish density time of the year, direct impacts will not be significant. Surveys conducted in Junior and Waukell creeks indicate

very small, if any, numbers of fish present in the area during the summer (Voight 2008). Poor water quality and increased water temperatures are believed to be the cause of this decrease in fish abundance. These conditions will aid the project by naturally causing fish to move into the mainstem river and away from the project area. Therefore it is believed that direct impacts on Coho salmon will be less than significant.

Direct impacts to amphibian species will not be significant. Project activities are short in duration and precautionary measures to relocate any individuals found will be completed before any disturbance to area habitat is begun. Precautionary activities include capture and relocation of all species inhabiting the stream channel, blocking both upstream and downstream areas adjacent to the project area, and performing visual surveys during construction activities to ensure that individuals remain outside of the project area.

Indirect Impacts

Indirect impacts on salmonids and other aquatic species will be positive. The replacement of the undersized culverts and daylighting of Junior Creek will create an increase in both habitat quantity and quality and therefore have a positive effect on all salmonids utilizing Junior and Waukell Creek. Additionally, these activities will assist in keeping water quality high in these streams, by decreasing potential non-point source pollution that enters aquatic waterways during flooding and high flow events. During flooding events, pollutants that have collected on the roadway are introduced into aquatic environments when the water stage reaches high enough to overtop the road and bypass the culvert. With the installation of adequately sized culverts, the water stage needed to overtop the road, bypassing the culvert, and introducing the pollution is highly diminished. Additionally, increasing the height of the roadbed will create a positive indirect impact by increasing the area of potential filtration between the creek channel and the roadbed.

Cumulative Impacts

The cumulative impacts to aquatic species will likely be significant and positive. In the long term, the cumulative impacts of the project and the Yurok Fisheries program will improve fish and amphibian habitat. The road improvement activities, and subsequent replacement of culverts in the stream channel, will provide improved instream and riparian habitat overall and increase the amount of high quality habitat available. Improvements to the stream area through increasing culvert size and increasing natural areas will provide additional foraging and rearing habitat, as well as increasing water quality and hydraulics within the stream channel. The daylighting of Junior Creek will also be a positive cumulative impact because the opening and restoration of the stream channel will provide new habitat areas for both aquatic and terrestrial animals. Lastly, when combined with future watershed restoration projects proposed by the Yurok Tribal Environmental Program, the activities involved in the project will create a net cumulative effect for areas throughout the watershed.

**Wetland and Foraging Species**

Wetland foraging species may be affected during project operations. The ground disturbing activities could cause a take of species in the wetland and creek areas, and the activities will

cause avoidance behavior during the construction. However, the negative impacts will be short-term and insignificant.

The wetland foraging species include the amphibians mentioned above, and several bird species. This list includes osprey and bald eagle, both of which occur in the area; however, these birds do not likely forage in the project's small-order streams.

**willow flycatcher – Empidonax traillii**

Willow flycatchers are small, insect eating birds of the tyrant flycatcher family. Their breeding habitat is found in deciduous thickets, especially comprised of willow and often near water. The Willow flycatcher is also known to breed in moist, shrubby areas, often with standing or running water, and winters in shrubby clearings and early successional growth. Species are found across the United States and southern Canada, and are known to migrate to Mexico and Central America, often selecting habitat near water. The diet of the Willow flycatcher consists almost exclusively of insects. Nests are built low in the crotch of bushes or small trees near water, and can also be found on the outer edge of select shrubs. Overall populations appear to be declining, and southwestern subspecies are listed as endangered.

Habitat within the project area

Suitable habitat for foraging and nesting is likely within the project region. However, foraging and nesting habitat is not likely to occur within the project vicinity or project area, due to the degraded conditions of the immediate area. Additionally, willow flycatchers are known to be localized foragers in proximity to their nesting sites, which further decreases the chances of this species being found within the project area or project vicinity, since individuals will remain in areas of suitable habitat within areas outside of the project vicinity.

**great blue heron - *Ardea herodias***

**osprey – *Pandion haliaetus* Status SC**

**bald eagle – *Haliaeetus leucocephalus* Status SE**

Impacts

Direct Impacts

There will be no significant direct impacts to wetland and creek foraging species. Project activities will be focused in the stream channel and adjacent wetland and riparian areas which are used sporadically by the above species. Any animals foraging in the area will be temporarily displaced, but the species will not be negatively affected. There is ample foraging habitat available for these species in the project region to utilize during project activities.

Ultimately, the project will result in an increase in the quality of the affected habitat. This will cause direct positive impacts.

However, the creeks and wetlands on-site may be impacted by sediment transport during construction. BMPs to control erosion and prevent downstream impacts will be implemented, and special care will be taken in sensitive riparian areas.

Indirect Impacts

No indirect impacts are expected to occur as a result of the project.

Cumulative Impacts

We expect cumulative impacts to be positive and similar to those discussed above (refer to the Aquatic species discussion).

Though the project region supports habitat for these species, there is no suitable habitat on the project area, and there will be no direct or indirect impacts to such habitat. These species are considered no further.

### 4.3 Special Status Habitats

**Creeks** - The project will affect Waukell Creek, a perennial watercourse, and Junior Creek, a seasonal watercourse. The work involves road construction with two creek crossings and the daylighting of approximately 250 linear feet of Junior Creek. As such, project work will include in- and near-stream excavation, culvert removal, and road construction in the same area.

**Creek Impacts** - The existing condition of the creeks is degraded, and, though the project is explicitly a road project, the instream conditions will be partially restored as a result of the project (e.g., daylighting). In addition, replacing the currently undersized culverts will improve stream function. Hence, the project will result in long-term positive effects in this sensitive habitat.

Though the long-term effect will be positive, the project does have the potential to negatively impact the creeks during construction. Such impacts are primarily associated with erosion and sediment transport. The project will incorporate BMPs to avoid or minimize erosion. The BMP inspection schedule will involve daily implementation and effectiveness monitoring, as well as post storm event monitoring. The work will be conducted during the late summer-early fall, when stream flows are lowest and precipitation is least likely. All BMP project measures will be documented in a BMP Plan and Log Book. These project measures will be sufficient to reduce temporary impacts to creek habitats to below significant.

**Wetlands** – Much of the land adjacent to the project area is assumed under this assessment to be seasonal wetlands (Figure 2). A complete wetland delineation has not been conducted, but during our April 2008 site investigation, we examined the soils and vegetation in the project area for wetland indicators. Positive indicators of hydric soils and at least mesophytic vegetation are found over most of the impact footprint.

There is some evidence to suggest that the area does not support wetland hydrology. The Geotechnical Report for the project (LACO 2008) documents a water table near the surface at

only one location (GB-3) on the northeastern end of the project area (see Geotechnical Report, LACO 2008). The lack of a water table near the surface during the site investigation is surprising because of the amount of precipitation received prior to the geotechnical work. The mid-December 2007 work followed a 1.95 inch precipitation event, with 1.45 inches falling during and 6.34 inches total prior to the field work.

Notwithstanding the above data, the soils being fine silts and silty sands may become anaerobic and produce the observed hydric traits under less than inundated conditions. We observed oxidized rhizophores, which suggest the hydric conditions are current. Other wetland soil traits included motteling in low-chorma matrix and depleted zones.

**Wetland Impacts** – Based on the assumption that the vegetated areas adjacent to the existing road present some form of seasonal wetland, the road realignment may impact an area equal to the footprint of the proposed road base that is outside the existing road's footprint. The total impact area depends on the chosen alternative, and the extent of actual wetlands on the site, but each will cause some impact to existing wetlands. The proposed project additional footprint would be nearly equal to the area of impervious surface that would be removed.

The project will also have positive effects on the seasonal wetlands. Each alternative will include aspects of wetland and creek restoration. The project will remove the Junior Creek culvert and restore riparian habitat around the creek bed. The project also has incidental minor benefits to wetlands and creeks. For example, the roads will be designed with curbs that will help to channel pollutants away from direct inputs to the creeks. Additional positive impacts include improvements in hydrology and infiltration rates, increases in areas of native vegetation, and decreases in impervious surfaces.

Short-term impacts to the wetlands will be insignificant. The long-term impacts to wetlands will result in a net positive significant effect; though there will be significant negative effects on existing wetlands (i.e., filling seasonal wetlands), these losses will be off-set by the increase in wetland area and habitat.

### 4.4 On-site Inspection and Survey

We conducted field visits on December 19, 2007 and April 3, 2008. David Loya, conducted an on-site investigation and surveyed the site for special status plant species and conducted a wetland assessment on April 3, 2008. We examined the entire project area and considered adjacent areas that may be impacted by the project. During the site visit, we identified all species encountered; however, we did not conduct complete, protocol-level surveys for all special-status species. We did survey for those species whose blooming or activity periods corresponded with our site visit.

## 5 Results

### 5.1 Botanical Assessment Results

None of the special status species were encountered during field surveys (Table 1). Other surveys conducted on the project site previously produced negative results for presence as well

(NRM 2005). In addition, the habitat for the listed species on the site is severely degraded by canary reed grass. None of the listed species are likely to occur in this impacted habitat type.

### 5.2 Animal Assessment Results

Our results of the animal species survey and habitat assessment are detailed below and are summarized in Table 2. In summary, we conclude that the project will have either "no impact" or "less than significant" impact on most animal species. Coho, coastal cutthroat, and steelhead are found in Junior and Waukell Creeks, and Junior Pond. Salmonid habitat is of excellent quality for overwintering and rearing during periods of high winter flows in the mainstem Klamath River. Junior and Waukell Creeks and adjacent off channel habitats may also support special concern amphibian species. Mitigations to avoid and minimize impacts to creek and wetland habitats are recommended in the discussion below. No other special status species were identified on site.

Several terrestrial species may forage, roost, or otherwise use the site. The project may shift patterns of use, but, due to the size and scope of the project, it is not likely to significantly impact these species.

This project will be conducted in compliance with all applicable State and Federal threatened species protection laws and regulations. The National Marine Fisheries Service (NMFS) and the US Fish and Wildlife Service will be notified as to the extent of the project activities, so as to determine if the project will affect threatened and endangered species. If necessary, these entities can provide assistance in project planning and design, so as to avoid effects to threatened and endangered species.

## 6 Recommendations / Mitigations

Restoration of instream channel and surrounding wetland habitats is required to offset project impacts. While increasing the size of the two culverts and daylighting an instream section of Junior Creek are important restoration activities, additional measures are required to mitigate the short-term impacts of the project. If the excavated creeks are not restored, the project would result in significant negative impacts affecting a range of aquatic species, including federal and state listed species.

The planned activities of daylighting and culvert improvements will not fully mitigate for the impacts that will occur to wetland and stream channel habitats. Therefore, it is recommended that additional restoration of these habitats is performed in a timely manner, to fully mitigate for and lessen the impacts of the proposed project activities. Restoration activities that should be implemented include the following activities:

- Increasing the floodplain area in Waukell and Junior Creeks through bank excavation;
- Daylighting areas of Waukell and Junior Creeks by removing culverts
- Contouring the banks of Waukell Creek
- Planting the banks and floodplain with native herbaceous and woody vegetation;
- Removal of reed canary grass and replacement with native vegetation;

- Continued management of reed canary grass populations to decrease further encroachment
- Removal of impervious areas within the lower Waukell and Junior creek watersheds, to be replaced with naturally vegetated areas.

The restoration plan specifies actions needed to mitigate and restore the impacted creeks (Appendix B).

We conclude that, with the incorporation of mitigations, the proposed project will have a less than significant effect on biological resources, including listed species, designated and proposed critical habitat, and other special status plant and animal species and habitats. Specific implementation recommendations are provided in the Riparian Habitat and Floodplain Restoration Plan for the Resighini Rancheria Road Improvement Project (Appendix B).

