


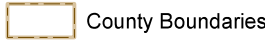
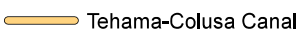
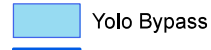


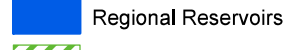
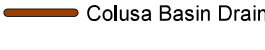
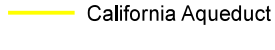


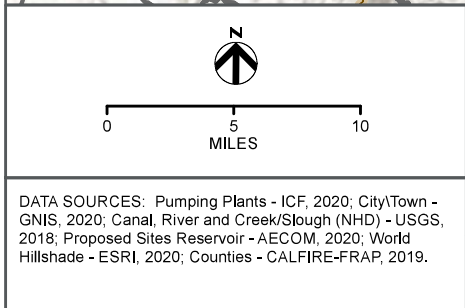
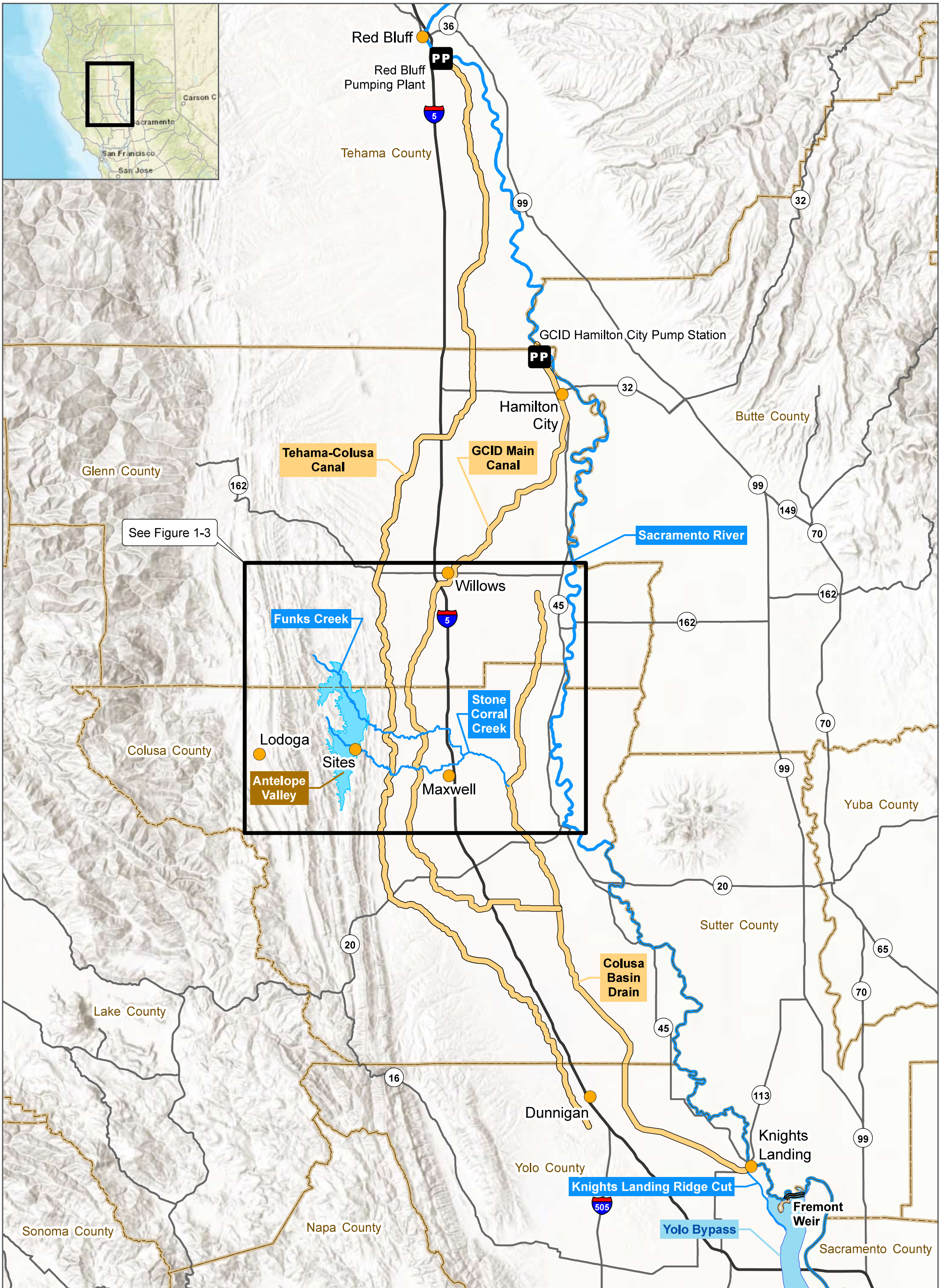

  
 DATA SOURCES: City/Town/Community - GNIS, 2020; Canals, Rivers and Regional Reservoirs (NHD) - USGS, 2018; Proposed Sites Reservoir - AECOM, 2020; Legal Delta Boundary - DWR 2019; World Hillshade - ESRI, 2020; Counties - CALFIRE-FRAP, 2019.

 City/Town/Community	 GCID Main Canal	 Sites Reservoir
 County Boundaries	 Tehama-Colusa Canal	 Yolo Bypass
 Rivers	 Delta-Mendota Canal	 Regional Reservoirs
 Colusa Basin Drain	 California Aqueduct	 Legal Delta Boundary

