

**WETLANDS DELINEATION AND
HABITAT MAPPING
RAIL-WITH-TRAIL CONNECTIVITY PROJECT
CITY OF ARCATA
HUMBOLDT COUNTY, CALIFORNIA**

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[Note: black and white series with survey topographic base]

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I. SUMMARY

On December 2 and 4, 2009, reconnaissance-level wetland and habitat mapping was conducted within the potential alignment options. On January 20th, 21st, 25th, 26th, March 7th, and April 25th, 2010, a wetland delineation was conducted within potential alignments of the proposed project from Larson Park (City of Arcata) south to Bracut (County of Humboldt). On May 28, 2010, Winzler & Kelly conducted focused site-specific and seasonally appropriate botanical survey for CNPS-listed plant species: Humboldt Bay owl's clover (*Castilleja ambigua* ssp. *humboldtiensis*) and Lyngbye's sedge (*Carex lyngbyei*). The wetland delineation determined the extent of wetlands based on one-parameter approach in areas that are within the Coastal Zone (south of 8th Street) and based on two-parameter approach in areas within the City of Arcata that are not in the Coastal Zone (see Figure Series 2). As well, the delineated wetland boundary lines are consistent with Army Corp of Engineers (COE) wetland definition (three-parameter approach), except in a few cases noted below (i.e., one-parameter riparian areas that do not qualify as three-parameter COE wetlands). The wetland delineation procedure was completed pursuant to the U.S. Army Corps of Engineers (COE) 1987 Wetland Delineation Manual; the Interim *Regional Supplement to the COE Wetland Delineation Manual: Western Mountains, Valleys, and Coastal Regions* (COE, 2006); and California Coastal Commission (CCC) guidance for wetland delineation (1994).

The wetland delineation field work effort included verification of habitat mapping that was conducted during the reconnaissance-level site survey. Figures presenting limits of investigation (Project Study Boundary--PSB) are provided as map series 2 (Figures 2-1 through 2-28); and field work results are provided as map series 4 (Figures 4-1 through 4-28) in Appendix A. Because of the number of figures necessary to map a project of this length, the map series are not consecutive (note map series 3 does not apply to the wetland delineation and is not contained within). Data sheets documenting conditions observed during the investigation are included in Appendix B.

II. INTRODUCTION

The area of investigation consisted of evaluation of land that is being considered for development of a trail from Larson Park (City of Arcata) south to Bracut, Humboldt County, California (Figure 1, Appendix A). The project study boundary is linear, spanning approximately 4.5 miles. The northern portion of the project is located in the City of Arcata and the southern portion south of Gannon Slough is located in the County of Humboldt jurisdiction. Portions of the area of investigation are within the Coastal Zone (south of 8th Street in Arcata). South of Samoa Boulevard at the northern boundary of the Arcata Marsh begins primary jurisdiction for California Coastal Commission. The area between northern boundary of the Arcata Marsh and 8th Street in City of Arcata is within the City Coastal Zone and appeal zone for the California Coastal Commission (governed by the City's Local Coastal Plan—LCP, and LUDG General Plan). The area north of 8th Street in City of Arcata is not within the Coastal Zone and has City of Arcata primary jurisdiction, and governed by the current/most recent City General Plan.

One non-tidal "Water of the U.S." was defined in the Project Study Boundary (PSB), that is Jolly Giant Creek (at Shay Park), and is mapped at the Ordinary High Water Mark (OHWM). Other "Waters of the U.S./State (Tidal)" mapped within the PSB include Butcher Slough, Gannon

Slough, Jacoby Creek, Old Jacoby Creek, and Brainard's Slough. Humboldt Bay is adjacent to a large portion of the proposed alignment. Jolly Giant Creek outlets to Butcher Slough. The "Waters of the U.S./State" outlet to Humboldt Bay which connects to the Pacific Ocean.

Project Study Boundary (PSB)

Figures 2-1 through 2-28 display the extent of the project study boundary (PSB). The PSB was developed to identify the likely limits of a potential trail alignment and for planning purposes, within which a topographic survey would be conducted and the following items would be studied: cultural/historic resources, areas of potential hazardous contamination, sensitive habitats, wetlands, and other Waters of the U.S./State. The extent of the PSB was defined during the alignment selection phase of the project to cover areas where it was anticipated the trail could feasibly be designed and constructed. The northern and southern extents and a general corridor for the project were established early in the alignment selection process, but several parallel alignment options were available through the length of the project. For instance, in some areas the trail could have been placed east of the railroad tracks, west of the railroad tracks, or along the edge of a parallel roadways. In such a scenario, the study area would need to cover the extents of all three alignment options as well as adjacent lands that could be temporarily utilized during installation or for fill in order to bring the trail up to grade. Therefore, in some locations the study area is wide or branched because many viable options were feasible, while in other locations the study area is relatively narrow because a very limited set of practical options existed. In most cases, the study area was drawn to allow for flexibility in final design of the project's footprint. Since the study area boundary varies in width throughout its length, it is not further described here and the figure series should be referred to for the various widths of the study boundary.

It should be noted that the study area boundary was expanded in some cases during the data collection phases to capture the edge of wetlands/habitats if it appeared that data in specific areas had potential implications for the project. However, in most cases data was only collected within the predefined study area which had been drawn with the intent of capturing all areas of anticipated potential impacts. In all cases the footprint of the trail, the impact zone, and the areas of temporary impacts are completely contained within the study area. In addition, records searches were conducted beyond the edges of the study area for the cultural resource study and the Phase I (hazardous materials) corridor study.

Project Selected Alignment

For ease of reference, the project is divided into eight distinct segments (Segment 0 through 7) arranged from north to south. In areas of complex intersections and water crossings, the segments are broken into sub-segments. In some cases, particularly within the urban setting, for the purposes of the wetland delineation results section, sub-segments are described together where existing conditions are similar. The Segments are identified on map series 2 (Figures 2-1 through 2-28, Appendix A) that shows the Project Study Boundary (PSB), and are also indicated on the wetland results map series (Figures 4-1 through 4-28).

Segment 0—Larson Park to Sunset Avenue

At the proposed northern trail terminus, the project begins in the City of Arcata's Larson Park. The alignment exits the southeast corner of the park, enters the railroad right-of-way (RR ROW), and travels along the west side of the railroad tracks, where it crosses Sunset Avenue

Segment 1—Sunset to Alliance Avenue

The project then leaves the RR ROW and runs parallel to and on the north side of the railroad tracks. The project adjoins the City of Arcata's proposed Foster Street extension project, and travels west along the south side of the Foster Street extension and along the north side of Shay Park.

Segment 2—Alliance Avenue

Near the end of the existing Foster Street, the alignment passes south of a cluster of existing barns and into revegetated former lumber mill yard within Shay Park. Midway through the old mill yard, the alignment turns slightly south into a forested area onto an existing raised berm that parallels Alliance Avenue at the western edge of Shay Park. The alignment follows the raised earthen berm between Jolly Giant Creek and Alliance Road to the railroad crossing at Alliance Road and 17th Street.

Segment 3

Segment 3.1—Below the High School

The alignment crosses the railroad tracks and Jolly Giant Creek (as the daylighted creek exits Shay Park and enters an existing culvert under Alliance Avenue). The alignment travels along the east side of Alliance Road along the toe of slope below the High School, crossing 15th Street.

Segment 3.2—L Street Connection

Near an existing paved trail which intersects Alliance Road from the east as part of an abandoned portion of L Street, the alignment would cross to the south side of Alliance Road, traverse along the edge of a vacant parcel (privately owned) near the Storage Units, to connect to the far northern end of L Street. The project re-enters the RR ROW and travels along L Street east of the railroad tracks to 12th Street.

Segment 3.3—Urban Interface Trail

The alignment enters Arcata city blocks sharing an alignment with L Street to form a proposed Urban Trail Interface. In this segment, design will focus on encouraging non-motorized transportation as the dominant use, while vehicular use is maintained as a secondary function. Trail features in this segment may include differentiated pavement coloring, barricades, trail lighting, and landscaping. After crossing 12th Street, the alignment continues along L Street within the RR ROW on the east side of the tracks and crosses 11th Street, 10th Street, and 9th Streets.

Segment 3.4—L Street (West Side)

The alignment continues on the east side of the tracks crossing 8th Street to 7th Street, the end of the Urban Trail Interface. At 7th Street, the project crosses the tracks and travels along the west side of the tracks until reaching Samoa Boulevard.

Segment 3.5—Samoa Boulevard Crossing

Within the Samoa Boulevard crossing, the alignment crosses to the west side of a western branch of the rail road tracks (abandoned), prior to crossing Samoa Boulevard. On the south side of Samoa Boulevard the trail then must angle back to join the west side of the RR ROW, and in doing so may pass over a small corner of a private industrial parcel

Segment 4

From Samoa Boulevard, the alignment continues within the RR ROW southward along the west side of the railroad tracks.

Segment 5

Segment 5.1—Marsh North Entrance

Upon reaching the City of Arcata Marsh and Wildlife Sanctuary, the alignment leaves the RR ROW, and crosses a palustrine emergent wetland on a proposed bridge installed on piles to connect to an existing earthen berm that separates recently constructed City of Arcata freshwater wetland pond (to the west) as part of an enhancement project.

Segment 5.2—Upland Berm

The project continues along the existing upland berm that has an existing trail atop, paralleling the railroad tracks yet separated by a low area and palustrine emergent wetland until reaching South I Street.

Segment 5.3

The project crosses South I Street, deviates to the west of railroad tracks, and overlays an existing crushed gravel path (part of Arcata Marsh trail network) parallel to South I Street.