The creek and wetlands guild is likely to be impacted by the proposed project. Therefore, the mitigations focus on protecting and restoring creek and wetland habitat. Below, we list the measures that, if implemented, will reduce the impact of the project to below significance. These are listed roughly in the order in which they should be implemented.

Mitigation measures for aquatic resources will begin with performing all construction activities during the dry season. The California Department of Fish and Game limits projects that occur within the stream channel to operate between June 15 and October 15 of any given year. All erosion control measures must be in place by the end of this period, and the site must be prepared for seasonal rains. Use of heavy equipment in the stream channel will be performed as quickly as possible, and construction crews should have all equipment and materials staged and ready to begin construction as soon as regulations allow. Junior Creek will not have water in it during this time of the year, and therefore will require less mitigation measures for aquatic organisms than Waukell Creek, which contains water year round.

An instruction plan has been developed to guide the removal of fish, dewatering of the creeks, and diversion of the streamflow, that must be accomplished before construction activities can begin (Merrill 2001, Washington State Department of Transportation 2006). Mitigation measures to be used in Waukell Creek will involve the blocking of stream flow using a coffer dam, the removal of all aquatic organisms, the dewatering of the project area, and the diversion of water around the project area and into the channel further downstream. Since flow is sufficient to be intercepted, a small diversion dam will be built upstream and stream flow will be piped around the worksite and discharged into the stream below. The diversion dam will be comprised of natural stream channel material where applicable and can be constructed using an excavator. If the natural stream channel does not provide appropriate material, sandbags or natural material from adjacent areas will be used to construct the dam. The dam will be reinforced with silt fences or mesh material to the height of the dam. This will help keep sediment and debris in the coffer dam. Once the dam is created and water flow has been stopped it is time to block the downstream end of the project area. This can be accomplished by placing sand bags and visqueen to create fish exclusion fencing across the creek channel. This will create a barrier for water and aquatic organisms from moving into the project area and will isolate the worksite. A

silt fence should be installed with the fish exclusion fencing and will decrease sediment and debris moving downstream. Once the area has been isolated all aquatic organisms must be removed from the work site.

A qualified fisheries biologist will remove any and all aquatic organisms from the stream channel by seining or electrofishing the blocked off area. These organisms will be replaced into the creek upstream of the project site so as to minimize stress on aquatic organisms and decrease impacts to the environment they are inhabiting. This will ensure that no aquatic organisms are affected by project activities.

Streamflow will be diverted around the worksite using flexible pipe. Piping will consist of flexible 12 inch diameter plastic tubing, affixed with a 1/8 inch mesh screen covering the intake area in the coffer dam. A silt fence comprised of 1/8 mesh will be placed along the stream channel immediately downstream of where water is reintroduced into the stream channel. The silt fence will allow water to pass through the mesh, but will block sediment and debris that may be moving downstream. Appropriate mesh size is between 1/8 and ¼ inch screen. Silt fences must be maintained and cleaned throughout the project. This may need to be done as frequently as daily in severe cases, and sediment and debris should not be allowed to build up past 1/3 of the height of the silt fence (Ibid.).

### 6.1 General Measures

**Project Timing** – The construction phase of the project should be scheduled to occur over the shortest feasible period. The project shall commence when the following conditions are satisfied:

- The date is between June 15 and October 15;
- A qualified biologist has confirmed that the creeks' sensitive fish species populations are low.

**Construction Period Erosion** – Sedimentation associated with implementation can be managed using standard BMPs. The specific treatments will be included in the SWPPP. Install BMPs to prevent sediment transport into the creeks prior to ground disturbing activities commence. All mulching material shall be weed-seed free hay or rice straw.

**Staging** – All necessary equipment and materials shall be staged in upland areas outside of sensitive habitats. The campground and the barn parking areas are suitable for staging.

**Work Progress** – Heavy equipment should only be operated during 'dry' periods so as not to introduce excessive turbidity and sediment into other areas of the stream. Also, heavy equipment should be utilized in an efficient and minimal manner, to decrease the impact on riparian vegetation and bank stability. Project activities should be performed as quickly as possible, so as to allow the stream channel and banks to begin restoring as soon as possible.

**Non-native Organism Transport** – The following measures will minimize the impact of importing or dispersing non-native organisms.

- All earthmoving equipment shall be pressure washed prior to entering and leaving the project area.
- Excavation in canary reed grass infested areas shall follow measures to limit transport of live material, including seeds. The topsoil in canary grass sites shall be excavated and stockpiled separately from subsoil. Topsoil shall be transported off-site and shall be covered prior to end-hauling. Topsoil spoils shall be properly composted to kill all live material. Soil stockpiled on-site shall be kept covered and/or behind a silt fence.

### 6.2 Sensitive Species Measures

The following shall be implemented before construction in the stream channel occurs. This work may occur simultaneously with terrestrial construction measure BMP installation.

**Dewatering** – An instream dam shall be constructed up-stream of the project area. The dam can be constructed of sandbags or other natural material. The area will be dewatered, and stream flow will be diverted downstream beyond the project area, using a 12 inch diameter pipe.

**Depletion Seining** – Fish and other aquatic species shall be removed prior to construction activities. Removal shall be achieved through depletion seining. A downstream net shall be erected across the channel beyond the downstream end of the project. The area between the upstream dam and the downstream net shall be seined to capture any trapped individuals. Seined individuals shall be relocated upstream. This work shall be conducted by a qualified biologist.

**Electrofishing** – If the monitoring biologist finds it necessary to electrofish the project area to remove aquatic organisms, a qualified and permitted biologist will clear the project area of animals. The animals will be released upstream of the project area.

**Check Dams** – Check dams of rice straw or weed-seed free hay and sediment fencing shall be constructed between the diversion outlet and the downstream net and between the diversion dam and the upstream end of the project. These structures will be placed at a maximum distance of 100 feet from project activities, and will be maintained throughout the duration of construction activities.

**Construction Monitoring** – The project area shall be monitored by a qualified biologist to ensure that aquatic organisms do not enter the construction area. Any organisms found in the construction area shall be relocated upstream.

**Regulations** – The implementation shall comply with all permit requirements.

### 6.3 Habitat Mitigation Measures

The following are described in greater detail in the Restoration Plan (Appendix B). These mitigations address potential adverse effects of implementing the project.

**Floodplain Grading** – The restored floodplain area should be graded prior to extracting the culvert. The floodplain should be sloped at approximately 5:1 (run to rise) to inhibit fish stranding.

**Stream Channel Grading –** Channel grading shall occur during the dry season when either the channel has no surface flow or the channel is dammed per above. The channel should be graded to gently transition from the upstream elevation to the downstream elevation; the streambed should have no abrupt elevation changes.

**Instream Erosion Control** – The banks shall be stabilized with jute erosion netting. This shall be seeded and mulched. All work shall be done during the dry season, and all permanent BMPs shall be installed prior to finalizing construction.

### 6.4 Post Construction Measures

**Planting Plan** – The stream banks and floodplain wetland shall be replanted with native woody vegetation during the first winter after the project. The planting shall rely primarily on live willow poles from locally collected material. Collection and installation shall occur during the dormant period.

**Erosion Control** – Install all necessary erosion and sediment control features per the SWPPP prior to October 15. All exposed soils shall be planted or mulched. All mulching material shall be weed-seed free hay or rice straw. All planting material shall be native species typical of the area. Sterile riparian mix grass seed may be used regardless of the native status of the species in the mix. Any soil disturbance adjacent to stream channels shall receive evenly distributed mulch coverage with masticated brush to reduce sheet erosion. Mulch will be generated during the clearing phase of the rehabilitation work and shall be used to the maximum extent possible.

## 7 Conclusion

This BE addressed issues pertaining to rare, threatened, and endangered plant and animal species, as well as to special status habitats . We recommend a series of project mitigations, as well as a restoration plan for the affected creeks. We conclude that the project with mitigations incorporated will have no effect or less than significant effect on all biological resources.

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# 9 Appendices

Appendix A – Special status species

Appendix B – Restoration Plan

Appendix A – Complete list of special status species documented on the Requa 7.5' and adjacent quadrangles. Only species with suitable habitat and/or known occurrence within the project area were considered in the BE. This list is, therefore, more extensive than that of the BE.

| Taxonomy | Status | Habitat | Microhabitat | Species/Habitat Present |
|---|---|---|---|---|
| **Plants** | | | | |
| *Abronia umbellata* ssp. *breviflora* - pink sand-verbena | 1B.1 | COASTAL DUNES AND COASTAL STRAND. | FOREDUNES AND INTERDUNES WITH SPARSE COVER. A. UMB. BREVIFLORA IS USUALLY THE PLANT CLOSEST TO THE OCEAN. 0-12M. | No/No |
| *Arabis macdonaldia* - McDonald's rock cress | FE, SE, 1B.1 | LOWER MONTANE CONIFEROUS FOREST, UPPER MONTANE CONIFEROUS FOREST. | ROCKY OUTCROPS, RIDGES, SLOPES, AND FLATS ON SERPENTINE. 135-1455M. | No/No |
| *Calamagrostis crassiglumis* - Thurber's reed grass | 2.1 | COASTAL SCRUB, FRESHWATER MARSH. | USUALLY IN MARSHY SWALES SURROUNDED BY GRASSLAND OR COASTAL SCRUB. 10-45M. | No/Low quality habitat impacted by reed canary grass |
| *Calamagrostis foliosa* - leafy reed grass | SR, 4.2 | COASTAL BLUFF SCRUB, NORTH COAST CONIFEROUS FOREST. | ROCKY CLIFFS AND OCEAN-FACING BLUFFS. 0-1220M. STATE-LISTED RARE. ELEMENT OCCURRENCES ARCHIVED; CNPS LIST 4. | No/No |
| *Carex lenticularis* var. *limnophila* - lagoon sedge | 2.2 | BOGS AND FENS, MARSHES AND SWAMPS, NORTH COAST CONIFEROUS FOREST. | LAKESHORES, BEACHES. 0-6M. | No/Low quality habitat impacted by reed canary grass |
| *Carex leptalea* - bristle-stalked sedge | 2.2 | BOGS AND FENS, MEADOWS, MARSHES AND SWAMPS. | MOSTLY KNOWN FROM BOGS AND WET MEADOWS. 0-790M. | No/Low quality habitat impacted by reed canary grass |
| *Carex lyngbyei* - Lyngbye's sedge | 2.2 | MARSHES AND SWAMPS (BRACKISH OR FRESHWATER). | 0M. | No/No |
| *Carex viridula* var. *viridula* - green yellow sedge | 2.3 | BOGS AND FENS, MARSHES AND SWAMPS (FRESHWATER), NORTH COAST CONIFEROUS FOREST. | MESIC SITES. 0-1600M. | No/Low quality habitat impacted by reed canary grass |

Appendix A – Complete list of special status species documented on the Requa 7.5' and adjacent quadrangles. Only species with suitable habitat and/or known occurrence within the project area were considered in the BE. This list is, therefore, more extensive than that of the BE.

