

APPENDIX C
Biological Resources Reports

April 23, 2018

JN 133218

Southwest Gas

Attn: Pam Chavez

PO Box 1498

Victorville, CA 92393-1498

SUBJECT: SIMP/2019 HP STL/North Shore Replacement Project, City of Big Bear Lake, County of San Bernardino, California

Dear Ms. Chavez:

On behalf of Southwest Gas, Michael Baker International (Michael Baker) has prepared this letter report to document the results of a biological resources reconnaissance for the SIMP/2019 HP STL/North Shore Replacement Project. The proposed project is located along North Shore Drive, North Shore Lane and Stanfield Cutoff, within and just north of the City of Big Bear Lake, San Bernardino County, California. The fieldwork for this biological resources report was conducted on April 10, 2018.

Project Description and Location

The project is being completed as part of the overall goal to increase the feed into the Big Bear area by upsizing the existing 6-inch STL high pressure main with 8-inch STL high pressure main along Northshore Drive and Stanfield Cutoff and combining the east leg of the Big Bear West High-Pressure system with the Cushenbury System. This project will replace 42-feet of 8-inch high pressure STL, 12,065-feet of 6-inch high pressure STL, 79-feet of 2-inch high pressure STL, 111-feet of 1-inch high pressure STL and 70-feet of 3/4-inch high pressure STL main with 12,441-feet of 8-inch STL, 13-feet of 6-inch high pressure STL, 51-feet of 4-inch high pressure STL, 243-feet of 2-inch high pressure STL main. There are no services located along this project. Open trench and horizontal directional drilling (HDD) boring methods will be utilized for main installation.

The project site is located along North Shore Drive, North Shore Lane and Stanfield Cutoff, within and just north of the City of Big Bear Lake, San Bernardino County, California (Figure 1, *Regional Vicinity*). Specifically, the project site is located at 34°15'43.36" N, 116°53'4903" W, in Sections 16, 17, and 18, Township 2 North, Range 1 East, of the U.S. Geological Survey (USGS) *Fawnskin, California* 7.5-minute topographic quadrangle map (Figure 2, *Site Vicinity*).

Methods

Prior to the site visit, Michael Baker conducted a records search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB) RareFind 5 and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants within a 1-mile radius of the project site. Other sources included the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) online system and Environmental Conservation Online System (ECOS) Critical Habitat online mapper, U.S. Department of Agriculture/Natural Resources Conservation Service (USDA/NRCS) Web Soil Survey, Federal

Emergency Management Agency (FEMA) 100-Year Flood Zones, USFWS National Wetlands Inventory (NWI) maps online, U.S. Climate Data, topographic maps, historic and current aerial photography, and hydrology and watershed data.

On April 10, 2018 Michael Baker biologists and regulatory specialists Linda Nguyen, Ryan Phaneuf, and Stephen Anderson conducted a biological resources reconnaissance and preliminary jurisdictional delineation within the survey area. Weather conditions varied between partly cloudy and clear skies, a temperature ranging between approximately 65 and 75 degrees Fahrenheit, and winds approximately 0 to 2 miles per hour. The survey was conducted by traversing the study area on foot (and using binoculars for areas inaccessible) documenting all plant and wildlife species observed, mapping vegetation communities (Figure 4, *Vegetation Communities and Land Uses*), photographing existing site conditions, and evaluating the sites' potential to support special-status plant and wildlife species known to occur in the area.

Results

The study area consists of the northern end of Big Bear Lake along existing roadways, along with upland portions along the lake comprised of Mixed Pine Forest, Southern Willow Scrub, Native Grassland, Freshwater Seep, Urban/Developed, and Bare Ground. The study area consists of a 100-foot buffer along a roughly 2-mile portion of existing roadway. The following is a description of each vegetation community observed and mapped within the study area, in relative order of dominance (Figure 4, *Vegetation Communities and Land Uses*).

Mixed Pine Forest

The majority of the study area is dominated by an undisturbed Mixed Pine Forest habitat. Jeffrey pine (*Pinus jeffreyi*), yellow pine (*Pinus ponderosa*), and western juniper (*Juniperus occidentalis*) dominate the canopy, with an understory dominated by common sagebrush (*Artemisia tridentata*) and rubber rabbitbrush (*Ericameria nauseosa*).

Southern Willow Scrub

Small portions along the border of Big Bear Lake within the study area are comprised of undisturbed Southern Willow Scrub habitat. These areas were dominated by arroyo willow (*Salix lasiolepis*), and are all devoid of an understory.

Native Grassland

Small portions at the southern and northern ends of the study are comprised of Native Grassland habitat. These areas are dominated by fox tail barley (*Hordeum jubatum*), with insignificant amounts of tumble mustard (*Sisymbrium altissimum*) and Mexican rush (*Juncus mexicanus*). These species were present during our survey; however, this area can occasionally become inundated when the water level in Big Bear Lake is at its maximum capacity.

Freshwater Seep

A small portion along the western end of the study area contained a moderately undisturbed Freshwater Seep habitat. The seep was along the south side of North Shore Drive, and flowed south out of the study area. The vegetation was composed mainly of an herbaceous layer

dominated by sedge (*Carex* spp.), duckweed (*Lemna valdiviana*), and watercress (*Nasturtium officinale*).

Urban/Developed and Bare Ground

Due to the many transportation corridors and other development within the study area, a substantial portion of the study area is considered Urban/Developed. In addition, portions within the study area are completely devoid of any vegetation or development and are considered Bare Ground.

Table 1 below provides the acreages of each vegetation community, and is broken down by parcel.

Table 1. Vegetation Communities

Vegetation Community	Acreage
Mixed Pine Forest	31.08
Southern Willow Scrub	0.36
Native Grassland	5.18
Freshwater Seep	0.15
Urban/Developed	17.69
Bare Ground	1.88
TOTAL	56.34

On-site and adjoining soils were reviewed prior to the field visit through the USDA, NRCS Web Soil Survey (USDA, NRCS 2017). The project site contains the following soils:

- BoD—Morical, very deep-Hecker families complex, 2 to 15 percent slopes
- BoE—Morical, very deep-Hecker families complex, 15 to 30 percent slopes
- DdDE—Pacífico-Preston families complex, 2 to 30 percent slopes
- W—Water areas

No special-status plant species were observed on-site. A total of twenty-two (22) plant species were observed during the site visit (refer to Appendix B). Based on the records search, a total of forty (40) special-status plant species have been recorded within the vicinity of the project by the CNDDDB and CNPS online inventory. Many of these species have a low potential or are not expected to occur on-site due to a lack of habitat suitable to support them. There is a moderate potential for four (4) special-status plant species to occur within the parcel, including, but not limited to, crested milk-vetch (*Astragalus bicristatus*; a CRPR 4.3 species), Heckard’s paintbrush (*Castilleja montigena*; CRPR 4.3), Parish’s rupertia (*Rupertia rigidia*; CRPR 4.3), and San Bernardino Mountains bladderpod (*Physaria kingie* ssp. *Bernardina*; CRPR 1B.1).

No special-status wildlife species were observed on-site. A total of fourteen (14) wildlife species were detected during the site visit (refer to Appendix B). Based on the records search, a total of two (2) special-status wildlife species have been recorded within the vicinity of the project by the CNDDDB (Figure 5, *Special-Status Biological Resources*). These species have a low potential or

are not expected to occur within the study area due to a lack of habitat suitable to support them.

The study area is located within mapped USFWS-designated Critical Habitat for ash-grey paintbrush (*Castilleja cinerea*). The study area does not support habitat for other listed species with USFWS-designated Critical Habitat nearby.

Please contact me at (949) 330-4297 or at Lmack@mbakerintl.com with any questions you may have regarding the results of the biological resources reconnaissance.

