3.4 AQUATIC RESOURCES

3.4.1 INTRODUCTION

This section describes effects to aquatic resources that could result from implementation of the Proposed Action or one of its alternatives, and is based on information drawn from the following sources:

- Amoruso Ranch Specific Plan (ARSP) EIR by the City of Roseville (City of Roseville 2016a).
- City of Roseville General Plan 2035 (City of Roseville 2016b);
- Amoruso Ranch Biological Resources Assessment prepared by ECORP Consulting, Inc. (ECORP), dated October 30, 2015;
- Amoruso Project Impacts and Mitigation, prepared by ECORP, dated July 20, 2018.

3.4.2 AFFECTED ENVIRONMENT

3.4.2.1 Regional Setting

For the purposes of this section, the project region is defined as the southwestern portion of Placer County. The project site is located in the transition zone between land developed with urban uses to the east and land under intensive agriculture to the west. This transition zone is marked by older alluvial soils with well-developed hardpans and some dense clay pans. Due to the poorly drained soils of this transition zone, the lands are primarily utilized for grazing, whereas the level lands on the valley floor with well-drained soils to the west have been largely converted to agriculture.

Evidence of hardpans and clay flats throughout the eastern Sacramento Valley is demonstrated most effectively at the soils' surface by the presence of seasonally inundated areas—vernal pools and swales. Habitat types typical of the region include annual grasslands, oak woodlands, vernal pool and swale complexes, seasonal seeps and marshes, ponds, riparian forest and scrub, perennial streams, cropland (especially irrigated rice fields), and scattered areas of ruderal vegetation.

3.4.2.2 Location and Setting

Project Site

For the purposes of this section, the project site refers to all areas where disturbance related to the Proposed Action would occur and includes the following:

- **Project Site**: Refers to the approximately 674.4-acre property within the City of Roseville (City) between Sunset Boulevard West to the north and the Creekview Specific Plan area to the south. The approximately 674 acre property is composed of 517 acres which would be developed by the Applicant, 108 acres of grassland that would be preserved and avoided, and 49 acres that would be set aside for the future Placer Parkway.
- **Offsite Improvement Areas**: Refers to the following areas located off-site where project-related infrastructure improvements would be made:
    - **Al Johnson Wildlife Area property**: approximately 1.6 acres in the adjacent City-owned Al Johnson Wildlife Area (AJWA) property (formerly known as the Reason Farms Stormwater

Detention Facilities property), on which drainage improvements to serve the Proposed Action would be constructed; and

- **Sunset Boulevard West ROW**: approximately 12.2-acres of ROW along Sunset Boulevard West, north of the project site where roadway widening would occur as part of the Proposed Action.

The project site consists of flat to gently rolling topography with elevations ranging from approximately 75 feet above mean sea level in the southwestern portion of the site to 125 feet above mean sea level in the northeastern portion of the site. The project site supports non-native annual grassland and, although most of the project site is currently uncultivated, the land has been used as pastureland and for other agricultural uses in the past, and is currently used for cattle grazing. This area is characterized by Mediterranean climate typical of the Great Valley of California. The annual precipitation at the Represa monitoring station (approximately 13 miles to the southeast) is 22.89 inches (with the wettest period during December through March), and average maximum temperatures in the area range from 53.3°F in January to 89.5°F in July (ECORP 2015).

Hydrology within the project site is influenced by two factors: precipitation and stream flow. Most of the precipitation on the project site is captured in upland and wetland swales, which flow into University Creek (a tributary of Pleasant Grove Creek). Direct rainfall and sheet flows result in inundation of wetland features. Several of the seasonal wetland swales convey water to University Creek during and immediately after significant precipitation events. University Creek conveys flows from east to west across the southern portion of the project site, eventually draining into Pleasant Grove Creek approximately 0.75 mile west of the property boundary (ECORP 2015).

Pleasant Grove Creek drains the area between Auburn Ravine to the north and Dry Creek to the south as it flows west through Rocklin, Roseville, and unincorporated lands in western Placer County before entering the Pleasant Grove Creek Canal in Sutter County. Pleasant Grove Creek Canal joins with the Natomas Cross Canal and the Natomas East Canal in the American Basin, both of which discharge into the Sacramento River (ECORP 2015).

The project site is mainly bordered by unincorporated agricultural lands and land planned for development within the City of Roseville. Unincorporated agricultural land and a rural subdivision (Toad Hill Ranches) are located directly to the north of the project site. The Gleason Property, an unincorporated parcel that is actively used for cattle grazing, is located directly to the northwest, while unincorporated land within the formerly proposed Placer Ranch Specific Plan that is currently utilized for grazing is located directly to the east. Within the City of Roseville, the AJWA, which is owned by the City, is located to the southwest, while lands proposed for development under the Creekview Specific Plan (CSP) and West Roseville Specific Plan (WRSP) are located to the south and southeast, respectively.

Placer Parkway Alignment

A section of the planned Placer Parkway project (Parkway) is located on the project site. As set forth in **Section 2.0 Proposed Action and Alternatives**, the Proposed Action contains a narrow 300-foot wide Parkway corridor that follows a 5,500-foot radius alignment. The planned roadway alignment extends

from the northeastern corner of the project site in a westerly direction to exit the site into the AJWA. The 49-acre Parkway alignment is not a part of the Proposed Action and is identified as "Not a Part of this Subdivision" (NAPOTS) in this Draft EIS, although biological resources (i.e., aquatic resources) present within the Parkway alignment are shown on the graphics and described in this section.

Mitigation Properties

There are three proposed locations for off-site wetland mitigation for the Amoruso Ranch project. These are the Mourier East, Mourier West, and Skover properties (collectively "mitigation properties"). Each of the mitigation properties is discussed in more detail below.

Mourier East Property

Mourier East mitigation site is a 240-acre site located approximately 0.5 mile west of the project site. The site is comprised of gently rolling to flat terrain, and has elevations that range from approximately 50 to 75 feet above mean sea level. A review of historic aerial photos (USDA 1937) indicates that portions of the site have been manipulated and/or altered by past land uses and appears to have been disked, but not dryland farmed. However, the site is currently used for cattle grazing (ECORP 2014a).

Mourier West Property

Mourier West mitigation site is a 265-acre site located approximately two miles west of the project site. The site is comprised of leveled to gently rolling terrain and has elevations ranging from approximately 50 feet to 75 feet above mean sea level. The northern portion of the site was contoured and used for rice cultivation, but is now fallow. The contour rice check berms are still present, and have resulted in linear seasonal wetlands. The southern portion of the site has been disked, but has never been dryland farmed. A review of historic aerial photos (USDA 1937) indicates that both the northern and southern portions of the site may have historically supported a number of wetlands (assumed to be vernal pools, seasonal wetlands, and seasonal wetland swales) that have been degraded by past land uses (ECORP 2014a).

Skover Property

Skover mitigation is a 139-acre site located approximately 2.5 miles west of the project site. The site is comprised of leveled terrain and has elevations of approximately 60 to 65 feet above mean sea level. Since the mid-1970s, the vast majority of the site has been leveled and farmed for cultivated rice production. Irrigation water is mechanically pumped into the rice fields and all of the fields are connected by culverts or ditches. The fields typically remain flooded until the late summer/fall and harvested when each field is drained into man-made ditches. Individual fields are separated by small upland checks or larger levees, some of which are used as access roads. A review of historic aerial photos (USDA 1937) indicates that the site historically supported a number of wetlands and wetland complexes (assumed to be vernal pools, seasonal wetlands, and seasonal wetland swales) which may no longer exist, without the application of irrigation on the site (ECORP 2014a).

3.4.2.3 Aquatic Resources and Potential Waters of the United States

The project area, comprising the project site, AJWA improvements area, Sunset Boulevard West ROW, and the Parkway alignment, contains a total of 38.56 acres of aquatic resources, consisting of; vernal pools, seasonal wetlands, seasonal wetland swales, marshes, farmed wetland, ephemeral drainages, an intermittent drainage, seasonal creek/stream, and a stock pond (**Table 3.4-1, Project Impact Area Aquatic Resources**). Information about these aquatic resources is based on a wetland delineation prepared for the project site and adjacent West Sunset Boulevard right-of way by ECORP in 2010 (ECORP 2010) and revised in 2011 (ECORP 2011a), as well as a wetland delineation prepared for the AJWA improvements area by ECORP in 2014 (ECORP 2014b). The wetland delineation for the project site and West Sunset Boulevard right-of way was verified by the U.S. Army Corps of Engineers (Corps) in a letter dated 30 March 2011; while the delineation for the AJWA improvements area was verified on 13 June 2017. Of the total acreage, 4.29 acres of aquatic resources are located within the Parkway alignment and 34.27 acres are located within the Proposed Action area.

Table 3.4-1
Project Impact Area Aquatic Resources (in Acres)

Type	Project Site	AJWA Improvements Area[1]	Sunset Boulevard West ROW	Amoruso Project Total	NAPOTS (Placer Parkway)	Total
Vernal Pool	8.72	--	0.06	8.78	1.04	9.82
Seasonal Wetland	4.21	--	0.06	4.27	0.56	4.83
Seasonal Wetland Swale	16.76	--	0.05	16.81	2.96	19.77
Marsh	1.82	--	--	1.82	--	1.82
Farmed Wetland	--	<0.01	--		--	<0.01
Intermittent Drainage	1.92	--	--	1.92	--	1.92
Ephemeral Drainage	<0.01	--	--		--	<0.01
Seasonal Creek	--	0.04	--	0.04	--	0.04
Stock Pond	0.31		0.05	0.36	--	0.36
Total	**33.74**	**0.04**	**0.22**	**34.00**	**4.56**	**38.56**

Source: ECORP, 2018

The three mitigation properties contain a total of 70.21 acres of aquatic resources, which consist of vernal pools, seasonal wetlands, seasonal wetland swales, drainage swales, drainage ditches, roadside ditches, marshes, an intermittent drainage, and a creek (**Table 3.4-2, Mitigation Properties Aquatic Resources**). Information about aquatic resources on Mourier East is based on a wetland delineation prepared by ECORP in 2005 (ECORP 2008), and verified by the Corps in a letter dated 1 September 2011; and for Mourier West is based on a wetland delineation prepared by ECORP in 2008 (ECORP 2011b), and verified by the Corps in a letter dated 17 February 2012. Information about aquatic resources on the Skover property is based on a wetland delineation prepared by ECORP in 2007 (ECORP 2011c); however, this

delineation is still under review by the Corps and will be verified by the Corps, prior to making a permit decision.