Segment 5.4

The path then turns southeast, leaving South I Street following the gravel path and continues through the Arcata Marsh and Wildlife Sanctuary until reaching the bridge at Butcher Slough just north of the City's Wastewater Treatment Plant (WWTP).

Segment 6

Segment 6.1—Butcher Slough Crossing

The Project crosses Butcher Slough on existing or secondary bridge.

Segment 6.2

At the WWTP, the alignment becomes parallel with the railroad tracks and South G Street, to the west of the RR ROW, and continues along the crushed gravel path.

Segment 6.3

Once past the WWTP Corporation Yard entrance the alignment re-enters the RR ROW and continues to travel in southeast towards Route 101.

Segment 7

Segment 7.1

The railroad tracks and the project alignment turn south and parallel Route 101. The project continues within the RR ROW on the west side of the tracks, and crosses the tracks to the east immediately north of Gannon Slough. This location will have a connection point to the

Humboldt Bay National Wildlife Refuge that is managed by the U.S. Fish and Wildlife Service, per their request.

Segment 7.2—Gannon Slough Crossing

The alignment crosses over Gannon Slough on a proposed new trail bridge between Route 101 and the railroad bridge.

Segment 7.3

The alignment remains within RR ROW east of the railroad tracks and west of Route 101 to Jacoby Creek.

Segment 7.4—Jacoby Creek Crossing

Immediately north of Jacoby Creek, the alignment crosses the drainage ditch between the tracks and Route 101 to access the bike lane on the proposed Caltrans Jacoby Creek replacement bridge. Immediately south of the bridge, the alignment crosses back to the eastern side of the RR ROW.

Segment 7.5

The alignment continues within the RR ROW from Jacoby Creek to Old Jacoby Creek.

Segment 7.6—Old Jacoby Creek Crossing

The trail crosses Old Jacoby Creek on a proposed bridge to be placed atop structural piles.

Segment 7.7

The alignment continues southward in the RR ROW between Route 101 and the tracks.

Segment 7.8

The alignment continues southward in the RR ROW between Route 101 and the tracks.

Segment 7.9

The alignment continues southward in the RR ROW between Route 101 and the tracks. The southern end of the alignment segment is within the Bracut Industrial Park. The alignment terminates between the tracks and Route 101 at the paved entrance to the Bracut Industrial Park.

Interim Alignment

A project alternative that was considered within the limits of the wetland delineation is referred to as the Interim Alignment and would consist of the trail being installed on the existing railroad bed. This area was therefore included in the Project Study Boundary. If implemented, the trail would be installed within limits of existing upland railroad bed, with use of the adjacent lands only for temporary equipment access.

Secondary Alignment

An alternative alignment area was included as part of the wetland delineation, and consists of trail alignment on top of an existing gravel road that goes along the north edge of Arcata High School football field, meanders up the hill to the high school, around the eastside/back of a parking lot and building, and cuts across eucalyptus to return to east side of H Street at L Street extension. Although there are wetland ditches along the edge of the existing road, the intent would be to locate the trail within the limits of existing road footprint (12 feet wide), and avoid fill impacts to emergent wetland ditches.

III. PURPOSE

The purpose of this investigation was to determine the location of wetlands and habitat types in areas adjacent to the railroad and considered for development of the preferred alternative for the proposed Rail with Trail Connectivity Project. The evaluation included confirmation of the reconnaissance level habitat mapping that was conducted in December 2009.

The uplands/wetland delineation was performed in accordance with Army Corp of Engineers (COE) wetlands criteria and based on a two-parameter approach for areas outside the Coastal Zone and within the City of Arcata Limits (City and COE jurisdiction of delineation results). The wetland delineation was performed in accordance with California Coastal Commission one-parameter approach for areas within the primary or appeal zone of the Coastal Zone (with Coastal Commission, City, and COE jurisdiction). The delineation methodology and results should be presented to the various jurisdictions for concurrence.

IV. METHODOLOGY

The wetlands delineation was conducted by a Winzler & Kelly field team consisting of a Soil Scientist and a Botanist. The reconnaissance-level wetland and habitat mapping was conducted on December 2 and 4, 2009. The wetland delineation was conducted on January 20th, 21st, 25th, 26th, March 7th, and April 25th, 2010. On May 28, 2010, Gary Lester (Botanist) of Winzler & Kelly conducted site-specific and seasonally appropriate botanical survey for CNPS-listed plant species: Humboldt Bay owl's clover (*Castilleja ambigua* ssp. *humboldtiensis*) and Lyngbye's sedge (*Carex lyngbyei*). Additional survey is required for late-blooming CNPS-listed species.

Wetland Delineation

To define a wetland, the COE requires that all three parameters (vegetation, soil, and hydrology) show wetland attributes. The City of Arcata requires two-parameters to be present to qualify as a wetland area. The Coastal Commission requires one-parameter to be present in order to define the site as a wetland. The wetlands delineation followed the COE guidance from the *Corps of Engineers Wetlands Delineation Manual* (COE, 1987) and *Draft Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (COE, 2006) within the northern portions of the project area that have City of Arcata primary jurisdiction and are not in the Coastal Zone (City and COE jurisdiction of delineation results). The wetlands delineation conformed with California Coastal Commission one-parameter approach (relying on COE manuals for reference and determination) in the southern portions of the project area that are within the Coastal Zone (City of Arcata or Coastal Commission primary jurisdiction; COE jurisdiction of delineation results). Botany/soils/hydrology data sheets used are the current standard forms provided by the COE for use (COE, 2006). Data sheets are attached (Appendix B).

Vegetation and soil data were collected at transects across the upland/wetland boundary with two plots (upland/wetland) per transect. Test plots are numbered to correlate with transects, according to order of investigation, and denoted with either a "U" to indicate upland location or "W" for wetland plots (for example, test plot T15-U indicates transect 15 at upland plot location). Intermediate plots were placed without collection of data sheets as appropriate (based on extrapolation from adjacent test plots and verification of hydrologic conditions) and are

indicated with an “-int” after the point number (i.e. T3int). Additionally, due to the large project acreage, additional confirmation test pits were collected in some areas to confirm wetland or upland conditions. The confirmation test pits do not consist of paired data sheets, do not necessarily correlate with a transect location, and are individually labeled WP# (wetland pit, with identification number) or UP# (upland pit with identification number).

The horizontal location of each point along the upland/wetland boundary (location where each transect intersects the upland/wetland boundary) were collected using a handheld GPS Trimble unit (sub-meter accuracy). To relocate the actual test pit locations (uplands and wetlands), the distance from the upland/wetland boundary line has been recorded on each plots data sheet. Due to the sub-meter accuracy of the GPS unit, it is more accurate to collect the actual plot locations relative to the upland/wetland boundary while in the field and record as a measurement on each individual data sheet under “remarks.” The location of the confirmation test pits (upland or wetland, non-paired plots) were also collected using the GPS Trimble unit. The horizontal locations of some site infrastructure features that are visible on the aerial were collected to ensure that the base map lines up accurately with the delineation results. Other site infrastructure features of interest were recorded such as noticeable pipe outlets/culverts.

Botanical Methodology

Vegetation data collection consisted of listing the species at each plot in each layer. All species within a radius of five feet were listed in the herb layer. The species were then classified as to whether or not they are wetlands indicators, using the standard reference for plant wetlands indicators, *National List of Plant Species that Occur in Wetlands: California (Region O)* (U.S. Department of the Interior, 1988). The standard reference document classifies plants based on the probability that they would be found in wetlands, ranging from Obligate (almost always in wetlands) [OBL], Facultative/wet (67% to 99% in wetlands) [FACW], Facultative (34% to 66% in wetlands) [FAC], Facultative/up (1% to 33% in wetlands) [FACU], to Uplands (less than 1% in wetlands) [UP]. Plants listed as non-indicator status (NI) are considered to be in the upland category. Plants not listed (NL) are included in the upland category. Plants listed as Facultative minus (FAC-) are considered to generally tend towards upland conditions and were therefore previously included in the upland category when conducting the Dominance Test. The new COE guidance document (COE, 2006) includes FAC- species in the FAC category when conducting the Dominance Test. The new COE guidance specific to the project region (COE, 2006) is in draft format but according to the COE is now the standard to be implemented for delineations that are expected to be submitted to the COE for jurisdiction determination. The Dominance Test states if greater than 50% of the dominant plant species at each plot are classified Obligate (OBL), Facultative/wet (FACW), or Facultative (FAC), the vegetation is determined to be hydrophytic (wetland plants). Therefore, FAC- species have been included in the FAC category when conducting the Dominance Test.

Soils Methodology

The 1987 Manual's procedures were combined with the Natural Resources Conservation Service's (NRCS) definition of hydric soils presented in *Changes in Hydric Soils of the United States* and *Field Indicators of Hydric Soils in the United States* (United States Department of Agriculture [U.S.D.A.], 1995 and 2006, respectively). Soil pits were dug to an approximate depth of 18 inches. Data on soil color, texture and redoximorphic features was collected. Care

was taken to observe mottling (iron concentrations) and to distinguish between chromas of 1 and 2.

Colors were described for the entire depth of the test pit and were compared to the above parameters at a depth of 10 inches. Colors were determined on moist ped surfaces, which had not been crushed, using the Munsell Color Chart (Gretag Macbeth, 2000). Soils with low chromas were verified as being hydric or upland with *Draft Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (COE, 2006) using indicators for depleted matrix (F3) for fine grained soils or Sandy Redox (S5) for sandy soils.

Hydrology Methodology

The delineation was performed during winter within the wet-weather season (over 19-inches of rainfall had fallen to date). Direct evidence of ground water (soil saturation, standing water, etc.) was present in all of the wetland plots during the delineation. Primary wetland hydrologic indicators were observed (A1, A2, and A3). Secondary indicators were evaluated as well, and documented in some locations, such as drainage pattern (B10) and a pass on the “FAC-Neutral Test” (D5).