**FIGURE 1**  
REGIONAL MAP

MAP DATE: 6/24/2021





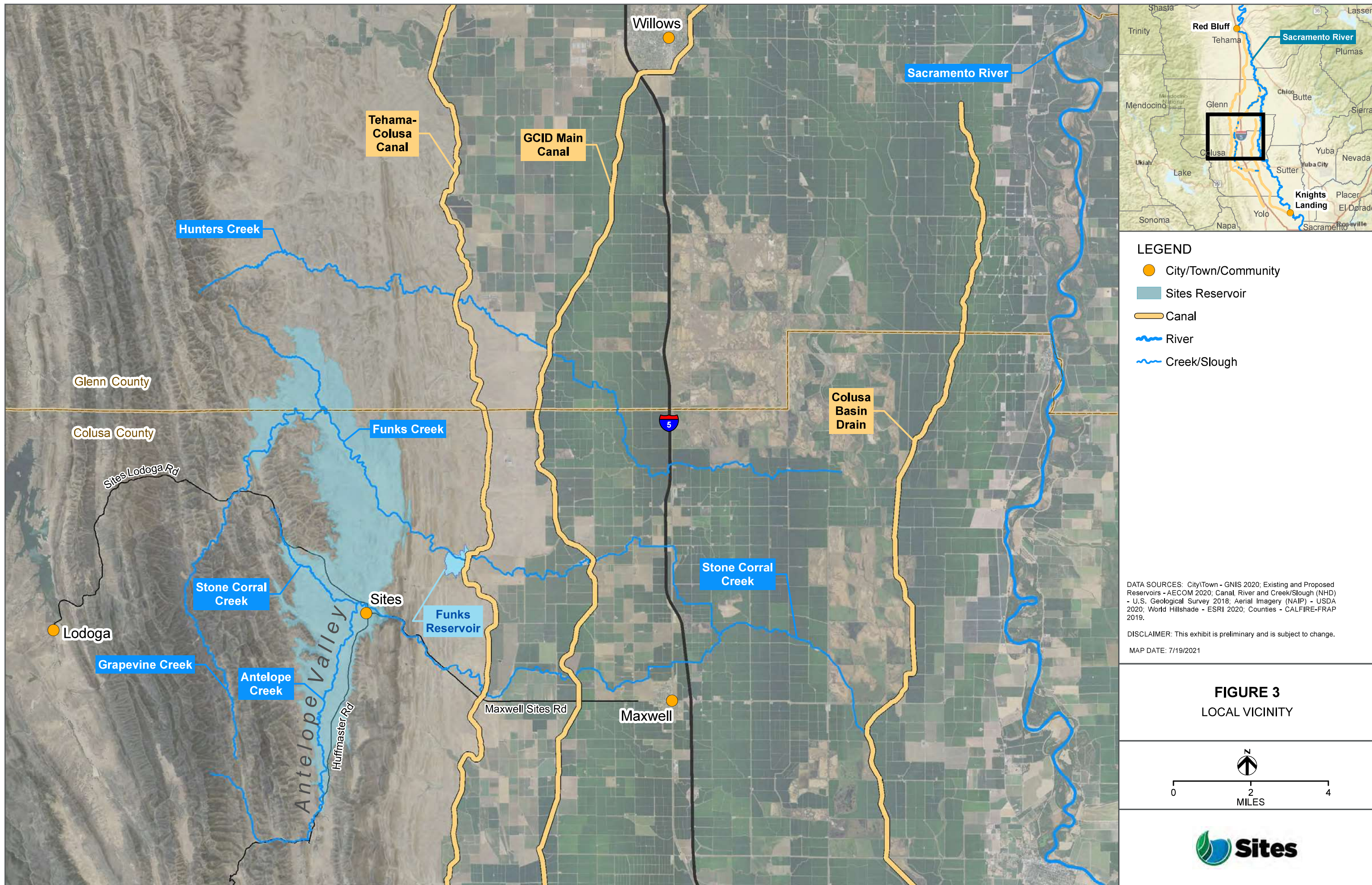
<b>PP</b>	Pumping Plant		River		Sites Reservoir
	City/Town/Community		Canal		Creek/Slough
	County Boundaries				

**FIGURE 2**  
VICINITY MAP

MAP DATE: 7/19/2021

DATA SOURCES: Pumping Plants - ICF, 2020; City/Town - GNIS, 2020; Canal, River and Creek/Slough (NHD) - USGS, 2018; Proposed Sites Reservoir - AECOM, 2020; World Hillshade - ESRI, 2020; Counties - CALFIRE-FRAP, 2019.

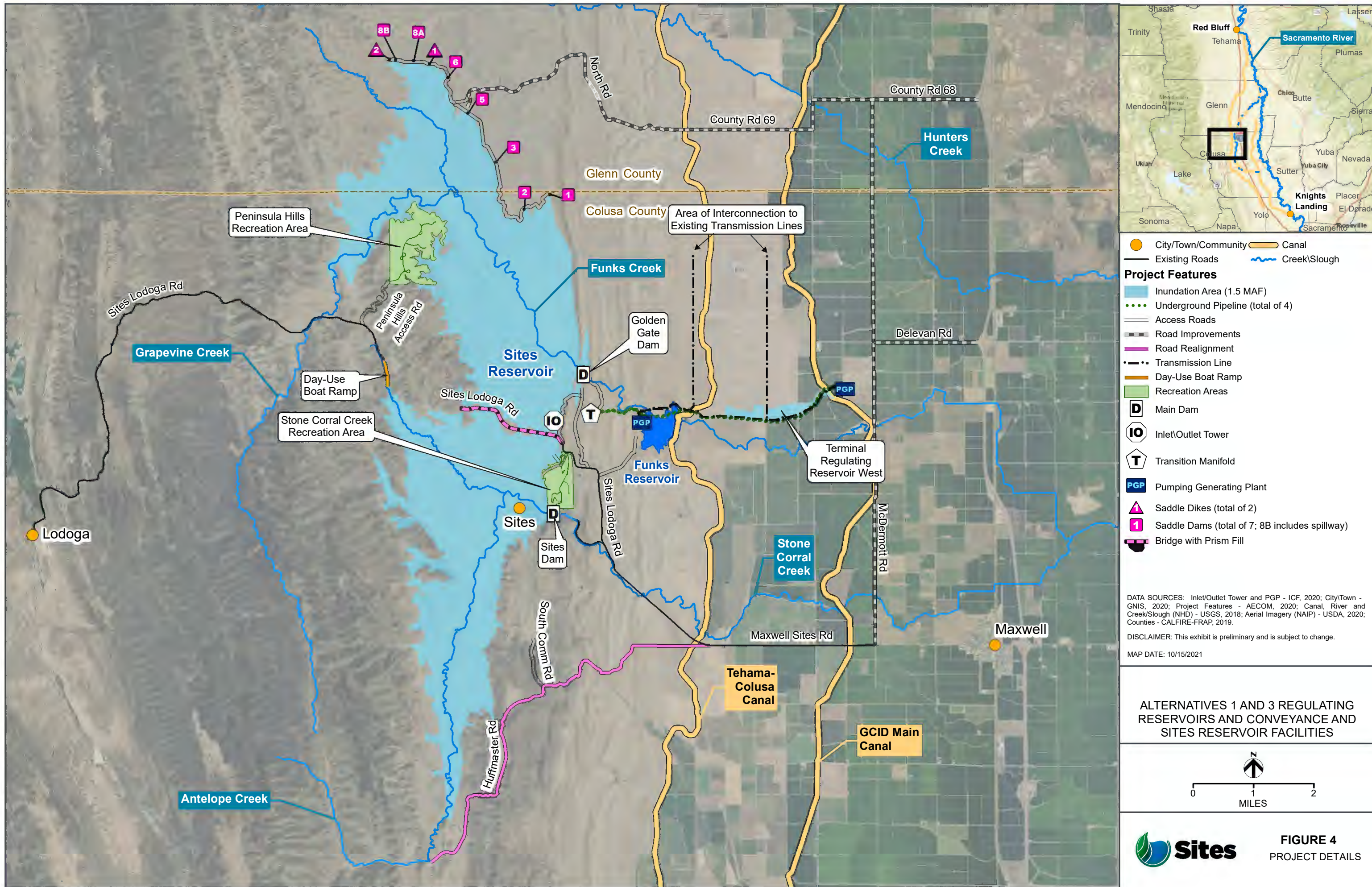
DISCLAIMER: This exhibit is preliminary and is subject to change.