| **Taxonomy** | **Status** | **Habitat** | **Microhabitat** | **Species/Habitat Present** |
|---|---|---|---|---|
| *Castilleja affinis* ssp. *litoralis* - Oregon coast paintbrush | 2.2 | COASTAL BLUFF SCRUB, COASTAL DUNES, COASTAL SCRUB. | SANDY SITES. 15-100M. | No/Marginal |
| *Coptis laciniata* - Oregon goldthread | 2.2 | NORTH COAST CONIFEROUS FOREST, MEADOWS AND SEEPS. | MESIC SITES SUCH AS MOIST STREAMBANKS. 0-1000M. | No/No |
| *Discelium nudum* - naked flag moss | 2.2 | COASTAL BLUFF SCRUB. | MOSS THAT GROWS ON SOIL ON CLAY BANKS. 10-50M. | No/No |
| *Empetrum nigrum* ssp. *hermaphroditum* - mountain crowberry | 2.2 | COASTAL BLUFF SCRUB, COASTAL PRAIRIE. | 10-200M. | No/No |
| *Eriogonum nudum* var. *paralinum* - Del Norte buckwheat | 2.2 | COASTAL BLUFF SCRUB, COASTAL PRAIRIE. | OPEN PLACES ALONG IMMEDIATE COAST. 5-80M. | No/No |
| *Fissidens pauperculus* - *minute pocket moss* | 1B.2 | NORTH COAST CONIFEROUS FOREST. | MOSS GROWING ON DAMP SOIL ALONG THE COAST. 10-100M. | No/No |
| *Gilia capitata* ssp. *pacifica* - Pacific gilia | 1B.2 | COASTAL BLUFF SCRUB, COASTAL PRAIRIE, VALLEY AND FOOTHILL GRASSLAND. | 5-300M. | No/Yes |
| *Iliamna latibracteata* - *California globe mallow* | 1B.2 | NORTH COAST CONIFEROUS FOREST. | SEEPAGE AREAS IN SILTY CLAY LOAM. 500-2000M. | No/No |
| *Lathyrus japonicus* - seaside pea | 2.1 | COASTAL DUNES. | 1-30M. | No/No |
| *Lathyrus palustris* - marsh pea | 2.2 | BOGS & FENS, LOWER MONTANE CONIF. FOREST, MARSHES & SWAMPS, N. COAST CONIFEROUS FOREST, COASTAL PRAIRIE, COASTAL SCRUB. | MOIST COASTAL AREAS. 1-100M. | No/Low quality habitat impacted by reed canary grass |

Appendix A – Complete list of special status species documented on the Requa 7.5' and adjacent quadrangles. Only species with suitable habitat and/or known occurrence within the project area were considered in the BE. This list is, therefore, more extensive than that of the BE.

| **Taxonomy** | **Status** | **Habitat** | **Microhabitat** | **Species/Habitat Present** |
|---|---|---|---|---|
| *Lilium occidentale* - western lily | FE, SE, 1B.1 | COASTAL SCRUB, FRESHWATER MARSH, BOGS AND FENS, COASTAL BLUFF SCRUB, COASTAL PRAIRIE, NO. COAST CONIFEROUS FOREST. | WELL-DRAINED, OLD BEACH WASHES OVERLAIN W/WIND-BLOWN ALLUVIUM & ORG. TOPSOIL; USU NEAR MARGINS OF SITKA SPRUCE. 2-185M. | No/No |
| *Mitella caulescens* - leafy-stemmed mitrewort | 4.2 | BROADLEAFED UPLAND FOREST, LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS, NORTH COAST CONIFEROUS FOREST. | MESIC SITES. 6-1710M. | No/Low quality habitat impacted by reed canary grass |
| *Monotropa uniflora* - ghost-pipe | 2.2 | BROADLEAVED UPLAND FOREST, NORTH COAST CONIFEROUS FOREST. | OFTEN UNDER REDWOODS OR WESTERN HEMLOCK. 10-200M. | No/No |
| *Oenothera wolfii* - Wolf's evening-primrose | 1B.1 | COASTAL BLUFF SCRUB, COASTAL DUNES, COASTAL PRAIRIE, LOWER MONTANE CONIFEROUS FOREST. | SANDY SUBSTRATES; USUALLY MESIC SITES. 3-800M. | No/No |
| *Packera bolanderi* var. *bolanderi* - seacoast ragwort | 2.2 | COASTAL SCRUB, NORTH COAST CONIFEROUS FOREST. | 30-650M. | No/Low quality habitat impacted by reed canary grass |
| *Piperia candida* - white-flowered rein orchid | 1B.2 | NORTH COAST CONIFEROUS FOREST, LOWER MONTANE CONIFEROUS FOREST, BROADLEAFED UPLAND FOREST. | COAST RANGES FROM SANTA CRUZ COUNTY NORTH; ON SERPENTINE. FOREST DUFF, MOSSY BANKS, ROCK OUTCROPS & MUSKEG. 0-1200M. | No/No |
| *Potamogeton foliosus* var. *fibrillosus* - fibrous pondweed | 2.3 | MARSHES AND SWAMPS. | SHALLOW WATER, SMALL STREAMS. 5-1300M. | No/No habitat impacted by reed canary grass |

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| **Taxonomy** | **Status** | **Habitat** | **Microhabitat** | **Species/Habitat Present** |
|---|---|---|---|---|
| *Romanzoffia tracyi* - Tracy's romanzoffia | 2.3 | COASTAL BLUFF SCRUB, COASTAL SCRUB. | ROCKY SITES. 15-30M. | No/No |
| *Sanguisorba officinalis* - great burnet | 2.2 | BOGS & FENS, MEADOWS & SEEPS, BROADLEAFED UPLAND FOREST, MARSHES & SWAMPS, NORTH COAST CONIFEROUS FOREST, RIPAR. FOREST. | ROCKY SERPENTINE SEEPAGE AREAS AND ALONG STREAM BORDERS. 60-1400M. | No/No |
| *Sidalcea malachroides* - maple-leaved checkerbloom | 4.2 | BROADLEAFED UPLAND FOREST,COASTAL PRAIRIE,COASTAL SCRUB, NORTH COAST CONIFEROUS FOREST. | WOODLANDS AND CLEARINGS NEAR COAST; OFTEN IN DISTURBED AREAS. 2-760M. | No/No |
| *Silene serpentinicola* - serpentine catchfly | 1B.2 | CHAPARRAL, LOWER MONTANE CONIFEROUS FOREST. | SERPENTINE OPENINGS, GRAVELLY OR ROCKY SOILS. 145-1650M. | No/No |
| *Trientalis arctica* - arctic starflower | 2.2 | MEADOWS AND SEEPS, BOGS AND FENS. | COASTAL BOGGY AREAS. 0-15M. | No/Low quality habitat impacted by reed canary grass |
| *Triquetrella californica* - coastal triquetrella | 1B.2 | COASTAL BLUFF SCRUB, COASTAL SCRUB. | MOSS GROWING ON SOIL. 10-100M. | No/No |
| *Usnea longissima* - long-beard lichen | | NORTH COAST CONIFEROUS FOREST, BROADLEAFED UPLAND FOREST. | GROWS IN THE "REDWOOD ZONE" ON A VARIETY OF TREES INCL BIG LEAF MAPLE, OAKS, ASH, DOUG-FIR, AND BAY. 0-2000' IN CALIF. | No/No |
| **Amphibians** | | | | |
| western tailed frog - *Ascaphus truei* | SC | OCCURS IN MONTANE HARDWOOD-CONIFER, REDWOOD, DOUGLAS-FIR AND PONDEROSA PINE HABITATS | RESTRICTED TO PERENNIAL MONTANE STREAMS. TADPOLES REQUIRE WATER BELOW 15 DEGREES C. | NO/NO |

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| Taxonomy | Status | Habitat | Microhabitat | Species/Habitat Present |
|---|---|---|---|---|
| southern torrent salamander - *Rhyacotriton variegatus* | SC | COASTAL REDWOOD, DOUGLAS-FIR, MIXED CONIFER, MONTANE RIPARIAN, AND MONTANE HARDWOOD-CONIFER HABTIATS. OLD GROWTH FOREST | COLD, WELL SHADED, PERMANENT STREAMS AND SEEPAGES OR WITHIN SPLASH ZONE OR ON MOSS COVERED ROCK WITHIN TRICKLING WATER. | NO/NO |
| Del Norte Salamander - *Plethodon elongatus* | SC | OLD GROWTH ASSOCIATED SPECIES WITH OPTIMUM CONDITIONS IN THE MIXED CONIFER/HARDWOOD ANCIENT FOREST ECOSYSTEM | COOL, MOIST, STABLE MICROCLIMATE. A DEEP LITTER LAYER, CLOSED MULTI-STORIED CANOPY, DOMINATED BY LARGE OLD TREES. | NO/NO |
| foothill yellow-legged frog - *Rana boylii* | SC | PARTLY-SHADED, SHALLOW STREAMS AND RIFFLES WITH A ROCKY SUBSTRATE IN A VARIETY OF HABITATS. | NEED AT LEAST SOME COBBLE SIZED SUBSTRATE FOR EGG LAYING. NEED AT LEAST 15 WEEKS TO ATTAIN METAMORPHOSIS. | NO - HABITAT PRESENT |
| northern red legged frog - *Rana aurora* | SPC | LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION | REQUIRES 11 -20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT. | NO - HABITAT PRESENT |
| **Birds** | | | | |
| great blue heron - *Ardea herodias* | | COLONIAL NESTER IN TALL TRESS, CLIFFSIDES, AND SEQUESTERED SPOTS ON MARSHES. | ROOKERY SITES IN CLOSE PROXIMITY TO FORAGING AREAS; MARSHES,LAKE MARGINS, TIDE FLATS,RIVERS AND STREAMS, WET MEADOWS. | NO/NO |
| ruffed grouse - *Bonasa umbellus* | SC | EXTREME NORTHERN HUMID COASTAL STRIP, | INHABITS DENSE CANYON-BOTTOM OR STREAM SIDE | NO/NO |

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| **Taxonomy** | **Status** | **Habitat** | **Microhabitat** | **Species/Habitat Present** |
|---|---|---|---|---|
| | | IN DEL-NORTE, HUMBOLDT, AND SISKIYOU COUNTIES | GROWTHS, USUALLY OF MIXED DECIDUOUS AND CONIFEROUS TREES. | |
| bald eagle - *Haliaeetus leucocephalus* | recently delisted | OCEAN SHORE, LAKE MARGINS, AND RIVERS FOR BOTH NESTING AND WINTERING. MOST NESTS WITHIN ONE MILE OF WATER. | NESTS IN LARGE, OLD-GROWTH OR DOMINANT LIVE TREE WITH OPEN BRANCES, ESPECIALLY PONDEROSA PINE. ROOSTS COMMUNALLY IN WINTER. | NO/NO |
| osprey - *Pandion haliaetus* | SC | OCEAN SHORE, BAYS, FRESH-WATER LAKES, AND LARGER STREAMS | LARGE NESTS BUILT IN TREE-TOPS WITHIN 15 MILES OF A GOOD FISH PRODUCING BODY OF WATER. | YES - COMMONLY FOUND IN PROJECT AREA AND SURROUNDING LANDSCAPE/OBSERVED DURING SITE VISIT |
| marbled murrelet - *Brachyramphus marmoratus* | Threatened | FEEDS NEAR SHORE, NESTS INLAND ALONG COAST FROM EUREKA TO OREGON BORDER AND FROM HALF MOON BAY TO SANTA CRUZ | NESTS IN OLD GROWTH REDWOOD DOMINATED FORESTS, UP TO SIX MILES INLAND, OFTEN IN DOUGLAS FIR. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA |
| Western yellow billed cuckoo - *Coccyzus americanus* | Endangered | RIPARIAN FOREST NESTER, ALONG BROAD, LOWER FLOOD BOTTOMS OF LARGER RIVER SYSTEMS. | NESTS IN RIPARIAN JUNGLES OF WILLOW OFTEN MIXED WITH COTTONWOODS, WITH LOWER STORY OF BLACKBERRY, NETTLES, OR WILD GRAPE. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA |
| double-crested comorant - *Phalacrocorax auritus* | SC | COLONIAL NESTER ON COASTAL CLIFFS, OFFSHORE ISLANDS AND ALONG LAKE MARGINS IN THE INTERIOR OF THE STATE | NESTS ALONG COAST ON SEQUESTERED ISLETS, USUALLY ON GROUND WITH SLOPING SURFACE, OR IN TALL TREES ALONG LAKE MARGINS. | YES - COMMONLY FOUND IN PROJECT AREA AND SURROUNDING LANDSCAPE/OBSERVED DURING SITE VISIT |
| brown pelican - *Pelcanus occidentalis* | Endangered | COLONIAL NESTER ON COASTAL ISLANDS JUST OUTSIDE THE SURF LINE. | NESTS ON COASTAL ISLANDS OF SMALL TO MODERATE SIZE WHICH AFFORD IMMUNITY FROM ATTACK BY GROUND DWELLING | NO - NO RECORD OF OCCURANCES IN PROJECT AREA |

