

Appendix H-3

Biology Addendum

Teichert Boca Quarry

Biological Inventory Addendum

Prepared for

Teichert Aggregates
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1 INTRODUCTION

As part of the process of CEQA compliance for the proposed Teichert Boca Quarry Expansion Project, mitigation measures are being considered that would entail construction of one or more road improvements along Stampede Meadows Road. Proposed measures are depicted in two exhibits prepared by Auerbach Engineering and entitled "Proposed Shoulder Improvements Hirschdale Road/Stampede Meadows Road" (dated August 30, 2013) and "Sight Distance Exhibit" (dated October 2013). This addendum provides information on existing conditions and potential impacts on biological resources from construction of improvements as depicted in those exhibits.

2 METHODS

The Addendum Study Area is defined as an area 100 feet from the edge of pavement on the east side of Stampede Meadows Road, extending north from West Hinton Road (quarry access) a distance of at least 850 feet, and 50 feet from edge of pavement on both sides of Stampede Meadows Road from West Hinton Road southward then eastward to the Interstate 80 interchange. Other terminology, such as Project Site and Ultimate Disturbed Area, is consistent with the project description submitted to Nevada County.

The Study Area was examined by means of transects spaced closely enough that any special status plant species for which suitable habitat occurs could reasonably be expected to be seen. Floristic survey dates included May 25, July 11, and July 21, 2013.

The Study Area was also surveyed for drainage channels which might exhibit characteristics typical of non-wetland waters of the U.S. or State of California, such as scouring, vertically incised banks, water staining, and so on. A formal three-parameter delineation was not performed for this Addendum, but would be performed in advance of construction, if any, in or within 30 feet of areas where hydrophytic vegetation was observed (see discussion in Results). Any areas that would fall under State or federal jurisdiction would lie within the areas mapped herein; some areas mapped as possible waters might prove not to be when soils and hydrology are studied.

3 RESULTS

3.1 Terrestrial Communities and Other Land Cover Types

Vegetation is described generally under headings which provide both the ecosystem types of the Nevada County Natural Resources Report and the vegetation type described in the Manual of California Vegetation, 2nd edition (MCV2; Sawyer et al., 2009). One land cover type is a disturbance mosaic, without a single useful MCV2 equivalent.

The study area includes the following cover types:

- Eastside Pine (Jeffrey Pine/Antelope Bitterbrush)
- Eastside Scrub (Mountain Big Sagebrush/Bitterbrush Scrub)
- Montane Riparian (Lemmon's Willow Thickets)
- Aspen
- Wet Meadow
- Disturbed Areas and Ruderal Vegetation

3.1.1 EASTSIDE PINE (JEFFREY PINE/ANTELOPE BITTERBRUSH)

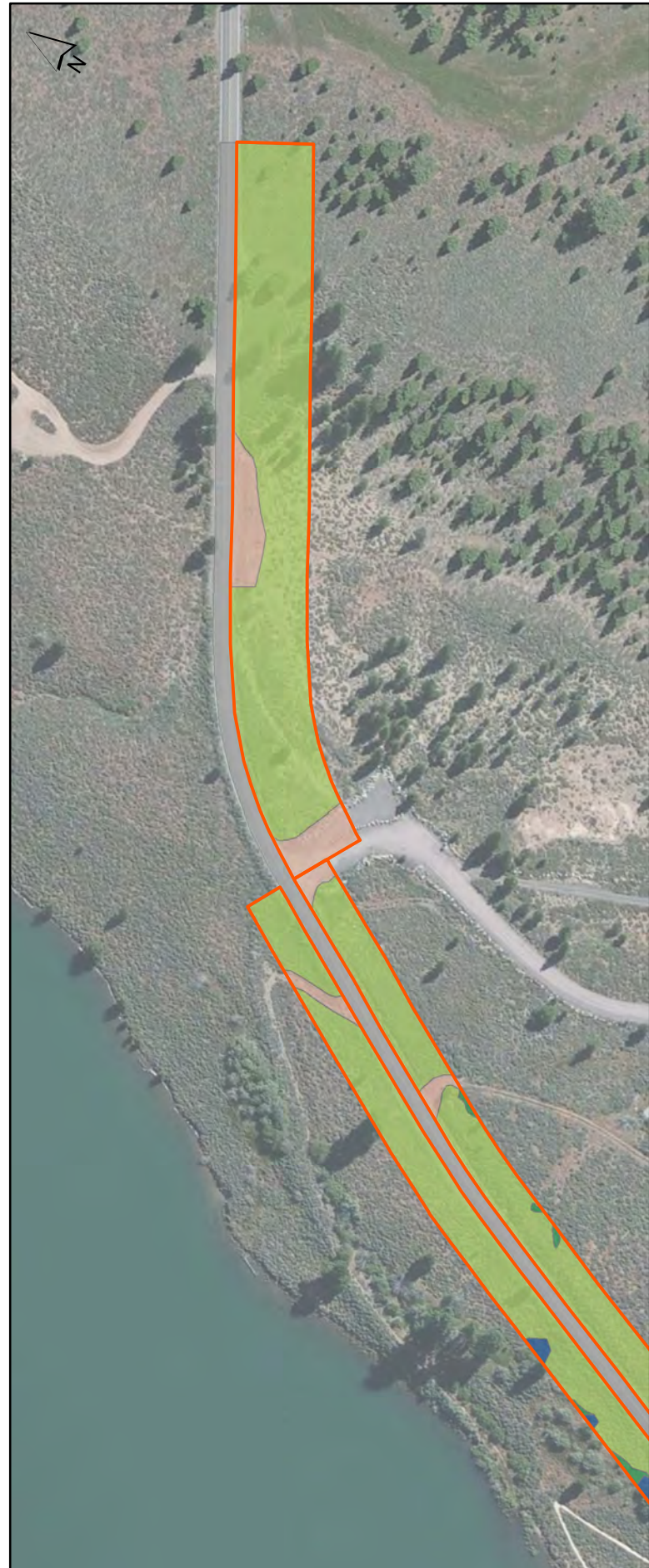
Jeffrey pines (*Pinus jeffreyi*) occur as scattered individuals throughout much of the shrublands in the Addendum Study Area, but only in two small patches do the trees constitute a sufficient proportion of the vegetation cover to be mapped as pine woodland. These two patches have predominantly antelope bitterbrush (*Purshia tridentata*) understory, with interior wild rose (*Rosa woodsii*), unsurprisingly given the location of these small open woodland patches close to the Truckee River.