**FIGURE 3**  
LOCAL VICINITY

0 2 4  
MILES

**Sites**



- City/Town/Community
  - Existing Roads
  - Canal
  - ~ Creek/Slough
- Project Features**
- Inundation Area (1.5 MAF)
  - ⋯ Underground Pipeline (total of 4)
  - Access Roads
  - Road Improvements
  - Road Realignment
  - Transmission Line
  - Day-Use Boat Ramp
  - Recreation Areas
  - D Main Dam
  - IO Inlet/Outlet Tower
  - T Transition Manifold
  - PGP Pumping Generating Plant
  - ▲ Saddle Dikes (total of 2)
  - Saddle Dams (total of 7; 8B includes spillway)
  - Bridge with Prism Fill

DATA SOURCES: Inlet/Outlet Tower and PGP - ICF, 2020; City/Town - GNIS, 2020; Project Features - AECOM, 2020; Canal, River and Creek/Slough (NHD) - USGS, 2018; Aerial Imagery (NAIP) - USDA, 2020; Counties - CALFIRE-FRAP, 2019.

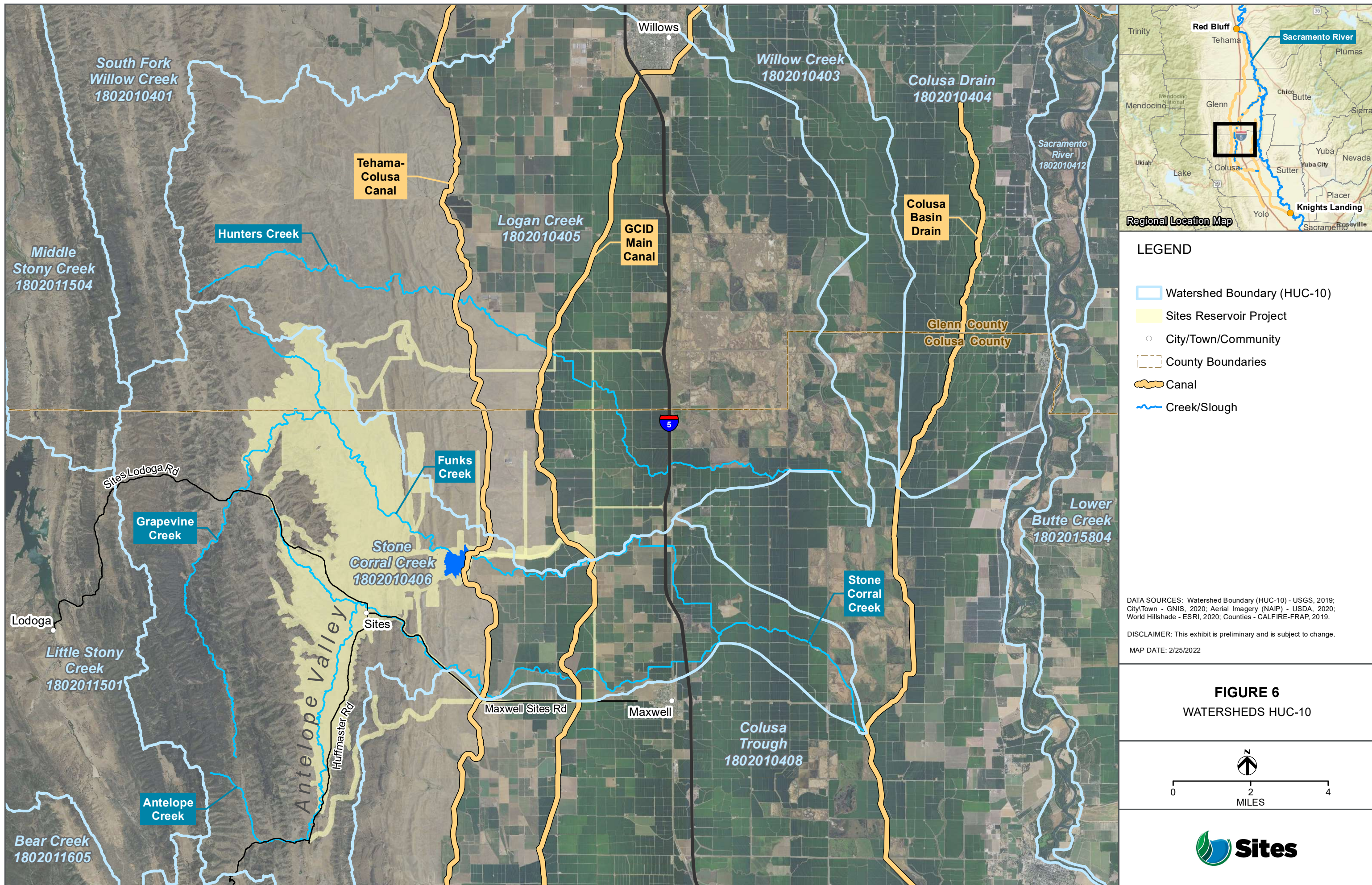
DISCLAIMER: This exhibit is preliminary and is subject to change.

MAP DATE: 10/15/2021

**ALTERNATIVES 1 AND 3 REGULATING RESERVOIRS AND CONVEYANCE AND SITES RESERVOIR FACILITIES**



**Sites** **FIGURE 4**  
PROJECT DETAILS



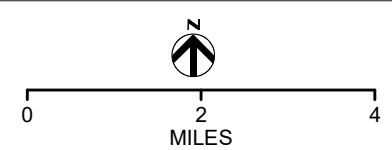
- LEGEND**
- Watershed Boundary (HUC-10)
  - Sites Reservoir Project
  - City/Town/Community
  - County Boundaries
  - Canal
  - Creek/Slough

DATA SOURCES: Watershed Boundary (HUC-10) - USGS, 2019; City/Town - GNIS, 2020; Aerial Imagery (NAIP) - USDA, 2020; World Hillshade - ESRI, 2020; Counties - CALFIRE-FRAP, 2019.

DISCLAIMER: This exhibit is preliminary and is subject to change.

MAP DATE: 2/25/2022

**FIGURE 6**  
WATERSHEDS HUC-10



**TABLE 13. SUMMARY OF IMPACTS TO POTENTIALLY JURISDICTIONAL RESOURCES RESULTING FROM CONSTRUCTION OF THE SITES RESERVOIR PROJECT<sup>1</sup>**

	Permanent Direct		Permanent Indirect		Temporary Direct		Total Area (acres)	Total Length (linear feet)
	Area (acres)	Length (linear feet)	Area (acres)	Length (linear feet)	Area (acres)	Length (linear feet)		
<b>Non-Wetlands</b>								
Canal	3.50	2,568	--	--	0.66	1,008	4.16	3,576
Ditch	0.37	3,381	0.31	2,725	0.15	752	0.83	6,858
Ephemeral Stream	6.06	75,567	16.26	213,498	0.39	4,159	22.71	293,224
Intermittent Stream	29.91	84,404	169.50	475,563	1.72	8,899	201.13	568,867
Pond	4.44	4,293	34.57	17,279	1.45	1,033	40.46	22,605
Reservoir	1.35	1,056	--	--	220.94	39,520	222.29	40,576
<i>Sub-Total</i>	<i>45.63</i>	<i>171,270</i>	<i>220.64</i>	<i>709,066</i>	<i>225.31</i>	<i>55,370</i>	<i>491.58</i>	<i>935,705.4</i>
<b>Wetlands</b>								
Forested Wetland	1.01	--	1.96	--	0.30	--	3.27	--
Freshwater Marsh	13.24	--	29.49	--	6.29	--	49.02	--
Managed Wetland	--	--	--	--	0.69	--	0.69	--
Scrub-Shrub Wetland	0.85	--	5.26	--	0.34	--	6.44	--
Seasonal Wetland	68.10	--	222.62	--	3.84	--	294.56	--
<i>Sub-Total</i>	<i>83.20</i>	<i>--</i>	<i>259.32</i>	<i>--</i>	<i>11.46</i>	<i>--</i>	<i>353.98</i>	<i>--</i>
<b>Grand Total</b>	<b>128.83</b>	<b>171,270</b>	<b>479.96</b>	<b>709,066</b>	<b>236.77</b>	<b>55,370</b>	<b>845.56</b>	<b>935,705</b>

Source: ICF 2023.