Wetland Determination

The wetland boundary was evaluated using the COE (three-parameter), City of Arcata (two-parameter), and/or Coastal Commission (one-parameter) methodologies, based on the location in relation to the Coastal Zone boundary. The wetland determination was made with an emphasis on redoximorphic soil features and presence of wetland hydrology. For locations not in the Coastal Zone (City and COE primary jurisdiction) an area was determined to be a wetland when soil, vegetation, and hydrology met the two-parameter approach/definition. An attempt was made to also satisfy the COE three-parameter definition in these locations to eliminate confusion in mapping and permitting that might result with multiple wetland boundary lines. Within the Coastal Zone (City or Coastal Commission primary jurisdiction), areas where the existence of any one indicator were present were identified. Within the Coastal Zone, an area was determined to be uplands based on absence of all three wetland indicators (soils/botany/hydrology) based on the one-parameter approach. All wetland plots exhibited a predominance of facultative (FAC) or wetter vegetation and all upland plots exhibited predominance of facultative-up (FACU) or drier vegetation within the Coastal Zone.

Once wetland characteristics were determined for each transect, the horizontal location of the upland/wetland boundary were recorded using a handheld Trimble GPS unit with sub-meter accuracy. Flags were not placed in most areas with active land-use. The delineated boundaries can easily be relocated with the handheld Trimble GPS, therefore flagging of the boundaries was further determined to not be necessary.

Riparian vegetation that were not mapped as wetlands (i.e. lacked wetland soils and hydrology) were recorded at the drip line as riparian. In the Coastal Zone areas that have primary jurisdiction by the California Coastal Commission, the riparian areas could be considered by the Commission as one-parameter coastal wetlands despite the fact the plants are not growing as hydrophytes due to absence of wetland soils and hydrology. These areas are described as transitional habitat on

the upland edge of wetland areas and are categorized as “One-Parameter Riparian.”

Other Waters

The project alignment crosses six drainages, the latter five of which are tidally influenced within limits of Project Study Boundary due to proximity to Humboldt Bay: Jolly Giant Creek, Butcher Slough, Gannon Slough, Jacoby Creek, Old Jacoby Creek (tide gate), and Brainard’s Slough (near Bracut).

Ordinary High Water Mark (OHWM)

Non-tidal Waters of the U.S./State were mapped/ defined at the Ordinary High Water Mark (OHWM) and/or limits of adjacent freshwater emergent wetlands. The OHWM is determined by observance of scour, water-marked vegetation, drift lines, and/or drift deposit. Due to the confined nature of some of the stream channels and ditches (emergent wetland and/or non-wetland), the OHWM was often defined at or near the top-of-bank (TOB). The project crosses Jolly Giant Creek at Alliance Avenue, as well as runs parallel to and/or on top of ditches (wetland emergent and/or non-wetland), all of which are defined at the OHWM.

Other Waters of the U.S. (Tidal)

Under Section 10 of the Rivers and Harbors Act of 1899 for activities in navigable waters the limits of COE jurisdiction is defined at Mean High Water (MHW). In the project vicinity, Mean High Water (MHW) is on average 6.6 feet MLLW (tidal datum) / 6.0 NAVD88 (survey datum), with a calculated average conversion factor for MLLW to NAVD88 of (-)0.60 based on three NOAA benchmarks: North Spit/Humboldt Bay (Station ID 9418767, MHW = 6.1 MLLW / 5.8 NAVD), Samoa/Humboldt Bay (Station ID 9418817, MHW = 6.6 MLLW / 6.1 NAVD), and Mad River Slough (Station ID 9418865, MHW = 6.9 MLLW / 5.9 NAVD). The calculated average conversion factor of (-)0.60 from these three benchmarks is consistent with “Relation Between Datums” per N.G.S. (U.S.C & GS) datum 1929 Adj, as recommended for use by the Humboldt Bay Harbor District for areas in Humboldt Bay.

Under Section 404 of the Clean Water Act, the limits of COE jurisdiction is defined at the High Tide Line (HTL), which is a site-specific elevation related to the observed level of high tide and extent of saltmarsh habitat (pers. com., April 14, 2010, Mr. Kelley Reid, COE). Previous Army COE permit applications designate the HTL for the Arcata Marsh to be approximately 8.8 feet MLLW which equates to 8.2 feet NAVD88. Per COE guidance, mapping of “Other Waters of the U.S.” (Tidal) can vary from the estimated HTL elevation for a site, based on site-specific observations, in order to capture limits of unvegetated mud within tidal portions of creeks/sloughs. The HTL should also be adjusted so that vegetated areas (i.e. saltmarsh wetlands, or eel grass beds) are mapped separately as either wetlands/uplands or special habitat areas, depending on site specific observations, and are not included within definition of “Other Waters.” Within the Project Study Boundary (PSB), limits of vegetated saltmarsh (both below and above the 8.0 foot NAVD88 elevation) are mapped as wetlands and categorized per FWS classification system (Cowardin, 1979). All areas below 8.0 foot elevation (NAVD88 datum) are COE jurisdictional, whether classified as “Other Waters of the U.S.” (Tidal) when unvegetated, or classified as wetland—Estuarine Intertidal Emergent (Saltmarsh). The HTL was mapped as the 8.0 foot contour (NAVD88 datum) based on site-specific topographic survey that was conducted within the trail alignment and highway/railroad right-of-ways.

Habitat Mapping

Habitat mapping was conducted during the Natural Features Inventory (NFI) and was refined/confirmed for the selected alignment during the wetland delineation. The habitat mapping consisted of indicating areas of shorebird roosting, potential listed plant species habitat, and riparian areas (that were not classified as wetlands). The NFI consisted of the following biological and botanical tasks:

- 1) Review of the California Department of Fish and Game's Natural Diversity Database (CNDDDB) for State special-status species in the associated USGS topographic quads (see DFG, 2009a; DFG, 2009b);
- 2) Review of the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants (CNPS, 2009a; CNPS, 2009b);
- 3) Review of list provided by the U.S. Fish and Wildlife Service and National Marine Fisheries of Federal special-status species (USFWS, 2009a; USFWS, 2009b); and,
- 4) Conduct reconnaissance-level wetlands and biological investigation (botanical and wildlife) investigations (results below).

A site visit was conducted to generally identify/map habitat types and significant sensitive wildlife areas within the potential trail alignment options from Larson Park at Sunset Avenue to Bracut Industrial Park on Route 101. The reconnaissance field work was conducted on December 1-2, 2009, by Winzler & Kelly scientists Mr. Gary Lester (Biologist/Botanist) and Ms. Lia Webb (Certified Professional Soil Scientist and Wetland Scientist / Plant Ecologist). Special-status species that have potential to exist at the project site (DFG, 2009a; DFG, 2009b; CNPS, 2009a; CNPS, 2009b; USFWS, 2009a; and USFWS, 2009b) based on presence of habitat were searched for during the reconnaissance level survey. These were not seasonally-appropriate surveys, which would be necessary to confirm absence of listed plant species from the project site (April/May and July, depending on species).

On May 28, 2010, Gary Lester (Botanist) of Winzler & Kelly conducted site-specific and seasonally appropriate plant survey for the following listed plant species: Humboldt Bay owl's clover (*Castilleja ambigua* ssp. *humboldtiensis*) [CNPS List 1B.2] and Lyngbye's sedge (*Carex lyngbyei*) [CNPS List 2.2]. A second site visit/survey is planned for mid-July, to evaluate the presence/absence of the following later blooming species (typical bloom period June-August): Point Reyes bird's beak (*Cordylanthus maritimus* ssp. *palustris*) [CNPS List 1B.2] and sand spurrey (*Spergularia canadensis* var. *occidentalis*) [CNPS List 2.2 species]. Due to the unusually wet spring, and late spring, Point Reyes bird's beak reference site (known location) was visited on June 30, 2010, and was not in bloom, indicating that seasonal-appropriate surveys would need to be conducted at a later date beyond the grant-funded contract period for the current phase of work. The May 2010 seasonally-appropriate botanical survey was focused on areas within the trail impact area and adjacent Estuarine Intertidal Emergent (Saltmarsh) wetlands that were mapped during the wetland delineation as potential habitat for the listed plant species. The areas mapped as Estuarine Emergent (Ditch) were determined during the wetland delineation to be low quality habitat and unlikely for the listed plant species to occur in the highly altered landscape. The May 2010 botanical survey was conducted at Butcher Slough crossing (Figure 4-14), the west side of the railroad track between the Arcata WWTP and Gannon Slough (Figures 4-18 and 4-19), Gannon Slough (Figure 4-20), Jacoby Creek (Figure 4-21), Old Jacoby Creek tide gate (Figure 4-22), and Brainard's Slough (Figure 4-26). Areas were surveyed for presence/absence

of listed plant species within Estuarine Intertidal Emergent (Saltmarsh) and adjacent brackish ditch areas along site access routes, within potential trail footprint, and at water crossings within 100 feet of the planned project.

IV. RESULTS

Most of the project area consists of human-altered soils from cut and fill for road development, railroad development, berm/dike installation and manipulation, agricultural uses, urban development, wastewater treatment infrastructure, highway roadbed, and railroad fill. Few natural soil conditions were noted except in the area of Shay Park. Much of the vegetation has similarly been altered from long-term land uses, and consists of many non-native and disturbance-oriented species. The natural hydrology is assumed to have been altered in agricultural areas from historical dike construction and conversion of land to agricultural and urban uses. Site hydrology is also assumed to be historically altered from road and infrastructure installation along the highway 101 corridor, within the railroad right-of-way, and near the Arcata wastewater treatment plant (WWTP) and within the Arcata Marsh.