Table 3.4-2
Mitigation Properties Aquatic Resources (in Acres)

Type	Mourier East	Mourier West	Skover	Total
Vernal Pool	3.81	8.58	0.29	12.67
Seasonal Wetland	2.76	17.74	--	20.50
Seasonal Wetland Swale	--	2.89	0.01	2.90
Drainage Swale	2.93	--		2.93
Drainage Ditch	--	0.11	0.05	0.16
Roadside Ditch	--	0.06	0.13	0.19
Marsh	19.68	--	--	19.68
Intermittent Drainage	0.97	--	--	0.97
Creek	--	10.21	--	10.21
Total	**30.15**	**39.59**	**0.48**	**70.21**

Source: ECORP, 2018

Vernal Pools

Vernal pools are seasonally inundated wetlands occurring within topographic depressions in areas that are underlain by an impermeable subsurface layer, such as hardpan, claypan, or bedrock. These topographic depressions can occur as isolated features in the landscape or in association with swales. Vernal pools on the project site are underlain by hardpans or claypans that do not allow water from winter rains to seep into the lower soil column. Instead, the water accumulates or "ponds," in depressions above the hardpan or claypan.

Vernal pools typically flood to a depth of 2 inches to over 1 foot in the winter and spring, and then dry out completely in the summer and fall months. Subsequently, vernal pools support specialized vegetation and wildlife restricted primarily to vernal pools. They typically support a variety of invertebrate populations, including federally listed branchiopods. Plant communities within vernal pools are typically dominated by vernal pool endemics, a majority of which are native annuals. Vernal pool plant species and some of the wildlife species (e.g., vernal pool invertebrates) are adapted to, and depend on, the cyclical inundation of water and complete desiccation of the soil that occurs in vernal pools. Most vernal pool-associated plant and wildlife species life cycles can only be completed by the progression of inundation and desiccation.

Vernal pools are scattered throughout the project site and three off-site mitigation properties. Dominant plants within the vernal pools include creeping spikerush (*Eleocharis macrostachya*), Vasey's coyote-thistle (*Eryngium vaseyi*), slender popcorn flower (*Plagiobothrys stipitatus*), Carter's buttercup (*Ranunculus bonariensis*), smooth goldfields (*Lasthenia glaberrima*), and mannagrass. Other species found within the

vernal pools include annual rabbitsfoot grass (*Polypogon monspeliensis*), Fitch's pikeweed (*Centromadia fitchii*), brook spike primrose (*Epilobium torreyi*), Mediterranean barley (*Hordeum marinum*), green foxtail (*Alopecurus saccatus*), Italian ryegrass (*Festuca perennis*), and downingia (*Downingia cuspidata*) (ECORP 2015).

Seasonal Wetlands

The term seasonal wetland is used within the context of this Draft EIS to describe depressions that fill naturally during the winter and early spring through direct precipitation and are mostly dry the rest of the year. Although their hydrology may be similar to that of vernal pools, they do not support typical vernal pool vegetation diversity and abundance. They support mostly a non-native, "wetland generalist" flora and are not dominated by vernal pool endemics. Seasonal wetlands are scattered throughout the project site and the three off-site mitigation properties. Dominant vegetation within the seasonal wetlands included annual hairgrass (*Deschampsia danthonioides*), Mediterranean barley, Italian ryegrass, slender popcorn flower, white-head navarretia (*Navarretia leucocephalus*), hairy hawkbit (*Leontodon saxatilis*), tidy tips (*Layia fremontii*), Fitch's spikeweed (*Centromadia fitchii*), and hop clover (ECORP 2015k).

Seasonal Wetland Swale/Drainage Swales

Wetland swales are sloping linear vegetated wetlands that do not contain an ordinary high water mark (OHWM) or exhibit the bed-and-bank morphology typical of streams. They are inundated in the winter and early spring during and for up to several weeks following rainfall events. They often have embedded depressions (swale depressional) that pond water to a greater depth than the swale and for durations similar to depressional seasonal wetlands and vernal pools. Swales can connect vernal pools into large complexes. Swales provide important hydrology to the pool and wetland basins and also provide linkages between plant and invertebrate populations for genetic exchange. Swales are essential to the health of vernal pool ecosystems and provide habitat values similar to vernal pools. Seasonal wetland swales are scattered throughout the project site and three off-site mitigation properties. Dominant vegetation within the seasonal wetland swales include creeping spikerush, Italian ryegrass, annual rabbitsfoot grass, spiny-fruited buttercup (*Ranunculus muricatus*), Mediterranean barley, Vasey's coyote-thistle, Bermuda grass, and annual hairgrass (ECORP 2015).

The seasonal wetland swales in the southern portion of the site within and adjacent to the proposed on-site preserve have previously been referred to as "clay flat wetlands." The clay flat description is applicable to the seasonal wetland swale features only and does not describe/pertain to the vernal pool or seasonal wetland features within this area of the project site. The clay flat description is meant to describe the topography, soil, and hydrologic characteristics of these seasonal wetland swales and how they differ from other wetlands delineated on the property. The clay flat seasonal wetland swales are features with minimal topographic change and shallow slopes (e.g., faint depressional features) that have high clay content soils. This results in features that do not pond water but have saturated soils throughout the wet season. These features convey water slowly primarily through sheet flow across a broader plane than traditional seasonal wetland swales. A California Rapid Assessment Method (CRAM) analysis was conducted for the wetlands within the project area (ECORP 2013) and an assessment area (AA 23) was

located within portion of the clay flat seasonal wetland swale area. Consistent with the description provided above, AA 23 was described as being characterized by a short hydrologic regime and an indistinct topographic basin (ECORP 2013).

Overall, the clay flat seasonal wetland swales are very different from vernal pool features delineated within the project area and are generally considered marginal wetland features that are lower quality habitat for aquatic plants and wildlife. AA 23 received a CRAM score of 69.6, while vernal pools adjacent to the clay flat seasonal wetland swales within the on-site preserve received higher CRAM scores of 74.6 (AA 19), 78.63 (AA 21), and 86.96 (AA 22) (ECORP 2013). The clay flat seasonal wetland swale features are largely dominated by non-native, wetland generalist species including Italian ryegrass, waxy mannagrass (*Glyceria declinata*), hairy hawkbit (*Leontodon saxatilis*), and Mediterranean barley. Conversely, the vernal pools on the site support more native species, including creeping spikerush, Vasey's coyote-thistle, slender popcorn flower, Carter's buttercup, and smooth goldfields (*Lasthenia glaberrima*). Additionally, these seasonal wetland swales likely do not pond water long enough to sufficiently support federally listed large branchiopod species.

Farmed Wetlands

Farmed wetlands were mapped within the agricultural fields of the AJWA improvements area where accumulations of surface runoff and rainwater were observed within low-lying portions of the fields. The fields were at one time used for rice production, but have not been in rice since the City purchased the property in 2003. Since then, the fields have been dry farmed with crops such as wheat or Italian ryegrass. Wetland plants found within the farmed wetlands included mannagrass, hyssop loosestrife (*Lythrum hyssopifolia*), Mediterranean barley, and Mediterranean rabbitsfoot grass (*Polypogon maritimus*) (ECORP 2015).

Marsh

Seasonal marshes are typically shallow basins that are inundated or saturated year-around. They often occur in the vicinity of drainages or creeks and receive water during flooding or overtopping events. Emergent vegetation, such as cattails (*Typha spp.*) and bullrush (*Bolboschoenus robustus*), are characteristic of seasonal marshes. The two marshes on the project site are fed by runoff from the onsite irrigated pastures located within the northeastern corner of the site. These features were ponds when the site was actively used for cattle grazing. As a majority of the cattle have been removed from the site, less water is needed for the livestock. Due to the decrease in water held in the ponds, emergent vegetation has established and these features have been mapped as marshes rather than ponds. A marsh is also found in the southern portion of the Mourier East property. Dominant vegetation within the marshes includes sprangletop (*Leptochloa fascicularis*), Bermuda grass, dotted smartweed (*Polygonum punctatum*), barnyard grass, cut-leaved geranium, and clover (*Trifolium species*) (ECORP 2015).

Creek

Pleasant Grove Creek runs from east to west along the southern boundary of the Mourier West property. The limit of the creek was delineated at the OHWM, which was identified based on scour and shifts in

vegetation. The channel of the creek is primarily unvegetated due to scour, but plant species observed along the edges of the creek include valley oak, blunt spikerush (*Eleocharis obtusa*), tall flatsedge, curly dock, Dallis grass, English plantain (*Plantago lanceolata*), iris-leaved rush (*Juncus xiphioides*), and water primrose (*Ludwigia peploides var. peploides*) (ECORP 2015).

Intermittent Drainage/Intermittent Creek

Intermittent drainages are linear features that exhibit an OHWM. These features typically lack vegetation due to scouring during high flow events. For the purposes of the delineations, intermittent drainages/intermittent creeks were identified by the apparent influence of groundwater to a given drainage or by the depiction of a broken blue-line feature on the "Pleasant Grove, California" 7.5-minute quadrangle. University Creek represents the primary intermittent drainage feature on the project site and off-site improvement areas, and an un-named intermittent creek is the primary drainage feature on the Mourier East property. Both of these features are tributary to Pleasant Grove Creek. Hydrophytic vegetation was present along the upper edges of the drainages and in areas where sediment accumulation provides a substrate suitable for plant establishment and growth. The limits of these features were delineated at the OHWM, which was identified in the field by water marks and vegetation breaks. Plants species observed near the OHWM on the upper limits of the drainages included barnyard grass, cut-leaved geranium, and clover (ECORP 2015).

Ephemeral Drainage

Ephemeral drainages are linear features that exhibit an OHWM. These features typically convey runoff for short periods of time immediately following rainfall events, and are not influenced by groundwater. The limits of the ephemeral drainages on the project site were delineated based on visible OHWM indicators. Plants species observed near the OHWM on the upper limits of the drainages included medusahead grass, cut-leaved geranium (*Geranium dissectum*), and Mediterranean barley (ECORP 2015).