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total. Null values are represented as "--."

<sup>1</sup>The impact assessment in this application, including this and other impact tables, pending confirmation of a Preliminary Jurisdictional Determination (PJD) by USACE, is conservative and accordingly it captures the potential impacts to potentially jurisdictional resources for purposes of both the Conformity Rule defining "Waters of the United States" adopted by the USACE and USEPA in September 2023, see 88 Fed. Reg. No. 173 (September 8, 2023) and the pre-2015 definition in use prior to the adoption of the Rule.

## 4.3 Project Component Direct and Indirect Impacts

### 4.3.1 Geotechnical Investigations

#### Direct Impacts

Temporary direct impacts to potentially jurisdictional resources include ground disturbance associated with a subset of the subsurface geotechnical investigations described in [Section 2.3.2](#), specifically borehole drilling and test pits. The proposed locations for these geotechnical investigations are summarized in Table GEO-1.

**TABLE GEO-1. SUMMARY OF GEOTECHNICAL INVESTIGATIONS OCCURRING WITHIN POTENTIALLY JURISDICTIONAL RESOURCES**

Geotechnical Investigations Feature ID	Latitude/Longitude (center)	Appendix F Sheet Number
<b>Borehole Drilling</b>		
C2-B-001b	39.33658084/-122.3137653	182
B-B-003	39.32975579/-122.3215189	197
B-B-006	39.32011053/-122.3198512	229
GGB-B-014	39.26172862/-122.3399466	182
GGQ-B-003	39.35287409/-122.3212798	141
HM-B-013b	39.2607793/-122.3413674	324
HM-B-014	39.26172862/-122.3399466	324
SDB-B-003	39.41383232/-122.3726227	3
SD8-B-006	39.41653148/-122.3774835	3
SD3-B-104	39.39092389/-122.3480967	56
SD3-B-114	39.38980507/-122.3451373	65
SL-B-045	39.31844898/-122.3170744	229
<b>Test Pits</b>		
SD8-TP-006	39.41640389/-122.3776456	3
SD3-G-TP-002	39.38901697/-122.3456874	65

Permanent direct impacts (loss of potentially jurisdictional resources) are not expected for these activities. With respect to fill (CY) calculations, the top 12 inches of the bore holes will be backfilled with existing topsoil (temporary direct fill), but the rest of the bore hole will be filled with grout (permanent direct fill).

Table GEO-2 summarizes the impacts on potentially jurisdictional resources resulting from geotechnical investigations in acres and linear feet. Table GEO-3 summarizes the volume in CY of excavation and fill material, including material type, occurring in potentially jurisdictional resources from geotechnical investigations. In addition, Appendix E provides impacts (acres, linear feet) by aquatic resource alphanumeric identification (ID) code, Appendix F (impact map set) depicts the locations and footprints for the nine Project components occurring in potentially jurisdictional resources, and Appendix G provides a breakdown of the Appendix F page numbers by Project component.

**TABLE GEO-2. SUMMARY OF SURFACE AREA (ACRES) AND LENGTH (LINEAR FEET) OF POTENTIALLY JURISDICTIONAL RESOURCES IMPACTED BY GEOTECHNICAL INVESTIGATIONS**

	Temporary Direct	
	Area (acres)	Length (linear feet)
<b>Geotechnical Investigations</b>		
<b>Non-Wetland</b>		
Ditch	--	--
Ephemeral Stream	0.00004	1
Intermittent Stream	0.00012	3
Perennial Stream	--	--
Pond	--	--
<i>Non-Wetland Total</i>	<i>0.00016</i>	<i>4</i>
<b>Wetland</b>		
Forested Wetland	--	--
Freshwater Marsh	--	--
Scrub-Shrub Wetland	0.00004	1
Seasonal Wetland	0.00036	9
<i>Wetland Total</i>	<i>0.00040</i>	<i>10</i>
<b>Grand Total</b>	<b>0.00056</b>	<b>14</b>

-- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

**TABLE GEO-3. SUMMARY OF VOLUME (CUBIC YARDS) OF EXCAVATION AND FILL WITH SOIL OR AGGREGATE OF POTENTIALLY JURISDICTIONAL RESOURCES FILLED BY GEOTECHNICAL INVESTIGATIONS**

	Permanent Direct		Temporary Direct <sup>1</sup>	
	Excavation (cy)	Aggregate (cy)	Excavation (cy)	Soil (cy)
<b>Geotechnical Investigations</b>				
<b>Non-Wetland</b>				
Ditch	--	--	--	--
Ephemeral Stream	17.44	17.44	0.12	0.12
Intermittent Stream	5.00	5.00	0.36	0.36
Perennial Stream	--	--	--	--
Pond	--	--	--	--
<i>Non-Wetland Total</i>	<i>22.44</i>	<i>22.44</i>	<i>0.48</i>	<i>0.48</i>
<b>Wetland</b>				
Forested Wetland	--	--	--	--
Freshwater Marsh	--	--	--	--
Scrub-Shrub Wetland	1.16	1.16	0.12	0.12
Seasonal Wetland	42.45	42.45	5.47	5.47
<i>Wetland Total</i>	<i>43.61</i>	<i>43.61</i>	<i>5.59</i>	<i>5.59</i>
<b>Grand Total</b>	<b>66.05</b>	<b>66.05</b>	<b>6.07</b>	<b>6.07</b>

cy = cubic yards, -- = null value (zero)

<sup>1</sup>The top 12 inches of the bore holes will be backfilled with existing topsoil (temporary direct fill), but the rest of the bore hole will be filled with grout (permanent direct fill).

Notes:

1) Note that drainage crossings would require the use of clean, contained, temporary matting such as steel plates or hard density plastic mats for temporary vehicular access; therefore, no direct fill would be associated with temporary access.

2) Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.



## Indirect Impacts

Permanent indirect impacts are not expected for this activity. Please reference Appendix H for a qualitative summary of potential temporary indirect impacts by Project component, and Appendix J for a comprehensive description of proposed avoidance and minimization measures and best management practices (BMPs) to address potential direct and indirect impacts to potentially jurisdictional resources, water quality, endangered and threatened species (state and federal), and cultural resources. Associated measures include, but are not limited to, avoidance and minimization of potentially jurisdictional resources (Mitigation Measure [MM-] VEG-3.1); establishing activity exclusion zones (MM-VEG-2.2 and -3.4, MM-CUL-1.3); methylmercury management (MM-WQ-1.1); environmental site assessments (BMP-8); wastewater treatment (BMP-9); dredged material management (BMP-11); stormwater pollution prevention plan (BMP-12); spill prevention and hazardous materials management plan (BMP-13 and -30); fugitive dust control plan (BMP-28); and worker environmental awareness program (BMP-33).

## Impervious Surface

The top 12 inches of the bore holes will be backfilled with existing topsoil, thus the total impervious surface area created as a result of geotechnical investigations would be 0 acres.

### 4.3.2 Dams and Dikes

#### Direct Impacts

Permanent direct impacts to potentially jurisdictional resources include grading, excavating, and filling of aquatic resource areas within the dam and dike footprints. Temporary direct impacts to potentially jurisdictional resources may occur within temporary construction easement (TCE) areas if these resources within these areas cannot be avoided, but these impacts will be identified and quantified following advancement of the designs for dams and dikes.

Table D-1 summarizes the impacts on potentially jurisdictional resources resulting from dam and dike construction in acres and linear feet. Table D-2 summarizes the volume in CY of excavation and fill material, including material type, occurring in potentially jurisdictional resources from dam and dike construction. In addition, Appendix E provides impacts by aquatic resource alphanumeric ID code, Appendix F depicts the locations and footprints for the nine Project components occurring in potentially jurisdictional resources, and Appendix G provides a breakdown of the Appendix F page numbers by Project component.

**TABLE D-1. SUMMARY OF SURFACE AREA (ACRES) AND LENGTH (LINEAR FEET) OF POTENTIALLY JURISDICTIONAL RESOURCES IMPACTED BY DAMS AND DIKES**

	Permanent Direct		Permanent Indirect	
	Area (acres)	Length (linear feet)	Area (acres)	Length (linear feet)
<b>Dams and Dikes</b>				
<b>Non-Wetland</b>				
Ditch	--	--	0.31	2,725
Ephemeral Stream	0.90	10,933	15.98	210,549
Intermittent Stream	5.49	9,365	165.43	465,641
Pond	0.02	127	32.18	15,353
<i>Non-Wetland Total</i>	<i>6.41</i>	<i>20,426</i>	<i>213.90</i>	<i>694,269</i>
<b>Wetland</b>				
Forested Wetland	0.26	--	1.90	--
Freshwater Marsh	0.43	--	22.74	--
Scrub-Shrub Wetland	0.06	--	5.22	--
Seasonal Wetland	10.69	--	208.01	--
<i>Wetland Total</i>	<i>11.44</i>	<i>--</i>	<i>237.88</i>	<i>--</i>

	Permanent Direct		Permanent Indirect	
	Area (acres)	Length (linear feet)	Area (acres)	Length (linear feet)
<b>Grand Total</b>	<b>17.86</b>	<b>20,426</b>	<b>451.78</b>	<b>694,269</b>

-- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

**TABLE D-2. SUMMARY OF VOLUME (CUBIC YARDS) OF EXCAVATION AND FILL OF POTENTIALLY JURISDICTIONAL RESOURCES BY DAMS AND DIKES**

	Permanent Direct			
	Excavation (cy)	Soil (cy)	Aggregate (cy)	Concrete (cy)
<b>Dams and Dikes</b>				
<b>Non-Wetland</b>				
Ephemeral Stream	9,335	786	8,845	--
Intermittent Stream	132,748	893	129,911	--
Pond	19	19	--	--
<i>Non-Wetland Total</i>	<i>142,102</i>	<i>1,699</i>	<i>138,756</i>	--
<b>Wetland</b>				
Forested Wetland	5,912	--	5,813	--
Freshwater Marsh	7,468	--	7,302	--
Scrub-Shrub Wetland	2,511	--	2,511	--
Seasonal Wetland	279,125	72	271,410	--
<i>Wetland Total</i>	<i>295,015</i>	<i>72</i>	<i>287,036</i>	--
<b>Grand Total</b>	<b>437,117</b>	<b>1,771</b>	<b>425,792</b>	--

cy = cubic yards, -- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

### Indirect Impacts

Permanent indirect impacts to potentially jurisdictional resources are associated with reservoir inundation and are summarized in Table D-1. Please reference Appendix H for a qualitative summary of potential temporary indirect impacts by Project component, and Appendix J for a comprehensive description of proposed avoidance and minimization measures and best management practices (BMPs) to address potential direct and indirect impacts to potentially jurisdictional resources, water quality, endangered and threatened species (state and federal), and cultural resources.

### Impervious Surface

The total impervious surface area created as a result of dams and dikes would be 152 acres.

### 4.3.3 Recreation Areas

#### Direct Impacts

Permanent direct impacts to potentially jurisdictional resources include grading, excavating, and filling of aquatic resource features to accommodate construction of recreation areas. Temporary direct impacts are not expected for this activity.

Table R-1 summarizes the impacts on potentially jurisdictional resources resulting from recreation area construction in acres and linear feet. Table R-2 summarizes the volume in CY of excavation and fill material, including material type, occurring in potentially jurisdictional resources from recreation area construction. In addition, Appendix E provides impacts by aquatic resource alphanumeric ID code, Appendix F depicts the locations and footprints for the nine Project

components occurring in potentially jurisdictional resources, and Appendix G provides a breakdown of the Appendix F page numbers by Project component.

**TABLE R-1. SUMMARY OF SURFACE AREA (ACRES) AND LENGTH (LINEAR FEET) OF POTENTIALLY JURISDICTIONAL RESOURCES IMPACTED BY RECREATION AREA CONSTRUCTION**

	Permanent Direct	
	Area (acres)	Length (linear feet)
<b>Recreation Areas</b>		
<b>Non-Wetland</b>		
Ephemeral Stream	0.04	730
Intermittent Stream	0.15	1,318
<i>Non-Wetland Total</i>	<i>0.19</i>	<i>2,048</i>
<b>Wetland</b>		
Scrub-Shrub Wetland	0.03	--
Seasonal Wetland	0.36	--
<i>Wetland Total</i>	<i>0.38</i>	<i>--</i>
<b>Grand Total</b>	<b>0.58</b>	<b>2,048</b>

-- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

**TABLE R-2. SUMMARY OF VOLUME (CUBIC YARDS) AND LINEAR FEET OF EXCAVATION AND FILL WITH SOIL OR AGGREGATE OF POTENTIALLY JURISDICTIONAL RESOURCES FILLED BY RECREATION AREAS**

	Permanent Direct			
	Excavation (cy)	Soil (cy)	Aggregate (cy)	Culvert (linear feet)
<b>Recreation Areas</b>				
<b>Non-Wetland</b>				
Ditch	23	6	64	671
Ephemeral Stream	1,130	2,921	468	13,995
Intermittent Stream	1,016	2,548	498	5,958
Pond	376	1,129	--	--
<i>Non-Wetland Total</i>	<i>2,545</i>	<i>6,604</i>	<i>1,030</i>	<i>20,625</i>
<b>Wetland</b>				
Forested Wetland	22	--	22	--
Freshwater Wetland	121	342	7	--
Scrub-Shrub Wetland	34	90	4	--
Seasonal Wetland	12,808	30,072	2,784	--
<i>Wetland Total</i>	<i>12,985</i>	<i>30,503</i>	<i>2,818</i>	<i>--</i>
<b>Grand Total</b>	<b>15,530</b>	<b>37,107</b>	<b>3,848</b>	<b>20,625</b>

cy = cubic yards, -- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

### Indirect Impacts

Permanent indirect impacts are not expected for this activity. Please reference Appendix H for a qualitative summary of potential temporary indirect impacts by Project component, and Appendix J for a comprehensive description of proposed avoidance and minimization measures and best management practices (BMPs) to address potential direct and indirect impacts to potentially jurisdictional resources, water quality, endangered and threatened species (state and federal), and cultural resources.

## Impervious Surface

The total impervious surface area created as a result of the construction of the Project recreation areas would be 22 acres.

### 4.3.4 Roads

#### Direct Impacts

Permanent direct impacts to potentially jurisdictional resources from the road construction include the following:

- Permanent grading, widening, and resurfacing of some of the existing roads and constructing some sections of new road to accommodate construction. Existing roads would be widened to 24 feet.
- Permanent road construction and improvements based on the final transportation route, including improvements to the Project area entrances if required to accommodate the turning radii of equipment.
- Permanent replacement or extending of existing culverts with larger culverts to provide adequate size and strength for construction vehicles.

Temporary direct impacts to potentially jurisdictional resources may occur within TCE areas if these resources within these areas cannot be avoided. For example, temporary ground disturbance associated with access to construction areas, staging areas, and temporary stockpiling and side-casting of soil, construction materials, or other construction wastes. These impacts will be identified and quantified following advancement of the designs for dams and dikes.

Table RO-1 summarizes the impacts on potentially jurisdictional resources resulting from road construction and improvements in acres and linear feet. Table RO-2 summarizes the volume in CY of excavation and fill material, including material type, occurring in these resources from road improvements. In addition, Appendix E provides impacts by aquatic resource alphanumeric ID code, Appendix F depicts the locations and footprints for the nine Project components occurring in potentially jurisdictional resources, and Appendix G provides a breakdown of the Appendix F page numbers by Project component.

**TABLE RO-1. SUMMARY OF SURFACE AREA (ACRES) AND LENGTH (LINEAR FEET) OF POTENTIALLY JURISDICTIONAL IMPACTED BY ROAD CONSTRUCTION AND IMPROVEMENTS**

	Permanent Direct		Permanent Indirect	
	Area (acres)	Length (linear feet)	Area (acres)	Length (linear feet)
<b>Road Construction and Improvements</b>				
<b>Non-Wetland</b>				
Ditch	0.03	687	--	--
Ephemeral Stream	1.40	17,683	0.06	970
Intermittent Stream	1.26	7,459	0.11	582
Pond	0.50	615	--	--
<i>Non-Wetland Total</i>	<i>3.19</i>	<i>26,443</i>	<i>0.17</i>	<i>1,551</i>
<b>Wetland</b>				
Forested Wetland	0.03	--	--	--
Freshwater Marsh	0.15	--	--	--
Scrub-Shrub Wetland	0.04	--	--	--
Seasonal Wetland	15.88	--	1.08	--
<i>Wetland Total</i>	<i>16.10</i>	<i>--</i>	<i>1.08</i>	<i>--</i>
<b>Grand Total</b>	<b>19.28</b>	<b>26,443</b>	<b>1.25</b>	<b>1,551</b>

-- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

**TABLE RO-2. SUMMARY OF SURFACE AREA (CUBIC YARDS) OF EXCAVATION AND FILL WITHIN POTENTIALLY JURISDICTIONAL RESOURCES BY ROAD CONSTRUCTION AND IMPROVEMENTS**

	Permanent Direct			
	Excavation (cy)	Soil (cy)	Aggregate (cy)	Culvert (linear feet)
<b>Road Construction and Improvements</b>				
<b>Non-Wetland</b>				
Ditch	23	6	64	671
Ephemeral Stream	1,130	2,921	468	13,995
Intermittent Stream	1,016	2,548	498	5,958
Pond	376	1,129	--	--
<i>Non-Wetland Total</i>	<i>2,545</i>	<i>6,604</i>	<i>1,030</i>	<i>20,625</i>
<b>Wetland</b>				
Forested Wetland	22	--	22	--
Freshwater Marsh	121	342	7	--
Scrub-Shrub Wetland	34	90	4	--
Seasonal Wetland	12,808	30,072	2,784	--
<i>Wetland Total</i>	<i>12,985</i>	<i>30,503</i>	<i>2,818</i>	<i>--</i>
<b>Grand Total</b>	<b>15,530</b>	<b>37,107</b>	<b>3,848</b>	<b>20,625</b>

CMP = corrugated metal pipe, cy = cubic yards, -- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

### Indirect Impacts

Permanent indirect impacts are not expected for this activity. Please reference Appendix H for a qualitative summary of potential temporary indirect impacts by Project component, and Appendix J for a comprehensive description of proposed avoidance and minimization measures and best management practices (BMPs) to address potential direct and indirect impacts to potentially jurisdictional resources, water quality, endangered and threatened species (state and federal), and cultural resources.

### Impervious Surface

The total impervious surface area created or replaced as a result of road construction and improvements would be 76 acres.

## 4.3.5 Borrow Areas, Work Areas, and Haul Routes

### Direct Impacts

Permanent direct impacts to potentially jurisdictional resources include grading, excavating, and filling of aquatic resource features to accommodate construction of dams, dikes, and road embankments, including staging and processing areas and haul routes. Temporary direct impacts are not expected for this activity.

Table B-1 summarizes the impacts on potentially jurisdictional resources resulting from borrow areas in acres and linear feet. Table B-2 summarizes the volume in CY of excavation and fill material, including material type, occurring in potentially jurisdictional resources from the borrow areas. In addition, Appendix E provides impacts by aquatic resource alphanumeric ID code, Appendix F depicts the locations and footprints for the nine Project components occurring in potentially jurisdictional resources, and Appendix G provides a breakdown of the Appendix F page numbers by Project component.