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| Taxonomy | Status | Habitat | Microhabitat | Species/Habitat Present |
|---|---|---|---|---|
| | | | PREDATORS. ROOST | |
| short tailed albatross - *Phoebastris albatrus* | Endangered | NORTH PACIFIC, PARTICULARLY IN THE BERING SEA WHERE THE LARGEST NUMBERS ARE SEEN TODAY, BUT ALSO AS FAR EAST AS CALIFORNIA. | NEST ON ONLY ON ONE ISLAND, THE JAPANESE ISLAND OF TORI SHIMA. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA. NO HABITAT WITHIN PROJECT AREA |
| northern spotted owl - *Strix occidentalis caurina* | Threatened | OLD GROWTH FORESTS OR MIXED STANDS OF OLD GROWTH AND MATURE TREES. OCCASIONALLY IN YOUNGER FORESTS WITH PATCHES BIG TREES. | HIGH, MULTISTORY CANOPY DOMINATED BY BIG TREES. MANY TREES WITH CAVITIES OR BROKEN TOPS, WOODY DEBRIS AND SPACE UNDER CANOPY. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA |
| Xantus's murrelet - *Synthliboramphus hypoleucus* | SC | OPEN OCEAN EXCEPT DURING BREEDING SEASON. BREEDS ON OFFSHORE ISLANDS IN SOUTHERN CALIFORNIA. | NESTS IN ROCK CREVICES, UNDER BUSHES, IN OLD BURROWS AND AMOUNG MAN-MADE DEBRIS. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA. NO HABITAT WITHIN PROJECT AREA |
| Willow Flycatcher - *Empidonax taillii* | | WET, BRUSHY AREAS | MOIST, SRUBBY AREA WITH STANDING WATER. | |
| Western Snowy Plover - *Charadrius alexandrinus nivosus* | FT | SANDY BEACHES, SALT POND LEVEES AND SHORES OF LARGE ALKALI LAKES | NEEDS SANDY, GRAVELLY OR FRIABLE SOILS FOR NESTING | FOUND IN COASTAL AREAS AROUND HUMBOLDT BAY |
| **Mammals** | | | | |
| fringed myotis - *Myotis thysandoes* | | IN A WIDE VARIETY OF HABITATS, OPTIMAL HABITATS ARE PINYON-JUNIPER, VALLEY FOOTHILL HARDWOOD | USES CAVES, MINES, BUILDINGS OR CREVICES FOR MATERNITY COLONIES AND ROOSTS. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA. NO HABITAT WITHIN PROJECT AREA |

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| **Taxonomy** | **Status** | **Habitat** | **Microhabitat** | **Species/Habitat Present** |
|---|---|---|---|---|
| | | AND HARDWOOD CONIFER. | | |
| silver-haired bat - *Lasionycteris noctivagans* | SC | PRIMARILY A COASTAL AND MONTANE FOREST DWELLER FEEDING OVER STREAMS, PONDS AND OPEN BRUSHY AREAS. | ROOSTS IN HOLLOW TREES, BENEATH EXFOLIATING BARK, ABANDONED WOODPECKER HOLES AND RARELY UNDER ROCKS. NEEDS DRINKING WATER. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA. NO HABITAT WITHIN PROJECT AREA |
| Humboldt marten - *Martes americana humboldtensis* | SC | MIXED EVERGREEN FORESTS WITH MORE THAN 40% CROWN CLOSURE ALONG NORTH COAST AND SIERRA NEVADA, KLAMATH AND CASCADE MOUNTAINS. | NEEDS VARIETY OF DIFFERENT AGED STANDS, PARTICULARLY OLD GROWTH CONIFERS AND SNAGS WHICH PROVIDE CAVITIES FOR DENS/NESTS. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA |
| Pacific fisher - *Martes pennanti (pacifica) DPS* | | INTERMEDIATE TO LARGE TREE STAGES OF CONIFEROUS FORESTS AND DECIDUOUS RIPARIAN AREAS WITH HIGH PERCENT CANOPY CLOSURE. | USE CAVITIES, SNAGS, LOGS AND ROCKY AREAS FOR COVER AND DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA |
| Yuma myotis - *Myotis yumanensis* | | FOUND IN WESTERN NORTH AMERICA, RANGING FROM BRITISH COLUMBIA TO CENTRAL MEXICO AND EASTWARD TO COLORADO AND AS FAR EAST AS OKLAHOMA | FOUND IN A VARIETY OF HABITATS, RANGING FROM JUNIPER AND RIPARIAN WOODLANDS TO DESERT REGIONS NEAR OPEN WATER. ONE IS ALMOST GUARANTEED TO FIND THIS SPECIES WHEREVER THERE ARE RIVERS, STREAMS, PONDS, LAKES, ETC. IN FACT, M. YUMANENSIS IS MORE CLOSELY ASSOCIATED WITH WATER THAN ANY OTHER NORTH AMERICAN | NO - NO RECORD OF OCCURANCES IN PROJECT AREA. NO HABITAT WITHIN PROJECT AREA |

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| Taxonomy | Status | Habitat | Microhabitat | Species/Habitat Present |
|---|---|---|---|---|
| | | | SPECIES OF BAT | |
| fork-tailed storm-petrel - *Oceanodroma furcata* | | COLONIAL NESTER ON SMALL, OFFSHORE ISLETS. FORAGES OVER THE OPEN OCEAN, USUALLY WELL OFF SHORE. | BIRDS CHOOSE OFF-SHORE ISLETS WHICH PROVIDE NESTING CRANNIES BENEATH ROCKS OR SOD FOR BURROWING. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA |
| Sei whale - *Balaenoptera borealis* | | OCEANIC | OCEANIC | NO/NO |
| blue whale - *Balaenoptera musculus* | | OCEANIC | OCEANIC | NO/NO |
| fin whale - *Balaenoptera physalus* | | OCEANIC | OCEANIC | NO/NO |
| Steller sea-lion - *Eumetopias jubatus* | | OCEANIC | OCEANIC | NO/NO |
| humpback whale - *Megaptera novaengliae* | | OCEANIC | OCEANIC | NO/NO |
| sperm whale - *Physeter macrocephalus* | | OCEANIC | OCEANIC | NO/NO |
| Sonoma tree vole - *Arborimus pomo* | SC | NORTH COAST FOG BELT FROM OREGON BORDER TO SONOMA CO. IN DOUGLAS-FIR, REDWOOD AND MONTANE HARDWOOD CONIFER FORESTS | FEEDS ALMOST EXCLUSIVELY ON DOUGLAS FIR NEEDLES. WILL OCCASIONALLY TAKE NEEDLES OF GRAND FIR, HEMLOCK OR SPRUCE. | NO - NO RECORD OF OCCURANCES IN PROJECT AREA. NO HABITAT WITHIN PROJECT AREA |
| **Invertebrates** | | | | |

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| Taxonomy | Status | Habitat | Microhabitat | Species/Habitat Present |
|---|---|---|---|---|
| mardon skipper - *Polites mardon* | | KNOWN FROM WESTERN WASHINGTON STATE AND EXTREME NORTHWESTERN DEL NORTE COUNTY. | | NO - NO RECORD OF OCCURANCES IN PROJECT AREA |
| Oregon silverspot butterfly - *Speyeria zerene hippolyta* | | COASTAL MEADOWS IN DEL NORTE COUNTY | THE LARVAE FEED ONLY ON THE FOLIAGE OF THE WESTERN DOG VIOLET (*VIOLA ADUNCA*) | NO - NO RECORD OF OCCURANCES IN PROJECT AREA. NO HABITAT WITHIN PROJECT AREA |
| Fort Dick limnephilus caddisfly - *Limnephilus atercus* | | KNOWN ONLY FROM FORT DICK IN DEL NORTE COUNTY. | | NO - NO RECORD OF OCCURANCES IN PROJECT AREA. NO HABITAT WITHIN PROJECT AREA |
| **Fish** | | | | |
| coastal cutthroat - *Oncorhynchus clarkii clarkii* | SC | SMALL COASTAL STREAMS FROM THE EEL RIVER TO THE OREGON BORDER. | SMALL,LOW GRADIENT COASTAL STREAMS AND ESTUARIES. NEED SHADED STREAMS WITH WATER TEMPS. <18C AND SMALL GRAVEL FOR SPAWNING. | SPECIES AND HABITAT PRESENT. MANY INDIVIDUALS FOUND THROUGHOUT PROJECT AREA. |
| coho salmon - *Oncorhynchus kisutch* | FT (So. OR/No. CA ESU), SC | FEDERAL LISTING REFERS TO POPULATIONS BETWEEN CAPE BLANCO, OREGON AND PUNTA GORDA, HUMBOLDT COUNTY, CALIFORNIA | STATE LISTING REFERS TO POPULATIONS BETWEEN THE OREGON BORDER AND PUNTA GORDA, CALIFORNIA | SPECIES AND HABITAT PRESENT. MANY INDIVIDUALS FOUND THROUGHOUT PROJECT AREA. |
| steelhead trout - *Oncorhynchus mykiss* | No. CA ESU FT | COASTAL BASINS FROM REDWOOD CREEK SOUTH TO THE GUALALA, INCLUSIVE. DOES NOT INCLUDE SUMMER RUN STEELHEAD | SMALL,LOW GRADIENT COASTAL STREAMS AND ESTUARIES. NEED SHADED STREAMS WITH WATER TEMPS. <18C AND SMALL GRAVEL FOR SPAWNING. | SPECIES AND HABITAT PRESENT. MANY INDIVIDUALS FOUND THROUGHOUT PROJECT AREA. |

Appendix A – Complete list of special status species documented on the Requa 7.5' and adjacent quadrangles. Only species with suitable habitat and/or known occurrence within the project area were considered in the BE. This list is, therefore, more extensive than that of the BE.

| **Taxonomy** | **Status** | **Habitat** | **Microhabitat** | **Species/Habitat Present** |
|---|---|---|---|---|
| Pacific Lamprey - *Lampetra tridentata* | | FRESHWATER STREAMS AND RIVERS | MUD, SANDY HABITATS | SPECIES AND HABITAT PRESENT. MANY INDIVIDUALS FOUND THROUGHOUT PROJECT AREA. |
| Speckled Dace - *Rhinichthys osculus* | | STREAMS AND DESERT SPRINGS | COLD SWIFT-FLOWING MOUNTAIN HEADWATERS TO WARM INTERMITTENT DESERT STREAMS AND SPRINGS. | SPECIES AND HABITAT PRESENT. MANY INDIVIDUALS FOUND THROUGHOUT PROJECT AREA. |
| Smallscale Sucker - *Catostomus rimiculus* | | LAZY CURRENT OF MAINSTEM COASTAL RIVERS TO STEEP, TUMBLING HEADWATER STREAMS. | | SPECIES AND HABITAT PRESENT. MANY INDIVIDUALS FOUND THROUGHOUT PROJECT AREA. |
| Three spined Stickleback - *Gasterosteus aculeatus* | | FRESHWATER STREAMS AND RIVERS | | SPECIES AND HABITAT PRESENT. MANY INDIVIDUALS FOUND THROUGHOUT PROJECT AREA. |
| Prickly Sculpin - *Cottus Asper* | | FRESHWATER STREAMS AND RIVERS | THE COASTAL FORMS RARELY LIVE IN A STREAM WITHOUT AN ESTUARY AND RARELY GO FARTHER THAN 50 KM UPSTREAM THOUGH THEY HAVE BEEN FOUND PRESENT OVER 120 KM UPSTREAM BEFORE, OFTEN SHARING HABITAT WITH THE COASTRANGE SCULPIN. | SPECIES AND HABITAT PRESENT. MANY INDIVIDUALS FOUND THROUGHOUT PROJECT AREA. |
| Brown trout - *Salmo trutta* | | FRESHWATER STREAMS AND RIVERS | WELL-OXYGENATED UPLAND WATERS, ESPECIALLY LARGE STREAMS IN MOUNTAINOUS AREAS. | SPECIES AND HABITAT PRESENT. MANY INDIVIDUALS FOUND THROUGHOUT PROJECT AREA. |

# WETLAND DELINEATION REPORT FOR RESIGHINI RANCHERIA
# DEL NORTE COUNTY, CALIFORNIA

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August 30, 2005

## 1. SUMMARY

A transect wetland delineation was conducted for the land-based portion of the Resighini Rancheria, Del Norte County, California (referred to subsequently as the Rancheria). The Rancheria, owned by the Resighini Tribe, is located adjacent to the south side of the Klamath River along river miles four to six from the Pacific Ocean. The majority of the Rancheria is situated within the historic meandering of the Klamath River with elevations that would be characterized as historic terrace elevations down to the gravel bar at current river level. This project characterizes and maps the waters under the Resighini Tribe's jurisdiction and identifies wetlands, creeks, streams, springs, and ponds within designated vegetation community types. The vegetation community types and acres derived from GIS analysis and field surveys are summarized below. The actual acreage of the Rancheria is reported as 318 acres, while the sum of GIS acres from this project is 362. The inflated GIS acres are likely due to an imprecise configuration of the boundary used in the GIS analysis.