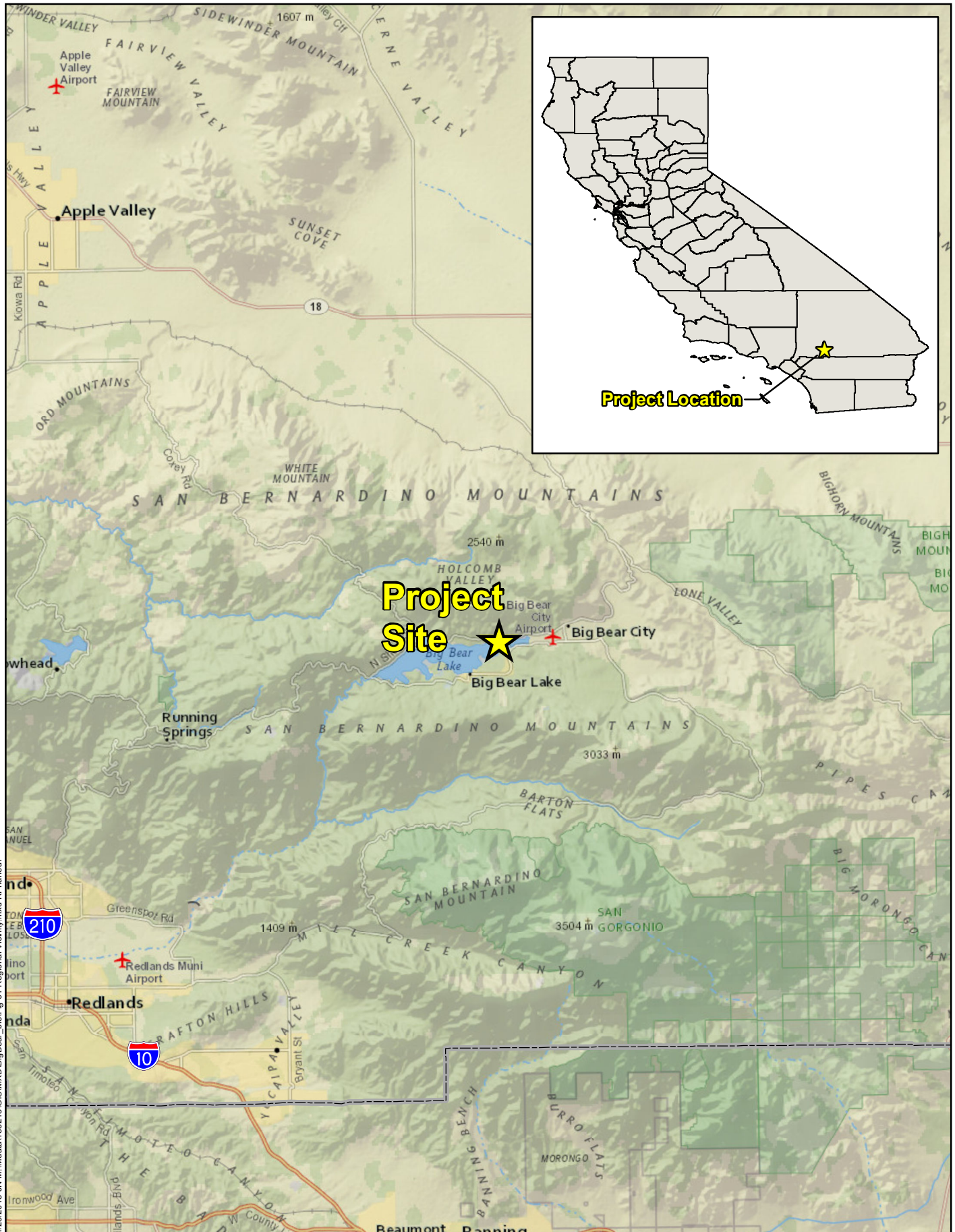
Sincerely,

A handwritten signature in black ink that reads "Lauren Mack". The signature is written in a cursive, flowing style.

Lauren Mack, PWS, CERP, SITES AP
Environmental Specialist
Planning and Environmental Sciences

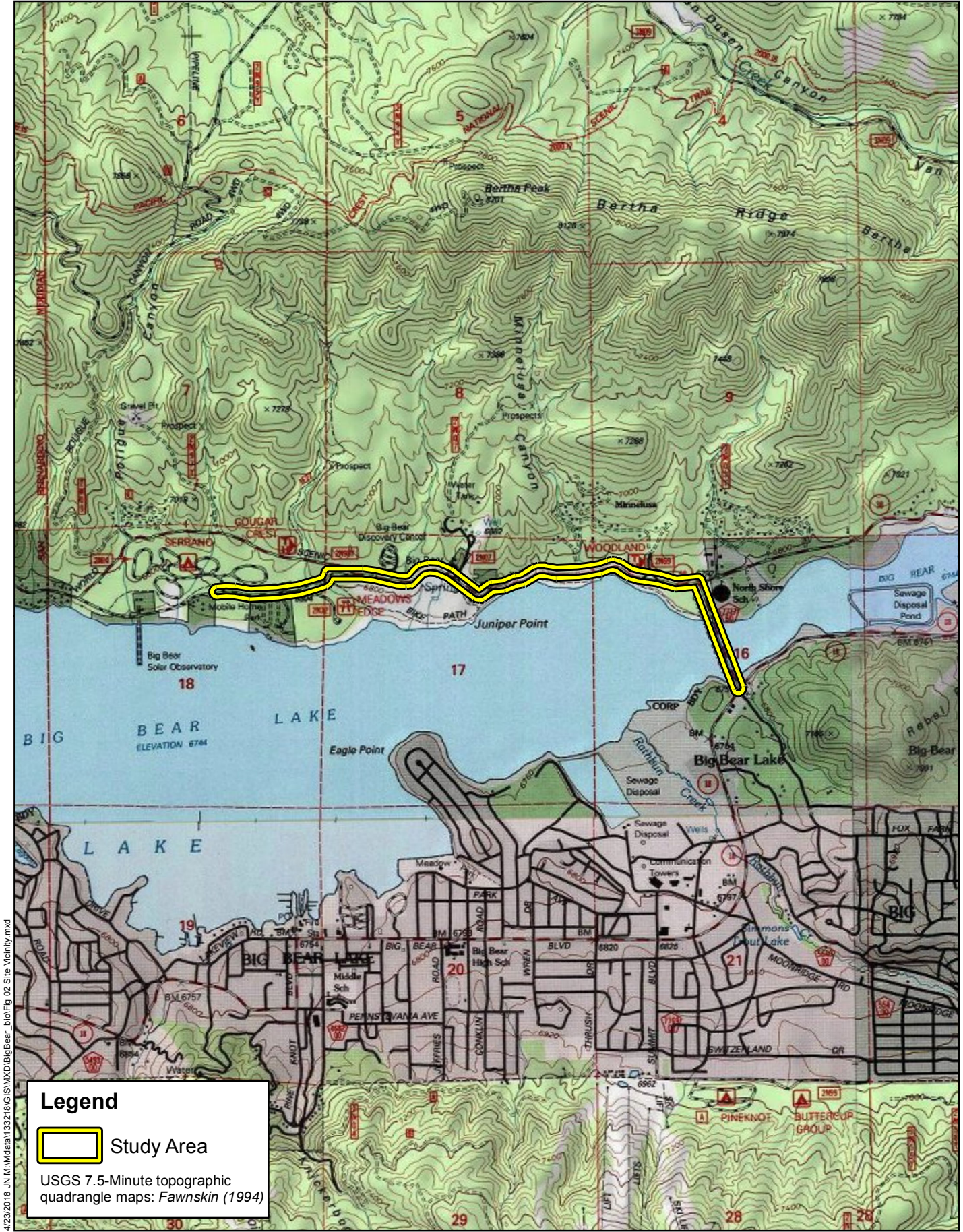
Attachments:

Figure 1: Regional Vicinity
Figure 2: Site Vicinity
Figure 3: Project Site
Figure 4: Vegetation Communities and Land Uses
Figure 5: Special-Status Biological Resources
Appendix A: Site Photographs
Appendix B: Species Observed List
Appendix C: Special-Status Species Table



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Figure 1



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Figure 2




NORTH SHORE DR

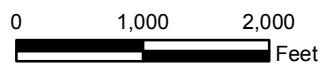
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BIG BEAR BLVD

Legend

 Study Area

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Source: ArcGIS Online

SIMP/2019 HP STL/NORTH SHORE REPLACEMENT
BIOLOGICAL RESOURCES REPORT

Project Site

Exhibit 3

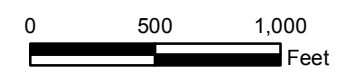


Legend

- Study Area
- 31.08 ac Mixed Pine Forest
- 0.36 ac Southern Willow Scrub
- 0.15 ac Freshwater Seep
- 5.18 ac Native Grassland
- 1.88 ac Bare Ground
- 17.69 ac Urban/ Developed