3.1.2 EASTSIDE SCRUB (MOUNTAIN BIG SAGEBRUSH/BITTERBRUSH SCRUB)

The dry shrublands found in the Addendum Study Area are a mosaic of areas dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and by a mixture of sagebrush and antelope bitterbrush. The edges of the shrubland vegetation closest to the road are generally dominated or co-dominated by rubber rabbitbrush (*Ericameria nauseosa* ssp. *hololeuca*). Scattered individuals of wax currant (*Ribes cereum*) and Sierra cherry (*Prunus emarginata*) occur variously along the length of the Study Area. On the slopes above the Truckee River, individuals and even some small dense patches of interior wild rose occur. Herbaceous cover is mostly relatively sparse and is variable depending on slope and possibly soils. In places it is comprised mostly of upland grasses, some native and some possibly relictual from seeding associated with road construction; in other small microsites, patches of upland (*Carex rossii*) or mesic/wetland sedge species (*C. praegracilis*) occur. The forb assemblage within the Study Area is similar but not identical to that of the Project Site where the actual quarry and proposed expansion is located.

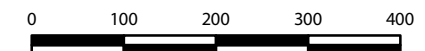
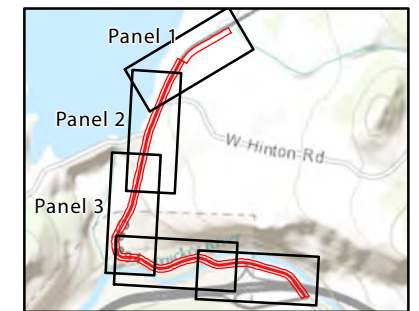
3.1.3 MONTANE RIPARIAN (LEMMON'S WILLOW THICKETS)

Patches of montane riparian vegetation occur outside and extending within the Study Area over very small acreages (see Figure 1). These consist primarily of Lemmon's willow (*Salix lemmonii*), sometimes associated with entirely upland species, and in other places having an understory of hydrophytic species such as Nebraska sedge (*Carex nebrascensis*).



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Figure 1-A. Stampede Meadows Road Biological Resources



Scale 1:2,500 (1 in = 208 ft)



Legend

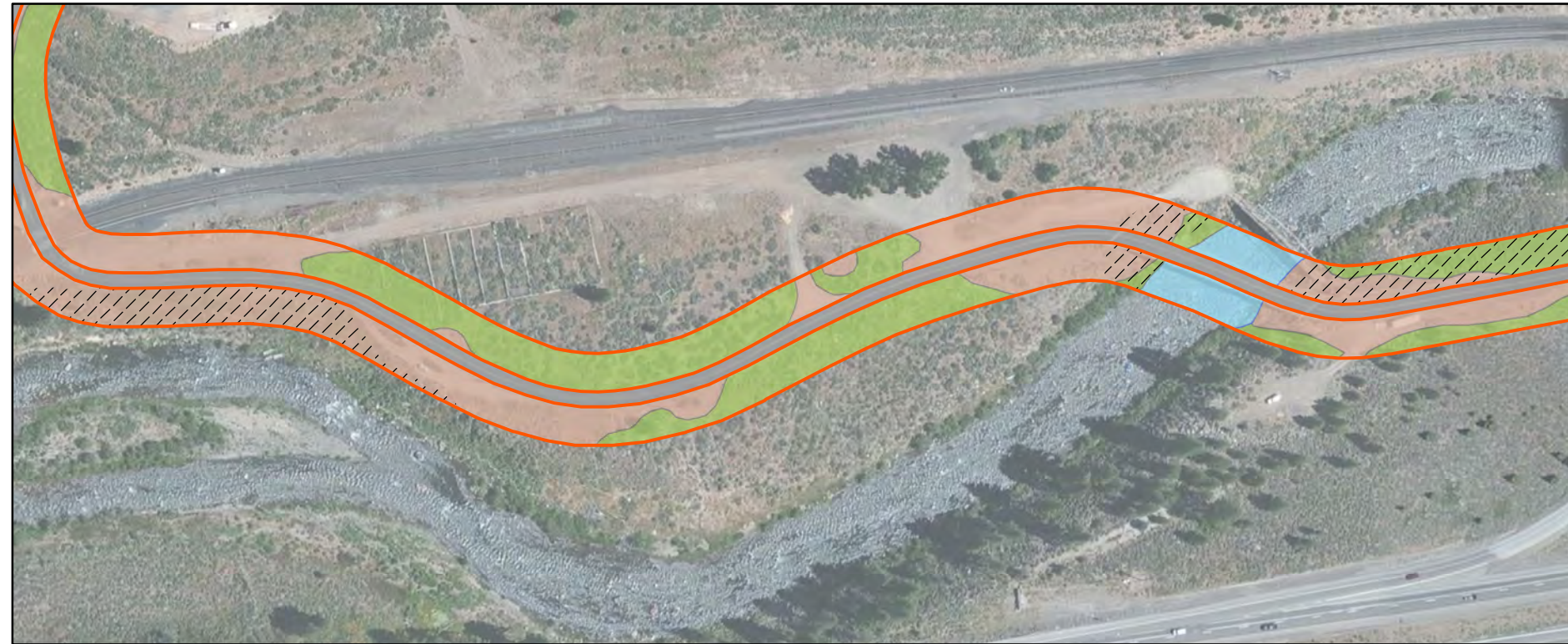
- Study Boundary
- > 30% Slopes
- Disturbed/Ruderal Areas (road)
- Disturbed/Ruderal Areas
- Jeffrey Pine Woodland
- Lemmon's Willow Thicket
- Mountain Sagebrush-Bitterbrush Shrubland
- Quaking Aspen
- Truckee River
- Wet Meadow

Notes

Prior to construction, formal wetland delineation will be carried out in any portions of Willow Thickets or Wet Meadows that might be affected by the project. See text for additional discussion.

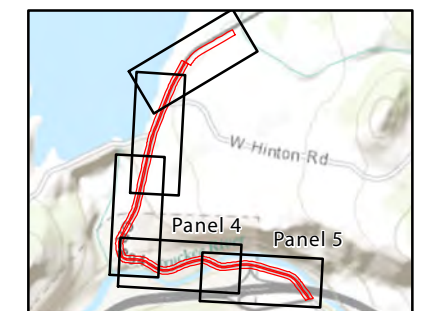
Base imagery provided by ESRI BING Imagery and National Geographic USGS Merged Topographic base via ESRI map service.

Survey conducted by EcoSynthesis during the 2013 field season.



**Teichert Boca Quarry Expansion
Biological Inventory Addendum 201&**

Figure 1-B. Stampede Meadows Road Biological Resources



Scale 1:2,500 (1 in = 208 ft)



Legend

- Study Boundary
- > 30% Slopes
- Disturbed/Ruderal Areas (road)
- Disturbed/Ruderal Areas
- Jeffrey Pine Woodland
- Lemmon's Willow Thicket
- Mountain Sagebrush-Bitterbrush Shrubland
- Quaking Aspen
- Truckee River
- Wet Meadow

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Base imagery provided by ESRI BING Imagery and National Geographic USGS Merged Topographic base via ESRI map service.

Survey conducted by EcoSynthesis during the 2013 field season.

3.1.4 ASPEN (QUAKING ASPEN WOODLAND)

One small patch of aspen (*Populus tremuloides*) occurs within the Study Area. The small size of this vegetation patch and the nearby evidence of long-standing disturbance such as culverts that are no longer functional and concrete construction that does not appear to be modern suggests that the plants may be relictual from individuals planted some years ago. Regardless of origin, the vegetation within this patch consists of eastside scrub vegetation with an overstory of several aspen and lodgepole pine (*P. contorta* ssp. *murrayana*) trees. With the recent change in the indicator status of quaking aspen from facultative to facultative-upland (Lichvar, 2012), this patch of vegetation would probably not meet the hydrophytic vegetation criterion.