Past projects have characterized the vegetation of the Rancheria (NRM 2001a, NRM 2001b), and this project utilized those projects in the classification of vegetation. The vegetation delineation used in this project is similar to the past projects, but some changes were made to the original delineations to reflect the current status of the vegetation as seen in the field during April 2005. Vegetation changes occur due to natural river interaction, vegetation succession, and Rancheria planning actions. Additionally a more descriptive naming system was implemented in this report. These new vegetation-type names generally correspond with Sawyer and Keeler-Wolf (1995), which is the most commonly used classification reference for California vegetation. Some vegetation communities did not correspond with any of the Sawyer and Keeler-Wolf series types; these types were named based on general characteristics of the vegetation and/or abiotic features. Newly named vegetation types are discussed in the results section.

**Table 1**. Summary of vegetation community types, non-vegetation types, and corresponding GIS acres as observed during the April 2005 site visit of the Resighini Rancheria land.

| **Vegetation Community Types** | **GIS Acres** | **Estimated % Wetland** |
|---|---|---|
| Mixed willow series | 98 | 10-20% |
| Forested hillslope | 61 | <5% |
| Ephemeral vegetation / Disturbance-oriented | 60 | 5-20% |
| Black cottonwood series | 45 | 10-20% |
| Coyote brush series | 15 | <1% |
| Seasonally saturated / edgewaters | 10 | 70-90% |
| Temporal Mixed willow series | 8 | <1% |
| **VEGETATED AREAS** | **297** | |
| **Non-Vegetation Types** | **GIS Acres** | **Estimated % Wetland** |
| Gravel operations / roads | 31 | 0 |
| Development | 26 | 0 |
| Ponded / Open waters (waters not including the Klamath River) | 8 | 0 |
| **NON-VEGETATED AREAS** | **65** | **0** |
| **TOTAL GIS ACRES** | **362** | **10-20%** |

## 2. INTRODUCTION AND PROJECT DESCRIPTION

The Resighini Rancheria is made up of 238 acres of trust land and approximately 80 acres of fee land (318 acres total) located on the south side of the Klamath River, on a large gravel bar adjacent to river miles four to six from the Pacific Ocean, Del Norte County, California. The Rancheria is located on the Requa USGS 7.5' quadrangle, in T.13N, R.1E, Sections 13 and 14, HB&M, (see Vicinity Map, Appendix A).

The objective of this project was to delineate and map waters under the Tribe's jurisdiction for the purpose of identifying wetlands, creeks, streams, springs, and ponds within designated vegetation community types. Wetland and waters delineation was conducted in accordance with U.S. Army Corps of Engineers guidelines (Environmental Laboratory 1987). A wetland transect delineation was conducted for approximately 318 acres of the Resighini Rancheria (this report uses the acres from our GIS analysis of 362 acres, which is likely erroneous due to the boundary location used in the analysis and due to other unforeseen issues). The wetland transect delineation was conducted on April 6, 18, 19, and 27, 2005 by Kim Hayler, staff botanist and wetland specialist, and Sandra Brown, staff hydrologist, of Natural Resources Management Corporation (NRM, Eureka, CA).

## 3. SETTING

### 3.1 General background information

The Rancheria is situated on a meander bend of the Klamath River (elevations 15 to 40 feet above sea level), with the majority of underlying material being comprised of a gradation of river-run gravels, sands, and young soil from the river side and into higher elevations. The Rancheria also includes a portion of the forested hillslope that rises steeply along the most southern portion of the property (ridgeline 800 to 1000 feet above sea level). This hillslope is the source of numerous watercourses, of which only two appear on the Requa USGS 7.5' topographic quadrangle (USGS 1966). At least six intermittent and perennial

watercourses drain from this hillslope and collect into an unnamed creek that flows westerly along the base of the hillslope (see Aerial Photo Mosaics, Appendix A). These watercourses are influenced by a seasonal rainfall of typically greater than 60 inches per year.

### 3.2 Hydrology

The Rancheria bar has a secondary flood channel that bisects or "shortcuts" the meander in a more direct route across the bar during extremely large flood events on the Klamath. While lesser flows than the historic 1964 flood follow this path, the 1964 flood event was powerful enough to scour the vegetation from the channel. Vegetation has re-established in this overflow channel, reflecting the long time interval since a similarly large magnitude flood has been able to fully scour a clear path. Today this secondary channel is the site of several large perennial ponds, which are natural ponds that were pre-existing prior to the 1964 flood (pers. comm. Phil Smith, Resighini Environmental Specialist, to S. Brown of NRM, spring 2005). The eastern portion, or head, of this overflow channel is a source of gravel for the Rancheria, and gravel operations regularly occur there. There is one other significant pond on the Rancheria, a deepened man-made pond, located on the western reach of the unnamed creek. This pond was used by the Tribe in the 1980's for sturgeon habitat and rearing (pers. comm. Janice Kelly, Tribal member, to S. Brown of NRM, spring 2005), but that use has since been abandoned. Beaver are also residents to this creek and often create dams that back up the water, creating pools that spread out along the floodplain (pers. comm. Phil Smith to S. Brown, spring 2005).

The unnamed creek lies along the southern portion of the Rancheria and captures the water from the hillside drainages. The location of the creek exists in the abrupt transition zone between the steep hillslope and the low gradient gravel bar. There is complexity in this low gradient environment, as there is a general gradient of the unnamed creek that flows westerly towards its outlet, as well as a general northerly gradient towards the Klamath River. The topographic map shows the creek with a westerly flowing direction. The historic location of the creek has been debated, however, and it is argued that there has been a division of the creek between east and west with different outlets. It is probable that the hillslope water sources along the easterly portion of the property collected into a creek that drained towards the overflow channel that connects into the ponds; while the water sources on the westerly portion of the property collected and flowed westerly, as shown on the topographic map, as it mostly flows today. However, due to the dynamic changes that can occur on a gravel bar, as well as road and gravel operations, any distinctively "natural" channel location for the eastern portion of the creek is obscured.

The access main road for the Rancheria increases the complexity of this steep to low gradient transition area because it is sandwiched between the hillside and the unnamed creek. This main access for the Rancheria is along the highest elevation of the bar, at the base of the forested hillslope (earliest USGS map reference of 1952, Klamath 15 minute quadrangle). Seasonal ponding, due in part to beaver activity, has occurred along the westerly portion of the unnamed creek (pers. comm. Phil Smith to S. Brown, spring 2005), which often causes flooding of the road as well as breaching of the channel banks to the north. The seasonal large volumes of runoff from numerous sources (creeks and springs, not all shown on the topographic map) have created a complex interplay of hydrologic-road interactions. There are a number of culverts to transport the water under the road to the unnamed creek. The culverts have been inventoried by the tribe, and they had identified and prioritized upgrades for the road/culvert system, to be implemented when funds become available.

### 3.3 Soils

The soils of the historic gravel bar have not been classified, although they are listed as "unclassified secondary soils on terraces and benchlands" on the Soil-Vegetation map (Pacific Southwest Forest & Range Experiment Station 1952). A soil map is currently being developed by the Natural Resources Conservation Service (NRCS). The soil of the forested hillslope is characterized as the Melbourne series, which has a loam/clay loam surface/subsoil texture, derived from sandstone and shale parent materials. This series has a hilly to steep topography with 50-70% slopes, a moderate erosion hazard, good general drainage, and moderate permeability. In general, most of the soils encountered during the delineation had a sandy base but also contained some amount of silt and organic materials. Sporadic low spots, which had a history of inundation during high flows, tend to have more hydrophytic vegetation, a decomposing organic layer of leaves on the surface, and soils that tend to be hydric, along with other wetland characteristics such as oxidized root channels.

### 3.4 Vegetation

Vegetation is typical of that found along active riverine environments, dominated by disturbance-tolerant species such as willow (*Salix* spp.), black cottonwood (*Populus balsamifera*), and red alder (*Alnus rubra*), in addition to more dry site/upland, early colonizing species such as coyote brush (*Baccharis pilularis*), white sweetclover (*Melilotus alba*), Mediterranean mustard (*Hirschfeldia incana*), and wild mustard (*Brassica* sp.).

## 4. METHODS

### 4.1 Definitions

*Wetland* – There is no single definition of "wetland," and the regulatory jurisdiction over wetlands on the project site may fall under two different agencies.

The U.S. Army Corps of Engineers (ACOE) who regulate the discharge of dredged and fill material into wetlands (per Section 404 of the Clean Water Act), identifies a "jurisdictional wetland" based on the presence of indicators of all three wetland parameters: hydrophytic vegetation (plants adapted to anaerobic conditions resulting from a prolonged inundation with water), hydric soils (reduced soils resulting from a prolonged inundation with water), and wetland hydrology. The ACOE may no longer consider "isolated wetlands" to be jurisdictional (since the 2001 U.S. Supreme Court decision in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, or "SWANCC"), although the regional offices may declare jurisdiction or request oversight over certain isolated wetlands. Certain isolated wetlands may fall under the regulatory jurisdiction of the State Water Resources Control Board (SWRCB 2003), but the sovereignty that the Tribe has over their lands precludes the SWRCB from having jurisdiction.

The U.S. Fish and Wildlife Service (USFWS; Cowardin 1979) defines wetlands as follows: "Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For the purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year."

For most foreseeable restoration projects on the Rancheria, the ACOE would be the likely jurisdictional agency. The USFWS would likely only be involved if a permit was required for dealing with a federally endangered/threatened species (e.g., a listed anadromous fish species) during a restoration project.

## 4.2 General Protocol

The protocol used for this project generally followed the U.S. Army Corps of Engineers (ACOE) routine delineation method for areas greater than 5 acres in size (Environmental Laboratory 1987), which involves transect designation and use of sampling plots. The number of transects and the number of sampling plots along each transect was based on the size of the project area and the amount of vegetative variation across the property. The baseline transect was established parallel to the northern-flowing portion of the Klamath River and perpendicular to the historic flood gradient. Since the baseline transect is less than 1 mile long (baseline length is approximately 3,000 feet or 0.57 miles), the minimum number of suggested transects is three; however, four transects (A-D) were decided upon to capture more vegetative variation (Environmental Laboratory 1987). Rather than placing transects at equal distances apart, transects (and plots) were positioned so that each “community type” across the property was included, as is allowed in the ACOE protocol. Generally, each transect had four to five sampling plots for a total of 19 plots on four transects. Each community type had a minimum of one sampling point established, and most had at least two (see Aerial Photo Mosaics, Appendix A). The intent of this sampling design was to allow for determination of the ACOE 3-parameter wetland criteria for each community type but to avoid a full delineation for the extent of wetland boundaries. The results provide an overview of the types of wetlands located across the property’s community types and a rough estimate of how much of the property might meet the 3-parameter wetland delineation.