The wetland delineation and habitat mapping results are provided on map series 4 Wetlands (Figures 4-1 through 4-28, Appendix A). Note that per COE requirements, this map series has been produced in black and white format with survey topographic base map.

Wetland Delineation

Uplands

Disturbed sites were found throughout study area dominated by non-native vegetation with well drained soils or compacted engineered fill. Upland areas on the field map are represented by areas not identified as wetlands. Typical dominant plant species (shrub and forbs) with greater than 10% coverage for these areas are:

- bird's foot trefoil (*Lotus corniculatus*) [FAC]
- coyote brush (*Baccharis pilularis*) [NI]
- dandelion (*Taraxacum officinale*) [FACU]
- horseweed (*Conyza canadensis*) [FAC]
- Himalayan blackberry (*Rubus discolor*) [FACW]
- perennial cat's ear (*Hypochaeris radicata*) [NI]
- red clover (*Trifolium pratensis*) [FACU]
- soft chess (*Bromus hordeaceus*) [FACU]
- fennel (*Foeniculum vulgare*) [NI/invasive]
- sweet vernal grass (*Anthoxanthum odoratum*) [FACU]
- Queen Anne's Lace (*Daucus carota*) [NI]
- white clover (*Trifolium repens*) [FACU]

Typical vegetation along the railroad bed along the Highway 101 corridor consisted of disturbance oriented non-native upland grassland species, such as follows:

- bristly dogtail grass (*Cynosurus echinatus*) [NI]
- black mustard (*Raphanus sativa*) [NI]
- bristly oxtongue (*Picris echioides*) [FAC]

- fennel (*Foeniculum vulgare*) [NI/invasive]
- orchard grass (*Dactylis glomerata*) [FACU]
- Queen Anne's Lace (*Daucus carota*) [NI]
- rattlesnake grass (*Briza major*) [NI]
- soft brome (*Bromus hordeaceus*) [NI]
- white clover (*Trifolium repens*) [FACU]
- wild geranium (*Geranium dissectum*) [NI]
- yarrow (*Achillea borealis*) [NI]

Wastewater Treatment Plant (WWTP) Ponds

Man-made freshwater areas parallel the tracks through the Arcata Marsh. Typical vegetation within these areas consists of the following species:

- broad-leaved cattail (*Typha latifolia*) [FACW]
- hardstem bulrush (*Scripus acutus*) [FACW]
- lesser duckweed (*Lemna minor*) [FACW]
- marsh pennywort (*Hydrocotyle ranunculoides*) [FACW]
- Pacific willow (*Salix lasiolepis*) [FACW]
- poison hemlock (*Conium maculatum*)
- red willow (*Salix laevigata*) [FACW]
- teasel (*Dipsacus fullonum*) [NI]
- water parsley (*Oenanthe sarmentosa*) [FACW]

Wetlands Classification

The following wetland classification types (FWS, 1979) were mapped within the project study boundary (PSB), as shown on Figure Series 2 (Maps 2-01-2-28). Specific characteristics of each wetland are presented in below descriptions of each wetland, and wetland acreages based on jurisdictional area are summarized in Table 1. Table 1 also estimates/highlights Potential Impacted Wetlands/Habitats (as shown on map series 5, Figures 5-1 through 5-28, Appendix A).

Palustrine Emergent

Freshwater wetlands present within vegetated freshwater ditches, springs, and seeps in the City of Arcata, seasonal high groundwater, compacted areas near Shay park and other former industrial/commercial properties within urban limits of the City. As well, some ditches that act as stormwater conveyance, but which have extensive wetland vegetation, hydric soils, and hold at least seasonal water, have been classified as palustrine emergent, particularly when there are limited signs of being man-made or directly part of City street stormwater conveyance system. This wetland type includes the palustrine ditch located along the Highway 101 corridor between the railroad bed and the highway edge of pavement. Representative vegetation consists of:

- arroyo willow (*Salix lasiolepis*) [FACW]
- Baltic rush (*Juncus balticus*) [OBL]
- California blackberry (*Rubus ursinus*) [FACW]
- fringed willowherb (*Epilobium ciliatum*) [FACW]
- Himalayan blackberry (*Rubus discolor*) [FACW]
- reed canary grass (*Phalaris arundinacea*) [FACW]

- soft rush (*Juncus effuses*) [OBL]
- tufted hairgrass (*Deschampsia cespitosa*) [FACW]

Estuarine Intertidal Emergent (Saltmarsh)

These areas are present at the margins of Humboldt Bay, Butcher Slough, Gannon Slough, and Jacoby Creek, and are subject to tidal inundation with some fresh water influence when located within tidal parts of creek mouths/estuaries. These areas are exposed at low tides and even some high tides depending on elevation. This wetland type contains herbaceous, salt-tolerant hydrophytes forming moderate to dense cover. This habitat is usually found in sheltered margins of bays, lagoons, and estuaries. The hydric soils are subject to regular tidal inundation by salt water for at least part of each year. In the Project Study Area, these wetlands have the following typical vegetation:

- cordgrass (*Spartina densiflora*) [NL]
- marsh rosemary (*Limonium californicum*) [FACW]
- pickleweed (*Salicornia virginiana*) [OBL]
- seashore saltgrass (*Distichlis spicata*) [FACW]
- spear oracle (*Atriplex patula*)
- tufted hairgrass (*Deschampsia cespitosa*) [FACW]
- Baltic rush (*Juncus balticus*) [OBL]

Jaumea (*Jaumea carnosa*) and arrow-grass (*Triglochin maritima*) are also known to be present in prime saltmarsh habitat in the Humboldt Bay area, but due to the season that the wetland delineation and habitat mapping was conducted, coupled with the marginal to moderate quality saltmarsh observed, these species were not documented. Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*), Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) [both CNPS List 1B.2], and Lyngbye's sedge, are also associated with the Estuarine Intertidal Emergent (Saltmarsh) wetland community, although were not identified at the site during wetland delineation field effort (incorrect season for protocol-level surveys, see habitat results section). Sand spurrey (*Spergularia canadensis* var. *occidentalis*), a CNPS List 2.2 species, is a late bloomer, June-August (similar to bird's beak) and presence/absence was not confirmed during habitat mapping. Sand spurrey has not been reported along the east shore of Humboldt Bay (see habitat results section).

Estuarine Emergent (Ditch)

These areas are isolated from direct tidal influence and are connected to the palustrine emergent ditch that runs the length of the Highway 101 corridor between the railroad bed and east towards the edge of pavement. Some portions of the palustrine ditch receive subsurface saltwater infiltration, have remnant saline conditions, or receive only occasional saltwater input during high-tide storm events. In any case, occasional areas of the ditch are classified as Estuarine Emergent wetland based on vegetation, but are considered marginal/non-habitat for the CNPS-listed saltmarsh plant species, and as such have been designated has a separate wetland habitat type, although according to FWS designation (Cowardin, 1979) this area keys out to Estuarine Emergent. Vegetation within the ditch supports some brackish species but has limited diversity, and consists of the following species:

- pickleweed (*Salicornia virginiana*) [OBL]
- seashore saltgrass (*Distichlis spicata*) [FACW]

Ditch (Palustrine Emergent)

These areas consist of City of Arcata stormwater conveyance ditches that in some cases are established with palustrine emergent vegetation and meet the City of Arcata definition for two-parameter wetlands. These areas are unlikely to be considered COE jurisdictional based on the man-made nature of the ditches and absence of permanent or seasonal wetland hydrology. The ditches were observed to have ephemeral water that was directly related to storm events.

Waters of the U.S./State

Non-tidal Waters of the U.S. (OHWM)

Non-tidal “Waters of the U.S./State” (when not delineated as wetlands) are defined by the Ordinary High Water Mark (OHWM), as observed and mapped in the field. Within the PSB, one non-tidal “Water of the U.S.” was mapped, consisting of day-lighted sections of Jolly Giant Creek within the City of Arcata.

Other Waters of the U.S. (Tidal)

Other Waters of the U.S. (Tidal) are defined at the HTL and tidal areas in the sloughs and creek mouths/estuaries that lack vegetation. Within the PSB, the HTL is approximately the 8.0 foot contour (NAVD88 datum), as described in the Methodology section of this report. The HTL was mapped on the project plot plan based on site topographical survey, and ground-truthed during the wetland delineation and GIS mapping. Areas within the HTL consist of the tidal portion of Humboldt Bay, Butcher Slough, Gannon Slough, Jacoby Creek, Brainard’s Slough, and Old Jacoby Creek, and are subject to both tidal inundation with some fresh water influence. However, they are partially exposed or submerged within the channels at low tides. The area lacks vegetation, including eel grass, saltmarsh species, etc.

Wetlands

Specific individual wetlands, Waters, and habitats are described below. The wetland results are separated into sections based on location within three project options considered as follows: the Selected Alignment, the Interim Alignment (alternative that analyzed trail located on the existing rail bed), and Secondary Alignment (partially utilizing lands owned by Northern Humboldt School District in order to avoid direct impacts to Jolly Giant Creek and to Shay Park). Where specific plant species observed are not presented, please refer to the typical description above of the wetland categories.