3.1.5 WET MEADOW

This cover type occurs in two main situations. One of these is a very narrow strip of herbaceous vegetation occurring along several hundred feet of roadside ditch. Along most of this distance, the dominant species is Baltic rush (*Juncus arcticus/balticus*); in patches, Nebraska or field sedge (*C. nebrascensis* or *praegracilis*) dominates. At no time either during the Addendum field survey or in many other visits to Stampede Meadows Road have I ever seen flowing surface water or surface indicators of wetland hydrology in this ditch, so its jurisdictional status is questionable. Even the hydrophytic vegetation itself is discontinuous. The topographic feature which would constitute the downslope outflow from the roadside ditch (if and when any flow actually were to occur) is dominated by upland species over a distance of hundreds of feet from the end of the hydrophytic vegetation in a southeasterly direction toward the Truckee River. Thus, there is no surface hydrologic connection between the roadside ditch and any federally jurisdictional water to which it could theoretically be tributary.

The other situation where Wet Meadow is found is in close association with Lemmon's Willow Thickets. In these settings, it is primarily dominated by Nebraska sedge, sometimes mixed with field sedge or Baltic rush.

Finally, a few very small patches of field sedge were found within the sagebrush-bitterbrush vegetation.

3.1.6 DISTURBED AND RUDERAL VEGETATION

This cover type does not conform precisely either to the NCNRR "Urban" land cover type, nor to any one alliance or other category described in the MCV2. It is a mosaic of buildings, paved areas, gravel-surfaced areas, unsurfaced dirt roads, other surface disturbance with minimal vegetation cover, and areas that were previously disturbed but have revegetated to some degree. Portions of this revegetation resulted from seeding with erosion control species; these areas are generally dominated by what appears to be the Luna variety of pubescent wheatgrass (*Elymus hispidus* in the current Jepson Manual). Other areas support one or more non-native species (examples include cheat grass, *Bromus tectorum*, and tumble mustard, *Sisymbrium altissimum*); and portions of the disturbed areas have revegetated naturally with native species, predominantly rubber rabbitbrush.

3.2 Wetlands or Other Waters

The present addendum did not include a formal wetland delineation of the roadside Study Area based upon the three mandatory criteria of hydrophytic vegetation, hydric soils, and wetland hydrology. However, the Willow Thicket and Wet Meadow vegetation types are dominated by one or more facultative, facultative-wetland, or obligate plant species, which means they should tentatively be considered to be hydrophytic vegetation. Thus, these areas may meet one of the three mandatory wetland criteria. Any areas that meet all three criteria must necessarily also meet the hydrophytic vegetation criterion, therefore, for the purposes of evaluation of potential impacts, the areas mapped as Willow Thickets or as Wet Meadow are considered to be possible wetlands.

One cover type is unequivocally a federally jurisdictional water, namely the Truckee River, which is an interstate, navigable-in-fact river. Since there appear to be no areas of hydrophytic vegetation (and therefore no adjacent wetlands) along the river's banks within the study area, the limit of jurisdiction is the ordinary high water mark, which is no more than a few feet higher than the summertime water level as seen in Figure 1. Given the presence of slopes steeper than 30 percent (horizontal:vertical) extending from the present roadway down to the river, and due to considerations relating to construction abutting the bridge, we considered it infeasible to construct bicycle safety improvements where there are relatively steep slopes leading directly downslope to the river. Therefore, for the purposes of CEQA impact analysis, it is not necessary to closely delineate the precise location of the ordinary high water mark of the Truckee River within the Addendum Study Area.

No indicators of surface hydrology were observed that are characteristic of other types of jurisdictional waters of either the United States or State of California, such as seasonal, intermittent, or ephemeral tributaries. Such indicators might have included scoured channel beds, incised banks, water staining, drift, and so on.

In summary, the short segment of the Truckee River within the Study Area is a water of the U.S., and the areas mapped as Willow Thicket or Wet Meadow constitute possibly hydrophytic vegetation. If any portions of these also meet the other two wetland criteria, they would be jurisdictional waters of the State and possibly also of the U.S.

3.3 Special Status Species

No special status plant species were found within the Addendum Study Area, nor within the wetlands delineated within the Project Site in 2012. A complete plant species list for the combined study areas (original Project Site, including wetlands, and present Addendum Study Area) is provided in Appendix A.

Potentially suitable habitat for one special status bird species, yellow warbler, occurs in the small willow thickets along Stampede Meadows Road. Most riparian-associated birds require much more extensive patches of willows or riparian trees, but the yellow warbler may nest in very small patches, even a single large willow shrub, isolated in upland vegetation, but typically only where there is a body of water with adjacent emergent wetland vegetation in reasonably close proximity. The species may also nest in montane chaparral further from water, although seemingly very rarely if at all in sagebrush-bitterbrush scrub. Although the entire Study Area is subject to frequent human and vehicle disturbance during the nesting season, and the southeastern end of Boca Reservoir is not adjoined by emergent wetland, it is nonetheless a large body of water, so the potential for nesting use of willow thickets by yellow warbler cannot be discounted.