**TABLE B-1. SUMMARY OF SURFACE AREA (ACRES) AND LENGTH (LINEAR FEET) OF POTENTIALLY JURISDICTIONAL RESOURCES IMPACTED BY BORROW AREAS, WORK AREAS, AND HAUL ROUTES**

	Permanent Direct		Permanent Indirect	
	Area (acres)	Length (linear feet)	Area (acres)	Length (linear feet)
<b>Borrow Areas, Work Areas, and Haul Routes</b>				
<b>Non-Wetland</b>				
Ephemeral Stream	3.43	43,939	0.22	1,979
Intermittent Stream	22.63	65,026	3.96	9,341
Pond	3.42	3,067	2.39	1,926
<i>Non-Wetland Total</i>	<i>29.48</i>	<i>112,032</i>	<i>6.57</i>	<i>13,245</i>
<b>Wetland</b>				
Forested Wetland	0.71	--	0.05	--
Freshwater Marsh	8.33	--	6.74	--
Scrub-Shrub Wetland	0.71	--	0.04	--
Seasonal Wetland	37.86	--	13.52	--
<i>Wetland Total</i>	<i>47.62</i>	<i>--</i>	<i>20.35</i>	<i>--</i>
<b>Grand Total</b>	<b>77.10</b>	<b>112,032</b>	<b>26.92</b>	<b>13,245</b>

-- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

**TABLE B-2. SUMMARY OF VOLUME (CUBIC YARDS) OF EXCAVATION AND FILL WITHIN POTENTIALLY JURISDICTIONAL RESOURCES BY BORROW AREAS**

	Permanent Direct			
	Excavation (cy)	Soil (cy)	Aggregate (cy)	Culvert (linear feet)
<b>Borrow Areas, Work Areas, and Haul Routes</b>				
<b>Non-Wetland</b>				
Ephemeral Stream	89,578	--	1,690	--
Intermittent Stream	320,610	--	30,913	--
Pond	84,535	--	2,046	--
<i>Non-Wetland Total</i>	<i>494,723</i>	<i>--</i>	<i>34,649</i>	<i>--</i>
<b>Wetland</b>				
Forested Wetland	3,318	--	492	--
Freshwater Marsh	15,605	--	6,340	--
Scrub-Shrub Wetland	19,618	--	91	--
Seasonal Wetland	545,234	--	17,011	--
<i>Wetland Total</i>	<i>583,774</i>	<i>--</i>	<i>23,933</i>	<i>--</i>
<b>Grand Total</b>	<b>1,078,497</b>	<b>--</b>	<b>58,582</b>	<b>--</b>

cy = cubic yards, -- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

### Indirect Effects

Permanent indirect impacts are not expected for this activity. Please reference Appendix H for a qualitative summary of potential temporary indirect impacts by Project component, and Appendix J for a comprehensive description of proposed avoidance and minimization measures and best management practices (BMPs) to address potential direct and indirect impacts to potentially jurisdictional resources, water quality, endangered and threatened species (state and federal), and cultural resources.

## Impervious Surface

The total impervious surface area created as a result of borrow areas would be 0.00 acres.

### 4.3.6 Terminal Regulating Reservoir Facilities and Funks Reservoir Upgrades

#### Direct Impacts

Permanent direct impacts to potentially jurisdictional resources include grading, excavating, and filling of aquatic resource features to accommodate construction of TRR and Funks Reservoir facilities. Temporary direct impacts to potentially jurisdictional resources include ground disturbance associated with sediment removal from Funks Reservoir, access to construction areas, staging areas, pipeline trenching, temporary stockpiling and side-casting of soil, construction materials, or other construction wastes.

Table TRR-1 summarizes the impacts on potentially jurisdictional resources resulting from TRR and Funks Reservoir facilities construction in acres and linear feet. Table TRR-2 summarizes the volume in CY of excavation and fill material, including material type, occurring in potentially jurisdictional resources from the TRR and Funks Reservoir facilities construction. In addition, Appendix E provides impacts by aquatic resource alphanumeric ID code, Appendix F depicts the locations and footprints for the nine Project components occurring in potentially jurisdictional resources, and Appendix G provides a breakdown of the Appendix F page numbers by Project component.

**TABLE TRR-1. SUMMARY OF SURFACE AREA (ACRES) AND LENGTH (LINEAR FEET) OF POTENTIALLY JURISDICTIONAL RESOURCES IMPACTED BY TERMINAL REGULATING RESERVOIR FACILITIES AND FUNKS RESERVOIR UPGRADES**

	Permanent Direct		Temporary Direct	
	Area (acres)	Length (linear feet)	Area (acres)	Length (linear feet)
<b>Terminal Regulating Reservoir Facilities and Funks Reservoir Upgrades</b>				
<b>Non-Wetland</b>				
Canal	3.45	2,344	0.66	1,008
Ditch	0.34	2,694	0.07	461
Ephemeral Stream	0.25	1,929	0.39	4,159
Intermittent Stream	0.18	697.44	1.52	8,437
Pond	--	--	1.45	1,033
Reservoir	1.10	724	220.94	39,520
<i>Non-Wetland Total</i>	<i>5.32</i>	<i>8,389</i>	<i>225.02</i>	<i>54,617</i>
<b>Wetland</b>				
Forested Wetland	0.01	--	0.30	--
Freshwater Marsh	4.21	--	6.29	--
Scrub-Shrub Wetland	0.01	--	0.34	--
Seasonal Wetland	0.63	--	3.84	--
<i>Wetland Total</i>	<i>4.86</i>	<i>--</i>	<i>10.78</i>	<i>--</i>
<b>Grand Total</b>	<b>10.17</b>	<b>8,389</b>	<b>235.80</b>	<b>54,617</b>

-- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

**TABLE TRR-2. SUMMARY OF VOLUME (CUBIC YARDS) OF EXCAVATION AND FILL WITHIN POTENTIALLY JURISDICTIONAL RESOURCES FILLED BY TERMINAL REGULATING RESERVOIR FACILITIES AND FUNKS RESERVOIR UPGRADES**

	Permanent Direct			Temporary Direct		
	Excavation (cy)	Soil (cy)	Aggregate (cy)	Excavation (cy)	Soil (cy)	Aggregate (cy)
<b>Terminal Regulating Reservoir and Conveyance Complex and Funks Reservoir Upgrades</b>						
<b>Non-Wetland</b>						
Canal	--	8,344	--	1,783	563	282
Ditch	0	771	49	--	--	--
Ephemeral Stream	18	530	79	--	--	--
Intermittent Stream	18	387	55	1,529	483	241
Pond	--	--	--	--	--	--
Reservoir	11	--	2,685	801,706	21,969,924	10,322
<i>Non-Wetland Total</i>	<i>47</i>	<i>10,032</i>	<i>2,869</i>	<i>805,018</i>	<i>21,970,970</i>	<i>10,845</i>
<b>Wetland</b>						
Forested Wetland	7	--	7	--	--	--
Freshwater Marsh	73	2,925	474	3,009	441,484	475
Scrub-Shrub Wetland	5	--	5	--	--	--
Seasonal Wetland	14	493	14	16,318	5,153	2,577
<i>Wetland Total</i>	<i>98</i>	<i>3,418</i>	<i>500</i>	<i>19,327</i>	<i>446,637</i>	<i>3,052</i>
<b>Grand Total</b>	<b>145</b>	<b>13,450</b>	<b>3,369</b>	<b>824,344</b>	<b>22,417,607</b>	<b>13,896</b>

cy = cubic yards, -- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

**Indirect Impacts**

Permanent indirect impacts are not expected for this activity. Please reference Appendix H for a qualitative summary of potential temporary indirect impacts by Project component.

**Impervious Surface**

The total impervious surface area created as a result of TRR facilities construction would be 36 acres.

**4.3.7 Dunnigan Pipeline**

**Direct Impacts**

Temporary direct impacts to potentially jurisdictional resources include ground disturbance associated with access to construction areas, staging areas, pipeline trenching, temporary stockpiling and side-casting of soil, construction materials, or other construction wastes. The pipeline inlet and outlet structures would result in permanent direct impacts to these resources.

Table DP-1 summarizes the impacts on potentially jurisdictional resources resulting from Dunnigan Pipeline construction in acres and linear feet. Table DP-2 summarizes the volume in CY of excavation and fill material, including material type, occurring in potentially jurisdictional resources from the Dunnigan Pipeline. In addition, Appendix E provides impacts by aquatic resource alphanumeric ID code, Appendix F depicts the locations and footprints for the nine Project components occurring in potentially jurisdictional resources, and Appendix G provides a breakdown of the Appendix F page numbers by Project component.



**TABLE DP-1. SUMMARY OF SURFACE AREA (ACRES) AND LENGTH (LINEAR FEET) OF POTENTIALLY JURISDICTIONAL RESOURCES IMPACTED BY THE DUNNIGAN PIPELINE**

	Temporary Direct	
	Area (acres)	Length (linear feet)
<b>Dunnigan Pipeline</b>		
<b>Non-Wetland</b>		
Canal	--	--
Ditch	0.08	291
Intermittent Stream	0.20	462
<i>Non-Wetland Total</i>	<i>0.28</i>	<i>753</i>
<b>Wetland</b>		
Managed Wetland	0.69	--
<i>Wetland Total</i>	<i>0.69</i>	<i>--</i>
<b>Grand Total</b>	<b>0.97</b>	<b>753</b>

-- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

**TABLE DP-2. SUMMARY OF VOLUME (CUBIC YARDS) OF EXCAVATION AND FILL WITHIN POTENTIALLY JURISDICTIONAL RESOURCES FILLED BY THE DUNNIGAN PIPELINE**

	Permanent Direct		Temporary Direct		
	Concrete (cy)	Excavation (cy)	Soil (cy)	Aggregate (cy)	Concrete (cy)
<b>Dunnigan Pipeline</b>					
<b>Non-Wetland</b>					
Canal	11	--	--	--	--
Ditch	--	2,303	512	384	256
Intermittent Stream	--	5,901	1,311	983	656
<i>Non-Wetland Total</i>	<i>11</i>	<i>8,204</i>	<i>1,823</i>	<i>1,367</i>	<i>912</i>
<b>Wetland</b>					
Managed Wetland	--	19,968	4,437	3,328	2,219
<i>Wetland Total</i>	<i>--</i>	<i>19,968</i>	<i>4,437</i>	<i>3,328</i>	<i>2,219</i>
<b>Grand Total</b>	<b>11</b>	<b>28,172</b>	<b>6,260</b>	<b>4,695</b>	<b>3,130</b>

cy = cubic yards, -- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

### Indirect Impacts

Permanent indirect impacts are not expected for this activity. Please reference Appendix H for a qualitative summary of potential temporary indirect impacts by Project component, and Appendix J for a comprehensive description of proposed avoidance and minimization measures and best management practices (BMPs) to address potential direct and indirect impacts to potentially jurisdictional resources, water quality, endangered and threatened species (state and federal), and cultural resources.

### Impervious Surface

The total impervious surface area created as a result of the Dunnigan Pipeline inlet and outlet facilities would be 0.17 acre.

### 4.3.8 Transmission Line Easement

#### Direct Impacts

Permanent direct impacts to potentially jurisdictional resources include grading, excavating, and filling of aquatic resource features within existing and new transmission line corridors to accommodate construction of access roads and substations, and installation of culverts and steel monopole structures. Temporary direct impacts to potentially jurisdictional resources may occur within TCE areas if these resources within these areas cannot be avoided. For example, temporary ground disturbance associated with access to construction areas, staging areas, and temporary stockpiling and side-casting of soil, construction materials, or other construction wastes. These impacts will be identified and quantified following advancement of the designs for transmission line easements.

Table TRAN-1 summarizes the permanent direct impacts on potentially jurisdictional resources resulting from Transmission Line Easement construction in acres. Table TRAN-2 summarizes the volume in CY of excavation and fill material, including material type, occurring in potentially jurisdictional resources. In addition, Appendix E provides impacts by aquatic resource alphanumeric ID code, Appendix F depicts the locations and footprints for the nine Project components occurring in potentially jurisdictional resources, and Appendix G provides a breakdown of the Appendix F page numbers by Project component.

**TABLE TRAN-1. SUMMARY OF SURFACE AREA (ACRES) OF POTENTIALLY JURISDICTIONAL RESOURCES IMPACTED BY TRANSMISSION LINES**

	Permanent Direct	
	Area (acres)	Length (linear feet)
<b>Transmission Lines</b>		
<b>Non-Wetland</b>		
Canal	0.05	225
Ephemeral Stream	0.04	353
Intermittent Stream	0.20	539
Pond	0.50	484
Reservoir	0.26	332
<i>Non-Wetland Total</i>	<i>1.04</i>	<i>1,933</i>
<b>Wetland</b>		
Freshwater Marsh	0.11	--
Seasonal Wetland	2.68	--
<i>Wetland Total</i>	<i>2.80</i>	<i>--</i>
<b>Grand Total</b>	<b>3.84</b>	<b>1,933</b>

-- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

**TABLE TRAN-2. SUMMARY OF VOLUME (CUBIC YARDS) OF EXCAVATION AND FILL IN POTENTIALLY JURISDICTIONAL RESOURCES WITHIN TRANSMISSION LINE EASEMENTS**

	Permanent Direct			
	Excavation (cy)	Soil (cy)	Aggregate (cy)	Culvert (linear feet)
<b>Transmission Lines</b>				
<b>Non-Wetland</b>				
Canal	--	--	126	169
Ephemeral Stream	--	--	86	265
Intermittent Stream	--	--	483	404
Perennial Stream	--	--	1,205	--

	Permanent Direct			
	Excavation (cy)	Soil (cy)	Aggregate (cy)	Culvert (linear feet)
Pond	--	--	617	--
Reservoir	--	--	126	169
<i>Non-Wetland Total</i>	--	--	<i>2,643</i>	<i>1,007</i>
<b>Wetland</b>				
Freshwater Marsh	92	--	92	--
Seasonal Wetland	2,164	--	2,164	--
<i>Wetland Total</i>	<i>2,255</i>	--	<i>2,255</i>	--
<b>Grand Total</b>	<b>2,255</b>	--	<b>4,899</b>	<b>1,007</b>

cy = cubic yards, -- = null value (zero)

Notes: Land cover was mapped via aerial interpretation using desktop imagery. Rounding errors may affect total.

### Indirect Impacts

Permanent indirect impacts are not expected for this activity. Please reference Appendix H for a qualitative summary of potential temporary indirect impacts by Project component, and Appendix J for a comprehensive description of proposed avoidance and minimization measures and best management practices (BMPs) to address potential direct and indirect impacts to potentially jurisdictional resources, water quality, endangered and threatened species (state and federal), and cultural resources.

### Impervious Surface

Installation and maintenance of the transmission line easement would result in an increase in 0.00 acres of impervious surfaces.