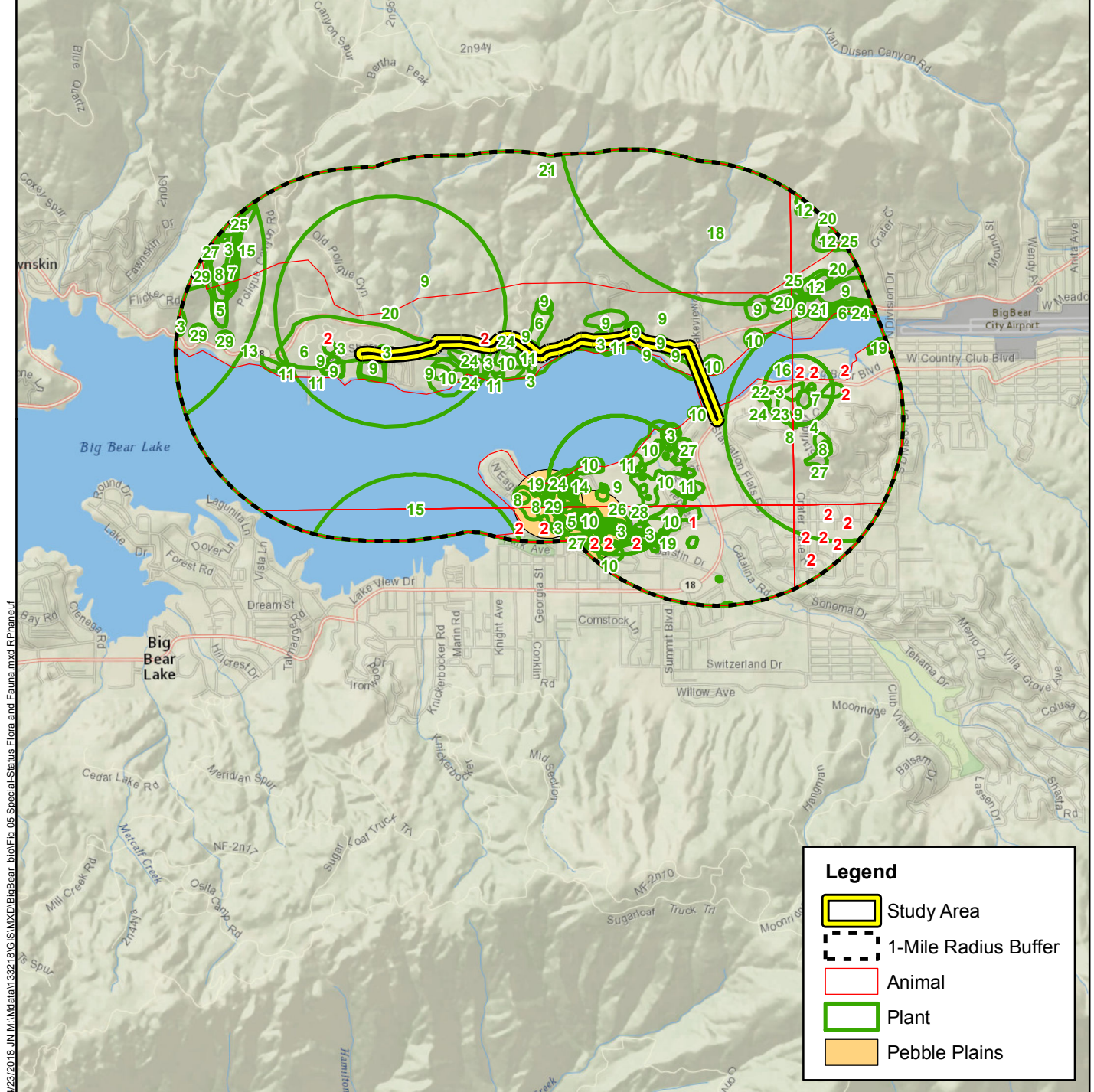
April 12, 2017



Source: ArcGIS Online

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ID	Animal	ID	Plant	ID	Plant
1	lodgepole chipmunk	3	ash-gray paintbrush	16	Parish's rockcress
2	southern rubber boa	4	Baja navarretia	17	Parish's yampah
		5	Bear Valley pyrrocoma	18	Peirson's spring beauty
		6	Big Bear Valley milk-vetch	19	San Bernardino blue grass
		7	Big Bear Valley phlox	20	San Bernardino Mountains bladderpod
		8	Big Bear Valley sandwort	21	San Bernardino Mountains dudleya
		9	Big Bear Valley woolypod	22	San Bernardino Mountains monkeyflower
		10	bird-foot checkerbloom	23	San Bernardino Mountains owl's-clover
		11	California dandelion	24	San Bernardino ragwort
		12	Cushenbury buckwheat	25	Shockley's rockcress
		13	grey-leaved violet	26	short-sepaled lewisia
		14	lemon lily	28	slender-petaled thelypodium
		15	little purple monkeyflower	29	southern mountain buckwheat



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SIMP/2019 HP STL/NORTH SHORE REPLACEMENT
 BIOLOGICAL RESOURCES REPORT
**Special-Status Biological Resources
 Documented within a 1-mile Radius**

Appendix A: Site Photographs



Photo 1: Looking north at the Native Grassland at the eastern end of the study area



Photo 2: Mixed Pine Forest along North Shore Drive



Photo 3: Southern Willow Scrub along the edge of Big Bear Lake



Photo 4: Freshwater Seep along North Shore Drive



Photo 5: Looking west down North Shore Drive near intersection with Stanfield Cutoff



Photo 6: Mixed Pine Forest at western end of project site along North Shore Drive

Appendix B: Plants and Wildlife Species Observed List

Scientific Name*	Common Name	Cal-IPC Rating** or Special-Status***
Plants		
<i>Abies concolor</i>	White silver fir	
<i>Arctostaphylos patula</i>	green leaf manzanita	
<i>Artemisia tridentata</i>	common sagebrush	
<i>Carex praegracilis</i>	field sedge	
<i>Cercocarpus ledifolius</i>	desert mountain mahogany	
<i>Ericameria nauseosa</i>	rubber rabbitbrush	
<i>Erodium cicutarium</i> *	coastal heron's bill	Limited**
<i>Hordeum jubatum</i>	fox tail barley	
<i>Juncus mexicanus</i>	Mexican rush	
<i>Juniperus occidentalis</i>	western juniper	
<i>Lemna valdiviana</i>	duckweed	
<i>Lupinus excubitus</i>	grape lupine	
<i>Medicago lupulina</i>	black medick	
<i>Muhlenbergia rigens</i>	deerglass	
<i>Nasturtium officinale</i>	watercress	
<i>Pinus jeffreyi</i>	Jeffrey pine	
<i>Pinus ponderosa</i>	yellow pine	
<i>Salix lasiolepis</i>	arroyo willow	
<i>Salsola tragus</i> *	Russian thistle	Limited**
<i>Sisymbrium altissimum</i>	tumble mustard	
<i>Taraxacum officinale</i>	common dandelion	
<i>Urtica urens</i>	dwarf nettle	
Reptiles		
<i>Sceloporus occidentalis</i>	western fence lizard	
Birds		
<i>Anas platyrhynchos</i>	mallard	
<i>Ardea herodias</i>	great blue heron	
<i>Colaptes auratus</i>	northern flicker	
<i>Cyanocitta stelleri</i>	Steller's jay	
<i>Euphagus cyanocephalus</i>	Brewer's blackbird	
<i>Fulica americana</i>	American coot	
<i>Poecile gambeli</i>	mountain chickadee	
<i>Sitta carolinensis</i>	white-breasted nuthatch	
<i>Spinus psaltria</i>	lesser goldfinch	
<i>Tachycineta thalassina</i>	violet-green swallow	

Scientific Name*	Common Name	Cal-IPC Rating** or Special-Status***
<i>Zonotrichia leucophrys</i>	white-crowned sparrow	
Mammals		
<i>Thomomys bottae</i>	pocket gopher	
<i>Otospermophilus beecheyi</i>	California ground squirrel	

* Non-native species

** **California Invasive Plant Council (Cal-IPC) Ratings**

- High These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- Moderate These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- Limited These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Appendix C: Special-Status Species Table