Each sampling plot was analyzed for indicators of hydrophytic vegetation, wetland hydrology, and hydric soils, and the data were recorded on Routine Wetland Determination Data Forms (WTI 1995, per Environmental Laboratory 1987). Sample plots that displayed indicators of all three wetland parameters were classified as an ACOE-jurisdictional wetland. Data forms are attached in Appendix B. Drainages, ponds, and springs were also field evaluated to augment this assessment.

The vegetation community types on the project site in which sampling points were placed include the following (from greatest acreage coverage to least), as well as a cross reference to what these community types were described as in previous reports (NRM 2001a, NRM 2001b):

**Table 1**. Summary of vegetation community types and corresponding names that were previously used in NRM 2001a and NRM 2001b.

| **Vegetation Community Types** | **Previously Referenced as :** |
|---|---|
| 1. Mixed Willow Series | PSS1/SASP – Willow/Cottonwood stands |
| 2. Forested hillslope | not previously used |
| 3. Ephemeral Vegetation / Disturbance-oriented | R2US – Disturbance / Ephemeral Vegetation |
| 4. Black Cottonwood Series | PFO1/POBA – Mature Willow / Cottonwood |
| 5. Coyote Brush Series | US/BAPI – Upslope vegetation / Coyote brush |
| 6. Seasonally Saturated / Edgewater | R2EM1 – Seasonal saturation / Edgewaters |
| 7. Temporal Mixed Willow Series | NPSS1/SASP– Temporal Veg (+/-5 yr) |

The following three attributes (i.e., vegetation, hydrology, and soils) are the three parameters that comprise the routine wetland delineation protocol (Environmental Laboratory 1987). The protocol for analyzing each parameter follows.

### 4.3 Vegetation Analysis

The vegetation analysis consisted of recording the dominant plant species in each sampling plot. Sampling plots were approximately 5 feet in radius for herbaceous-dominated areas and 30 feet in radius for shrub-dominated areas. Generally, the dominant species were obvious, and no specific method was needed to determine which species to include. When the difference between dominant and non-dominant species was not clear, the "50/20 rule" was used (to the extent possible) to determine which species should be considered dominant within the sampling plot. This method uses percent cover ocular estimates for each species in each stratum (tree, shrub, and herbaceous layers) within a sampling plot, and those species comprising 50 percent relative cover or more in each stratum are considered dominant. Additionally, any species comprising at least 20 percent relative cover or more within each stratum is counted as dominant. On occasion, a stratum did not have a minimum of 50 percent cover (generally because the species present were openly branched or the area was sparsely vegetated), so the 50/20 rule could not be used without implementing a subjective designation for the level of cover that would constitute dominance. In this case, frequency and percent cover of a particular species were used to determine whether a species was dominant or not.

Each species recorded as dominant was assigned an indicator status using the U.S. Fish and Wildlife Service's (FWS) *National List of Plant Species that Occur in Wetlands – California (Region 0)* (Reed 1988). The indicator assigned to a species designates the probability of that species occurring in a wetland and is defined as follows:

- **OBL** = obligate wetland plants with >99% occurrence in wetlands;
- **FACW** = facultative wetland plants with 67-99% occurrence in wetlands;
- **FAC** = facultative plants with 34-66% occurrence in wetlands;
- **FACU** = facultative upland plants with 1-33% occurrence in wetlands;
- **NI** = no indicator (insufficient information) for the region; and
- **UPL** = obligate upland plants with <1% occurrence in wetlands.

These categories may be further modified using an asterisk (*), which indicates a tentative assignment based on limited information. A plus (+) or minus (-) next to an indicator indicates a greater or lesser propensity for that indicator.

If more than 50 percent of the dominant species (all strata combined) within a sampling plot were rated as OBL, FACW, FAC+, or FAC, the vegetation was considered to be hydrophytic (FAC- is not considered hydrophytic). It is important to consider, however, that in the North Coast region, where fog and rainfall create overall moist conditions, obligate (OBL) and facultative wetland (FACW) plants have more significance in the determination of a wetland than plants rated as FAC or FAC+.

### 4.4 Hydrology Analysis

Presence of wetland hydrological primary and/or secondary indicators was noted in each sampling plot. Factors influencing wetland hydrology include the frequency, duration, and seasonality or time of year that water is on the site under investigation. Primary field indicators of wetland hydrology include visual observation of inundation, 100 percent saturation within the upper 12 inches of soil, observation of water marks, drift lines, or sediment deposits (including algae), and drainage pattern in wetlands (e.g., channeled or concave topography). Secondary indicators of wetland hydrology include observation of oxidized root channels with living roots present in the upper 12 inches of soil, water-stained leaves, local soil survey data, and the FAC-Neutral test (i.e., dropping species rated as FAC from the vegetation analysis while still maintaining a dominance of the plot by hydrophytic vegetation). One primary hydrological indicator or two secondary indicators must be present in a sampling plot in order for the hydrology to be considered wetland (Environmental Laboratory 1987; WTI 1995; Pierce 1999).

### 4.5 Soils Analysis

Since there is currently no soils map or other technical soils information for the gravel bar, the soils analysis relied on only field data. In the field, soil pits (each is displayed as a numbered point on the wetland sampling map, Appendix A) were dug to a minimum depth of 12 inches (where possible). In each pit, distinct soil layers were noted, and soil texture and color were compared to the mapped type. Soil matrix colors and mottle colors (if present) were compared to the Munsell soil color chart (1975 edition) for color appearance (hue), strength (chroma), and lightness (value). Soils were considered hydric if they displayed concretions, aquic moisture regime, low chroma matrix colors with high chroma mottles, or any of the other primary indicators (see Routine Wetland Determination Forms, Appendix B). In sandy soils, hydric indicators include a high organic content in the surface layer, streaking of subsurface horizons by organic matter, or presence of a wet spodosol (i.e., organic matter, iron, and aluminum accumulate to form a distinct layer beneath a leached layer at the most common water table depth).

## 5. RESULTS AND DISCUSSION

### 5.1 Wetlands in Various Community Types

Wetlands on the Rancheria are strongly associated with areas along the unnamed creek and its water sources and also in areas immediately adjacent to the Klamath River, which are seasonally inundated from high flows (see Aerial Photo Mosaics, Appendix A). Table 3 summarizes wetland determination results based on community type and sample plot location. Transect A was the northernmost transect nearest the Klamath River, while the remaining transects were positioned in succession from north to south, ending

with transect D along the unnamed creek and forested hillslope. A summary of wetland and non-wetland community types is presented in Table 3, and the associated acres of potential wetland in each type are presented below. Acres of potential wetland were estimated based on extrapolating the results of the wetland determinations from the wetland plots to the polygon that each plot resides in. Other observations that were made during the field visits (e.g., presence of an unmapped, small pond) were also incorporated into the estimate of potential wetland acres.

**Table 3.** Summary of results for wetland-determination sampling points in each vegetation community type on the Resighini Rancheria. Plots that exhibit all three wetland parameters are highlighted in gray. (Photo thumbnails 1-14 are located in Appendix A)

| Community Type | Transect & Plot | Hydrophytic Vegetation | Wetland Hydrology | Hydric Soils | 3-parameter Wetland |
|---|---|---|---|---|---|
| Mixed willow series | A-1 | Yes | No | No | No |
| | B-2 | Yes | No | No | No |
| | C-2 | Yes | Yes | Yes | **Yes** |
| | C-5 | Yes | Yes | Yes | **Yes** |
| | C-6 | Yes | No | No | No |
| Forested hillslope | C-4 | Yes | Yes | Yes | **Yes** |
| | D-2 | Yes | No | Yes | No |
| Ephemeral vegetation / disturbance-oriented | A-4 | Yes | Yes | Yes | **Yes** |
| | B-1 | Yes | No | Yes | No |
| | C-1 | Yes | Yes | Yes | **Yes** |
| | D-1 | No | No | No | No |
| Black cottonwood series | B-3 | Yes | No | No | No |
| Coyote brush series | A-3 | No | No | Yes | No |
| | B-5 | No | No | No | No |
| Seasonally saturated/ edgewater | A-2 | Yes | No | No | No |
| | B-4 | Yes | Yes | Yes | **Yes** |
| | C-3 | Yes | Yes | Yes | **Yes** |
| | D-3 | Yes | Yes | No | No |
| Temporal Mixed willow series | B-6 | Yes | Yes | No | No |

### 5.1.1 Mixed willow series

The Mixed willow series vegetation type (plots A-1, B-2, C-2, C-5, and C-6), a true Sawyer and Keeler-Wolf (1995) type, is dominated by mature willows and is generally associated with the higher elevation river bars. Common species include willows (*Salix sitchensis*; *S. lucida* ssp. *lasiandra*; and *S. lasiolepis*; FACW), red alder (*Alnus rubra*; FACW), occasional young black cottonwood, salmonberry (*Rubus spectabilis*; FAC+), stinging nettle (*Urtica dioica*; FACW), giant horsetail (*Equisetum telmateia*; OBL), and scouring rush (*E. hyemale*; FACW). In areas of infrequent hydrologic disturbance this type has the potential to mature into Black cottonwood series since young black cottonwoods are characteristic of the Mixed willow series. The Mixed willow series is the most frequent vegetation type on the Rancheria.

Two of the five plots sampled in this series were determined to meet all three wetland parameters. Plot C-2 met all three wetland parameters, and yet it was not hydrologically connected to the unnamed creek or any other surface water bodies. The factors creating wetland conditions here are not readily obvious, but soil

saturation in this location is readily apparent. Plot C-5 met all three wetland parameters, as it is hydrologically connected within a seasonal drainage/swale type feature on the southeast side of the Rancheria. In general, the remaining plots (A-1, B-2, and C-6), which did not meet the three wetland parameters, were in locations that are not likely flooded except during extremely rare high water flows, so they likely do not have water ponding for a sufficient duration to produce wetland characteristics.

- **Wetland determination for Mixed willow series vegetation type**
  There are approximately 98 acres of The Mixed Willow vegetation type areas, of which we estimate approximately 10-20% would be classified as wetland, primarily in areas where standing water and/or saturated soil conditions can occur.

### 5.1.2 Forested hillslope

The Forested hillslope vegetation type (plots C-4 and D-2) is not a true Sawyer and Keeler-Wolf (1995) series type; therefore, the type name was developed to provide a general name that indicated vegetation within a general region rather than indicating a vegetation type. Common species include Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*; UPL), Sitka spruce (*Picea sitchensis*; FAC), sword fern (*Polystichum munitum*; UPL), and some evergreen huckleberry (*Vaccinium ovatum*; UPL). In riparian areas of this vegetation type, common species include red alder, red elderberry (*Sambucus racemosa*; FACU), and salmonberry (FAC+). This type is dominated by conifers and is associated with the north-facing slopes south of the unnamed creek at the south end of the Rancheria. It is one of the most common vegetation types on the Rancheria, and it is only found in the upper elevations of the Rancheria.

One of two sampled plots in this vegetation type (C-4) met the three-parameter definition of an ACOE wetland. Plot C-4 was sampled on a hillslope that contained several seasonal springs that collected onto the large landing at the eastern end of the southern access road on the southeast side of the Rancheria. During the winter and spring, sufficient water drains into the ditch cut along the landing and hillslope, at times overflowing onto and down the road. Standing water also occurs in the ditch from these spring sources, which diminishes in flow through the summer and fall. The remaining forest plot, D-2, was on an upslope on a bench, and did not have the features or qualities that would allow water to pond for a sufficient duration to produce wetland characteristics.

- **Wetland determination for Forested hillslope vegetation type**
  There are approximately 61 acres of this Forested Hillslope vegetation located on the southerly upslope areas of the Rancheria, of which we estimate approximately <5% would be classified as wetland, primarily associated with spring locations.

### 5.1.3 Ephemeral vegetation/Disturbance-oriented

The Ephemeral vegetation/Disturbance-oriented vegetation type (plots A-4, B-1, C-1, and D-1) is not a true Sawyer and Keeler-Wolf series type; the name was developed in NRM 2001a to highlight the ephemeral nature of the herbaceous-dominated vegetation common to disturbance-oriented areas. The vegetation is generally dominated by the following species: white sweet clover (*Melilotus alba;* FACU+), Mexican tea (*Chenopodium ambrosoides;* FAC), Mediterranean mustard (*Hirschfeldia incana;* NI), mugwort (*Artemisia douglasiana;* FACW), wooly mullien (*Verbascum thapsus;* NI), cocklebur (*Xanthium strumarium;* FAC+), English plantain (*Plantago lanceolata;* FAC-), common velvet grass (*Holcus lanatus*; FAC), and giant horsetail (*Equisetum telmateia*; OBL). This type is composed of a coarse substrate (sand to cobble) that is

deposited during seasonal high water along the low elevation areas associated with the Klamath river channel and backwater areas. These areas annually support a sparse cover (less than 30%) of non-persistent, herbaceous-dominated vegetation. The vegetation of this habitat type develops during the low water levels of late spring through early fall.

ACOE wetlands associated with the Ephemeral vegetation/Disturbance-oriented vegetation type (plots A-4 and C-1) are topographic low spots that likely receive annual flooding, or water collection, and are dominated by herbaceous plants. Because of their position in the landscape and their topography, water ponds in these sites for sufficient duration to promote hydric soils. Plot A-4 is inundated when the Klamath River rises. The determination that plot A-4 is a wetland may be surprising, since low-lying gravel bars are not necessarily thought of as having conditions for hydric soils, primarily because the substrate is composed of sand, gravel, and cobble, which drain well. However, sandy soils can become hydric under certain conditions, including being inundated for a sufficient duration of time to create anaerobic conditions that lead to hydric soils. This plot had a distinctive layer of bright mottles streaking horizontally through the first one inch of silty soil, and these mottles had an organic texture. Below this layer, soils were sandy and displayed no discernible characteristics of hydric soils. The plot is close to the edge of the river, so annual high flows probably submerge the plot area for at least 5 to 10 days annually. There was very little vegetation cover at plot A-4, and the dominant species was English plantain (*Plantago lanceolata*; FAC-), which is a common species observed in frequently disturbed areas. Plot C-1 was one of several large, saturated areas in the grass field east of the Rancheria business buildings. These depressions appear to be disconnected from other hydrologic sources (it is possible that periodic flooding from the unnamed creek, or subsurface hydrologic flow in a northerly direction occurs to create saturated conditions). These low lying areas are dominated by grasses and wetland-associated species; in particular, plot C-1 is dominated by common velvet grass, giant horsetail, and scouring rush (*Equisetum hyemale*; FACW) as well as a vegetative fescue (*Festuca* sp.). In general, the remaining plots in the disturbance vegetation type (B-1 and D-1), did not meet the three wetland parameters.

- **Wetland determination for Ephemeral vegetation/disturbance-oriented vegetation type**
  There are approximately 60 acres of this vegetation type scattered in lower elevation areas, of which we estimate approximately 5-20% would be classified as wetland, primarily in the areas similar to C-1, nearest the unnamed creek; likely influenced where subsurface hydrology and conditions for soil saturation mix.

### 5.1.4 Black cottonwood series

The Black cottonwood series vegetation type (plot B-3) is a true Sawyer and Keeler-Wolf (1995) series that is dominated by mature black cottonwood, red alder, and mature willows and is associated with the higher elevation gravel bars. This vegetation type is the most stable and has the most mature riparian vegetation and community along the riparian corridor, being affected naturally only by high-intensity flooding episodes. These somewhat older, more established bars may have older vegetation, but the soils are still relatively young and porous, which limits wetland development. Porous soils are particularly common for stands nearer the Klamath River.

Beaver activity along the unnamed creek has created ponded backwater areas. Although this helped create soil conditions associated with wetlands, species that are intolerant of long periods of inundation, such as the black cottonwood, were seen dying off in wetter areas.

The vegetation has a scattered and often mixed species composition. The vegetation is generally dominated by the following vascular plant species: black cottonwood, red alder, willows, salmonberry, thimbleberry, and stinging nettle. Additional common species include Pacific bramble (*Rubus ursinus*; FACW*), black twinberry (*Lonicera involucrata* var. *ledebourii*; FAC), short-scaled sedge (*Carex deweyana* ssp. *leptopoda*; FACW), and western coltsfoot (*Petasites frigidis* var. *palmatus*; FACW*).

Only one plot, B-3, was sampled that was classified as Black cottonwood series. Originally, plots C-5 and C-6 were delineated as Black cottonwood series prior to field surveys. After conducting sampling in these two plots, the NRM staff botanist determined that this polygon should be delineated as Mixed willow series, which left only one plot having been sampled in the Black cottonwood series. Using a single sampling plot for this vegetation type should be sufficient since this type represents a relatively low percentage of Rancheria land.

The elevated bars with the Black cottonwood series, are not likely to have much wetland because their soils drain well, and there are few areas that can actually pond water. However, in the dying stands of Black cottonwood that has been inundated by backwater ponding along the unnamed creek, wetland characteristics will be more developed, and wetlands are likely to occur.

- **Wetland determination for Black cottonwood series vegetation type**
  There are approximately 45 acres of this vegetation type, typically found on more developed and elevated bars; however we estimate approximately 10-20% would be classified as wetland, for the Black cottonwood series located primarily along the unnamed creek.

### 5.1.5 Coyote brush series

The Coyote brush series vegetation type (plots A-3 and B-5), a true Sawyer and Keeler-Wolf (1995) series, is a shrub-dominated vegetation type that is associated with the drier, exposed, and slightly elevated banks bordering the river. The vegetation is generally dominated by the following vascular plant species: coyote brush (*Baccharis pilularis*; UPL), white sweet clover, and grasses (including *Vulpia bromoides*, FACW; *Cynosurus echinatus*, UPL; and *Bromus vulgaris*, FACU*). Often this vegetation type occupies areas that have experienced disturbance from human activities and supports native and non-native species with a low total percent cover. In general, the coyote brush series type observed on the Rancheria has a sparse total percent cover by vegetation (generally less than 30% cover).

Neither of the plots sampled in the Coyote brush series met all three wetland parameters. Similar to the Temporal Mixed willow series, the Coyote brush series vegetation type is not likely to contain wetlands due to the porous, disturbance-oriented soils that are associated with faster moving water in these lightly vegetated areas. Faster moving water results in minimal deposition of fines and organic material, which are often needed to develop wetland soils. Additionally, most of the occurrences of this vegetation type are in slightly elevated areas, so even though they may be in a corridor that floods, they probably do not have the topography to experience water ponding for a sufficient duration to produce wetland characteristics.

- **Wetland determination for Coyote brush series vegetation type** -
  There are approximately 15 acres of this vegetation type scattered in higher elevation areas, of which we estimate approximately <1% would be classified as wetland.

### 5.1.6 Seasonally saturated/edgewater

The Seasonally saturated/edgewater type (plots A-2, B-4, C-3, and D-3) is not a true Sawyer and Keeler-Wolf (1995) series type; it was named in the NRM 2001a report to indicate the general location of habitats surrounding watercourses and waterbodies. It is an herbaceous-dominated or tree-dominated vegetation type along the edges of perennial ponds and creeks. Percent cover of vegetation and species composition varies depending on the canopy cover, soil/substrate characteristics, and proximity to water. Since this community type is defined by the proximity to a water body rather than by characteristic species composition, variation in species composition is high between plots. Due to the variation in vegetation observed during field surveys, dominant plant species are listed for each plot. Species observed at plot A-2 included English plantain (FAC-), curly dock (*Rumex crispus*; FACW-), mugwort, and an unidentifiable, vegetative grass species. Species at Plot B-4 included 2 willows (*Salix sitchensis* and *S. lucida* ssp. *lasiandra*) and scouring rush. Species at Plot C-3 included a willow (*Salix lasiolepis*), red alder, Pacific bramble, giant horsetail, scouring rush, coltsfoot (*Petasites frigidus* var. *palmatus*), and two sedges (*Carex obnupta* and *C. deweyana ssp. leptopoda*). Species at Plot D-3 included reed canary grass (*Phalaris arundinacea*, OBL), a willow (*Salix lasiolepis*), common horsetail (*Equisetum arvense*; FAC), Himalayan blackberry (*Rubus discolor*; FACW*), and Pacific bramble.

This community type is more likely to have wetlands associated with it than other types due to the proximity to ponded water. However, soil substrate (high sand and gravel components) with insufficient duration to produce wetland soils may have contributed to lack of hydric soils for plots A-2 and D-3. Plots B-4 and C-3 met all three wetland criteria.

Of potential concern in this vegetation type is the reed canary grass that dominates the western portion of the unnamed creek at the south end of the Rancheria. Although this species is designated as a native species to California (Hickman 1996), it is regarded by some as a potential invasive that has possibly hybridized with a European cultivar of the same genus (pers. comm. from G. Leppig, CDFG, to K. Hayler, NRM, August 29, 2005), and it is difficult to distinguish potential native stands from potential non-native hybrid stands (White et al. 1993).

- **Wetland determination for Seasonally saturated/edgewater type**
  There are approximately 10 acres of this vegetation type scattered in lower elevation areas near water bodies, of which we estimate approximately 70-90% would be classified as wetland.

### 5.1.7 Temporal Mixed willow series

The Temporal Mixed willow series vegetation type (plot B-6) is not a true Sawyer and Keeler-Wolf series type; it was designated for stands that are younger, ephemeral stands of the Mixed willow series. This series is generally dominated by young willows (*Salix sitchensis*, FACW+; and *S. lucida* ssp. *lasiandra*; FACW) and young black cottonwood (*Populus balsamifera*; FACW) and lacks herbaceous species. It is associated with the slightly elevated river bars that receive more common flooding disturbance than the more established Mixed willow series. This is the least common community type on the Rancheria, as it will often evolve and mature into the Mixed willow series.

In general, the presence of vegetation in flood zones slows high water velocities and creates an environment of deposition. As a result, the depositional material in these areas is often very porous, still lacking substantial silts, clays, and/or broken down organic matter, and does not often have the soil development characteristic of wetlands. The only plot sampled for this vegetation type did not meet the

three wetland parameters, and it is unlikely that other non-sampled areas of this vegetation type would meet the soils criteria, in particular, for the three parameter wetland designation.

- **Wetland determination for Temporal Mixed willow series vegetation type -**
  There are approximately 8 acres of this vegetation type scattered in lower elevation areas, of which we estimate approximately <1% would be classified as wetland.

### 5.2 Summary of wetland determinations for vegetation types

Four of the seven vegetation types had at least one plot that qualified as an ACOE wetland, including Forested hillslope (spring association), Mixed willow series, Seasonally saturated/edgewater (plots adjacent to ponded water), and Ephemeral vegetation/Disturbance oriented (associated with saturated soil conditions). Although the Black cottonwood series plot was not determined to be an ACOE wetland, portions of this series would likely qualify as wetland adjacent to the unnamed creek. The plots qualifying as wetlands were generally at lower elevations, could be associated with topographic depressions, and were typically in close proximity to a seasonal or perennial water source.

In total, an estimated 10-20% of the Rancheria may be classified as wetland. This rough estimate may overestimate the number of acres of wetland since sampling results were extrapolated to an entire vegetation type surrounding a water body or in a flood zone. A thorough wetland delineation conducted across the property may reveal that portions of polygons that were determined to be wetland during our visual estimation may actually not meet the three-parameter wetland determination requirements due to micro-site features. It is also possible that our limited number of plots across the Rancheria resulted in a failure to detect small isolated wetlands, such as topographic low spots that may not be apparent on the aerial photos. One example of this potential scenario was observed en route from sampling plot A-1. The general area was elevated, so it likely does not receive sufficient ponding to accumulate hydric soils. However, a topographic low spot in that vegetation polygon that lies approximately 50 to 100 ft southwest of plot A-1 (Mixed willow series), had wetland soils in the upper six inches of the soil surface, and it probably would have met the hydrology and vegetation criteria as well (see Wetland Data Form for A-1, Appendix B). Overall, considering that our visual estimate probably excluded some isolated wetlands and probably included areas that did not meet the three-parameter ACOE wetland criteria, the estimate of wetland acres is probably a sufficient average to use for planning purposes. If boundaries of a particular potential wetland need to be thoroughly delineated, a complete wetland delineation can be performed for that specific area.

**RECOMMENDATIONS**

- Protection, restoration, and/or enhancement efforts should focus on the riparian habitat around the unnamed creek at the south end of the Rancheria and the creeks that feed into this creek (transect C). Several of the hydrologic connections from the hillside drainages to the unnamed creek have been altered by roads and development. These drainage patterns could be, in some cases, corrected to be more "hydrologically invisible". The springs that drain onto the landing at the southeast corner of the Rancheria could likely have a more incised ditch to drain the excess water to the eastern drainage, as the currently level ditch creates overflow problems onto the landing and road network. Some culverts along the road may need upgrading or improved installation, taking care to identify the hydrologic connections beyond the outlets.

- One option to minimize backwater flooding caused by the beaver dams is to install a vertical drain pipe or pipes to ensure a maximum water elevation for the site.

  *Any such plans to alter any watercourse channel and its water flow should be developed in consultation with the appropriate agencies and professionals who can assist in hydrologic and erosion and sedimentation control issues.*

- Any drainage ditch culverts that are not functioning properly should be repaired/cleaned out to restore the natural hydrology to the feeder creeks and/or unnamed creek.

- If the reed canary grass along the western portion of the southern unnamed creek appears to cause problems with flooding and loss of aquatic habitat, a control program may be developed and implemented to minimize the presence of this potential invasive. Control mechanisms vary in success level and the potential for negative effects to the environment. Any such control program should be developed in consultation with the appropriate agencies and professionals who have expertise in invasive plant eradication and control.

- The wetlands and potential wetlands in transects A and B do not appear to require restoration or enhancement at this time.

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# APPENDIX A

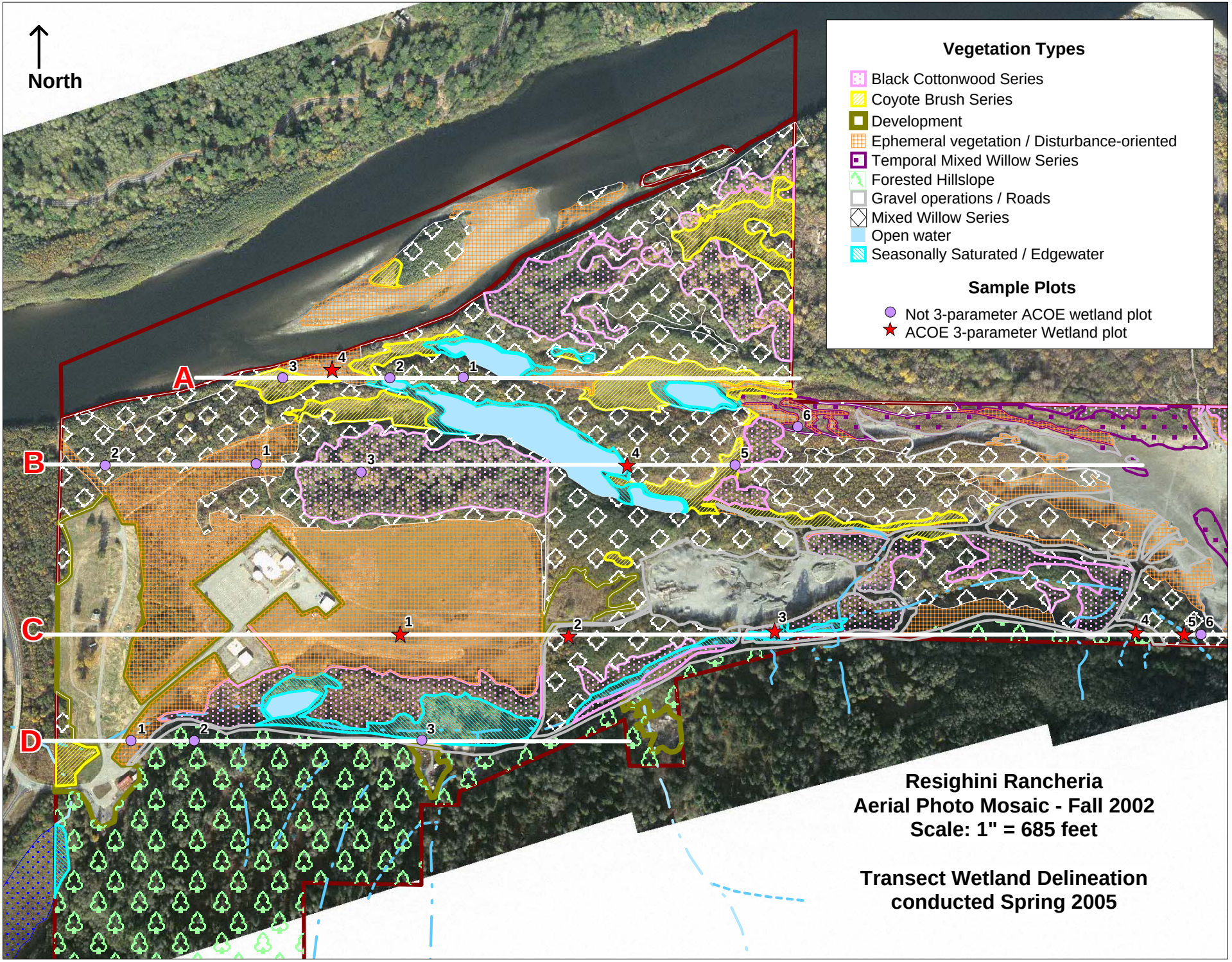
## PHOTOGRAPHS

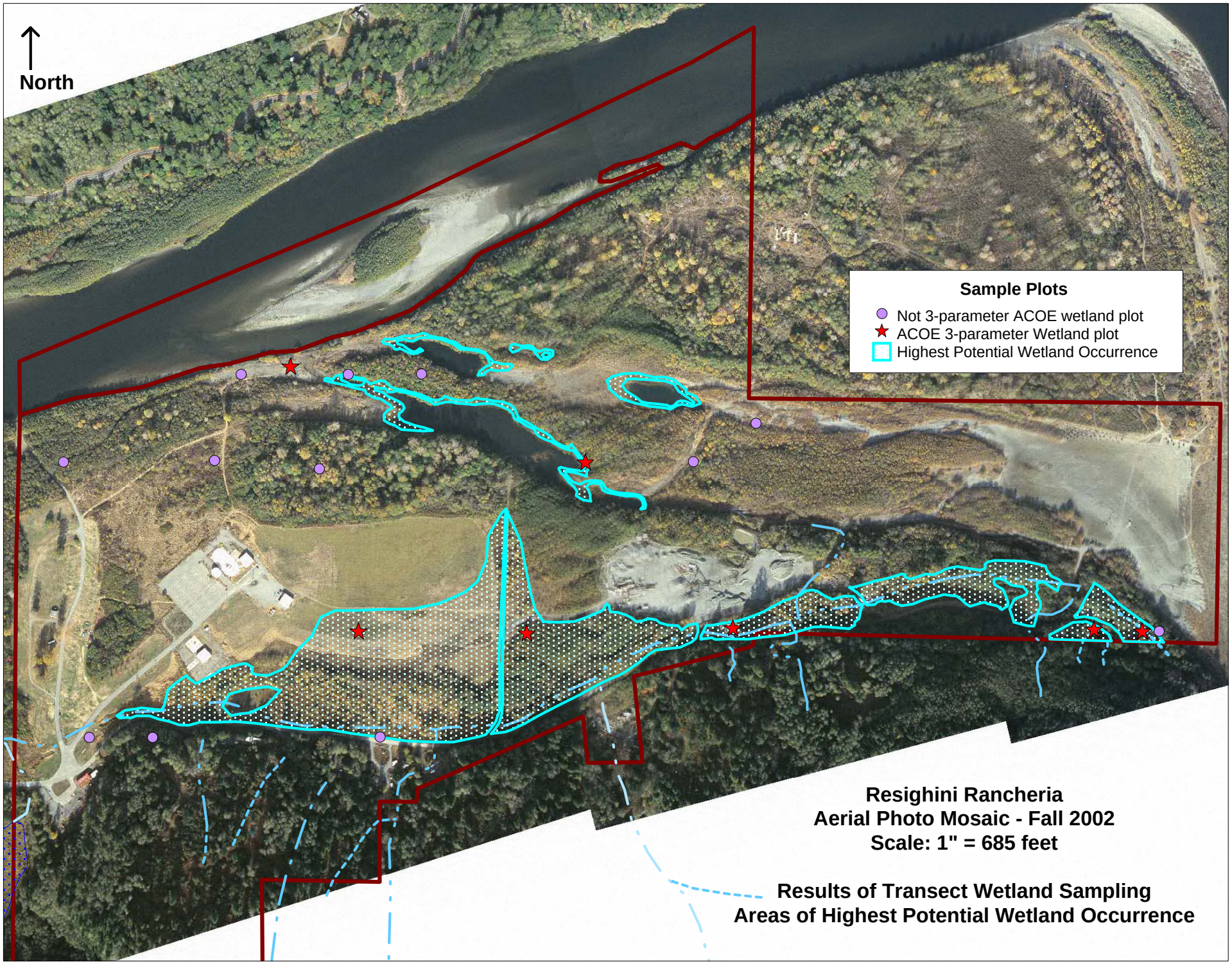
**Note on Aerial Photo Mosaics:** When the three air photos were put together in the displayed mosaic, some distortion occurred; and therefore, the two mosaics (May 2001 and Fall 2002) do not have identical placement.


Area of hydric soils - Potential Wetlands
Scale: 200'

# APPENDIX B

## SAMPLING POINT DATA FORMS


North
Vegetation Types
Black Cottonwood Series
Coyote Brush Series
Development
Ephemeral vegetation / Disturbance-oriented
Temporal Mixed Willow Series
Forested Hillslope
Gravel operations / Roads
Mixed Willow Series
Open water
Seasonally Saturated / Edgewater
Sample Plots
Not 3-parameter ACOE wetland plot
ACOE 3-parameter Wetland plot
A
B
C
D
Resighini Rancheria
Aerial Photo Mosaic - Fall 2002
Scale: 1" = 685 feet
Transect Wetland Delineation
conducted Spring 2005


North
Sample Plots
Not 3-parameter ACOE wetland plot
ACOE 3-parameter Wetland plot
Highest Potential Wetland Occurrence
Resighini Rancheria
Aerial Photo Mosaic - Fall 2002
Scale: 1" = 685 feet
Results of Transect Wetland Sampling
Areas of Highest Potential Wetland Occurrence