Table 1: Existing Areas of Wetlands, Waters of the US/State, and Habitats, and Potential Impacted Areas

Project Location	Jurisdiction	Type of Impact	Habitat Types		Wetland Types				Other Waters of US/State		California State Special Status Plants ¹⁰				
			Shorebird Roosting/ Rocky Shoreline	Riparian (1 Parameter) ¹	Palustrine Emergent Wetlands	Ditch (stormwater conveyance w/ Palustrine Vegetation)	Estuarine Intertidal Emergent (Saltmarsh)	Estuarine Emergent (ditch) ²	Ordinary High Water Mark	Tidal Waters of the US (unvegetated) ³	Humboldt Bay owl's-clover (<i>Castilleja ambigua ssp. humboldtensis</i>)	Lyngbye's Sedge (<i>Caryx Lyngbyei</i>)	Point Reyes bird's-beak (<i>Cordylanthus maritimus ssp. palustris</i>)	Sand Spurrey (<i>Spergularia Canadensis var. occidentalis</i>)	
Total Existing ⁴	Various	NA	SF	1,473	89,737	174,803	6,299	126,723	13,584	2,009	42,952	30,789	7,045	Unknown	
			Ac.	0.03	2.06	4.01	0.14	2.91	0.31	0.05	0.99	0.71	0.16	Unknown	
Northern Extent to CZ Boundary	City/ COE	Cubic Yards of Fill associated with Permanent Impacts ⁵	CY	0	188	161	68	0	0	0	0	NA	NA	NA	NA
		Permanent Impacts (Ground Disturbance) ⁶	SF	0	3,377	2,893	1,231	0	0	0	0	0	0	0	Unknown
		Permanent Impacts (Structure Shading) ⁷	SF	0	0	0	0	0	0	NA	NA	0	0	0	Unknown
		Temporary Construction Impacts (5ft buffer) ⁸	SF	0	2,025	1,918	17	0	0	87	0	0	0	0	Unknown
		Temporary Impacts Associated with Staging Areas ⁹	SF	0	0	0	0	0	0	0	0	0	0	0	Unknown
CZ to South City Boundary	City/ COE/ CC	Cubic Yards of Fill associated with Permanent Impacts	CY	0	108	394	4	392	0	0	12	NA	NA	NA	NA
		Permanent Impacts (Ground Disturbance)	SF	0	1,952	7,091	76	7,064	0	0	224	186	0	0	Unknown
		Permanent Impacts (Structure Shading)	SF	0	0	808	0	214	0	NA	NA	0	0	0	Unknown
		Temporary Construction Impacts (5ft buffer)	SF	0	2,735	4,881	187	7,508	0	0	961	0	0	0	Unknown
		Temporary Impacts Associated with Staging Areas	SF	0	0	5,362	0	0	0	0	0	0	0	0	Unknown
South City Boundary to Southern Extent	COE/ CC	Cubic Yards of Fill associated with Permanent Impacts	CY	0	45	2,646	0	0	550	0	9	NA	NA	NA	NA
		Permanent Impacts (Ground Disturbance)	SF	0	815	47,619	0	0	9,903	0	170	0	0	0	Unknown
		Permanent Impacts (Structure Shading)	SF	0	0	207	0	0	368	NA	NA	0	0	0	Unknown
		Temporary Construction Impacts (5ft buffer)	SF	0	560	17,279	0	0	2,977	0	262	0	0	0	Unknown
		Temporary Impacts Associated with Staging Areas	SF	0	0	11	0	0	0	0	0	0	0	0	Unknown
IMPACT SUMMARY (all project areas combined)	Various	Cubic Yards of Fill associated with Permanent Impacts	CY	0	341	3,200	73	392	550	0	22	NA	NA	NA	NA
		Permanent Impacts (Ground Disturbance)	SF	0	6,144	57,603	1,307	7,064	9,903	0	394	186	0	0	Unknown
	Various	Permanent Impacts (Structure Shading)	SF	0	0	1,016	0	214	368	NA	NA	0	0	0	Unknown
			Ac.	0.00	0.00	0.02	0.00	0.00	0.01	NA	NA	0.00	0.00	0.00	Unknown
	Various	Temporary Construction Impacts (5ft buffer from permanent impacts associated with ground disturbance)	SF	0	5,320	24,077	204	7,508	2,977	87	1,223	0	0	0	Unknown
			Ac.	0.00	0.12	0.55	0.00	0.17	0.07	0.00	0.03	0.00	0.00	0.00	Unknown
	Various	Temporary Impacts Associated with Staging Areas	SF	0	0	5,373	0	0	0	0	0	0	0	0	Unknown
Ac.			0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Unknown	

Notes:

- 1 1-Parameter Riparian areas are uplands; Riparian areas w/ wetland hydrology/soils calculated as wetlands
- 2 Estuarine Emergent (ditch) are saltwater wetlands isolated from direct tidal influence by railroad prism
- 3 Tidal Waters of the US is everthing below HTL (8.0' elevations when converted to NAVD88)
- 4 Existing areas = acreage within Project Study Area mapped and delineated in the field
- 5 Cubic Yards of Wetlands assumes an average depth of 1.5' fill in wetlands
- 6 Areas that will be filled in association with construction of the project
- 7 Areas shaded by bridge decks or other structures that have no permanent ground disturbance impacts
- 8 A 5-foot buffer around all Permanent Impacts (ground disturbance) in which temporary impacts are likely during construction
- 9 Designated areas for construction staging and stockpiling; temporary impacts may occur
- 10 Surveys of California Special Status Plant Species extended beyond the study area

Abbreviations: CC=California Coastal Commission COE = Army Corp of Engineers CZ = Coastal Zone (Coastal Commission Jurisdiction) SF = Square Footage CY = Cubic Yards Ac. = Acres NA = Not Applicable

Selected Alignment Results

Delineated wetlands, ditches, “Waters of the U.S.,” and/or “Other Waters of the U.S. (Tidal)” are presented below. For general characteristics of various mapped categories (wetlands, ditches, uplands, etc), refer to the above description of wetland classifications that includes typical dominant vegetation observed within wetland categories.

SEGMENT 0—Larson Park to Sunset Avenue			
ID	Description / Location	Test Pit	Jurisdiction
Ditch 1	Located north side of railroad bed along toe of slope below Larson Park, north of Skate Park. Connects to stormwater culvert at south end before intersections with Alliance Avenue. City of Arcata two-parameter jurisdictional. Likely Army Corp three-parameter jurisdictional based on vege/hydrology, soil primary indicators absent but meets hydrology for 2 weeks after storm event.	None	City/COE

SEGMENT 1—Sunset to Alliance Avenue			
ID	Description / Location	Test Pit	Jurisdiction
See: NRM, 2008	Wetlands present within the PSB of the Selected Alignment were delineated separately for the City of Arcata (NRM, 2008) as part of the Foster Avenue Extension Project. The extension project considered impacts to wetlands of both the road bed as well as an adjacent pedestrian route and is not further presented or discussed as part of the current trail project because mapping was conducted during the Foster Avenue Extension Project. The footprint of the Selected Alignment along the Foster Avenue Extension Corridor does not extend beyond the limits of the previous investigation.	See: NRM, 2008	City/COE

SEGMENT 2—Alliance Avenue			
ID	Description / Location	Test Pit	Jurisdiction
Wetland 1	Palustrine Emergent. Located at construction building pad on Foster Avenue. Small ponded area that meets both 2 and 3 parameter definition. Connects to stormwater culvert that drains into ditch in adjacent riparian that eventually connects to Jolly Giant creek through surface and subsurface flow (surface flow and hydric groundwater conditions or soils were not observed within the adjacent one-parameter riparian area).	None	City/COE
Wetlands 2 and 3 (Isolated)	Palustrine Emergent (Isolated). Located on Franke parcel. These isolated wetlands meet three-parameter definition, with compacted soils resulting in ponding water and scattered wetland vegetation and bare surface (sign of apparent surface water ponding).	Confirmation pits only.	City
Wetlands 4 and 5	Palustrine Emergent. Located along northern side of upland berm (along east side of Alliance Avenue). The palustrine emergent wetlands are adjacent to a Jolly Giant Creek channel branch.	Confirmation pits only.	City/COE
Water 1	Jolly Giant Creek. “Water of the U.S.” (Non-tidal) defined at the OHWM. This Water is also within the area considered as the Interim Alignment (alternative that considers use of the existing railroad bed). Jolly Giant meanders through Shay Park and flows under Alliance Avenue in a culvert. The Water resurfaces and flows through Stonehenge (defined at Center Line with approximate OHWM of 8 to 10 feet width). Jolly Giant Creek will be avoided through the “Stonehenge” area because the established riparian area extends well beyond the OHWM and setbacks/avoidance of this	UP-2	City/COE

	riparian was considered in selection process of Selected Alignment. Where the Water widens beyond the approximate 8-10 foot OHWM through “Stonehenge”, the Water was mapped as wider polygon to capture this variation. South of Stonehenge the Water returns to subsurface City of Arcata culverts and discharges to Butcher Slough within the Arcata Marsh.		
Ditch 2	Located along east side of Alliance Avenue. This is a well established / vegetated, that connects to City stormwater conveyance system. The established vegetation as well as connectivity to widened palustrine emergent wetland area to the north indicates this area is likely both City and COE jurisdictional.	None.	City/COE

SEGMENT 3.1–Below the High School Along Alliance Avenue			
ID	Description / Location	Test Pit	Jurisdiction
Wetland 6	Palustrine Emergent. Located at the toe of slope below the high school and in some cases directly adjacent to edge of pavement along the east side of Alliance Avenue.	T88/T94 (and Ref: T95int- T101int)	City/COE
Ditch 3	Unvegetated. Stormwater conveyance from High School area to Alliance Avenue stormwater drain (potentially historic seep from urbanized portions of City). This predominantly unvegetated rocky channel is steep and discharges to a stormwater culvert at intersection along east side of Alliance Avenue. Due to seasonal winter wetland hydrology, this area is City two-parameter. This area does not meet COE three-parameter jurisdictional based on absence of established wetland palustrine emergent vegetation.	None	City