<i>Scientific Name</i>	Status* Federal / State CRPR or G-Rank / S-Rank	Habitat Preferences and Distribution Affinities	Potential for Occurrence
Common Name			
PLANTS			
<i>Abronia nana</i> var. <i>covillei</i> Coville's dwarf abronia	-- / -- 4.2	Perennial herb. Blooms May through August. Found in Great Basin scrub, Joshua Tree woodland, and pinion and juniper woodlands. Known elevations range from 1525-3100 meters above mean sea level (amsl).	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Astragalus bicristatus</i> crested milk-vetch	-- / -- 4.3	Perennial herb. Blooms May through August. Found in upper and lower montane coniferous forest. Known elevations range from 1700-2745 meters amsl.	Moderate. Suitable habitat is present within the survey area. However, this species was not observed during the survey.
<i>Astragalus lentiginosus</i> var. <i>sierrae</i> Big Bear Valley milk-vetch	-- / -- 1B.2	Perennial herb. Blooms April through August. Found in meadows and seeps, pinyon and juniper woodland, and upper montane coniferous forest. Known elevations range from 1710-3230 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Astragalus leucolobus</i> Big Bear Valley woollypod	-- / -- 1B.2	Perennial herb. Blooms May through July. Found in lower montane coniferous forest, pebble plain, pinyon and juniper woodland, and upper montane coniferous forest. Known elevations range from 1460-2895 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Boechera parishii</i> Parish's rockcress	-- / -- 1B.2	Perennial herb. Blooms April through May. Found in pebble plain, pinyon and juniper woodland, upper montane coniferous forest. Known elevations range from 1825-2805 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Boechera shockleyi</i> Shockley's rockcress	-- / -- 2B.2	Perennial herb. Blooms May through June. Found in pinyon and juniper woodland. Known elevations range from 875-2515 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Calochortus palmeri</i> var. <i>palmeri</i> Palmer's mariposa lily	-- / -- 1B.2	Perennial herb. Blooms April through July. Found in meadows and seeps, chaparral, and lower montane coniferous forest. Known elevations range from 485-2500 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.

<i>Scientific Name</i> Common Name	Status* Federal / State CRPR or G-Rank / S-Rank	Habitat Preferences and Distribution Affinities	Potential for Occurrence
<i>Castilleja cinerea</i> ash-gray paintbrush	-- / -- 1B.2	Perennial herb. Blooms June through August. Found in pebble plains, upper montane coniferous forest, Mojavean desert scrub, meadows, and pinyon and juniper woodland. Known elevations range from 725-2745 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Castilleja lasiorhyncha</i> San Bernardino Mountains owl's- clover	-- / -- 1B.2	Annual herb. Blooms May through August. Found in meadows and seeps, pebble plain, upper montane coniferous forest, chaparral, and riparian woodland. Known elevations range from 1140-2320 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Castilleja montigena</i> Heckard's paintbrush	-- / -- 4.3	Perennial herb. Blooms May through August. Found in lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest. Known elevations range from 1950-2800 meters amsl.	Moderate. Suitable habitat is present within the survey area. However, this species was not observed during the survey.
<i>Claytonia lanceolata</i> var. <i>peirsonii</i> Peirson's spring beauty	-- / -- 3.1	Perennial herb. Blooms May through June. Found in upper montane coniferous forest and subalpine coniferous forest along granitic slopes. Known elevations range from 2375-2500 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Delphinium parryi</i> ssp. <i>purpureum</i> Mt. Pinos larkspur	-- / -- 4.3	Perennial herb. Blooms May through June. Found in pinyon and juniper woodland, Mojavean desert scrub, and chaparral. Known elevations range from 1000-2600 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Dudleya abramsii</i> ssp. <i>affinis</i> San Bernardino Mountains dudleya	-- / -- 1B.2	Perennial herb. Blooms April through June. Found along granite outcrops in pebble plain, upper montane coniferous forest, and pinyon and juniper woodland. Known elevations range from 1200-2425 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Eremogone ursina</i> Big Bear Valley sandwort	-- / -- 1B.2	Perennial herb. Blooms May through August. Found in rocky areas in pebble plain, pinyon and juniper woodland, and meadows and seeps. Known elevations range from 1795-2895 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.

<i>Scientific Name</i> Common Name	Status* Federal / State CRPR or G-Rank / S-Rank	Habitat Preferences and Distribution Affinities	Potential for Occurrence
<i>Eriogonum evanidum</i> vanishing wild buckwheat	-- / -- 1B.2	Annual herb. Blooms July through October. Found in sandy sites in chaparral, cismontane woodland, lower montane coniferous forest, and pinyon and juniper woodland. Known elevations range from 975-2240 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Eriogonum kennedyi</i> var. <i>austromontanum</i> southern mountain buckwheat	-- / -- 1B.2	Perennial herb. Blooms June through September. Found in pebble plain habitats. Known elevations range from 1765-3020 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Eriogonum ovalifolium</i> var. <i>vineum</i> Cushenbury buckwheat	-- / -- 1B.1	Perennial herb. Blooms May through August. Found in limestone mountain slopes within Mojavean desert scrub, pinyon and juniper woodland, and Joshua tree woodland. Known elevations range from 1430-2440 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Erythranthe exigua</i> San Bernardino Mountains monkeyflower	-- / -- 1B.2	Found in seeps and sandy disturbed soils in moist drainages of annual streams. Known elevations range from 2060-2630 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Erythranthe purpurea</i> little purple monkeyflower	-- / -- 1B.2	Found in dry clay or gravelly soils in upper montane coniferous forest, and along annual streams or vernal springs and seeps. Known elevations range from 2045-2290 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Heuchera parishii</i> Parish's alumroot	-- / -- 1B.3	Perennial herb. Blooms June through August. Found on rocky areas in upper and lower montane coniferous forest, subalpine coniferous forest, and alpine boulder and rock fields. Known elevations range from 1340-3505 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Hulsea vestita</i> ssp. <i>parryi</i> Parry's sunflower	-- / -- 4.3	Perennial herb. Blooms April through August. Found in rocky areas in upper and lower montane coniferous forest and pinyon and juniper woodland. Known elevations range from 1370-2895 amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.

<i>Scientific Name</i> Common Name	Status* Federal / State CRPR or G-Rank / S-Rank	Habitat Preferences and Distribution Affinities	Potential for Occurrence
<i>Ivesia argyrocoma</i> <i>var. argyrocoma</i> silver-haired ivesia	-- / -- 1B.2	Perennial herb. Blooms June through August. Found in pebble plains and meadows with other rare plants. Known elevations range between 1490-2960 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Lewisia brachycalyx</i> short-sepaed lewisia	-- / -- 2B.2	Perennial herb. Blooms February through June. Found in dry to moist meadows in rich loam, and in lower montane coniferous forest. Known elevations range from 1370-2450 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Lilium parryi</i> lemon lily	-- / -- 1B.2	Perennial herb. Blooms July through August. Found in wet, mountainous terrain, on shady edges of stream, and in open boggy meadows and seeps. Known elevations range from 625-2930 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Navarretia peninsularis</i> Baja navarretia	-- / -- 1B.2	Annual herb. Blooms June through August. Found in wet areas in open forest. Known elevations range from 1150-2365 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Packera Bernardina</i> San Bernardino ragwort	-- / -- 1B.2	Perennial herb. Blooms May through July. Found in alkaline meadows and dry rocky slopes. Known elevations range from 1615-2470 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Perideridia parishii</i> <i>ssp. parishii</i> Parish's yampah	-- / -- 2B.2	Perennial herb. Blooms June through August. Found in damp meadows or along streambeds with an open pine canopy. Known elevations range from 1470-2530 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Phacelia exilis</i> Transverse Range phacelia	-- / -- 4.3	Annual herb. Blooms May through August. Found along sandy or rocky slopes, flats, and meadows. Known elevations range from 1100-2700 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Phacelia mohavensis</i> Mojave phacelia	-- / -- 4.3	Annual herb. Blooms April through August. Found in sandy or gravelly soils along dry streambeds. Known elevations range from 1400-2500 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.

<i>Scientific Name</i> Common Name	Status* Federal / State CRPR or G-Rank / S-Rank	Habitat Preferences and Distribution Affinities	Potential for Occurrence
<i>Phlox dolichantha</i> Big Bear Valley phlox	-- / -- 1B.2	Perennial herb. Blooms May through July. Found along sloping hillsides under pines and black oak, with heavy pine litter. Known elevations range from 1980-2805 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Physaria kingii</i> ssp. <i>Bernardina</i> San Bernardino Mountains bladderpod	-- / -- 1B.1	Perennial herb. Blooms May through June. Found in dry sandy to rocky carbonate soils in pinyon and juniper woodland, lower montane coniferous forest, and subalpine coniferous forest. Known elevations range from 1850-2700 meters amsl.	Moderate. Suitable habitat is present within the survey area. However, this species was not observed during the survey.
<i>Poa atropurpurea</i> San Bernardino blue grass	-- / -- 1B.2	Perennial grass. Blooms May through July. Found in mesic meadows of open pine forests and grassy slopes in sandy soils. Known elevations range from 1255-2655 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Pyrrocoma uniflora</i> var. <i>gossypina</i> Bear Valley pyrrocoma	-- / -- 1B.2	Perennial herb. Blooms July through September. Found in meadows, meadow edges and along streams in or near pebble plain habitat. Known elevations range from 2040-2280 meters amsl.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
<i>Rupertia rigida</i> Parish's rupertia	-- / -- 4.3	Perennial herb. Blooms June through August. Found in chaparral, lower montane coniferous forest, cismontane woodland, meadows and seeps, pebble plain, and valley and foothill grassland.	Moderate. Suitable habitat is present within the survey area. However, this species was not observed during the survey.
<i>Sidalcea malviflora</i> ssp. <i>dolosa</i> Bear Valley checkerbloom	-- / -- 1B.2	Perennial herb. Blooms May through August. Found in wet areas within forested habitat in upper and lower montane coniferous forest. Known elevations range from 1575-2590 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Sidalcea pedata</i> bird-foot checkerbloom	-- / -- 1B.1	Perennial herb. Blooms May through August. Found in vernal mesic sites in meadows or pebble plains. Known elevations range from 1840-2305 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.