Drainage Ditch

Drainage ditches are linear, man-made ditches that convey storm water and/or irrigation water. These ditches exhibit an OHWM and are typically unvegetated due to the scouring effects of flowing water. Plant species that do establish within the channel are typically upland species because water is not present in these features during the dry season. Plant species observed within the drainage ditches on the Mourier West and Skover properties include yellow star-thistle, Medusahead grass, and Italian ryegrass. The limits of the drainage ditches were delineated at the OHWM, which was identified based on evidence of scour (ECORP 2015).

Roadside Ditch

Within the Skover property, a man-made roadside ditch was mapped along the dirt road that runs parallel to the southern property boundary. The limits of the roadside ditch were delineated at the OHWM, which was identified by scour and drift deposits. Vegetation within the roadside ditch included Bermuda grass, curly dock, and panicled willow-herb (ECORP 2015).

Stock Pond

Stock ponds are man-made features that are typically created by the ponding of water behind an earthen dam. The banks may be vegetated or barren, depending on the intensity of livestock grazing, and emergent vegetation may present or absent, depending on the duration of inundation. There is a stock pond located in the northwestern corner of the project site, in the irrigated pasture along Sunset Boulevard West.

3.4.2.4 Quality of Project Site and Mitigation Site Aquatic Resources

In 2012-13, a comprehensive California Rapid Assessment Method (CRAM) evaluation of the depressional wetlands on the project site and the three mitigation sites was prepared. The purpose of the CRAM evaluation was to present baseline information on the current conditions of the wetlands within the four properties, and to compare the relative values of the wetlands across the Amoruso Ranch property and between proposed off-site mitigation properties.

On the project site, 28 assessment areas (AAs) were evaluated based on buffer and landscape, hydrology, physical structure and biotic structure. An AA is a wetland system, or portion of a wetland system. The overall scores of the AAs ranged from 47.8 to 87. The evaluation concluded that on average, the CRAM scores of the wetlands that would be preserved on site in the southern portion of the site were higher than the CRAM scores of the wetlands that would be filled or avoided in the central and northern portions of the site.

The same CRAM analyses used for the Amoruso Ranch site were conducted for all three of the mitigation sites. At the Mourier East property, the wetlands were divided into 12 AAs for which the CRAM analysis was performed. The overall scores of the AAs at this site ranged from 54.4 to 76.6. The wetlands at the Mourier West property were divided into 15 AAs within which the CRAM analysis was performed. The overall scores of the AAs at this site ranged from 53.3 to 80.7. There were a total of seven AAs established at the Skover property within which the CRAM analysis was performed. All of the AAs were active rice fields and were assessed as seasonal depressional wetlands. The overall scores of the AAs at this site ranged from 36.7 to 44.1.

The evaluation showed that the overall CRAM scores of the AAs within Mourier East and Mourier West properties were within three points of the AAs proposed for impact within the Amoruso Ranch site. The three-point difference is well within the accepted 10-point range of standard error of CRAM scores. As such, the CRAM assessments indicate that the existing wetlands within the Mourier East and Mourier West Properties are comparable in habitat function to the wetlands that would be affected on the Amoruso Ranch project site. The Skover property had significantly lower CRAM scores than the other three properties (ECORP 2013).

3.4.3 SIGNIFICANCE THRESHOLDS AND ANALYSIS METHODOLOGY

3.4.3.1 Significance Thresholds

Council on Environmental Quality (CEQ) regulations requires an evaluation of a proposed action's ecological effects such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems (40 CFR 1508.8). NEPA does not specify significance thresholds to evaluate the effects of a proposed action on aquatic resources.

For purposes of evaluating the effects in this Draft EIS, the Corps has determined that the Proposed Action, or an alternative, would result in significant effects on aquatic resources if it would:

- Have a substantial adverse effect on potential waters of the U.S., including wetlands

3.4.3.2 Analysis Methodology

The analysis in this Draft EIS examines both the direct and indirect effects of the Proposed Action or an alternative on aquatic resources. The types of direct and indirect effects, and the approach to their evaluation, are set forth below.

Direct Effects

With respect to direct effects, the analysis assumes full buildout of the Proposed Action or an alternative would result in loss of all habitats within those portions of the site that are designated for development. In addition, the analysis covers off-site areas that would be directly affected by the construction of fill slopes. Proposed activities that would result in direct effects include:

- Vegetation clearing (including trees), grading, excavating/trenching, and paving activities during construction;
- Temporary stockpiling and side-casting of soil, construction materials, or other construction wastes;
- Soil compaction, dust, and water runoff from the construction site;
- Short-term construction-related noise (from equipment); and
- Degradation of water quality in on-site drainages and wetlands, resulting from construction runoff containing sediment, petroleum products, or other pollutants.

Figure 3.4-1, Proposed Action – Aquatic Resources Impacts (shown later in this section) presents the direct effects of the Proposed Action on potential waters of the U.S. (WOUS), including wetlands, on the project site and was developed by superimposing the Proposed Action's disturbance footprint onto the aquatic resources delineation map. To calculate direct effects on aquatic resources, the limits of ground disturbance, including slopes and construction zones, were first determined and mapped. Where the disturbance would occur within linear features, including perennial streams, intermittent streams, ephemeral streams, and wetland swales as well as ponds and emergent marsh, the direct effect was presumed to be the footprint of disturbance within the wetland polygon.

The Proposed Action would avoid direct impacts to aquatic resources located within approximately 108 acres of open space, comprised of 98 acres of preserve open space and 10 acres of general open space. No grading or land disturbance would occur within these open space areas; thus, no direct effects would occur. However, adjacent authorized activities (i.e. grading and filling) are likely to indirectly affect avoided aquatic resources, as discussed below.

Indirect Effects

With respect to indirect effects, the analysis covers the proposed 98-acre open space preserve located along the southern boundary of the project site, which includes the University Creek corridor, and the proposed 10-acre general open space area located adjacent to the planned Parkway alignment in the northwestern portion of the project site. Proposed activities that could result in indirect effects include:

- Altering light and noise levels;
- Altering hydrology;
- Causing damage through toxicity associated with herbicides, insecticides, and rodenticides;
- Degradation of water quality in off-site drainages and wetlands, resulting from construction runoff containing sediment, petroleum products or other pollutants;
- Introducing pet and human disturbance (including trash dumping);
- Increasing habitat for native competitors or predators; and
- Introducing invasive non-native species.

3.4.4 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

Impact AR-1 Loss or Degradation of Aquatic Resources Functions and Services through Direct Removal, Filling, Hydrological Interruption or Other Means

No Action Alt. *Direct and Indirect Effects from Construction Activities*

A total of 34.27 acres of aquatic resources have been identified within the project boundary, including the adjacent West Sunset Boulevard right-of-way and offsite AJWA improvements area. Approximately 4.29 acres of aquatic resources are present within the planned Parkway alignment which is NAPOTS.

Under the No Action alternative, although the project site would be developed, all aquatic resources would be avoided and no fill would be placed within potential WOUS. Furthermore, the site plan developed for the No Action alternative ensures that no grading or other ground disturbance would occur within 50 feet of avoided aquatic resources; thereby, reducing the likelihood of any indirect effects during the construction of new development under this alternative. Thus, **no direct** effects or short-term/construction-phase **indirect** effects to aquatic resources under the No Action alternative were identified.

Long-Term Indirect Effects

Since avoided aquatic resources would not be fenced, or otherwise protected, under the No Action alternative, there is a potential for indirect effects to occur in the long-term (e.g. illegal dumping of waste or trash, unauthorized discharges of dredged and/or fill material, inadvertent intrusions, and damming or diversions of water flows). In addition, impervious surfaces added to the site under this alternative could potentially alter the hydrology of adjacent aquatic resources. However, because the development footprint includes a 50-foot buffer from avoided aquatic resources and proposes to construct a low level of development on the project site under this alternative, **no indirect** effects on aquatic resources were identified under the No Action alternative.

As no aquatic resources would be filled under this alternative, no mitigation for the loss of aquatic resources would be required, and the Applicant's draft permittee-responsible compensatory wetlands mitigation plan (PRMP) would not be implemented on the project and the mitigation sites.

Proposed Action

Direct and Indirect Effects from Construction Activities

Loss of aquatic resources would occur as a result of grading in preparation for development, construction of roads and utility corridors, and other ground-disturbing activities. Of the approximately 34 acres of the potential WOUS within the project boundary, including the Sunset Boulevard ROW and AJWA improvements area; approximately 18.70 acres of potential WOUS would be filled under the Proposed Action, resulting in the loss of aquatic resources functions and services. Of the 18.70 acres of potential WOUS to be filled, approximately 18.22 acres would be wetlands. **Figure 3.4-1** shows the locations and types of affected aquatic resources. As shown in **Table 3.4-3**, **Proposed Action Impacts to Aquatic Resources,** impacts to wetlands include 1.82 acre of perennial marsh, 3.01 acres of vernal pools, 2.91 acres of seasonal wetlands, and 10.48 acres of wetland swales. Impacts to non-wetland waters are comprised of 0.08 acres of intermittent drainage, 0.04 acres of seasonal creek, 0.36 acre of stock pond ,and <0.01 acres of farmed wetland.

In addition to directly filling aquatic resources under the Proposed Action, indirect effects on aquatic resources would occur as a result of ground disturbing activities adjacent to avoided aquatic resources; specifically, adjacent activities have the potential to adversely affect water quality and hydrology which could result in the impairment and/or degradation of the functions and services of avoided aquatic resources, especially existing vernal pool invertebrate habitat.

Indirect impacts on avoided aquatic resources are highly likely to occur within the North Avoidance Area located on both sides of the planned Parkway alignment. This area is adjacent to the parkway alignment and is likely to experience indirect effects from roadway development in the future. In addition, it is anticipated that the aquatic

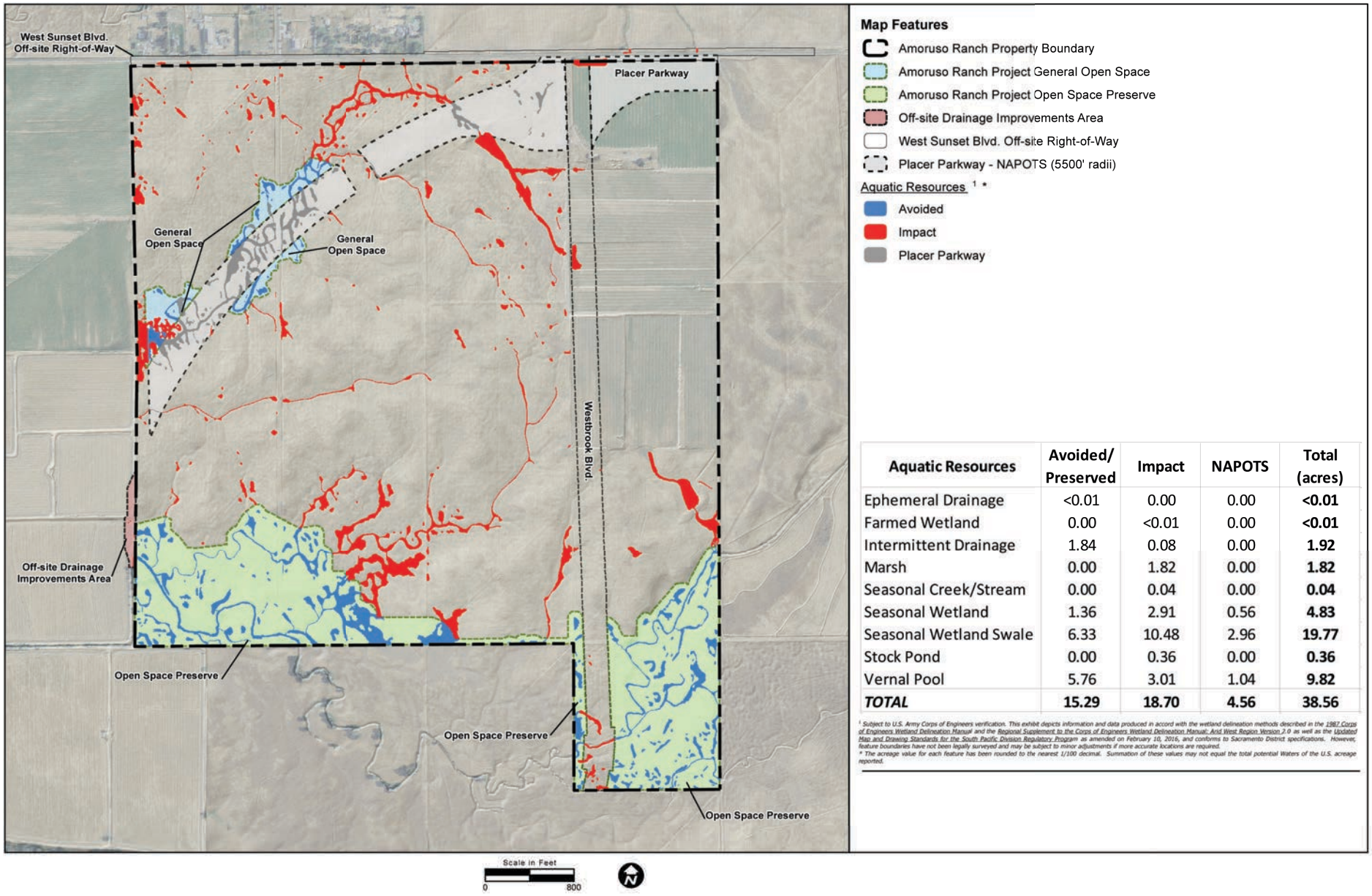
resources within the North Avoidance Area would be affected by changes in hydrology, water quality, and habitat functions and services as a result of construction activities caused by the Proposed Action. Approximately 19.86 acres of avoided and/or preserved aquatic resources, within the project site would be indirectly affected in this manner.

Table 3.4-3
Proposed Action Impacts to Aquatic Resources (in Acres)

Aquatic Resource Type	Preserved WOUS	Avoided WOUS	Proposed Action Affected WOUS	NAPOTS WOUS	Total[1]
Vernal Pool and Seasonal Wetlands					
Vernal Pool	5.57	0.19	3.01	1.04	9.82
Seasonal Wetland	1.16	0.20	2.91	0.56	4.83
Seasonal Wetland Swale	5.02	1.31	10.48	2.96	19.77
Other Waters					
Farmed Wetland	--	--	<0.01	--	<0.01
Marsh	--		1.82	--	1.82
Ephemeral Drainage	<0.01	--	--	--	<0.01
Intermittent Drainage	1.84	--	0.08	--	1.92
Seasonal Creek	--	--	0.04	--	0.04
Stock Pond	--	--	0.36	--	0.36
Total	**13.59**	**1.71**	**18.70**	**4.56**	**38.56**

Source: ECORP 2018
1 The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.
2. Includes Waters of the U.S. within the West Sunset Boulevard right-of-way and the offsite Al Johnson Wildlife Area improvements area.
3. The table reports WOUS within the NAPOTS (Placer Parkway alignment) for completeness. These waters would not be affected by the Proposed Action.

Although the existing aquatic resources, including vernal pools and seasonal wetlands, have been previously disturbed by disking, grazing, and/or cultivation, their rarity and value of functions and services to plants and wildlife, including their hydrologic function and association with many special-status species, makes the discharge of dredged and/or fill material into them a permanent loss of aquatic resource functions and services, which would be a **significant direct** effect. To address this effect, the Applicant is proposing to compensate for the loss of wetlands and other potential WOUS by preserving aquatic resources on the project site and restoring/re-establishing aquatic resources off-site. The Applicant's draft PRMP is presented in **Appendix 3.4**. As stated in the PRMP, the Amoruso Ranch project is identified as a Participating Special Entity in the draft PCCP, and is a Covered Activity within Placer County's land use authority. The proposed mitigation sites are within the reserve area identified in the



Aquatic Resources	Avoided/ Preserved	Impact	NAPOTS	Total (acres)
Ephemeral Drainage	<0.01	0.00	0.00	**<0.01**
Farmed Wetland	0.00	<0.01	0.00	**<0.01**
Intermittent Drainage	1.84	0.08	0.00	**1.92**
Marsh	0.00	1.82	0.00	**1.82**
Seasonal Creek/Stream	0.00	0.04	0.00	**0.04**
Seasonal Wetland	1.36	2.91	0.56	**4.83**
Seasonal Wetland Swale	6.33	10.48	2.96	**19.77**
Stock Pond	0.00	0.36	0.00	**0.36**
Vernal Pool	5.76	3.01	1.04	**9.82**
TOTAL	**15.29**	**18.70**	**4.56**	**38.56**

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

* The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

SOURCE: ECORP Consulting, Inc., 2018

FIGURE **3.4-1**

IMPACT SCIENCES

Proposed Action - Aquatic Resource Impacts

PCCP and are central to the PCCP's conservation strategy. PCCP guidance and approach has been used by the Applicant in preparing the PRMP.

Table 3.4-4, Summary of Proposed Mitigation, presents acres of aquatic resources that would be affected under the Proposed Action and acres of aquatic resources that would be preserved, restored, and/or re-established under the Applicant's draft PRMP. According to the draft PRMP, the Applicant proposes to preserve approximately 38.89 acres of existing aquatic resources, both on and off site, and restore up to 18.6 acres of aquatic resources within the three off-site mitigation properties. Components of the draft PRMP are described below.

On-Site Preservation

As part of the Proposed Action, the Applicant proposes to dedicate approximately 98 acres of open space for the establishment of two preserves in the southern portion of the project site. As shown in **Table 3.4-3**, approximately 13.59 acres of aquatic resources, comprised of 5.57 acres of vernal pools, 1.16 acres of seasonal wetlands, 5.02 acres of wetland swale, and 1.84 acres of intermittent drainage, would be avoided and permanently protected using deed restrictions and/or a conservation easement. To minimize indirect effects on the preserved wetlands, both preserves are designed with a minimum 30-foot "transition zone" buffer between the preserve boundary and development parcels. Because all preserve area wetlands (including vernal pools and seasonal wetlands) are set back from the preserve boundary by at least 50 feet, when combined with the 30-foot minimum transition zone buffer parcel, a minimum 80 foot setback between wetlands and land development is maintained. This exceeds the City of Roseville OSPOMP 50-foot minimum preserve buffer requirement. The preserve and associated wetlands would be managed and maintained by the City of Roseville in accordance with the City's OSPOMP.

Off-Site Preservation and Restoration

According to the draft PRMP, the Applicant proposes to preserve and restore aquatic resources on three nearby mitigation sites. The three off-site mitigation properties were evaluated for their potential to provide both preservation and restoration mitigation. The three sites together contain about 70.1 acres of aquatic resources that could be preserved. In addition, historic aerial photographs (USDA 1937) were reviewed by wetland biologists to determine the locations of historic wetlands on the mitigation properties that have been filled or degraded to such a level that they no longer function as wetlands. Based on the analysis of the historical aerials, the majority of the degraded historic wetlands appeared to be vernal pools, seasonal wetlands, and seasonal wetlands swales. The extents of these degraded historic wetlands were then digitized using ArcGIS and used to develop a conceptual wetland restoration plan for the mitigation properties. According to the PRMP, up to 28.06 acres of compensatory waters

would be created by restoration on the three mitigation properties.

It is noted that there could be temporary impacts to aquatic resources on the mitigation sites during the wetland restoration activities. However, any such short term effects would be offset by the preservation and restoration of the aquatic resources on the mitigation sites.

Table 3.4-4
Proposed Action Impacts and Mitigation Area Summary (in Acres)

Aquatic Resource Type	Direct Impact	Indirect Impact	Preservation Ratio)	Restoration Ratio	Preservation Acreage	Restoration Acreage
Vernal Pool and Seasonal Wetlands						
Vernal Pool	3.01	0.19	1.36:1	1.5:1	4.35	4.52
Seasonal Wetland	2.91	0.20	1.36:1	1.5:1	4.23	4.36
Seasonal Wetland Swale	10.48	1.31	1.36:1	1.5:1	16.03	15.72
Other Waters						
Farmed Wetland	<0.01	--	--	1.5:1	--	0.01
Marsh	1.82	--	--	1.5:1	--	2.73
Ephemeral Drainage	--	--	--	1.5:1	--	--
Intermittent Drainage	0.08	--	--	1.5:1	--	0.13
Seasonal Creek	0.04	--	--	1.5:1	--	0.06
Stock Pond	0.36	--	--	1.5:1	--	0.55
Total	**18.70**	**1.71**			**24.61**	**28.06**

Source: ECORP 2018; Impact Sciences, 2018
1 The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

The off-site mitigation properties may provide more environmentally preferable compensatory mitigation than a Corps approved In Lieu Fee (ILF) Program for the following reasons: close proximity to the impact site (within three miles); identical watershed Hydrologic Unit Code; comparable soils characteristics; wetland restoration potential; similar habitat function; presence of vernal pool fairy shrimp; and landscape connectivity and proximity to other regional conservation areas.

The Applicant's draft PRMP is a proposal at this time and subject to change. Since a final compensatory wetland mitigation plan has not been approved by the Corps and the specific type and amount of aquatic resources to be constructed is unknown, there is uncertainty as to whether the Applicant's draft PRMP would be adequate to fully compensate for the Proposed Action's unavoidable impact to aquatic resources and whether the mitigation wetlands would be fully functioning before impacts to existing wetlands would occur. As a result, **Mitigation Measure AR-1a** would be imposed to ensure no net loss of aquatic resource functions and services as a result of project

implementation.

In addition, if the PCCP is adopted and approved before project impacts to aquatic resources occurs, the Applicant may choose to participate in the PCCP and Corps approved Placer County ILF Program to mitigate for impacts on aquatic resources and federally-listed threatened and/or endangered species. Mitigation under the PCCP and/or ILF Program may include payment of fees, purchase of mitigation bank or ILF credits, acquisition of conservation easement(s), and/or acquisition of mitigation land(s) in fee title to mitigate for project effects. The Corps will consider this information at the time that the Record of Decision is prepared and/or prior to making a DA permit decision.

Long Term Indirect Effects

As noted above, the Proposed Action includes the Northern Avoidance Area and two Open Space Preserves in the southern portion of the project site. The Northern Avoidance Area is located adjacent to the Placer Parkway alignment in the northeastern portion of the project site and is not designated a preserve. Although the 1.71 acres of WOUS present within this avoidance area would not be filled by the proposed development, the WOUS would experience indirect effects because of changes in the hydrology of these WOUS that receive runoff from irrigated pasture located in the northeastern portion of the project site, a source that would be removed once that area is developed. Furthermore, the WOUS within the avoidance area would not be buffered from proposed development adjacent to the avoidance area and would therefore experience edge effects. Lastly, the WOUS in this area would also experience indirect effects during and following the construction of Placer Parkway.

With respect to the two southern preserves, those areas contain 13.59 acres of avoided aquatic resources that would be preserved on-site as part of the Proposed Action. Although the open space preserve areas are proposed to be protected and access into the preserve areas is likely to be controlled by fencing or some other approved barrier, it is reasonable to assume that indirect effects to preserved aquatic resources in the long term could occur from adjacent residential and commercial development stressors, as well as stressors from vehicle and pedestrian transit along Westbrook Boulevard, Placer Parkway, Road G, and proposed arterial streets and recreational trails, despite any physical barriers. Stressors, including barriers to wildlife movement, road kills, domestic and feral animal predation, could have a long-term adverse effect on aquatic organisms and their habitat. However, these indirect effects would be minimized by the fact that no grading would be allowed to occur within the preserve and that the area would be protected by deed restriction or conservation easements prior to commencement of construction activities. The open space preserves under the Proposed Action also include a 30-foot "transition zone" buffer between the areas to be developed and the outer limits of the preserve. Furthermore, all preserve area wetland basins

(including vernal pools and seasonal wetlands) are set back from the preserve boundary by at least 50 feet. Therefore, when combined with the 30-foot transition zone buffer parcel, a minimum 80-foot setback is maintained between wetland basins and land development. Incorporation of these buffers would minimize indirect effects to preserved aquatic resources. Additionally, and as discussed above, long term management and maintenance of the preserved wetlands would be by the City of Roseville in accordance with the City's OSPOMP, approved by resource agencies, including the Corps. Thus, following dedication to the City, if illegal or unauthorized activities were to occur within the preserve, the City would be responsible for compliance with the OSPOMP. The applicant would be responsible, through a Development Agreement with the City. In addition, open space preservation under the Proposed Action is intended to complement regional conservation strategies such as the proposed PCCP, NCCP, and MOU between the City and USFWS. For all of these reasons, during the long term, **no indirect** effects on preserved aquatic resources under the Proposed Action were identified. To further reduce potential long term indirect effects on preserved aquatic resources, **Mitigation Measure AR-1b** would be imposed.

Alt. 1 (Southern Avoidance)

Direct and Indirect Effects from Construction Activities

Alternative 1 (Southern Avoidance) is generally similar to the Proposed Action in terms of its development footprint and the location of the planned Parkway alignment (5,500-foot radii) through the project site. However, it differs from the Proposed Action in two key respects: it does not include a North Avoidance Area in the vicinity of the Parkway alignment; and, it expands (to the north) both the Southwest and Southeast Preserves. As a result, additional clay flat vernal pool swale complex would be avoided and not filled under this alternative. Therefore, compared to the Proposed Action, direct and indirect effects on aquatic resources would be reduced; although, when compared to the No Action alternative, effects to aquatic resources would be greater.

As shown in **Table 3.4-5, Alternative 1 Impacts to Aquatic Resources**, this alternative would involve filling approximately 15.20 acres of aquatic resources within the project boundary, including off-site areas. **Figure 3.4-2, Alternative 1 – Aquatic Resources Impacts**, shows the affected potential WOUS. Although the existing aquatic resources have been historically disturbed, the discharge of dredged and/or fill material into them and permanent loss of aquatic resource functions and services would be a **significant direct** effect.

Additionally, indirect effects on aquatic resources are likely to occur as a result of adjacent ground disturbing activities; specifically, activities and/or structures that adversely affect water quality or alter the hydrology of the micro-watershed. This could result in impairment and/or degradation of the functions and services of avoided and/or preserved aquatic resources, especially existing vernal pool invertebrate habitat. Approximately 23.35 acres of preserved and/or avoided WOUS within the project site

could be indirectly affected in this manner under this alternative.

As with the Proposed Action, the Applicant would put forth a draft PRMP which may be used to compensate for unavoidable impacts on aquatic resources under this alternative; however, the proposal is not final and may not fully compensate for both direct and indirect impacts under this alternative. **Mitigation Measure AR-1a** would be implemented, which requires compensatory mitigation for unavoidable impacts to aquatic resources, and ensures authorized activities result in no net loss of aquatic resource functions and services.

As with the Proposed Action, there could be temporary impacts to aquatic resources on the mitigation sites during the wetland restoration activities. However, any such short term effects would be offset by the preservation and restoration of aquatic resources on the mitigation sites.

Table 3.4-5
Alternative 1 Impacts to Aquatic Resources (in Acres)

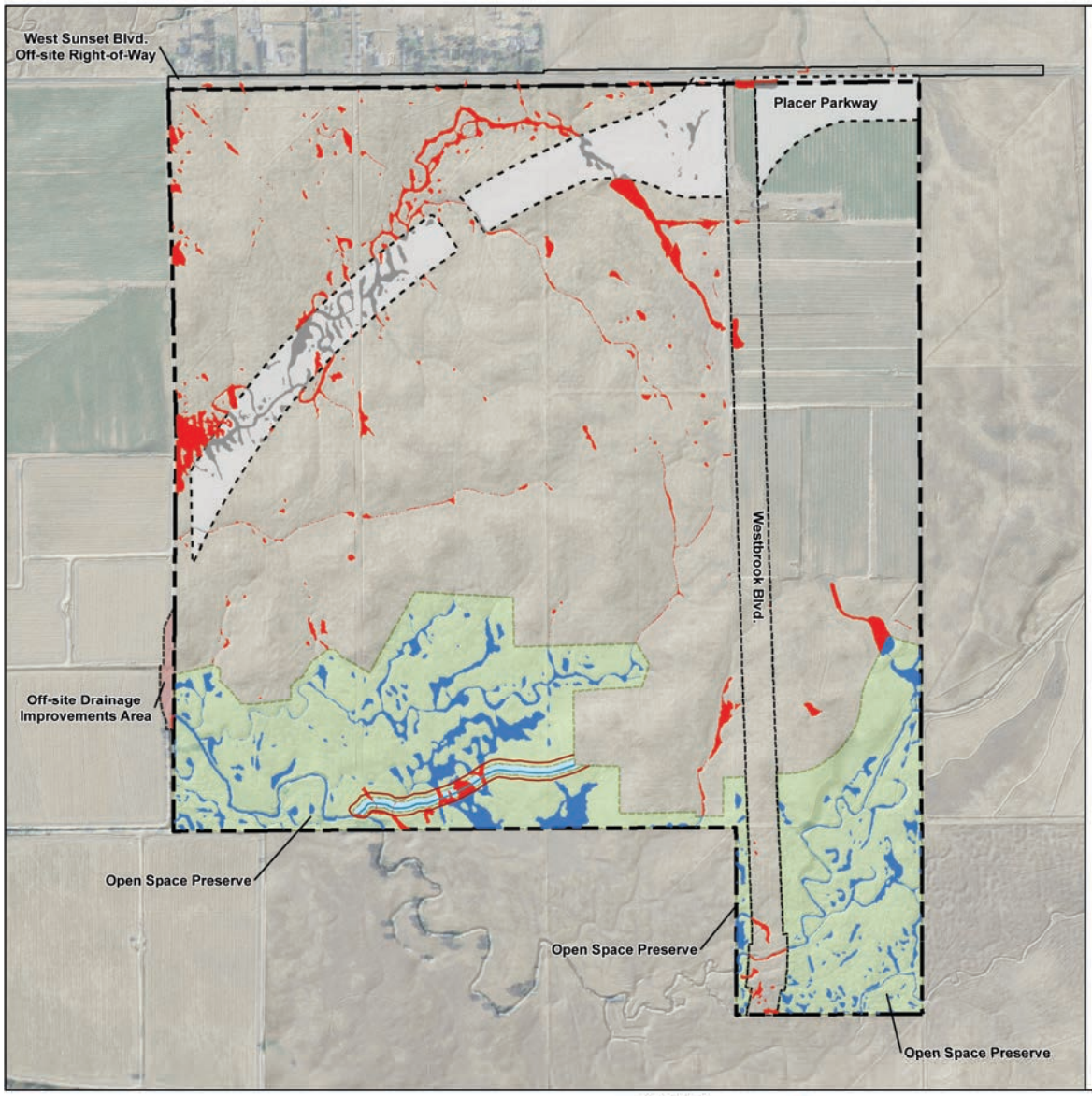
Aquatic Resource Type	Preserved WOUS	Avoided WOUS	Alternative 1 Affected WOUS	NAPOTS WOUS	Total[1]
Vernal Pool and Seasonal Wetlands					
Vernal Pool	5.58	--	3.54	0.69	9.81
Seasonal Wetland	1.43	--	2.97	0.43	4.83
Seasonal Wetland Swale	10.05	--	6.76	2.96	19.77
Other Waters					
Farmed Wetland	--	--	<0.01	--	<0.01
Marsh	0.21	--	1.55	0.06	1.82
Ephemeral Drainage	<0.01	--	--	--	<0.01
Intermittent Drainage	1.80	--	0.12	--	1.92
Seasonal Creek	--	--	0.04	--	0.04
Stock Pond	--	--	0.23	0.13	0.36
Total	**19.08**	**--**	**15.20**	**4.27**	**38.55**

Source: ECORP 2018

1. The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

2. Includes Waters of the U.S. within the West Sunset Boulevard right-of-way and the offsite Al Johnson Wildlife Area improvements area.

3. The table reports WOUS within the NAPOTS (Placer Parkway alignment) for completeness. These waters would not be affected by the alternative.



Map Features

- Amoruso Ranch Property Boundary
- Amoruso Ranch Project Open Space Preserve (142 acres)
- Amoruso Ranch Project General Open Space (2.4 acres)
- Off-site Drainage Improvements Area
- West Sunset Blvd. Off-site Right-of-Way
- Placer Parkway - NAPOTS (5500' radii)
- Construction Limit
- Low Flow Channel

Aquatic Resources [1] *

- Avoided
- Impact
- Placer Parkway

Aquatic Resources	Avoided/ Preserved	Impact	NAPOTS	Total (acres)
Ephemeral Drainage	<0.01	0.00	0.00	**<0.01**
Farmed Wetland	0.00	<0.01	0.00	**<0.01**
Intermittent Drainage	1.80	0.12	0.00	**1.92**
Marsh	0.21	1.55	0.06	**1.82**
Seasonal Creek/Stream	0.00	0.04	0.00	**0.04**
Seasonal Wetland	1.43	2.97	0.43	**4.83**
Seasonal Wetland Swale	10.05	6.76	2.96	**19.77**
Stock Pond	0.00	0.23	0.13	**0.36**
Vernal Pool	5.58	3.54	0.69	**9.81**
TOTAL	**19.08**	**15.20**	**4.27**	**38.55**

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.
* The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

SOURCE: ECORP Consulting, Inc., 2018

FIGURE **3.4-2**

IMPACT SCIENCES

Alternative 1 - Aquatic Resource Impacts

Long Term Indirect Effects

Compared to the Proposed Action, Alternative 1 would expand the two southern preserves to approximately 142 acres and eliminate the northern general open space area adjacent to the Parkway alignment. As a result, 19.08 acres of aquatic resources would be preserved on-site under Alternative 1.

Similar to the Proposed Action, preserved aquatic resources would likely experience edge effects or stressors from surrounding development, as well as stressors from vehicle and pedestrian transit along Westbrook Boulevard, Placer Parkway, Road G, and proposed arterial streets and recreational trails, despite any physical barriers. However, these indirect effects would be minimized by the fact that the area would be put under a conservation easement or deed restriction prior to commencement of construction activities The open space preserves under Alternative 1 would continue to include a 30-foot "transition zone" buffer between the areas to be developed and the outer limits of the preserve. Furthermore, all preserve area wetland basins (including vernal pools and seasonal wetlands) would continue to be set back from the preserve boundary by at least 50 feet. Therefore, when combined with the 30-foot transition zone buffer parcel, a minimum 80-foot setback is maintained between wetland basins and land development. Additionally, the preserved wetlands would be managed and maintained by the City of Roseville in accordance with the City's OSPOMP. However, this alternative would require the construction of a storm drainage channel through the southwestern preserve, which would have the potential to result in additional long term indirect effects associated with the maintenance of the channel. Furthermore, the southwestern preserve under this alternative would have an irregular boundary that would have the potential for greater edge effects. Therefore, this alternative would result in somewhat greater long-term indirect effects than the Proposed Action. However, for the reasons set forth above and with the buffers in place, over the long term, **no indirect** effects on preserved aquatic resources under Alternative 1 were identified. To further reduce potential long term indirect effects on aquatic resources, **Mitigation Measure AR-1b** would be imposed.

Alt. 2 (Northern Avoidance)

Direct and Indirect Effects from Construction Activities

Alternative 2 (Northern Avoidance) differs from the Proposed Action, in terms of the location of the Parkway alignment, as it shifts the alignment approximately 640 feet to the southeast, resulting in a 7,300-foot radii. With this change, the northern general open space area is no longer bisected by the Parkway alignment and is substantially larger than under the Proposed Action. In addition, this alternative shifts the entire proposed development south, resulting in a substantial reduction in the size of the two southern preserves. Compared to the Proposed Action, substantially less aquatic resources are preserved under this alternative, and more aquatic resources are affected, including indirect effects due to the headwaters being cut off by Placer Parkway where it enters the site.

As shown in **Table 3.4-6, Alternative 2 Impacts to Aquatic Resources**, this alternative would involve filling approximately 22.66 acres of aquatic resources within the project boundary, including off-site areas. **Figure 3.4-3, Alternative 2 – Aquatic Resources Impacts**, shows the affected potential WOUS. Although the existing aquatic resources have been historically disturbed, the discharge of dredged and/or fill material into them and permanent loss of aquatic resource functions and services would be a **significant direct** effect.

Additionally, indirect effects on aquatic resources are likely to occur as a result of adjacent ground disturbing activities; specifically, activities and/or structures that adversely affect water quality or alter the hydrology of the micro-watershed. This could result in impairment and/or degradation of the functions and services of preserved aquatic resources, especially existing vernal pool invertebrate habitat. Approximately 16.16 acres of preserved and/or avoided WOUS, would be indirectly affected in this manner under this alternative.

Table 3.4-6
Alternative 2 Impacts to Aquatic Resources (in Acres)

Aquatic Resource Type	Preserved WOUS	Avoided WOUS	Alternative 2 Affected WOUS	NAPOTS WOUS	Total[1]
Vernal Pool and Seasonal Wetlands					
Vernal Pool	3.78	1.03	4.71	0.33	9.85
Seasonal Wetland	0.74	1.32	2.24	0.52	4.83
Seasonal Wetland Swale	1.23	3.96	13.69	0.88	19.76
Other Waters					
Farmed Wetland	--	--	<0.01	--	<0.01
Marsh	--	--	1.07	0.76	1.82
Ephemeral Drainage	<0.01	--	--	--	<0.01
Intermittent Drainage	1.31	--	0.57	0.04	1.92
Seasonal Creek	--	--	0.04	--	0.04
Stock Pond	--	--	0.12	0.25	0.36
Total	**7.07**	**6.31**	**22.44**	**2.78**	**38.58**

Source: ECORP 2018

1. The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

2. Includes Waters of the U.S. within the West Sunset Boulevard right-of-way and the offsite Al Johnson Wildlife Area improvements area.

3. The table reports WOUS within the NAPOTS (Placer Parkway alignment) for completeness. These waters would not be affected by the alternative.

4. This alternative requires an additional off-site area to the south of the project site to construct a section of a roadway. That results in additional impacts on aquatic resources under this alternative, outside of the project study area.

As with the Proposed Action, the Applicant has put forth a draft PRMP which may be used to compensate for unavoidable impacts on aquatic resources under this

alternative; however, the proposal is not final and may not fully compensate for both direct and indirect impacts under this alternative. **Mitigation Measure AR-1a** would be implemented, which requires compensatory mitigation for unavoidable impacts to aquatic resources, and ensures authorized activities result in no net loss of aquatic resource functions and services.

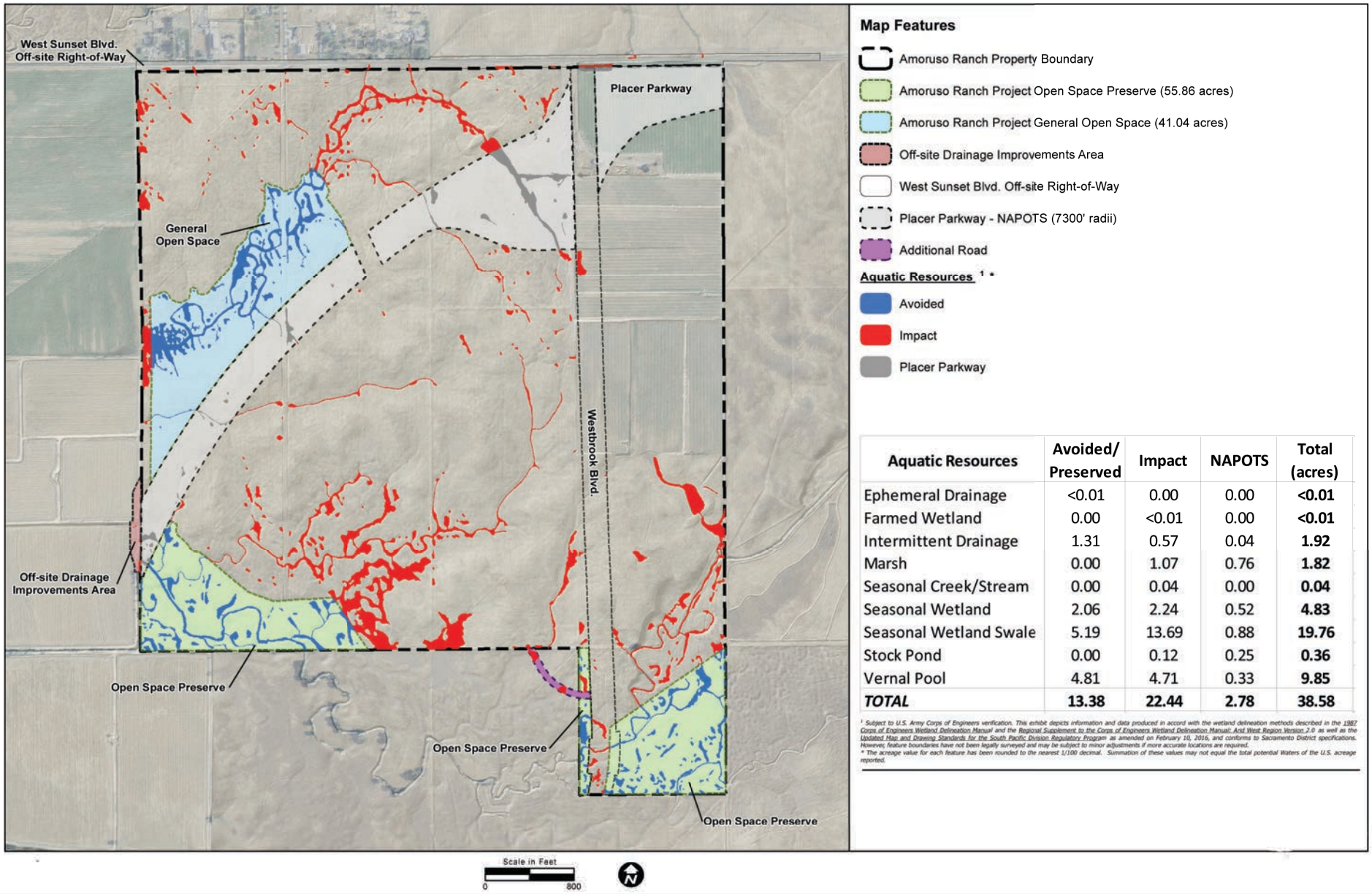
As with the Proposed Action, there could be temporary impacts to aquatic resources on the mitigation sites during the wetland restoration activities. However, any such short term effects would be offset by the preservation and restoration of aquatic resources on the mitigation sites.

Long Term Indirect Effects

Compared to the Proposed Action, Alternative 2 would reduce the size of the open space preserves in the southern portion of the project from 98 acres to 55 acres and would increase the size of the Northern Avoidance Area from 10 acres to 41 acres. As a result, 6.31 acres of aquatic resources would be avoided and 7.07 acres would be preserved on-site under Alternative 2.

The Northern Avoidance Area is located adjacent to the Placer Parkway alignment in the northeastern portion of the project site and is not designated a preserve. Although the 6.31 acres of potential WOUS present within this avoidance area would not be filled by the proposed development, the aquatic resources would experience indirect effects because of changes in the hydrology of these resources that receive runoff from irrigated pasture located in the northeastern portion of the project site, a source that would be removed once that area is developed. Furthermore, the aquatic resources within the avoidance area would not be buffered from proposed development adjacent to the avoidance area and would therefore experience edge effects. Additionally, aquatic resources in this area would experience indirect effects during and following the construction of Placer Parkway.

With respect to aquatic resources within the southern preserves, similar to the Proposed Action, preserved aquatic resources would likely experience edge effects or stressors from surrounding development, as well as stressors from vehicle and pedestrian transit along Westbrook Boulevard, Placer Parkway, Road G, and proposed arterial streets and recreational trails. However, these indirect effects would be minimized by the fact that the area would be put under a conservation easement or protected by deed restrictions prior to commencement of construction activities. The open space preserves under Alternative 2 would continue to include a 30-foot "transition zone" buffer between the areas to be developed and the outer limits of the preserve. Furthermore, all preserve area wetland basins (including vernal pools and seasonal wetlands) would continue to be set back from the preserve boundary by at least 50 feet. Therefore, when combined with the 30-foot transition zone buffer parcel, a minimum 80-foot setback is maintained



Aquatic Resources	Avoided/ Preserved	Impact	NAPOTS	Total (acres)
Ephemeral Drainage	<0.01	0.00	0.00	**<0.01**
Farmed Wetland	0.00	<0.01	0.00	**<0.01**
Intermittent Drainage	1.31	0.57	0.04	**1.92**
Marsh	0.00	1.07	0.76	**1.82**
Seasonal Creek/Stream	0.00	0.04	0.00	**0.04**
Seasonal Wetland	2.06	2.24	0.52	**4.83**
Seasonal Wetland Swale	5.19	13.69	0.88	**19.76**
Stock Pond	0.00	0.12	0.25	**0.36**
Vernal Pool	4.81	4.71	0.33	**9.85**
TOTAL	**13.38**	**22.44**	**2.78**	**38.58**

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.
* The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

SOURCE: ECORP Consulting, Inc., 2018

FIGURE **3.4-3**

IMPACT SCIENCES

Alternative 2 - Aquatic Resource Impacts

between wetland basins and land development. Additionally, the preserved wetlands would be managed and maintained by the City of Roseville in accordance with the City's OSPOMP. For all of these reasons, over the long term, **no indirect** effects on preserved aquatic resources under Alternative 2 were identified. To further reduce potential long term effects on aquatic resources, **Mitigation Measure AR-1b** would be imposed.

Alt. 3 (Distributed Avoidance)

Direct and Indirect Effects from Construction Activities

Alternative 3 (Distributed Avoidance) differs from the Proposed Action, in terms of the location of the Placer Parkway, as it shifts the alignment approximately 320 feet to the southeast, resulting in a 6,200-foot radii. On account of this change, the northern general open space area is larger than under the Proposed Action. Like Alternative 2, this alternative shifts the entire proposed development south, resulting in a reduction in the size of the two southern preserves. Compared to the Proposed Action, substantially less aquatic resources are preserved under this alternative, and more aquatic resources are affected.

As shown in **Table 3.4-7, Alternative 3 Impacts to Aquatic Resources**, this alternative would involve filling approximately 21.84 acres of aquatic resources within the project boundary, including off-site areas. **Figure 3.4-4, Alternative 3 – Aquatic Resources Impacts**, shows the affected potential WOUS. Although the existing aquatic resources have been historically disturbed, the discharge of dredged and/or fill material into them and permanent loss of aquatic resource functions and services would be a **significant direct** effect.

Additionally, indirect effects on aquatic resources are likely to occur as a result of adjacent ground disturbing activities; specifically, activities and/or structures that adversely affect water quality or alter the hydrology of the micro-watershed. This could result in impairment and/or degradation of the functions and services of preserved aquatic resources, especially existing vernal pool invertebrate habitat. Approximately 16.72 acres of preserved and/or avoided WOUS within the project site would be indirectly affected in this manner under this alternative.

As with the Proposed Action, **Mitigation Measure AR-1a** would be implemented, which requires compensatory mitigation for unavoidable impacts to aquatic resources, and ensures authorized activities result in no net loss of aquatic resource functions and services.

As noted above for the Proposed Action, there could be temporary impacts to aquatic resources on the mitigation sites during the wetland restoration activities. However, any such short term effects would be offset by the preservation and restoration of aquatic resources on the mitigation sites.

Long Term Indirect Effects

Compared to the Proposed Action, Alternative 3 would reduce the size of the two open space preserves in the southern portion of the project from 98 acres to 72 acres; however, it would increase the size of the general open space/avoidance area in the northern portion of the project from 10 acres to 20 acres. As a result, 5.38 acres of aquatic resources would be avoided and 8.94 acres of aquatic resources would be preserved on-site under Alternative 3.

Table 3.4-7
Alternative 3 Impacts to Aquatic Resources (in Acres)

Aquatic Resource Type	Preserved WOUS	Avoided WOUS	Alternative 3 Affected WOUS	NAPOTS WOUS	Total[1]
Vernal Pool and Seasonal Wetlands					
Vernal Pool	4.89	0.94	3.71	0.27	9.81
Seasonal Wetland	1.01	0.98	2.45	0.39	4.83
Seasonal Wetland Swale	1.29	3.46	14.19	0.84	19.77
Other Waters					
Farmed Wetland	--	--	< 0.01	--	< 0.01
Marsh	--	--	1.05	0.78	1.82
Ephemeral Drainage	< 0.01	--	--	--	< 0.01
Intermittent Drainage	1.75	--	0.17	--	1.92
Seasonal Creek	0.00	--	0.04	--	0.04
Stock Pond	0.00	--	0.23	0.13	0.36
Total	**8.94**	**5.38**	**21.84**	**2.40**	**38.56**

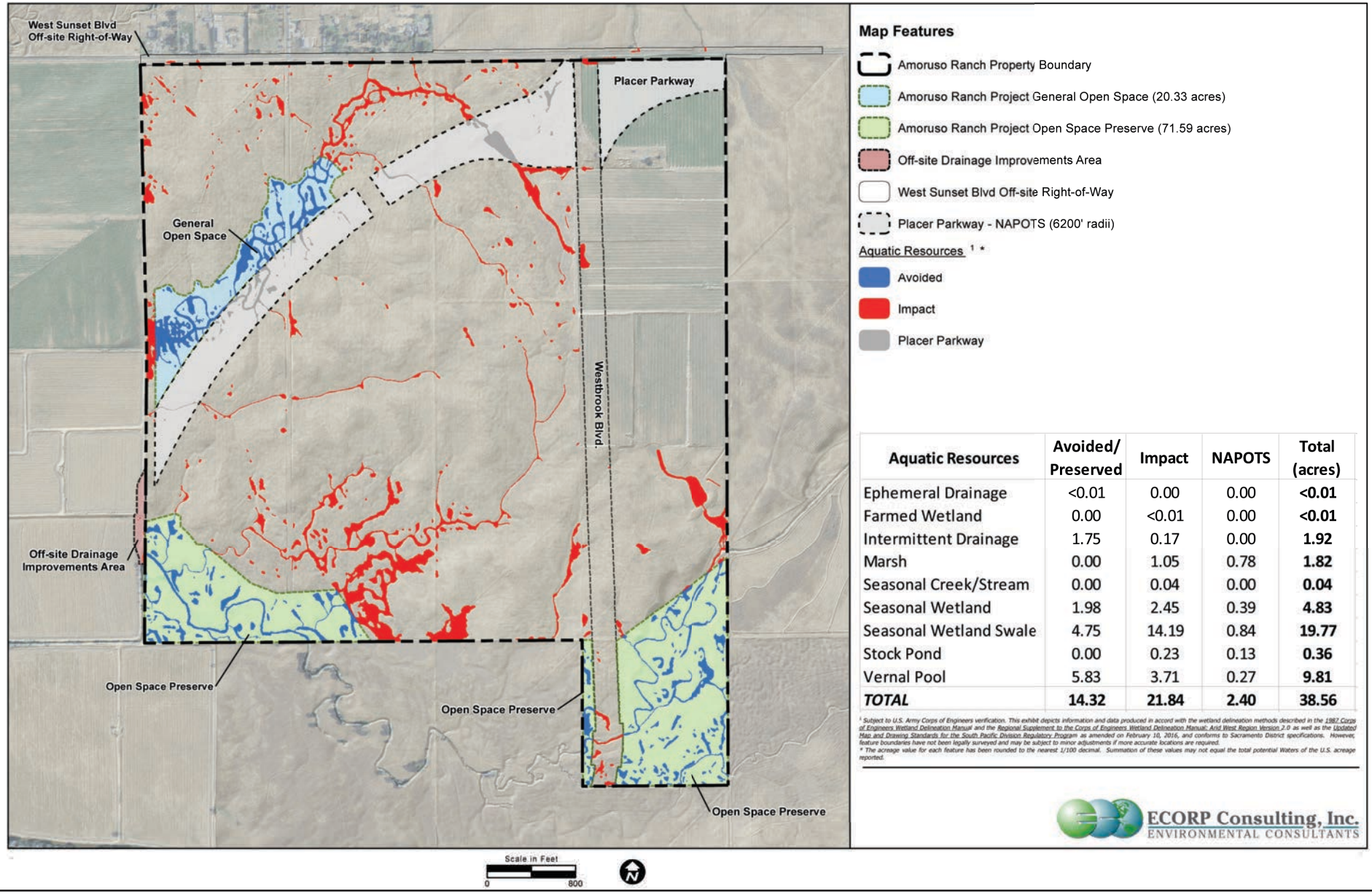
Source: ECORP 2018

1 The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

2. Includes Waters of the U.S. within the West Sunset Boulevard right-of-way and the offsite Al Johnson Wildlife Area improvements area.

3. The table reports WOUS within the NAPOTS (Placer Parkway alignment) for completeness. These waters would not be affected by the alternative.

The Northern Avoidance Area is located adjacent to the Placer Parkway alignment in the northeastern portion of the project site and is not designated a preserve. Although the 5.38 acres of aquatic resources present within this avoidance area would not be filled by the proposed development, the avoided resources would experience indirect effects because of changes in the hydrology of these resources that receive runoff from irrigated pasture located in the northeastern portion of the project site, a source that would be removed once that area is developed. Furthermore, the aquatic resources would not be buffered from proposed development adjacent to the avoidance area and would therefore experience edge effects, including indirect effects during and following the construction of Placer Parkway.



Aquatic Resources	Avoided/ Preserved	Impact	NAPOTS	Total (acres)
Ephemeral Drainage	<0.01	0.00	0.00	**<0.01**
Farmed Wetland	0.00	<0.01	0.00	**<0.01**
Intermittent Drainage	1.75	0.17	0.00	**1.92**
Marsh	0.00	1.05	0.78	**1.82**
Seasonal Creek/Stream	0.00	0.04	0.00	**0.04**
Seasonal Wetland	1.98	2.45	0.39	**4.83**
Seasonal Wetland Swale	4.75	14.19	0.84	**19.77**
Stock Pond	0.00	0.23	0.13	**0.36**
Vernal Pool	5.83	3.71	0.27	**9.81**
TOTAL	**14.32**	**21.84**	**2.40**	**38.56**

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.
* The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

SOURCE: ECORP Consulting, Inc., 2018

FIGURE **3.4-4**

IMPACT SCIENCES

Alternative 3 - Aquatic Resource Impacts

Similar to the Proposed Action, preserved aquatic resources within the southern preserves would likely experience edge effects or stressors from surrounding development, as well as stressors from vehicle and pedestrian transit along Westbrook Boulevard, Placer Parkway, Road G, and proposed arterial streets and recreational trails. However, these indirect effects would be minimized by the incorporation of a conservation easement or deed restrictions prior to commencement of construction activities. The open space preserves under Alternative 3 would continue to include a 30-foot "transition zone" buffer between the areas to be developed and the outer limits of the preserve. Furthermore, all preserve area wetland basins (including vernal pools and seasonal wetlands) would continue to be set back from the preserve boundary by at least 50 feet. Therefore, when combined with the 30-foot transition zone buffer parcel, a minimum 80-foot setback is maintained between wetland basins and land development. Additionally, the preserved wetlands would be managed and maintained by the City of Roseville in accordance with the City's OSPOMP For all of these reasons, over the long term, **no indirect** effects on preserved aquatic resources under Alternative 3 were identified. To further reduce potential long term indirect effects on aquatic resources, **Mitigation Measure AR-1b** would be imposed.

Comparison of Impacts on potential WOUS

Table 3.4-8 below presents a comparative summary of the direct impacts of the alternatives on potential WOUS. The purpose is to disclose the differences in total direct impacts on aquatic resources under the alternatives evaluated in this Draft EIS. As the table shows, when the direct effects of the proposed land development under the various alternatives are combined with the direct effects of the future Placer Parkway (within the project site), the total direct effects on aquatic resources range from less than 5 acres under the No Action alternative to about 25.22 acres under Alternative 2, Northern Avoidance.

Mitigation is set forth below to compensate for the unavoidable loss of potential WOUS on the project site under the Proposed Action and Alternatives 1 through 3.

Table 3.4-8
Comparative Summary of Direct WOUS Effects (in Acres)

Alternative	Direct Effects of Amoruso Ranch Development	Direct Effects of Placer Parkway	Total Direct Effects
No Action	0	2.40 to 4.56	2.40 to 4.56
Proposed Action	18.70	4.56	23.26
Alternative 1 - Southern Avoidance	15.20	4.27	19.47
Alternative 2 - Northern Avoidance	22.44	2.78	25.22
Alternative 3 - Distributed Avoidance	21.84	2.40	24.24

Mitigation Measure AR-1a: **Compensatory Mitigation for the Unavoidable Loss of Potential Waters of the U.S., including Wetlands**
(Applicability – Proposed Action and Alternatives 1, 2, and 3)

Prior to the approval of the Record of Decision for the Proposed Action or an alternative, and in order to mitigate for the unavoidable loss of potential waters of the U.S., including wetlands, the Applicant, in accordance with the mitigation preference hierarchy outlined in 33 CFR § 332.3(b), shall purchase compensatory mitigation credits from a Corps approved mitigation bank or In-lieu Fee (ILF) Program, and/or develop a permittee-responsible mitigation and monitoring plan, consistent with Title 33 CFR § 332.4-7 and presented in the format of current guidance (e.g., Regional Compensatory Mitigation and Monitoring Guidelines for the South Pacific Division, dated January 12, 2015, and Regulatory Guidance Letter, dated October 10, 2008). Compensatory mitigation shall be implemented prior to or concurrent with the occurrence of impacts. The Corps approved mitigation bank or ILF Program shall be located within Placer County and shall include the project site within its service area. In addition, in order to reduce cumulative impacts on aquatic resources within the watershed, the Applicant shall attempt to identify and utilize a mitigation bank located within the same watershed as the proposed impacts. The Applicant shall provide written justification demonstrating why the use of permittee-responsible compensatory mitigation is environmentally preferable to a mitigation bank or ILF Program if the proposed impact site is within the service area of a Corps approved mitigation bank or ILF Program, and the mitigation bank and ILF Program has the appropriate number and type of aquatic resource credits available (33 CFR § 332.3(b)). The permittee-responsible compensatory wetlands mitigation plan may be developed using the PCCP mitigation strategy.

Within the Record of Decision for the Proposed Action, the Corps shall document its determination regarding the appropriate amount and type of compensatory mitigation required to ensure no net loss of aquatic resource functions and services, based on a number of factors, including: the functions of the resources being impacted; the difficulty of replacing the specific resource; uncertainty and risk of failure; and, indirect impacts and temporal loss.

Mitigation Measure AR-1b: **Preservation of On-Site and Off-Site Wetlands and Other Potential Waters of the U.S.**
(Applicability – Proposed Action and Alternatives 1, 2, and 3)

Avoided wetlands and other potential waters of the U.S., including vegetated buffers, within the Southeast and Southwest Preserves on the project site shall be placed into separate "preserve" parcels prior to commencing authorized activities. Prior to the Record of Decision for the Proposed Action or an alternative, the Applicant shall develop and submit to the Corps, for review and approval, a specific and detailed preserve management plan for the on- and/or off-site preservation areas. The plan shall describe in detail any activities that are proposed within the preserve areas and the long term funding and maintenance and monitoring of each of the preserve areas. The Applicant shall install temporary fencing around preserved wetlands to avoid inadvertent impacts from ongoing construction near preserved wetlands. No roads, utility lines, outfalls, trails, benches, firebreaks or other structures shall be constructed within the on- and/or off-site preserve areas, unless specifically approved in writing by the Corps. Any preserve areas, located within the City of Roseville, shall be subject to management by the City of Roseville in accordance with the City's OSPOMP.

Within the Record of Decision for the Proposed Action or an alternative, the Corps shall document its determination on whether on- and/or off-site preservation is an appropriate method of compensatory mitigation to offset unavoidable impacts to aquatic resources as a result of authorized activities. If the Corps determines that on- and/or off-site preservation of aquatic resources is appropriate compensatory mitigation, the Corps will determine the amount and type of preservation required to ensure no net loss of aquatic resource functions and services, based on a number of factors, including the functions of the resources being impacted, the difficulty of replacing the specific resource, uncertainty and risk of failure, indirect impacts, and temporal loss. Long-term operations and management plans for on- and/or off-site preservation areas shall include requirements for site protection, the implementation of appropriate financial assurances, and monitoring of the preserve areas in accordance with applicable Corps regulations and guidance.

3.4.5 REFERENCES

City of Roseville. 2016a. *Amoruso Ranch Specific Plan Environmental Impact Report*. May.

City of Roseville. 2016b. *City of Roseville General Plan* 2035. June.

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ECORP. 2011b. *Mourier West, Placer County, California, Revised Wetland Delineation (Ref. File No. #201101067) letter addressed to Mr. Michael Finan/U.S. Army Corp of Engineers*. October 25.

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