SEGMENTS 3.2–L Street, Alliance to 12th Street (Begins Pedestrian Area)			
ID	Description / Location	Test Pit	Jurisdiction
Wetland 7	Palustrine Emergent. This wetland is located along the west side of Alliance where the L Street corridor would be if it connected through from east to west across Alliance. This area is formed on compacted soil from the road bed and adjacent historic industrial and/or commercial use. This area meets both City and COE wetland definitions.	T82 (Ref: T83int through T86int)	City/COE
Wetland 8	Palustrine Emergent. This area is located between two storage unit buildings along the east side of railroad tracks. It receives stormwater input from culvert between two other existing buildings; stormwater is blocked from discharging due to elevated railroad bed. This area classifies as a three-parameter wetland due to established wetland vegetation, wetland soils, and hydrology, and lacks obvious ditch topographic features in most locations (although directly connected to an upgradient culvert).	None	City/COE

SEGMENTS 3.3–L Street, 12th to 8th Street			
ID	Description / Location	Test Pit	Jurisdiction
Ditch 4	Vegetated with FAC non-native grass species and buttercup. This area receives stormwater from City street culvert. Meets both City of Arcata and COE definition for wetland. City two-parameter boundary does not extend beyond COE boundary.	None	City/COE
Ditch 5	Palustrine Emergent. Receives stormwater from City street culvert. Meets both City of Arcata and COE definition for wetland. City two-parameter boundary does not extend beyond COE boundary.	None	City/COE

SEGMENTS 3.4—L Street South of 8th Street to Samoa (Begins Coastal Zone)			
ID	Description / Location	Test Pit	Jurisdiction
Ditch 6	Stormwater conveyance on east side of L Street. Receives input from City stormwater culvert.	None	City/CC

SEGMENT 3.5—Samoa Boulevard Crossing			
ID	Description / Location	Test Pit	Jurisdiction
Ditch 8, Ditch 9	Stormwater conveyance on north side of Samoa, both east and west of L Street. Receives input from City stormwater culverts. Mostly unvegetated, although Ditch 9 does have partial Palustrine Emergent vegetation. Both ditches are City/Coastal Commission jurisdictional. Both ditches are unlikely COE jurisdictional.	None	City/CC

SEGMENT 4.0 / 5.1 / 5.2—South of Samoa to I Street			
ID	Description / Location	Test Pit	Jurisdiction
Wetland 9	<i>Palustrine Emergent</i> . This wetland begins as a ditch along the west side of the railroad approximately 300 feet south of Samoa Boulevard, and then transitions into a well established freshwater marsh that is set west of the railroad bed and east of a pond berm within the Arcata Marsh and Wildlife Sanctuary. The wetland continues until intersection with I Street, where it connects through a culvert and continues as a narrow marsh area on the southeast side of I Street. The trail is proposed on top of the existing berm to the west of this wetland.	T78	City/COE/CC

SEGMENT 5.3—Arcata Marsh South of I Street			
Area of investigation leaves the railroad alignment and follows a 25-foot wide swath centered on an existing trail through the Arcata Marsh.			
ID	Description / Location	Test Pit	Jurisdiction
Ditch 10	Southeast side of I Street. Low-lying partially vegetated ditch receives stormwater from I Street impervious surfaces. One and/or two-parameter boundary does not extend beyond COE boundary.	Confirmation pits of boundary.	City/COE/CC
Wetland 10 (Isolated)	<i>Palustrine Emergent (Isolated)</i> . South side of I Street. This isolated marginal wetland with compacted soils associated with road bed and existing marsh trail along the WWTP bond berm to the southeast. The area has ponding water, wetland soils, FAC and wetland/grassy vegetation. One and/or two-parameter boundary does not extend beyond COE boundary.	Ref: T78int-T81int	City/CC

SEGMENT 5.4—Arcata Marsh I Street to Butcher Slough			
ID	Description / Location	Test Pit	Jurisdiction
Wetland 11	<i>Estuarine Intertidal Emergent (Saltmarsh)</i> . Saltmarsh vegetation on margins of Butcher Slough (continues to Segment 6.1). See general wetland description for typical plants. One and/or two-parameter boundary does not extend beyond COE boundary.	Ref: T77int	City/COE/CC
Wetland 12	<i>Palustrine Emergent</i> . Formed on compacted imported soil material and gravel base that is topographically lower and between a historic landfill (to west) and the existing marsh trail bed (to east). Wetland connects through a culvert to Palustrine Emergent “No-Name Pond” to the south. One and/or two-parameter boundary does not extend beyond COE boundary. arroyo willow (<i>Salix lasiolepis</i>) [FACW]	T72 (Ref: T69int-T75int)	City/COE/CC

	Baltic rush (<i>Juncus balticus</i>) [OBL] California blackberry (<i>Rubus ursinus</i>) [FACW] fringed willowherb (<i>Epilobium ciliatum</i>) [FACW] Himalayan blackberry (<i>Rubus discolor</i>) [FACW] reed canary grass (<i>Phalaris arundinacea</i>) [FACW]		
Wetland 12 (continued)	Palustrine Emergent “No-Name Pond” arroyo willow (<i>Salix lasiolepis</i>) [FACW] Baltic rush (<i>Juncus balticus</i>) [OBL] California blackberry (<i>Rubus ursinus</i>) [FACW] Himalayan blackberry (<i>Rubus discolor</i>) [FACW] reed canary grass (<i>Phalaris arundinacea</i>) [NI] soft rush (<i>Juncus effuses</i>) [OBL] cattail (<i>Typha</i> sp.) [FACW]	None.	City/COE/CC

SEGMENT 6.1—Butcher Slough Crossing			
ID	Description / Location	Test Pit	Jurisdiction
Water 2	Butcher Slough. The proposed trail route crosses Butcher Slough, defined at the High Tide Line (HTL) as a “Water of the U.S./State.” See Wetland 11 includes a narrow strip of Estuarine vegetation along the banks of this Water.	NA	City/COE/CC

SEGMENT 6.2—Butcher Slough to WWTP			
ID	Description / Location	Test Pit	Jurisdiction
Wetland 13	Estuarine Emergent (Saltmarsh). Receives tidal waters through a culvert on the east side of pedestrian bridge and south bank of Butcher Slough. One and/or two-parameter boundary does not extend beyond COE boundary. seashore saltgrass (<i>Distichlis spicata</i>) [FACW] coyote bush (<i>Baccharis pilularis</i>) [NI]	None (Ref: t65int-t68int)	City/COE/CC

SEGMENTS 6.3 / 7.1—WWTP to Gannon Slough			
The area of investigation consists of swath along the west side of the railroad bed along the margin of the bay.			
ID	Description / Location	Test Pit	Jurisdiction
Wetland 14	Palustrine Emergent. Ditch-like in that it appears to be lined with gravel although not much topographic variation. Meets wetland hydrology and vegetation. Soil features are difficult to discern due to very gravelly component. Wetland 14 also includes a small portion of the Palustrine Emergent ditch that runs between South G Street and the railroad bed. This small portion was added to the PSB after the need was identified to provide temporary construction access to the trail alignment from the south terminus of South G Street. Along the west side of the railroad, Wetland 14 area connects to Wetland 15 and changes to Estuarine Intertidal Emergent (Saltmarsh) near the 8.0 foot HTL (confirmed during field visit). Typical vegetation is as follows: small-fruit bulrush (<i>Scirpus microcarpus</i>) [OBL] tufted hairgrass (<i>Deschampsia cespitosa</i>) [FACW] bristly oxtongue (<i>Picris echioides</i>) [FAC] teasel (<i>Dipsacus sylvestris</i>) [NI] Baltic rush (<i>Juncus balticus</i>) [OBL]	T61	City/COE/CC
Wetland 15	Estuarine Intertidal Emergent (Saltmarsh). Connects to Wetland 14 (Palustrine Emergent). Wetland areas along this stretch about	T48, T3	City/COE/CC

	Humboldt Bay and consist of dense, low salt marsh cover with adjacent scattered open mud with potential open wading bird foraging habitat. This area is potential habitat for listed plant species (see Habitat description/results). Representative plants are described in typical habitat description. Wetland 15 is discontinuous in some sections along the railroad bed due to culverts, access roads/intersections at HBNWR, etc, and crossings at Other Waters of the U.S. (Tidal), etc. Wetland 15 includes Saltmarsh at the shore of Gannon Slough. Adjacent riparian habitat was mapped that consisted of upland soils/hydrology (one-parameter vegetation); since the area is within the Coastal Zone, the riparian would be defined by the California Coastal Commission as a one-parameter wetland. See typical saltmarsh description for representative plant species within this area.		
Habitat Type	Riparian (One-Parameter). Arroyo willow [few] (<i>Salix lasiolepis</i>) [FACW] red alder (<i>Alnus rubra</i>) [FAC] Himalayan blackberry (<i>Rubus discolor</i>) [FACW] Pacific wax myrtle (<i>Myrica californica</i>) [FAC+] coyote bush (<i>Baccharis pilularis</i>) [NI] lupine (<i>Lupinus sp.</i>) [NI]	None	CC

SEGMENT 7.2—Gannon Slough Crossing

Significant wetland features within the project area that lacked vegetation and were either at the bay margin or considered backwater, were mapped as Estuarine Intertidal Shore (Mud Flats). No vegetation was identified within these areas. These areas are likely below the High Tide Line which would define the area as a Water of the U.S./State. Where significant vegetation was present, areas were classified/mapped as estuarine intertidal emergent wetlands.

ID	Description / Location	Test Pit	Jurisdiction
Water 3	Gannon Slough. “Other Water of the U.S. (Tidal)” and is mapped at the HTL and/or limits of unvegetated mud.	NA	City/COE/CC

SEGMENT 7.3 to 7.8—Gannon Slough to Bracut (Outside City of Arcata boundary)

Location	Representative Vegetation	Transects	Jurisdiction
Wetland 16	Palustrine Emergent. The area between the upland railroad bed and the edge of pavement for the area between Gannon Slough and Bracut consists of mostly non-native plant species growing in disturbed upland conditions as well as seasonally wet areas associated with a continuous ditch that was delineated along the entire stretch of the Highway 101 corridor. Vegetation consists of mowed non-native grasses along the edge of pavement. Areas that have groundwater hydrology to support predominance of hydrophytic vegetation were mapped as wetlands. Soils consisted of imported fill material from highway development. Depth to redoximorphic features and/or reduced matrix (hydric soil indicator) was generally consistent with presence of groundwater hydrology supporting hydrophytic vegetation and correlated with the mapped wetland boundary. Thus the delineated wetland line along the roadside ditch between highway 101 edge of pavement and the upland railroad bed complies with both Coastal Commission one-parameter definition as well as Army Corp three-parameter wetland definition. The mapped seasonally wet ditch is divided into two wetland classifications (FWS, 1979). Most of the ditch is classified as Palustrine Emergent	T8, T18	COE/CC

	<p>Non-persistent Seasonally Flooded. Several remnant patches where brackish vegetation was observed within the ditch were classified as Estuarine Emergent (Ditch), Non-persistent Irregularly Flooded with some level of tidal influence/seepage assumed. The brackish area is highly disturbed and is not deemed viable habitat for listed salt marsh plant species. Both sides of the railroad bed have scattered bunches of willow riparian (mostly contained within areas mapped as palustrine emergent wetlands). Where the riparian drip-line extends beyond the areas mapped as palustrine emergent wetland, the additional riparian area was mapped as a habitat type during the reconnaissance survey, and has been subsequently reclassified as one-parameter riparian per California Coastal Commission (although where not mapped as palustrine wetlands, the riparian area did not have presence of hydrology or hydric soils to support formation of actual wetland conditions and the over-story vegetation is presumed to not grow as hydrophytes in these areas). Representative plants associated with the emergent ditch between the Highway 101 edge of pavement and the railroad bed are</p> <p>soft rush (<i>Juncus effuses</i>) [OBL] California blackberry (<i>Rubus ursinus</i>) [FACW] fringed willowherb (<i>Epilobium ciliatum</i>) [FACW] field horsetail (<i>Equisetum vulgare</i>) [FAC] creeping bentgrass (<i>Agrostis stolonifera</i>) [FACW] curly dock (<i>Rumex crispus</i>) [FACW]</p>		
Wetland 16 (continued)	<p>Estuarine Emergent (Ditch) cordgrass (<i>Spartina densiflora</i>) [NI/FACW] tufted hairgrass (<i>Deschampsia cespitosa</i>) [FACW] seashore saltgrass (<i>Distichlis spicata</i>) [FACW] Virginia glasswort (<i>Salicornia virginiana</i>) [OBL] marsh rosemary (<i>Limonium californicum</i>) [FACW] Baltic rush (<i>Juncus balticus</i>) [OBL]</p>	T1, T2, T28, T48	COE/CC
Habitat Type	<p>One-Parameter Riparian. Adjacent to Wetland 16. Arroyo willow (<i>Salix lasiolepis</i>) [FACW]</p>	NA	CC
Water 4	<p>Jacoby Creek. "Other Water of the U.S. (Tidal)" and is mapped at the HTL and/or limits of unvegetated mud.</p>	NA	COE/CC
Water 5	<p>Old Jacoby Creek. "Other Water of the U.S. (Tidal)", waters are controlled by a tide gate under the highway and railroad berm.</p>	NA	COE/CC
Water 6	<p>Brainard's Slough. "Other Water of the U.S. (Tidal)", receives drainage from Washington and Rocky Gulches.</p>	NA	COE/CC

Interim Alignment Results

Wetland B1. This is a down-gradient portion of palustrine emergent wetland delineated as part of the City of Arcata Foster Avenue extension project (NRM, 2008).

Riparian. Substantial one-parameter riparian area was mapped throughout Shay Park. Where the areas met two- or three-parameter wetland definition, the area was classified as a wetland.

Ditch B1. North side of tracks, palustrine vegetation within a stormwater ditch from railroad bed and upgradient developed areas. This connects directly to Jolly Giant Creek channel and/or branch. City and COE jurisdictional based on seasonal wet conditions at the surface and wetland vegetation (soils qualify for hydric conditions due to persistent saturation and redoximorphic features).

Water 1. Jolly Giant Creek, see results described for Selected Alignment.

Secondary Alignment Results

Ditch C1 and **Ditch C2.** These are located where the existing road makes a 90-degree bend around the west end of the Arcata High School football field. These consist of FAC and FACW grass species and receive stormwater from the football field and upgradient developed areas and do not drain due to low-lying topography and established pond further to the west. The ditch on the west side of the road (**Ditch C1**) has more apparent ditch topography and has likely been altered in an attempt to promote drainage. **Ditch C2** to the east is immediately adjacent to the football field and does not drain due to road bed to the west. Both ditches consist of wetland soils and persistent groundwater hydrology within 10-inches of the surface.

Habitat Results

Shorebird Roosting / Rocky Shoreline

Existing study results from three years of surveys conducted by Humboldt State University (wildlife department) of roosting Dunlin (*Calidris alpina*) document the presence of several shorebird roosting locations along the railroad alignment between Arcata and Bracut and several more beyond that towards Eureka (particularly at the intersection/corner of the levee at Bracut). The actual railroad alignment is potentially used for roosting mostly during high tides when more preferred locations are unavailable along the Bay margin. Additionally, according to Dr. Mark Colwell (pers. comm., August 8, 2009, Humboldt State University), radio tracking studies show that the same roosting location is not often repeatedly used by the same bird; thus, cumulative impacts to shorebird roosting in the Humboldt Bay region could be more of a concern than individual impacts to a single roosting location. Winzler & Kelly biologist conducted multiple field visits during high tide events to evaluate the use of the proposed trail alignment and to identify shorebird roosting locations along the railroad alignment. The biologist did not observe use of the roosting locations on the railroad alignment other than piles that are away from the railroad bed and within the intertidal zone. One rocky RSP area was mapped during the reconnaissance survey, near Bracut, where evidence of shorebird use was observed along the high tide line. This area was confirmed to be used at least on occasion by shorebirds for roosting based on observation made during wetland delineation field work of January 2010. The area consists of rocky RSP material likely placed to stabilize the toe of slope along the railroad bed. The area is on the west side of the railroad bed near the edge of water and is not currently proposed for trail alignment.

Shorebird use of the railroad alignment within the project footprint does not appear to be frequent based on high-tide site visits along the margin of the bay. The identified shorebird roosting locations will not be removed by the proposed trail alignment and is on the west side of the railroad alignment and separated from the proposed trail location. The habitat area will be acknowledged during trail installation.

Endangered Species Habitats

Areas mapped as estuarine intertidal emergent wetlands are considered potential habitat for Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtensis*) and Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) [both CNPS List 1B.2]. CNPS listed plant species

Lyngbye's sedge (*Carex lyngbyei*) [CNPS List 2.2] is also associated with the Estuarine Intertidal Emergent (Saltmarsh) wetland. Of lesser potential to occur at the site is sand spurrey (*Spergularia canadensis* var. *occidentalis*) (associated with prime saltmarsh habitat). Sand spurrey has not been reported along the east shore of Humboldt Bay. A population of Lyngbye's sedge was identified in the CalTrans DEIR along the shores of Gannon Slough.

At the Butcher Slough crossing, **Wetland 11** and **Wetland 13** are classified as Estuarine Intertidal Emergent (salt marsh) and are considered potential habitat for these species. From the WWTP south to Bracut, wetland areas along the west side of the highway (**Wetland 15**) abuts Humboldt Bay and is classified as Estuarine Intertidal Emergent (salt marsh). **Wetland 15** encompasses Saltmarsh vegetation along the margins of Gannon Slough estuary (Water of the U.S.—Tidal). The vegetated salt marsh on the west side of the tracks along the margin of the bay are considered moderate to high value habitat for these listed plant species. The mapped estuarine emergent areas (**Wetland 16**) within the ditch that runs along highway 101 on the east side of the railroad were determined during the wetland delineation to be brackish but not defined as salt marsh habitat, and thus are unlikely to be viable habitat for these listed plant species. During the habitat mapping and wetland delineation, listed plant species were searched for within **Wetlands 11, 13, 15, and 16** and no populations were observed.

On May 28, 2010, Gary Lester (Botanist) of Winzler & Kelly conducted site-specific and seasonally appropriate plant survey for the following listed plant species, Humboldt Bay owl's clover (*Castilleja ambigua* ssp. *humboldtiensis*) and Lyngbye's sedge (*Carex lyngbyei*). The May 28, 2010, seasonally appropriate botanical survey was conducted at Butcher Slough crossing (Figure 4-14), the west side of the railroad track between the Arcata WWTP and Gannon Slough (Figures 4-18 and 4-19), Gannon Slough Crossing (Figure 4-20), Jacoby Creek crossing (Figure 4-21), Old Jacoby Creek tide gate (Figure 4-22), and Brainard's Slough (Figure 4-26). Areas within site access route, within potential trail footprint, and at water crossings within 100 feet of the planned project were evaluated, as well as adjacent brackish ditch areas. An estimated 51,000 plants of Humboldt Bay owl's clover were located at approximately 14 different sites from the Arcata Marsh (Figure 4-14) to Brainard's Slough (Figure 4-26) (see results on Figures 4-18, 4-19, 4-20, 4-21 and 4-22). It was determined that it was too early for seasonal appropriate surveys of Pt. Reyes bird's beak due to the late spring season at the time of the preparation of this report. A later site visit (mid-July) is proposed to determine presence/absence of Pt. Reyes bird's beak and sand spurrey.