<i>Scientific Name</i> Common Name	Status* Federal / State CRPR or G-Rank / S-Rank	Habitat Preferences and Distribution Affinities	Potential for Occurrence
<i>Taraxacum californicum</i> California dandelion	-- / -- 1B.1	Perennial herb. Blooms May through August. Found in mesic meadows, usually free of taller vegetation. Known elevations range from 1620-2590 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Thelypodium stenopetalum</i> slender-petaled thelypodium	-- / -- 1B.1	Perennial herb. Blooms May through September. Found in seasonally moist alkaline clay soils. Known elevations range from 2045-2240 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
<i>Viola pinetorum</i> ssp. <i>grisea</i> grey-leaved violet	-- / -- 1B.2	Perennial herb. Blooms April through July. Found on dry mountain peaks and slopes. Known elevations range from 1580-3700 meters amsl.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.
REPTILES			
<i>Charina umbratica</i> southern rubber boa	-- / ST G2G3 / S2S3	Known from the San Bernardino and San Jacinto mountains, this snake is found in the vicinity of streams or wet meadows and requires loose, moist soil for burrowing. Also found in rotting logs and within rock outcrops and under surface litter in a variety of montane forest habitats.	Low. Suitable habitat is marginally present within the survey area. This species was not observed during the surveys.
MAMMALS			
<i>Neotamias speciosus speciosus</i> lodgepole chipmunk	-- / -- G4T2T3 / S2S3	Found at the summits of isolated Piute, San Bernardino, and San Jacinto mountains. Usually found in open-canopy lodgepole pine forests.	Not expected. Suitable habitat is not present within the survey area, and this species was not observed during the survey.

*

California Rare Plant Rank (CRPR)

- 1A Plants presumed extirpated in California and either rare or extinct elsewhere
- 1B Plants rare, threatened, or endangered in California and elsewhere
- 2A Plants presumed extirpated in California, but common elsewhere
- 2B Plants rare, threatened, or endangered in California, but more common elsewhere
- 3 Plants about which more information is needed - a Review List
- 4 Plants of limited distribution - a Watch List

Threat Ranks

- .1 Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- .2 Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)
- .3 Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Federal Classifications

- FE Federally Endangered
- FT Federally Threatened
- FD Federally Delisted

State Classifications

- SE State Endangered
- ST State Threatened
- SD State Delisted
- SSC California Species of Special Concern

G-Rank / S-Rank

Global Rank and State Rank as per NatureServe and CDFW's CNDDDB RareFind5, ranging from critically imperiled (G1/S1) to demonstrably secure (G5/S5)

April 27, 2018

JN 133218

Southwest Gas

Attn: Pam Chavez

PO Box 1498

Victorville, CA 92393-1498

SUBJECT: Delineation of Jurisdictional Waters for the SIMP/2019 HP STL/North Shore Replacement Project, City of Big Bear Lake, County of San Bernardino, California

Dear Ms. Chavez:

On behalf of Southwest Gas, Michael Baker International (Michael Baker) has prepared this letter report to document the results of delineation of jurisdictional waters of the U.S. Army Corps of Engineers Los Angeles District (Corps), Santa Ana Regional Water Quality Control Board (Regional Board), and California Department of Fish and Wildlife Inland Deserts Region (CDFW) within SIMP/2019 HP STL/North Shore Replacement Project. The proposed project is located along North Shore Drive, North Shore Lane and Stanfield Cutoff, within and just north of the City of Big Bear Lake, San Bernardino County, California. The fieldwork for this jurisdictional delineation report was conducted on April 10, 2018.

Project Description and Location

The project is being completed as part of the overall goal to increase the feed into the Big Bear area by upsizing the existing 6 inch STL high pressure main with 8 inch STL high pressure main along Northshore Drive and Stanfield Cutoff and combining the east leg of the Big Bear West High-Pressure system with the Cushenbury System. This project will replace 42-feet of 8-inch high pressure STL, 12,065-feet of 6-inch high pressure STL, 79-feet of 2-inch high pressure STL, 111-feet of 1-inch high pressure STL and 70-feet of 3/4-inch high pressure STL main with 12,441-feet of 8-inch STL, 13-feet of 6-inch high pressure STL, 51-feet of 4-inch high pressure STL, 243-feet of 2-inch high pressure STL main. There are no services located along this project. Open trench and horizontal directional drilling boring methods will be utilized for main installation. No staging areas are anticipated to impact a non-paved area. Anticipated locations could include the parking area at North Shore Elementary, 765 Stanfield Cutoff; parking area at the North Shore boat launch, 41958 North Shore Dr.; and possibly the parking area at Juniper Point Picnic Area near 40751 North Shore Ln.

The project site is located along North Shore Drive, North Shore Lane and Stanfield Cutoff, within and just north of the City of Big Bear Lake, San Bernardino County, California (Figure 1, *Regional Vicinity*).

Specifically, the project site is located at 34°15'43.36" N, 116°53'49.03" W, in Sections 16, 17, and 18, Township 2 North, Range 1 East, of the U.S. Geological Survey (USGS) *Fawnskin, California* 7.5-minute topographic quadrangle map (Figure 2, *Site Vicinity*).

Summary of Regulations

There are three key agencies that regulate activities within streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. The CDFW regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Literature Review

Review of relevant literature and existing resources aids in the understanding of the environmental setting and preliminary identification of features that may fall under an agency's jurisdiction.

On-site and adjoining soils were reviewed prior to the field visit through the USDA, NRCS Web Soil Survey (USDA, NRCS 2017). The project site has been mapped (Appendix B, *USDA Soils*), as follows:

- BoD—Morical, very deep-Hecker families complex, 2 to 15 percent slopes
- BoE—Morical, very deep-Hecker families complex, 15 to 30 percent slopes
- DdDE—Pacífico-Preston families complex, 2 to 30 percent slopes
- W—Water areas

Michael Baker then reviewed the National Hydric Soils List (USDA, NRCS 2015) to identify soils mapped within the project site that are hydric. According to the soils list, there are no hydric soils mapped within the project site. Soil textures identified on-site were generally consistent with those mapped by the Soil Survey.

Michael Baker reviewed the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS, NWI 2016) maps online. The project site has been mapped as Lake, Freshwater Emergent Wetland, Riverine, and Freshwater Forested/Shrub Wetland. Refer to Appendix C for a copy of the NWI map. These mapped areas were used as references while documenting all potentially jurisdictional features as observed on-site during the delineation.

Michael Baker also reviewed the Federal Emergency Management Agency's (FEMA's) National Flood Hazard Layer and the project site is located in Zone A. Considered a high-risk area, Zone A is described as areas with a 1% annual chance of flooding and 26% chance of flooding within a 30-year mortgage. No depths or base flood elevations are shown within these areas since detailed analyses are not performed in such areas. Refer to Appendix D for a copy of the FEMA map.

Methodology

On April 10, 2018, Michael Baker biologists and regulatory specialists Linda Nguyen, Ryan Phaneuf, and Stephen Anderson conducted a formal jurisdictional delineation of the survey area using the most recent, agency-approved methodology, to identify and map jurisdictional limits within the project site.

Site Conditions

Refer to Appendix A for representative photos taken within the project site.

Non-Wetland Features

The eastern portion of the project boundary along Stanfield Cutoff includes portion of Big Bear Lake and its bank. Big Bear Lake is a lake located in the San Bernardino Mountains in San Bernardino County, California. It is completely snowed and has no tributaries or mechanical replenishment. Evidence of a Corps ordinary high water mark (OHWM) was observed via a scour line impressed on the bank on both sides of Stanfield Cutoff and change in particle size distribution. The banks along east side of Stanfield Cutoff contained mostly riprap and concrete, but were sparsely vegetated with arroyo willow (*Salix lasiolepis*; FACW), while the dried lake bed contained Mexican rush (*Juncus mexicanus*; FACW), sedge (*Carrix praegracilis*; FACW) and fox tail barley (*Hordeum jubatum*; FAC).