3.4 Mule Deer Habitat

The gently sloping sagebrush-bitterbrush shrublands found to the west of the Project Site, and specifically extending to Stampede Meadows Road, are used by migrating mule deer, and a few fresh deposits of deer pellets were observed during brief field visits in November 2013. Migrating deer undoubtedly cross West Hinton Road (quarry access), but since the migration route from summer to winter range does not cross Boca Reservoir, they probably cross Stampede Meadows Road rarely if at all.

Mule deer are subject to road kill, especially during migration when they must cross roads that bisect their route. Road kill of mule deer occurs on Interstate 80 (mostly to the northeast of the project site) and occasionally on areas of concentrated movement, such as Glenshire Drive between the boundary of the Town of Truckee and the Truckee River, and would potentially occur on West Hinton Road during times of quarry operation in May or in late October/November. However, in contrast with rural highways with prevailing speeds of 55 miles per hour or more, and with interstate highways with prevailing speeds of 65 mph or more, the levels of deer mortality are relatively low on roads such as Glenshire Drive and West Hinton Road on which the prevailing vehicle speeds are 45 mph or less, and do not constitute a significant proportion of deer mortality over the course of their life cycle. Moreover, in the case of the quarry impacts specifically, deer migration occurs primarily at night, when the quarry will not typically be operating, so mule deer road kill related to operations can reasonably be expected to be minimal at most.

The road improvements along Stampede Meadows Road would necessitate the removal of small acreages of habitat through which mule deer migrate and upon which they may forage while in migration (or even during the summertime). However, the improvements would also improve visibility and thereby reduce the possibility of vehicle strikes on Stampede Meadows Road itself.

4 POTENTIAL IMPACTS AND MITIGATION MEASURES

Three potentially significant impacts on biological resources could result from construction of road and/or sight-line improvements as depicted in the two Auerbach Engineering exhibits cited in the Introduction within the Study Area. The loss of small amounts of common types of vegetation (e.g., sagebrush-bitterbrush scrub) is not deemed by this Addendum to be a significant impact under applicable CEQA guidelines. Feasible and effective mitigation measures are suggested for these three impacts.

Impact A-1. Wetlands, including small acreages of riparian vegetation and/or wet meadow, might be altered to improve visibility or removed (excavated and/or filled) entirely to facilitate construction of pullouts, wider motor vehicle lanes, or bike lanes. Fill within waters of the State of California within the Truckee River watershed would be regarded as a significant impact under the policies of the Water Quality Control Plan for the Lahontan Region.

Discussion

As noted above under Results, it is not likely that all of the areas of Willow Thicket or Wet Meadow meet all three of the mandatory wetland criteria; since quaking aspen is no longer a hydrophytic vegetation indicator (Lichvar, 2012), the Quaking Aspen vegetation type is also unlikely to delineate as wetland. Moreover, if any areas do meet all three criteria, it appears that only portions of the areas between Stampede Meadows Road and Boca Reservoir would meet the further test of being tributary or adjacent to a navigable water of the U.S. Assuming that all areas shown as Lemmon's Willow Thicket, Wet Meadow, and Quaking Aspen were to meet all three mandatory wetland criteria, and assuming all surface disturbance required for the shoulder improvements were confined to the width limits shown in the Auerbach exhibit "Proposed Shoulder Improvements," the area of fill (and/or excavation) within waters of the U.S. would be zero, and the area of fill or excavation within waters of the State would be less than 0.001 acre (perhaps zero). Under other assumptions, such as necessity for additional excavation or fill to meet existing grade, the maximum area of direct impact on wetlands would still be less than 0.1 acre. Fill within areas meeting both the wetland and jurisdictional criteria would require a Section 404 permit, in this case nationwide permit 14 (for linear transportation projects) would be applicable. In addition, water quality certification from Lahontan Regional Water Quality Control Board is required for impact on both federal and state waters (including wetlands).

Mitigation Measure A-1. The applicant shall perform a formal wetland delineation including, at a minimum, the areas where road improvements might be constructed within 30 feet of areas mapped as Lemmon's Willow Thicket, Wet Meadow, or Quaking Aspen in Figures 1-A and 1-B. In the event that wetlands that fall under the jurisdiction of the U.S. Army Corps of Engineers or the State of California Water Quality Control Board are found where excavation, fill, or vegetation removal would be required for the improvements, the applicant shall modify the improvement designs so as to minimize or eliminate direct impact. If the design of the improvements cannot be revised so as to avoid all direct impact on wetlands, the applicant shall obtain applicable authorizations and water quality certification and implement compensatory or other mitigation actions that are required by the approvals. At a minimum, the mitigation actions shall ensure that there is no net loss of wetland acreage or values.

Impact A-2. Indirect impacts, specifically soil disturbance that results in the generation of sediment-laden runoff water which can flow to wetlands that are not directly affected by construction, could result during and after construction of the road improvements. Any degradation of water quality in downstream waters (specifically, the Truckee River or Boca Reservoir, which impounds the Little Truckee River and is tributary to the Truckee River) would be a potentially significant impact.

Mitigation Measure A-2. A Stormwater Pollution Prevention Plan shall be developed implemented as required for the areal extent of soil surface disturbance of the road improvements. At a minimum, this plan shall include the installation and maintenance of sediment control structures downslope of all construction areas as needed to prevent sediment from being carried into wetlands or other waters, improvement of soil infiltration as appropriate to microsite, placement of surface mulch (rock or organic, as appropriate to microsite), and seeding/planting with native species that are compatible with surrounding vegetation and with the visibility goals of the road improvements. The plan shall provide for monitoring and maintenance of sediment control measures during construction, and of mulch and revegetation after construction until performance specifications are met. Construction on slopes steeper than 30 percent shall be avoided if possible, but if it cannot be avoided, engineering and construction specifications shall meet the minimum requirements of the Nevada County Zoning Ordinance and of the Lahontan Regional Water Quality Control Board.

Impact A-3. Construction of road improvements during the nesting season for yellow warbler could result in disturbance or removal of an active nest of this species, which is a California Department of Fish and Wildlife species of special concern. This would be a potentially significant impact.

Discussion

It is not known whether yellow warblers nest in the willow thickets present within the study area. Proposed sight line and shoulder improvements do not appear to require removal of any willow shrubs; even if some shrub removal were to occur during the non-nesting season, a sufficient amount of alternative willow nesting opportunity is present that this would not be a significant impact. However, if construction were to occur during the nesting season, with or without removal of any willow shrubs or portions thereof, it would be sufficiently close to several groups of shrubs that it might result in nest abandonment, which functionally equates to take of nestlings. Yellow warblers nest in California from mid-April through July (Dunn and Garrett, 1997), possibly beginning nesting somewhat later in the project area than at lower elevations. Nevertheless, for the purposes of the present Addendum, the nesting season is defined as extending from April 15 to July 31.

Mitigation Measure A-3. If construction activity is expected to be initiated after April 15 and before July 31, survey for nesting yellow warbler shall be performed by a qualified biologist prior to the start of construction. Survey work shall be conducted at times of the day when birds are most active (for example, between dawn and 10 AM and again in the late afternoon). In the event that any active yellow warbler nest is discovered, no equipment operation except travel on the existing paved road shall occur within 200 feet until subsequent surveys demonstrate that the young have fledged.

5 REFERENCES

Baldwin, et al. 2012. *The Jepson Manual: Vascular Plants of California (Second Edition)*. University of California Press, Berkeley, California.

Dunn, J.L., and K.L. Garrett. 1997. *A Field Guide to Warblers of North America*. Houghton Mifflin, Boston, Massachusetts.

Lichvar, R.W. 2012. *The National Wetland Plant List*. U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. Final Report ERDC/CRREL TR-12-11.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, 2nd edition*. California Native Plant Society Press, Sacramento, California.

Appendix A:

Plant Species List

Appendix A. Species observed during Teichert Boca Quarry Expansion project plant surveys.

Nomenclature is generally according to the current Jepson Manual (Baldwin et al., 2012), in which the names and placements of families and genera are based upon major changes in angiosperm systematics and phylogeny in recent years. In some cases, notes are provided pertaining to former taxonomic classification.

Scientific Name	Common Name	Notes
BRYOPHYTES <i>Amblystegium serpens</i> <i>Drepanocladus</i> sp.	MOSSES	
CRYPTOGAMS	FERNS AND SPIKE-MOSSES	
Equisetaceae <i>Equisetum laevigatum</i>	Horsetail Family smooth scouring rush	
GYMNOSPERMS	CONIFERS	
Cupressaceae <i>Juniperus occidentalis</i>	Cypress Family western juniper	
Pinaceae <i>Abies concolor</i> <i>Pinus contorta</i> ssp. <i>murrayana</i> <i>Pinus jeffreyi</i> <i>Pinus ponderosa</i>	Pine Family white fir lodgepole pine Jeffrey pine ponderosa pine	Tentative identification.
ANGIOSPERMS-DICOTYLEDONS	FLOWERING PLANTS	
Adoxaceae <i>Sambucus nigra</i> ssp. <i>caerulea</i> (<i>mexicana</i>)	Muskroot Family blue elderberry	
Amaranthaceae <i>Amaranthus californicus</i>	Amaranthus Family California amaranth	
Apiaceae (Umbelliferae) <i>Lomatium nevadense</i> var. <i>parishii</i> <i>Conium maculatum</i>	Carrot Family poison hemlock	
Apocynaceae <i>Apocynum androsaemifolium</i>	Dogbane Family bitter dogbane	
Asteraceae (Compositae) <i>Achillea millefolium</i> <i>Anaphalis margaritacea</i> <i>Antennaria rosea</i> <i>Artemisia arbuscula</i>	Sunflower Family yarrow pearly everlasting rosy pussy-toes low sagebrush	

<i>Artemisia ludoviciana</i> ssp. <i>ludoviciana</i>	silver wormwood	
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	mountain sagebrush	
<i>Carduus nutans</i>	musk thistle	Invasive in many sites in eastern Nevada County.
<i>Chaenactis douglasii</i> var. <i>douglasii</i>	dusty maidens	
<i>Chrysothamnus viscidiflorus</i>	yellow rabbitbrush	
<i>Cirsium andersonii</i>	thistle	
<i>Cirsium occidentale</i> var. <i>californicum</i>	western thistle	
<i>Cirsium vulgare</i>	common (bull) thistle	
<i>Crepis occidentalis</i>	western hawksbeard	
<i>Dieteria canescens</i>	hoary aster	
<i>Ericameria nauseosa</i> ssp. <i>hololeuca</i>	rubber rabbitbrush	
<i>Ericameria suffruticosa</i>	singlehead goldenbush	
<i>Gnaphalium palustre</i>		
<i>Grindelia squarrosa</i> var. <i>serrulata</i>	gumweed	
<i>Lactuca serriola</i>	prickly lettuce	
<i>Madia glomerata</i>	mountain tarweed	
<i>Senecio integerrimus</i>	lambs-tongue groundsel	
<i>Senecio serra</i> var. <i>serra</i>	tall ragwort	
<i>Solidago lepida</i> var. <i>salebrosa</i>	western goldenrod	
<i>Sonchus</i> sp.		
<i>Symphyotrichum bracteolatum</i>	aster	= <i>Aster eatonii</i>
<i>Symphyotrichum spathulatum</i>	western aster	= <i>Aster occidentalis</i>
<i>Tanacetum parthenium</i>	tansy	
<i>Taraxacum officinale</i>	common dandelion	
<i>Tragopogon dubius</i>	salsify	
<i>Wyethia mollis</i>	mule's-ears	
Boraginaceae	Borage Family	
<i>Cryptantha affinis</i>		
<i>Cryptantha echinella</i>		
<i>Cryptantha torreyana</i>		
<i>Hackelia floribunda</i>	stickseed	
<i>Phacelia hastata</i> ssp. <i>hastata</i>	silver-leaf scorpion-weed	
<i>Phacelia humilis</i>		
Brassicaceae (Cruciferae)	Mustard Family	
<i>Barbarea orthoceras</i>	winter cress	
<i>Boechera pinetorum</i>	rock-cress	
<i>Cardamine breweri</i> var. <i>breweri</i>	bittercress	
<i>Lepidium densiflorum</i>	peppergrass	
<i>Lepidium virginicum</i> var. <i>pubescens</i>	peppergrass	
<i>Nasturtium officinale</i>	water cress	
<i>Rorippa curvipes</i>	yellow-cress	
<i>Sisymbrium altissimum</i>	tumble mustard	

Caprifoliaceae

Symphoricarpos mollis

Chenopodiaceae

Chenopodium album

Chenopodium botrys

Salsola tragus (pestifer)

Convolvulaceae

Convolvulus arvensis

Cornaceae

Cornus sericea (=stolonifera)

Ericaceae

Arctostaphylos patula

Pterospora andromedea

Pyrola picta

Fabaceae

Acmispon americanus var. americanus

Astragalus purshii var. tinctus

Lotus corniculatus

Lupinus argenteus

Lupinus lepidus

Melilotus alba

Trifolium cyathiferum

Trifolium lemmonii

Vicia americana ssp. americana

Fagaceae

Chrysolepis sempervirens

Grossulariaceae

Ribes cereum

Ribes inerme

Ribes roezlii

Lamiaceae (Labiatae)

Mentha canadensis

Marrubium vulgare

Stachys rigida

Loasaceae

Mentzelia dispersa

Mentzelia laevicaulis

Montiaceae

Calyptridium monospermum

Honeysuckle Family

soft snowberry

Goosefoot Family

lamb's quarters

Jerusalem oak

Russian thistle

Morning-glory Family

bindweed

Dogwood Family

red-osier dogwood

Heath Family

greenleaf manzanita

pine-drops

Legume Family

Formerly *Lotus purshianus*.

Pursh's milkvetch

bird's foot trefoil

silver lupine

dwarf lupine

sweet-clover

cup clover

Lemmon's clover

American vetch

Oak Family

bush chinquapin

Gooseberry Family

wax currant

currant

Sierra gooseberry

Mint Family

mint

horehound

Loasa Family

stickleaf

blazing star

Miner's Lettuce Family

pussy-paws

Onagraceae

Epilobium brachycarpum
Epilobium ciliatum
Epilobium glaberrimum
Epilobium oregonense
Gayophytum diffusum ssp. *parviflorum*
Ludwigia sp.

Orobanchaceae

Castilleja applegatei

Phrymaceae

Mimulus guttatus
Mimulus tilingii
Mimulus torreyi

Plantaginaceae

Collinsia parviflora
Keckiella lemmonii
Penstemon deustus
Penstemon speciosus
Veronica americana

Polemoniaceae

Collomia linearis
Collomia tinctoria
Gilia leptalea ssp. *bicolor*
Phlox diffusa
Phlox (Microsteris) gracilis

Polygonaceae

Eriogonum nudum var. *nudum*
Eriogonum umbellatum ssp. *nevadense*
Persicaria (Polygonum) amphibia
Persicaria punctata
Polygonum aviculare
Polygonum douglasii ssp. *douglasii*
Polygonum douglasii ssp. *johnstonii*
Rumex crispus
Rumex fueginus
Rumex salicifolius

Rhamnaceae

Ceanothus prostratus
Ceanothus velutinus

Evening Primrose Family

willow herb

Not *E. oregonum*.

water primrose

Broomrape Family

Indian paint-brush

Lopseed Family

monkey flower

Plantain Family

blue-eyed Mary

Phlox Family

Buckwheat Family

wild buckwheat
sulfur buckwheat
water smartweed
smartweed
knotweed
Douglas's knotweed
Douglas's knotweed
curly dock
golden dock
willow dock

Buckthorn Family

Mahala carpet
tobacco-bush

Rosaceae

Amelanchier utahensis
Cercocarpus ledifolius var. *intermontanus*
Drymocallis glandulosa ssp. *reflexa*
Geum macrophyllum var. *perincisum*
Geum triflorum
Potentilla biennis
Potentilla gracilis
Prunus emarginata
Prunus virginianus var. *demissa*
Purshia tridentata var. *glandulosa*
Purshia tridentata var. *tridentata*
Rosa woodsii var. *ultramontana*
Rubus leucodermis
Sorbus californica/scopulina
Spiraea splendens (densiflora)

Rubiaceae

Kelloggia galioides

Salicaceae

Populus tremuloides
Salix exigua
Salix geyeriana
Salix lasiandra
Salix lemmonii
Salix scouleriana

Scrophulariaceae

Scrophularia desertorum
Verbascum thapsus

Solanaceae

Nicotiana attenuata
Solanum triflorum

Urticaceae

Urtica dioica ssp. *holosericea*

Valerianaceae

Valeriana californica

Verbenaceae

Verbena americana

Violaceae

Viola beckwithii

Rose Family

serviceberry
 curl-leaf mountain mahogany
 sticky cinquefoil
 big-leaved avens

 Sierra (bitter) cherry
 choke cherry
 antelope bitterbrush
 antelope bitterbrush
 interior rose
 blackcap raspberry
 mountain ash
 spiraea

Madder Family

Willow Family

quaking aspen
 coyote willow
 Geyer's willow
 Pacific willow
 Lemmon's willow
 Scouler's willow

Figwort Family

desert figwort
 woolly mullein

Nightshade Family

coyote tobacco
 nightshade

Nettle Family

stinging nettle

Valerian Family

Vervain Family

speedwell

Violet Family

Great Basin violet

ANGIOSPERMS-MONOCOTYLEDONS

FLOWERING PLANTS

Araceae

Lemna minuta

Arum Family

water meal/duckweed

Cyperaceae

Carex athrostachya

Carex douglasii

Carex lenticularis

Carex multicosata

Carex nebrascensis

Carex praegracilis

Carex rossii

Carex subfusca

Eleocharis macrostachya

Scirpus microcarpus

Sedge Family

sedge

Douglas's sedge

Nebraska sedge

field sedge

Ross's sedge

creeping spike-rush

small-fruited bulrush

Juncaceae

Juncus arcticus (balticus)

Juncus confusus

Juncus ensifolius

Rush Family

arctic (Baltic) rush

rush

sword-leaved rush

Lemnaceae

Lemna minuta

Duckweed Family

duckweed

Poaceae

Agropyron cristatum

Agrostis exarata

Agrostis stolonifera

Bromus carinatus

Bromus hordeaceus

Bromus inermis

Bromus tectorum

Elymus elymoides (Sitanion hystrix)

Elymus glaucus

Elymus hispidus (Elytrigia intermedia)

Elymus trachycaulus ssp. trachycaulus

Elymus (Leymus) triticoides

Grass Family

crested wheatgrass

bentgrass

red-top bentgrass

mountain brome

soft chess

smooth brome

cheat grass

squirrel-tail

blue wild-rye

pubescent wheatgrass

bluebunch wheatgrass

creeping wild-rye

E. (Pascopyrum) smithii
possibly also present.

Hordeum brachyantherum

Hordeum jubatum

Muhlenbergia richardsonis

Phleum pratense

Poa bulbosa ssp. vivipara

Poa pratensis

Poa secunda

Stipa (Achnatherum) occidentale

meadow barley

foxtail barley

sheep muhly

timothy

bulb-forming bluegrass

Kentucky bluegrass

one-sided bluegrass

western needle-grass