The tidal areas of Butcher Slough, Gannon Slough, Jacoby Creek, Old Jacoby Creek tide gate, and Brainard's Slough were mapped as "Waters of the U.S." and are considered potential habitat for several endangered fish species.

Table 2: Potentially Occurring Special-Status Plant Species in the Project Vicinity

Scientific Name	Common Name	Status	Preferred Habitat	Potential to Occur at Site
<i>Abronia umbellata</i> ssp. <i>breviflora</i>	pink sand-verbena	1B.1	Coastal dunes; flowers July-Oct.	Low potential to occur at site.
<i>Carex arcta</i>	northern clustered sedge	2.2	Wet areas in North Coast coniferous forests.	Not present at site during wetland delineation and habitat mapping Dec. 2009-March 2010.
<i>Carex lyngbyei</i>	Lyngbye's sedge	2.2	Brackish or freshwater marshes and swamps; flowers May-Aug.	Present. Several populations mapped during May 2010 botanical survey at Gannon Slough but outside of trail alignment/footprint.
<i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i>	Humboldt Bay owl's clover	1B.2	Coastal salt marsh and swamps; flowers April-Aug.	Present. A total of 14 populations mapped during May 2010 botanical survey.
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	Point Reyes bird's-beak	1B.2	Coastal salt marsh and swamps; flowers June-Oct.	Potentially present in salt marsh to west of highway 101 and in vicinity of Butcher slough.
<i>Erysimum menziesii</i> ssp. <i>eurekaense</i>	Humboldt Bay wall flower	1B.1, E (Fed/State)	Coastal dunes. Found in prime dune-mat habitat on west side of Bay; flowers March-April.	Not present. No dune habitat present, not listed for Arcata south or north quads, although well known and established at Lanphere Dunes which is on the Arcata North quad.
<i>Fissidens pauperculus</i>	minute pocket moss	1B.2		Low potential to occur at site.
<i>Layia carnosa</i>	beach layia	1B.1, E (Fed/State)	Coastal dunes; flowers March-July.	Not present no dune habitat present, not listed for Arcata south or north quads, but listed on adjacent quads and along margin of bay where dune habitat is present.
<i>Lilium occidentale</i>	western lily	1B.1, E (Fed/State)	Coastal bluff scrub and prairies and openings in Northcoast coniferous forests. Also, freshwater marshes and swamps; flowers June-July.	Not present at site, no habitat present at site.
<i>Montia howellii</i>	Howell's montia	2.2	Wet disturbed sites throughout Northcoast coniferous forests, usually located on compacted surfaces with minimal vegetation coverage; flowers March-May.	Not present at site during 2006 surveys, no habitat present at site.
Northern Coastal Salt Marsh	NA	NA	NA	Present. Adjacent to proposed alignment along highway 101 corridor and within Butcher slough and adjacent habitat.
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	1B	Openings in redwood forest, coast scrub and prairie; flowers late May-June.	Potentially present. Roadsides provide potential habitat.

Scientific Name	Common Name	Status	Preferred Habitat	Potential to Occur at Site
<i>Sidalcea oregana ssp. eximia</i>	coast checkerbloom	1B.2	Openings in redwood forest, coast scrub and prairie; flowers late May-June.	Potentially present. Roadsides provide potential habitat.
<i>Spergularia canadensis</i> var. <i>occidentalis</i>	western sand spurry	2.2	Coastal salt marshes and swamps; flowers June-Aug.	Low to Moderate Potential to occur at site due to lack of recent occurrences, and no recent observations along margin of the Bay. Absence cannot be confirmed without seasonally-appropriate surveys.
<i>Viola palustris</i>	marsh violet	2.2	Coastal scrub and coastal bogs and fens; flowers March-August.	Low potential to occur at site. Not present during wetland delineation and habitat mapping Dec. 2009-March 2010. This species has been absent from the project vicinity for years, and due to absence of even moderate quality freshwater marsh, this species is highly unlikely to occur.

Riparian (One-Parameter)

These areas are mapped as Coastal Commission jurisdictional one-parameter wetlands within the Coastal Zone (see descriptions above in Wetland results), and as a habitat type where not in the coastal zone and not accompanied by wetland hydrology or soils (for example Shay Park). The riparian area consists of tree-dominated cover that occurs parallel or adjacent to the tracks and often adjacent to palustrine emergent wetlands. Where the willows are within a mapped wetland they are mapped as three-parameter wetlands (see Wetlands results above). Where the riparian drip line extends beyond the mapped palustrine emergent wetlands, the one-parameter riparian is mapped separately as a habitat when not in the Coastal Zone (upland soils and hydrology but with riparian overstory). Potential habitat for nesting birds, including the California Species of Special Concern (limited state distribution) Black-capped Chickadee. The adjacent riparian habitat nearest Shay Park has a high potential for migratory bird use. Typical vegetation within these areas consists of the following species:

- *Alnus rubra*—red alder
- *Salix lasiolepis*—Pacific willow
- *Crataegus douglasii*—Douglas’s hawthorn
- *Myrica californica*—wax myrtle
- *Rubus ursinus*—California blackberry
- *Ranunculus repens*—creeping buttercup
- *Athyrium filix-femina*—lady fern
- *Rumex crispus*—curly dock

VI. CONCLUSIONS

The wetland delineation of January through March 2010 was performed on property that is proposed for trail alignment. The wetland delineation determined the extent of wetland-type vegetation (based on one-parameter, in areas that are within the Coastal Zone, and the extent of wetlands having wetland-type vegetation, hydric soils, and wetland hydrology (based two-parameter and/or three parameters) in areas not in the Coastal Zone and within City of Arcata primary jurisdiction. The Project study Boundary (PSB) was determined to consist of a total of 16 jurisdictional wetland areas (palustrine emergent, estuarine intertidal emergent saltmarsh, estuarine emergent-ditch), five (5) “Other Waters of the U.S./State (Tidal)”, one (1) “Water of the U.S./State (non-tidal)”, and 10 ditches (potentially jurisdictional). Of the 16 delineated wetlands, 13 are COE jurisdictional three-parameter wetlands, 15 are within the City of Arcata limits and are jurisdictional by the City two-parameter definition, and 8 are within the primary jurisdiction or appeal zone for the Coastal Commission and qualify based on the Commissions one-parameter definition (one-parameter riparian in the Coastal Zone was mapped as separate habitat type to meet Commissions requirements). Of the 10 mapped ditches, a total of nine (9) are City of Arcata jurisdictional, five (5) are Army Corp Jurisdictional, and four (4) are Coastal Commission jurisdictional. Of the six (6) Waters of the U.S./State mapped within the PSB, all six are Army Corp jurisdictional, three are within the City of Arcata boundaries, and five are in the Coastal Zone and within Coastal Commission jurisdiction.

One single upland/wetland line is shown for areas within the Coastal Zone that satisfies both the COE (three-parameter) and Coastal Commission (one-parameter) wetland definitions. Similarly, the delineated wetland boundary lines within City of Arcata jurisdiction and not in the Coastal

Zone, complies with both the COE (three-parameter) and City of Arcata (two-parameter) wetland definitions.

The wetland delineation results are summarized in Table 3 below and mapped on map series 4 (Figures 4-1 through 4-28, Appendix A). The field data sheets from the delineation area are included in Appendix B.

Table 3: Summary of Wetland Results

Type	JURISDICTION		
	City of Arcata (City)	Army Corp (COE)	Coastal Commission (CC)
Ditch	Ditches 1 - 6, 8 - 10 <i>Total: 9</i>	Ditches 1, 2, 4, 5, 10 <i>Total: 5</i>	6, 8, 9, 10 <i>Total: 4</i>
Wetland	Wetlands 1 - 15 <i>Total: 15</i>	Wetlands 1, 4 - 9, 11 - 16 <i>Total: 13</i>	Wetlands 9 - 16 <i>Total: 8</i>
Water	Waters 1 - 3 <i>Total: 3</i>	Waters 1 - 6 <i>Total: 6</i>	Waters 2 - 6 <i>Total: 5</i>

VII. SPECIAL TERMS AND CONDITIONS

To achieve the delineation objectives stated in this report, conclusions of the delineation were based on the information available during the period of the investigation, December 2009 through March 2010 . Land use practices and regulations can change thereby affecting current conditions and delineation results; therefore, this delineation is given a 5-year expiration period. This report was prepared for the exclusive use of the City of Arcata . Winzler & Kelly is not liable for any action arising out of the reliance of any third party on the information contained within this report.

This report does not authorize any individuals to develop, fill or alter the wetlands delineated, or special or sensitive habitat(s) identified. **Verification of the delineation by jurisdictional agencies is necessary prior to the use of this report for planning and development purposes. An agency stamped delineation map and jurisdictional approval letter is required to signify confirmation of delineation results.** The client/property owner is responsible to maintain all delineation flagging placed at the site by Winzler & Kelly, for ease of jurisdictional agency(s) site review. The client may elect to place semi-permanent markers and/or point labels to avoid loss of data points prior to jurisdictional approval(s). In situations where a field investigation determines that no jurisdictional wetlands occur, jurisdictional concurrence with these findings is recommended. It is recommended that a survey be conducted at the site to record exact location of each data point(s).

If filling is used under permitted authority (after agency review and written verification of said activities) care should be given to maintain sufficient quantity of fill to prevent a reestablishment of wetlands.

VIII. REFERENCES

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Appendix B
Field Data Sheets