Wetland Features

No wetland features were noted within the boundaries of the project site. One soil pit was dug within the lakebed outside of the project boundary where dominant hydrophytic vegetation were observed. In general, the area lacked the presence of hydric soils. Refer to Appendix E for a copy of the Wetland Data Form. In general, the project site lacked the presence of hydric soils. Refer to Appendix C for a copy of the Wetland Data Forms.

Findings

U.S. Army Corps of Engineers

Big Bear Lake qualifies as Corps non-wetland Waters of the U.S. (WoUS) and evidence of an OHWM was noted within the project site, which totaled approximately 0.44-acres within the project site (Figure 4, *Jurisdictional Map*).

Regional Water Quality Control Board

The Regional Board regulates discharges to surface waters with a nexus to a Traditional Navigable Waters under the Clean Water Act, and the Porter-Cologne for those that do not. No additional State Waters were observed within the boundaries of the project site; therefore, the Regional Board follows that of Corps jurisdiction.

California Department of Fish and Wildlife

Big Bear Lake is considered CDFW jurisdictional lake. It is determined that approximately 0.44-acres of CDFW jurisdictional lake and 0.05-acres associated vegetation is located within the project site (Figure 4, *Jurisdictional Map*).

Impacts Summary

Project activities are assumed to be limited to paved areas of the existing roadways, and horizontal directional drilling boring method will be utilized for main installation under Stanfield Cutoff. Therefore, it is anticipated that no impacts to jurisdictional features are anticipated to occur as a result of the project activities. Work outside of paved areas would require additional analysis.

Please contact me at (949) 330-4297 or at Lmack@mbakerintl.com with any questions you may have regarding this project.

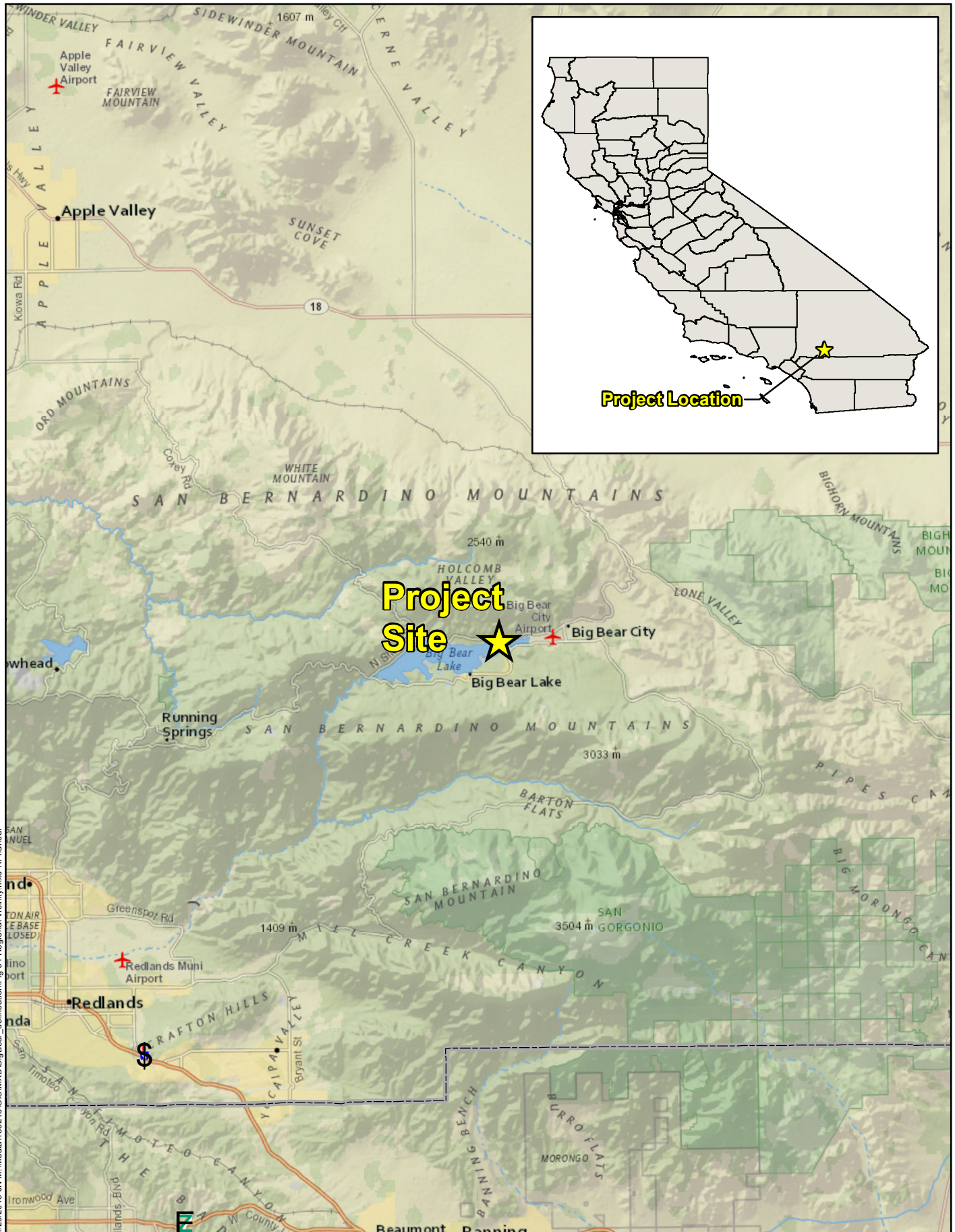
Sincerely,

A handwritten signature in black ink that reads "Lauren Mack". The signature is written in a cursive, flowing style.

Lauren Mack, PWS, CERP, SITES AP
Environmental Specialist
Planning and Environmental Sciences

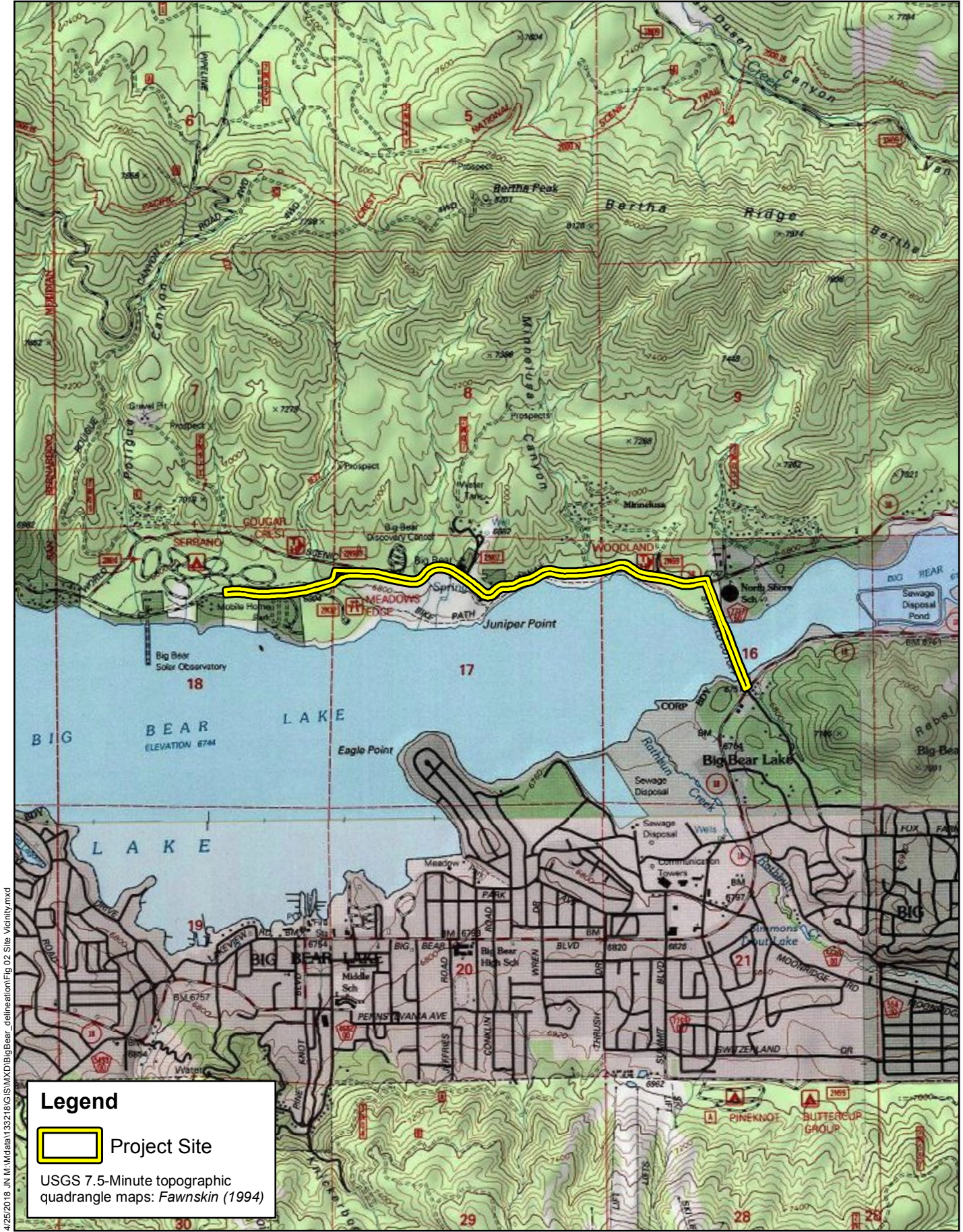
Attachments:

- Figure 1: Regional Vicinity
- Figure 2: Site Vicinity
- Figure 3: Project Site
- Figure 4: Jurisdictional Map
- Appendix A: Photos
- Appendix B: USDA Soils
- Appendix C: NWI Map
- Appendix D: FEMA Map
- Appendix E: Wetland Data Form



4/23/2018 10:11:13 AM \\mdata\133218\GIS\IMXD\BigBear_delineation\Fig 01 Regional Vicinity.mxd RPhaneuf

Figure 1



Legend

Project Site

USGS 7.5-Minute topographic quadrangle maps: Fawnskin (1994)

4/25/2018 JN.M:\Mdaa\133218\GIS\SWXD\BigBear_delineation\Fig 02 Site Vicinity.mxd

Figure 2

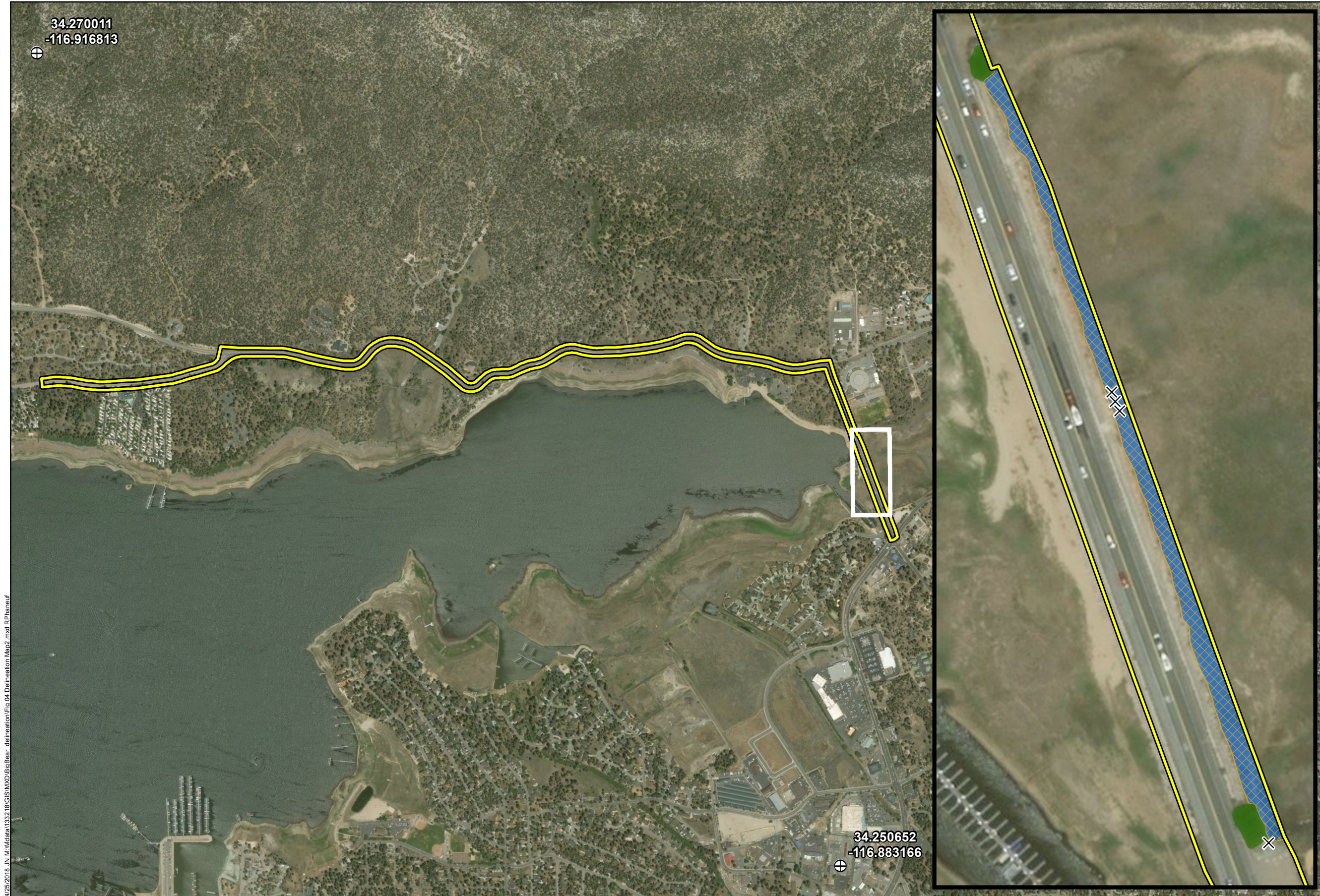
4/25/2018 11:32:18 AM \\M:\data\133218\GIS\WXD\BigBear_delineation\Fig 03 Project Site.mxd



Legend

 Project Site





- Legend**
- Project Site
 - Corps Non-wetland WoUS (0.44 ac)
 - CDFW Lake (0.44 ac)
 - CDFW Associated Vegetation (0.05 ac)
 - Culvert
 - Reference Point

April 27, 2018

0 500 1,000
Feet

Source: ArcGIS Online

4/25/2018 JN M:\data\133218\GIS\MXD\BigBear_delineation\Fig 04 Delineation Map2.mxd RPhaneuf

SIMP/2019 HP STL/NORTH SHORE REPLACEMENT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Jurisdictional Map

Figure 4

APPENDIX A
Site Photographs

Appendix A: Photos



Photo 1: Big Bear Lake bank scour along the eastern border and culverts going under Stanfield Cutoff, looking northwest.



Photo 2: Big Bear Lake dry lakebed and bank scour along the eastern border of Stanfield Cutoff, looking northwest.



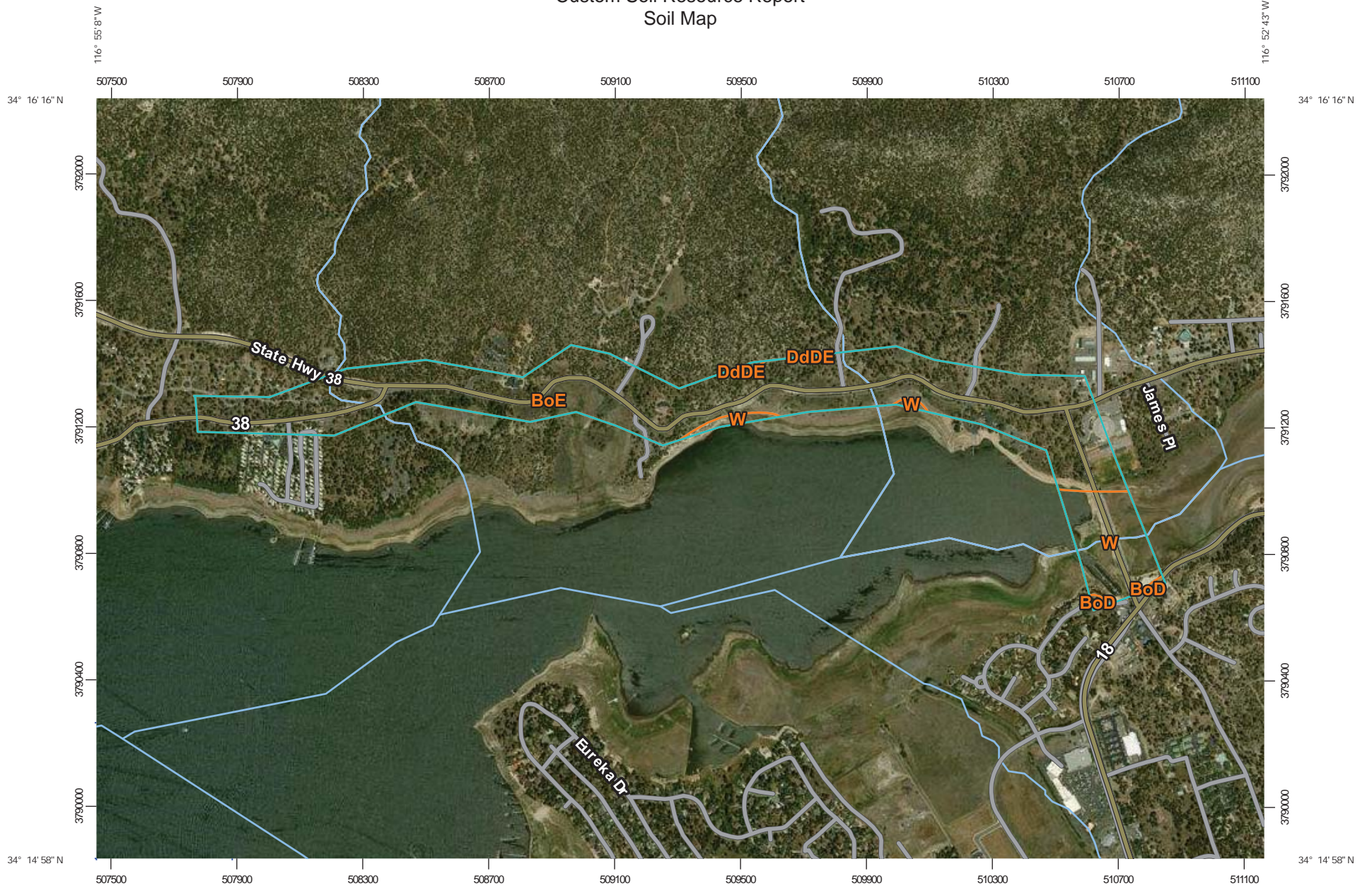
Photo 3: Big Bear Lake bank scour along the western border of Stanfield Cutoff, looking northeast.



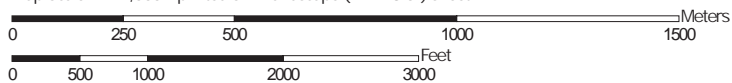
Photo 4: Big Bear Lake bank and culverts on the western border of Stanfield Cutoff, looking northeast.

APPENDIX B
USDA Soils

Custom Soil Resource Report Soil Map

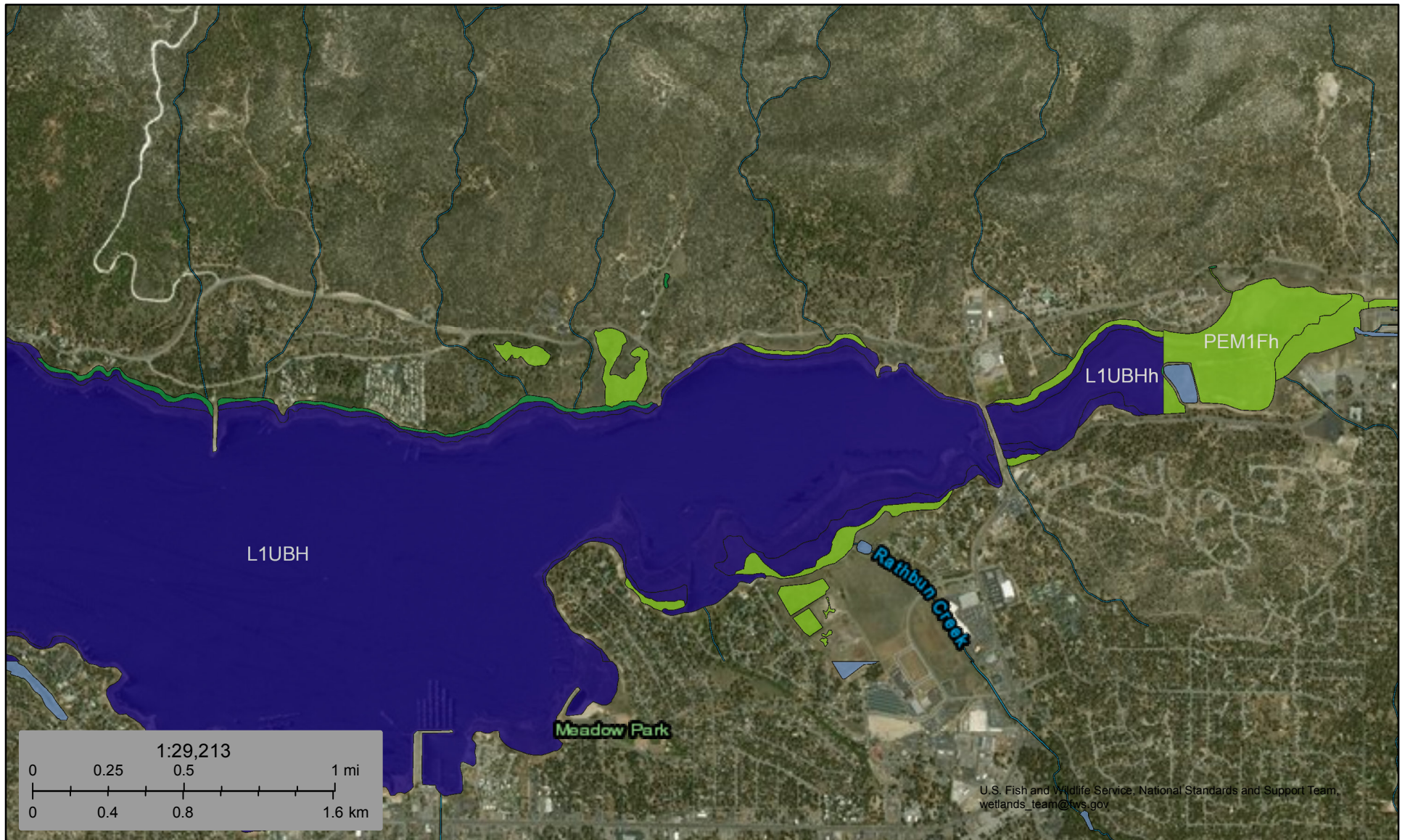


Map Scale: 1:17,000 if printed on A landscape (11" x 8.5") sheet.









Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

APPENDIX C
NWI Map



April 11, 2018

Wetlands

- | | | | | | |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland |  | Lake |
|  | Estuarine and Marine Wetland |  | Freshwater Forested/Shrub Wetland |  | Other |
| | |  | Freshwater Pond |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

APPENDIX D
FEMA Map

National Flood Hazard Layer FIRMette



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth
		Regulatory Floodway Zone AE, AO, AH, VE, AR

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)

OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **4/23/2018 at 1:28:28 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

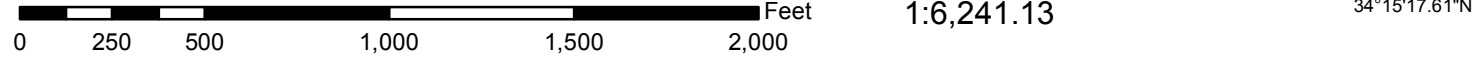
This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

34°15'48.54"N

116°53'22.39"W



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



116°52'43.43"W

APPENDIX E
Wetland Data Form

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Northshore Dr Vintage Steel Replacement Phase 1 City/County: Big Bear Lake Sampling Date: 04/10/18
 Applicant/Owner: SW Gas State: CA Sampling Point: 1
 Investigator(s): L. Nguyen, R. Phanuf, S. Anderson Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>30</u> x 1 = <u>30</u> FACW species _____ x 2 = _____ FAC species <u>20</u> x 3 = <u>60</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>50</u> (A) <u>90</u> (B) Prevalence Index = B/A = <u>1.8</u>
Sapling/Shrub Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u>) 1. <u>Hordeum</u> <u>20</u> <u>Y</u> <u>FAC</u> 2. <u>Juncus</u> <u>30</u> <u>Y</u> <u>OBL</u> 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ _____ = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100					SL	
2-4	10YR 5/3	100					S	
4-9	10YR 5/4	100					S	
9-14	10YR 3/2	100					LS	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) | <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: