The Metropolitan Water District of Southern California

Colorado River Aqueduct Conduit Structural Protection Project Proposed Mitigated Negative Declaration

Metropolitan Report No. 1623
October 2020

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The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012

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1. Project Description

1.1 Background

The Metropolitan Water District of Southern California (Metropolitan) is a regional water wholesaler that provides water for 26 member public agencies that provide drinking water to approximately 19 million people in parts of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. The mission of Metropolitan is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Metropolitan owns, operates, and manages the Colorado River Aqueduct (CRA), which is a regional water conveyance system that consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four reservoirs, and 242 miles of aqueducts, siphons, canals, conduits, and pipelines terminating at Lake Mathews in Riverside County, California. Construction of the CRA began in 1933. In 1939, the first Colorado River water flowed into the CRA and in 1940, Lake Mathews received its first water delivery. The construction was completed in 1941 when the first water was delivered from Lake Mathews to the F.E. Weymouth Water Treatment Plant. By 1952, the demand exceeded the aqueduct capacity and the CRA was expanded to accommodate increased water demands. The expansion consisted of the addition of four additional pumps at each of the five pumping plants and a second barrel at several siphon locations along the CRA to accommodate increased flows. Metropolitan is responsible for operating, maintaining, rehabilitating, and repairing the CRA and its various components.

The CRA includes several construction types, including 62 miles of open canal, 55 miles of cut and cover (buried) conduit buried approximately 3 feet deep, and 92 miles of tunnels in 29 separate segments that extend through the mountains between the Colorado River and Lake Mathews. In addition, there are 29 miles of siphons along the aqueduct, which are subsurface features that allow for the unimpeded flow of natural drainages over the CRA. Siphons can range from 150 feet to 6400 feet in length within the limits of the proposed project. At each end of the siphon is a transition structure that transitions from the siphon to a cut and cover conduit or tunnel segment (Figure 1-1).

Transition structures have removable covers used to access the CRA for inspection, maintenance and repair activities (Figure 1-2). Tunnels are cleaned annually to remove algae and deposits that can create drag and slow the flow of water within the CRA. The transition structure covers must be removed using a 30-ton crane, which allows the tunnel-cleaning machine to be lowered into the structure. The tunnel cleaning machine is then driven through the connecting tunnel segments, scraping the sides to remove debris. The transition structures are also used to provide ventilation during maintenance and repair activities.

1.2 Purpose and Need

The purpose of the Colorado River Aqueduct Conduit Structural Protection Project (proposed project) is to protect the CRA siphons and transition structures from potential structural damage resulting from repeated heavy equipment loading. The original construction of the CRA was not designed to accommodate loads from the heavy equipment used to conduct current operations and maintenance activities, specifically the tunnel cleaning machine, large mobile crane, and

Figure 1-1. Transition Structure at West Thousand Palms Siphon

Figure 1-2. Mobile Crane Removing Transition Structure Cover

support vehicles. The access roads used to conduct operations and maintenance activities often cross over or run adjacent to the siphons. Metropolitan has identified several locations where the access road crosses or is located too close to the siphon and there is insufficient ground cover over the siphon to safely support heavy equipment loads. In addition, Metropolitan has identified several transition structures that require new designated crane operating pads in order to ensure heavy equipment is set back at least 12 feet from any structures. Currently, many of the transition structures do not have designated crane operating areas or the existing crane operating areas are located on uneven natural ground surface, are inadequately sized, are excessively sloped, or are too close to transition structures.

1.3 Project Location and Land Use

The proposed project includes 24 locations within unincorporated Riverside County, situated within Metropolitan’s right-of-way (ROW). Figure 1-3 provides an overview of the entire project, with each of the 24 individual project sites shown in more detail on Figures 1-4 and 1-5. A description of existing land use designations and adjacent land uses at each of the 24 sites is provided in Table 1-1.

1.4 Proposed Project

The proposed project would include (1) realigning segments of the existing unpaved access roads that cross over or are located too close to the buried siphon, (2) constructing concrete protective slabs at points where access roads cross the buried siphon and cannot be realigned, and (3) constructing crushed aggregate crane operating pads adjacent to the transition structures to support heavy equipment and ensure safe crane operations. No work is being performed on the siphons themselves. A total of 24 locations along the CRA that are vulnerable to heavy equipment loading have been identified. Table 1-2 provides specific details of the work to be performed at each site and the total disturbance area. The following sections discuss each of the three project components in greater detail.

Access Road Improvements

Existing unpaved roads provide access to each of the 24 proposed project site locations from the main roads identified in Table 1-1. The proposed project would realign segments of the existing unpaved access roads that are located directly on top of or adjacent to structurally vulnerable segments of the siphons. Additionally, minor road realignment will be required to access some of the proposed crane operating pads.

Low water crossings would be installed where the realigned access roads cross drainage features. The low water crossings will be designed as earthen crossings with approximately 30-inch diameter riprap placed downstream to dissipate energy and reduce erosion. The low water crossings are designed to ensure adequate water flow and sediment transport during storm events. The size of the low water crossings is dependent on the size of the existing stream channel at each project site.

0 5 10

Scale in Miles

Proposed Project Siphon Locations (refer to Table 1-1)

Access Roads

Figure 1-3. Project Overview

0 2 4

Scale in Miles

N

Proposed Project Siphon Locations (refer to Table 1-1)

Access Roads

Figure 1-4. Sites 1-11 Overview

Figure 1-5. Sites 12-24 Overview

Table 1-1. Project Land Use Details

No.	Site	Riverside County Zoning Designation[1,2]	Riverside County General Plan Designation[2]	Main Public Access Road to the Site	General Character/Notable Surrounding Land Uses
1	No Name Siphon	W-2	Open Space Rural, Rural Desert, Water	Chiriaco Road	▪ North: Open space. ▪ South: Open space. Chiriaco Summit airport is 1.3 mile away; I-10 is 1.5 mile away. ▪ East: Open space. Private runway 3 miles away. ▪ West: Open space.
2	Shavers Siphon	N-A	Conservation Habitat	Cottonwood Springs Road	▪ North: Open space. ▪ South: Open space. I-10 is 1.0 mile away. ▪ East: Open space. Chiriaco Summit airport 2.5 miles away. ▪ West: Open space.
3	Cottonwood Springs Siphon	W-2	Conservation Habitat, Open Space Rural	Cottonwood Springs Road	▪ North: Open space. ▪ South: Open space. I-10 is 1.3 mile away. ▪ East: Open space. ▪ West: Open space.
4	East Cottonwood No. 1 Siphon	W-2-10	Open Space Rural	Cottonwood Springs Road	▪ North: Open space. ▪ South: Open space. I-10 is 1.3 mile away. ▪ East: Open space. ▪ West: Open space.
5	East Cottonwood No. 2 Siphon	N-A, W-2-10	Conservation Habitat, Open Space Rural	Cottonwood Springs Road	▪ North: Open space. ▪ South: Open space. I-10 is 1.3 mile away. ▪ East: Open space. ▪ West: Open space.
6	End Wash Siphon	N-A	Open Space Rural	Cactus City Rest Area / Frontage Road	▪ North: Open space. ▪ South: Open space. I-10 is 0.8 mile away. ▪ East: Open space. ▪ West: Open space.
7	Mecca No. 1 Siphon	N-A	Conservation Habitat	Cactus City Rest Area / Frontage Road	▪ North: Open space. ▪ South: Open space. I-10 is 0.4 mile away. ▪ East: Open space. ▪ West: Open space.
8	Mecca No. 2 Siphon	N-A, W-2-10	Conservation Habitat, Open Space Rural	Cottonwood Springs Road	▪ North: Open space. ▪ South: Open space. I-10 is 1.3 mile away. ▪ East: Open space. ▪ West: Open space.

Table 1-1. Project Land Use Details

No.	Site	Riverside County Zoning Designation[1,2]	Riverside County General Plan Designation[2]	Main Public Access Road to the Site	General Character/Notable Surrounding Land Uses
9	Iron Ledge Siphon	N-A, W-2-10	Conservation Habitat, Open Space Rural	Cactus City Rest Area / Frontage Road	▪ North: Open space. ▪ South: Open space. I-10 is 1.0 mile away. ▪ East: Open space. ▪ West: Open space.
10	East Thermal Siphon	N-A, W-2-10	Open Space Rural	Cactus City Rest Area / Frontage Road	▪ North: Open space. ▪ South: Open space. I-10 is 1.2 mile away. ▪ East: Open space. ▪ West: Open space.
11	West Thermal Siphon	N-A	Conservation Habitat	Cactus City Rest Area / Frontage Road	▪ North: Open space. ▪ South: Open space. I-10 is 1.4 mile away. ▪ East: Open space. ▪ West: Open space.
12	East Fan Hill Siphon	W-2	Open Space Rural	Thousand Palms Canyon Road	▪ North: Open space. ▪ South: Open space. Rural residences 1.6 mile away. ▪ East: Open space. ▪ West: Open space.
13	Fan Hill Siphon	W-2	Conservation Habitat, Open Space Rural	Thousand Palms Canyon Road	▪ North: Open space. ▪ South: Open space. Rural residences 2.0 miles away. ▪ East: Open space. ▪ West: Open space.
14	West Fan Hill Siphon	N-A, W-2-10	Conservation Habitat, Open Space Rural	Thousand Palms Canyon Road	▪ North: Open space. ▪ South: Open space. Rural residences 2.4 miles away. ▪ East: Open space. ▪ West: Open space. Rural residences 2.6 miles away.
15	Thousand Palms Siphon	N-A	Open Space Rural	East Deception Road	▪ North: Open space. ▪ South: Open space. Rural residences 0.9 mile away. ▪ East: Open space. ▪ West: Open space.
16	West Thousand Palms Siphon	N-A	Conservation Habitat, Open Space Rural	Penny Lane	▪ North: Open space. ▪ South: Open space. Rural residences 1.2 mile away. ▪ East: Open space. ▪ West: Open space.

Table 1-1. Project Land Use Details

No.	Site	Riverside County Zoning Designation[1,2]	Riverside County General Plan Designation[2]	Main Public Access Road to the Site	General Character/Notable Surrounding Land Uses
17	East Wide Canyon Siphon	W-2-10	Conservation Habitat	Prospect Road	▪ North: Open space. ▪ South: Open space. Rural residences 0.4 mile away. ▪ East: Open space. ▪ West: Open space.
18	West Wide Canyon Siphon	N-A	Open Space Rural	Prospect Road	▪ North: Open space. ▪ South: Open space. Rural residences 0.4 mile away. ▪ East: Open space. ▪ West: Open space.
19	Long Canyon Siphon	W-2	Open Space Rural	Long Canyon Road	▪ North: Open space. ▪ South: Open space. ▪ East: Open space. ▪ West: Open space. Julius Corsini Elementary School 1.6 mile away. Nearest Desert Hot Springs residences 1.4 mile away.
20	East Blind Canyon Siphon	N-A	Open Space Rural	Casa Grande	▪ North: Open space. ▪ South: Open space. Nearest Desert Hot Springs residences 0.12 mile away. Cabot Yerxa Elementary School 1.9 miles away. ▪ East: Open space. ▪ West: Open space.
21	West Blind Canyon Siphon	N-A	Conservation Habitat	Casa Grande	▪ North: Open space. ▪ South: Open space. Nearest Desert Hot Springs residences 0.2 mile away. ▪ East: Open space. ▪ West: Open space. Painted Hills Middle School 1.4 mile away.
22	Little Morongo Siphon	N-A, R-A-1 1/4	Conservation, Conservation Habitat	Annandale Avenue	▪ North: Open space. ▪ South: Open space. Nearest Desert Hot Springs residences 1.1 miles away. Painted Hills Middle School 1.3 miles away. ▪ East: Open space. ▪ West: Open space.

Table 1-1. Project Land Use Details

No.	Site	Riverside County Zoning Designation[1,2]	Riverside County General Plan Designation[2]	Main Public Access Road to the Site	General Character/Notable Surrounding Land Uses
23	Whitehouse Siphon	R-A-1 1/4	Conservation, Public Facilities	Augusta Avenue	▪ North: Open space. ▪ South: Open space. Nearest residences 0.5 mile away (Mission Lakes Country Club). ▪ East: Open space. ▪ West: Open space.
24	Big Morongo Siphon	W-2	Open Space Rural	North Indian Canyon Drive	▪ North: Open space. ▪ South: Open space. ▪ East: Open space. Nearest residences 0.6 mile away (Mission Lakes Country Club). ▪ West: Open space. 29 Palms Highway 0.6 mile away.

Notes:
1 - W-2 (Controlled Development Areas); W-2-10 (Controlled Development Area, 10-Acre Minimum); N-A (Natural Assets); R-A-1 1/4 (Residential Agriculture)
2 - While Riverside County has assigned Zoning and General Plan designations to the proposed project sites, these sites are located within Metropolitan's right-of-way. Therefore, the local Zoning and General Plan designations do not apply. Please refer to Section 3.11 (Land Use and Planning) for details.

Source: Riverside County, 2019a

Three retaining walls would be installed at two project sites where road realignments are adjacent to steep, unstable slopes. Site 3 (Cottonwood Springs Siphon) would include one retaining wall approximately 75 feet in length, 8 feet in height (maximum), and 1 foot in width. Site No. 22 (Little Morongo Canyon) would include two retaining walls. The first wall would be approximately 30 feet in length, 4 feet in height, and 1 foot in width, and the second retaining wall would be approximately 40 feet in length, 4 feet in height, and 1 foot in width.

Concrete Protective Slabs

The proposed project would construct at-grade concrete slabs on the access roads to protect the buried siphon at structurally vulnerable locations that do not meet the minimum ground cover requirements. The slab is intended to redistribute heavy loading over the siphons and ensure that the heavy loads are not transferred to the buried siphons. Soft foam would be placed under the slab, which prevents the weight of the crane from transferring directly to the siphon. The size of the protective concrete slabs would be approximately 46 feet wide and 4 feet deep, though the ultimate dimensions are dependent upon site-specific constraints. Figure 1-6 depicts the typical design of the proposed concrete protective slabs.

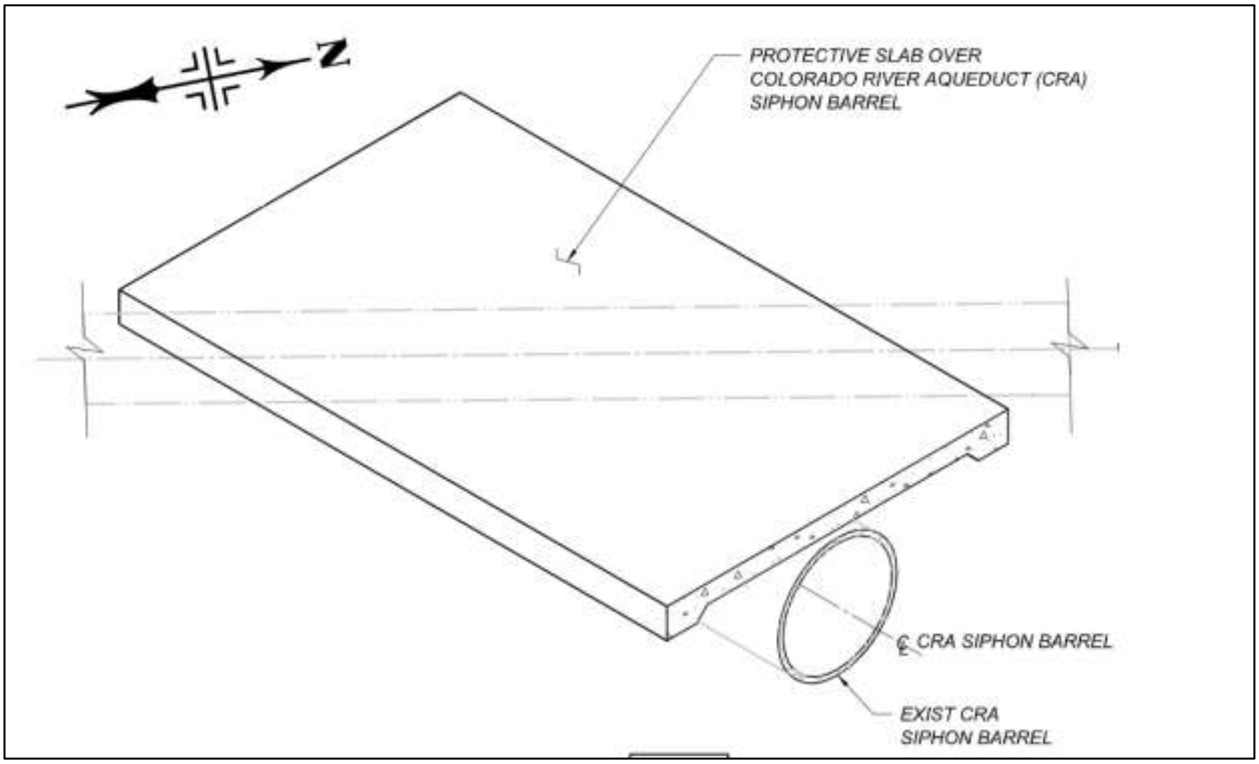

Figure 1-6. Example of Concrete Protective Slab

Crane Operating Pads

Each transition structure requires a crane operating pad that supports equipment required to maintain the CRA. The proposed project would construct crane operating pads, composed of compacted aggregate base material, a minimum of 12 feet from transition structures to ensure safe crane operations. The crane operating pads are generally 36 feet by 30 feet, with a depth of 2 feet, unless site-specific constraints necessitate design modifications.

Table 1-2. Project Construction Details

No.	Site	Project Components	Construction Duration	Onsite Construction Equipment List	Imports	Exports	Construction Workers	Total Disturbance Area (Acres)	Maximum Daily Haul Trips
1	No Name Siphon	Access Road Improvements, Crane Pad, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks 1-Excavator 1-Concrete Pump	▪ Fill - 250 Cubic Yards ▪ Concrete - 280 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	None	18	0.42	14
2	Shavers Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill - 800 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards	None	18	0.37	15
3	Cottonwood Springs Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill - 525 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards	None	18	0.39	10
4	East Cottonwood No. 1 Siphon	Access Road Improvements, Drainage Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Excavator 2-Water Trucks	▪ Crushed Aggregate Base - 40 Cubic Yards, ▪ Rip-Rap - 15 Cubic Yards	1,500 Cubic Yards	18	0.31	27
5	East Cottonwood No. 2 Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Crushed Aggregate Base - 40 Cubic Yards	200 Cubic Yards	18	0.09	5
6	End Wash Siphon	Access Road Improvements, Crane Pad, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Concrete Pump 1-Excavator 2-Water Trucks	▪ Concrete - 90 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	625 Cubic Yards	18	0.31	16

Table 1-2. Project Construction Details

No.	Site	Project Components	Construction Duration	Onsite Construction Equipment List	Imports	Exports	Construction Workers	Total Disturbance Area (Acres)	Maximum Daily Haul Trips
7	Mecca No. 1 Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Crushed Aggregate Base - 40 Cubic Yards	40 Cubic Yards	18	0.05	2
8	Mecca No. 2 Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill - 425 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards	None	18	0.18	9
9	Iron Ledge Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill - 550 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards	None	18	0.21	11
10	East Thermal Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill - 1,000 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards	None	18	0.26	18
11	West Thermal Siphon	Access Road Improvements, Crane Pad, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Concrete Pump 1-Excavator 2-Water Trucks	▪ Concrete - 210 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	70 Cubic Yards	18	0.28	9
12	East Fan Hill Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill – 25 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards	None	18	0.26	2

Table 1-2. Project Construction Details

No.	Site	Project Components	Construction Duration	Onsite Construction Equipment List	Imports	Exports	Construction Workers	Total Disturbance Area (Acres)	Maximum Daily Haul Trips
13	Fan Hill Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill - 300 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards	None	18	0.19	7
14	West Fan Hill Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill - 70 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards	None	18	0.26	3
15	Thousand Palms Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill - 20 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards	None	18	0.15	2
16	West Thousand Palms Siphon	Access Road Improvements, Crane Pad, Drainage Improvements, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Excavator 1-Concrete Pump 2-Water Trucks	▪ Fill - 2,500 Cubic Yards ▪ Concrete - 30 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards ▪ Rip-Rap - 40 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	None	18	0.57	44
17	East Wide Canyon Siphon	Access Road Improvements, Crane Pad, Drainage Improvements, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Excavator 1-Concrete Pump 2-Water Trucks	▪ Fill - 270 Cubic Yards ▪ Concrete - 180 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards ▪ Rip-Rap - 40 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	None	18	0.66	10

Table 1-2. Project Construction Details

No.	Site	Project Components	Construction Duration	Onsite Construction Equipment List	Imports	Exports	Construction Workers	Total Disturbance Area (Acres)	Maximum Daily Haul Trips
18	West Wide Canyon Siphon	Access Road Improvements, Crane Pad	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 2-Water Trucks	▪ Fill - 90 Cubic Yards ▪ Crushed Aggregate Base - 45 Cubic Yards	None	18	0.09	3
19	Long Canyon Siphon	Access Road Improvements, Crane Pad, Drainage Improvements, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Excavator 1-Concrete Pump 2-Water Trucks	▪ Fill - 175 Cubic Yards ▪ Concrete - 25 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards ▪ Rip-Rap - 150 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	None	18	0.38	7
20	East Blind Canyon Siphon	Access Road Improvements, Crane Pad, Drainage Improvements, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Excavator 1-Concrete Pump 2-Water Trucks	▪ Fill - 1,500 Cubic Yards ▪ Concrete - 100 Cubic Yards ▪ Crushed Aggregate Base - 60 Cubic Yards ▪ Rip-Rap - 25 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	None	18	0.56	28
21	West Blind Canyon Siphon	Access Road Improvements, Crane Pad, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Excavator 1-Concrete Pump 2-Water Trucks	▪ Fill - 30 Cubic Yards ▪ Concrete - 200 Cubic Yards ▪ Crushed Aggregate Base - 35 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	None	18	0.51	8

Table 1-2. Project Construction Details

No.	Site	Project Components	Construction Duration	Onsite Construction Equipment List	Imports	Exports	Construction Workers	Total Disturbance Area (Acres)	Maximum Daily Haul Trips
22	Little Morongo Siphon	Access Road Improvements, Crane Pad, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Excavator 1-Concrete Pump 2-Water Trucks	▪ Fill - 650 Cubic Yards ▪ Concrete - 175 Cubic Yards ▪ Crushed Aggregate Base - 35 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	None	18	0.41	17
23	Whitehouse Siphon	Access Road Improvements, Crane Pad, Drainage Improvements, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Excavator 1-Concrete Pump 2-Water Trucks	▪ Fill - 750 Cubic Yards ▪ Concrete - 20 Cubic Yards ▪ Crushed Aggregate Base - 35 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	None	18	0.25	15
24	Big Morongo Siphon	Access Road Improvements, Crane Pad, Drainage Improvements, Aqueduct Protection Concrete Pad Installation	14 days	1-Rubber Tired Dozer 1-Grader 1-Roller/Compactor 1-Backhoe/Loader 1-Excavator 1-Concrete Pump 2-Water Trucks	▪ Concrete - 95 Cubic Yards ▪ Crushed Aggregate Base - 40 Cubic Yards ▪ Rip Rap - 45 Cubic Yards ▪ Other Materials - Foam, Reinforcement Steel	3,600 Cubic Yards	18	3.98	64

Table 1-2 provides project construction details for each of the 24 proposed project locations, with each site number/name corresponding to its location shown on Figures 1-4 and 1-5.

Construction Process

The general construction process of the proposed project includes the activities described below. Material quantities required at each proposed project site are identified in Table 1-2.

- **Access Roads Improvements**

  Existing unpaved access roads that lead directly to the crane pads would be realigned, widened, and graded, as needed, using a grader or other similar type of equipment. The extent of realignment, widening, and grading would vary by location but would remain entirely within Metropolitan's right-of-way. Unused material resulting from grading activities would be hauled offsite. Fill material would be sourced from nearby suppliers and imported to each project site as necessary.

  The proposed low water crossings would require rough grading and excavation to prepare the site for the placement of geotextile fabric and the 30-inch riprap. The riprap would be placed immediately downstream of the low water crossing. Imported fill material would then be placed upstream of the riprap and graded to ensure adequate grade for the low water crossing ingress and egress points, as well as match the elevation of the drainage. The riprap and earthen fill material would be sourced from a nearby supplier and imported to the proposed project sites.

  The proposed retaining walls would be constructed using cast-in-place reinforced concrete. The proposed retaining wall locations would be excavated and compacted, followed by the placement of forms and rebar, and lastly concrete. The forms would be removed after the concrete has cured and imported backfill would be placed along the base of the wall to create a safe transition from the wall to the access road.

- **Concrete Protective Slabs**

  The concrete protective slab crossings are designed as a bridge-like structure with spread footings located on either side of the siphon that hold the slab above the siphon. The concrete protective slabs would vary in size but are expected to be a maximum size of approximately 46 feet by 108 feet at each location. Excavation, using backhoes, excavators, or similar types of equipment, would be required to install the concrete protective slabs over the siphons. Excavation for the footings for the protective slabs would be approximately 6 feet deep and excavation depth for each protective slab would be approximately 4 feet. The newly excavated area would be compacted and soft foam would be placed over the siphon, followed by rebar and then concrete placement. It is expected that each concrete protective slab would be poured in one single day for each location. The concrete would be obtained from nearby suppliers and imported to the proposed project sites. After final inspection of each concrete protective slab, any adjacent lands temporarily affected by construction activities would be returned to pre-construction conditions.

- **Crane Operating Pads**

  Excavation, using backhoes, excavators, or similar types of excavation equipment, would be required to install the crane operating pads. Excavation for the crane operating pads would be approximately 2 feet deep. The crane operating pads would generally be 36 feet by 30 feet, unless site-specific constraints necessitate design modifications.

  Aggregate base material would be installed within the excavation footprint of the crane operating pads and compacted to provide the finished surface. The aggregate base material for each crane operating pad would be obtained from nearby suppliers.

Construction Details

Construction is expected to take approximately sixteen months, starting in 2021. Construction activities would occur Monday through Saturday between 6:00 a.m. and 8:00 p.m. Construction equipment, necessary materials, and concrete would be trucked to each location. Access to the overall project area would occur via Interstate 10 (I-10). From I-10, various paved local roads would provide access to unpaved roads leading to each site. The local roads used for project site access are identified in Table 1-1.

Construction of each site would include a crew of approximately 18 persons, comprised of workers, supervisors, and environmental monitors. One temporary construction trailer would likely be needed as a field office. Typical construction equipment used would include backhoes, loaders, graders, dozers, excavators, concrete pumps, rollers/compactors, dump trucks, and water trucks. Table 1-2 provides a list of construction equipment, an estimated construction schedule, and estimated truck trips for each proposed project site.

Due to the remote location of each site, concurrent construction would be limited to a maximum of three sites at any one time. As part of the project, construction would be scheduled such that combined construction emissions from multiple sites would not exceed thresholds for air quality criteria pollutants. Air quality emission estimate calculations can be found in Appendix A and maximum daily construction emissions for each site can be found in Table 3.3-1.

Construction Practices

As part of standard construction practice, Metropolitan incorporates a variety of measures as part of the proposed project. These measures, which are defined in the contractor specifications, are included in and implemented as part of the proposed project to reflect and incorporate Metropolitan's best practices that avoid, minimize, or offset potential environmental effects from its projects. These practices are relatively standardized and/or compulsory; they represent sound and proven methods to reduce the potential effects of projects. Implementation of these construction practices as part of the proposed project, in advance of impact findings and determinations, is in good faith to improve the quality and integrity of a project and demonstrates environmental responsibility. Some examples of measures relevant to this project include attendance at a mandatory comprehensive environmental awareness training for all staff and contractors; implementing impact avoidance measures for the desert tortoise; enforcing a 20 miles per hour speed limit on unpaved roads; and ensuring fire containment and extinguishing equipment is on site and accessible during construction activities. Standard Metropolitan construction practices are discussed throughout the document.

1.5 Other Public Agency Approvals Required

Table 1-3 lists the anticipated permits and approvals which may be required for project-related activities.

Table 1-3. Permits and Approvals Which May Be Required

Agency / Department	Permit / Approval	Description
Federal		
U.S. Army Corps of Engineers (USACE)	Clean Water Act Section 404 Permit	Requires USACE to review project impacts to “waters of the US” (bed, banks, channel, or associated riparian areas of a river, stream, or lake), including impacts to wildlife and vegetation from sediments, diversions, and other disturbances.
State of California		
California Department of Fish and Wildlife (CDFW)	Streambed Alteration Agreement	Requires CDFW to review project impacts to “waters of the state” (bed, banks, channel, or associated riparian areas of a river, stream, or lake), including impacts to wildlife and vegetation from sediments, diversions, and other disturbances.
Regional Water Quality Control Board (RWQCB)	General Construction Permit, Waste Discharge Requirements, and Clean Water Act Section 401 Permit	Project proponents are required to submit a Notice of Intent to the RWQCB for coverage under the General Construction Permit for projects with disturbance over 1 acre. Section 401 permits are necessary when Section 404 permits are required. Waste Discharge Requirements are necessary when non-federal “waters of the state” are present.
Regional		
South Coast Air Quality Management District (SCAQMD)	Fugitive Dust Control Plan	SCAQMD or Riverside County approval of Dust Control Plan consistent with requirements of Rule 403.1, which is applicable to man-made sources of fugitive dust in the Coachella Valley for construction projects with 5,000 or more square feet of surface area disturbance.
	Portable Equipment Registration or Air Quality Permit to Operate	Portable equipment subject to local air quality permitting requirements, such as generators or air compressors, must either be registered under the California Air Resources Board (CARB) Portable Equipment Registration Program (PERP) or obtain a local air quality permit to operate.

2. Initial Study

This document is a proposed Initial Study and Mitigated Negative Declaration (IS-MND), which addresses the potential environmental effects resulting from the proposed project.

2.1 Legal Authority and Findings

This Initial Study was prepared in accordance with the California Environmental Quality Act (CEQA) Guidelines and relevant provisions of CEQA of 1970, as amended.

Initial Study. Section 15063 of the CEQA Guidelines describes an Initial Study as a preliminary method for analyzing the potential environmental consequences of a project. The purposes of an Initial Study include:

(1) Providing the Lead Agency with the necessary information to decide whether to prepare an Environmental Impact Report (EIR) or a Negative Declaration;

(2) Enabling the Lead Agency to modify a project during the planning stage by mitigating adverse impacts prior to preparation of CEQA documentation, thus avoiding the need to prepare an EIR; and

(3) Providing documentation of the factual basis for the finding in a Mitigated Negative Declaration that the significant environmental impacts of a project have been mitigated to a less-than significant level.

Negative Declaration or Mitigated Negative Declaration. Section 15070 of the CEQA Guidelines states that a public agency shall prepare a Negative Declaration or Mitigated Negative Declaration for a project subject to CEQA when:

(a) The Initial Study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment; or

(b) The Initial Study identifies potentially significant effects but:

1. Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed Mitigated Negative Declaration and Initial Study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and

2. There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

An IS/MND may be used to satisfy the requirements of CEQA when a proposed project would have no significant unmitigable effects on the environment. As discussed further in subsequent sections of this document, implementation of the proposed project would not result in any significant effects on the environment that cannot be reduced to below a level of significance with the mitigation measures included herein.

2.2 Impact Analysis and Significance Classification

The following sections of this IS/MND provide discussions of the possible environmental effects of the proposed project for specific issue areas as identified on the CEQA Environmental

Checklist Form in Appendix G of the CEQA Guidelines (as updated in December 2018). For each issue area, potential effects are discussed and evaluated.

A "significant effect on the environment" is defined by Section 15382 of the CEQA Guidelines as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance." According to the CEQA Guidelines, "an economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant."

Following the evaluation of each environmental effect determined to be potentially significant is a discussion of mitigation measures and the residual effects or level of significance remaining after the implementation of the measures.

2.3 Initial Study and Environmental Checklist Form

a) Project Title:	Colorado River Aqueduct Conduit Structural Protection Project (proposed project)
b) Lead Agency Name and Address:	The Metropolitan Water District of Southern California 700 North Alameda Street Los Angeles, CA 90012
c) Contact Person and Phone Number:	Daniel Cardoza, Environmental Planning Section The Metropolitan Water District of Southern California (213) 217-5602
d) Project Location:	The proposed project includes 24 individual sites within unincorporated Riverside County along the Colorado River Aqueduct (CRA). Figure 1-3 provides an overview of the entire project, with the locations of each of the 24 individual project sites shown in more detail on Figures 1-4 and 1-5.
e) Project Sponsor's Name and Address:	The Metropolitan Water District of Southern California 700 North Alameda Street Los Angeles, CA 90012
f) General Plan Designation:	The project sites are situated within Metropolitan right-of-way for the CRA, with the sites and surrounding adjacent land uses designated by the 2015 Riverside County General Plan for conservation and open space

		use (Riverside County, 2019a). Table 1-1 provides the General Plan designations for each project site.
g)	Zoning:	The project sites and surrounding development are a mixture of Controlled Development, Natural Assets and Residential Agricultural zoning (Riverside County, 2019a). Table 1-1 provides the zoning designations for each project site.
h)	Description of Project:	Refer to Section 1 (Project Description).
i)	Surrounding Land Uses and Setting:	Table 1-1 provides describes the surrounding land uses and setting of the 24 proposed project sites.
j)	Other Agencies Whose Approval May be Required:	Refer to Table 1-3.
k)	Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?	Metropolitan has conducted consultation pursuant to Public Resources Code section 21080.3.1, and has made an impact determination. See Section 3.18.

2.4 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, requiring implementation of mitigation as indicated by the checklist on the following pages that is "Less Than Significant With Mitigation Incorporated."

☐ Aesthetics	☐ Agriculture & Forestry Resources	☐ Air Quality
☒ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

2.5 Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project may have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Jennifer Harriger (signature) 10-14-2020

Jennifer Harriger
Unit Manager, Environmental Planning Section

Date

3. Evaluation of Environmental Impacts

The following discussion addresses impacts to various environmental resources, per the Environmental Checklist Form contained in Appendix G of the State CEQA Guidelines.

3.1 Aesthetics

AESTHETICS Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☒	☐
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion*. *Would the project:

a. Have a substantial adverse effect on a scenic vista?

Less than Significant Impact. A scenic vista is defined as a viewpoint that provides panoramic or focused views of a highly valued landscape or scenic resource for the benefit of the general public. The project sites are located in undeveloped desert lands. Public roads and residential land located to the south of some of the project sites include views of open desert landscapes.

During construction of the proposed project, the visual character of each site would temporarily change. The presence of construction equipment and workers would affect views of the desert landscape from some public viewpoints proximate to each site; however, any visual change would be temporary and of limited duration at each project site. Due to the remote nature of each sites and elevation changes from viewpoints, not all siphon locations would be visible from public locations. Once construction is complete, the overall visual appearance of each project site would be similar to existing conditions. The project includes only surface-level improvements (existing earthen access road realignments; at-grade aggregate crane operating pads, and at-grade concrete protective slabs. Existing grades would primarily remain intact, with the project having no effect on line-of-sight through each project location to surrounding desert landscapes. Proposed realignments to existing earthen access roads would not substantially change any scenic views, as the surface color would remain unchanged. The development of at-grade aggregate crane operating pads and concrete protective slabs would be similar in color to adjacent sand and soil materials, allowing them to blend into the existing desert surface landscape.

In summary, views of temporary construction activities at each site would be short-term, with long-term views at each project site remaining essentially the same. Therefore, the proposed project would not result in substantial adverse effects on a scenic vista or substantially degrade the existing visual character or quality of the site or its surroundings, thus impacts would be less than significant.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

Less than Significant Impact. The nearest designated and eligible State scenic highway to the proposed project sites is State Route 62 (from Interstate 10 to San Bernardino County line (Caltrans, 2019). This freeway segment is located 0.6 mile west of Big Morongo Siphon site, 2.2 miles west of Whitehouse Siphon Site, and 3.5 miles west of the Little Morongo Siphon site.

All project changes to existing visual conditions would occur at-grade. As discussed under Section 3.1.a, proposed realignments to existing earthen access roads would not result in a substantial change to any scenic views, as the surface color would remain unchanged. The development of at-grade aggregate crane operating pads and concrete protective slabs would be similar in color to adjacent surface material, blending into the existing desert surface landscape. In summary, long-term views of each project site would remain essentially the same as existing conditions. When considering the distances of Big Morongo Siphon to the scenic highway segment of State Route 62 (0.6 miles), and the relatively small sizes of the nearest access road realignments, proposed crane operating pads, and concrete protective slabs; the project is not expected to damage or significantly alter existing views from this designated State scenic highway. Impacts pertaining to scenic resources are considered less than significant.

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant Impact. The proposed project sites are all located in areas consisting of open desert landscape, with the nearest public viewsheds being roadways and residences located primarily to the south of each project site (see Table 1-1 for a description of adjacent receptors and roadways). Given the distances of the project sites to public viewsheds (see Table 1-1) and the fact that many of the proposed at-grade improvements at the sites are located at a higher elevation than the public viewing locations, most sites would not be visible when viewed from adjacent public roads and residences.

The visual character and quality of the proposed project locations at present contain the CRA, access roads, and appurtenant aboveground structures. Where project sites would be visible from publicly accessible viewpoints, the proposed project would not cause a substantive change in the visual quality or character of each site compared to existing conditions. The proposed project improvements would be similar in color to the existing desert landscape, which would allow them to blend with perimeter and surrounding surface colors. The concrete and aggregate color schemes would allow the proposed new pads to blend with desert surroundings. Therefore, the minor visual change within each proposed project site is considered low and would not significantly alter existing form, line, color, or texture of the landscape or visual character/quality.

The proposed project is within existing Metropolitan ROW for the CRA and is consistent with applicable General Plan and Zoning designations. Therefore, approval of the proposed project would not lead to any demonstrable negative impact on visual character or quality of the site or its surroundings. Impacts related to substantially degrading the existing visual character or quality of public views of each project site and their surroundings are considered less than significant.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant Impact. The project would not have a significant impact on views due to light sources because it would not add or alter any permanent light sources. The project may require temporary nighttime lighting for construction activities. However, the use of such lighting would be temporary and only required until 8:00 p.m., as needed. Once each site is completed, no impacts from light sources would occur. As discussed under Sections 3.1.a and 3.1.b, all project-related surfaces would either be crushed aggregate, concrete, or earthen materials. These are not reflective and the project would not generate new sources of substantial daytime glare. As a result, less than significant light or glare impacts would occur.

3.2 Agricultural Resources

AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion*. *Would the project:

a. *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

No Impact. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, exist within the project area (California Resources Agency, 2019). As such, no impacts to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would occur as a result of the proposed project.

b. *Conflict with existing zoning for agricultural use, or a Williamson Act contract?*

No Impact. As provided in Table 1-1, none of the project sites contain a General Plan agricultural designation and only the Whitehouse Siphon and Little Morongo Siphon sites are zoned R-A-1 1/4 (Residential Agriculture). This zoning designation is for agricultural use other than commercial growing areas; however, no agricultural uses exist within or adjacent to any of the proposed project sites. The proposed project would have no change to existing land use. Furthermore, none of the proposed project sites contain any Williamson Act contract lands. For these reasons, the proposed project would not conflict with zoning designations for agricultural lands or Williamson Act contract lands and no impacts would occur.

c. *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?*

No Impact. As provided in Table 1-1, none of the proposed project sites contain a General Plan or zoning designation for forest land or timberland and the project sites are not located within a designated Timberland Production zone. Therefore, the proposed project would not result in the loss of forest land, timberland, or timberland production areas since none exist on the site or in the surrounding areas. No impacts pertaining to zoning for forest land or timberland would occur.

d. *Result in the loss of forest land or conversion of forest land to non-forest use?*

No Impact. As discussed in Section 3.2.c, the project sites do not contain forest land; therefore, the proposed project would not result in the conversion or loss of forest land. No impacts related to the loss of forest land or conversion of forest land to non-forest use would occur.

e. *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?*

No Impact. As discussed in Sections 3.2.a through 3.2.c, the project sites contain no farmland or forest land; therefore, the proposed project would not result in the conversion or loss of agriculture or forest land. No impacts related to the conversion of farmland would occur.

3.3 Air Quality

AIR QUALITY Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

***Discussion*. Would the project:**

a. Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The proposed project sites are located within the Salton Sea Air Basin (SSAB), which includes desert portions of Riverside and San Bernardino counties within the jurisdictional boundaries of the South Coast Air Quality Management District (SCAQMD). SCAQMD and Southern California Association of Governments (SCAG) have developed air quality management plans (AQMPs) to meet the requirements of the federal Clean Air Act. AQMPs were developed in 2003, 2007, 2012, and 2016 to address various federal non-attainment and attainment/maintenance planning requirements. These plans are incorporated into the State Implementation Plan by the California Air Resources Board (CARB) and are then reviewed and approved or disapproved by the United States Environmental Protection Agency (USEPA).

The proposed project must comply with CARB and/or the USEPA mandated mobile source emissions regulations outlined in the applicable AQMPs. These regulations are related to on-road vehicle emissions standards, off-road equipment fleet standards, and fuel sulfur standards.

The proposed project does not include permanent stationary emissions sources regulated by SCAQMD. Therefore, regulations pertaining to permanent emission sources do not apply to the project. With respect to temporary construction emission sources, such as fugitive dust, the proposed project would comply with all applicable SCAQMD rules and regulations, such as Rule 403, which ensures that fugitive dust emissions are reduced.

No new facilities are proposed with this project, therefore, the proposed project would not increase water supply to the area or otherwise directly or indirectly cause growth beyond the AQMP growth projections. Therefore, the proposed project would not conflict with or obstruct the applicable air quality plan. Less than significant impacts related air quality plan compliance would occur.

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?

Less than Significant Impact. The Salton Sea Air Basin is a non-attainment area, exceeding federal and state ozone and particulate matter (PM10) ambient air quality standards. SCAQMD has developed regional emissions significance thresholds that relate to basin-wide air pollutant standards and those that relate to localized impacts (localized impacts are discussed further under Section 3.3.c).

There would be no change to existing operations and maintenance activities from the proposed project, so operational emissions have not been calculated. The proposed project would generate short-term air pollutant emissions during construction activities, which were calculated using the California Emissions Estimator Model (CalEEMod) as approved for use by air pollution control agencies in California, including SCAQMD. Table 1-2 in Section 1.4, Proposed Project, provides additional details and construction assumptions used in the project's emission calculations.

For the purposes of the air quality analysis, construction activities were grouped into two phases based on the types of activities that are likely to occur concurrently at each site (1) Grading and Site Preparation and (2) Crane Pad Surfacing, Installation of Aqueduct Protection Crossing and Drainage Features (if applicable). Table 3.3-1 presents the estimated maximum daily air pollutant emissions for the two phases of construction at each of the proposed project sites, as calculated by CalEEMod. As discussed in the Construction Details section of Section 1.4, Proposed Project, the number of sites that can be worked on concurrently is three.

Table 3.3-1. Maximum Daily Construction Emissions (lbs/day) by Siphon Site and Construction Phase

Construction Site	Construction Phase	NO_X	PM10	PM2.5	ROG	CO	SO_X
No Name Siphon	Grading and Site Preparation	10.71	42.57	5.55	0.90	17.01	0.05
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	10.22	43.94	4.59	0.58	7.65	0.05
Shavers Siphon	Grading and Site Preparation	16.22	56.95	7.03	1.04	17.82	0.07
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	25.12	2.64	0.32	2.80	0.02
Cottonwood Springs Siphon	Grading and Site Preparation	13.16	44.05	5.69	0.97	17.37	0.06
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	23.30	2.45	0.32	2.80	0.02
East Cottonwood No. 1 Siphon	Grading and Site Preparation	24.75	116.89	13.31	1.30	21.30	0.11
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	4.91	37.07	3.90	0.47	7.60	0.03
East Cottonwood No. 2 Siphon	Grading and Site Preparation	10.10	58.92	7.29	0.89	16.92	0.04
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	40.51	4.27	0.32	2.80	0.02

Table 3.3-1. Maximum Daily Construction Emissions (lbs/day) by Siphon Site and Construction Phase

Construction Site	Construction Phase	NO_X	PM10	PM2.5	ROG	CO	SO_X
End Wash Siphon	Grading and Site Preparation	14.38	37.18	4.95	1.00	17.55	0.06
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	7.55	23.37	2.43	0.51	7.25	0.04
Mecca No. 1 Siphon	Grading and Site Preparation	8.26	11.19	2.25	0.84	16.65	0.04
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	7.25	0.74	0.32	2.80	0.02
Mecca No. 2 Siphon	Grading and Site Preparation	12.54	22.99	3.46	0.95	17.28	0.06
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	11.91	1.24	0.32	2.80	0.02
Iron Ledge Siphon	Grading and Site Preparation	13.77	64.91	7.89	0.98	17.46	0.06
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	33.62	3.54	0.32	2.80	0.02
East Thermal Siphon	Grading and Site Preparation	18.05	87.95	10.30	1.09	18.09	0.08
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	35.69	3.76	0.32	2.80	0.02
West Thermal Siphon	Grading and Site Preparation	8.87	48.50	6.20	0.86	16.74	0.04
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	8.89	54.26	5.69	0.54	7.45	0.04
East Fan Hill Siphon	Grading and Site Preparation	8.26	48.53	6.21	0.84	16.65	0.04
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	39.62	4.18	0.32	2.80	0.02
Fan Hill Siphon	Grading and Site Preparation	11.32	46.35	5.95	0.92	17.10	0.05
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	28.29	2.97	0.32	2.80	0.02
West Fan Hill Siphon	Grading and Site Preparation	8.87	28.76	4.11	0.86	16.74	0.04
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	21.07	2.21	0.32	2.80	0.02
Thousand Palms Siphon	Grading and Site Preparation	8.26	24.08	3.62	0.84	16.65	0.04
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	18.42	1.93	0.32	2.80	0.02
West Thousand Palms Siphon	Grading and Site Preparation	33.35	59.42	7.12	1.47	20.35	0.15
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	7.92	14.16	1.47	0.61	11.75	0.04
	Grading and Site Preparation	10.71	13.05	2.43	0.90	17.01	0.05

Table 3.3-1. Maximum Daily Construction Emissions (lbs/day) by Siphon Site and Construction Phase

Construction Site	Construction Phase	NO_X	PM10	PM2.5	ROG	CO	SO_X
East Wide Canyon Siphon	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	9.93	9.18	0.92	0.66	12.05	0.04
West Wide Canyon Siphon	Grading and Site Preparation	8.87	21.82	3.37	0.86	16.74	0.04
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	2.53	15.43	1.61	0.32	2.80	0.02
Long Canyon Siphon	Grading and Site Preparation	9.48	26.46	3.86	0.87	16.83	0.04
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	9.26	22.27	2.32	0.64	11.95	0.04
East Blind Canyon Siphon	Grading and Site Preparation	24.75	16.29	2.65	1.30	21.30	0.11
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	7.92	4.72	0.47	0.61	11.75	0.04
West Blind Canyon Siphon	Grading and Site Preparation	8.26	10.13	2.14	0.84	16.65	0.04
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	8.89	9.28	0.92	0.54	7.45	0.04
Little Morongo Siphon	Grading and Site Preparation	14.38	29.74	4.16	1.00	17.55	0.06
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	8.22	19.39	2.00	0.53	7.35	0.04
Whitehouse Siphon	Grading and Site Preparation	15.60	20.26	3.14	1.03	17.73	0.07
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	5.54	9.04	0.93	0.46	6.96	0.03
Big Morongo Siphon	Grading and Site Preparation	45.56	43.46	5.33	1.82	24.37	0.20
	Crane Pad Surfacing, Installation of Aqueduct Protection Crossing & Drainage Features (if applicable)	9.26	8.80	0.89	0.64	11.95	0.04

Notes: NO_X (nitrogen oxides), PM10 (particulate matter 10 micrometers or less in diameter), PM2.5 (particulate matter 2.5 micrometers or less in diameter), ROG (reactive organic gases), CO (carbon monoxide), SO_X (sulfur oxides).

Source: Appendix A; SCAQMD, 2019

As part of the project, Metropolitan would phase the construction schedule to ensure the combined site emissions would not exceed the SCAQMD regional emissions significance thresholds, listed in Table 3.3-2. Therefore, the proposed project would have less than significant regional air quality emission impacts.

Table 3.3-2. SCAQMD Regional Significance Thresholds (lbs/day)

Threshold	NO_X	PM10	PM2.5	ROG	CO	SO_X
SCAQMD Regional Significance Thresholds	100	150	55	75	550	150
Significant (Exceeds Thresholds)?	*NO*	*NO*	*NO*	*NO*	*NO*	*NO*

Source: Appendix A; SCAQMD, 2009

c. Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. Sensitive receptors include schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent homes, hospitals, retirement homes, and residences. There are two specific impact issues that have been analyzed with respect to the proposed project's potential to expose sensitive receptors to substantial pollutant concentrations, as follows:

- Localized short-term criteria pollutant concentration impacts
- Health-risk impacts from toxic air contaminant (TAC) emissions

Localized Criteria Pollutant Impact Analysis

SCAQMD's Localized Significance Thresholds (LSTs) are used to determine if a project could exceed ambient air quality thresholds for nearby sensitive receptors (such as residences). The LSTs were established by SCAQMD for each source receptor area (SRA) within their jurisdiction, and represent on-site emission levels that could cause ambient air quality standard exceedances or substantial contributions to existing exceedances at given distances from the site to nearby receptor locations for four pollutants (CO, NO_X, PM10 and PM2.5). There are separate construction and operations thresholds for PM10 and PM2.5. The project is located in SRA 30 (Coachella Valley), and most of the project sites are located at relatively large distances from any sensitive receptors. The project site with the nearest sensitive receptors is the East Blind Canyon Siphon which is 620 feet (approximately 190 meters) from the nearest residence. There are no schools or hospitals located within 1,640 feet (500 meters) of any project site.

Table 3.3-3 compares the maximum daily unmitigated construction emissions of the project against SCAQMD's most conservative applicable LSTs. The LSTs were determined using the SCAQMD look up table (SCAQMD, 2009) for SRA 30 with the nearest receptors (residence) located 620 feet (approximately 190 meters) from the construction site, where the active construction area at the time of the peak daily on-site emissions is assumed to be one acre in size. Table 1-2 in Section 1.4, Proposed Project, includes detailed assumptions for the construction activities, including equipment and on-road vehicle use that were used to generate the maximum daily localized construction emissions.

Table 3.3-3. Maximum Daily Localized Construction Emissions (lbs/day)[1]

	NO_X	PM10[2]	PM2.5[2]	CO
Maximum Daily Localized Emissions	7.9	8.8	2.0	14.8
SCAQMD Localized Significance Thresholds[1] (lbs/day)	348	71	21	5,330
Significant (Exceeds Thresholds)?	*NO*	*NO*	*NO*	*NO*

Source: Appendix A; SCAQMD, 2009
Notes:
1 - These thresholds are based on a distance of 180 meters to the nearest sensitive receptor using linear interpolation of the SCAQMD LST table values for 100 and 200 meters.
2 - These emissions include the CalEEMod "On-Site" emissions, plus 1 percent of the emissions from the CalEEMod "Off-Site" onroad vehicle exhaust and 5 percent of the vehicle fugitive dust emissions to account for the area of travel within one-quarter mile of the work area.

As shown in Table 3.3-3, the maximum unmitigated daily localized project construction emissions are all below SCAQMD LSTs. Therefore, the project would have less than significant sensitive receptor criteria pollutant impacts.

Toxic Air Contaminant Impact Analysis

Construction of the proposed project would generate diesel particulate matter (DPM) emissions, a TAC. Emissions of DPM for this project would occur during the short-duration construction period (approximately 14 days at each siphon work area) in relation to life-time exposure periods; however, DPM has a high cancer potency. As discussed, the project does not alter existing operations and maintenance activities. Therefore, from a health risk perspective, the construction emissions impacts are primarily associated with temporary DPM emissions from diesel-fueled construction equipment.

None of the project sites are located nearby sensitive receptor types such as schools or hospitals. However, because the East Blind Canyon Siphon site is located 620 feet from the nearest residence (approximately 190 meters), a screening level health risk assessment (HRA) was performed. Though most of the project sites are not located near one another, the West Blind Canyon Siphon site is located close enough to the East Blind Canyon Siphon site (which is being used for the HRA analysis) that TAC emissions were doubled to ensure a worst case health risk analysis was performed. Transportation emissions during construction were analyzed, but those emissions are spread over a large area and are not substantial at these project sites.

An initial screening level approach from SCAQMD risk assessment guidance, using Office of Environmental Health Hazard Assessment (OEHHA) risk assessment methods guidance for short-term projects (OEHHA, 2015), was completed using the conservative worst-case scenario described above. Further details of the HRA analysis is provided in Appendix A. Based on this analysis, the determined screening level cancer and chronic risks are well below the SCAQMD risk significance thresholds; therefore, the proposed project would have less than significant sensitive receptor toxic air contaminant pollutant impacts.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact. The proposed project would not affect existing operation or maintenance emissions and project construction would not result in substantial or highly offensive temporary odor emissions, substantial amounts of fugitive dust emissions, or other emissions that could adversely affect a substantial number of people. Therefore, the proposed project would have less than significant impacts pertaining to odors or other emissions.

3.4 Biological Resources

BIOLOGICAL RESOURCES Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

Biological resource conditions in the proposed project study area were documented in a Biological Resources Technical Report (BRTR) prepared in 2020 by Glenn Lukos Associates, Inc. (GLA) (see Appendix B). GLA conducted biological studies in order to identify and assess the potential for sensitive biological resources and jurisdictional features to occur in or near the development of the proposed project footprint. The BRTP provides details of field surveys, including general biological surveys, vegetation mapping, and focused surveys for plants, burrowing owl (*Athene cunicularia*), and desert tortoise (*Gopherus agassizii*), conducted in 2019 and 2020. As part of the biological resources evaluation, GLA conducted a literature review and a search of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California and the California Natural Diversity Database (CNDDB) for the Cottonwood Basin, Cottonwood Springs, Desert Hot Springs, East Deception Canyon, Hayfield, Keys View, Seven Palms Valley, and Thermal Canyon United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps.

Regional Setting

The proposed project area is situated along an approximately 64-mile segment of the CRA in the foothills of the Little San Bernardino Mountains. The proposed project is located within the Colorado Desert region of the larger Sonoran Desert in Riverside County. This region consists of gently sloping desert plains, steep ridges, and alluvial fans that convey seasonal flows from the Little San Bernardino Mountains south towards I-10, and ultimately, to the Salton Sea. Elevations within the proposed project region decrease from east to west and range from approximately 1800 feet above mean sea level (AMSL) to 480 feet AMSL.

Local Setting

The proposed project study area is composed of a total of 59.61 acres, which includes the 11.13-acre proposed project footprint and a 48.48-acre buffer around the proposed project footprint. The proposed project consists of 24 work sites that are proposed for structural improvements associated with CRA siphons. Eleven of these work sites occur in the eastern portion of the proposed project study area near the unincorporated community of Chiriaco

Summit and thirteen occur in the western portion of the proposed project study area near the cities of Desert Hot Springs and Indio, and the unincorporated community of Sky Valley. Residential and rural residential development occurs south of the western portion of the proposed project study area in areas within and adjacent to the city of Desert Hot Springs and unincorporated Sky Valley. East of the city of Desert Hot Springs, Joshua Tree National Park borders the proposed project study area to the north.

Sixteen vegetation alliances/land cover types were identified within the proposed project study area (see Appendix B). Most of the area can be broadly characterized as patchy desert scrub composed of a variety of shrubland alliances dominated by desert willow (*Chilopsis linearis*), creosote bush (*Larrea tridentata*), brittlebush (*Encelia farinosa*), cheesebush (*Ambrosia salsola*), and burro weed (*A. dumosa*). Drainage features are prevalent throughout the area and larger washes support desert woodland alliances characterized by the presence of desert willow (*Chilopsis linearis*), blue palo verde (*Parkinsonia floridum*), and smoketree (*Psorothamnus spinosus*). These drainage features are ephemeral, typically supporting surface flows only during or immediately after rain events.

***Discussion*. Would the project:**

a. *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less than Significant with Mitigation Incorporated. Surveys of all proposed work sites were conducted in the spring and summer of 2019 and the spring of 2020 (see Appendix B). In addition, a search of the CNDDB was conducted. The CNDDB identified a total of 55 special-status plant species and 34 special-status animal species that have been recorded within the eight USGS 7.5-minute quads associated with the proposed work sites. Aspen Environmental Group (Aspen) biologists performed subsequent biological reconnaissance surveys in December 2019 to verify environmental baseline conditions.

Listed Plants

Listed plant species were not observed in or near the proposed project sites during focused plant surveys conducted in April, July, and August 2019. The surveys were performed during the appropriate season and the area received higher than average annual precipitation. Although not detected in the project study area, there is potentially suitable habitat for the Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*) and triple-ribbed milk-vetch (*A. tricarinatus*) near Big Morongo Siphon. These species are federally endangered and are a California Rare Plant Rank (CRPR) 1B species (CNPS, 2019). Coachella Valley milk-vetch primarily occurs in aeolian habitats that support windblown sand, but may also be present in areas of fine-grained, loose alluvial sand. This species is an annual or short-lived perennial that may not germinate or flower in some years, especially years of low rainfall. Triple-ribbed milk-vetch is a longer-lived perennial with established populations along Big Morongo Canyon and Morongo Pass less than ten miles upstream from the Big Morongo Siphon site.

Based on plant expression in the area and above average rainfall during the survey period, neither Coachella Valley milk-vetch nor triple-ribbed milk-vetch are expected to occur in the proposed project area. Direct impacts to these species are not expected to occur; however, due to the possible presence of the species in the project area, prior to any ground disturbing activities that are initiated after the spring 2021 blooming season, Metropolitan would implement Mitigation Measure (MM) BIO-1 (Pre-Construction Plant Surveys), which includes pre-construction clearance surveys, biological monitoring, and avoidance of sensitive resources at proposed project sites. Implementation of MM BIO-1 would ensure that, in the unlikely event these plant species are present at the time of construction, impacts would be reduced to less than significant. Impacts to listed plant species are anticipated to be less than significant with incorporation of the mitigation measure.

Critical Habitat for Listed Plants

The USFWS designated approximately 9,600 acres of critical habitat, comprised of four separate units, for the Coachella Valley milk-vetch in Riverside County (USFWS, 2013). These four units represent the main fluvial sand depositional areas across the Coachella Valley. The proposed project study area supports approximately 24.09 acres of designated critical habitat within the Mission Creek and Morongo Wash Unit. Of this, 3.3 acres occur within the proposed project footprint and 6.24 acres occur within the temporary impact area at Big Morongo Siphon.

Mission Creek and Morongo Wash feed downstream sediment to the Willow Hole area where sand fields and dunes are formed through a natural system of aeolian and fluvial transport. The proposed project would include improvements to existing structures and utilize existing access roads. Due to this, and the temporary nature of construction activities, the proposed project is not expected to impede the natural system of sand transport or impact sand sources, depositional fields, or dunes. Low water crossings would be installed where the realigned access roads cross drainage features. The low water crossings will be designed as earthen crossings with approximately 30-inch diameter riprap placed downstream to dissipate energy and reduce erosion. The low water crossings are designed to ensure adequate water flow and sediment transport during storm events. Therefore, no impacts to designated critical habitat for Coachella Valley milk-vetch are expected to occur.

Listed Wildlife Species

Desert tortoises are known to occur in the region and were observed adjacent to the proposed project study area during focused surveys. One desert tortoise scat was identified within the proposed project footprint (see Appendix B). No desert tortoise or their burrows were detected in any of the proposed work sites.

Desert tortoise is listed as threatened under the federal and state Endangered Species Acts (FESA and CESA). Desert tortoises spend much of their lives in burrows. They enter brumation during late autumn. In late winter or early spring, they emerge from over-wintering burrows and typically remain active or partially active through the fall. Activity decreases in summer, but tortoises often emerge from their burrows during summer to drink and to take advantage of seasonal food availability during the few weeks following late summer rains. They may become dormant during extended periods of summer heat and dryness. A single tortoise may have a dozen or more burrows within its home range, and different tortoises may use these burrows at different times. Even during their active seasons, they are inactive during much of the day or night, within burrows or at “palettes” (partially sheltered flattened areas, often beneath shrubs or large rocks) or other shaded sites.

Construction activities can impact desert tortoise through direct injury or mortality from interactions with construction vehicles or equipment, harassment by human presence, or entrapment in open trenches or excavations. Indirect impacts may include the introduction or spread of weeds or increased raven predation. Overwatering of roads to control dust may attract desert tortoise and increase predation by subsidizing local predators.

Although there is a potential for desert tortoise to occur in the proposed project area, as described in Section 1.4, Proposed Project, Metropolitan's standard construction practice for all activities in the desert includes avoidance of the desert tortoise. Standard measures include, but are not limited to, requiring mandatory participation in a comprehensive desert tortoise awareness training for all workers who enter a work site, delineating work areas (using flagging or other conspicuous methods), having a qualified biologist(s) on site during construction activities, conducting pre-construction surveys for desert tortoise prior to any project activities, installing desert tortoise exclusionary fencing, where appropriate, and avoiding impacts to any known or identified tortoise or their burrows. In addition, daily sweeps are conducted to ensure desert tortoise do not enter the work areas. If detected in the proposed project area, the biologist has the authority to immediately suspended construction until the desert tortoise has left the work area on its own. Implementation of Metropolitan's standard practices would avoid potential impacts to desert tortoise and minimize and/or avoid potential impacts to desert tortoise habitat.

Desert Tortoise Critical Habitat

Portions of the proposed project study area are located within critical habitat for desert tortoise. This includes approximately 6.79 acres within the Colorado Valley Recovery Unit. Of this total, approximately 1.78 acres occur within the proposed project footprint at the following work sites: Cottonwood Springs Siphon (0.39 acres); East Cottonwood No. 1 Siphon (0.31 acres); East Cottonwood No. 2 Siphon (0.09 acres); End Wash Siphon (0.31 acres); No Name Siphon (0.32 acres); and Shavers Siphon (0.37 acres). Approximately 4.50 acres of the Colorado Valley Recovery Unit occur within the temporary impact area at the following work site: Cottonwood Springs Siphon (0.86 acres); East Cottonwood No. 1 Siphon (0.64 acres); East Cottonwood No. 2 Siphon (0.49 acres); End Wash Siphon (1.11 acres); Mecca No. 1 Siphon (0.02 acre); No Name Siphon (0.69 acres); and Shavers Siphon (0.70 acres). The USFWS Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Recovery Plan; USFWS, 2011) provides a list of primary constituent elements, which are defined as physical and biological attributes that are necessary for the long-term survival of the species. These constituent elements are identified as sufficient space to support viable populations within each of the six recovery units, and to provide for movement, dispersal, and gene flow; sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche (hard layer of subsoil typically containing calcium carbonate) caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and, habitat protected from disturbance and human-caused mortality (USFWS, 2011).

The proposed project would include improvements to existing structures and utilize existing access roads in previously disturbed areas. Due to the temporary nature of construction activities, the proposed project is not expected to impede the efficacy of primary constituent elements related to desert tortoise critical habitat. Furthermore, implementation of desert tortoise awareness training, desert tortoise surveys prior to any project activities, the delineation of work limits (using flagging or other conspicuous methods), and avoidance of any known or identified tortoise individuals or occupied burrows would ensure consistency with the recovery actions of the Recovery Plan and would minimize and/or avoid potential impacts to desert tortoise habitat.

Non-Listed Special-Status Plants

Non-listed special status plant species were not observed in or near the proposed project sites during focused plant surveys conducted in April, July, and August 2019. The surveys were performed during the appropriate season and the area received higher than average annual precipitation. Of the 55 non-listed special-status plant species identified through the CNDDB and records search, three were determined to have a potential to occur within the proposed project area based on habitat requirements. These include Latimer's woodland-gilia (*Saltugilia latimeri*), Little San Bernardino Mountains linanthus (*Linanthus maculatus* ssp. *maculatus*), and roughstalk witch grass (*Panicum hirticaule* ssp. *hirticaule*).

Latimer's woodland-gilia and Little San Bernardino Mountains linanthus are designated as CRPR 1B species, which indicates that these species are rare, threatened, or endangered in California and elsewhere (CNPS, 2019). Latimer's woodland-gilia is typically found in sandy to rocky soils associated with chaparral, juniper and pinyon woodland, and desert scrub habitats. Known populations of this species occur in habitats that are either upland or upstream from the proposed sites in the western portion of the proposed project study area. However, isolated occurrences could potentially be present due to washdown from these established populations. Little San Bernardino Mountains linanthus is a very small annual that was recently detected along Big Morongo Canyon in March 2019 approximately 300-feet north of the Big Morongo Siphon site (CalFlora, 2020).

Roughstalk witch grass is designated as a CRPR 2B plant, which indicates that the species is rare, threatened, or endangered in California, but more common elsewhere (CNPS, 2019). Roughstalk witch grass grows in sandy, silty depressions in desert dunes, Joshua tree woodland, Mojavean desert scrub, and Sonoran Desert scrub habitats. Although the species was not detected during focused surveys, the majority of these surveys were conducted outside of the blooming period, occurring between August and December. Due to suitable habitat occurring at several of the project sites, roughstalk witch grass has the potential to occur. However, if present, impacts to this species would be isolated and not considered significant.

Based on the above average rainfall and the observed plant expression in the area during the surveys, direct impacts to these species are not expected to occur; however, due to the possible presence of the species in the project area, prior to any ground disturbing activities that are initiated after the spring 2021 blooming season, Metropolitan would implement Mitigation Measure BIO-1 (Pre-Construction Plant Surveys), which includes pre-construction clearance surveys, biological monitoring and avoidance of sensitive resources at proposed project sites. Implementation of Mitigation Measure BIO-1 would ensure that, in the unlikely event these plant species are present at the time of construction, impacts would be reduced to less than significant.

Non-Listed Special-Status Wildlife

Four non-listed special-status wildlife species were detected in the proposed project study area during reconnaissance and focused surveys conducted in 2019. These include burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), San Diego desert woodrat

(*Neotoma lepida intermedia*), and desert bighorn sheep (*Ovis canadensis nelsoni*). Sixteen additional non-listed special-status wildlife species have the potential to occur as transient species or year round residents. These include golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), Bendire's thrasher (*Toxostoma bendirei*), Crissal thrasher (*Toxostoma crissale*), Le Conte's thrasher (*Toxostoma lecontei*), vermilion flycatcher (*Pyrocephalus obscurus*), yellow warbler (*Setophaga petechia*), flat-tailed horned lizard (*Phrynosoma mcallii*), pallid bat (*Antrozous pallidus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), western mastiff bat (*Eumops perotis californicus*), Palm Springs round-tailed ground squirrel (*Xerospermophilus tereticaudus chlorus*), pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*), Palm Springs pocket mouse (*Perognathus longimembris bangsi*), American badger (*Taxidea taxus*), and desert kit fox (*Vulpes macrotis arsipus*).

Burrowing owl is a CDFW Species of Special Concern and a U.S. Bureau of Land Management (BLM) Sensitive Species. A single burrowing owl was observed just south of the Big Morongo Siphon work site during focused burrowing owl surveys. Several suitable burrows were also identified during focused surveys but did not exhibit any sign of occupation. This species uses burrows created by ground squirrels, kit fox, desert tortoise, and other wildlife. Burrowing owls overwinter throughout the region and could be present at any time of year. If present, project impacts may include direct injury or mortality from interactions with construction vehicles or equipment and harassment by human presence. Impacts to burrowing owl would avoided with the implementation of Mitigation Measure BIO-2 (Pre-Construction Surveys and Monitoring for Breeding Birds). Implementation of Mitigation Measure BIO-2 would avoid impacts to burrowing owl through pre-construction surveys, nest/burrow detection, and establishing buffer zones around active nests. With the implementation of this mitigation measure, impacts would be considered less than significant.

Golden eagle is protected by the federal Bald and Golden Eagle Protection Act (BGEPA), is a CDFW fully-protected species, and is a BLM Sensitive Species. Prairie falcon is a CDFW Watchlist Species. In desert habitats, each of these species typically nests in steep, rugged terrain, often at sites with overhanging ledges, cliff, or large trees as cover. Each species has also been known to utilize manmade structures, such as transmission line towers, for nesting platforms, with accounts of nesting prairie falcons occupying former raven nests at these locations (Roppe et al., 1989). Foraging habitat for golden eagle and prairie falcon consists of open terrain such as grasslands, deserts, savanna, and early successional forest and shrubland habitats throughout the regional foothills, mountains, and deserts (Kochert et al., 2002). The project study area does not support typical nesting habitat for golden eagle or prairie falcon except for the tall, vertical cliffs near the Little Morongo Siphon site. Additionally, several transmission lines occurring within the broader area support potential nesting sites. However, nests for these species and other raptors were not detected in the proposed project study area. If present, impacts to nesting golden eagles and prairie falcons may include harassment to nest sites by human presence. Impacts to nesting golden eagles or prairie falcons, if present, would be avoided with the implementation of Mitigation Measure BIO-2 (Pre-Construction Surveys and Monitoring for Breeding Birds) through pre-construction surveys, active nest detection, and establishing buffer zones around active nests. Implementation of Mitigation Measure BIO-2 would reduce impacts to nesting golden eagle and prairie falcon to less than significant. The proposed project study area supports suitable foraging habitat for each of these species; however, any impacts to foraging habitat would be negligible and considered less than significant.

Loggerhead shrike, Bendire's thrasher, Le Conte's thrasher, Crissal thrasher, vermilion flycatcher, and yellow warbler are CDFW Species of Special Concern. Loggerhead shrike are somewhat ubiquitous in the general region and are regularly found in a variety of desert habitats. Bendire's thrasher and Le Conte's thrasher occur in desert scrub habitats and prefer cacti and tall desert wash vegetation. Crissal thrasher are typically found in dense wash vegetation and along waterways in riparian habitats. Vermilion flycatcher and yellow warbler have the potential to forage in the general project area; however, the proposed project study area does not support the riparian vegetation or abundant water sources required for nesting habitat for either of these species.

The federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503, 3503.5, and 3513 prohibit take of migratory birds, including eggs or active nests, except as permitted by regulation (e.g., licensed hunting). Project impacts may include harassment by human presence, potentially resulting in nest abandonment or failure. Impacts to nesting birds would be avoided with the implementation of Mitigation Measure BIO-2 (Pre-Construction Surveys and Monitoring for Breeding Birds) through pre-construction surveys, active nest detection, and establishing buffer zones around active nests. With the implementation of this measure, impacts would be considered less than significant.

Flat-tailed horned lizard, which is a CDFW Species of Special Concern, is adapted to hot dry environments. They typically occur in sandy desert, hardpan or gravel flats with scattered vegetation. They are most common in areas with fine windblown sand and a high density of ants, which are their primary food source. Although not observed during surveys, there is a high likelihood for this species to occur throughout the proposed project study area. Impacts to flat-tailed horned lizard, if present, would include direct injury or mortality due to interactions with construction vehicles or equipment or entrapment in open trenches or excavations; however, implementation of standard construction practices, as part of the proposed project, would reduce and/or avoid impacts. Although proposed project activities may result in isolated mortality to some flat-tailed horned lizard individuals, this would not represent a significant impact to the overall population of the species. Impacts to flat-tailed horned lizard would be less than significant.

Palm Springs round-tailed ground squirrel, pallid San Diego pocket mouse, and Palm Springs pocket mouse are all CDFW Species of Special Concern. Although none of these species were observed during surveys, the proposed project study area occurs within the known ranges and supports suitable habitat for each of these species, including small mammal burrows that are extensive throughout the project study area. Therefore, there is a moderate to high potential for these species to occur. Palm Springs round-tailed ground squirrel typically occur in flat and sandy desert habitats commonly in areas dominated by creosote bush. Pallid San Diego pocket mouse are generally found in desert wash and scrub habitats usually associated with rocky or gravelly soils. Palm Springs pocket mouse are found in a variety of habitats, including arid plains and desert scrub. San Diego desert woodrat, which is a CDFW Species of Special Concern, was detected in the proposed project study area and is found in association with rocky crevices, fallen trees and other areas where small rocks, cactus and leaf litter can be mounded into habitat sites.

Small mammal burrows were observed during surveys conducted for the proposed project. If present, potential impacts to Palm Springs round-tailed ground squirrel, pallid San Diego pocket mouse, and Palm Springs pocket mouse could include direct injury or mortality due to interactions with construction vehicles or equipment, harassment by human presence, or entrapment in open trenches or excavations. San Diego desert woodrat could also be impacted if the proposed project disturbs midden sites; however, implementation of standard construction practices, such as inspection of open trenches during biological surveys, would reduce and/or avoid impacts. Although proposed project activities may result in isolated mortality to some small mammal individuals, this would not represent a significant impact to the overall populations of these species. Impacts to small mammal species would be less than significant.

Pallid bat, pocketed free-tailed bat, and western mastiff bat are all CDFW Species of Special Concern. The proposed project study area provides suitable foraging habitat for these species; however, roosting habitat is scarce throughout the proposed project study area with suitable locations limited to the Little Morongo Siphon site where tall, vertical cliffs are present. The species require unobstructed drops to gain momentum in take-off. Scattered transmission line components may provide some roosting habitat for common bat species, but the likelihood of sensitive bat species roosting within any of the proposed work sites is low. No bats were observed or detected during surveys and impacts are not expected to occur.

American badger is a CDFW Species of Special Concern and are known to occur throughout the region. No badger, dens, or sign were observed during surveys; however, this species is wide ranging and may be present at any time of the year. Desert kit fox is protected under Title 14, Section 460, California Code of Regulations and the California Fish and Game Code (§§ 4000-4012), which defines kit fox as a protected furbearing mammal. These regulations prohibit trapping for purposes of recreation or commerce in fur of the species. Desert kit fox or their dens were not observed during surveys, but this species is known to occur in the project region and may be present at any time of year. Project impacts to these species, if present, may include direct injury or mortality from interactions with construction vehicles or equipment, harassment from human presence, or entrapment in open equipment, trenches, or excavations; however, implementation of standard construction practices, such as inspection of open trenches during biological surveys, would reduce and/or avoid impacts. Potential impacts to American badger and desert kit fox would be less than significant.

Desert bighorn sheep are a CDFW fully-protected species and a BLM sensitive species. They are considered locally rare, but were observed and/or identified by sign, including tracks and scat, throughout the proposed project study area during surveys. This species ranges from the White Mountains in Mono County to the Chocolate Mountains in Imperial County and are found in mesic to xeric habitats, from alpine elevations to desert grasslands, shrub-steppe in mountains, foothills, and river canyons. Escape terrain (cliffs, talus slopes, etc.) is a critical feature of their habitat. Habitat for bighorn sheep is present in the general project region; however, the proposed work sites do not provide suitable habitat for lambing which is the most critical time of year for bighorn sheep survival (February 1 through March 31). While the species may periodically forage on or near the proposed work sites, impacts to foraging habitat would be negligible and considered less than significant. Implementation of standard construction practices, including immediately suspending construction until the animal has left the work area, would reduce and/or avoid impacts. Potential impacts to desert bighorn sheep would be less than significant.

Mitigation Measures

BIO-1 **Pre-Construction Plant Surveys.** Prior to any ground disturbing activities that are initiated after the spring 2021 blooming season, Metropolitan shall conduct surveys for special-status plants in areas of suitable habitat. Surveys shall be conducted by a qualified botanist during the flowering season in suitable habitat located within proposed project disturbance areas and a 50-foot buffer. If present, listed or special-status plants shall be avoided to the maximum extent feasible. If impacts to listed plants cannot be avoided, Metropolitan shall consult with the CDFW and/or USFWS to obtain the appropriate permits and shall comply with all permit requirements. Additional conservation measures to protect or restore listed plant species or their habitat may be required by the relevant regulatory agencies. If impacts to other special-status plants (CRPR 1A, 1B, 2) cannot be avoided, and if more than 10 percent of the individual occurrence will be affected, seed shall be collected by a Qualified Botanist and deposited to the Rancho Santa Ana Botanic Garden (RSABC) for conservation of the species.

BIO-2 **Pre-Construction Surveys and Monitoring for Breeding Birds.** A qualified biologist with demonstrable experience surveying and monitoring for active bird nests shall conduct surveys for breeding birds protected under the MBTA and Fish and Game Code no more than 72 hours prior to any vegetation removal, equipment staging, or other ground disturbance that will occur during the breeding season (from January 15 through August 31 for raptors and hummingbirds and from March 15 through August 31 for other birds).

- Nesting bird surveys shall be performed in all potential nesting habitat within 500 feet of construction activities, where feasible, including vegetation removal, equipment staging, or other ground disturbance.
- Nesting bird surveys shall include Burrowing Owl. The surveys shall follow the protocols set forth in the Staff Report on Burrowing Owl Mitigation (CDFW, 2012).
- If an active nest is detected, a 300-foot buffer shall be established around the nest site and no construction activities shall be allowed within the buffer until the young have fledged from the nest or the nest fails. The 300-foot buffer may be adjusted after review by a qualified biologist based on bird behavior, existing conditions (e.g., ambient noise, topography, etc.), and scheduled work activities.
- A qualified biological monitor shall be responsible for recording the results of pre-construction surveys and copies of all monitoring reports shall be submitted to Metropolitan and the end of each breeding season.

b. *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less than Significant Impact with Mitigation Incorporated. A jurisdictional delineation of waters of the U.S. and waters of the State was completed in August 2019 for the proposed project. This analysis identified approximately 3.23 acres (4,214 linear feet) of non-wetland waters of the U.S./State and approximately 3.33 acres (4,214 linear feet) of CDFW-regulated streambed, including approximately 0.54 acres of jurisdictional desert riparian habitat, identified within the project study area. Of these totals, approximately 0.57 acres of non-wetland waters of the U.S. and 0.63 acres of CDFW-regulated streambed, which includes approximately 0.09 acres of jurisdictional desert riparian habitat, occur within the proposed project footprint. Additionally, approximately 1.12 acres of non-wetland waters of the U.S./State and 1.16 acres of CDFW-regulated streambed occur within the temporary impact area.

Impacts to non-wetland waters of the U.S. would necessitate authorization from the United States Army Corps of Engineers through Section 404 of the Clean Water Act (CWA) and the Colorado River Regional Water Quality Control Board (RWQCB) through Section 401 of the CWA. The CDFW jurisdictional streambed in the proposed project area are regulated under section 1600-1616 of the California Fish and Game Code and impacts to these features would necessitate authorization from the CDFW. Because jurisdictional waters are considered sensitive by the regulatory agencies, these impacts would be potentially significant. Mitigation Measure BIO-3 would reduce permanent and temporary impacts related to riparian habitat and protected waters to less than significant.

The proposed project would result in impacts to approximately 11.13 acres of native woodland alliances, native shrubland alliances, and previously disturbed/developed lands (see Appendix B). Two special-status vegetation communities occur within the proposed project study area, including *Chilopsis linearis* (desert willow) woodland and *Parkinsonia florida* (blue palo verde) woodland. These communities are considered special-status due to their desert riparian habitat association. Desert willow woodland occurs at the Big Morongo Siphon site and blue palo verde woodland is found at the East Cottonwood No. 2 Siphon site. Approximately 0.06 acre of desert willow woodland occurs within the proposed project footprint and 0.10 acre occurs within the temporary impact area. Less than 0.01 acre of blue palo verde woodland occurs within the proposed project footprint and 0.06 acre occurs within the temporary impact area. Although considered a rare community by CDFW, desert willow woodland is relatively abundant throughout the Sonoran Desert and impacts to approximately 0.06 acre would represent a negligible overall total. Similarly, impacts of less than 0.01 acre of blue palo verde woodland would be considered negligible. Therefore, impacts to special-status vegetation communities would be less than significant.

Mitigation Measure

BIO-3 **Compensatory Mitigation.** Compensatory mitigation at a 1:1 ratio for permanent impacts will occur through purchase of mitigation credits from an agency-approved mitigation bank, participation in an in-lieu fee program, or through other permittee-responsible mitigation, subject to applicable regulatory agency approval. Mitigation for temporary impacts to jurisdictional waters will occur through on-site restoration at a 1:1 ratio. Temporary impact areas will be returned to similar conditions that existed prior to ground-disturbing activities.

c. *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

No Impact. There are no state or federally protected wetlands that occur within the project study area. Therefore, there would be no impact.

d. *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

Less than Significant Impact. Construction of the project would not result in barriers to wildlife movement or disrupt native nursery sites. The project is limited to temporary construction activities to improve existing infrastructure. Only existing access roads would be utilized for project ingress and egress. Desert tortoise, bighorn sheep, and other wildlife species that could potentially occur would still be able to forage and move without disruption after project completion. Therefore, impacts related to interfering substantially with wildlife movement would be considered less than significant.

e. *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

No Impact. There are no local ordinances or policies that apply to the project. As such, there would be no impact related to conflicting with policies or ordinances protecting biological resources.

f. *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?*

No Impact. The proposed project area is located within the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) area. The CVMSHCP is a comprehensive habitat conservation/planning program for the Coachella Valley and surrounding mountains in Central Riverside County. The goal of the CVMSHCP is to enhance and maintain biological diversity and ecosystem processes, while allowing future economic growth. The CVMSHCP aims to conserve over 240,000 acres of open space and provides coverage (including take authorization for listed species) for 27 special-status plant and animal species, as well as provides regionally based mitigation for impacts to special-status species and associated native habitats (CVAG, 2007). Although the proposed project area is located within the boundaries of the CVMSHCP, Metropolitan is not a signatory of the plan. As such, Metropolitan is not seeking coverage under the CVMSHCP for the proposed project.

The proposed project is compatible with the Goals and Objectives for Covered Species defined in the CVMSHCP and would therefore not conflict with the provisions of the CVMSHCP (CVAG, 2007). All proposed project impacts to soils, vegetation, and special-status species habitat would be temporary and there would be no permanent land use changes. Only existing access roads would be utilized for project ingress and egress and construction would be within previously disturbed areas (i.e., Metropolitan's ROW and associated borrow pits and/or spoils stockpiles). Therefore, the proposed project would not conflict with a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan and no impact would occur.

3.5 Cultural Resources

CULTURAL RESOURCES Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

The cultural resources information presented below is summarized from the technical report Phase I Cultural Resources Assessment Report for the Colorado River Aqueduct Conduit Structural Protection Project, Riverside County, California, April 2020 *(Appendix C).*

Discussion. Would the project:

a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

No Impact. A cultural resources record search conducted at the California Historical Resources Information System (CHRIS) facility at the University of California, Riverside and an intensive pedestrian archaeological survey of the project area identified one previously recorded historical resource, CA-RIV-6726H. CA-RIV-6726H is the CRA. Most of the CRA is buried underground, but above-ground appurtenant structures associated with each siphon were observed during field reconnaissance surveys.

Overall, the purpose of the proposed project is to protect the CRA from potential structural damage from the heavy load of machinery used during operations and maintenance of the CRA. The project components are in keeping with the general maintenance activities performed on the CRA over the past 75 years. The integrity and significance of the CRA as an eligible historical resource will remain unchanged by the project. The proposed project would not cause a substantial adverse change in the significance of CA-RIV-6726H, resulting in a finding of no impact.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less than Significant Impact. The cultural resources record search and pedestrian survey did not identify any archaeological resources within the project area. The project area is highly disturbed due to the immense scale of excavation and construction associated with the original installation of the CRA, an expansion of the CRA in the 1950s, the continuous use of the transition structures for operations and maintenance activities, and access road maintenance and grading by Metropolitan over the last 75 years. The possibility that previously undiscovered buried archaeological resources could be encountered during ground-disturbing activities is low. However, in the event that unanticipated archaeological discoveries are discovered during project construction, Metropolitan's standard construction practices, which include stopping all work in the immediate area until a qualified archaeologist can validate the discovery, would ensure that any potentially significant buried resources that are exposed during construction are properly handled and treated, assuring that less than significant impacts would result from the proposed project.

c. Disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant Impact. Background archival research and the intensive pedestrian field survey failed to find any potential for human remains (e.g., the existence of formal cemeteries). As discussed above, the project area is highly disturbed. However, there is the possibility that previously undiscovered buried remains could be uncovered during ground-disturbing activities (although highly unlikely for human remains). Should human remains be encountered, Metropolitan shall comply with the State of California's Health and Safety Code Section 7050.5, which states that no further disturbance will occur until the county coroner has made a determination of origin and disposition of the remains pursuant to Public Resources Code Section 5097.98. Adherence to State of California's Health and Safety Code Section 7050.5would ensure that any unexpected buried human remains that are exposed during construction activities are properly handled and treated, assuring less than significant impacts to buried human remains would result from the proposed project.

3.6 Energy

Energy Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

<u>Discussion</u>. Would the project:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. The project would consume energy in the form of an insignificant amount of petroleum-based energy products (diesel and gasoline) from on- and off-road vehicles and equipment used during construction. The project's construction activities are necessary to ensure safe ongoing tunnel cleaning maintenance actions for the CRA and to protect the CRA from damage. Construction would use standard methods and equipment to meet the project goals and would not create a wasteful, inefficient, or unnecessary consumption of energy resources. The proposed project would not alter or add new energy requirements for continued maintenance of the CRA. Therefore, the project would not include the wasteful, inefficient, or unnecessary consumption of energy resources and would have less than significant energy impacts.

b. *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

Less than Significant Impact. The project does not affect energy efficiency, restrict the development of renewable energy projects, or restrict the use of renewable energy. The project does not include energy consumption sources that are directly subject to state or local energy efficiency plans. Indirectly, on-road vehicles used during project construction would have to meet the ongoing federal and state fuel efficiency requirements. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and would have less than significant energy impacts

3.7 Geology and Soils

GEOLOGY AND SOILS Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic groundshaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2010), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion*. *Would the project:

a. *Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*

i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

Less than Significant Impact. According to the Riverside County General Plan Safety Element (Riverside County, 2019b), all proposed project sites:

- Are located directly adjacent to active faults that run parallel with the CRA (refer to General Plan Safety Element Figure S-1, Mapped Faulting in Riverside County).
- Are located directly adjacent to both an Alquist-Priolo Earthquake Fault Zone and Riverside County Fault Zone that run parallel with the CRA (refer to General Plan Safety Element Figure S-2, Earthquake Fault Study Zone).

The closest mapped fault zones are within one mile of each project site. Lurching or cracking of the ground surface as a result of nearby significant seismic events is possible. Therefore, the probability of damage to facilities from significant nearby surface fault rupture is considered moderate to high. The only new components to be constructed by the proposed project that could be damaged by significant ground shaking are the concrete protective slabs (only project facilities made of concrete). Design of these proposed project components would be in accordance with California Building Code standards for seismic stability. The proposed slabs are intended only to facilitate maintenance of the CRA and protect buried portions of the CRA conduit during maintenance and should the proposed crossing pads or drainages be damaged by a nearby seismic event, it would not directly result in impacts to persons or property. There are no nearby structures that could be damaged, and the project does not propose any manned facilities. Therefore, the proposed project would not expose people or structures to potential substantial adverse effects caused by the rupture of a known fault. Less than significant impacts would result from the proposed project.

ii) Strong seismic groundshaking?

Less than Significant Impact. Refer to Section 3.7.a.i above. The project sites are within one mile of active faults and mapped fault zones. Therefore, the probability of damage to the proposed project components from strong seismic ground shaking is considered moderate to high. Design of the proposed project components would be in accordance with California Building Code standards for seismic stability. Conforming to these recommendations and all required building standards would help reduce significant impacts due to strong seismic ground shaking. Additionally, these proposed pads are intended only to facilitate maintenance of the CRA and protect buried portions of the CRA conduit and should the proposed slabs be damaged by strong seismic ground shaking, it would not result in impacts to persons or property. There are no nearby structures that could be damaged and the project does not propose any manned facilities. Therefore, the proposed project would not expose people or structures to potential substantial adverse effects caused by strong seismic ground shaking. Less than significant impacts resulting from earthquake rupture would result from the proposed project.

iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact. Liquefaction typically occurs where the ground water is less than 30 feet from the surface and the soils are predominately of poorly compacted sand. According to the Riverside County General Plan Safety Element (Riverside County, 2019b), the project sites are located within areas of "moderate" liquefaction susceptibility but are not located within mapped liquefaction zones (refer to General Plan Safety Element Figure S-3, Generalized Liquefaction). Therefore, the probability of damage to the proposed project components (concrete protective slab and crushed aggregate crane operating pads) from seismic-related ground failure or liquefaction is considered moderate. Design of the proposed project components would be in accordance with California Building Code standards for seismic stability. Conforming to these recommendations and all required building standards would help reduce significant impacts due to strong seismic-related ground failure and liquefaction. Additionally, these proposed slabs/pads are intended only to facilitate maintenance of the CRA and protect buried portions of the CRA conduit during maintenance, and should proposed project components be damaged by seismic-related ground failure and liquefaction, it would not result in impacts to persons or property. There are no nearby structures that could be damaged, and the project does not propose any manned facilities. Therefore, the proposed project would not expose people or structures to potential substantial adverse effects caused by the rupture of a nearby fault that results in ground failure or liquefaction at any of the proposed project sites. Less than significant impacts resulting from seismic-related ground failure (including liquefaction) would result from the proposed project.

iv) Landslides?

Less than Significant Impact. According to the Riverside County General Plan Safety Element (Riverside County, 2019b), several project sites are located within areas of “low to locally moderate susceptibility to seismically induced landslides and rockfalls.” However, none of the project sites are located within mapped landslide zones (refer to General Plan Safety Element Figure S-4, Earthquake-Induced Slope Instability Map). Therefore, the probability of damage to the proposed project components from landslides is considered low. Additionally, there are no nearby structures that could be damaged from new project components, nor any project components that could be damaged by a landslide and the project does not propose any manned facilities. The proposed project is intended only to facilitate ongoing safe maintenance of the CRA. Therefore, the proposed project would not expose people or structures to potential substantial adverse effects caused by landslides at any of the proposed project sites. Less than significant impacts resulting from landslides would result from the proposed project.

b. Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. According to the Riverside County General Plan Safety Element (Riverside County, 2019b), some project sites are located within areas of “High” and “Moderate” wind erodibility (refer to General Plan Safety Element Figure S-8, Wind Erosion Susceptibility Areas). Therefore, the proposed project sites are expected to be affected by wind driven soil erosion. However, all proposed project components would be maintained as part of ongoing CRA maintenance. Pads covered by soil would be swept clean and erosion within access roads, around aqueduct crossing and crane operating pads, and drainage facilities would be repaired as needed. Because the proposed project components would all occur at-grade, they would not result in significant changes to levels of topsoil and would not result in significant erosion from either wind or storm events. Therefore, the proposed project would not result in substantial soil erosion or loss of topsoil at any of the proposed project sites. Less than significant impacts resulting from soil erosion or loss of topsoil would result from the proposed project.

c. *Be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

Less than Significant Impact. Refer to Sections 3.7.a.iii and 3.7.a.iv, above, regarding liquefaction and landslide, respectively. According to the Riverside County General Plan Safety Element (Riverside County, 2019b), the project sites are all located within "susceptible areas" of subsidence (refer to General Plan Safety Element Figure S-7, Documented Subsidence Areas). Therefore, the probability of damage to proposed project components from unstable ground failure is considered moderate. Design and construction of project components in accordance with California Building Code standards for seismic stability, would reduce the potential for impact from constructing the proposed facilities on potentially unstable ground. Proposed construction of the slabs/pads and modifications to the access roads are intended to provide protection to buried portions of the CRA conduit and ancillary structures and improve the safety of maintenance activities along the CRA. Should any project component be damaged by nearby seismic event or other phenomena that create unstable ground, it would not result in impacts to persons or property. There are no nearby structures that could be damaged and the project does not propose any manned facilities. Therefore, the proposed project would not expose people or structures to potential substantial adverse effects caused by a seismic event or other phenomena that create unstable ground at any of the proposed project sites. Less than significant impacts resulting from unstable soils would result from the proposed project.

d. *Be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2010), creating substantial direct or indirect risks to life or property?*

Less than Significant Impact. Refer to Section 3.7.c, above. The probability of damage to project components from unstable ground failure is considered moderate. Design of project components would be in accordance with California Building Code standards for seismic stability. Design and construction of proposed project components in accordance with California Building Code standards for seismic stability, would reduce the potential for impact from constructing the proposed facilities on potentially unstable ground. Proposed construction of the slabs/pads and modifications to the access roads are intended to provide protection to buried portions of the CRA conduit and ancillary structures and improve the safety of maintenance activities along the CRA. Additionally, should a project feature be damaged by nearby seismic event or other phenomena that create unstable ground, it would not result in impacts to persons or property. There are no nearby structures that could be damaged from the proposed at-grade pads and the project does not propose any manned facilities. Therefore, the project would not expose people or structures to potential substantial adverse effects caused by a seismic event or other phenomena that can affect expansive soils at any of the proposed project sites. Less than significant impacts resulting from expansive soils would result from the proposed project.

e. *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

No Impact. The project does not include the use of septic tanks nor does it include any features that require wastewater disposal or connection to the existing wastewater treatment system. Therefore, soil suitability for septic tanks or alternative wastewater disposal systems is not applicable in this case, and the proposed project would have no impacts associated with septic systems. No impacts related to soils necessary to support septic tanks or other alternative wastewater disposal systems would occur.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact. The Riverside County General Plan does not indicate that any of the proposed project sites contain unique geologic features or are known or have ever been previously known to contain paleontological resources (Riverside County, 2019b). Metropolitan considers identifiable vertebrate, invertebrate, and plant fossils to be unique under the CEQA. All proposed project-related excavation will be on previously disturbed sites or, as the case with the access roads, mostly in alluvial deposits which are too young to produce fossil materials. Although unlikely to occur, in the event that such resources are uncovered, the project could result in significant impacts to such resources, if the resource is disturbed, destroyed, or otherwise improperly treated. Should any unknown unique paleontological resources be encountered, Metropolitan's standard construction practices ensure that work would be stopped in the immediate area until a qualified architectural historian, archaeologist, and/or paleontologist could validate the discovery. The proposed project sites are disturbed lands along the CRA alignment and do not contain any unique geologic features. Less than significant impacts related to direct or indirect destruction of unique paleontological resources or unique geologic features would result from the proposed project.

3.8 Greenhouse Gas Emissions

GREENHOUSE GAS EMISSIONS Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion*. *Would the project:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. The proposed project would not affect ongoing maintenance of the CRA; therefore, no emissions estimate has been completed for continuing operations. The proposed project would generate greenhouse gas (GHG) emissions temporarily during construction activities at the project sites. The GHG emissions estimate was completed with the air pollutant emissions estimate provided in Appendix A. These estimates were determined using the SCAQMD approved CalEEMod program. A summary of the proposed project's construction carbon dioxide equivalent (CO2e) emissions estimates is shown in Table 3.8-1.

Table 3.8-1. Greenhouse Gas Emissions

	GHG Emissions (CO2e MT)
Construction Direct GHG Emissions[1]	1,216
Construction Indirect GHG Emissions	5.3
Construction Total GHG Emissions	1,221
GHG Emissions Significance Threshold (metric tons per year)[2]	**3,000**
Significant (Exceeds Thresholds)?	*NO*

Source: Appendix A; SCAQMD, 2008

Note: CO2e MT: Metric ton of carbon dioxide equivalent

1 - These emissions are the worst-case daily siphon site GHG emissions total multiplied by 24 siphon construction sites with two construction phases each, totaling 240 days of construction, which will overestimate the Project's total construction emissions.

2 - Based on SCAQMD's GHG working group threshold for "non-industrial" projects and the Riverside County Climate Action Plan.

As shown in Table 3.8-1, the project's conservative estimate for total GHG emissions is below the GHG emissions significance threshold. Additionally, the project life is expected to exceed 30 years, so the annualized emissions over the project life would be less than 41 MTCO2e per year, substantially below the GHG emissions significance threshold. Therefore, less than significant GHG emissions impacts would occur.

b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. The relevant GHG emissions reduction measures from applicable State and County GHG emissions reduction plans are as follows:

<u>CARB Climate Change Scoping Plan</u>

This plan was first approved in 2008 and then updated twice to address changes in the State's GHG emissions reduction goals, with the last update approved in 2017 (CARB, 2017). This plan address measures necessary to reach the state's GHG reduction target of 40 percent below 1990 levels by the year 2030 levels. The plan is structured to address GHG emissions reductions through a balanced mix of emissions reduction strategies affecting a number of sectors, including transportation, industrial, electricity generation, agriculture, and commercial/residential. The emissions reduction strategies, some of which have been codified into state law, include increasing renewable energy and fuels, increasing building efficiency, slashing potent "super pollutants," moving towards zero or near zero emission vehicles, and community design strategies such a walkable/bikeable communities with transit.

Most of these emission reduction strategies and regulations do not directly impact construction GHG emissions. However, one of this plan's emissions reduction strategies, construction waste reduction/recycling, would directly apply to the project's construction. This State strategy has been codified in 2012 under SB 1374 as the Construction and Demolition Waste Ordinance that requires jurisdictions to divert a minimum of 50 percent of their non-hazardous construction and demolition waste from landfills. Additional GHG emissions reductions from construction would occur indirectly from other state-wide actions such as the low carbon fuel standard that is currently being implemented.

Riverside County Climate Action Plan

In December 2019, Riverside County approved an update to their Climate Action Plan (CAP) that was first adopted in 2015 and revised in 2018 (Riverside County, 2018; 2019c). The current CAP provides a community-wide GHG emissions estimate, GHG emissions reduction programs and regulations summary, and an implementation strategy. Most of the GHG emissions reduction strategies and measures in this plan are not project specific and do not directly affect infrastructure construction project GHG emissions sources. This plan does have construction waste diversion program measures aimed at ensuring implementation of County General Plan Policies AQ 4.1 and AQ 5.1. These policies identify the use of locally sourced construction materials and the diversion of construction wastes from landfills as parts of the reduction measure.

Compliance Analysis

The waste diversion measure would not apply to the majority of the project's waste streams as the primary waste from this project (native soils) is not a recyclable construction waste. The small amount of waste concrete generated from the project would be subject to solid waste diversion/recycling requirements. This project would use locally sourced concrete and aggregate materials, and so would meet the updated CAP's solid waste diversion greenhouse emissions reduction measure (R2-S1: Reduce Waste to Landfill).

The proposed project would generate a small amount of construction-related GHG emissions and would not otherwise effect the operating GHG emissions from the CRA. The proposed project would implement County required waste reduction measures to ensure compliance with applicable state and local GHG reduction measures, and would be consistent with the Riverside County CAP. The project would not conflict with the state's GHG reduction target of 40 percent below 1990 levels by 2030 or conflict with the GHG emissions reduction measures listed in the CARB Climate Change Scoping Plan. This CRA maintenance project would not cause or enable growth beyond current projections. Therefore, the project would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs and impacts would be less than significant.

3.9 Hazards and Hazardous Materials

HAZARDS AND HAZARDOUS MATERIALS Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

HAZARDS AND HAZARDOUS MATERIALS Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion. Would the project:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. Metropolitan implements a Hazardous Materials/Waste Management Program (HM/WMP) that sets forth policies, requirements, and responsibilities for evaluation, handling, storage, disposal, transport, and source reduction of hazardous materials/wastes. The HM/WMP includes procedures for containment and cleanup of hazardous materials/waste spills, and establishes hazardous waste contingency plans. These procedures would be included in Metropolitan’s contractor specifications for the proposed project. Construction of the proposed project would include the temporary use and transport of hazardous materials in the form of fuels and lubricants required to operate construction vehicles and equipment. Minor spills or releases of hazardous materials could occur due to accidental handling and/or storage during construction activities at the sites. However, the level of risk associated with the accidental release of hazardous substances during construction is not considered significant due to the small volume and low concentration of hazardous materials that would be used during construction.

To avoid accidental leaks or spills, use and storage of hazardous materials in limited quantities, which is common for construction projects, would occur in compliance with all federal, state, and local laws and regulations, as well as in compliance with standard Metropolitan construction practices, which ensure that hazardous materials are stored safely. Potential impacts related to minor spills would be largely avoided by compliance with Metropolitan’s standard construction practices, training construction personnel in the handling and storage of hazardous materials in compliance with California Occupational Safety and Hazards Administration (OSHA) standards, and compliance with Stormwater Pollution and Prevention Program (SWPPP) requirements (the project would be required to obtain SWPPP approval from the Regional Water Quality Control Board). As such, the transport, use, and disposal of hazardous substances required for construction is not anticipated to create a significant hazard to the public or the environment. The project does not involve any changes to long-term use or storage of hazardous substances required for CRA operation and maintenance. The project would result in a less than significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials.

b. *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Less than Significant Impact. Refer to Section 3.9.a, above. Construction activities associated with the proposed project would temporarily utilize hazardous materials, such as petroleum-based fuels or hydraulic fluid used for construction equipment. Metropolitan's standard construction practices would ensure that all materials are stored safely within the project footprint. In addition, as previously described, Metropolitan's standard contractor specifications for the project would include provisions to address spills of fuel, hydraulic fluid and other construction materials. Finally, development and implementation of a SWPPP would be required during construction of the proposed project and would comply with local, state, and federal regulations. As such, upset and accident conditions involving the release of hazardous substances used during construction are not anticipated. In the unlikely event that an accidental release would occur, standard construction practices would ensure that the potential hazard to the public or the environment from a reasonably foreseeable upset or accidental spill would be less than significant.

c. *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

No Impact. The following identifies the nearest schools to any of the project sites:

- Site 19: Julius Corsini Elementary School 1.6 mile away.
- Site 20: Cabot Yerxa Elementary School 1.9 mile away.
- Site 21: Painted Hills Middle School 1.4 mile away.
- Site 22: Painted Hills Middle School 1.3 mile away.

The nearest school is over one mile away, therefore, the proposed project would not emit hazardous emissions and no hazardous or acutely hazardous materials, substances, or waste would be handled within one-quarter mile of an existing or proposed school. No impacts would occur related to emitting or handling hazardous materials within one-quarter mile of an existing or proposed school.

d. *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

No Impact. None of the proposed project sites are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (https://calepa.ca.gov/sitecleanup/corteselist/) or within the California Department of Toxic Substances Control EnviroStor Database (https://www.envirostor.dtsc.ca.gov/public/). Additionally, the project is not located on a site that is included on a list of hazardous materials sites compiled by Riverside County (Riverside County, 2019b) pursuant to Government Code 65962.5 (refer to Riverside County General Plan Safety Element Figure S-74, Inventory of Facilities Storing Hazardous Materials). The project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not, therefore, result in any impacts associated with hazardous materials sites. No impacts would occur related to the proposed project being located on a hazardous materials site.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The proposed project site is not within an airport land use plan. One proposed project site (No Name Siphon) is located within two miles of a public airport or public use airport. The nearest public use airports to the project sites are:

- Palm Springs Regional Airport, 10 miles southwest of the nearest project site (East Wide Canyon Siphon).
- Bermuda Dunes Airport, 9.4 miles south-southwest of the nearest project site (East Fan Siphon).
- Chirico Summit Airport, 1.3 miles southwest of the nearest project site (No Name Siphon).

While the project is located within two miles of Chiriaco Summit Airport, no master plan or land use compatibility plan has ever been prepared for this airport and one is not expected to be done in the future (RCALUC, 2020). Therefore, the proposed project is not located within a designated airport safety zone. Based on this, and because the project would not include any new features or structures that extend above the ground surface, no impacts to use of aviation facilities or airspace would occur. Additionally, the proposed project would be unmanned and does not include any new persons residing or working in the project sites. For these reasons, the proposed project would not result in a safety hazard for people residing or working in the vicinity of an airport. No impacts would occur related to the proposed project creating a hazard to aviation uses or subjecting workers to excessive aviation noise.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. Roadways providing local access to the proposed project sites are not known to be included in any emergency response or evacuation plans. During construction, some oversize truck trips may be required to deliver large pieces of construction equipment and materials to the site. These activities may include brief temporary delays on local roads providing direct access to the site. However, no public roadway or lane closures are expected during construction. In the event deliveries require any disruption to public roadways, flagmen would be present to ensure traffic flow, including emergency vehicle flow through the area. Once operational, the proposed project would have no impact on access or movement to emergency service providers. Impacts related to affecting an adopted emergency response plan or emergency evacuation route would be less than significant.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less than Significant Impact. The project sites are rural, with adjacent lands being desert landscape and some sites located near suburban and rural development (refer to Table 1-1 for a description of adjacent land uses). Per CalFire Very High Fire Hazard Severity Zone (VHFHSZ) maps, the project sites are located within a "non-VHFHSZ" zone – meaning the sites have no potential for high fire hazard at either the State or Local Responsibility Area level (CalFire, 2019). As the project sites are not located in or near lands classified as VHFHSZ, there is little risk of wildfire or uncontrolled spread of a wildfire.

Fossil fuels would be used for vehicles and other equipment during construction. The presence and usage of fuels and power during construction could lead to a temporary increased risk of localized fire during construction. To reduce fire risk during construction, the construction contractor(s) would adhere to standard Metropolitan construction practices, which require fire containment and extinguishing equipment located onsite and include practices to avoid accidental ignition and leaking of fuels and other combustible materials. Once constructed, the proposed project would have no associated potential for fire as maintenance activities at the project sites would be identical as those occurring under existing conditions. Impacts related to exposing persons or structures to wildland fires would be less than significant.

3.10 Hydrology and Water Quality

HYDROLOGY AND WATER QUALITY Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate Regional Water Quality Control Board water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on or off site?	☐	☐	☒	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☒	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
iv. Impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

<u>Discussion</u>. Would the project:

a. Violate Regional Water Quality Control Board water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. Section 303 of the federal CWA requires states to develop water quality standards to protect the beneficial uses of receiving waters. In accordance with California's Porter-Cologne Act, the RWQCBs of the State Water Resources Control Board (SWRCB) are required to develop water quality objectives that ensure their region meets the requirements of Section 303 of the CWA. Metropolitan shall comply with the requirement to prepare a SWPPP specific to this project for review and approval by the RWQCB. The requirements of the SWPPP would be implemented during construction to ensure any accidental release of chemicals and watering for dust control do not violate RWQCB water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

Additionally, implementation of the proposed project would result in 0.57 acre of permanent impacts and 1.12 acres of temporary impacts to potential CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne) jurisdiction (ephemeral drainages), none of which consists of jurisdictional wetlands (refer to Appendix B). As such, impacts to federally jurisdictional waters would require Metropolitan obtain CWA Sections 401 and 404 permits/authorizations from the RWQCB and USACE, respectively, prior to construction (refer to Table 1-3). If no federal waters are present within the project area, then Metropolitan will obtain Waste Discharge Requirements (WDR) from the RWQCB to satisfy requirements under Porter-Cologne. Adherence to the requirements of 401, 404, and WDR permits/authorizations would further ensure any accidental release of chemicals, watering for dust control, and alterations to existing jurisdictional drainages do not violate CWA and Porter Cologne water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Less than significant impacts related to violating RWQCB water quality standards or waste discharge requirements or impacting surface or ground water quality would occur from the proposed project.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less than Significant Impact. A project can result in a significant impact on groundwater supplies if it causes a demonstrable and sustained reduction of groundwater recharge capacity or changes the water levels such that it reduces the ability of a water utility to use the groundwater basin for public water supplies or storage of imported water, reduces the yields of adjacent wells or well fields, or adversely changes the rate or direction of groundwater flow.

The project would not install any groundwater wells and would result in a nominal change to the amount of impermeable surface within each proposed project site that could change surface water flow or groundwater recharge. The proposed crushed aggregate crane operating pads would not alter surface absorption of storm water. The size of the protective concrete slabs are 46 feet wide to provide adequate protection over the CRA. While these slabs would create new impermeable surface within each site, they would be surrounded by undeveloped desert land and would not significantly interfere with groundwater recharge within each site. Storm water would flow over these small concrete pads and continue to be absorbed by surrounding desert lands. Therefore, the proposed project would not impede groundwater recharge within the project sites.

The small amount of water that would be required during construction of the proposed project (mainly for dust suppression and concrete preparation) would be obtained from the CRA or provided via local supplies trucked to the site through an agreement with a local municipality. In addition, there are no known water sources in the surrounding areas that could be disrupted by construction of the proposed project. For these reasons, the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. Therefore, a less than significant impact related to decreasing groundwater supplies would occur from the proposed project.

c. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*

   i) *Result in substantial erosion or siltation on or off site?*

Less than Significant Impact. The proposed project sites are generally flat with most having gentle slopes from north to south. Stormwater runoff onsite drains from north to south along ephemeral drainages or is simply absorbed as ground water. Proposed project activities at each site would involve minor grading and construction of crushed aggregate pads and concrete slabs, which would not substantially alter the drainage pattern of the proposed project sites or surrounding area and would not alter surface absorption of water or alter drainage flows. The size of the protective aqueduct crossing concrete slabs are 46 feet wide to provide adequate protection over the width of the CRA. While these slabs would create new impermeable surfaces within each site, they would not significantly interfere with existing drainage courses and would not otherwise increase the erosion or siltation potential of the site or any downstream areas.

As discussed in Section 1.3, low water crossings would be installed where the realigned access roads cross drainage features. The low water crossings will be designed as earthen crossings with approximately 30-inch diameter riprap placed downstream to dissipate energy and reduce erosion. The low water crossings are designed to ensure adequate water flow and sediment transport during storm events. Additionally, as discussed under Section 3.10.a, the project would require preparation of a SWPPP for review by the RWQCB and require obtaining CWA Sections 401 and 404 permits/authorizations from the RWQCB and USACE, respectively. Compliance with the requirements of the CWA permits and authorizations and implementation of standard Metropolitan construction practices would reduce water quality impacts, including erosion and siltation, to the maximum extent practicable during construction. The proposed project would not result in significant erosion or siltation impacts due to changes to drainage patterns. Therefore, a less than significant impact related to the creation of substantial erosion or siltation would occur from the proposed project.

   ii) *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?*

Less than Significant Impact. As discussed in Section 3.10.c.i, the project would involve only minor changes to each proposed project site's existing drainage patterns. The proposed project does not involve significant alteration of discernable drainage courses and existing conditions would remain nearly identical. Therefore, it would not result in, or contribute to, on- or off-site flooding. As discussed in Section 1.3, low water crossings would be installed where the realigned access roads cross drainage features. The low water crossings will be designed as earthen crossings with approximately 30-inch diameter riprap placed downstream to dissipate energy and reduce erosion. Since the project involves only minor alterations to discernable ephemeral drainage watercourses and post-development runoff discharge rates would not exceed pre-development rates, the proposed project does not have the potential to significantly increase runoff that would result in flooding. Therefore, the proposed project would have less than significant associated impacts related to substantially increasing the rate or amount of surface runoff.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant Impact. The project sites are not directly served by municipal stormwater drainage systems. As discussed in Section 3.10.c.i, the project would involve only minimal changes to the site's existing drainage patterns. Since post-development runoff discharge rates would not exceed pre-development rates, the proposed project does not have the potential to significantly increase runoff that could impact stormwater drainage systems. As discussed under Section 3.10.a, the project would require preparation of a SWPPP and obtaining CWA Sections 401 and 404 permits/authorizations from the RWQCB and USACE, respectively. Compliance with these requirements would reduce additional sources of polluted runoff during construction to the maximum extent practicable. For these reasons, the proposed project would not create runoff that would exceed the capacity of the storm drain system and would not provide a substantial additional source of polluted runoff. Therefore, the proposed project would have less than significant impacts related to creating or contributing substantial amounts of runoff water.

iv) Impede or redirect flood flows?

Less than Significant Impact. As discussed in Section 3.10.c.i and 3.10.c.ii, the proposed project would involve only minimal changes to the existing drainage patterns of each site. It is expected that the drainage patterns at each site following construction would be nearly identical to existing conditions. Therefore, the proposed project would not result in, or contribute to, impeding or redirecting flood flows. Since the project involves only minor alterations to discernable watercourses and post-development runoff discharge rates would not exceed pre-development rates, the proposed project does not have the potential to significantly increase runoff that would impede or redirect flood flows. Therefore, the proposed project would have less than significant impacts related to impeding or redirecting flood flows.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less than Significant Impact. The proposed project sites are not located near any inland bodies of water or the Pacific Ocean to be inundated by either a seiche or tsunami. In addition, the project sites are not located in near any dams and would not be located within a dam inundation area. In the event a project site was flooded by a storm event during construction, adherence to requirements of the necessary SWPPP and CWA Sections 401 and 404 permits/authorizations issued by the RWQCB and USACE, respectively, would ensure construction equipment and materials would not result in an adverse release of pollutants. Once constructed, the project does not contain any pollutants that could be released in the event of site flooding. Therefore, the proposed project would have a less than significant impact from exposing people or structures to release of pollutants from flooding risks.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact. As discussed under Section 3.10.a, the project would require preparation of a SWPPP and obtaining CWA Sections 401 and 404 permits/authorizations issued by the RWQCB and USACE, respectively. Compliance with these requirements would ensure that the proposed project would comply with all water quality control plan requirements. As discussed under Section 3.10.b, the proposed project would not affect groundwater recharge or management. Less than significant impacts would occur related to conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan.

3.11 Land Use and Planning

LAND USE PLANNING Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

<u>Discussion</u>. Would the project:

a. Physically divide an established community?

No Impact. The proposed project sites are located in open desert land within Metropolitan ROW. The proposed use of each project site would be identical to the existing use. The project sites and access roads to each siphon site are not located within an established community and do not serve as a means of moving through or connecting a community or neighborhood. Development of the project components would not create a physical division in a community. For these reasons, the proposed project would not physically divide an existing community and no impacts would occur.

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The proposed project sites are located within Metropolitan’s ROW along the CRA. The primary land use planning documents that govern the project sites and adjacent areas are the Riverside County General Plan and Zoning Code. Table 1-1 provides the current General Plan and Zoning designations for each project site. While Riverside County has assigned Zoning and General Plan designations to the proposed project sites, these proposed project sites are located within Metropolitan-controlled ROW. The majority of Metropolitan’s CRA ROW was granted to Metropolitan by the federal government pursuant to a 1932 act of Congress for the construction and operation of the CRA. The proposed project provides repair of facilities required for the operation of the CRA, therefore the proposed project does not conflict with a land use plan, policy or regulation.

The project components would ensure safe maintenance of the CRA. The project would not change the existing land use at any of the project sites. The project does not require any modifications to the existing Metropolitan ROW grant, nor does it require changes to an existing zoning or General Plan designation. No impacts from the proposed project would occur related to conflicts with any land use plan, policy, or regulation.

3.12 Mineral Resources

MINERAL RESOURCES Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

<u>Discussion</u>. Would the project:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

No Impact. No active mining operations exist at the proposed project sites, which are within existing Metropolitan ROW. Based on the General Plan and Zoning designations of the project sites and the adjacent land uses provided in Table 1-1, the proposed project sites do not contain known mineral resources and are not located near areas with known mineral resource that would be of value to the region or residents of the State. No impact would occur related to loss of a known mineral resource of value to the region or residents of the State.

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. Refer to Section 13.12.a, above. The proposed project sites are not used or zoned for mineral resource recovery and project activities would have no impact related to loss of a known mineral resource of local importance.

3.13 Noise

NOISE Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

NOISE Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion*. *Would the project:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

No Impact. The proposed project would only generate temporary noise from construction activities occurring within each project site. Periodic temporary noise from maintenance activities of the CRA occurs under existing conditions at each site and the proposed project would not generate new sources of permanent noise. Therefore, when considering noise that could exceed standards established in the local general plan or noise ordinance, only temporary construction noise generated by the project would apply.

Riverside County General Plan. A review of the Riverside County General Plan Noise Element (Riverside County, 2019b) found the policies and noise thresholds are only applicable to permanent noise sources. Therefore, because the project would only generate temporary noise during construction, the project would be consistent with the General Plan Noise Element. No impact would occur.

Riverside County Code of Ordinances. Riverside County Ordinance No. 847 pertains to regulating noise in the County. Section 2 of Ordinance No. 847 identifies activities that are exempt from any noise threshold or standard identified in Ordinance No. 847 (Riverside County, 2019d):

- Section 2. Exemptions:

  a. Facilities owned or operated by or for a governmental agency.

  b. Capital improvement projects of a governmental agency.

  c. The maintenance or repair of public properties.

The proposed project is a capital improvement project funded by a government agency for the purposes of maintenance and repair of critical infrastructure to ensure the safe and reliable delivery of water and is therefore exempt from the Riverside County Noise Ordinance. As such, this proposed project is not in exceedance of any established standards. No impact would occur from the proposed project generating substantial temporary or permanent noise levels in the vicinity of the project in excess of established standards.

b. Generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. Heavy equipment used during construction of the proposed project has the potential to generate groundborne vibration and noise from such vibration.

Additionally, heavy truck haul trips may produce short-term groundborne vibration. Typically, groundborne vibrations generated by construction activities attenuate rapidly with distance from the source. Construction vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source (FTA, 2006). The nearest sensitive receptors to the any of the 24 project sites is 620 feet (approximately 190 meters) from the East Wide Canyon Siphon sites. Because no sensitive receptors or structures are located proximate (within 500 feet) to the proposed project sites, temporary construction vibration at the sites would have less than significant impacts.

Heavy truck haul trips during the temporary construction period would primarily utilize existing paved roads designated for allowable weight and use. Vibration on paved surfaces is typically minimal and residential and other any structures located proximate to such roads are already subject to any momentary vibration from normally occurring trips not associated with proposed project construction. No residences are located proximate to the unpaved road segments that lead directly to each project site. Therefore, heavy truck trips on unpaved roads would not subject any receptors to temporary vibration. Once constructed, the proposed project would not generate vibration outside of routine maintenance and repairs that occur during existing conditions. For these reasons, less than significant vibration impacts would occur from the proposed project.

c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The proposed project is not within an airport land use plan. One proposed project location (No Name Siphon) is within two miles of a public airport or public use airport. The nearest public use airports to the project sites are:

- Palm Springs Regional Airport, 10 miles southwest of the nearest project site (East Wide Canyon Siphon).
- Bermuda Dunes Airport, 9.4 miles south-southwest of the nearest project site (East Fan Siphon).
- Chirico Summit Airport, 1.3 miles southwest of the nearest project site (No Name Siphon).

While the proposed project is located within two miles of Chiriaco Summit Airport, no master plan or land use compatibility plan has ever been prepared for this airport and one is not expected to be done in the future (RCALUC, 2020). Therefore, the project is not located within a designated airport safety zone. Additionally, because the project does not include any new persons permanently residing or working in the project sites, the proposed project would not expose people residing or working in the project area to excessive noise levels. No impacts would occur from the proposed project related to subjecting persons to excessive aviation noise levels.

3.14 Population and Housing

POPULATION AND HOUSING Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒

POPULATION AND HOUSING Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion*. *Would the project:

a. *Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

No Impact. The proposed project involves improvements to ensure safe maintenance of the CRA, which is consistent with existing use of the Metropolitan ROW and the existing land use designations for the proposed project sites (refer to Table 1-1 and Section 3.11, Land Use). Furthermore, the project sites are located within Metropolitan ROW and accessed by an established public and private roadway network. Thus, construction and operation of the proposed project would not require extending or improving infrastructure in a manner that would facilitate new growth. Therefore, the proposed project would not induce substantial unplanned population growth in an area either directly or indirectly and no impact would occur.

b. *Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

No Impact. The proposed project sites do not contain any existing dwelling units, and the proposed project would not displace any persons or housing. Therefore, no additional construction of replacement housing elsewhere is required. The proposed project would have no impact related to displacement of persons or housing.

3.15 Public Services

PUBLIC SERVICES Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Fire protection?	☐	☐	☐	☒
b) Police protection?	☐	☐	☐	☒
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other public facilities?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion*. *Would the project:

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

a. Fire protection?

No Impact. Metropolitan would ensure that appropriate fire safety procedures are followed during construction of the proposed project. The proposed temporary construction activities and ongoing maintenance of the CRA would not have an effect upon or result in a need for new or altered fire protection services.

The need for new or expanded fire protection facilities is typically associated with a population increase that is large enough to cause new or expanded fire protection facilities to be constructed. As discussed in Section 3.14 (Population and Housing), the project would not induce population growth or develop structures that may require public service response. Therefore, the construction and operation of the proposed project would not result in the need for additional new or altered fire protection services and would not alter acceptable service ratios or response times. No impact to fire protection service levels would occur from the proposed project.

b. Police protection?

No Impact. The need for new or expanded police protection facilities is typically associated with a population increase that is large enough to cause new or expanded police protection facilities to be constructed. As discussed in Section 3.14 (Population and Housing), the project would not induce population growth or develop structures that may require public service response. Therefore, the construction and operation of the proposed project would not result in the need for additional new or altered police protection services and would not alter acceptable service ratios or response times. No impact to police protection service levels would occur from the proposed project.

c. Schools?

No Impact. The need for new or expanded school facilities is typically associated with a population increase that generates an increase in enrollment large enough to cause new schools to be constructed. As discussed in Section 3.14 (Population and Housing), the proposed project would not induce population growth or develop structures that may impact school capacities and operation of the project would not require new or permanent employment. For these reasons, no impacts related to the need for new or expanded school facilities as a result of implementing the proposed project would occur.

d. Parks?

No Impact. The need for new or expanded park facilities is typically associated with a population increase that generates the need for new or expanded park facilities to be constructed. As discussed in Section 3.14 (Population and Housing), the proposed project would not induce population growth or develop structures that may impact park service ratios and operation of the project would not require new or permanent employment. For these reasons, no impacts related to the need for new or expanded park facilities as a result of implementing the proposed project would occur.

e. Other public facilities?

No Impact. The need for new or expanded public facilities (libraries, etc.) is typically associated with a population increase that generates the need for new or expanded public facilities to be constructed. As discussed in Section 3.14 (Population and Housing), the proposed project would not induce population growth or develop structures that may affect public facility use and operation of the project would not require new or permanent employment. For these reasons, no impacts related to the need for any other new or expanded public facilities as a result of implementing the proposed project would occur.

3.16 Recreation

RECREATION Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

***Discussion**. Would the project:*

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. An increased use of an existing neighborhood, park, or recreational facility is typically associated with a population increase. As discussed in Section 3.14 (Population and Housing), the proposed project is intended to facilitate existing operations and maintenance activities for the CRA and would not induce population growth. Operation of the project would not require new or permanent employment. For these reasons, no impacts related to the need for new or expanded parks or other recreational facilities, or the deterioration of such facilities, would occur as a result of implementing the proposed project. No impact to recreation service levels or facilities would occur.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No Impact. As discussed in Section 3.16.a, the proposed project does not include recreational facilities and would not require the construction or expansion of recreational facilities. Therefore, the proposed project does not involve the development of recreational facilities that would have an adverse effect on the environment, and no impacts would occur.

3.17 Transportation

TRANSPORTATION Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (5.g., sharp curves or dangerous intersections) or incompatible uses (5.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

Discussion*. *Would the project:

a. *Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?*

Less than Significant Impact. The proposed project would result in temporary vehicle trips during construction. Construction worker trips would occur in the morning and late afternoon hours. Truck trips associated with materials and equipment deliveries to each project site would likely be distributed throughout the workday. Temporary construction trips are assumed to come from the local area or from the greater Riverside County area. Appendix A provides details on the predicted number of trips per work site, with the maximum number of trips being approximately 50 per day. While vehicle trips would occur on local roadways that connect to unpaved access roads leading to each project site, these trips would be temporary and the project would not impact any county program, plan, ordinance, or policy related to transit, bicycle, or pedestrian facilities in the vicinity of the site or along local roadways. There would be a less than significant impact to such facilities.

Once constructed, the project would not generate any permanent vehicle trips. Operation and maintenance of the CRA would be identical to that occurring under existing conditions. Therefore, traffic associated with the proposed project would not conflict with any program pertaining to performance of the circulation system and less than significant impacts would occur.

b. *Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?*

Less than Significant Impact. As discussed in CEQA Guidelines Section 15064.3(b)(3), a qualitative analysis of construction traffic vehicle miles travelled (VMT) may be appropriate. As discussed, temporary construction worker commute trips are assumed to be generate from the local area or from the greater Riverside County area. As presented in Appendix A, it is assumed a worst-case average that project trips may be up to 40 miles each direction. This distance is primarily due to the rural nature of the project sites. Some truck trips associated with delivery of specialized materials and equipment may originate from longer distances. While construction requires somewhat high VMT to access the project sites (40 miles or greater in each direction), these trips would be temporary and only in volumes necessary for the construction workforce and to deliver specialized equipment and materials to the site (a maximum of 50 trips per day). Such construction-related trips are not considered to be transit-friendly trips, meaning workers and equipment cannot utilize public transportation in efforts to reduce overall VMT of the project.

At this time, no known applicable VMT thresholds of significance for temporary construction trips that may indicate a significant impact is known. While the proposed project would include temporary construction trips, some with high VMT, to deliver specialized materials and equipment, they would be temporary and cease upon completion of construction. Once constructed, the project would not generate any new permanent vehicle trips. Operation and maintenance of the CRA would be identical to that occurring under existing conditions. Therefore, the project would not generate any new long-term trips and would have no effect on existing VMT of the area. For these reasons, the proposed project is found to not affect existing transit uses or corridors and is presumed to cause a less than significant transportation impact with respect to CEQA Guidelines Section 15064.3(b)(3).

c. *Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Less than Significant Impact. All construction disturbance would be localized within each proposed project site and within existing Metropolitan ROW. Realignment of access roads to each project site are intended to facilitate circulation of Metropolitan maintenance vehicles to the 24 siphon sites only. The project does not include the modifications to any public roadways or driveways. During construction, oversize truck trips may be required to deliver large pieces of construction equipment and materials to the site. Any necessary oversized truck trips would require obtaining permits from Caltrans and local jurisdictions, as needed. The construction contractor would follow all rules and requirements of such permits, which would ensure no hazards to motorists or others utilizing the public roadway system occur. Impacts would be less than significant related to the proposed project substantially increasing roadway or motorist hazards.

d. *Result in inadequate emergency access?*

No Impact. All project-related vehicles and equipment would be parked off of public roads and would not block emergency access routes, and no road closures are proposed. The proposed project would not impede existing emergency response plans for residential, commercial, industrial or other land uses in the Project vicinity. No impact would occur.

3.18 Tribal Cultural Resources

TRIBAL CULTURAL RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	☐	☐	☒	☐
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

Discussion*. *Would the project:

a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*

   i) *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*

Less Than Significant Impact. Metropolitan sent letters via certified mail to four Native American tribes that had previously requested to be informed through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe. One tribe, the Soboba Band of Luiseño Indians requested consultation. A consultation telephone conference meeting took place on February 6, 2020. The Soboba Tribal Historic Preservation Officer, Joseph Ontiveros, expressed concerns that the project and CRA are located in areas considered sensitive by the Soboba and described in tribal songs. Mr. Ontiveros proposed measures to avoid or minimize effects to Tribal Cultural Resources and a subsequent meeting was set in order for Metropolitan staff to view tribal resource maps that could not be shared electronically. A follow up consultation meeting took place at the Soboba Tribal Administration Offices on February 19, 2020. Mr. Ontiveros described the tribal history, tribal use of the project area, and the importance of features of the project that may be sensitive for unidentified tribal cultural resources. Tribal resource maps were available to Metropolitan staff and the tribal cultural resources in the vicinity of the CRA were described, with an emphasis on intangible resources. Metropolitan's cultural resource and archaeological resource identification efforts did not identify the presence of a resource eligible for or listed on the California Register of Historic Resources or local register within the project area except for the CRA itself, which is eligible for the California Register of Historical Resources as a historic district. As no tribal cultural resource was identified within or adjacent to the project areas and no prehistoric resource eligible for the California Register of Historic Resource or local register was identified, a less than significant impact to a tribal cultural resource shall occur.

> *ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?*

Less Than Significant Impact with Mitigation Incorporated. As described above, Metropolitan conducted tribal cultural resource consultation with the Soboba Band of Luiseño Indians. Though no California Register of Historical Resources or local register of historic resources are known within the project areas, except for the CRA, the area is known to be sensitive for prehistoric archaeological resources. The Soboba noted during the consultation process that original CRA construction took place prior to the implementation of state and federal environmental laws, thus no previous archaeological or tribal monitoring at the project locations has occurred to analyze impacts to archaeological or tribal cultural resources. The Soboba recommend the implementation of a Tribal Cultural Resource Management Plan, detailing processes and procedures for unanticipated tribal cultural resource discoveries during project ground disturbing activities. Metropolitan shall prepare a Tribal Cultural Resource Management Plan in coordination with the Soboba prior to project construction to reduce potential direct or indirect impacts to tribal cultural resources to less than significant levels.

Mitigation Measure

TCR-1 Tribal Cultural Resource Management Plan. Metropolitan shall prepare a Tribal Cultural Resources Management Plan in coordination with the Soboba Band of Luiseño Indians prior to project construction to reduce potential direct or indirect impacts to tribal cultural resources to less than significant levels. The plan shall include a description of project construction activities that shall require tribal monitoring, procedures and treatment of finds during construction, and curation plans.

3.19 Utilities and Service Systems

UTILITIES AND SERVICE SYSTEMS Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐

UTILITIES AND SERVICE SYSTEMS Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

***Discussion*. Would the project:**

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction of which could cause significant environmental effects?

No Impact. The proposed project consists of improvements to ensure structural protection of an existing water conveyance pipeline and to provide safe access for operations and maintenance activities. The proposed project would not result in the construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities. No impacts would occur.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less than Significant Impact. The small amount of water that would be required during construction of the proposed project (mainly for dust suppression and concrete preparation) would be obtained from local supplies or trucked to the site through an agreement with a local municipality or provider. This use of water would be temporary and would not impact long-term water supplies. Once completed, the proposed project would not utilize or require water. Impacts would be less than significant related to water supplies.

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. As discussed in Section 3.19.a, there are no wastewater treatment facilities in the proposed project area and the proposed project consists of improvements to ensure safe maintenance of the CRA. No new demand on an existing wastewater treatment provider would occur as a result of the proposed project, thus no impact would occur.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact. The project may include minor soil export and construction activities may generate small amounts of inert and domestic wastes. Upon completion of the proposed project, no permanent increase in solid waste generation would occur. The limited amount of waste generated during construction is expected to be served by nearby landfills with sufficient permitted capacity. Therefore, less than significant impacts would occur related to generating substantial amounts of solid waste or meeting solid waste reduction goals.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. The proposed project would comply with all federal, state, and local laws and regulations for reduction of solid waste. No impacts from the proposed project would occur related to compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

3.20 Wildfire

Wildfire If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

***Discussion*. Would the project:**

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. All proposed project construction disturbance would occur within existing Metropolitan ROW. The realignment of access roads to each proposed project site would facilitate on-site circulation of Metropolitan maintenance vehicles only. The project does not include the modifications to any public roadways or driveways. During construction, oversize truck trips may be required to deliver large pieces of construction equipment and materials to the site. Any necessary oversized truck trips would require obtaining permits from Caltrans and local jurisdictions, as needed. The construction contractor would follow all rules and requirements of such permits, which would ensure motorists access and use to the public roadway system. Therefore, the project would not impact roadways or access routes that could be utilized for emergency response or emergency evacuation. Impacts would be less than significant related to substantial impairment of an adopted emergency response plan or emergency evacuation plan from the proposed project.

b. *Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*

Less than Significant Impact. The project sites are rural, surrounded by desert landscape with some sites located nearby suburban and rural development (refer to Table 1-1 for a description of adjacent land uses). Per CalFire VHFHSZ maps, the project sites are located within a "non-VHFHSZ," meaning the site has little or no potential for high fire hazard at either the State or Local Responsibility Area level (CalFire, 2019). As the project sites are not located in or near lands classified as VHFHSZ, there is no risk of wildfire or uncontrolled spread of a wildfire.

Fossil fuels would be used for vehicles and other equipment during construction. The presence and usage of fuels and power during construction could lead to a temporary increased risk of fire during construction. As described in Section 1.4, Proposed Project, implementation of standard construction practices, which include fire suppression equipment on site to avoid accidental ignition would reduce and/or avoid impacts. Once constructed, the project would have no new potential for fire as maintenance activities at the project sites would be identical as those occurring under existing conditions. Impacts from the proposed project would be less than significant related to wildfire risks.

c. *Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

No Impact. All construction disturbance would occur within existing Metropolitan ROW. The realignment of access roads to each project site would facilitate on-site circulation of Metropolitan maintenance vehicles only. The project does not include the modifications to any public roadways or driveways. As discussed in Section 3.19.a, the project site does not require the installation or improvements to any associated infrastructure such as emergency water sources, power lines, or other utilities. As discussed in Section 3.20.b, the project sites are located within a non-VHFHSZ and do not require fire breaks. No impacts from the proposed project would occur related to installing new infrastructure that could exacerbate fire risks.

d. *Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

Less than Significant Impact. As discussed in Section 3.20.b, the project sites and surrounding areas are located within a non-VHFHSZ. Therefore, the project and adjacent areas are not susceptible to post-wildfire conditions. As discussed in Section 3.10.c.i and 3.10.c.ii, the project would involve only minor changes in the site's drainage patterns. Because the project would not substantially alter the drainage pattern of the site or surrounding area, nor would it increase runoff volumes, it would not result or contribute to on- or off-site flooding. The project would not increase the potential for landslide or ground instability impacts due to changing the existing drainage pattern. Lastly, the project sites are unmanned and the nearest residential structure is 0.4 miles from a project site (refer to Table 1-1). Since the project does not involve substantial alteration of a discernable watercourse, and post-development runoff discharge rates are required to not exceed existing rates, the proposed project does not have the potential to expose people or structures to significant risks due to post-wildfire flooding or ground instability. Less than significant impacts would occur related to exposing persons or structures to significant post-fire risks.

3.21 Mandatory Findings of Significance

MANDATORY FINDINGS OF SIGNIFICANCE Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? (*Cumulatively considerable* means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

<u>Discussion:</u>

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant with Mitigation Incorporated. Based on the analysis provided in Section 3.4 (Biological Resources) and Appendix B (Biological Technical Report), the potential impacts to threatened, endangered, candidate, or special status species would be mitigated to a less than significant level with implementation of Mitigation Measure BIO-1 and Mitigation Measure BIO-2. Impacts to jurisdictional desert riparian habitat would be mitigated to a less than significant level with implementation of Mitigation Measure BIO-3. Therefore, the proposed project would not reduce the number or restrict the range of a rare or endangered plant or animal or reduce the habitat of a fish or wildlife species, assuring that less than significant impacts would result from the proposed project.

As discussed in Section 3.5 (Cultural Resources), adherence to standard construction practices would ensure that that any potentially significant buried resources that are exposed during construction are properly handled and treated, assuring that less than significant impacts would result from the proposed project. Therefore, the proposed project would not eliminate important examples of the major periods of California history or prehistory.

b. Does the project have impacts that are individually limited, but cumulatively considerable? (Cumulatively considerable means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less than Significant Impact. Based on the analysis contained in this Initial Study, the proposed project would not result in any significant and unmitigable impacts in any environmental categories. In all cases, impacts associated with the project would be limited to the project site or are of such a negligible degree that they would not result in a significant contribution to any cumulative impacts. For these reasons, the incremental effects of the proposed project would not be considerable when viewed in connection with the effects of past projects, current projects, or probable future projects, and the project's cumulative impacts would not be significant.

c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact. Based on the analysis contained in this Initial Study, with the implementation of Metropolitan's standard construction practices as described in Section 1.4, Proposed Project, the proposed project does not exceed any significance thresholds or result in significant impacts in the environmental categories typically associated with indirect or direct effects to human beings, such as aesthetics, air quality, hazards and hazardous materials, noise, public services, or transportation. As discussed in Sections 3.3, 3.7, 3.9, 3.10, 3.13 and 3.17 of this document, the proposed project would not expose persons to the hazards of toxic air emissions, chemical or explosive materials, ground-shaking, flooding, noise, or transportation hazards. For these reasons, the proposed project does not have a Mandatory Finding of Significance due to environmental effects that could cause substantial adverse effects on humans.

4. List of Mitigation Measures

BIO-1 **Pre-Construction Plant Surveys.** Prior to any ground disturbing activities that are initiated after the spring 2021 blooming season, Metropolitan shall conduct surveys for special-status plants in areas of suitable habitat. Surveys shall be conducted by a qualified botanist during the flowering season in suitable habitat located within proposed project disturbance areas and a 50-foot buffer. If present, listed or special-status plants shall be avoided to the maximum extent feasible. If impacts to listed plants cannot be avoided, Metropolitan shall consult with the CDFW and/or USFWS to obtain the appropriate permits and shall comply with all permit requirements. Additional conservation measures to protect or restore listed plant species or their habitat may be required by the relevant regulatory agencies. If impacts to other special-status plants (CRPR 1A, 1B, 2) cannot be avoided, and if more than 10 percent of the individual occurrence will be affected, seed shall be collected by a Qualified Botanist and deposited to the Rancho Santa Ana Botanic Garden (RSABC) for conservation of the species.

BIO-2 **Pre-Construction Surveys and Monitoring for Breeding Birds.** A qualified biologist with demonstrable experience surveying and monitoring for active bird nests shall conduct surveys for breeding birds protected under the MBTA and Fish and Game Code no more than 72 hours prior to any vegetation removal, equipment staging, or other ground disturbance that will occur during the breeding season (from January 15 through August 31 for raptors and hummingbirds and from March 15 through August 31 for other birds).

- Nesting bird surveys shall be performed in all potential nesting habitat within 500 feet of construction activities, where feasible, including vegetation removal, equipment staging, or other ground disturbance.
- Nesting bird surveys shall include Burrowing Owl. The surveys shall follow the protocols set forth in the Staff Report on Burrowing Owl Mitigation (CDFW, 2012).
- If an active nest is detected, a 300-foot buffer shall be established around the nest site and no construction activities shall be allowed within the buffer until the young have fledged from the nest or the nest fails. The 300-foot buffer may be adjusted after review by a qualified biologist based on bird behavior, existing conditions (e.g., ambient noise, topography, etc.), and scheduled work activities.
- A qualified biological monitor shall be responsible for recording the results of pre-construction surveys and copies of all monitoring reports shall be submitted to Metropolitan and the end of each breeding season.

BIO-3 **Compensatory Mitigation.** Compensatory mitigation at a 1:1 ratio for permanent impacts will occur through purchase of mitigation credits from an agency-approved mitigation bank, participation in an in-lieu fee program, or through other permittee-responsible mitigation, subject to applicable regulatory agency approval. Mitigation for temporary impacts to jurisdictional waters will occur through on-site restoration at a 1:1 ratio. Temporary impact areas will be returned to similar conditions that existed prior to ground-disturbing activities.

TCR-1 **Tribal Cultural Resource Management Plan.** Metropolitan shall prepare a Tribal Cultural Resources Management Plan in coordination with the Soboba Band of Luiseño Indians prior to project construction to reduce potential direct or indirect impacts to tribal cultural resources to less than significant levels. The plan shall include a description of project construction activities that shall require tribal monitoring, procedures and treatment of finds during construction, and curation plans.

5. List of Acronyms and Abbreviations

AB	Assembly Bill
AMSL	Above mean sea level
AQMP	Air Quality Management Plan
BGEPA	Bald and Golden Eagle Protection Act
BLM	U.S. Bureau of Land Management
BRTP	Biological Resources Technical Report
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CBC	California Building Code
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CHRIS	California Historical Resources Information System
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon monoxide
CO2	Carbon dioxide
CO2E	Carbon dioxide equivalent
CRA	Colorado River Aqueduct
CRPR	California Rare Plant Rank
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
CWA	Clean Water Act
DPM	Diesel particulate matter
FESA	Federal Endangered Species Act
FTA	Federal Transit Administration
GHG	Greenhouse gas
HCP	Habitat Conservation Plan
HM/WMP	Hazardous Materials/Waste Management Program
HRA	Health Risk Assessment
IS/MND	Initial Study/Mitigated Negative Declaration
LST	Localized significance threshold
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NOx	Nitrous oxides

NPDES	National Pollution Discharge Elimination System
O3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OSHA	Occupational Safety and Health Administration
PM	Particulate Matter
PM10	Particulate matter less than or equal to 10 microns in diameter
PM2.5	Particulate matter less than or equal to 2.5 microns in diameter
PRC	California Public Resources Code
ROG	Reactive organic gas
ROW	Right-of-way
RSABC	Rancho Santa Ana Botanic Garden
RWQCB	Regional Water Quality Control Boards
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SOx	Sulfur oxide
SRA	Source Receptor Area
SSAB	Salton Sea Air Basin
SWRCB	State Water Resources Control Board
SWPPP	Stormwater Pollution and Prevention Program
TAC	Toxic air contaminants
USACE	U.S. Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	Vehicle miles traveled
WDR	Waste discharge requirement

6. List of Preparers

Table 6-1. CEQA Lead Agency: The Metropolitan Water District of Southern California

Daniel Cardoza	Associate Environmental Specialist
Malinda Stalvey	Senior Environmental Specialist
Jennifer Harriger	Unit Manager

Table 6-2. Consultant Team; Aspen Environmental Group

Name	Project Role
Scott Debauche, CEP	Aesthetics, Agricultural Resources, Energy, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation, Utilities and Services Systems, Wildfire
Will Walters, PE	Air Quality, Greenhouse Gas Emissions
Chris Huntley	Biological Resources
Jamie Miner	Biological Resources
Jim Allan, PhD, RPA	Cultural Resources
Lauren DeOliveira, RPA	Cultural Resources
Kellie Keefe	GIS
Kati Simpson	Graphics, Document/Production Coordinator

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Appendix A

Construction Details and Air Quality Emission Estimate Calculations

General Construction Emission Calculation Assumptions

1) The project includes 24 separate siphon work sites. The construction work at each siphon work site includes the following two work phases: (1) Road and Pad Grading; (2) Crane Pad, Crossing, & Aqueduct Protection Concrete Pad Installation. The specific equipment and import/export requirements, and related traffic trips, for each construction phase at each siphon site are provided in the Initial Study, Table 1-2. Five different construction cases were modeled in CalEEMod as follows:

    a. Phase 1 (aka Task 1) maximum, based on maximum daily unpaved travel.

    b. Phase 2 (aka Task 2) maximum, based on maximum daily unpaved travel.

    c. Task 1 no excavator, to estimate off-road exhaust emissions at certain siphon sites.

    d. Task 2 with excavator, only to estimate off-road exhaust emissions at certain siphon sites.

    e. Task 2 with pump only, to estimate off-road exhaust emissions at certain siphon sites.

    There is an additional no off-road equipment case with zero off-road emissions that did not need additional modeling.

    The emissions for each case and the differences in unpaved road access length and number of heavy trips were then addressed using the results from these five CalEEMod runs to create emissions estimates for all 24 siphon sites/48 construction phases. Those spreadsheet calculations are provided in this appendix before the CalEEMod output.

2) Metropolitan has several air quality environmental requirements for desert location projects, including the following two that are integrated into the emissions estimate:

    a. Requirement for contractors, for off-road equipment with engines above 25 hp, to use equipment with engines meeting Tier 4 standards.

    b. Requirement for contractors to implement Rule 403 Table 1 Best Available Control Measures for fugitive dust control.

    These air pollution control requirements are emissions controls that would be part of the project and are not mitigation measures. The practical application of these requirements within CalEEMod, given the construction mitigation measure inputs available in CalEEMod, was to assume all off-road equipment larger than 25 horsepower would have a minimum of Interim Tier 4 compliant engines, that dust control watering would occur at the site and on the unpaved access roads at least three times daily, and that there will be a traffic speed limit of 15 miles per hour on the unpaved access roads to comply with SCAQMD Rules 403/403.1.

Localized Criteria Pollutant Impact Analysis

The worst-case localized impacts are based on the worst-case daily on-site emissions at the location nearest to receptors, the East Blind Canyon Siphon site, which is located 180 meters from the nearest residences. Distances to the nearest school, hospital, and other sensitive receptors is more than 500 meters for all siphon sites.

Toxic Air Contaminant Health Risk Analysis

The screening level HRA was conducted assuming a distance to receptors the same as used in the criteria pollutant short-term LST analysis, with the exception that for the long-term cancer and chronic impacts from diesel particulate matter (DPM) emissions the worst-case total DPM emissions from the East Blind Canyon Siphon site were added to those from nearby West Blind Canyon Siphon site to ensure all localized DPM emissions were accounted for in the HRA Analysis.

An initial screening level approach from SCAQMD risk assessment guidance, using OEHHA risk assessment methods guidance for short-term projects (OEHHA, 2015), was completed by determining a conservative worst-case concentration based on the total on-site DPM emissions for the East Blind Canyon Siphon and West Blind Canyon Siphon sites of 4.22×10^{-4} tons (the maximum daily CalEEMod emissions estimate in Appendix A summed for twenty days of construction) multiplied by the SCAQMD published Chi/Q (X/Q) dispersion factor (units of [µg/m3]/[ton/year]) for diesel engines (rating between 400 and 600 break horsepower [bhp] and use less than 12 hours per day) that have a downwind distance of approximately 590 feet (180 meters) at the project area's Source Receptor Area (SRA) nearest meteorological station (Desert Hot Springs Airport). This value in Table 10.4 A in the SCAQMD guidance manual appendix, interpolated to 180 meters, is 0.674 (SCAQMD, 2017). Therefore, the maximum concentration value using this screening technique is 4.22×10^{-4} tons/year x 0.674 = 2.84×10^{-4} µg/m3. Using this concentration of DPM in the OEHHA/CARB Risk Assessment Standalone Tool (RAST) model the worst-case risks, using the worst-case one-year exposure period, which starts in the third trimester, these worst-case screening level risks are calculated to be 5.05×10^{-8} for cancer and a chronic health index of calculated to be 5.68×10^{-5} (diesel particulate emissions do not have acute health risk reference exposure levels, so acute impacts are not provided in RAST for diesel emissions). SCAQMD has published TACs health risk significance thresholds of 10 in a million (10×10^{-6}) for increased cancer risk and scores of more than 1.0 for chronic and acute hazard indices (SCAQMD, 2019). The determined screening level cancer and chronic risks are well below the SCAQMD risk significance thresholds; therefore, the project would have less than significant sensitive receptor toxic air contaminant pollutant impacts.

GHG Emission Estimate

The maximum daily emissions are conservatively multiplied by 240 days to determine the total direct GHG emissions for the project. The project's direct maximum daily construction GHG emissions are provided in the first CalEEMod output file provided, while the indirect emissions for water are calculated separately. The water use indirect CO_2e emissions are based on an average of 132,760 square feet (3.05 acres) that need to be watered for dust control every day. Assuming that a total of 0.15 gallons per square yard (9 square feet) is required three times daily that would require a total of 6,638 gallons per day, which would be 1,593,120 gallons (4.9 acre-feet) total over the 240 project work days. To account for other water used such as that for concrete production, this value is rounded up to 1.7 million gallons. CalEEMod provides energy intensity for water use and CO_2e intensity for power generation. These estimates are somewhat dated and would be conservative in comparison with actual values during the construction period. The CalEEMod estimates for the project area's energy intensity to supply water is 9,727 kWh per million gallons and for the CO_2e intensity of electricity is 0.7066 lbs/kWh, so the indirect CO_2e emissions for project water use is estimated to be 5.3 MT CO_2e

CalEEMod Calculation Worksheets and CalEEMod Output Files

The following present the CalEEMod emissions results calculation worksheets used to determine siphon site/work phase specific emissions estimates, and the CalEEMod output files for the five estimated construction phase cases.

Colorado River Aqueduct Conduit Structural Protection Project

Siphon Site Maximum Daily Emissions Estimate Summary

Construction Site	Construction Phase	NOx Lb/day	PM10 Lb/day	PM2.5 Lb/day	ROG Lb/day	CO Lb/day	SOx Lb/day
No Name Siphon	Road and Pad Grading	10.71	42.57	5.55	0.90	17.01	0.05
	Protection/Pad Installation	10.22	43.94	4.59	0.58	7.65	0.05
Shavers Siphon	Road and Pad Grading	16.22	56.95	7.03	1.04	17.82	0.07
	Protection/Pad Installation	2.53	25.12	2.64	0.32	2.80	0.02
Cottonwood Springs Siphon	Road and Pad Grading	13.16	44.05	5.69	0.97	17.37	0.06
	Protection/Pad Installation	2.53	23.30	2.45	0.32	2.80	0.02
East Cottonwood No. 1 Siphon	Road and Pad Grading	24.75	116.89	13.31	1.30	21.30	0.11
	Protection/Pad Installation	4.91	37.07	3.90	0.47	7.60	0.03
East Cottonwood No. 2 Siphon	Road and Pad Grading	10.10	58.92	7.29	0.89	16.92	0.04
	Protection/Pad Installation	2.53	40.51	4.27	0.32	2.80	0.02
End Wash Siphon	Road and Pad Grading	14.38	37.18	4.95	1.00	17.55	0.06
	Protection/Pad Installation	7.55	23.37	2.43	0.51	7.25	0.04
Mecca No. 1 Siphon	Road and Pad Grading	8.26	11.19	2.25	0.84	16.65	0.04
	Protection/Pad Installation	2.53	7.25	0.74	0.32	2.80	0.02
Mecca No. 2 Siphon	Road and Pad Grading	12.54	22.99	3.46	0.95	17.28	0.06
	Protection/Pad Installation	2.53	11.91	1.24	0.32	2.80	0.02
Iron Ledge Siphon	Road and Pad Grading	13.77	64.91	7.89	0.98	17.46	0.06
	Protection/Pad Installation	2.53	33.62	3.54	0.32	2.80	0.02
East Thermal Siphon	Road and Pad Grading	18.05	87.95	10.30	1.09	18.09	0.08
	Protection/Pad Installation	2.53	35.69	3.76	0.32	2.80	0.02
West Thermal Siphon	Road and Pad Grading	8.87	48.50	6.20	0.86	16.74	0.04
	Protection/Pad Installation	8.89	54.26	5.69	0.54	7.45	0.04
East Fan Hill Siphon	Road and Pad Grading	8.26	48.53	6.21	0.84	16.65	0.04
	Protection/Pad Installation	2.53	39.62	4.18	0.32	2.80	0.02
Fan Hill Siphon	Road and Pad Grading	11.32	46.35	5.95	0.92	17.10	0.05
	Protection/Pad Installation	2.53	28.29	2.97	0.32	2.80	0.02
West Fan Hill Siphon	Road and Pad Grading	8.87	28.76	4.11	0.86	16.74	0.04
	Protection/Pad Installation	2.53	21.07	2.21	0.32	2.80	0.02
Thousand Palms Siphon	Road and Pad Grading	8.26	24.08	3.62	0.84	16.65	0.04
	Protection/Pad Installation	2.53	18.42	1.93	0.32	2.80	0.02
West Thousand Palms Siphon	Road and Pad Grading	33.35	59.42	7.12	1.47	20.35	0.15
	Protection/Pad Installation	7.92	14.16	1.47	0.61	11.75	0.04
East Wide Canyon Siphon	Road and Pad Grading	10.71	13.05	2.43	0.90	17.01	0.05
	Protection/Pad Installation	9.93	9.18	0.92	0.66	12.05	0.04
West Wide Canyon Siphon	Road and Pad Grading	8.87	21.82	3.37	0.86	16.74	0.04
	Protection/Pad Installation	2.53	15.43	1.61	0.32	2.80	0.02
Long Canyon Siphon	Road and Pad Grading	9.48	26.46	3.86	0.87	16.83	0.04
	Protection/Pad Installation	9.26	22.27	2.32	0.64	11.95	0.04
East Blind Canyon Siphon	Road and Pad Grading	24.75	16.29	2.65	1.30	21.30	0.11
	Protection/Pad Installation	7.92	4.72	0.47	0.61	11.75	0.04
West Blind Canyon Siphon	Road and Pad Grading	8.26	10.13	2.14	0.84	16.65	0.04
	Protection/Pad Installation	8.89	9.28	0.92	0.54	7.45	0.04
Little Morongo Siphon	Road and Pad Grading	14.38	29.74	4.16	1.00	17.55	0.06
	Protection/Pad Installation	8.22	19.39	2.00	0.53	7.35	0.04
Whitehouse Siphon	Road and Pad Grading	15.60	20.26	3.14	1.03	17.73	0.07
	Protection/Pad Installation	5.54	9.04	0.93	0.46	6.96	0.03
Big Morongo Siphon	Road and Pad Grading	45.56	43.46	5.33	1.82	24.37	0.20
	Protection/Pad Installation	9.26	8.80	0.89	0.64	11.95	0.04

Colorado River Aqueduct Conduit Structural Protection Project

Siphon Site Road Dust PM10 Emissions Estimate

Construction Site		Construction Phase	Unpaved Dist (mi)	Unpaved VMT (mi/d)	Unpaved CalEEMod PM10 EF	Unpaved PM10 lbs	Paved CalEEMod PM10 EF	Paved PM10 lbs
1	No Name Siphon	Road and Pad Grading	2.90	110.18	0.35	38.78	6.61E-04	9.32E-01
		Protection/Pad Installation	2.90	121.78	0.35	42.87	6.61E-04	1.03E+00
2	Shavers Siphon	Road and Pad Grading	2.67	149.71	0.35	52.70	6.61E-04	1.38E+00
		Protection/Pad Installation	2.67	69.51	0.35	24.47	6.61E-04	6.42E-01
3	Cottonwood Springs Siphon	Road and Pad Grading	2.47	113.78	0.35	40.05	6.61E-04	1.14E+00
		Protection/Pad Installation	2.47	64.31	0.35	22.64	6.61E-04	6.45E-01
4	East Cottonwood No. 1 Siphon	Road and Pad Grading	3.98	318.40	0.35	112.08	6.61E-04	1.91E+00
		Protection/Pad Installation	3.98	103.48	0.35	36.42	6.61E-04	6.19E-01
5	East Cottonwood No. 2 Siphon	Road and Pad Grading	4.36	156.88	0.35	55.22	6.61E-04	8.48E-01
		Protection/Pad Installation	4.36	113.31	0.35	39.88	6.61E-04	6.13E-01
6	End Wash Siphon	Road and Pad Grading	1.88	93.92	0.35	33.06	6.61E-04	1.26E+00
		Protection/Pad Installation	1.88	63.87	0.35	22.48	6.61E-04	8.57E-01
7	Mecca No. 1 Siphon	Road and Pad Grading	0.72	21.52	0.35	7.57	6.61E-04	7.79E-01
		Protection/Pad Installation	0.72	18.65	0.35	6.56	6.61E-04	6.75E-01
8	Mecca No. 2 Siphon	Road and Pad Grading	1.23	53.99	0.35	19.01	6.61E-04	1.13E+00
		Protection/Pad Installation	1.23	31.90	0.35	11.23	6.61E-04	6.66E-01
9	Iron Ledge Siphon	Road and Pad Grading	3.60	172.99	0.35	60.89	6.61E-04	1.15E+00
		Protection/Pad Installation	3.60	93.70	0.35	32.98	6.61E-04	6.26E-01
10	East Thermal Siphon	Road and Pad Grading	3.83	237.46	0.35	83.59	6.61E-04	1.48E+00
		Protection/Pad Installation	3.83	99.58	0.35	35.05	6.61E-04	6.22E-01
11	West Thermal Siphon	Road and Pad Grading	3.99	127.54	0.35	44.90	6.61E-04	7.62E-01
		Protection/Pad Installation	3.99	151.46	0.35	53.31	6.61E-04	9.05E-01
12	East Fan Hill Siphon	Road and Pad Grading	4.26	127.80	0.35	44.99	6.61E-04	7.09E-01
		Protection/Pad Installation	4.26	110.76	0.35	38.99	6.61E-04	6.14E-01
13	Fan Hill Siphon	Road and Pad Grading	3.02	120.80	0.35	42.52	6.61E-04	9.78E-01
		Protection/Pad Installation	3.02	78.52	0.35	27.64	6.61E-04	6.36E-01
14	West Fan Hill Siphon	Road and Pad Grading	2.23	71.36	0.35	25.12	6.61E-04	7.99E-01
		Protection/Pad Installation	2.23	57.98	0.35	20.41	6.61E-04	6.49E-01
15	Thousand Palms Siphon	Road and Pad Grading	1.94	58.20	0.35	20.49	6.61E-04	7.55E-01
		Protection/Pad Installation	1.94	50.44	0.35	17.75	6.61E-04	6.54E-01
16	West Thousand Palms Siphon	Road and Pad Grading	1.36	152.32	0.35	53.62	6.61E-04	2.86E+00
		Protection/Pad Installation	1.36	38.08	0.35	13.40	6.61E-04	7.15E-01
17	East Wide Canyon Siphon	Road and Pad Grading	0.69	26.18	0.35	9.21	6.61E-04	9.88E-01
		Protection/Pad Installation	0.69	23.42	0.35	8.24	6.61E-04	8.84E-01
18	West Wide Canyon Siphon	Road and Pad Grading	1.61	51.61	0.35	18.17	6.61E-04	8.12E-01
		Protection/Pad Installation	1.61	41.93	0.35	14.76	6.61E-04	6.60E-01
19	Long Canyon Siphon	Road and Pad Grading	1.90	64.65	0.35	22.76	6.61E-04	8.56E-01
		Protection/Pad Installation	1.90	60.85	0.35	21.42	6.61E-04	8.06E-01
20	East Blind Canyon Siphon	Road and Pad Grading	0.40	32.07	0.35	11.29	6.61E-04	2.09E+00
		Protection/Pad Installation	0.40	11.22	0.35	3.95	6.61E-04	7.33E-01
21	West Blind Canyon Siphon	Road and Pad Grading	0.62	18.50	0.35	6.51	6.61E-04	7.81E-01
		Protection/Pad Installation	0.62	23.43	0.35	8.25	6.61E-04	9.89E-01
22	Little Morongo Siphon	Road and Pad Grading	1.45	72.73	0.35	25.60	6.61E-04	1.27E+00
		Protection/Pad Installation	1.45	52.36	0.35	18.43	6.61E-04	9.17E-01
23	Whitehouse Siphon	Road and Pad Grading	0.84	45.44	0.35	16.00	6.61E-04	1.40E+00
		Protection/Pad Installation	0.84	23.56	0.35	8.29	6.61E-04	7.25E-01
24	Big Morongo Siphon	Road and Pad Grading	0.70	104.05	0.35	36.63	6.61E-04	3.84E+00
		Protection/Pad Installation	0.70	22.50	0.35	7.92	6.61E-04	8.31E-01

Colorado River Aqueduct Conduit Structural Protection Project

Siphon Site Road Dust PM2.5 Emissions Estimate

Construction Site		Construction Phase	Unpaved Dist (mi)	Unpaved VMT (mi/d)	Unpaved CalEEMod PM2.5 EF	Unpaved Unpaved. PM2.5 lbs	Paved CalEEMod PM2.5 EF	Paved Paved PM2.5 lbs
1	No Name Siphon	Road and Pad Grading	2.90	110.18	0.036	3.97	1.62E-04	2.29E-01
		Protection/Pad Installation	2.90	121.78	0.036	4.38	1.62E-04	2.53E-01
2	Shavers Siphon	Road and Pad Grading	2.67	149.71	0.036	5.39	1.62E-04	3.39E-01
		Protection/Pad Installation	2.67	69.51	0.036	2.50	1.62E-04	1.58E-01
3	Cottonwood Springs Siphon	Road and Pad Grading	2.47	113.78	0.036	4.10	1.62E-04	2.80E-01
		Protection/Pad Installation	2.47	64.31	0.036	2.32	1.62E-04	1.58E-01
4	East Cottonwood No. 1 Siphon	Road and Pad Grading	3.98	318.40	0.036	11.46	1.62E-04	4.68E-01
		Protection/Pad Installation	3.98	103.48	0.036	3.73	1.62E-04	1.52E-01
5	East Cottonwood No. 2 Siphon	Road and Pad Grading	4.36	156.88	0.036	5.65	1.62E-04	2.08E-01
		Protection/Pad Installation	4.36	113.31	0.036	4.08	1.62E-04	1.50E-01
6	End Wash Siphon	Road and Pad Grading	1.88	93.92	0.036	3.38	1.62E-04	3.09E-01
		Protection/Pad Installation	1.88	63.87	0.036	2.30	1.62E-04	2.10E-01
7	Mecca No. 1 Siphon	Road and Pad Grading	0.72	21.52	0.036	0.77	1.62E-04	1.91E-01
		Protection/Pad Installation	0.72	18.65	0.036	0.67	1.62E-04	1.66E-01
8	Mecca No. 2 Siphon	Road and Pad Grading	1.23	53.99	0.036	1.94	1.62E-04	2.77E-01
		Protection/Pad Installation	1.23	31.90	0.036	1.15	1.62E-04	1.64E-01
9	Iron Ledge Siphon	Road and Pad Grading	3.60	172.99	0.036	6.23	1.62E-04	2.84E-01
		Protection/Pad Installation	3.60	93.70	0.036	3.37	1.62E-04	1.54E-01
10	East Thermal Siphon	Road and Pad Grading	3.83	237.46	0.036	8.55	1.62E-04	3.64E-01
		Protection/Pad Installation	3.83	99.58	0.036	3.58	1.62E-04	1.53E-01
11	West Thermal Siphon	Road and Pad Grading	3.99	127.54	0.036	4.59	1.62E-04	1.87E-01
		Protection/Pad Installation	3.99	151.46	0.036	5.45	1.62E-04	2.22E-01
12	East Fan Hill Siphon	Road and Pad Grading	4.26	127.80	0.036	4.60	1.62E-04	1.74E-01
		Protection/Pad Installation	4.26	110.76	0.036	3.99	1.62E-04	1.51E-01
13	Fan Hill Siphon	Road and Pad Grading	3.02	120.80	0.036	4.35	1.62E-04	2.40E-01
		Protection/Pad Installation	3.02	78.52	0.036	2.83	1.62E-04	1.56E-01
14	West Fan Hill Siphon	Road and Pad Grading	2.23	71.36	0.036	2.57	1.62E-04	1.96E-01
		Protection/Pad Installation	2.23	57.98	0.036	2.09	1.62E-04	1.59E-01
15	Thousand Palms Siphon	Road and Pad Grading	1.94	58.20	0.036	2.10	1.62E-04	1.85E-01
		Protection/Pad Installation	1.94	50.44	0.036	1.82	1.62E-04	1.61E-01
16	West Thousand Palms Siphon	Road and Pad Grading	1.36	152.32	0.036	5.48	1.62E-04	7.02E-01
		Protection/Pad Installation	1.36	38.08	0.036	1.37	1.62E-04	1.76E-01
17	East Wide Canyon Siphon	Road and Pad Grading	0.69	26.18	0.036	0.94	1.62E-04	2.42E-01
		Protection/Pad Installation	0.69	23.42	0.036	0.84	1.62E-04	2.17E-01
18	West Wide Canyon Siphon	Road and Pad Grading	1.61	51.61	0.036	1.86	1.62E-04	1.99E-01
		Protection/Pad Installation	1.61	41.93	0.036	1.51	1.62E-04	1.62E-01
19	Long Canyon Siphon	Road and Pad Grading	1.90	64.65	0.036	2.33	1.62E-04	2.10E-01
		Protection/Pad Installation	1.90	60.85	0.036	2.19	1.62E-04	1.98E-01
20	East Blind Canyon Siphon	Road and Pad Grading	0.40	32.07	0.036	1.15	1.62E-04	5.14E-01
		Protection/Pad Installation	0.40	11.22	0.036	0.40	1.62E-04	1.80E-01
21	West Blind Canyon Siphon	Road and Pad Grading	0.62	18.50	0.036	0.67	1.62E-04	1.92E-01
		Protection/Pad Installation	0.62	23.43	0.036	0.84	1.62E-04	2.43E-01
22	Little Morongo Siphon	Road and Pad Grading	1.45	72.73	0.036	2.62	1.62E-04	3.13E-01
		Protection/Pad Installation	1.45	52.36	0.036	1.89	1.62E-04	2.25E-01
23	Whitehouse Siphon	Road and Pad Grading	0.84	45.44	0.036	1.64	1.62E-04	3.43E-01
		Protection/Pad Installation	0.84	23.56	0.036	0.85	1.62E-04	1.78E-01
24	Big Morongo Siphon	Road and Pad Grading	0.70	104.05	0.036	3.75	1.62E-04	9.44E-01
		Protection/Pad Installation	0.70	22.50	0.036	0.81	1.62E-04	2.04E-01

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Site Specific PM10 Emissions Refined Analysis

Assumptions:
1) PM10 exhaust emissions are adjusted per heavy haul trip assumptions for each site, with no changes to passenger/vendor type vehicle emissions.
2) PM10 exhaust emissions are adjusted per equipment spread for each equipment type.

	Worst-Case Onroad excl. Road Dust	Worst-Case Haul	Off-Road Case 1 Maximum	Off-Road Case 2 Maximum No Excavator	Off-Road Case 3 Maximum No Pump	Off-Road Case 4 No Off-Road
Road and Pad Grading	0.072	0.064	2.84	2.83	n/a	n/a
Protection/Pad Installation	0.030	0.019	0.024	0.009	0.015	0

Construction Site		Construction Phase	Worst-Case Haul Trip Fraction	Corrected Site On-Road PM10	Off-Road Case	Off-Road Emissions	Road Dust Emissions	Total PM10 Emissions
1	No Name Siphon	Road and Pad Grading	0.19	0.02	2	2.83	39.72	42.57
		Protection/Pad Installation	1.29	0.03	2	0.01	43.90	43.94
2	Shavers Siphon	Road and Pad Grading	0.54	0.04	2	2.83	54.08	56.95
		Protection/Pad Installation	0.14	0.01	4	0.00	25.11	25.12
3	Cottonwood Springs Siphon	Road and Pad Grading	0.35	0.03	2	2.83	41.19	44.05
		Protection/Pad Installation	0.14	0.01	4	0.00	23.28	23.30
4	East Cottonwood No. 1 Siphon	Road and Pad Grading	1.00	0.07	1	2.84	113.98	116.89
		Protection/Pad Installation	0.14	0.01	3	0.01	37.04	37.07
5	East Cottonwood No. 2 Siphon	Road and Pad Grading	0.15	0.02	2	2.83	56.07	58.92
		Protection/Pad Installation	0.14	0.01	4	0.00	40.50	40.51
6	End Wash Siphon	Road and Pad Grading	0.42	0.04	2	2.83	34.32	37.18
		Protection/Pad Installation	0.71	0.02	2	0.01	23.34	23.37
7	Mecca No. 1 Siphon	Road and Pad Grading	0.04	0.01	2	2.83	8.35	11.19
		Protection/Pad Installation	0.14	0.01	4	0.00	7.24	7.25
8	Mecca No. 2 Siphon	Road and Pad Grading	0.31	0.03	2	2.83	20.13	22.99
		Protection/Pad Installation	0.14	0.01	4	0.00	11.90	11.91
9	Iron Ledge Siphon	Road and Pad Grading	0.38	0.03	2	2.83	62.05	64.91
		Protection/Pad Installation	0.14	0.01	4	0.00	33.61	33.62
10	East Thermal Siphon	Road and Pad Grading	0.65	0.05	2	2.83	85.07	87.95
		Protection/Pad Installation	0.14	0.01	4	0.00	35.67	35.69
11	West Thermal Siphon	Road and Pad Grading	0.08	0.01	2	2.83	45.66	48.50
		Protection/Pad Installation	1.00	0.03	2	0.01	54.22	54.26
12	East Fan Hill Siphon	Road and Pad Grading	0.04	0.01	2	2.83	45.69	48.53
		Protection/Pad Installation	0.14	0.01	4	0.00	39.60	39.62
13	Fan Hill Siphon	Road and Pad Grading	0.23	0.02	2	2.83	43.50	46.35
		Protection/Pad Installation	0.14	0.01	4	0.00	28.27	28.29
14	West Fan Hill Siphon	Road and Pad Grading	0.08	0.01	2	2.83	25.92	28.76
		Protection/Pad Installation	0.14	0.01	4	0.00	21.06	21.07
15	Thousand Palms Siphon	Road and Pad Grading	0.04	0.01	2	2.83	21.24	24.08
		Protection/Pad Installation	0.14	0.01	4	0.00	18.41	18.42
16	West Thousand Palms Siphon	Road and Pad Grading	1.62	0.11	2	2.83	56.48	59.42
		Protection/Pad Installation	0.29	0.02	1	0.02	14.12	14.16
17	East Wide Canyon Siphon	Road and Pad Grading	0.19	0.02	2	2.83	10.20	13.05
		Protection/Pad Installation	0.71	0.02	1	0.02	9.13	9.18
18	West Wide Canyon Siphon	Road and Pad Grading	0.08	0.01	2	2.83	18.98	21.82
		Protection/Pad Installation	0.14	0.01	4	0.00	15.42	15.43
19	Long Canyon Siphon	Road and Pad Grading	0.12	0.02	2	2.83	23.61	26.46
		Protection/Pad Installation	0.57	0.02	1	0.02	22.22	22.27
20	East Blind Canyon Siphon	Road and Pad Grading	1.00	0.07	1	2.84	13.38	16.29
		Protection/Pad Installation	0.29	0.02	1	0.02	4.68	4.72
21	West Blind Canyon Siphon	Road and Pad Grading	0.04	0.01	2	2.83	7.29	10.13
		Protection/Pad Installation	1.00	0.03	2	0.01	9.24	9.28
22	Little Morongo Siphon	Road and Pad Grading	0.42	0.04	2	2.83	26.87	29.74
		Protection/Pad Installation	0.86	0.03	2	0.01	19.35	19.39
23	Whitehouse Siphon	Road and Pad Grading	0.50	0.04	2	2.83	17.39	20.26
		Protection/Pad Installation	0.29	0.02	2	0.01	9.02	9.04
24	Big Morongo Siphon	Road and Pad Grading	2.31	0.16	1	2.84	40.47	43.46
		Protection/Pad Installation	0.57	0.02	1	0.02	8.75	8.80

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Site Specific PM2.5 Emissions Refined Analysis

Assumptions:
1) PM2.5 exhaust emissions are adjusted per heavy haul trip assumptions for each site, with no changes to passenger/vendor type vehicle emissions.
2) PM2.5 exhaust emissions are adjusted per equipment spread for each equipment type.

	Worst-Case Onroad excl. Unpaved	Worst-Case Haul	Off-Road Case 1 Maximum	Off-Road Case 2 Maximum No Excavator	Off-Road Case 3 Maximum No Pump	Off-Road Case 4 No Off-Road
Road and Pad Grading	0.069	0.061	1.38	1.37	n/a	n/a
Protection/Pad Installation	0.028	0.018	0.024	0.009	0.015	0

Construction Site		Construction Phase	Worst-Case Haul Trip Fraction	Corrected Site On-Road PM2.5	Off-Road Case	Off-Road Emissions	Road Dust Emissions	Total PM2.5 Emissions
1	No Name Siphon	Road and Pad Grading	0.19	0.02	2	1.37	4.20	5.59
		Protection/Pad Installation	1.29	0.03	2	0.01	4.64	4.68
2	Shavers Siphon	Road and Pad Grading	0.54	0.04	2	1.37	5.73	7.14
		Protection/Pad Installation	0.14	0.01	4	0.00	2.66	2.67
3	Cottonwood Springs Siphon	Road and Pad Grading	0.35	0.03	2	1.37	4.38	5.78
		Protection/Pad Installation	0.14	0.01	4	0.00	2.47	2.49
4	East Cottonwood No. 1 Siphon	Road and Pad Grading	1.00	0.07	1	1.38	11.93	13.38
		Protection/Pad Installation	0.14	0.01	3	0.01	3.88	3.90
5	East Cottonwood No. 2 Siphon	Road and Pad Grading	0.15	0.02	2	1.37	5.86	7.25
		Protection/Pad Installation	0.14	0.01	4	0.00	4.23	4.24
6	End Wash Siphon	Road and Pad Grading	0.42	0.03	2	1.37	3.69	5.10
		Protection/Pad Installation	0.71	0.02	2	0.01	2.51	2.54
7	Mecca No. 1 Siphon	Road and Pad Grading	0.04	0.01	2	1.37	0.97	2.35
		Protection/Pad Installation	0.14	0.01	4	0.00	0.84	0.85
8	Mecca No. 2 Siphon	Road and Pad Grading	0.31	0.03	2	1.37	2.22	3.62
		Protection/Pad Installation	0.14	0.01	4	0.00	1.31	1.32
9	Iron Ledge Siphon	Road and Pad Grading	0.38	0.03	2	1.37	6.51	7.92
		Protection/Pad Installation	0.14	0.01	4	0.00	3.53	3.54
10	East Thermal Siphon	Road and Pad Grading	0.65	0.05	2	1.37	8.91	10.33
		Protection/Pad Installation	0.14	0.01	4	0.00	3.74	3.75
11	West Thermal Siphon	Road and Pad Grading	0.08	0.01	2	1.37	4.78	6.17
		Protection/Pad Installation	1.00	0.03	2	0.01	5.67	5.71
12	East Fan Hill Siphon	Road and Pad Grading	0.04	0.01	2	1.37	4.77	6.16
		Protection/Pad Installation	0.14	0.01	4	0.00	4.14	4.15
13	Fan Hill Siphon	Road and Pad Grading	0.23	0.02	2	1.37	4.59	5.99
		Protection/Pad Installation	0.14	0.01	4	0.00	2.98	3.00

Construction Site		Construction Phase	Worst-Case Haul Trip Fraction	Corrected Site On-Road PM2.5	Off-Road Case	Off-Road Emissions	Road Dust Emissions	Total PM2.5 Emissions
14	West Fan Hill Siphon	Road and Pad Grading	0.08	0.01	2	1.37	2.77	4.15
		Protection/Pad Installation	0.14	0.01	4	0.00	2.25	2.26
15	Thousand Palms Siphon	Road and Pad Grading	0.04	0.01	2	1.37	2.28	3.67
		Protection/Pad Installation	0.14	0.01	4	0.00	1.98	1.99
16	West Thousand Palms Siphon	Road and Pad Grading	1.62	0.11	2	1.37	6.19	7.67
		Protection/Pad Installation	0.29	0.02	1	0.02	1.55	1.59
17	East Wide Canyon Siphon	Road and Pad Grading	0.19	0.02	2	1.37	1.18	2.58
		Protection/Pad Installation	0.71	0.02	1	0.02	1.06	1.11
18	West Wide Canyon Siphon	Road and Pad Grading	0.08	0.01	2	1.37	2.06	3.44
		Protection/Pad Installation	0.14	0.01	4	0.00	1.67	1.68
19	Long Canyon Siphon	Road and Pad Grading	0.12	0.02	2	1.37	2.54	3.93
		Protection/Pad Installation	0.57	0.02	1	0.02	2.39	2.43
20	East Blind Canyon Siphon	Road and Pad Grading	1.00	0.07	1	1.38	1.67	3.12
		Protection/Pad Installation	0.29	0.02	1	0.02	0.58	0.62
21	West Blind Canyon Siphon	Road and Pad Grading	0.04	0.01	2	1.37	0.86	2.24
		Protection/Pad Installation	1.00	0.03	2	0.01	1.09	1.12
22	Little Morongo Siphon	Road and Pad Grading	0.42	0.03	2	1.37	2.93	4.34
		Protection/Pad Installation	0.86	0.03	2	0.01	2.11	2.14
23	Whitehouse Siphon	Road and Pad Grading	0.50	0.04	2	1.37	1.98	3.39
		Protection/Pad Installation	0.29	0.02	2	0.01	1.03	1.05
24	Big Morongo Siphon	Road and Pad Grading	2.31	0.15	1	1.38	4.69	6.22
		Protection/Pad Installation	0.57	0.02	1	0.02	1.01	1.06

Colorado River Aqueduct Conduit Structural Protection Project

Site Specific NOx Emissions Refined Analysis

Assumptions:
1) NOx emissions are adjusted per heavy haul trip assumptions for each site, with no changes to passenger/vendor type vehicle emissions.
2) NOx and other tailpipe emissions (ROG, CO, SOx) are adjusted per equipment spread for each equipment type.

	Worst-Case Onroad	Worst-Case Haul	Off-Road Case 1 Maximum	Off-Road Case 2 Maximum No Excavator	Off-Road Case 3 Maximum No Pump	Off-Road Case 4 No Off-Road
Road and Pad Grading	17.07	15.91	7.68	6.49	n/a	n/a
Protection/Pad Installation	6.54	4.68	4.72	2.35	2.38	0

Construction Site		Construction Phase	Worst-Case Haul Trip Fraction	Corrected Site On-Road NOx	Off-Road Case	Off-Road Emissions	Total NOx Emissions
1	No Name Siphon	Road and Pad Grading	0.19	4.21	2	6.49	10.71
		Protection/Pad Installation	1.29	7.88	2	2.35	10.22
2	Shavers Siphon	Road and Pad Grading	0.54	9.72	2	6.49	16.22
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
3	Cottonwood Springs Siphon	Road and Pad Grading	0.35	6.66	2	6.49	13.16
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
4	East Cottonwood No. 1 Siphon	Road and Pad Grading	1.00	17.07	1	7.68	24.75
		Protection/Pad Installation	0.14	2.53	3	2.38	4.91
5	East Cottonwood No. 2 Siphon	Road and Pad Grading	0.15	3.60	2	6.49	10.10
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
6	End Wash Siphon	Road and Pad Grading	0.42	7.89	2	6.49	14.38
		Protection/Pad Installation	0.71	5.20	2	2.35	7.55
7	Mecca No. 1 Siphon	Road and Pad Grading	0.04	1.77	2	6.49	8.26
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
8	Mecca No. 2 Siphon	Road and Pad Grading	0.31	6.05	2	6.49	12.54
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
9	Iron Ledge Siphon	Road and Pad Grading	0.38	7.27	2	6.49	13.77
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
10	East Thermal Siphon	Road and Pad Grading	0.65	11.56	2	6.49	18.05
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
11	West Thermal Siphon	Road and Pad Grading	0.08	2.38	2	6.49	8.87
		Protection/Pad Installation	1.00	6.54	2	2.35	8.89
12	East Fan Hill Siphon	Road and Pad Grading	0.04	1.77	2	6.49	8.26
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
13	Fan Hill Siphon	Road and Pad Grading	0.23	4.83	2	6.49	11.32
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
14	West Fan Hill Siphon	Road and Pad Grading	0.08	2.38	2	6.49	8.87
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
15	Thousand Palms Siphon	Road and Pad Grading	0.04	1.77	2	6.49	8.26
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
16	West Thousand Palms Siphon	Road and Pad Grading	1.62	26.86	2	6.49	33.35
		Protection/Pad Installation	0.29	3.20	1	4.72	7.92
17	East Wide Canyon Siphon	Road and Pad Grading	0.19	4.21	2	6.49	10.71
		Protection/Pad Installation	0.71	5.20	1	4.72	9.93
18	West Wide Canyon Siphon	Road and Pad Grading	0.08	2.38	2	6.49	8.87
		Protection/Pad Installation	0.14	2.53	4	0.00	2.53
19	Long Canyon Siphon	Road and Pad Grading	0.12	2.99	2	6.49	9.48
		Protection/Pad Installation	0.57	4.53	1	4.72	9.26
20	East Blind Canyon Siphon	Road and Pad Grading	1.00	17.07	1	7.68	24.75
		Protection/Pad Installation	0.29	3.20	1	4.72	7.92
21	West Blind Canyon Siphon	Road and Pad Grading	0.04	1.77	2	6.49	8.26
		Protection/Pad Installation	1.00	6.54	2	2.35	8.89
22	Little Morongo Siphon	Road and Pad Grading	0.42	7.89	2	6.49	14.38
		Protection/Pad Installation	0.86	5.87	2	2.35	8.22
23	Whitehouse Siphon	Road and Pad Grading	0.50	9.11	2	6.49	15.60
		Protection/Pad Installation	0.29	3.20	2	2.35	5.54
24	Big Morongo Siphon	Road and Pad Grading	2.31	37.87	1	7.68	45.56
		Protection/Pad Installation	0.57	4.53	1	4.72	9.26

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Site Specific Refined ROG Emissions Analysis

Assumptions:
1) ROG emissions are adjusted per heavy haul trip assumptions for each site, with no changes to passenger/vendor type vehicle emissions.
2) ROG emissions are adjusted per equipment spread for each equipment type.

	Worst-Case Onroad	Worst-Case Haul	Off-Road Case 1 Maximum	Off-Road Case 2 Maximum No Excavator	Off-Road Case 3 Maximum No Pump	Off-Road Case 4 No Off-Road
Road and Pad Grading	0.85	0.40	0.45	0.38	n/a	n/a
Protection/Pad Installation	0.42	0.12	0.27	0.12	0.15	0

Construction Site		Construction Phase	Worst-Case Haul Trip Fraction	Corrected Site On-Road ROG	Off-Road Case	Off-Road Emissions	Total ROG Emissions
1	No Name Siphon	Road and Pad Grading	0.19	0.53	2	0.38	0.90
		Protection/Pad Installation	1.29	0.46	2	0.12	0.58
2	Shavers Siphon	Road and Pad Grading	0.54	0.67	2	0.38	1.04
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
3	Cottonwood Springs Siphon	Road and Pad Grading	0.35	0.59	2	0.38	0.97
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
4	East Cottonwood No. 1 Siphon	Road and Pad Grading	1.00	0.85	1	0.45	1.30
		Protection/Pad Installation	0.14	0.32	3	0.15	0.47
5	East Cottonwood No. 2 Siphon	Road and Pad Grading	0.15	0.51	2	0.38	0.89
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
6	End Wash Siphon	Road and Pad Grading	0.42	0.62	2	0.38	1.00
		Protection/Pad Installation	0.71	0.39	2	0.12	0.51
7	Mecca No. 1 Siphon	Road and Pad Grading	0.04	0.47	2	0.38	0.84
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
8	Mecca No. 2 Siphon	Road and Pad Grading	0.31	0.57	2	0.38	0.95
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
9	Iron Ledge Siphon	Road and Pad Grading	0.38	0.60	2	0.38	0.98
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
10	East Thermal Siphon	Road and Pad Grading	0.65	0.71	2	0.38	1.09
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
11	West Thermal Siphon	Road and Pad Grading	0.08	0.48	2	0.38	0.86
		Protection/Pad Installation	1.00	0.42	2	0.12	0.54
12	East Fan Hill Siphon	Road and Pad Grading	0.04	0.47	2	0.38	0.84
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
13	Fan Hill Siphon	Road and Pad Grading	0.23	0.54	2	0.38	0.92
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
14	West Fan Hill Siphon	Road and Pad Grading	0.08	0.48	2	0.38	0.86
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
15	Thousand Palms Siphon	Road and Pad Grading	0.04	0.47	2	0.38	0.84
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
16	West Thousand Palms Siphon	Road and Pad Grading	1.62	1.09	2	0.38	1.47
		Protection/Pad Installation	0.29	0.34	1	0.27	0.61
17	East Wide Canyon Siphon	Road and Pad Grading	0.19	0.53	2	0.38	0.90
		Protection/Pad Installation	0.71	0.39	1	0.27	0.66
18	West Wide Canyon Siphon	Road and Pad Grading	0.08	0.48	2	0.38	0.86
		Protection/Pad Installation	0.14	0.32	4	0.00	0.32
19	Long Canyon Siphon	Road and Pad Grading	0.12	0.50	2	0.38	0.87
		Protection/Pad Installation	0.57	0.37	1	0.27	0.64
20	East Blind Canyon Siphon	Road and Pad Grading	1.00	0.85	1	0.45	1.30
		Protection/Pad Installation	0.29	0.34	1	0.27	0.61
21	West Blind Canyon Siphon	Road and Pad Grading	0.04	0.47	2	0.38	0.84
		Protection/Pad Installation	1.00	0.42	2	0.12	0.54
22	Little Morongo Siphon	Road and Pad Grading	0.42	0.62	2	0.38	1.00
		Protection/Pad Installation	0.86	0.41	2	0.12	0.53
23	Whitehouse Siphon	Road and Pad Grading	0.50	0.65	2	0.38	1.03
		Protection/Pad Installation	0.29	0.34	2	0.12	0.46
24	Big Morongo Siphon	Road and Pad Grading	2.31	1.37	1	0.45	1.82
		Protection/Pad Installation	0.57	0.37	1	0.27	0.64

Colorado River Aqueduct Conduit Structural Protection Project

Site Specific Refined CO Emissions Analysis

Assumptions:
1) CO emissions are adjusted per heavy haul trip assumptions for each site, with no changes to passenger/vendor type vehicle emissions.
2) CO emissions are adjusted per equipment spread for each equipment type.

	Worst-Case Onroad	Worst-Case Haul	Off-Road Case 1 Maximum	Off-Road Case 2 Maximum No Excavator	Off-Road Case 3 Maximum No Pump	Off-Road Case 4 No Off-Road
Road and Pad Grading	6.53	2.35	14.77	12.37	n/a	n/a
Protection/Pad Installation	3.40	0.69	8.85	4.06	4.79	0

Construction Site		Construction Phase	Worst-Case Haul Trip Fraction	Corrected Site On-Road CO	Off-Road Case	Off-Road Emissions	Total CO Emissions
1	No Name Siphon	Road and Pad Grading	0.19	4.63	2	12.37	17.01
		Protection/Pad Installation	1.29	3.59	2	4.06	7.65
2	Shavers Siphon	Road and Pad Grading	0.54	5.45	2	12.37	17.82
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
3	Cottonwood Springs Siphon	Road and Pad Grading	0.35	5.00	2	12.37	17.37
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
4	East Cottonwood No. 1 Siphon	Road and Pad Grading	1.00	6.53	1	14.77	21.30
		Protection/Pad Installation	0.14	2.80	3	4.79	7.60
5	East Cottonwood No. 2 Siphon	Road and Pad Grading	0.15	4.54	2	12.37	16.92
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
6	End Wash Siphon	Road and Pad Grading	0.42	5.18	2	12.37	17.55
		Protection/Pad Installation	0.71	3.20	2	4.06	7.25
7	Mecca No. 1 Siphon	Road and Pad Grading	0.04	4.27	2	12.37	16.65
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
8	Mecca No. 2 Siphon	Road and Pad Grading	0.31	4.91	2	12.37	17.28
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
9	Iron Ledge Siphon	Road and Pad Grading	0.38	5.09	2	12.37	17.46
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
10	East Thermal Siphon	Road and Pad Grading	0.65	5.72	2	12.37	18.09
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
11	West Thermal Siphon	Road and Pad Grading	0.08	4.36	2	12.37	16.74
		Protection/Pad Installation	1.00	3.40	2	4.06	7.45
12	East Fan Hill Siphon	Road and Pad Grading	0.04	4.27	2	12.37	16.65
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
13	Fan Hill Siphon	Road and Pad Grading	0.23	4.73	2	12.37	17.10
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
14	West Fan Hill Siphon	Road and Pad Grading	0.08	4.36	2	12.37	16.74
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
15	Thousand Palms Siphon	Road and Pad Grading	0.04	4.27	2	12.37	16.65
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
16	West Thousand Palms Siphon	Road and Pad Grading	1.62	7.98	2	12.37	20.35
		Protection/Pad Installation	0.29	2.90	1	8.85	11.75
17	East Wide Canyon Siphon	Road and Pad Grading	0.19	4.63	2	12.37	17.01
		Protection/Pad Installation	0.71	3.20	1	8.85	12.05
18	West Wide Canyon Siphon	Road and Pad Grading	0.08	4.36	2	12.37	16.74
		Protection/Pad Installation	0.14	2.80	4	0.00	2.80
19	Long Canyon Siphon	Road and Pad Grading	0.12	4.45	2	12.37	16.83
		Protection/Pad Installation	0.57	3.10	1	8.85	11.95
20	East Blind Canyon Siphon	Road and Pad Grading	1.00	6.53	1	14.77	21.30
		Protection/Pad Installation	0.29	2.90	1	8.85	11.75
21	West Blind Canyon Siphon	Road and Pad Grading	0.04	4.27	2	12.37	16.65
		Protection/Pad Installation	1.00	3.40	2	4.06	7.45
22	Little Morongo Siphon	Road and Pad Grading	0.42	5.18	2	12.37	17.55
		Protection/Pad Installation	0.86	3.30	2	4.06	7.35
23	Whitehouse Siphon	Road and Pad Grading	0.50	5.36	2	12.37	17.73
		Protection/Pad Installation	0.29	2.90	2	4.06	6.96
24	Big Morongo Siphon	Road and Pad Grading	2.31	9.60	1	14.77	24.37
		Protection/Pad Installation	0.57	3.10	1	8.85	11.95

Colorado River Aqueduct Conduit Structural Protection Project

Site Specific Refined SOx Emissions Analysis

Assumptions:
1) SOx emissions are adjusted per heavy haul trip assumptions for each site, with no changes to passenger/vendor type vehicle emissions.
2) SOx emissions are adjusted per equipment spread for each equipment type.

	Worst-Case Onroad	Worst-Case Haul	Off-Road Case 1 Maximum	Off-Road Case 2 Maximum No Excavator	Off-Road Case 3 Maximum No Pump	Off-Road Case 4 No Off-Road
Road and Pad Grading	0.08	0.07	0.03	0.02	n/a	n/a
Protection/Pad Installation	0.03	0.02	0.02	0.01	0.01	0

Construction Site		Construction Phase	Worst-Case Haul Trip Fraction	Corrected Site On-Road SOx	Off-Road Case	Off-Road Emissions	Total SOx Emissions
1	No Name Siphon	Road and Pad Grading	0.19	0.03	2	0.02	0.05
		Protection/Pad Installation	1.29	0.04	2	0.01	0.05
2	Shavers Siphon	Road and Pad Grading	0.54	0.05	2	0.02	0.07
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
3	Cottonwood Springs Siphon	Road and Pad Grading	0.35	0.04	2	0.02	0.06
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
4	East Cottonwood No. 1 Siphon	Road and Pad Grading	1.00	0.08	1	0.03	0.11
		Protection/Pad Installation	0.14	0.02	3	0.01	0.03
5	East Cottonwood No. 2 Siphon	Road and Pad Grading	0.15	0.02	2	0.02	0.04
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
6	End Wash Siphon	Road and Pad Grading	0.42	0.04	2	0.02	0.06
		Protection/Pad Installation	0.71	0.03	2	0.01	0.04
7	Mecca No. 1 Siphon	Road and Pad Grading	0.04	0.02	2	0.02	0.04
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
8	Mecca No. 2 Siphon	Road and Pad Grading	0.31	0.03	2	0.02	0.06
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
9	Iron Ledge Siphon	Road and Pad Grading	0.38	0.04	2	0.02	0.06
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
10	East Thermal Siphon	Road and Pad Grading	0.65	0.06	2	0.02	0.08
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
11	West Thermal Siphon	Road and Pad Grading	0.08	0.02	2	0.02	0.04
		Protection/Pad Installation	1.00	0.03	2	0.01	0.04
12	East Fan Hill Siphon	Road and Pad Grading	0.04	0.02	2	0.02	0.04
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
13	Fan Hill Siphon	Road and Pad Grading	0.23	0.03	2	0.02	0.05
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
14	West Fan Hill Siphon	Road and Pad Grading	0.08	0.02	2	0.02	0.04
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
15	Thousand Palms Siphon	Road and Pad Grading	0.04	0.02	2	0.02	0.04
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
16	West Thousand Palms Siphon	Road and Pad Grading	1.62	0.13	2	0.02	0.15
		Protection/Pad Installation	0.29	0.02	1	0.02	0.04
17	East Wide Canyon Siphon	Road and Pad Grading	0.19	0.03	2	0.02	0.05
		Protection/Pad Installation	0.71	0.03	1	0.02	0.04
18	West Wide Canyon Siphon	Road and Pad Grading	0.08	0.02	2	0.02	0.04
		Protection/Pad Installation	0.14	0.02	4	0.00	0.02
19	Long Canyon Siphon	Road and Pad Grading	0.12	0.02	2	0.02	0.04
		Protection/Pad Installation	0.57	0.03	1	0.02	0.04
20	East Blind Canyon Siphon	Road and Pad Grading	1.00	0.08	1	0.03	0.11
		Protection/Pad Installation	0.29	0.02	1	0.02	0.04
21	West Blind Canyon Siphon	Road and Pad Grading	0.04	0.02	2	0.02	0.04
		Protection/Pad Installation	1.00	0.03	2	0.01	0.04
22	Little Morongo Siphon	Road and Pad Grading	0.42	0.04	2	0.02	0.06
		Protection/Pad Installation	0.86	0.03	2	0.01	0.04
23	Whitehouse Siphon	Road and Pad Grading	0.50	0.05	2	0.02	0.07
		Protection/Pad Installation	0.29	0.02	2	0.01	0.03
24	Big Morongo Siphon	Road and Pad Grading	2.31	0.17	1	0.03	0.20
		Protection/Pad Installation	0.57	0.03	1	0.02	0.04

CRA Conduit Structural Protection Project

Salton Sea Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	20
Climate Zone	15			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CRA Project Worst Case Analysis

Land Use - Work area is 1 acre

Construction Phase - Five days of construction per siphon construction phase per MWD. The worst case siphon site, based on both equipment and amount of material export, to derive the maximum PM10 emissions is the East Cottonwood No.1 Siphon site.

Off-road Equipment - Equipment per MWD with added excavator to address export soils truck loading.

Trips and VMT - Default trip lengths revised to 40 miles per one-way trip to account for the remote site area. Additional haul trips, one trip per day, are used to account for the water truck(s) travel.

On-road Fugitive Dust - Site specific data, where ~4 miles of the 40 mile one way trip are assumed to be unpaved access for this worst case siphon site.

Grading - Exported soils per MWD. Graded acres same as site size (0.24 acres) plus unpaved road area (3.98 miles x 10 foot wide = 4.82 acres) = 5.1 acres

Construction Off-road Equipment Mitigation - Metropolitan Environmental Requirements. Tier 4 Engines and SCAQMD Rule 403/403.1 dust control requirements.

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.8572	39.0095	17.4799	0.1084	498.3274	1.0630	499.3904	52.8963	0.9805	53.8768	0.0000	11,142.0411	11,142.0411	1.0583	0.0000	11,168.4976
Maximum	**2.8572**	**39.0095**	**17.4799**	**0.1084**	**498.3274**	**1.0630**	**499.3904**	**52.8963**	**0.9805**	**53.8768**	**0.0000**	**11,142.0411**	**11,142.0411**	**1.0583**	**0.0000**	**11,168.4976**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.2992	24.7494	21.3001	0.1084	122.0261	0.1139	122.1400	13.6706	0.1106	13.7811	0.0000	11,142.0411	11,142.0411	1.0583	0.0000	11,168.4976
Maximum	**1.2992**	**24.7494**	**21.3001**	**0.1084**	**122.0261**	**0.1139**	**122.1400**	**13.6706**	**0.1106**	**13.7811**	**0.0000**	**11,142.0411**	**11,142.0411**	**1.0583**	**0.0000**	**11,168.4976**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**54.53**	**36.56**	**-21.85**	**0.00**	**75.51**	**89.29**	**75.54**	**74.16**	**88.72**	**74.42**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	4/12/2021	4/16/2021	5	5	Road and Pad Grading

Acres of Grading (Grading Phase): 5.1

Acres of Paving: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	4.00	275	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	28.00	4.00	255.00	40.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1635	0.0000	7.1635	3.4361	0.0000	3.4361			0.0000			0.0000
Off-Road	2.0078	21.9432	10.9480	0.0254		0.9906	0.9906		0.9114	0.9114		2,456.7912	2,456.7912	0.7946		2,476.6556
Total	**2.0078**	**21.9432**	**10.9480**	**0.0254**	**7.1635**	**0.9906**	**8.1542**	**3.4361**	**0.9114**	**4.3475**		**2,456.7912**	**2,456.7912**	**0.7946**		**2,476.6556**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3974	15.9119	2.3485	0.0702	301.8743	0.0636	301.9379	30.4153	0.0608	30.4761		7,377.4081	7,377.4081	0.2195		7,382.8943
Vendor	0.0332	0.8398	0.2201	4.5600e-003	23.6844	4.0400e-003	23.6884	2.3897	3.8600e-003	2.3936		477.3485	477.3485	0.0103		477.6056
Worker	0.4187	0.3147	3.9633	8.3500e-003	165.6051	4.7800e-003	165.6099	16.6552	4.4000e-003	16.6596		830.4934	830.4934	0.0340		831.3421
Total	**0.8493**	**17.0664**	**6.5318**	**0.0831**	**491.1638**	**0.0724**	**491.2362**	**49.4602**	**0.0691**	**49.5293**		**8,685.2499**	**8,685.2499**	**0.2637**		**8,691.8420**

3.2 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7938	0.0000	2.7938	1.3401	0.0000	1.3401			0.0000			0.0000
Off-Road	0.4499	7.6830	14.7682	0.0254		0.0415	0.0415		0.0415	0.0415	0.0000	2,456.791 2	2,456.791 2	0.7946		2,476.655 6
Total	**0.4499**	**7.6830**	**14.7682**	**0.0254**	**2.7938**	**0.0415**	**2.8353**	**1.3401**	**0.0415**	**1.3816**	**0.0000**	**2,456.791 2**	**2,456.791 2**	**0.7946**		**2,476.655 6**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3974	15.9119	2.3485	0.0702	73.3381	0.0636	73.4017	7.6006	0.0608	7.6615		7,377.408 1	7,377.408 1	0.2195		7,382.894 3
Vendor	0.0332	0.8398	0.2201	4.5600e-003	5.7600	4.0400e-003	5.7640	0.6003	3.8600e-003	0.6042		477.3485	477.3485	0.0103		477.6056
Worker	0.4187	0.3147	3.9633	8.3500e-003	40.1342	4.7800e-003	40.1390	4.1295	4.4000e-003	4.1339		830.4934	830.4934	0.0340		831.3421
Total	**0.8493**	**17.0664**	**6.5318**	**0.0831**	**119.2324**	**0.0724**	**119.3047**	**12.3305**	**0.0691**	**12.3996**		**8,685.249 9**	**8,685.249 9**	**0.2637**		**8,691.842 0**

CRA Conduit Structural Protection Project - Task 2 Worst-Case

Salton Sea Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	20
Climate Zone	15			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

CRA Conduit Structural Protection Project - Task 2 Worst-Case - Salton Sea Air Basin, Summer

Project Characteristics - CRA Project Worst Case Analysis - Task 2

Land Use - Work area is 1 acre

Construction Phase - Five days of construction per siphon construction phase per MWD. The worst-case of combined variables for all siphon sites, based on both equipment and number of trips/unpaved VMT to derive maximum daily NOx and PM10 emissions.

Off-road Equipment - Equipment per MWD with added excavator to address export soils truck loading.

Off-road Equipment - Per MWD

Trips and VMT - Default trip lengths revised to 40 miles per one-way trip to account for the remote site area. Additional haul trips, one trip per day, are used to account for the water truck(s) travel.

On-road Fugitive Dust - Site specific data, where ~4 miles of the 40 mile one way trip are assumed to be unpaved access for this worst case siphon site.

Grading - Exported soils per MWD. Graded acres same as site size (0.24 acres) plus unpaved road area (3.98 miles x 10 foot wide = 4.82 acres) = 5.1 acres

Construction Off-road Equipment Mitigation - Metropolitan Environmental Requirements. Tier 4 Engines and SCAQMD Rule 403/403.1 dust control requirements.

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.0664	12.2039	9.1412	0.0501	230.7869	0.2893	231.0761	23.2423	0.2813	23.5236	0.0000	5,087.6580	5,087.6580	0.4184	0.0000	5,098.1187
Maximum	**1.0664**	**12.2039**	**9.1412**	**0.0501**	**230.7869**	**0.2893**	**231.0761**	**23.2423**	**0.2813**	**23.5236**	**0.0000**	**5,087.6580**	**5,087.6580**	**0.4184**	**0.0000**	**5,098.1187**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.6905	11.2631	12.2440	0.0501	56.0239	0.0530	56.0769	5.7958	0.0516	5.8475	0.0000	5,087.6580	5,087.6580	0.4184	0.0000	5,098.1187
Maximum	**0.6905**	**11.2631**	**12.2440**	**0.0501**	**56.0239**	**0.0530**	**56.0769**	**5.7958**	**0.0516**	**5.8475**	**0.0000**	**5,087.6580**	**5,087.6580**	**0.4184**	**0.0000**	**5,098.1187**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**35.25**	**7.71**	**-33.94**	**0.00**	**75.72**	**81.67**	**75.73**	**75.06**	**81.64**	**75.14**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Protection and Pad Installation	Paving	4/12/2021	4/16/2021	5	5	

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Protection and Pad Installation	Excavators	1	8.00	275	0.38
Protection and Pad Installation	Pumps	1	8.00	84	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Protection and Pad Installation	2	16.00	8.00	75.00	40.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Protection and Pad Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6439	5.6645	5.7455	0.0155		0.2598	0.2598		0.2532	0.2532		1,488.567 5	1,488.567 5	0.3139		1,496.415 4
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6439**	**5.6645**	**5.7455**	**0.0155**		**0.2598**	**0.2598**		**0.2532**	**0.2532**		**1,488.567 5**	**1,488.567 5**	**0.3139**		**1,496.415 4**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1169	4.6800	0.6907	0.0206	88.7866	0.0187	88.8053	8.9457	0.0179	8.9636		2,169.825 9	2,169.825 9	0.0645		2,171.439 5
Vendor	0.0664	1.6796	0.4403	9.1200e-003	47.3688	8.0700e-003	47.3769	4.7794	7.7200e-003	4.7871		954.6970	954.6970	0.0206		955.2111
Worker	0.2393	0.1798	2.2647	4.7700e-003	94.6315	2.7300e-003	94.6342	9.5173	2.5100e-003	9.5198		474.5677	474.5677	0.0194		475.0526
Total	**0.4225**	**6.5394**	**3.3957**	**0.0345**	**230.7869**	**0.0295**	**230.8164**	**23.2423**	**0.0281**	**23.2705**		**3,599.090 6**	**3,599.090 6**	**0.1045**		**3,601.703 3**

3.2 Protection and Pad Installation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2680	4.7237	8.8483	0.0155		0.0235	0.0235		0.0235	0.0235	0.0000	1,488.567 5	1,488.567 5	0.3139		1,496.415 4
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2680**	**4.7237**	**8.8483**	**0.0155**		**0.0235**	**0.0235**		**0.0235**	**0.0235**	**0.0000**	**1,488.567 5**	**1,488.567 5**	**0.3139**		**1,496.415 4**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1169	4.6800	0.6907	0.0206	21.5700	0.0187	21.5887	2.2355	0.0179	2.2534		2,169.825 9	2,169.825 9	0.0645		2,171.439 5
Vendor	0.0664	1.6796	0.4403	9.1200e-003	11.5200	8.0700e-003	11.5281	1.2006	7.7200e-003	1.2083		954.6970	954.6970	0.0206		955.2111
Worker	0.2393	0.1798	2.2647	4.7700e-003	22.9339	2.7300e-003	22.9366	2.3597	2.5100e-003	2.3623		474.5677	474.5677	0.0194		475.0526
Total	**0.4225**	**6.5394**	**3.3957**	**0.0345**	**56.0239**	**0.0295**	**56.0534**	**5.7958**	**0.0281**	**5.8239**		**3,599.090 6**	**3,599.090 6**	**0.1045**		**3,601.703 3**

CRA Conduit Structural Protection Project

Salton Sea Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	20
Climate Zone	15			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CRA Project Task 1- no Excavator

Land Use - Work area is 1 acre

Construction Phase - Five days of construction per siphon construction phase per MWD. The worst case siphon site, based on both equipment and amount of material export, to derive the maximum PM10 emissions is the East Cottonwood No.1 Siphon site.

Off-road Equipment - Equipment per MWD, no excavator.

Trips and VMT - Off-road analysis only.

On-road Fugitive Dust - Site specific data, where ~4 miles of the 40 mile one way trip are assumed to be unpaved access for this worst case siphon site.

Grading - Exported soils per MWD. Graded acres same as site size (0.24 acres) plus unpaved road area (3.98 miles x 10 foot wide = 4.82 acres) = 5.1 acres

Construction Off-road Equipment Mitigation - Metropolitan Environmental Requirements. Tier 4 Engines and SCAQMD Rule 403/403.1 dust control requirements.

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.8761	20.7159	9.9456	0.0209	7.1635	0.9496	8.1131	3.4361	0.8736	4.3097	0.0000	2,024.0253	2,024.0253	0.6546	0.0000	2,040.3905
Maximum	**1.8761**	**20.7159**	**9.9456**	**0.0209**	**7.1635**	**0.9496**	**8.1131**	**3.4361**	**0.8736**	**4.3097**	**0.0000**	**2,024.0253**	**2,024.0253**	**0.6546**	**0.0000**	**2,040.3905**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.3762	6.4942	12.3723	0.0209	2.7938	0.0341	2.8279	1.3401	0.0341	1.3742	0.0000	2,024.0253	2,024.0253	0.6546	0.0000	2,040.3905
Maximum	**0.3762**	**6.4942**	**12.3723**	**0.0209**	**2.7938**	**0.0341**	**2.8279**	**1.3401**	**0.0341**	**1.3742**	**0.0000**	**2,024.0253**	**2,024.0253**	**0.6546**	**0.0000**	**2,040.3905**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**79.95**	**68.65**	**-24.40**	**0.00**	**61.00**	**96.41**	**65.14**	**61.00**	**96.10**	**68.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	4/12/2021	4/16/2021	5	5	Road and Pad Grading

Acres of Grading (Grading Phase): 5.1

Acres of Paving: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	8.00	187	0.41
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	0.00	0.00	0.00	40.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1635	0.0000	7.1635	3.4361	0.0000	3.4361			0.0000			0.0000
Off-Road	1.8761	20.7159	9.9456	0.0209		0.9496	0.9496		0.8736	0.8736		2,024.0253	2,024.0253	0.6546		2,040.3905
Total	**1.8761**	**20.7159**	**9.9456**	**0.0209**	**7.1635**	**0.9496**	**8.1131**	**3.4361**	**0.8736**	**4.3097**		**2,024.0253**	**2,024.0253**	**0.6546**		**2,040.3905**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7938	0.0000	2.7938	1.3401	0.0000	1.3401			0.0000			0.0000
Off-Road	0.3762	6.4942	12.3723	0.0209		0.0341	0.0341		0.0341	0.0341	0.0000	2,024.0253	2,024.0253	0.6546		2,040.3905
Total	**0.3762**	**6.4942**	**12.3723**	**0.0209**	**2.7938**	**0.0341**	**2.8279**	**1.3401**	**0.0341**	**1.3742**	**0.0000**	**2,024.0253**	**2,024.0253**	**0.6546**		**2,040.3905**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

CRA Conduit Structural Protection Project - Task 2 Excavator Only

Salton Sea Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization Rural

Wind Speed (m/s) 3.4

Precipitation Freq (Days) 20

Climate Zone 15

Operational Year 2022

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44

CH4 Intensity (lb/MWhr) 0.029

N2O Intensity (lb/MWhr) 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CRA Project Task 2 - Excavator Only

Land Use - Work area is 1 acre

Construction Phase - Five days of construction per siphon construction phase per MWD. The worst-case of combined variables for all siphon sites, based on both equipment and number of trips/unpaved VMT to derive maximum daily NOx and PM10 emissions.

Off-road Equipment - Equipment per MWD with added excavator to address export soils truck loading.

Off-road Equipment - For sites that only use excavators.

Trips and VMT - Off-Road emissions only.

On-road Fugitive Dust - Site specific data, where ~4 miles of the 40 mile one way trip are assumed to be unpaved access for this worst case siphon site.

Grading - Exported soils per MWD. Graded acres same as site size (0.24 acres) plus unpaved road area (3.98 miles x 10 foot wide = 4.82 acres) = 5.1 acres

Construction Off-road Equipment Mitigation - Metropolitan Environmental Requirements. Tier 4 Engines and SCAQMD Rule 403/403.1 dust control requirements.

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.2635	2.4545	2.0048	8.9400e-003	0.0000	0.0822	0.0822	0.0000	0.0756	0.0756	0.0000	865.5318	865.5318	0.2799	0.0000	872.5301
Maximum	**0.2635**	**2.4545**	**2.0048**	**8.9400e-003**	**0.0000**	**0.0822**	**0.0822**	**0.0000**	**0.0756**	**0.0756**	**0.0000**	**865.5318**	**865.5318**	**0.2799**	**0.0000**	**872.5301**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.1475	2.3776	4.7920	8.9400e-003	0.0000	0.0147	0.0147	0.0000	0.0147	0.0147	0.0000	865.5318	865.5318	0.2799	0.0000	872.5301
Maximum	**0.1475**	**2.3776**	**4.7920**	**8.9400e-003**	**0.0000**	**0.0147**	**0.0147**	**0.0000**	**0.0147**	**0.0147**	**0.0000**	**865.5318**	**865.5318**	**0.2799**	**0.0000**	**872.5301**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**44.04**	**3.13**	**-139.02**	**0.00**	**0.00**	**82.06**	**82.06**	**0.00**	**80.50**	**80.50**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Protection and Pad Installation	Paving	4/12/2021	4/16/2021	5	5	

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Protection and Pad Installation	Excavators	1	8.00	275	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Protection and Pad Installation	1	0.00	0.00	0.00	40.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Protection and Pad Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2635	2.4545	2.0048	8.9400e-003		0.0822	0.0822		0.0756	0.0756		865.5318	865.5318	0.2799		872.5301
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2635**	**2.4545**	**2.0048**	**8.9400e-003**		**0.0822**	**0.0822**		**0.0756**	**0.0756**		**865.5318**	**865.5318**	**0.2799**		**872.5301**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Protection and Pad Installation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1475	2.3776	4.7920	8.9400e-003		0.0147	0.0147		0.0147	0.0147	0.0000	865.5318	865.5318	0.2799		872.5301
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.1475**	**2.3776**	**4.7920**	**8.9400e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**	**0.0000**	**865.5318**	**865.5318**	**0.2799**		**872.5301**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

CRA Conduit Structural Protection Project - Task 2 Pump Only

Salton Sea Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	20
Climate Zone	15			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CRA Project Worst Case Analysis - Task 2

Land Use - Work area is 1 acre

Construction Phase - Five days of construction per siphon construction phase per MWD. The worst-case of combined variables for all siphon sites, based on both equipment and number of trips/unpaved VMT to derive maximum daily NOx and PM10 emissions.

Off-road Equipment - Equipment per MWD with added excavator to address export soils truck loading.

Off-road Equipment - For sites with pump only off-road equipment use.

Trips and VMT - Off-road only calculation

On-road Fugitive Dust - Site specific data, where ~4 miles of the 40 mile one way trip are assumed to be unpaved access for this worst case siphon site.

Grading - Exported soils per MWD. Graded acres same as site size (0.24 acres) plus unpaved road area (3.98 miles x 10 foot wide = 4.82 acres) = 5.1 acres

Construction Off-road Equipment Mitigation - Metropolitan Environmental Requirements. Tier 4 Engines and SCAQMD Rule 403/403.1 dust control requirements.

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.3804	3.2100	3.7406	6.5800e-003	0.0000	0.1776	0.1776	0.0000	0.1776	0.1776	0.0000	623.0357	623.0357	0.0340	0.0000	623.8853
Maximum	**0.3804**	**3.2100**	**3.7406**	**6.5800e-003**	**0.0000**	**0.1776**	**0.1776**	**0.0000**	**0.1776**	**0.1776**	**0.0000**	**623.0357**	**623.0357**	**0.0340**	**0.0000**	**623.8853**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.1206	2.3461	4.0564	6.5800e-003	0.0000	8.7700e-003	8.7700e-003	0.0000	8.7700e-003	8.7700e-003	0.0000	623.0357	623.0357	0.0340	0.0000	623.8853
Maximum	**0.1206**	**2.3461**	**4.0564**	**6.5800e-003**	**0.0000**	**8.7700e-003**	**8.7700e-003**	**0.0000**	**8.7700e-003**	**8.7700e-003**	**0.0000**	**623.0357**	**623.0357**	**0.0340**	**0.0000**	**623.8853**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**68.30**	**26.91**	**-8.44**	**0.00**	**0.00**	**95.06**	**95.06**	**0.00**	**95.06**	**95.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Protection and Pad Installation	Paving	4/12/2021	4/16/2021	5	5	

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Protection and Pad Installation	Pumps	1	8.00	84	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Protection and Pad Installation	1	0.00	0.00	0.00	40.00	40.00	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Protection and Pad Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3804	3.2100	3.7406	6.5800e-003		0.1776	0.1776		0.1776	0.1776		623.0357	623.0357	0.0340		623.8853
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3804**	**3.2100**	**3.7406**	**6.5800e-003**		**0.1776**	**0.1776**		**0.1776**	**0.1776**		**623.0357**	**623.0357**	**0.0340**		**623.8853**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Protection and Pad Installation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1206	2.3461	4.0564	6.5800e-003		8.7700e-003	8.7700e-003		8.7700e-003	8.7700e-003	0.0000	623.0357	623.0357	0.0340		623.8853
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.1206**	**2.3461**	**4.0564**	**6.5800e-003**		**8.7700e-003**	**8.7700e-003**		**8.7700e-003**	**8.7700e-003**	**0.0000**	**623.0357**	**623.0357**	**0.0340**		**623.8853**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Appendix B

Biological Resources Technical Report

BIOLOGICAL TECHNICAL REPORT

FOR

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

LOCATED NEAR THE CITIES OF DESERT HOT SPRINGS AND INDIO, UNINCOPORATED RIVERSIDE COUNTY, CALIFORNIA

Prepared For:

Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012-2944
Contact: Daniel Cardoza
Phone: (213) 217-5602
Fax: (213) 830-4591

Prepared By:

Glenn Lukos Associates, Inc.
29 Orchard
Lake Forest, California 92630
Phone: (949) 837-0404
Report Preparers: Jason Fitzgibbon, Jillian Stephens, and Zack West

October 6, 2020

INFORMATION SUMMARY

A.	**Report Date:**	October 6, 2020
B.	**Report Title:**	Biological Technical Report for the Colorado River Aqueduct Conduit Structural Protection Project
C.	**Project Location:**	Near the Cities of Desert Hot Springs and Indio, Unincorporated Riverside County, California
D.	**Owner/Applicant:**	Metropolitan Water District of Southern California 700 North Alameda Street Los Angeles, CA 90012-2944 Contact: Daniel Cardoza Phone: (213) 217-5602 Fax: (213) 830-4591 Email: dcardoza@mwdh2o.com
E.	**Principal Investigator:**	Glenn Lukos Associates, Inc. 29 Orchard Lake Forest, California 92630 Phone: (949) 837-0404 Fax: (949) 837-5834 Report Preparers: Jason Fitzgibbon, Jillian Stephens, and Zack West

G. **Individuals Conducting Fieldwork:** April Nakagawa, Chris Waterston, David Smith, Jason Fitzgibbon, Jeff Ahrens, Jillian Stephens, Kevin Livergood, Stephanie Cashin, Trina Ming, and Zack West

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1.0 INTRODUCTION

This document provides the results of general and focused biological surveys for the approximately 39.62-acre Colorado River Aqueduct (CRA) Conduit Structural Protection Project (Project) located near the Cities of Desert Hot Springs and Indio, unincorporated communities of Sky Valley and Chiriaco Summit, and additional portions of unincorporated Riverside County, California. This report identifies study methods and impacts to biological resources associated with the proposed Project for the purpose of analysis under the California Environmental Quality Act (CEQA), State and Federal regulations such as the Endangered Species Act (ESA), Clean Water Act (CWA), Porter-Cologne Water Quality Control Act (Porter-Cologne), and the California Fish and Game Code.

The scope of this report includes a discussion of existing conditions for the approximately 11.13-acre Project footprint, as well as 28.49 acres of temporary impacts associated with temporary equipment and vehicle access, which collectively are defined as all areas resulting in ground disturbance associated with the Project; all methods employed regarding the general and focused biological surveys; the documentation of botanical and wildlife resources identified (including special-status species); and an analysis of impacts to biological resources. Methods of the study include a review of relevant literature, field surveys, and a Geographical Information System (GIS)-based analysis of vegetation communities. As appropriate, this report is consistent with accepted scientific and technical standards and survey guideline requirements issued by the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), the California Native Plant Society (CNPS), and other applicable agencies/organizations. These methods were also applied to a study area buffer surrounding the Project footprint and proposed storage stockpile/sorting areas, which combined with the Project footprint are collectively referred to as the Project study area, which is 59.61 acres in size. The Project study area was developed using a 30-foot buffer surrounding the original project design; however, the proposed Project design has been revised from its original lateral extent to minimize the necessary disturbance footprint, resulting in a Project study area of an irregular width, yet encompassing all areas proposed for disturbance by the Project, including temporary impacts.

The field study focused on a number of primary objectives, including (1) general reconnaissance survey and vegetation mapping; (2) general biological surveys; (3) habitat assessments and focused surveys for special-status plant species; and (4) habitat assessments and focused surveys for special-status wildlife species. Observations of all plant and wildlife species were recorded during the general biological surveys and are included as Appendix A: Floral Compendium and Appendix B: Faunal Compendium.

1.1 Background and Need

Metropolitan is a regional water wholesaler that provides water for 26 member public agencies that provide drinking water to approximately 19 million people in parts of Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura counties. The mission of Metropolitan is to provide its service area with an adequate and reliable supply of high-quality water to meet present and future needs in an environmentally and economically responsible way. The CRA is a regional water conveyance system that consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four regulating reservoirs and 242 miles of aqueducts, siphons, canals, conduits, and pipelines terminating at Lake Mathews in Riverside County, California. Metropolitan owns, operates, and manages the CRA and is responsible for operating, maintaining, rehabilitating, and repairing its various components.

Original CRA construction occurred from 1933–1941. By 1952, the aqueduct reached full capacity and was expanded to accommodate water demands. The expansion consisted of the addition of a second siphon barrel to accommodate increased flows. While the new siphon was built to withstand higher load capacities, the original construction was not designed to accommodate loads from heavy equipment used to conduct operations and maintenance activities today, specifically the tunnel cleaning machine and the 70-ton crane required to launch and retrieve the machine. The purpose of the Project is to provide adequate heavy machinery access at 24 siphon locations on the CRA that have been identified as being susceptible to structural damage associated with heavy loading. The Project improves road access to the siphon structures and constructs protective slabs over the top of CRA wherever vulnerable crossings occur.

The eastern and western end of each siphon includes an access structure used to launch and retrieve the tunnel cleaning machine and to set large fans for fresh air circulation during cleaning or maintenance. The tunnel cleaning machine then moves away from the siphon structure through the connecting tunnel and back again. The siphons are buried underground throughout the Project area and no work is being done on the siphons themselves. The proposed Project addresses structural protection for both siphon types.

The Project would construct crushed aggregate crane operating pads (also referred to as working pads) adjacent to the access structures to ensure safe crane operations. Additionally, the existing dirt access roads to each siphon access point often require travelling over the buried aqueduct with heavy equipment. At these crossings, the 70-ton crane travelling over the buried siphon creates a risk for damaging the aqueduct. The proposed Project would protect aqueduct crossings by creating concrete pads for the crane to drive over or shift the access road off of the siphon. Additionally, the Project would improve dirt access roads leading to each siphon access point.

1.2 Project Location

The proposed Project includes 24 individual locations within unincorporated Riverside County, California, situated within Metropolitan rights-of-way (ROWs) above a buried segment of the CRA. The Project study area comprises approximately 59.61 acres near the Cities of Desert Hot Springs and Indio, unincorporated communities of Sky Valley and Chiriaco Summit, and unincorporated Riverside County, California [Exhibit 1 – Regional Map]. In general, the Project study area is bordered by undeveloped land, including private lands, Bureau of Land Management (BLM) lands, and the southern boundary of Joshua Tree National Park (JTNP) and is located within the U.S. Geological Survey (USGS) Cottonwood Basin, Cottonwood Spring, Desert Hot Springs, East Deception Canyon, Hayfield, Keys View, Seven Palms Valley, Thermal Canyon, and Whitewater, California 7.5" topographic quadrangle maps, as listed below [Exhibit 2 – Vicinity Map]:

- Cottonwood Basin (provisional edition 1988)
    - Section 3, 5, and 6, Township 6 South, Range 10 East
    - Section 36, Township 5 South, Range 9 East
- Cottonwood Spring (provisional edition 1988)
    - Sections 4, 5, and 6, Township 6 South, Range 11 East
    - Section 5, Township 6 South, Range 12 East
- Desert Hot Springs (dated 1955 and photorevised in 1972)
    - Sections 13, 14, 15, and 16, Township 2 South, Range 4 East
- East Deception Canyon (provisional edition 1988)
    - Sections 20 and 21, Township 3 South, Range 7 East
    - Sections 10 and 14, Township 3 South, Range 6 East
- Hayfield Sections (provisional edition 1987)
    - Sections 35, 36, Township 5 South, Range 12 East
    - Section 2, Township 6 South, Range 12 East
- Keys View (provisional edition 1988)
    - Section 27, Township 3 South, Range 7 East
- Seven Palms Valley (dated 1958 and photorevised in 1972)
    - Sections 5 and 6, Township 3 South, Range 6 East
    - Sections 19, 20, and 27, Township 2 South, Range 5 East
- Thermal Canyon (dated 1956 and photorevised in 1972)
    - Section 36, Township 5 South, Range 9 East

1.3 Project Description

The proposed Project includes three main activities: (1) improving the access roads near each siphon location, (2) constructing concrete aqueduct crossing protection pads, and (3) constructing crushed aggregate crane operating pads. Each siphon location and work area are shown in Figures 1-2 and 1-3. The following discusses each of these three activities in greater detail:

Access Road Improvements. Existing dirt roads provide access to each of the 24 Project siphon locations, with each siphon location containing two crane operating pads and entry points into the aqueduct. Within each site, road spurs that lead to each crane operating pad require improvement. Necessary improvements to the main dirt access roads to each site would occur to ensure safe access is maintained. These access road improvements would include, as needed:

- Realigning the road to shift structural loading off of the CRA and create direct access to each crane pad.
- Grading, widening, and realignment to better accommodate moving the crane to the pads.
- Minor unpaved road repair work, as necessary, to ensure adequate access.
- Low water crossings will be installed in instances where the improved access roads cross drainage features. The low water crossings will be designed as earthen crossings which convey storm flows across the access road with riprap energy dissipation downstream to

control and reduce erosion. The low water crossings are designed to ensure adequate water flow and sediment transport during storm events, while reducing the annual maintenance needed to maintain reliable access along the CRA.

- Small retaining walls where access to crane operating pads require slight cuts into grade.

Concrete Aqueduct Crossing Protection Slabs. The Project would construct at-grade concrete crossing slabs to protect the buried aqueduct wherever the access road crosses it and existing ground cover is insufficient. The slab is intended to "bridge" the buried aqueduct and minimize the crane load to the aqueduct itself. This is accomplished by transferring the load from the slab to the spread footings on both sides of the slab, hence underlying soil. Additionally, soft foam would be placed under the slab which would compress when the crane drives over the slab, providing a cushion against the weight of the crane. The size of the protective concrete slabs are at least 46 feet wide and 4 feet deep to provide adequate protection over the width of the CRA, though the ultimate dimensions are dependent upon site-specific constraints.

Crane Operating Pads. As described earlier, each siphon location has two crane operating pads (to launch and receive the siphon machine). Currently, when siphon cleanouts are conducted, crane operating pads are established on natural ground surface. The Project would construct crane pads of compacted aggregate base material to ensure safe and stable crane operations while maintaining necessary clearances from transition structures. The crane operating pads are generally 36 feet by 30 feet, unless site-specific constraints necessitate design modifications. The proposed crane pads would occupy similar locations as used under existing conditions.

Construction Process

The general construction process for each location consists of two main tasks, which are discussed below:

- **Grading and Excavation to Improve Access Roads and Facilitate Placement of Aqueduct Crossings and Crane Operating Pads.** Within each of the 24 siphon locations, existing unpaved access roads leading to the crane pads would be graded, widened, and realigned, as needed, using a grader or other similar type of equipment. Although these access roads are existing and routinely maintained, these improvements will be performed at locations where inadequate access exists for cranes and larger equipment. The amount of grading, widening, and realignment would vary by location.
  At aqueduct crossings and crane pad locations, pad footprints would be excavated using backhoes, excavators, or other types of excavation equipment. Each site would require import/export of soil, with these quantities identified in Appendix A. The depth of excavation would vary from approximately 6 feet for aqueduct crossing spread footings, 4 feet for aqueduct crossing slabs, and 2 feet for crane pads. Concrete aqueduct protection pads would vary in size but are expected to be approximately 46-by-108 feet or smaller at each location. The crane operating pads are generally 36 feet by 30 feet, unless site-specific constraints necessitate design modifications. Grading of crane operating pads would be completed close as possible to the final size of each operating pad.
- **Constructing Aqueduct Crossing Protection Pads**. Once the crossing footprint and spread footings have been excavated, soft foam would be placed and concrete placement would

begin. Proper bedding material would be placed on the bottom of each protection pad and footing. Concrete would be trucked in from nearby suppliers and placed/formed on the bedding. The amount of concrete poured in a single day would vary, but it is expected each pad/slab would be poured in one single day for each location associated with the proposed Project. After each pad/slab has cured and inspection completed, any adjacent lands temporarily affected by construction activities would be returned to pre-construction conditions.

- **Constructing Crane Operating Pads**. Once the crane operating pad footprints have been graded, aggregate base material placement would begin. The aggregate base material for each crane operating pad would be trucked in from nearby suppliers, placed, and compacted to provide the finished surface.

Construction Details

Construction is expected to take approximately sixteen months, starting in April 2021. Construction activities would occur between 6:00 a.m. and 5:00 p.m. Monday through Thursday. Construction equipment, necessary materials, and concrete would be trucked to each location and left overnight. Construction equipment would be moved from site-to-site as work is completed. Construction of each site would include a crew of approximately 13 persons, which includes workers, supervisors, and environmental monitors. One temporary construction trailer would likely be needed, with its location uncertain at this point but likely located at a central siphon location. A preliminary construction schedule for each site is provided in Appendix A.
No on-site concrete production would take place, with all concrete trucked to the work sites from nearby concrete plants in the City of Indio and City of Thousand Palms. Typical construction equipment types used at each work location would include backhoes, loaders, graders, dozers, excavators, concrete pumps, rollers/compactors, dump trucks, and water trucks depending on the task. Appendix A provides a detailed list of construction equipment/schedule assumptions for all sites and identifies the maximum construction site scenario for regional emissions impacts (East Cottonwood No. 2 Siphon [Work Area 5]), and the maximum construction site scenario for localized impacts (East Blind Canyon Siphon [Work Area 20]). These maximum construction scenarios are used to analyze worst-case impacts, as construction activities at all other project sites would utilize similar or identical equipment, have a similar construction schedule, but require less off-road travel for regional impacts and are located further from sensitive receptors for localized impacts.

Construction Best Management Practices

During construction, Metropolitan follows standard best management practices (BMPs) which reduce impacts and may be modified, as necessary, for the proposed Project.

Operation and Maintenance

Upon completion of the proposed Project, operation and maintenance of the CRA within the Project area would continue identical to that occurring under existing conditions. Routine aqueduct cleanouts would occur as needed. However, implementation of the Project would facilitate safe crane operations and would substantially reduce potential damage to the aqueduct from crane crossings during future aqueduct cleanouts. Furthermore, routine inspections, maintenance of access roads, periodic aqueduct water testing, and other operations and maintenance within the Project area would occur identical to that occurring under existing conditions.

2.0 METHODOLOGY

In order to adequately identify biological resources, Glenn Lukos Associates (GLA) assembled biological data consisting of three main components:

- Delineation of aquatic resources (including wetlands and riparian habitat) potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (Regional Board), and CDFW;
- Performance of vegetation mapping for the Project study area; and
- Performance of habitat assessments, and site-specific biological surveys, to evaluate the presence/absence of special-status species.

The focus of the biological surveys was determined through initial site reconnaissance, a review of the California Natural Diversity Database (CNDDB; CDFW 2019/2020), CNPS 8th edition Online Inventory (CNPS 2019/2020), Natural Resource Conservation Service (NRCS) soil data, other pertinent literature, and knowledge of the region. Site-specific general surveys within the Project study area were conducted on foot in the proposed development areas for each target plant or animal species identified below.

Vegetation was mapped directly onto a 200-scale (1"=200') aerial photograph following A Manual of California Vegetation, Second Edition or MCVII (Sawyer, Keeler-Wolf), which is the California expression of the National Vegetation Classification. All flora and fauna identified on site during vegetation mapping was included in a floral compendium (Appendix A) and faunal compendium (Appendix B) prepared for the Project. Vegetation communities not listed under the above-mentioned vegetation classification systems were named based on the dominant plant species present.

2.1 Summary of Surveys

GLA conducted biological studies in order to identify and analyze actual or potential impacts to biological resources associated with development of the Project footprint. Observations of all plant and wildlife species were recorded during each of the above mentioned survey efforts [Appendix A: Floral Compendium and Appendix B: Faunal Compendium]. The studies conducted include the following:

- Performance of vegetation mapping;
- Performance of site-specific habitat assessments and biological surveys to evaluate the potential presence/absence of special-status species (or potentially suitable habitat); and
- Delineation of aquatic resources (including wetlands and riparian habitat) potentially subject to the jurisdiction of the Corps, Regional Board, and CDFW.

Table 2-1 provides a summary list of survey dates, survey types and personnel.

Table 2-1. Summary of Biological Surveys for the Project.

Survey Type	2019 Survey Dates	2020 Survey Dates	Biologists
General Biological Surveys	4/23, 4/29, 4/30, 5/8, 5/13, 5/14, 5/20, 5/21, 5/22, 5/28, 6/4, 6/5, 6/11, 6/13, 6/17, 6/19, 7/10, 7/12, 8/12	4/21, 4/22, 4/30	AN, CW, DS, JF, JA, JS, KL, SC, TM, ZW
Focused Plant Surveys/Vegetation Mapping	4/23, 4/29, 4/30, 7/10, 8/12	4/21, 4/22, 4/30	JF, JA, JS, SC, ZW
Focused Burrowing Owl Surveys	4/23, 5/20, 5/21, 5/22, 6/11, 6/13, 6/17, 6/19, 7/10, 7/12	--	AN, DS, JF, JA, JS, KL, SC, TM, ZW
Focused Desert Tortoise Surveys	4/29, 5/8, 5/13, 5/14, 5/21, 5/22, 5/28, 6/4, 6/5	4/21, 4/22, 4/30	AN, CW, DS, JF, JA, KL, SC, TM, ZW
Jurisdictional Delineation	8/12, 8/27	--	JF, ZW

AN = April Nakagawa, CW = Chris Waterston, DS = David Smith, JF = Jason Fitzgibbon, JA = Jeff Ahrens, JS = Jillian Stephens, KL = Kevin Livergood, SC = Stephanie Cashin, TM = Trina Ming, and ZW = Zack West

Individual plants and wildlife species are evaluated in this report based on their special status. For the purpose of this report, plants were considered “special-status” based on one or more of the following criteria:

- Listing through the Federal and/or State Endangered Species Act (ESA);
- Occurrence in the CNPS Rare Plant Inventory (Rank 1A/1B, 2A/2B, 3, or 4); and/or
- Occurrence in the CNDDB inventory.

Wildlife species were considered “special-status” based on one or more of the following criteria:

- Listing through the Federal and/or State ESA; and
- Designation by the State as a Species of Special Concern (SSC) or California Fully Protected (CFP) species.

Vegetation communities and habitats were considered of special-status based on their occurrence in the CNDDB inventory and riparian habitats.

2.2 Botanical Resources

A site-specific survey program was designed to accurately document the botanical resources within the Project study area, and consisted of five components: (1) a literature search; (2) preparation of a list of target special-status plant species and sensitive vegetation communities that could occur within the Project study area; (3) general field reconnaissance surveys; (4) vegetation mapping according to MCVII; and (5) habitat assessments and focused surveys for special-status plants.

2.2.1 Literature Search

Prior to conducting fieldwork, pertinent literature on the flora of the region was examined. A thorough archival review was conducted using available literature and other historical records. These resources included the following:

- California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39) (CNPS 2019); and

- CNDDB for the USGS 7.5' quadrangles: Cottonwood Basin, Cottonwood Spring, Desert Hot Springs, East Deception Canyon, Hayfield, Keys View, Seven Palms Valley, Thermal Canyon, and Whitewater, California (CNDDB 2019).

2.2.2 Vegetation Mapping

Vegetation communities within the Project study area were mapped according to MCVII. Where necessary, deviations were made when areas did not fit into standing habitat descriptions. These vegetation communities were named based on the dominant plant species present, following the MCVII convention; therefore, do not have associated vegetation classification codes. Plant communities were mapped in the field directly onto a 200-scale (1"=200') aerial photograph. A vegetation map is included as Exhibit 4 – Vegetation Map.

2.2.3 Special-Status Plant Species and Habitats Evaluated for the Project Study Area

A literature search was conducted to obtain a list of special status plants with the potential to occur within the Project study area. The CNDDB was initially consulted to determine well-known occurrences of plants and habitats of special concern in the region. Other sources used to develop a list of target species for the survey program included the CNPS online inventory (2019).

Based on this information, vegetation profiles and a list of target sensitive plant species and habitats that could occur within the Project study area were developed and incorporated into a mapping and survey program to achieve the following goals: (1) characterize the vegetation associations and land use; (2) prepare a detailed floristic compendium; (3) identify the potential for any special status plants that may occur within the Project study area; and (4) prepare a map showing the distribution of any sensitive botanical resources associated with the Project study area, if applicable.

2.2.4 Botanical Surveys

GLA biologists Jason Fitzgibbon, Jeff Ahrens, Jillian Stephens, Stephanie Cashin, and Zack West visited the Project study area on April 23, April 29, and April 30, July 10, and August 12, 2019; and April 21, April 22, and April 30, 2020 to conduct general and focused plant surveys. Surveys were conducted in accordance with accepted botanical survey guidelines (CDFG 2009, CNPS 2001, USFWS 2000). As applicable, surveys were conducted at appropriate times based on precipitation and flowering periods. An aerial photograph, a soil map, and/or a topographic map were used to determine the community types and other physical features that may support sensitive and uncommon taxa or communities within the Project study area. Surveys were conducted by following meandering transects within target areas of suitable habitat. All plant species encountered during the field surveys were identified and recorded following the above-referenced guidelines adopted by CNPS (2010) and CDFW by Nelson (1984). A complete list of the plant species observed is provided in Appendix A. Scientific nomenclature and common names used in this report follow Baldwin et Al. (2012), and Munz (1974).

2.3 Wildlife Resources

Wildlife species were evaluated and detected during field surveys by sight, call, tracks, and scat. Site reconnaissance was conducted in such a manner as to allow inspection of the entire Project study area by direct observation, including the use of binoculars. Observations of physical evidence and direct sightings of wildlife were recorded in field notes during the visit. A complete list of wildlife species observed within the Project study area is provided in Appendix B. Scientific nomenclature and common names for vertebrate species referred to in this report follow the Complete List of Amphibian, Reptile, Bird, and Mammal Species in California (CDFG 2008), Standard Common and Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians 6th Edition, Collins and Taggert (2009) for amphibians and reptiles, and the American Ornithologists' Union Checklist 7th Edition (2009) for birds. The methodology (including any applicable survey protocols) utilized to conduct general surveys, habitat assessments, and/or focused surveys for special-status animals are included below.

2.3.1 General Surveys

Birds

During the general biological and reconnaissance surveys within the Project study area, birds were detected incidentally by direct observation and/or by vocalizations, with identifications recorded in field notes.

Mammals

During general biological and reconnaissance surveys within the Project study area, mammals were identified and detected incidentally by direct observations and/or by the presence of diagnostic sign (i.e., tracks, burrows, scat, etc.).

Reptiles and Amphibians

During general biological and reconnaissance surveys within the Project study area, reptiles and amphibians were identified incidentally during surveys. Habitats were examined for diagnostic reptile sign, which include shed skins, scat, tracks, snake prints, and lizard tail drag marks. All reptiles and amphibian species observed, as well as diagnostic sign, were recorded in field notes.

2.3.2 Special-Status Animal Species Reviewed

A literature search was conducted in order to obtain a list of special-status wildlife species with the potential to occur within the Project study area. Species were evaluated based on two factors: 1) species identified by the CNDDB as occurring (either currently or historically) on or in the vicinity of the Project study area, and 2) any other special-status animals that are known to occur within the vicinity of the Project study area, or for which potentially suitable habitat occurs within the Project study area.

2.3.3 Habitat Assessment for Special Status Animal Species

GLA biologists Jason Fitzgibbon, Jeff Ahrens, Jillian Stephens, Stephanie Cashin and Zack West conducted habitat assessments for special-status animal species on April 23, April 29, and April 30, 2019; and April 21, April 22, and April 30, 2020. An aerial photograph, soil map and/or topographic map were used to determine the community types and other physical features that may support special-status and uncommon taxa within the Project study area.

2.3.4 Focused Surveys for Special-Status Animals Species

<u>Burrowing Owl</u>

GLA biologists April Nakagawa, David Smith, Jason Fitzgibbon, Jeff Ahrens, Jillian Stephens, Kevin Livergood, Stephanie Cashin, Trina Ming, and Zack West conducted focused surveys for the burrowing owl (*Athene cunicularia*) for all suitable habitat areas within the Project study area. Surveys were conducted in accordance with survey guidelines described in the 2012 CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). The guidelines stipulate that four focused survey visits should be conducted between February 15 and July 15, with the first visit occurring between February 15 and April 15. The remaining three visits should be conducted three weeks apart from each other, with at least one visit occurring between June 15 and July 15. Focused surveys were conducted on April 23; May 20, 21, and 22; June 11, 13, and 19; and July 10 and 12, 2019. As recommended by the survey guidelines, the survey visits were generally conducted between morning civil twilight and 10:00 AM. Weather conditions during the surveys were conducive to a high level of bird activity.

Surveys were conducted by walking meandering transects throughout areas of suitable habitat. Exhibit 5 – Burrowing Owl Survey Map identifies the burrowing owl survey areas at the Project study area. Transects were spaced between 7 meters (m) and 20 m apart, adjusting for topography and vegetation height and density, in order to provide adequate visual coverage of the survey areas. At the start of each transect, and at least every 100 m along transects, the survey area was scanned for burrowing owls using binoculars. All suitable burrows were inspected for diagnostic owl sign (e.g., pellets, prey remains, whitewash, feathers, bones, and/or decoration) in order to identify potentially occupied burrows. Exhibit 5 – Burrowing Owl Survey Map provides locations of suitable burrows mapped during the transect surveys. Table 2-1 summarizes the burrowing owl survey visits. The results of the burrowing owl surveys are documented in Section 4.0 of this report.

Table 2-2. Summary of Burrowing Owl Surveys.

Survey Date	Biologist	Start/End Time	Start/End Temperature	Start/End Wind Speed (mph)	Cloud Cover
4/23/19	JF, JS, SC, ZW	6:45AM/9:50AM	72F/86F	5/9	0/0
5/20/19	AN, TM	6:30AM/10:10AM	55F/64F	2/4	0/0
5/21/19	JF, JA, KL, ZW	6:40AM/9:40AM	78F/91F	1/4	0/0
5/22/19	JF, TM, ZW	7:30AM/9:55AM	59F/73F	1/4	30/40
6/11/19	JS, TM	6:20AM/9:10AM	79F/94F	2/4	0/0
6/13/19	AN, TM	6:45AM/9:45AM	75F/86F	0/2	0/0
6/17/19	AN, TM	5:45AM/10:20AM	68F/84F	0/4	0/0
6/19/19	JF, DS	6:43AM/10:00AM	72F/87F	0/5	0/0
7/10/19	JF, JS	5:45AM/10:35AM	72F/92F	6/5	0/0
7/12/19	AN, DS	5:45AM/7:30AM	86F/90F	0/0	0/0

AN = April Nakagawa, DS = David Smith, JF = Jason Fitzgibbon, JA = Jeff Ahrens, JS = Jillian Stephens, KL = Kevin Livergood, SC = Stephanie Cashin, TM = Trina Ming, and ZW = Zack West

<u>Desert Tortoise</u>

GLA biologists Jason Fitzgibbon, Jeff Ahrens, Kevin Livergood, Stephanie Cashin, and Zack West conducted focused surveys for the desert tortoise (*Gopherus aggassizii*) for all suitable habitat areas within the Project study area. Surveys were conducted in accordance with the 2010 and 2018 USFWS Mojave Desert Tortoise Pre-project Survey Protocol, which for “small project areas” (less than 500 acres) requires 10 m wide belt transects to cover the entire Action Area, which is defined to be any lands subject to ground-disturbing activities associated with the Project, and coincides with the Project footprint for the purposes of this report [Exhibit 6 – Desert Tortoise Survey Area Map]. Also, in accordance with the Pre-project Field Survey Protocol for Potential Desert Tortoise Habitats (USFWS 2010), 200m, 400m and 600m belt transects were surveyed surrounding each discrete polygon within the Action Area. The survey guidelines limit individual biologists to surveying a maximum of 80 acres per day. The Project study area contains only 59.61 acres of suitable habitat for desert tortoise, but given the distance between discrete polygons within the Action Area and the number of associated 200m, 400m and 600m belt transects, focused protocol surveys were carried out over numerous days.

Focused surveys were conducted on April 29, May 8, May 13, May 14, May 21, May 22, May 28, June 4, and June 5, 2019; and April 21, April 22, and April 30, 2020. Pursuant to the 2010 survey guidelines, the majority of surveys were conducted during April and May (two survey visits were conducted in early June during continually favorable climatic conditions) when air temperatures were most conducive to desert tortoise activity. Air temperature was measured at 5 centimeters above ground surface, in an area of full sun, and did not exceed 102˚ F. All evidence that suggests that desert tortoise might occupy the Project study area (e.g., scat, burrows, carcasses, courtship rings, drinking depressions, etc., in addition to live tortoises with a mean carapace length of greater than 180mm) was recorded. Table 2-2 summarizes the desert tortoise survey visits.

Table 2-3. Summary of Desert Tortoise Surveys.

Survey Date	Biologist	Start/End Time	Start/End Ground Temperature	Start/End Wind Speed (mph)	Cloud Cover
4/29/19	JF, JA, SC, ZW	7:22AM/11:14AM	68F/75F	7/15	10/10
5/8/19	JF, ZW	8:47AM/3:21PM	77F/88F	0/7	0/0
5/13/19	JF, JA, ZW	7:40AM/3:19PM	78F/91F	1/4	0/0
5/14/19	KL, SC, ZW	7:30AM/11:43AM	89F/102F	0/0	0/0
5/21/19	JF, JA, KL, ZW	6:40AM/10:40AM	58F/67F	5/12	0/0
5/22/19	JF, TM, ZW	7:30AM/10:40AM	59F/73F	1/4	40/40
5/28/19	JA, ZW	7:15AM/2:50PM	83F/98F	0/6	0/0
6/4/19	JF, ZW	8:00AM/11:22AM	86F/101F	1/3	0/0
6/5/19	DS, JF	6:43AM/12:11PM	76F/98F	0/3	0/0
4/21/20	CW	10:10AM/3:20PM	74F/86F	0/4	0/0
4/22/20	CW	8:30AM/3:35PM	84F/98F	2/7	0/0
4/30/20	CW	09:10AM/3:25PM	88F/101F	1/3	90/60

2.4 Jurisdictional Delineation

The areas studied for the jurisdictional delineation were limited to specific crossing and outfall locations proposed for improvements, as identified by Metropolitan Staff. Prior to beginning the field delineation a 200-scale color aerial photograph and the previously cited USGS topographic maps were examined to determine the locations of potential areas of Corps/Regional Board/CDFW jurisdiction. Suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology. Potential wetland habitats at the Project study area were evaluated using the methodology set forth in the *U.S. Army Corps of Engineers 1987 Wetland Delineation Manual*[1] (Wetland Manual) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement (Arid West Supplement)*[2]. The presence of an Ordinary High Water Mark (OHWM) was determined using the 2008 *Field Guide to Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*[3] in conjunction with the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*.[4] While in the field the limits of the OHWM, wetlands, and CDFW

[1] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

[2] U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement (Version 2.0). Ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

[3] Lichvar, R. W., and S. M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. (http://www.crrel.usace.army.mil/library/technicalreports/ERDC-CRREL-TR-08-12.pdf).

[4] Curtis, Katherine E. and Robert Lichevar. 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ERDC/CRREL TN-10-1. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory.

jurisdiction were recorded using GPS technology and/or on copies of the aerial photography. The results of the Jurisdictional Delineation are depicted on Exhibit 7A – Corps Jurisdictional Delineation Map and Exhibit 7B – CDFW Jurisdictional Delineation Map.

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3.0 REGULATORY SETTING

The proposed Project is subject to state and federal regulations associated with a number of regulatory programs. These programs often overlap and were developed to protect natural resources, including state- and federally listed plants and animals; aquatic resources including rivers and creeks, ephemeral streambeds, wetlands, and areas of riparian habitat; other special-status species which are not listed as threatened or endangered by the state or federal governments; and other special-status vegetation communities.

3.1 State and/or Federally Listed Plants or Animals

3.1.1 State of California Endangered Species Act

California's Endangered Species Act (CESA) defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an Endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter." Any animal determined by the Fish and Game Commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened, endangered, or candidate species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for endangered species, threatened species, or candidate species for scientific, educational, or management purposes and for take incidental to otherwise lawful activities. Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance.

3.1.2 Federal Endangered Species Act

The FESA of 1973 defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to, or death of species as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a Federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

3.1.3 State and Federal Take Authorizations for Listed Species

Federal or state authorizations of impacts to or incidental take of a listed species by a private individual or other private entity would be granted in one of the following ways:

- Section 7 of the FESA stipulates that any federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. (16 U.S.C. 1536(a)(2)).
- In 1982, the FESA was amended to give private landowners the ability to develop Habitat Conservation Plans (HCP) pursuant to Section 10(a) of the FESA. Upon development of an HCP, the USFWS can issue incidental take permits for listed species where the HCP specifies at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the applicant and the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.
- Sections 2090-2097 of the CESA require that the state lead agency consult with CDFW on projects with potential impacts on state-listed species. These provisions also require CDFW to coordinate consultations with USFWS for actions involving federally listed as well as state-listed species. In certain circumstances, Section 2080.1 of the California Fish and Game Code allows CDFW to adopt the federal incidental take statement or the 10(a) permit as its own based on its findings that the federal permit adequately protects the species under state law.

3.2 California Environmental Quality Act

3.2.1 CEQA Guidelines Section 15380

CEQA requires evaluation of a project's impacts on biological resources and provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Furthermore, pursuant to the CEQA Guidelines Section 15380, CEQA provides protection for non-listed species that could potentially meet the criteria for state listing. For plants, CDFW recognizes that plants on Lists 1A, 1B, or 2 of the CNPS *Inventory of Rare and Endangered Plants in California* may meet the criteria for listing and should be considered under CEQA.

CDFW also recommends protection of plants, which are regionally important, such as locally rare species, disjunct populations of more common plants, or plants on the CNPS Lists 3 or 4.

3.2.2 Special-Status Plants, Wildlife and Vegetation Communities Evaluated Under CEQA

Federally Designated Special-Status Species

Within recent years, the USFWS instituted changes in the listing status of candidate species. Former C1 (candidate) species are now referred to simply as candidate species and represent the only candidates for listing. Former C2 species (for which the USFWS had insufficient evidence to warrant listing) and C3 species (either extinct, no longer a valid taxon or more abundant than was formerly believed) are no longer considered as candidate species. Therefore, these species are no longer maintained in list form by the USFWS, nor are they formally protected. This term is employed in this document, but carries no official protections. All references to federally protected species in this report (whether listed, proposed for listing, or candidate) include the most current published status or candidate category to which each species has been assigned by USFWS.

For this report the following acronyms are used for federal special-status species:

- FE Federally listed as Endangered
- FT Federally listed as Threatened
- FPE Federally proposed for listing as Endangered
- FPT Federally proposed for listing as Threatened
- FC Federal Candidate Species (former C1 species)
- FSC Federal Species of Concern (former C2 species)

State-Designated Special-Status Species

Some mammals and birds are protected by the state as Fully Protected (SFP) Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California SSC are designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFW's CNDDB project. Informally listed taxa are not protected, but warrant consideration in the preparation of biotic assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

For this report the following acronyms are used for State special-status species:

- SE State-listed as Endangered
- ST State-listed as Threatened
- SR State-listed as Rare
- SCE State Candidate for listing as Endangered
- SCT State Candidate for listing as Threatened
- SFP State Fully Protected
- SP State Protected

- SSC State Species of Special Concern

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. The CNPS's Eighth Edition of the *California Native Plant Society's Inventory of Rare and Endangered Plants of California* separates plants of interest into five ranks. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as threatened and endangered by CDFW. CNPS has developed five categories of rarity that are summarized in Table 3-1.

Table 3-1. CNPS Ranks 1, 2, 3, & 4, and Threat Code Extensions.

CNPS Rank	Comments
Rank 1A – Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere	Thought to be extinct in California based on a lack of observation or detection for many years.
Rank 1B – Plants Rare, Threatened, or Endangered in California and Elsewhere	Species, which are generally rare throughout their range that are also judged to be vulnerable to other threats such as declining habitat.
Rank 2A – Plants presumed Extirpated in California, But Common Elsewhere	Species that are presumed extinct in California but more common outside of California
Rank 2B – Plants Rare, Threatened or Endangered in California, But More Common Elsewhere	Species that are rare in California but more common outside of California
Rank 3 – Plants About Which More Information Is Needed (A Review List)	Species that are thought to be rare or in decline but CNPS lacks the information needed to assign to the appropriate list. In most instances, the extent of surveys for these species is not sufficient to allow CNPS to accurately assess whether these species should be assigned to a specific rank. In addition, many of the Rank 3 species have associated taxonomic problems such that the validity of their current taxonomy is unclear.
Rank 4 – Plants of Limited Distribution (A Watch List)	Species that are currently thought to be limited in distribution or range whose vulnerability or susceptibility to threat is currently low. In some cases, as noted above for Rank 3 species, CNPS lacks survey data to accurately determine status in California. Many species have been placed on Rank 4 in previous editions of the "Inventory" and have been removed as survey data has indicated that the species are more common than previously thought. CNPS recommends that species currently included on this list should be monitored to ensure that future substantial declines are minimized.
Extension	**Comments**
.1 – Seriously endangered in California	Species with over 80% of occurrences threatened and/or have a high degree and immediacy of threat.
.2 – Fairly endangered in California	Species with 20-80% of occurrences threatened.

.3 – Not very endangered in California	Species with <20% of occurrences threatened or with no current threats known.

3.3 Jurisdictional Waters

3.3.1 Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act, the Corps regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in Corps regulations at 33 CFR Part 328.3(a), pursuant to the *Navigable Waters Protection Rule*[5] (NWPR), as:

(a) Jurisdictional waters. For purposes of the Clean Water Act, 33 U.S.C. 1251 *et seq*. and its implementing regulations, subject to the exclusions in paragraph (b) of this section, the term ‘‘waters of the United States’’ means:

(1) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide;
(2) Tributaries;
(3) Lakes and ponds, and impoundments of jurisdictional waters; and
(4) Adjacent wetlands.

(b) Non-jurisdictional waters. The following are not ‘‘waters of the United States’’:

(1) Waters or water features that are not identified in paragraph (a)(1), (2), (3), or (4) of this section;
(2) Groundwater, including groundwater drained through subsurface drainage systems;
(3) Ephemeral features, including ephemeral streams, swales, gullies, rills, and pools;
(4) Diffuse stormwater run-off and directional sheet flow over upland;
(5) Ditches that are not waters identified in paragraph (a)(1) or (2) of this section, and those portions of ditches constructed in waters identified in paragraph (a)(4) of this section that do not satisfy the conditions of paragraph (c)(1) of this section;
(6) Prior converted cropland;
(7) Artificially irrigated areas, including fields flooded for agricultural production, that would revert to upland should application of irrigation water to that area cease;
(8) Artificial lakes and ponds, including water storage reservoirs and farm, irrigation, stock watering, and log cleaning ponds, constructed or excavated in upland or in non-jurisdictional waters, so long as those artificial lakes and ponds are not impoundments of jurisdictional waters that meet the conditions of paragraph (c)(6) of this section;
(9) Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
(10) Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater runoff;

[5] U.S. Environmental Protection Agency & Department of Defense. 2020. Federal Register / Vol. 85, No. 77 / Tuesday, April 21, 2020 / Rules and Regulations.

(11) Groundwater recharge, water reuse, and wastewater recycling structures, including detention, retention, and infiltration basins and ponds, constructed or excavated in upland or in non-jurisdictional waters; and
(12) Waste treatment systems.

In the absence of wetlands, the limits of Corps jurisdiction in non-tidal waters, such as intermittent streams, extend to the OHWM which is defined at 33 CFR 328.3(e) as:

> *...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

1. Wetland Definition Pursuant to Section 404 of the Clean Water Act

The term "wetlands" (a subset of "waters of the United States") is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987 the Corps published the Wetland Manual to guide its field personnel in determining jurisdictional wetland boundaries. The methodology set forth in the Wetland Manual and the Arid West Supplement generally require that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the Wetland Manual and Arid West Supplement provide great detail in methodology and allow for varying special conditions, a wetland should normally meet each of the following three criteria:

- More than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the Arid West 2016 Regional Wetland Plant List[6],[7]);

- Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and

- Whereas the Wetland Manual requires that hydrologic characteristics indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year, the Arid West Supplement does not include a quantitative criteria with the exception for areas with "problematic hydrophytic vegetation", which require a minimum of 14 days of ponding to be considered a wetland.

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[6] Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. Arid West 2016 Regional Wetland Plant List. Phytoneuron 2016-30: 1-17. Published 28 April 2016.
[7] Note the Corps also publishes a National List of Plant Species that Occur in Wetlands (Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016.); however, the Regional Wetland Plant List should be used for wetland delineations within the Arid West Region.

3.3.2 Regional Water Quality Control Board

The State Water Resource Control Board and each of its nine Regional Boards regulate the discharge of waste (dredged or fill material) into waters of the United States[8] and waters of the State. Waters of the United States are defined above in Section II.A and waters of the State are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (California Water Code 13050[e]).

Section 401 of the CWA requires certification for any federal permit or license authorizing impacts to waters of the U.S. (i.e., waters that are within federal jurisdiction), such as Section 404 of the CWA and Section 10 of the Safe Rivers and Harbors Act, to ensure that the impacts do not violate state water quality standards. When a project could impact waters outside of federal jurisdiction, the Regional Board has the authority under the Porter-Cologne Water Quality Control Act to issue Waste Discharge Requirements (WDRs) to ensure that impacts do not violate state water quality standards. Clean Water Act Section 401 Water Quality Certifications, WDRs, and waivers of WDRs are also referred to as orders or permits.

1. State Wetland Definition

The State Board Wetland Definition and Procedures define an area as wetland as follows: *An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation.*

The following wetlands are waters of the State:

1. *Natural wetlands;*
2. *Wetlands created by modification of a surface water of the state;*[9] *and*
3. *Artificial wetlands*[10] *that meet any of the following criteria:*

[8] Therefore, wetlands that meet the current definition, or any historic definition, of waters of the U.S. are waters of the state. In 2000, the State Water Resources Control Board determined that all waters of the U.S. are also waters of the state by regulation, prior to any regulatory or judicial limitations on the federal definition of waters of the U.S. (California Code or Regulations title 23, section 3831(w)). This regulation has remained in effect despite subsequent changes to the federal definition. Therefore, waters of the state includes features that have been determined by the U.S. Environmental Protection Agency (U.S. EPA) or the U.S. Army Corps of Engineers (Corps) to be “waters of the U.S.” in an approved jurisdictional determination; “waters of the U.S.” identified in an aquatic resource report verified by the Corps upon which a permitting decision was based; and features that are consistent with any current or historic final judicial interpretation of “waters of the U.S.” or any current or historic federal regulation defining “waters of the U.S.” under the federal Clean Water Act.

[9] “Created by modification of a surface water of the state” means that the wetland that is being evaluated was created by modifying an area that was a surface water of the state at the time of such modification. It does not include a wetland that is created in a location where a water of the state had existed historically, but had already been completely eliminated at some time prior to the creation of the wetland. The wetland being evaluated does not become a water of the state due solely to a diversion of water from a different water of the state.

[10] Artificial wetlands are wetlands that result from human activity.

a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
b. Specifically identified in a water quality control plan as a wetland or other water of the state;
c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):

i. Industrial or municipal wastewater treatment or disposal,
ii. Settling of sediment,
iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
iv. Treatment of surface waters,
v. Agricultural crop irrigation or stock watering,
vi. Fire suppression,
vii. Industrial processing or cooling,
viii. Active surface mining – even if the site is managed for interim wetlands functions and values,
ix. Log storage,
x. Treatment, storage, or distribution of recycled water, or
xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or
xii. Fields flooded for rice growing.[11]

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state.

[11] Fields used for the cultivation of rice (including wild rice) that have not been abandoned due to five consecutive years of non-use for the cultivation of rice (including wild rice) that are determined to be a water of the state in accordance with these Procedures shall not have beneficial use designations applied to them through the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, except as otherwise required by federal law for fields that are considered to be waters of the United States. Further, agricultural inputs legally applied to fields used for the cultivation of rice (including wild rice) shall not constitute a discharge of waste to a water of the state. Agricultural inputs that migrate to a surface water or groundwater may be considered a discharge of waste and are subject to waste discharge requirements or waivers of such requirements pursuant to the Water Board's authority to issue or waive waste discharge requirements or take other actions as applicable.

3.3.3 California Department of Fish and Wildlife

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFW defines a stream (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW also defines a stream as “a body of water that flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical or biological indicators.”

It is important to note that the Fish and Game Code defines fish and wildlife to include: all wild animals, birds, plants, fish, amphibians, invertebrates, reptiles, and related ecological communities including the habitat upon which they depend for continued viability (FGC Division 5, Chapter 1, section 45 and Division 2, Chapter 1 section 711.2(a) respectively). Furthermore, Division 2, Chapter 5, Article 6, Section 1600 et seq. of the California Fish and Game Code does not limit jurisdiction to areas defined by specific flow events, seasonal changes in water flow, or presence/absence of vegetation types or communities.

3.4 Coachella Valley Multiple Species Habitat Conservation Plan

3.4.1 MSHCP Background

The Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP; The Plan) is a comprehensive habitat conservation/planning program for the Coachella Valley and surrounding mountains in Central Riverside County. The goal of the MSHCP is to enhance and maintain biological diversity and ecosystem processes, while allowing future economic growth. The Plan aims to conserve over 240,000 acres of open space, and provides coverage (including take authorization for listed species) for 27 special-status plant and animal species, as well as provide regionally-based mitigation for impacts to special-status species and associated native habitats.

3.4.2 Relationship of the Project Study Area to the MSHCP

Although the Project study area is located within the boundaries of the CVMSHCP, the Metropolitan Water District of Southern California is not a signatory of The Plan. As such, the Project is not seeking coverage under the MSHCP. Therefore, no additional discussion of the CVMSHCP has been included in this report, with the exception of discussion of CVMSHCP Palm Springs pocket mouse modeled habitat, which during preliminary discussions, was specifically requested of Metropolitan staff by CDFW to be analyzed for the proposed Project.

4.0 RESULTS

This section provides the results of general biological surveys, vegetation mapping, habitat assessments and focused surveys for special-status plants and animals, and a jurisdictional delineation for Waters of the United States subject to the jurisdiction of the Corps and Regional Board, and streams (including riparian vegetation) and lakes subject to the jurisdiction of CDFW.

4.1 Existing Conditions

The Project study area comprises numerous discrete polygons (proposed structural improvement areas [work areas] associated with aqueduct siphons and buried infrastructure) that are situated along an approximately 58-mile alignment of the CRA as it traverses east to west through the foothills of the Little San Bernardino Mountains, from Chiriaco Summit at the east end of the Project study area, to the Desert Hot Springs at the west end. Topography within the Study Area generally slopes from the north southward from the Little San Bernardino Mountains, located at the northern end of the Study Area, which is situated within steeply walled canyons or on a series of alluvial fans that convey flows from the Little San Bernardino Mountains southward toward Interstate 10, and ultimately, to the Salton Sea. Elevations within the Project study area range from approximately 480 feet Above Mean Sea Level (AMSL) to 1,800 feet AMSL. In general, the Project study area consists of areas historically heavily impacted by the construction of the CRA, which involved substantial earth excavation and compaction associated with the sub-surface installation of the facility and supporting infrastructure, such as worker housing, materials staging and storage, and batch plants, and is encompassed by undeveloped land. Existing residential and rural residential development occurs south of the Project study area in areas within and adjacent to the City of Desert Hot Springs and unincorporated Sky Valley. East of the City of Desert Hot Springs, Joshua Tree National Park borders the Study Area immediately to the north.

Soils within the Project study area are mapped as the following association and landform types by the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS): Carrizo Complex; Carrizo Stony Sand; Carsitas Cobbly Sand; Carsitas Complex; Carsitas Fine Sand; Carsitas Gravelly Sand; Chuckwalla Very Gravelly Sandy Clay Loam; Goldehills – Bulletproof – Fanhill – Whiterobe Complex; Goldrose – Carsitas – Chemwash Complex; Gravel Pits and Dumps; Ironlung Rock Outcrop Complex; Lithic Torripsamments – Rock Outcrop Complex; Meccapass – Bulletproof – Rock Outcrop Complex; Meccapass – Jadestorm – Rock Outcrop Complex; Pintobasin Loamy Sand; Riverwash; Rizzo Association; Rizzo Complex; Rizzo Very Cobbly Coarse Sandy Loam; Rock Outcrop; Rock Outcrop – Blackeagle Complex; Rock Outcrop – Lithic Torripsamments Complex; and Rockhound Extremely Gravelly Loam [Exhibit 8 – Soils Map].

4.2 Vegetation

Sixteen different vegetation alliances/land cover types were identified within the Project study area. Table 4-1 provides a summary of vegetation alliances/land cover types, and the corresponding acreage. Detailed descriptions of each vegetation alliance/land cover type follow the table. A Vegetation Map is attached as Exhibit 4.

Table 4-1. Summary of Vegetation Alliances /Land Cover Types for the Project Study Area.

VEGETATION ALLIANCES/LAND USE TYPE	RANK	PROJECT FOOTPRINT	PROJECT FOOTPRINT (TEMPORARY)	STUDY AREA BUFFER	PROJECT STUDY AREA TOTAL
WOODLAND ALLIANCES					
***Chilopsis linearis* (Desert Willow) Woodland Alliance**					
Chilopsis linearis Woodland	**G4 S3**	0.06	0.10	0.38	0.54
***Parkinsonia florida* (Blue Palo Verde) Woodland Alliance**					
Parkinsonia florida Woodland	**G4 S4.2**	0.00	0.06	0.03	0.09
SHRUBLAND ALLIANCES					
***Ambrosia dumosa* (White Bursage Scrub) Shrubland Alliance**					
Ambrosia dumosa – Encelia farinosa	**G5 S5**	0.18	0.72	0.00	0.90
***Ambrosia salsola* (Cheesebush Scrub) Shrubland Alliance**					
Ambrosia salsola – Ambrosia dumosa	**G4 S4**	0.12	0.34	0.01	0.47
Ambrosia salsola – Hyptis emoryi	**G4 S4**	0.24	0.67	0.00	0.91
Ambrosia salsola – Encelia farinosa	**G4 S4**	3.82	7.24	13.61	24.67
Ambrosia salsola – Petalonyx thurberi	**G4 S4**	0.16	0.36	0.00	0.52
Ambrosia salsola – Psorothamnus schottii	**G4 S4**	0.04	0.16	0.00	0.20
Developed					
Developed	**NA**	3.39	7.21 (3.09 additional within Storage Stockpile/Sorting areas)	3.51	17.20
***Encelia farinosa* (Brittlebush Scrub) Shrubland Alliance**					
Encelia farinosa – Ambrosia dumosa	**G5 S4**	0.22	0.65	0.00	0.87
Encelia farinosa – Ambrosia salsola	**G5 S4**	0.50	1.22	0.67	2.39
Encelia farinosa – Peucephyllum schottii	**G5 S4**	0.31	0.85	0.77	1.93
***Larrea tridentata* (Creosote Scrub) Shrubland Alliance**					
Larrea tridentata – Ambrosia dumosa	**G5 S5**	0.05	0.23	0.27	0.55

VEGETATION ALLIANCES/LAND USE TYPE	RANK	PROJECT FOOTPRINT	PROJECT FOOTPRINT (TEMPORARY)	STUDY AREA BUFFER	PROJECT STUDY AREA TOTAL
Larrea tridentata – Ambrosia salsola	**G5 S5**	1.28	3.30	0.65	5.23
Larrea tridentata – Encelia farinosa	**G5 S5**	0.74	2.21	0.08	3.03
Lepidospartum squamatum (Scale Broom Scrub) Shrubland Alliance					
Lepidospartum squamatum	**G3 S3**	0.02	0.08	0.00	0.10
Total*		**11.13**	**28.49**	**19.98**	**59.61**

*The total may differ from the sum value each column by <0.01 acre due to rounding.

4.2.1 *Ambrosia dumosa* (White Bursage Scrub) Shrubland Alliance

A total of approximately 0.90 acre of *Ambrosia dumosa* Shrubland Alliance was mapped within the Project study area, of which, 0.18 acre occurs within the Project footprint and 0.72 acre occurs within the temporary Project footprint. The *Ambrosia dumosa* Shrubland Alliance has a G5 S5 rarity ranking, meaning that this vegetation type is demonstrably secure in both its global and California range.

The membership rules for this alliance include the following: (1) *Ambrosia dumosa* comprises less than one percent absolute cover when *L. tridentata* comprises less than one percent absolute cover; (2) *Ambrosia dumosa* comprises greater than one percent absolute cover, and other species comprise less than one percent absolute cover in the shrub canopy; (3) *Ambrosia dumosa* comprises greater than two times as much absolute cover as *Larrea tridentata*, and; (4) *Ambrosia dumosa* exceeds the cover of other subshrubs.

Ambrosia dumosa – Encelia farinosa (White Bursage-Brittle Bush Scrub) Shrubland Alliance

Approximately 0.90 acre of the Project study area (of which, 0.18 acre occurs within the Project footprint and 0.72 acre occurs within the temporary Project footprint), located at the West Blind Canyon Siphon [Work Area 21] and Whitehouse Siphon [Work Area 23], is vegetated with the *Ambrosia dumosa-Encelia farinosa* association (G5 S5). In these areas *Encelia farinosa* and *Ambrosia dumosa* are co-dominant in the shrub canopy with *Acamptopappus sphaerocephalus, Atriplex canescens, Atriplex confertifolia, Atriplex hymenelytra, Coleogyne ramosissima, Cylindropuntia acanthocarpa, Cylindropuntia bigelovii, Echinocactus polycephalus, Ephedra funerea, Fouquieria splendens, Larrea tridentata, Opuntia basilaris* and *Pleuraphis rigida*.

4.2.2 *Ambrosia salsola* (Cheesebush Scrub) Shrubland Alliance

Approximately 26.77 acres located throughout the Project study area are vegetated with *Ambrosia salsola* Shrubland Alliance, of which, 4.38 acres occur within the Project footprint and 8.77 acres occur within the temporary Project footprint. The *Ambrosia salsola* Shrubland Alliance has a G4 S4 rarity ranking, meaning that this vegetation type is apparently secure in both its global and California range.

The membership rules for the *Ambrosia salsola* Shrubland Alliance include the following: (1) *Ambrosia salsola* comprises greater than one percent absolute cover in the shrub canopy; other shrubs, if present, less than half the cover of *Ambrosia salsola* except *Hyptis emoryi* or *Salvia dorrii*, which may have higher cover; (2) *Ambrosia salsola* comprises greater than two percent absolute cover in the shrub canopy, with other shrubs less than that amount of cover in the shrub canopy; (3) *Ambrosia salsola* comprises greater than five percent absolute cover in the shrub canopy, with emergent *Hyptis emoryi* and *Psorothamnus spinosus* comprising up to three percent absolute cover; (4) *Bebbia juncea* comprises greater than 50% relative cover in the shrub canopy, or greater than 30% relative cover with *Ambrosia salsola*; (5) *Ambrosia salsola* comprises greater than 50% relative cover in the shrub canopy, or greater than 30% relative cover with *Ambrosia eriocentra, Brickellia incana, Eriogonum fasciculatum, Larrea tridentata, etc.;* (6) Shrub cover is sparse with more than 50% relative cover of *Ambrosia eriocentra* and/or *Brickellia incana*; and (7) *Brickellia incana* comprises greater than 50% relative cover in the shrub canopy, or greater than 30% relative cover with *Ambrosia salsola* or other shrubs.

The Project study area contains the following associations of the *Ambrosia salsola* Shrubland Alliance, where *Ambrosia salsola* is the dominant or co-dominant species in the shrub canopy:

Ambrosia salsola – Ambrosia dumosa (Cheesebush – White Bursage series) Shrubland Alliance

Approximately 0.48 acre of the Project study area (of which, 0.12 acre occurs within the Project footprint and 0.34 acre occurs within the temporary Project footprint) located within Shavers Siphon [Work Area 2] and East Wide Canyon Siphon [Work Area 17] is vegetated with the *Ambrosia salsola – Ambrosia dumosa* association (G4 S4). In these areas *Ambrosia salsola* and *Ambrosia dumosa* are co-dominant in the shrub canopy with *Cylindropuntia echinocarpa, Encelia farinosa, Ephedra californica, Ericameria paniculata, Eriogonum fasciculatum, Gutierrezia microcephala, Krameria grayi, Larrea tridentata, Opuntia basilaris, Petalonyx thurberi, Peucephyllum schottii, Pholisma arenarium, Salazaria mexicana, Salvia dorrii* and *Sphaeralcea ambigua*. In adjacent areas some emergent trees and tall shrubs are present at low cover, including *Chilopsis linearis, Hyptis emoryi, Olneya tesota, Parkinsonia florida, Psorothamnus spinosus* or *Senegalia greggii.*

Ambrosia salsola – Hyptis emoryi (Cheesebush – Desert Lavender Series) Shrubland Alliance

Approximately 0.91 acre of the Project study area (of which, 0.24 acre occurs within the Project footprint and 0.67 acre occurs within the temporary Project footprint) located within West Thousand Palms Siphon [Work Area 16] is vegetated with the *Ambrosia salsola – Hyptis emoryi* association (G4 S4). In this area *Ambrosia salsola* and *Hyptis emoryi* are co-dominant in the shrub canopy with *Cylindropuntia echinocarpa, Encelia farinosa, Ephedra californica, Ericameria paniculata, Eriogonum fasciculatum, Gutierrezia microcephala, Krameria grayi, Larrea tridentata, Opuntia basilaris, Petalonyx thurberi, Peucephyllum schottii, Pholisma arenarium, Salazaria mexicana, Salvia dorrii* and *Sphaeralcea ambigua*. In adjacent areas some emergent trees and tall shrubs are present at low cover, including *Chilopsis linearis, Olneya tesota, Parkinsonia florida, Psorothamnus spinosus* or *Senegalia greggii.*

Ambrosia salsola – Encelia farinosa **(Cheesebush – Brittlebush Series) Shrubland Alliance**

Approximately 24.66 acres of the Project study area (of which, 3.82 acres occurs within the Project footprint and 7.24 acres occur within the temporary Project footprint) located within the Cottonwood Springs Siphon [Work Area 3], East Cottonwood No.2 Siphon [Work Area 5], End Wash Siphon [Work Area 6], East Fan Hill Siphon [Work Area 12], Fan Hill Siphon [Work Area 13], West Fan Hill Siphon [Work Area 14], , East Wide Canyon Siphon [Work Area 17, West Wide Canyon Siphon [Work Area 18], and Big Morongo Siphon [Work Area 24] are vegetated with the *Ambrosia salsola – Encelia farinosa* association (G4 S4). In these areas *Ambrosia salsola* and *Encelia farinosa* are co-dominant in the shrub canopy with *Cylindropuntia echinocarpa, Ephedra californica, Ericameria paniculata, Eriogonum fasciculatum, Gutierrezia microcephala, Hyptis emoryi, Krameria grayi, Larrea tridentata, Opuntia basilaris, Petalonyx thurberi, Peucephyllum schottii, Pholisma arenarium, Salazaria mexicana, Salvia dorrii* and *Sphaeralcea ambigua*. In adjacent areas some emergent trees and tall shrubs are present at low cover, including *Chilopsis linearis*, *Hyptis emoryi*, *Olneya tesota, Parkinsonia florida, Psorothamnus spinosus* or *Senegalia greggii.*

Ambrosia salsola – Petalonyx thurberi **(Cheesebush – Sandpaper Plant Series) Shrubland Alliance**

Approximately 0.52 acre of the Project study area (of which, 0.16 acre occurs within the Project footprint and 0.36 acre occurs within the temporary Project footprint) located within West Fan Hill Siphon [Work Area 14] is vegetated with the *Ambrosia salsola – Petalonyx thurberi* association (G4 S4). In these areas *Ambrosia salsola* and *Petalonyx thurberi* are co-dominant in the shrub canopy with *Cylindropuntia echinocarpa, Ephedra californica, Ericameria paniculata, Encelia farinosa, Eriogonum fasciculatum, Gutierrezia microcephala, Hyptis emoryi, Krameria grayi, Larrea tridentata, Opuntia basilaris, Peucephyllum schottii, Pholisma arenarium, Salazaria mexicana, Salvia dorrii* and *Sphaeralcea ambigua*. In adjacent areas some emergent trees and tall shrubs are present at low cover, including *Chilopsis linearis, Hyptis emoryi, Olneya tesota*, *Parkinsonia florida*, *Psorothamnus spinosus* or *Senegalia greggii.*

Ambrosia salsola – Psorothamnus schottii **(Cheesebush – Indigo Bush Series) Shrubland Alliance**

Approximately 0.20 acre of the Project study area (of which, 0.04 acre occurs within the Project footprint and 0.16 acre occurs within the temporary Project footprint) located within East Fan Hill Siphon [Work Area 12] is vegetated with the *Ambrosia salsola – Psorothamnus schottii* association (G4 S4), where *Ambrosia salsola* and *Psorothamnus schottii* are co-dominant in the shrub canopy with *Cylindropuntia echinocarpa, Ephedra californica, Ericameria paniculata, Encelia farinosa, Eriogonum fasciculatum, Gutierrezia microcephala, Hyptis emoryi, Krameria grayi, Larrea tridentata, Opuntia basilaris, Peucephyllum schottii, Pholisma arenarium, Salazaria mexicana*, *Salvia dorrii* and *Sphaeralcea ambigua*. In adjacent areas some emergent trees and tall shrubs are present at low cover, including *Chilopsis linearis, Hyptis emoryi, Olneya tesota, Petalonyx thurberi, Parkinsonia florida, Psorothamnus spinosus* or *Senegalia greggii.*

4.2.3 *Chilopsis linearis* (Desert Willow) Woodland

Approximately 0.54 acre of the Project study area (of which, 0.06 acre occurs within the Project footprint and 0.10 acre occurs within the temporary Project footprint) located in Big Morongo Siphon [Work Area 24] is vegetated with *Chilopsis linearis* Woodland alliance. The *Chilopsis linearis* Woodland alliance has a G4 S3 rarity ranking, meaning that this vegetation type is apparently secure in its global range, but is vulnerable in its California range.

The membership rules for the *Chilopsis linearis* Woodland alliance include the following: (1) *Chilopsis linearis* comprises greater than two percent absolute cover as a small tree or tall shrub canopy; with greater than 50% relative cover in the tall shrub or small tree canopy; or (2) *Psorothamnus spinosus* comprises greater than two percent absolute cover in the small tree or tall shrub canopy and dominant in the overstory; smaller shrubs such as *Ambrosia salsola* or *Larrea tridentata* may have up to two times the cover of the *Psorothamnus*.

The Project study area contains the following associations of the *Chilopsis linearis* Woodland alliance, where *Chilopsis linearis* is the dominant or co-dominant species in the small tree or tall shrub canopy:

***Chilopsis linearis* Woodland**

Approximately 0.54 acre of the Project study area (of which, 0.06 acre occurs within the Project footprint and 0.10 acre occurs within the temporary Project footprint) located within Big Morongo Siphon [Work Area 24] is vegetated with *Chilopsis linearis* Woodland association (G4 S3). In these areas *Chilopsis linearis* is dominant in the small tree and tall shrub canopy with *Psorothamnus spinosus* and *Parkinsonia florida*. Shrubs present include *Ambrosia dumosa, Ambrosia salsola, Atriplex polycarpa, Bebbia juncea, Brickellia incana, Cylindropuntia acanthocarpa, Ericameria paniculata, Eriogonum fasciculatum, Larrea tridentata, Senecio flaccidus, Senegalia greggii,* and *Stephanomeria pauciflora.*

4.2.4 Developed

Approximately 17.20 acres of the Project study area, of which 3.39 acres occurs within the Project footprint and 10.3 acres (including 3.09 acres within the storage stockpile/sorting areas) occur within the temporary Project footprint, are comprised of developed areas and are located throughout. These areas are characterized by a general lack of vegetation due to regular intervals of disturbance or maintenance and soil compaction. The majority of developed areas within the Project study area consist of graded access roads, siphons and existing structures, and surrounding regularly maintained areas associated with the CRA system.

4.2.5 *Encelia farinosa* (Brittlebush Scrub) Shrubland Alliance

Approximately 5.19 acres of the Project study area (of which, 1.03 acres occur within the Project footprint and 2.72 acres occur within the temporary Project footprint) located at No Name Siphon [Work Area 1], West Thermal Siphon [Work Area 11], West Thousand Palms Siphon [Work Area 16], East Wide Canyon Siphon [Work Area 17], and Little Morongo Siphon [Work Area 22] are vegetated with *Encelia farinosa* Shrubland Alliance. The *Encelia farinosa* Shrubland Alliance has a G5 S4 rarity ranking, meaning that this vegetation type is demonstrably secure in its global range, and apparently secure in its California range.

The membership rules for the *Encelia farinosa* Shrubland Alliance include the following: (1) *Encelia farinosa* comprises greater than one percent absolute cover in the shrub canopy and with greater cover than other woody species; (2) *Encelia farinosa* comprises greater than 50% relative cover, or greater than 30% with *Ambrosia dumosa* in the shrub canopy; or (3) *Encelia farinosa* comprises greater than 50% relative cover, or greater than 30% with *Artemisia californica* in the shrub canopy.

The Project study area contains the following associations of the *Encelia farinosa* Shrubland Alliance, where *Encelia farinosa* is the dominant or co-dominant species in the shrub canopy:

***Encelia farinosa – Ambrosia dumosa* (Brittlebush – White Bursage Scrub) Shrubland Alliance**

Approximately 0.87 acre of the Project study area (of which, 0.22 acre occurs within the Project footprint and 0.65 acre occurs within the temporary Project footprint) located within East Wide Canyon Siphon [Work Area 17] and East Blind Canyon Siphon [Work Area 20] is vegetated with the *Encelia farinosa – Ambrosia dumosa* association (G5 S4). In these areas *Encelia farinosa* and *Ambrosia dumosa* are co-dominant in the shrub canopy with *Ambrosia salsola, Petalonyx thurberi, Cylindropuntia bigelovii, Echinocereus engelmannii, Ferocactus cylindraceus, Mirabilis laevis* and *Salvia apiana*. In some adjacent areas emergent trees and tall shrubs are present at low cover, including *Fouquieria splendens*.

***Encelia farinosa – Ambrosia salsola* (Brittlebush – Cheesebush Scrub) Shrubland Alliance**

Approximately 2.39 acres of the Project study area (of which, 0.50 acre occurs within the Project footprint and 1.22 acres occur within the temporary Project footprint) located within No Name Siphon [Work Area 1], West Thermal Siphon [Work Area 11], West Thousand Palms Siphon [Work Area 16], and Little Morongo Siphon Work Area 22] are vegetated with the *Encelia farinosa – Ambrosia salsola* association (G5 S4). In these areas *Encelia farinosa* and *Ambrosia salsola* are co-dominant in the shrub canopy with *Ambrosia dumosa, Petalonyx thurberi, Cylindropuntia bigelovii, Echinocereus engelmannii, Ferocactus cylindraceus, Mirabilis laevis* and *Salvia apiana*. In some adjacent areas emergent trees and tall shrubs are present at low cover, including *Fouquieria splendens*.

***Encelia farinosa – Peucephyllum schottii* (Brittlebush – Schott's Pygmy Cedar Scrub) Shrubland Alliance**

Approximately 1.93 acres of the Project study area (of which, 0.31 acre occurs within the Project footprint and 0.85 acre occurs within the temporary Project footprint) located within East Cottonwood No. 1 Siphon [Work Area 4] and Little Morongo Siphon [Work Area 22] are vegetated with the *Encelia farinosa – Peucephyllum schottii* association (G5 S4). In these areas *Encelia farinosa* and *Peucephyllum schottii* are co-dominant in the shrub canopy with *Ambrosia dumosa, Ambrosia salsola, Hyptis emoryi, Fagonia laevis,* and *Larrea tridentata.* When present, the herbaceous layer is typically sparse, and composed of *Eriogonum inflatum* and other annuals.

4.2.6 *Larrea tridentata* (Creosote Bush Scrub) Shrubland Alliance

Approximately 8.81 acres of the Project study area (2.07 acres of which occur within the Project footprint and 2.21 acres occurs within the temporary Project footprint) are vegetated with the *Larrea tridentata* Shrubland Alliance and are located throughout. The *Larrea tridentata* Shrubland Alliance has a G5 S5 rarity ranking, meaning that this vegetation type is demonstrably secure in both its global and California range.

The membership rules for the *Larrea tridentata* Shrubland Alliance include the following: (1) *Ambrosia dumosa* or *Encelia farinosa* is absent or comprises less than 1% cover, if present; (2) No shrub with cover greater than *Larrea tridentata* with the following exceptions: *Acamptopappus sphaerocephalus*, *Bebbia juncea*, *Ericameria teretifolia*, or *Krameria* spp. *Ephedra nevadensis* or *Cylindropuntia acanthocarpa* may have higher cover, but no more than two times the cover of *Larrea tridentata*; (3) *Larrea tridentata* exceeds other shrubs in cover, and if *Ambrosia dumosa* or *Encelia farinosa* are present, their cover is less than three times the cover of *Larrea tridentata*, or if *Ambrosia dumosa* is present, it is less than two times the cover of *Larrea tridentata*.

The Project study area contains the following associations of the *Larrea tridentata* Shrubland Alliance, where *Larrea tridentata* is the dominant or co-dominant species in the shrub canopy:

***Larrea tridentata – Ambrosia dumosa* (Creosote Bush - White Bursage Series) Shrubland Alliance**

Approximately 0.55 acre of the Project study area (of which, 0.05 acre occurs within the Project footprint and 0.23 acre occurs within the temporary Project footprint) located within West Thermal Siphon [Work Area 11] and East Blind Canyon Siphon [Work Area 20] is vegetated with the *Larrea tridentata-Ambrosia dumosa* association (G5 S5). In these areas *Ambrosia dumosa* and *Larrea tridentata* are co-dominant in the shrub canopy with *Ambrosia salsola, Atriplex confertifolia, Atriplex hymenelytra, Atriplex polycarpa, Bebbia juncea, Cylindropuntia acanthocarpa, Cylindropuntia ramosissima, Dalea mollissima, Echinocactus polycephalus, Encelia farinosa, Ephedra* spp., *Eriogonum fasciculatum, Krameria* spp., *Psorothamnus* spp., *Salazaria mexicana,* and *Senna armata.*

***Larrea tridentata – Ambrosia salsola* (Creosote Bush-Cheesebush Series) Shrubland Alliance**

Approximately 5.23 acres of the Project study area (of which, 1.28 acres occur within the Project footprint and 3.30 acres occur within the temporary Project footprint) located within Shavers Siphon [Work Area 2], Cottonwood Springs Siphon [Work Area 3], Mecca No. 1 Siphon [Work Area 7], Iron Ledge Siphon [Work Area 9], Fan Hill Siphon [Work Area 13], Long Canyon Siphon [Work Area 19], West Blind Canyon Siphon [Work Area 21], Whitehouse Siphon [Work Area 23], and Big Morongo Canyon Siphon [Work Area 24] are vegetated with the *Larrea tridentata-Ambrosia salsola* association (G5 S5). In these areas *Ambrosia salsola* and *Larrea tridentata* are co-dominant in the shrub canopy with *Ambrosia dumosa, Atriplex confertifolia, Atriplex hymenelytra, Atriplex polycarpa, Bebbia juncea, Cylindropuntia acanthocarpa, Cylindropuntia ramosissima, Dalea mollissima, Echinocactus polycephalus, Encelia farinosa, Ephedra* spp., *Eriogonum fasciculatum, Krameria* spp., *Psorothamnus* spp., *Salazaria mexicana,* and *Senna armata.*

***Larrea tridentata – Encelia farinosa* (Creosote Bush - Brittlebush Series) Shrubland Alliance**

Approximately 3.03 acres of the Project study area (0.74 acre of which occurs within the Project footprint and 2,21 acres occur within the temporary Project footprint) located within End Wash Siphon [Work Area 6], Mecca No. 2 Siphon [Work Area 8], Iron Ledge Siphon [Work Area 9], East Thermal Siphon [Work Area 10], Thousand Palms Siphon [Work Area 15], and East Blind Canyon Siphon [Work Area 20] are vegetated with the *Larrea tridentata-Encelia farinosa* association (G5 S4). In these areas *Encelia farinosa* and *Larrea tridentata* are co-dominant in the shrub canopy with *Agave deserti, Ambrosia dumosa, Atriplex hymenelytra, Bebbia juncea, Cylindropuntia bigelovii, Dasyochloa pulchella, Eriogonum inflatum, Fagonia laevis, Ferocactus cylindraceus, Krameria grayi, Opuntia basilaris* and *Stephanomeria pauciflora*. In some areas emergent trees and tall shrubs are present at low cover, including *Fouquieria splendens*.

4.2.7 *Lepidospartum squamatum* (Scale Broom Scrub) Shrubland Alliance

Approximately 0.10 acre of the Project study area (of which, 0.02 acre occurs within the Project footprint and 0.08 acre occurs within the temporary Project footprint), located within Whitehouse Siphon [Work Area 23], is vegetated with the *Lepidospartum squamatum* Shrubland Alliance. The *Lepidospartum squamatum* Shrubland Alliance has a G3 S3 rarity ranking, meaning that this vegetation type is vulnerable in both its global and California range.

The membership rules for the *Lepidospartum squamatum* Shrubland Alliance include the following: (1) *Lepidospartum squamatum* comprises greater than one percent absolute cover in all alluvial environments.

The Project study area contains the following associations of the creosote bush scrub shrubland alliance, where *Larrea tridentata* is the dominant or co-dominant species in the shrub canopy:

***Lepidospartum squamatum* Shrubland Alliance**

Approximately 0.10 acre of the Project study area (of which, 0.02 acre occurs within the Project footprint and 0.08 acre occurs within the temporary Project footprint), located within Whitehouse Siphon [Work Area 23], is vegetated with the *Lepidospartum squamatum* association (G3 S3), where *Lepidospartum squamatum* is dominant in the shrub canopy with *Ambrosia dumosa, Ambrosia salsola, Bebbia juncea, Petalonyx thurberi, Encelia farinose,* and *Peritoma arborea.*

4.2.8 *Parkinsonia florida* (Blue Palo Verde) Woodland

Approximately 0.09 acre of the Project study area (of which, none occurs within the Project footprint and 0.06 acre occurs within the temporary Project footprint), located within East Cottonwood No. 2 Siphon [Work Area 5], is vegetated with the *Parkinsonia florida* Woodland alliance. The *Parkinsonia florida* Woodland alliance has a G4 S4.2 rarity ranking, meaning that this vegetation type is apparently secure in both is global and California range.

The membership rules for the *Parkinsonia florida* Woodland alliance include the following: (1) *Olneya tesota* and/or *Parkinsonia florida* comprise greater than two percent absolute cover in the tree canopy together or on their own; and associated species may be similar in cover to ironwood and/or blue palo verde; (2) *Parkinsonia florida* comprises greater than three percent absolute cover in the tree canopy, exceeding other tall shrubs or trees.

The Project study area contains the following associations of the *Parkinsonia florida* Woodland alliance, where *Parkinsonia florida* is the dominant or co-dominant species in the tree canopy:

***Parkinsonia florida* Woodland**

Approximately 0.09 acre of the Project study area (of which, none occurs within the Project footprint and 0.06 acre occurs within the temporary Project footprint), located within East Cottonwood No. 2 Siphon [Work Area 5], is vegetated with the *Parkinsonia florida* association (G4 S4.2). In these areas *Parkinsonia florida* is dominant or co-dominant with *Olneya tesota* in the tree canopy with *Fouquieria splendens, Prosopis glandulosa, Prosopis pubescens and Psorothamnus spinosus*. In adjacent areas shrubs are present and *include Ambrosia dumosa, Ambrosia salsola, Bebbia juncea, Calliandra eriophylla, Colubrina californica, Cylindropuntia echinocarpa, Encelia farinosa, Ferocactus cylindraceus, Hyptis emoryi, Justicia californica, Larrea tridentata, Lycium andersonii,* and *Senegalia greggii*.

4.3 <u>Wildlife</u>

A total of 88 species, including reptiles, birds, and mammals were recorded for the Project study area. Reptiles observed include the desert whiptail (*Aspidoscelis uniparens*), desert iguana (*Dipsosaurus dorsalis*), desert tortoise (*Gopherus aggassizii*), Western zebra-tailed lizard (*Callisaurus draconoides rhodostictus*), common side-blotched lizard (*Uta stansburiana elegans*), speckled rattlesnake (*Crotalus mitchellii pyrrhus*), red racer (*Colubrus flagellum piceus*), desert patch-nosed snake (*Salvadora hexalepis hexalepis*), desert spiny lizard (*Sceloporus magister*), desert horned lizard (*Phrynosoma platyrhinos*), common side-blotched lizard (*Uta stanisburiana*), Great Basin fence lizard (*Sceloporus occidentalis longipes*), and chuckwalla (*Sauromalus ater*).

The following birds were observed during general and focused biological surveys conducted within the Project study area: Green-tailed towhee (*Pipilo chlorurus*), northern mockingbird (*Mimus polyglottos*), Gambel's quail (*Callipepla gambelii*), phainopepla (*Phainopepla nitens*), loggerhead shrike (*Lanius ludovicianus*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corvax*), greater roadrunner (*Geococcyx californianus*), horned lark (*Eremophila alpestris*), sagebrush sparrow (*Artemisiospiza nevadensis*), black-throated sparrow (*Amphispiza bilineata*), lark sparrow (*Chondestes grammacus*), verdin (*Auriparus flaviceps*), lesser nighthawk (*Chordeiles acutipennis*), ash-throated flycatcher (*Myiarchus cinerascens*), western wood-pewee (*Contopus sordidulus*), Pacific slope flycatcher (*Empidonax difficilus*), western kingbird (*Tyrannus verticalis*), Cassin's kingbird (*Tyrannus vociferans*), Say's phoebe (*Sayornis saya*), black phoebe (*Sayornis nigricans*), black-tailed gnatcatcher (*Polioptila melanura*), cactus wren (*Campylorhynchus bunneicapillus*), rock wren (*Salpinctes obsoletus*), canyon wren (*Catherpes mexicanus*), Bewick's wren (*Thryomanes bewickii*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), white-winged dove (*Zenaida asiatica*), Eurasian collared-dove (*Streptopelia decaocto*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), burrowing owl (*Athene cunicularia*), lesser goldfinch (*Spinus psaltria*), Cassin's finch (*Haemorhous cassinii*), house finch (*Haemorhous mexicanus*), western tanager (*Piranga ludoviciana*), black-headed grosbeak (*Pheucticus melanocephalus*), Wilson's warbler (*Cardellina pusilla*), Townsend's warbler (*Setophaga townsendi*), orange-crowned warbler (*Leiothlypis celata*), Cape May warbler (*Setophaga tigrina*), white-throated swift (*Aeronautes saxatalis*), barn swallow (*Hirundo rustica*), black-chinned hummingbird (*Archilochus alexandri*), Anna's hummingbird (*Calypte anna*), Costa's hummingbird (*Calypte costae*), Scott's oriole (*Icterus parisorum*), and Bullock's oriole (*Icterus bullockii*).

Mammals were detected by direct observation or by evidence of sign (scat, tracks, burrows, etc.) during general and focused biological surveys conducted within the Project study area. Species detected included desert black-tailed jackrabbit (*Lepus californicus deserticola*), desert woodrat (*Neotoma lepida*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), desert cottontail (*Sylvilagus audubonii arizonae*), white-tailed antelope ground squirrel (*Ammospermophilus leucurus leucurus*), California ground squirrel (*Otospermophilus beecheyi*), desert kit fox (*Vulpes macrotis arsipus*), gray fox (*Urocyon cinereoargenteus scottii*), California mountain lion (*Puma concolor californica*), desert bighorn (*Ovis canadensis nelsoni*), southern mule deer (*Odocoileus hemionus fuliginatus*), and domestic dog (*Canis domesticus*).

4.4 Special-Status Vegetation Communities (Habitats)

The CNDDB identifies the following special-status vegetation community for the Cottonwood Basin, Cottonwood Spring, Desert Hot Springs, East Deception Canyon, Hayfield, Keys View, Seven Palms Valley, and Thermal Canyon quadrangle maps: Desert Fan Palm (*Washingtonia filifera*) Oasis Woodland. Desert Fan Palm Oasis does not occur within the Project study area; however, two special-status vegetation types not identified by the CNDDB for the aforementioned quads are present: *Chilopsis linearis* Woodland and *Parkinsonia florida* Woodland, which are both considered special-status due to their desert riparian association.

4.5 Special-Status Plants

No special-status plants were detected within the Project study area. Table 4-2 provides a list of special-status plants evaluated for the Project through general biological surveys, habitat assessments, and focused surveys. Species were evaluated based on the following factors: 1) species identified by the CNDDB and CNPS as occurring (either currently or historically) on or in the vicinity of the Study Area, and 2) any other special-status plants that are known to occur within the vicinity of the Study Area, or for which potentially suitable habitat occurs within the Study Area.

Table 4-2. Special-Status Plants Evaluated for the Project Study Area

Federal	**State**
FE – Federally Endangered	SE – State Endangered
FT – Federally Threatened	ST – State Threatened

CNPS Rare Plant Rank
Rank 1B – Plants rare, threatened, or endangered in California and elsewhere.
Rank 2 – Plants rare, threatened, or endangered in California, but more common elsewhere.
Rank 3 – Plants about which more information is needed.
Rank 4 – Plants of limited distribution (a watch list).

CNPS Threat Rank Extensions
.1 – Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened, or no current threats known)

Occurrence
- Does not occur – The Project study area does not contain habitat for the species and/or the Project study area does not occur within the geographic range of the species.
- Confirmed absent – The Project study area contains suitable habitat for the species, but the species has been confirmed absent through focused surveys.
- Not expected to occur – The species is not expected to occur on site due to low habitat quality, however absence cannot be ruled out.
- Potential to occur – The species has a potential to occur based on suitable habitat, however its presence/absence has not been confirmed.
- Confirmed present – The species was detected on site incidentally or through focused surveys.

Species Name	Status	Habitat Requirements	Potential for Occurrence
Abrams' spurge *Euphorbia abramsiana*	Federal: None State: None CNPS: Rank 2B.2	Sandy soils in Mojavean desert scrub and Sonoran desert scrub.	Confirmed absent.
Arizona spurge *Euphorbia arizonica*	Federal: None State: None CNPS: Rank 2B.3	Sandy Sonoran desert scrub.	Confirmed absent.
Beautiful hulsea *Hulsea vestita ssp. callicarpha*	Federal: None State: None CNPS: Rank 4.2	Rocky or gravelly soils (granitic) in chaparral and lower montane coniferous forest.	Does not occur.
Booth's evening-primrose *Eremothera boothii* ssp. *boothii*	Federal: None State: None CNPS: Rank 2B.3	Joshua tree woodland and pinyon and juniper woodland.	Does not occur.
California ayenia *Ayenia compacta*	Federal: None State: None CNPS: Rank 2B.3	Rocky soils in Mojavean desert scrub and Sonoran desert scrub.	Confirmed absent.
California ditaxis *Ditaxis serrata* var. *californica*	Federal: None State: None CNPS: Rank 3.2	Sonoran desert scrub.	Confirmed absent.
California muhly *Muhlenbergia californica*	Federal: None State: None CNPS: Rank 4.3	Mesic habitats, including seeps and streambanks, in chaparral, coastal scrub, lower montane coniferous forest, and meadows.	Does not occur.
California satintail *Imperata brevifolia*	Federal: None State: None CNPS: Rank 2B.1	Mesic soils in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), and riparian scrub.	Does not occur.
Chaparral sand-verbena *Abronia villosa* var. *aurita*	Federal: None State: None CNPS: Rank 1B.1	Sandy soils in chaparral, coastal sage scrub.	Confirmed absent.
Cliff spurge *Euphorbia misera*	Federal: None State: None CNPS: Rank 2B.2	Coastal bluff scrub and coastal sage scrub. Occurring on rocky soils.	Does not occur.
Coachella Valley milk-vetch *Astragalus lentiginosus* var. *coachellae*	Federal: FE State: None CNPS: Rank 1B.2	Desert dunes, sandy Sonoran desert scrub.	Confirmed absent.
Cove's cassia *Senna covesii*	Federal: None State: None CNPS: Rank 2B.2	Sandy soils in Sonoran desert scrub.	Confirmed absent.
Creamy blazing star *Mentzelia tridentata*	Federal: None State: None CNPS: Rank 1B.3	Rocky, gravelly, and sandy soils in Mojavean desert scrub.	Confirmed absent.
Davidson's stonecrop *Sedum niveum*	Federal: None State: None CNPS: Rank 4.2	Rocky soils in lower and upper montane coniferous forest, and subalpine coniferous forest.	Does not occur.

Species Name	Status	Habitat Requirements	Potential for Occurrence
Desert beardtongue *Penstemon pseudospectabilis* ssp. *pseudospectabilis*	Federal: None State: None CNPS: Rank 2B.2	Often in sandy washes, sometimes rocky areas. Mojavean desert scrub, Sonoran desert scrub.	Confirmed absent.
Desert scaleseed *Spermolepis gigantea*	Federal: None State: None CNPS: Rank 2B.1	Sonoran desert scrub.	Confirmed absent.
Desert spike-moss *Selaginella eremophila*	Federal: None State: None CNPS: Rank 2B.2	Chaparral, rocky or gravelly soils in Sonoran desert scrub.	Confirmed absent.
Dwarf germander *Teucrium cubense* ssp. *depressum*	Federal: None State: None CNPS: Rank 2B.2	Desert dunes, playas margins, Sonoran desert scrub.	Confirmed absent.
Dwarf monolepis *Micromonolepis pusilla*	Federal: None State: None CNPS: Rank 2B.3	Alkaline soils in openings in Great Basin Scrub.	Confirmed absent.
Emory's crucifixion-thorn *Castela emoryi*	Federal: None State: None CNPS: Rank 2B.2	Gravelly soils in Mojavean desert scrub, playas, and Sonoran desert scrub.	Confirmed absent.
Foxtail cactus *Coryphantha alversonii*	Federal: None State: None CNPS: Rank 4.3	Sandy or rocky soil usually granitic. Mojavean desert scrub, Sonoran desert scrub.	Confirmed absent.
Hall's tetracoccus *Tetracoccus hallii*	Federal: None State: None CNPS: Rank 4.3	Mojavean desert scrub and Sonoran desert scrub.	Confirmed absent.
Harwood's eriastrum *Eriastrum harwoodii*	Federal: None State: None CNPS: Rank 1B.2	Desert dunes.	Confirmed absent.
Inyo onion *Allium atrorubens* var. *cristatum*	Federal: None State: None CNPS: Rank 4.3	Sandy or rocky soils in Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland.	Does not occur.
Jackass-clover *Wislizenia refracta* ssp. *refracta*	Federal: None State: None CNPS: Rank 2B.2	Desert dunes, Mojavean desert scrub, playas, Sonoran desert scrub.	Confirmed absent.
Johnston's monkeyflower *Diplacus (Mimulus) johnstonii*	Federal: None State: None CNPS: Rank 4.3	Lower montane coniferous forest (scree, disturbed areas, rocky or gravelly soil, roadsides).	Confirmed absent.
Joshua Tree poppy *Eschscholzia androuxii*	Federal: None State: None CNPS: Rank 4.3	Desert washes, flats, and slopes; sandy, gravelly, and/or rocky soil. Joshua tree woodland, Mojavean desert scrub	Confirmed absent.
Las Animas colubrina *Colubrina californica*	Federal: None State: None CNPS: Rank 2B.3	Mojavean desert scrub, Sonoran desert scrub.	Confirmed absent.

Species Name	Status	Habitat Requirements	Potential for Occurrence
Latimer's woodland-gilia *Saltugilia latimeri*	Federal: None State: None CNPS: Rank 1B.2	Rocky or sandy, often granitic soils (sometimes washes) in chaparral, Mojavean desert scrub, and Pinyon and juniper woodland.	Confirmed absent.
Little San Bernardino Mountains linanthus *Linanthus maculatus* ssp. *maculatus*	Federal: None State: None CNPS: Rank 1B.2	Sandy soils in desert dunes, Joshua tree woodland, Mojavean desert scrub, and Sonoran desert scrub.	Confirmed absent.
Mecca-aster *Xylorhiza cognata*	Federal: None State: None CNPS: Rank 1B.2	Sonoran desert scrub.	Confirmed absent.
Mesquite neststraw *Stylocline sonorensis*	Federal: None State: None CNPS: Rank 2A	Sandy soils in Sonoran desert scrub.	Confirmed absent.
Narrow-leaf sandpaper-plant *Petalonyx linearis*	Federal: None State: None CNPS: Rank 2B.3	Sandy or rocky canyons, Mojavean desert scrub, and Sonoran desert scrub.	Confirmed absent.
Orocopia Mountains spurge *Euphorbia jaegeri*	Federal: None State: None CNPS: Rank 1B.1	Rocky hillsides and arroyos, gravelly or rocky crevices; granitic, carbonate, or metamorphic. Mojavean desert scrub.	Confirmed absent.
Palmer's jackass clover *Wislizenia refracta* ssp. *palmeri*	Federal: None State: None CNPS: Rank 2B.2	Chenopod scrub, desert dunes, Sonoran desert scrub, Sonoran thorn woodland.	Confirmed absent.
Parish's daisy *Erigeron parishii*	Federal: FT State: None CNPS: Rank 1B.1	Usually carbonate, sometimes granitic soils in Mojavean desert scrub, and Pinyon and juniper woodland.	Confirmed absent.
Parish's onion *Allium parishii*	Federal: None State: None CNPS: Rank 4.3	Rocky soils in Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland.	Does not occur.
Parry's spineflower *Chorizanthe parryi* var. *parryi*	Federal: None State: None CNPS: Rank 1B.1	Sandy or rocky soils in open habitats of chaparral and coastal sage scrub.	Does not occur.
Peninsular spineflower *Chorizanthe leptotheca*	Federal: None State: None CNPS: Rank 4.2	Alluvial fan, granitic. Chaparral, coastal scrub, lower montane coniferous forest.	Does not occur.
Robison's monardella *Monardella robisonii*	Federal: None State: None CNPS: Rank 1B.3	Pinyon and juniper woodland.	Does not occur.
Roughstalk witch grass *Panicum hirticaule* ssp. *hirticaule*	Federal: None State: None CNPS: Rank 2B.1	Sandy, silty, depressions. Desert dunes, Joshua tree woodland, Mojavean desert scrub, and Sonoran desert scrub.	Very low potential to occur.

Species Name	Status	Habitat Requirements	Potential for Occurrence
San Bernardino milk-vetch *Astragalus bernardinus*	Federal: None State: None CNPS: Rank 1B.2	Often on granitic or carbonate soils in Joshua tree woodland and pinyon and juniper woodland.	Does not occur.
Sand evening-primrose *Chylismia arenaria*	Federal: None State: None CNPS: Rank 2B.2	Sandy or rocky soils in Sonoran desert scrub.	Confirmed absent.
Slender bedstraw *Galium angustifolium* ssp. *gracillimum*	Federal: None State: None CNPS: Rank 4.2	Granitic and rocky soils in Joshua tree woodland and Sonoran desert scrub.	Confirmed absent.
Slender cottonheads *Nemacaulis denudata* var. *gracilis*	Federal: None State: None CNPS: Rank 2B.2	Coastal dunes, desert dunes, Sonoran desert scrub.	Confirmed absent.
Slender nemacladus *Nemacladus gracilis*	Federal: None State: None CNPS: Rank 4.3	Sandy or gravelly soils in cismontane woodland, valley and foothill grassland.	Confirmed absent.
Slender-horned spineflower *Dodecahema leptoceras*	Federal: FE State: SE CNPS: Rank 1B.1	Sandy soils in alluvial scrub, chaparral, cismontane woodland.	Does not occur.
Spear-leaf matelea (Spearleaf) *Matelea parvifolia*	Federal: None State: None CNPS: Rank 2B.3	Rocky soils in Mojavean desert scrub and Sonoran desert scrub.	Confirmed absent.
Spiny abrojo *Condalia globosa* var. *pubescens*	Federal: None State: None CNPS: Rank 4.2	Sonoran desert scrub.	Confirmed absent.
Spiny-hair blazing star *Mentzelia tricuspis*	Federal: None State: None CNPS: Rank 2B.1	Sandy, gravelly, slopes, and washes. Mojavean desert scrub.	Confirmed absent.
Triple-ribbed milk-vetch *Astragalus tricarinatus*	Federal: FE State: None CNPS: Rank 1B.2	Sandy or gravelly soils in Joshua tree woodland and Sonoran desert scrub.	Confirmed absent.
White-bracted spineflower *Chorizanthe xanti* var. *leucotheca*	Federal: None State: None CNPS: Rank 1B.2	Sandy or gravelly soils in Mojavean desert scrub and pinyon and juniper woodland.	Confirmed absent.
Winged cryptantha *Johnstonella (Cryptantha) holoptera*	Federal: None State: None CNPS: Rank 4.3	Mojavean desert scrub and Sonoran desert scrub.	Confirmed absent.
Wright's beebrush *Aloysia wrightii*	Federal: None State: None CNPS: Rank 4.3	Rocky, often carbonate soils in Joshua tree woodland and pinyon and juniper woodland.	Does not occur.
Wright's jaffueliobryum moss *Jaffueliobryum wrightii*	Federal: None State: None CNPS: Rank 2B.3	Dry openings, rock crevices, carbonate. Alpine dwarf scrub, Mojavean desert scrub, pinyon and juniper woodland.	Confirmed absent.

4.5.1 Special-Status Plants Detected Within the Project Study Area

No special-status plant species were observed during focused surveys or incidentally during field efforts conducted within the Project study area.

4.5.2 Special-Status Plants Not Detected but with a Potential to Occur Within the Project Study Area

Roughstalk Witch Grass (*Panicum hirticaule* ssp. *hirticaule*) – This species is designated by CNPS as Rank 2B.1, indicating that the species is rare in California but more common outside of the state. Roughtstalk witch grass is native to the southwestern United States and Mexico, and its distribution extends into Central America. It grows in sandy, silty depressions in desert dunes, Joshua tree woodland, Mojavean desert scrub, and Sonoran desert scrub. Roughstalk witch grass is an annual herb which blooms from August through December. This species is considered seriously threatened by solar and wind energy development, as well as urbanization.

This species was not detected during the focused plant surveys; however, the majority of focused plant surveys were conducted outside the blooming period of August through December. Although sandy and silty soils are distributed throughout the Project study area, these soils generally occur on stabilized landforms or in ephemeral wash features, whereas this species is strongly associated with depressions where these preferred soil types accumulate due to fluvial or primarily aeolian transport. These landforms generally do not occur within the Project study area, with the exception of pockets of negligible size (less than a few square meters) within developed areas, created by equipment during on-going routine maintenance activities. As such, roughstalk witch grass has a very low potential to occur within the Project study area due to suitable habitat occurring on site.

Other special-status plant species with potential to occur within the Project study area were confirmed absent through the focused rare plant surveys, as noted in Table 4-2 above. It should be noted that the 2019 rainy season resulted in many, evenly spaced rain events and higher than average total rainfall. As such, the 2019 spring and summer season was an optimal time to conduct rare plant surveys since the likelihood of observing rare species was higher than previous years, which had followed drought conditions.

4.6 Special-Status Animals

Table 4-3 provides a list of special-status animals evaluated for the Project study area through general biological surveys, habitat assessments, and focused surveys. Species were evaluated based on the following factors, including: 1) species identified by the CNDDB as occurring (either currently or historically) on or in the vicinity of the Project study area, and 2) any other special-status animals that are known to occur within the vicinity of the Project study area, for which potentially suitable habitat occurs.

Table 4-3. Special Status Animals Evaluated for the Project Study Area

Federal
FE – Federally Endangered
FT – Federally Threatened
FPT – Federally Proposed Threatened
BCC – Bird of Conservation Concern

State
SE – State Endangered
ST – State Threatened
SP – State Proposed for Listing
SSC – California Species of Special Concern
CFP – California Fully-Protected Species
WL – Watch List

Western Bat Working Group (WBWG)
H – High Priority
LM – Low-Medium Priority
M – Medium Priority
MH – Medium-High Priority

Occurrence

- Does not occur – The Project study area does not contain habitat for the species and/or the Project study area does not occur within the geographic range of the species.
- Not detected – The Project study area contains suitable habitat for the species, but the species is considered absent, as it was not detected during focused surveys.
- Not expected to occur – The species is not expected to occur on site due to low habitat quality, however absence cannot be ruled out.
- Potential to occur – The species has a potential to occur based on suitable habitat, however its presence/absence has not been confirmed.
- Confirmed present – The species was detected on site incidentally or through focused surveys

Species Name	Status	Habitat Requirements	Potential for Occurrence
Invertebrates			
Casey's June beetle *Dinacoma caseyi*	Federal: FE State: None	Desert chaparral plant communities associated with gently sloping, depositional surfaces formed at the base of the Santa Rosa Mountains in the Coachella Valley region.	Not expected to occur.
Amphibians			
California red-legged frog *Rana draytonii*	Federal: FT State: SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.	Does not occur.
Southern mountain yellow-legged frog *Rana muscosa*	Federal: FE State: SE	Streams and small pools in ponderosa pine, montane hardwood-conifer, and montane riparian habitat types.	Does not occur.
Reptiles			
California glossy snake *Arizona elegans occidentalis*	Federal: None State: SSC	Inhabits arid scrub, rocky washes, grasslands, chaparral.	Does not occur – outside the known range of the species.
Coachella Valley fringe-toed lizard *Uma inornata*	Federal: FT State: SE	Sparsely-vegetated arid areas with fine wind-blown sand, including dunes, washes, and flats with sandy hummocks	Not expected to occur.

Species Name	Status	Habitat Requirements	Potential for Occurrence
		formed around the bases of vegetation. Needs fine, loose sand for burrowing.	
Coast horned lizard *Phrynosoma blainvillii*	Federal: None State: SSC	Occurs in a variety of vegetation types including coastal sage scrub, chaparral, annual grassland, oak woodland, and riparian woodlands.	Does not occur – outside the known range of the species.
Desert tortoise *Gopherus agassizii*	Federal: FT State: ST	Requires firm ground to dig burrows, or rocks to shelter among. Found in arid sandy or gravelly locations along riverbanks, washes, sandy dunes, alluvial fans, canyon bottoms, desert oases, rocky hillsides, creosote flats and hillsides.	Confirmed present.
Flat-tailed horned lizard *Phrynosoma mcallii*	Federal: None State: SSC	Sandy desert hardpan or gravel flats with scattered sparse vegetation of low species diversity.	Has potential to occur.
Red-diamond rattlesnake *Crotalus ruber*	Federal: None State: SSC	Habitats with heavy brush and rock outcrops, including coastal sage scrub and chaparral.	Does not occur – outside the known range of the species.
Southern California legless lizard *Anniella stebbinsi*	Federal: None State: SSC	Broadleaved upland forest, chaparral, coastal dunes, coastal scrub; found in a broader range of habitats that any of the other species in the genus. Often locally abundant, specimens are found in coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans	Does not occur – outside the known range of the species.
Two-striped garter snake *Thamnophis hammondii*	Federal: None State: SSC	Aquatic snake typically associated with wetland habitats such as streams, creeks, and pools.	Does not occur.
Birds			
Bendire's thrasher *Toxostroma bendirei*	Federal: BCC State: SSC	Desert, especially areas of tall vegetation, cholla cactus, creosote bush and yucca, and in juniper woodland.	Has potential to occur.

Species Name	Status	Habitat Requirements	Potential for Occurrence
Burrowing owl (burrow sites & some wintering sites) *Athene cunicularia*	Federal: BCC State: SSC	Shortgrass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), coastal dunes, desert floors, and some artificial, open areas as a year-long resident. Occupies abandoned ground squirrel burrows as well as artificial structures such as culverts and underpasses.	Confirmed present.
Crissal thrasher *Toxostoma crissale*	Federal: None State: SSC	Dense, low scrubby vegetation, such as desert and foothill scrub and riparian bush.	Has potential to occur.
Elf owl (nesting) *Micrathene whitneyi*	Federal: BCC State: SE	Lakes, rivers, estuaries, and coastlines.	Not expected to occur.
Golden eagle (nesting & wintering) *Aquila chrysaetos*	Federal: BCC State: WL, FP	In southern California, occupies grasslands, brushlands, deserts, oak savannas, open coniferous forests, and montane valleys. Nests on rock outcrops and ledges.	Has potential to forage within the Project study area. Not expected to nest within the Project study area.
Le Conte's thrasher *Toxostoma lecontei*	Federal: BCC State: SSC	Desert scrub, mesquite, tall riparian brush and, locally, chaparral.	Has potential to occur.
Least Bell's vireo (nesting) *Vireo bellii pusillus*	Federal: FE State: SE	Dense riparian habitats with a stratified canopy, including southern willow scrub, mule fat scrub, and riparian forest.	Does not occur.
Loggerhead shrike (nesting) *Lanius ludovicianus*	Federal: BCC State: SSC	Forages over open ground within areas of short vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral and beach with scattered shrubs.	Confirmed present.
Prairie falcon (nesting) *Falco mexicanus*	Federal: BCC State: WL	Breeds in mountainous regions and shortgrass prairies, nesting on cliff ledges.	Has potential to forage within the Project study area. Not expected to nest within the Project study area.

Species Name	Status	Habitat Requirements	Potential for Occurrence
Vermilion flycatcher (nesting) *Pyrocephalus rubinus*	Federal: None State: SSC	Scrub, desert, cultivated lands, and riparian woodlands.	Has potential to occur.
Yellow warbler (nesting) *Setophaga petechia*	Federal: BCC State: SSC	Breed in lowland and foothill riparian woodlands dominated by cottonwoods, alders, or willows and other small trees and shrubs typical of low, open-canopy riparian woodland. During migration, forages in woodland, forest, and shrub habitats.	Has potential to forage within the Project study area. Not expected to nest within the Project study area.
Mammals			
California mountain lion *Puma concolor californica*	Federal: None State: SP	A wide variety of habitats ranging from montane coniferous forest to low elevation desert scrublands.	Confirmed present.
Desert bighorn sheep *Ovis canadensis nelsoni*	Federal: None State: CFP	Visually open foraging areas of grass near steep, rocky areas.	Confirmed present.
Los Angeles pocket mouse *Perognathus longimembris brevinasus*	Federal: None State: SSC	Fine, sandy soils in coastal sage scrub and grasslands.	Not expected to occur.
Pallid bat *Antrozous pallidus*	Federal: None State: SSC WBWG: H	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	Has potential to occur.
Pallid San Diego pocket mouse *Chaetodipus fallax pallidus*	Federal: None State: SSC	In desert wash, desert scrub, desert succulent scrub, pinyon-juniper woodland. Sandy herbaceous areas, usually in association with rocks or coarse gravel.	Has potential to forage within the Project study area.
Palm Springs pocket mouse *Perognathus longimembris bangsi*	Federal: None State: SSC	Arid plains and desert-like country. Grassland, alluvial sage scrub, and coastal sage scrub.	Has potential to forage within the Project study area.
Palm Springs round-tailed ground squirrel *Xerospermophilus tereticaudus chlorus*	Federal: None State: SSC	Sandy desert in low, flat areas, commonly in communities dominated by mesquite and creosote bush. Also in urban areas and parks.	Has potential to forage within the Project study area. Not expected to breed within the Project study area.
Peninsular bighorn sheep DPS *Ovis canadensis nelsoni* pop. 2	Federal: FE State: ST, FP	Visually open foraging areas of grass near steep, rocky areas.	Does not occur, outside the known range of the species.
Pocketed free-tailed bat *Nyctinomops femorosaccus*	Federal: None State: SSC WBWG: M	Rocky areas with high cliffs in pine-juniper woodlands, desert scrub, palm oasis, desert wash, and desert riparian.	Has potential to occur.

Species Name	Status	Habitat Requirements	Potential for Occurrence
San Diego desert woodrat *Neotoma lepida intermedia*	Federal: None State: SSC	Occurs in a variety of shrub and desert habitats, primarily associated with rock outcrops, boulders, cacti, or areas of dense undergrowth.	Confirmed present.
Townsend's big-eared bat *Corynorhinus townsendii*	Federal: None State: SSC WBWG: H	Coniferous forests and woodlands, deciduous riparian woodland, semi-desert and montane shrublands.	Not expected to occur.
Western mastiff bat *Eumops perotis californicus*	Federal: None State: SSC WBWG: H	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Has potential to occur.
Western yellow bat *Lasiurus xanthinus*	Federal: None State: SSC WBWG: H	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Not expected to occur.

4.6.1 Special-Status Wildlife Species Observed within the Project Study Area

Desert Tortoise (*Gopherus aggassizii*) – The desert tortoise is designated as a federal and state-listed as Threatened species (FT, ST). It ranges from southern Nevada and extreme southwestern Utah; south throughout most of the Mojave Desert to the eastern Colorado (western Sonoran) Desert of Los Angeles, Kern, San Bernardino, Imperial, Riverside counties, California; east through the Mojave Desert of Mohave County, Arizona, and south through the upper Sonoran Desert of Arizona, and again south through Sonora to the thornscrubs and oak woodlands of northern Sinaloa, Mexico. Elevational range is generally 1,000-2,000 feet AMSL in the Colorado Desert. Tortoises are generally found in regions receiving an average annual rainfall in excess of four inches, and below twelve inches. Since portions of the Colorado Desert have annual precipitation of less than two inches, this factor alone may explain the local exclusion of tortoises from hot, dry, low valleys.

Declines in desert tortoise populations have been due to habitat loss and degradation through livestock grazing, invasion of exotic annuals, especially red brome grass which fuels local fires, energy and mineral development, off-highway vehicle use, road traffic collisions with tortoises, trail construction, disease, vandalism (illegal shooting), and collecting.

Focused desert tortoise surveys for the Project study area were conducted in accordance with a combination of the USFWS 2010 and 2018 Desert Tortoise Survey Protocol for non-linear project sites of an area totaling less than 500 acres. Per the protocols, 10 m transects were walked so as to ensure complete visual coverage of the Project study area. Additionally, belt transects were walked at radii of 200 m, 400 m and 600 m from the perimeter of the Project study area so as to assess the absence or occupation of adjacent areas of suitable habitat. Live desert tortoises and numerous desert tortoise sign were detected adjacent to and within the Project study area during focused desert tortoise surveys conducted for the Project (Exhibit 6 – Desert Tortoise Survey Area Map); however, only a single scat and no occupied burrows were detected within the Project footprint.

One tortoise scat was observed in a burrow immediately adjacent to the eastern perimeter of Shavers Siphon [Work Area 2], and an additional seven tortoise scats were observed west of Shavers Siphon [Work Area 2], four of which occurred along or adjacent to the 200 m transect, one along the 400 m transect, and two along the 600 m transect. Two occupied burrows were observed just shy of the 600 m transect, east of Shavers Siphon [Work Area 2], and a tortoise pair was observed copulating along the 400 m transect, northwest of Shavers Siphon [Work Area 2] [Exhibit 6 – Sheet 2]. An occupied burrow and a pallet were observed along the 400 m transect at Cottonwood Springs Siphon [Work Area 3] [Exhibit 6 – Sheet 3]. One adult tortoise was observed foraging in a wash approximately 300 m northwest of the East Cottonwood No. 1 and No. 2 Siphons [Work Areas 4 and 5] [Exhibit 6 – Sheet 4]. A total of six occupied burrows were observed adjacent to Iron Ledge Siphon [Work Area 9], East Thermal Siphon [Work Area 10], and West Thermal Siphon [Work Area 11]; four of which occurred along the contiguous 200 m transect, one along the contiguous 400 m transect, and one along the contiguous 600 m transect [Exhibit 6 – Sheet 8]. One occupied burrow was observed along the 600 m transect, north of Long Canyon Siphon [Work Area 19] [Exhibit 6 – Sheet 15]. Two adult tortoises, one suitable burrow, and one scat were observed along the 200 m transect; one occupied burrow and another suitable burrow were observed at approximately 300 m; and one additional occupied burrow was observed along the 600 m transect at Whitehouse Siphon [Work Area 23] [Exhibit 6 – Sheet 18]. An Additional occupied desert tortoise burrow was observed along the 600 m transect, north of the Big Morongo Siphon Study Area [Work Area 24] [Exhibit 6 – Sheet 19].

California Mountain Lion (*Puma concolor californica*) – The California mountain lion occurs throughout much of the open space of California, occurring in or moving through nearly all but the most urbanized settings. This species inhabits a wide range of habitat types where prey items such as mule deer (*Odocoileus hemionus*) and bighorn sheep (*Ovis canadensis*) are present, from interior arid rocky scrublands, to upper montane coniferous forest, to chaparral, coastal scrub, and woodland habits along the coastal plane.

Various signs of California mountain lion were detected throughout the Project study area, including tracks and scat. All portions of the 59.61-acre Project study represent foraging and/or movement habitat for the California mountain lion.

Burrowing Owl (*Athene cunicularia*) – The burrowing owl is designated as an SSC at burrow sites and some wintering sites. The burrowing owl breeds from southern interior British Columbia, southern Alberta, southern Saskatchewan, and southern Manitoba, Canada; south through eastern Washington, central Oregon, and California to Baja California; east to western Minnesota, northwestern Iowa, eastern Nebraska, central Kansas, Oklahoma, eastern Texas, and Louisiana, and south again to central Mexico. The winter range is much the same as the breeding range, except that most burrowing owls apparently vacate the northern areas of the Great Plains and Great Basin.

Within California, burrowing owls are a year-long resident, and are restricted to the Central Valley extending from Redding south to the Grapevine, east through the Mojave Desert and west to San Jose, the San Francisco Bay area, the outer coastal foothills area which extend from Monterey south to San Diego and the Colorado Desert. It is a resident in open areas of the lowlands over much of the Southern California region.

Focused burrowing owl surveys for the Project study area were conducted in accordance with the CDFW 2012 Staff Report survey protocol. Per the protocol, transects were walked ranging from 7 to 20 m apart, so as to ensure complete visual coverage of the Project study area. Where access permitted, transects were walked within a 500-foot buffer from the perimeter of the Project study area so as to assess the absence or occupation of adjacent areas of suitable habitat. Where access was not permitted, these areas was treated as a visual buffer and were surveyed using binoculars.

A single burrowing owl was detected south of the Project study area at Big Morongo Siphon [Work Area 24] within the 500’ buffer survey area [Exhibit 5 – Sheet 24] during focused burrowing owl surveys conducted for the Project. The owl is assumed to be actively breeding based upon presence during the breeding season.

Several additional suitable burrows were detected within the Project footprint, Project study area, and 500’ survey buffer, but did not exhibit sign of burrowing owl occupation [Exhibit 5 – Sheets 20, 21, and 24].

Desert Bighorn Sheep (*Ovis canadensis nelsoni*) – Desert bighorn are designated as a CFP and the species is considered locally rare. Desert bighorn sheep range from the White Mountains in Mono County south to the Chocolate Mountains in Imperial County.

Desert bighorn sheep are found in mesic to xeric habitats, from alpine elevations to desert grasslands, shrub-steppe in mountains, foothills, and river canyons. Many of the grasslands where desert bighorn occur are fire-maintained. Escape terrain (cliffs, talus slopes, etc.) is a critical feature of their habitat. Distribution of desert bighorn is correlated with low precipitation levels, especially in winter and spring. Elevation varies considerably, both geographically and seasonally, from as low as 1,500 to over 11,000 feet AMSL.

Initial large declines in desert bighorn population numbers were primarily the result of competition with domestic livestock (e.g., cattle, sheep, burros), diseases and parasites introduced by domestic sheep, overhunting, and habitat loss. Current declines are exacerbated by habitat fragmentation due to road construction and residential/commercial development, and the subsequent genetic isolation of insular populations.

Desert bighorn were observed/detected throughout the Project study area, with detection ranging from observations of live animals to detection of scat and tracks.

4.6.2 Special-Status Wildlife Species not Observed but with a Potential to Occur at the Project Study Area

The flat-tailed horned lizard (*Phrynosoma mcallii*) has potential to occur within the Project study area; however, it was not observed during biological surveys. This species is designated as an SSC.

Three special-status thrasher species have potential to occur within the Project study area: Bendire's thrasher (*Toxostroma bendirei*), Crissal thrasher (*Toxostoma crissale*), and Le Conte's thrasher (*Toxostoma lecontei*). None of these species are state or federally listed but all three are designated as an SSC. The Project study area provides suitable foraging and nesting habitat for each of these species; however, none of the three were observed during biological surveys.

The golden eagle (*Aquila chrysaetos*), designated as a CFP, has the potential to forage within the Project study area; however, the Project study area does not contain the high cliffs and rocky escarpments used for nesting by this species, with the exception of Little Morongo Siphon [Work Area 22], where tall, vertical cliffs are present and potential to nest is moderate.

The vermilion flycatcher (*Pyrocephalus rubinus*), an SSC, has potential to forage within the Project study area. The Project study area does not provide suitable nesting habitat for this species, as it requires riparian habitats near an abundant water source, and this species was not observed within the Project study area during field efforts.

There is potential for the yellow warbler (*Setophaga petechia*), an SSC, to forage within the Project study area; however, the Project study area does not provide suitable nesting habitat for this species, as it requires riparian woodlands with a dense canopy and vertical structural complexity.

The pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*), an SSC, has moderate potential to occur within the Project study area as rocky, gravelly soils are present throughout.

The Palm Springs pocket mouse (*Perognathus longimembris bangsi*), is an SSC. Focused surveys were not conducted for this species; however, small mammal burrows were detected within the approximately 30.05 acres of the Project study area that occurs within MSHCP modeled habitat for the Palm Springs pocket mouse [Exhibit 9 – CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map]. As such, this species has potential to occur within the Project study area.

The Project study area supports suitable habitat for the Palm Springs round-tailed ground squirrel (*Xerospermophilus tereticaudus chlorus*), an SSC, in the sandy areas within the *Larrea tridentata* shrubland vegetation alliances.

Three special-status bat species: pallid bat (*Antrozous pallidus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), and western mastiff bat (*Eumops perotis californicus*), each an SSC, have potential to forage within the Project study area for foraging. These species are not expected to roost within the Project study area, with the exception of Little Morongo Siphon

[Work Area 22], where tall, vertical cliffs which are used by these species for unobstructed drops to gain sufficient momentum in take-off are present.

4.6.3 Critical Habitat

Approximately 24.09 acres of designated Critical Habitat for the Coachella Valley milk-vetch (*Astragalus lentiginosus var. coachellae*) and 6.79 acres of designated Critical Habitat for the desert tortoise are present within the Project study area [Exhibit 10 – Critical Habitat Map]. Table 4-4, below, presents Critical Habitat by type and location within the Project study area.

Table 4-4. Critical Habitat Within the Project Study Area.

WORK AREA	PROJECT FOOTPRINT	PROJECT FOOTPRINT (TEMPORARY)	STORAGE STOCKPILE/SORTING AREAS	STUDY AREA BUFFER	PROJECT STUDY AREA TOTAL
Coachella Valley Milk-vetch					
Big Morongo Siphon	3.30	6.11	0.13	14.55	24.09
Total	**3.30**	**6.11**	**0.13**	**14.55**	**24.09**
Desert Tortoise					
No Name Siphon [Work Area 1]	0.32	0.62	0.07	0.18	1.19
Shavers Siphon [Work Area 2]	0.37	0.70	0.00	0.02	1.09
Cottonwood Springs Siphon [Work Area 3]	0.39	0.86	0.00	0.07	1.32
East Cottonwood No. 1 Siphon [Work Area 4]	0.31	0.64	0.00	0.03	0.98
East Cottonwood No. 2 Siphon [Work Area 5]	0.09	0.34	0.15	0.19	0.77
End Wash Siphon [Work Area 6]	0.31	0.62	0.49	0.01	1.43
Mecca No. 1 Siphon [Work Area 7]	0.00	0.02	0.00	0.00	0.02
Total	**1.79**	**3.80**	**0.71**	**0.50**	**6.79**

4.7 Raptor Use

Southern California holds a diversity of raptors, and many of these species are in decline. For most of the declining species, foraging requirements include extensive open, undisturbed, or lightly disturbed areas, especially grasslands. This type of habitat has declined severely in the region, affecting many species, but especially raptors. A few species, such as Red-tailed Hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*), are somewhat adaptable to low-level human disturbance and can be readily observed adjacent to neighborhoods and other types of development. These species still require appropriate foraging habitat and low levels of disturbance in the vicinity of their nesting sites.

Raptors have the potential to forage within the Project study area; however, raptor breeding habitat does not occur within the Project study area (with the exception of burrowing owl, which is addressed in Section 4.5.1, above).

4.8 Nesting Birds

The Project study area contains low trees, shrubs, and ground cover that provide suitable habitat for many species of nesting migratory birds. Impacts to nesting birds are prohibited under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.[12]

4.9 Jurisdictional Delineation

A. Corps Jurisdiction

No Corps jurisdiction is present within the Project study area.

The Project study area supports several features, including ephemeral streams/tributaries and erosional areas, that flow only in direct response to precipitation (e.g., rain) or mechanical release of municipal water during maintenance activities. Pursuant to the *Navigable Waters Protection Rule*, ephemeral features, including ephemeral streams, swales, gullies, rills, and pools are not considered waters of the U.S. regardless of the presence or absence of an OHWM. Tributaries must satisfy the flow conditions of the definition described in 33 U.S.C. 1251 et seq. and its implementing regulations (33 CFR Part 328.3). As a result, these features are not subject to Corps jurisdiction pursuant to Section 404 of the CWA.

B. Regional Water Quality Control Board Jurisdiction

Regional Board jurisdiction is limited to eighteen ephemeral drainage features that convey surface water only in direct response to precipitation (e.g., rain) and totals approximately 3.23 acres, 4,214 linear feet, none of which consists of jurisdictional wetlands. Since ephemeral features are not subject to Corps jurisdiction pursuant to Section 404 of the CWA, these features

[12] The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R.21). In addition, sections 3505, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs.

are also not subject to Regional Board jurisdiction pursuant to Section 401 of the CWA. However, since these features covey surface flow with the potential to support beneficial uses, they are considered to be waters of the State that would be regulated by the Regional Board pursuant to Section 13260 of the California Water Code (CWC)/the Porter-Cologne Act.

A summary of Regional Board jurisdiction within the Project study area is provided below in Table 4-5.

C. CDFW Jurisdiction

CDFW jurisdiction associated with the Project study area totals approximately 3.33 acres, 4,214 linear feet, of which 0.54 acre consists of jurisdictional riparian habitat and 2.79 acres consist of non-riparian streambed. The locations and extent of CDFW jurisdictional areas are depicted on Exhibit 7B – CDFW Jurisdictional Delineation Map. A summary of CDFW jurisdiction within the Project study area is provided below in Table 4-5.

Table 4-5. Potential Corps, Regional Board, and CDFW Jurisdiction.

		Regional Board			CDFW			
Work Area	**Resource Type**	**Wetland (acres)**	**Non-wetland Waters (acres)**	**Total (acres)**	**Riparian (acres)**	**Non-riparian Streambed (acres)**	**Total (acres)**	**Length (linear feet)**
West Thousand Palms Siphon [Work Area 16]	Ephemeral	0.00	0.26	0.26	0.00	0.26	0.26	292
East Wide Canyon Siphon [Work Area 17]	Ephemeral	0.00	0.11	0.11	0.00	0.11	0.11	168
Long Canyon Siphon [Work Area 19]	Ephemeral	0.00	0.20	0.20	0.00	0.20	0.20	469
West Blind Canyon Siphon [Work Area 21]	Ephemeral	0.00	0.05	0.05	0.00	0.05	0.05	189
Whitehouse Siphon [Work Area 23]	Ephemeral	0.00	0.10	0.10	0.00	0.10	0.10	306
Big Morongo Siphon [Work Area 24]	Ephemeral	0.00	2.51	2.51	0.54	2.07	2.61	2790
TOTAL		**0.00**	**3.23**	**3.23**	**0.54**	**2.79**	**3.33**	**4,214**

5.0 IMPACT ANALYSIS

The following discussion examines the potential impacts to plant and wildlife resources that would occur as a result of the proposed Project. Impacts (or effects) can occur in two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification or disturbance of plant communities, which in turn, directly affect the flora and fauna of those habitats. Direct impacts also include the destruction of individual plants or animals, which may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and population stability.

Indirect impacts pertain to those impacts that result in a change to the physical environment, but which is not immediately related to a project. Indirect (or secondary) impacts are those that are reasonably foreseeable and caused by a project, but occur at a different time or place. Indirect impacts can occur at the wildland interface of projects, to biological resources located downstream from projects, and other off site areas where the effects of the project may be experienced by plants and wildlife. Indirect impacts are often attributed to the subsequent day-to-day activities associated with project build-out, such as increased noise, the use of artificial light sources, and invasive ornamental plantings that may encroach into native areas. Indirect effects may be both short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may result in a slow replacement of native plants by non-native invasives, as well as changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to project sites.

5.1 Direct Impacts to Native Vegetation

The proposed Project would impact approximately 0.06 acre of native woodland alliance, consisting of 0.06 acre of *Chilopsis linearis* Woodland within the Project footprint and 0.10 acre of *Chilopsis linearis* Woodland and 0.06 acre of *Parkinsonia florida* Woodland within the temporary Project footprint. In addition, the Project would impact approximately 11.07 acres of native shrubland alliances within the Project footprint and 28.33 acres within the temporary Project footprint, including: 0.18 acre of *Ambrosia dumosa - Encelia farinosa* Shrubland Alliance within the Project footprint and 0.72 acre within the temporary Project footprint; 0.12 acre of *Ambrosia salsola - Ambrosia dumosa* Shrubland Alliance within the Project footprint and 0.34 acre within the temporary Project footprint; 3.82 acres of *Ambrosia salsola - Encelia farinosa* Shrubland Alliance within the Project footprint and 7.24 acres within the temporary Project footprint; 0.24 acres of *Ambrosia salsola - Hyptis emoryi* Shrubland Alliance within the Project footprint and 0.67 acre within the temporary Project footprint; 0.16 acres of *Ambrosia salsola - Petalonyx thurberi* Shrubland Alliance within the Project footprint and 0.36 acre within the temporary Project footprint; 0.04 acre of *Ambrosia salsola - Psorothamnus schottii* Shrubland Alliance within the Project footprint and 0.16 acre within the temporary Project footprint; 0.22 acre of *Encelia farinosa - Ambrosia dumosa* Shrubland Alliance within the Project footprint and 0.65 acre within the temporary Project footprint, 0.50 acre of *Encelia farinosa - Ambrosia salsola* Shrubland Alliance within the Project footprint and 1.22 acre within the temporary Project footprint; 0.31 acre of *Encelia farinosa - Peucephyllum schottii* Shrubland Alliance within the Project footprint and 0.85 acre within the temporary Project footprint; 0.05 acre of *Larrea tridentata - Ambrosia dumosa* Shrubland Alliance within the Project footprint and

0.23 acre within the temporary Project footprint; 1.28 acres of *Larrea tridentata - Ambrosia salsola* Shrubland Alliance within the Project footprint and 3.30 acres within the temporary Project footprint; 0.74 acre of *Larrea tridentata - Encelia farinosa* Shrubland Alliance within the Project footprint and 2.21 acres within the temporary Project footprint; and 0.02 acre of *Lepidospartum squamatum* Shrubland Alliance within the Project footprint and 0.08 acre within the temporary Project footprint.

Impacts to special-status vegetation communities include approximately 0.06 acre of *Chilopsis linearis* Woodland within the Project footprint, and 0.10 acre of *Chilopsis linearis* Woodland and 0.06 acre of *Parkinsonia florida* Woodland within the temporary Project footprint, as these vegetation communities are considered special-status due to their desert riparian association.

The Project would also impact approximately 3.39 acres of developed areas within the Project footprint and 7.21 acres within the temporary Project footprint (including 3.09 acres of Storage Stockpile/Sorting areas), consisting of existing CRA facilities and associated access roads.

Table 5-1, below, provides a summary of vegetation community impacts, identified by vegetation alliance and work areas.

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Table 5-1. Summary of Vegetation Alliance/Land Cover Type Impacts.

Vegetation Alliance/Land Cover Type	Work Area	Project Footprint (Acres)	Project Footprint – Temporary (Acres)
Ambrosia dumosa - Encelia farinosa Shrubland Alliance	West Blind Canyon Siphon [Work Area 21], Whitehouse Siphon [Work Area 23]	0.18	0.72
Ambrosia salsola - Ambrosia dumosa Shrubland Alliance	Shavers Siphon [Work Area 2], East Wide Canyon Siphon [Work Area 17]	0.12	0.34
Ambrosia salsola - Encelia farinosa Shrubland Alliance	Cottonwood Springs Siphon [Work Area 3], East Cottonwood No. 2 Siphon [Work Area 5], End Wash Siphon [Work Area 6], East Fan Hill Siphon [Work Area 12], Fan Hill Siphon [Work Area 13], West Fan Hill Siphon [Work Area 14], East Wide Canyon Siphon [Work Area 17], West Wide Canyon Siphon [Work Area 18], Big Morongo Siphon [Work Area 24]	3.82	7.24
Ambrosia salsola - Hyptis emoryi Shrubland Alliance	West Thousand Palms Siphon [Work Area 16]	0.24	0.67
Ambrosia salsola - Petalonyx thurberi Shrubland Alliance	West Fan Hill Siphon [Work Area 14]	0.16	0.36
Ambrosia salsola - Psorothamnus schottii Shrubland Alliance	East Fan Hill Siphon [Work Area 12]	0.04	0.16
Chilopsis linearis Woodland	Big Morongo Siphon [Work Area 24]	0.06	0.10
Encelia farinosa - Ambrosia dumosa Shrubland Alliance	East Wide Canyon Siphon [Work Area 17], East Blind Canyon Siphon [Work Area 20]	0.22	0.65
Encelia farinosa - Ambrosia salsola Shrubland Alliance	No Name Siphon [Work Area 1], West Thermal Siphon [Work Area 11], West Thousand Palms Siphon [Work Area 16], Little Morongo Siphon [Work Area 22]	0.50	1.22
Encelia farinosa - Peucephyllum schottii Shrubland Alliance	East Cottonwood No. 1 Siphon [Work Area 4], Little Morongo Siphon [Work Area 22]	0.31	0.85
Larrea tridentata - Ambrosia dumosa Shrubland Alliance	West Thermal Siphon [Work Area 11], East Blind Canyon Siphon [Work Area 20]	0.05	0.23
Larrea tridentata - Ambrosia salsola Shrubland Alliance	Shavers Siphon [Work Area 2], Cottonwood Springs Siphon [Work Area 3], Mecca No. 1 Siphon [Work Area 7], Iron Ledge Siphon [Work Area 9], Fan Hill Siphon [Work Area 13], Long Canyon Siphon [Work Area 19], West Blind Canyon Siphon [Work Area 21], Whitehouse Siphon [Work Area 23] Big Morongo Siphon [Work Area 24]	1.28	3.30
Larrea tridentata - Encelia farinosa Shrubland Alliance	End Wash Siphon [Work Area 6], Mecca No. 2 Siphon [Work Area 8], Iron Ledge Siphon [Work Area 9], East Thermal Siphon [Work Area 10], Thousand Palms Siphon [Work Area 15], East Blind Canyon Siphon [Work Area 20],West Blind Canyon [Work Area 21]	0.74	2.21
Lepidospartum squamatum Shrubland Alliance	Whitehouse Siphon [Work Area 23]	0.02	0.08

Parkinsonia florida Woodland	East Cottonwood No. 2 Siphon [Work Area 5]	0.00	0.06
Developed	No Name Siphon [Work Area 1], Shavers Siphon [Work Area 2], Cottonwood Springs Siphon [Work Area 3], East Cottonwood No. 1 Siphon [Work Area 4], East Cottonwood No. 2 Siphon [Work Area 5], End Wash Siphon [Work Area 6], Mecca No. 1 Siphon [Work Area 7], Mecca No. 2 Siphon [Work Area 8], Iron Ledge Siphon [Work Area 9], East Thermal Siphon [Work Area 10], West Thermal Siphon [Work Area 11], East Fan Hill Siphon [Work Area 12], Fan Hill Siphon [Work Area13], West Fan Hill Siphon [Work Area 14], Thousand Palms Siphon [Work Area 15], West Thousand Palms Siphon [Work Area 16], East Wide Canyon Siphon [Work Area 17], West Wide Canyon Siphon [Work Area 18], Long Canyon Siphon [Work Area 19], East Blind Canyon Siphon [Work Area 20], West Blind Canyon Siphon [Work Area 21], Little Morongo Siphon [Work Area 22], Whitehouse Siphon [Work Area 23], Big Morongo Siphon [Work Area 24]	3.39	7.21 (3.09 additional within Storage Stockpile/Sorting areas)
Total		**11.13**	**28.49**

5.2 Direct Impacts to Special-Status Plants

The proposed Project would not result in biologically important impacts to special-status plants.

Although roughstalk witch grass has a very low potential to occur on site, it was not detected during focused plant surveys. This species occurs in sandy, silty depressions which are sparse throughout the Project study area. If this species were to occur on site, the impacted area and number of individuals would be limited and would not be expected to impact the continued existence of the local or regional population of this species.

5.3 Direct Impacts to Special-Status Animals

Desert Tortoise

The proposed Project would result in impacts to approximately 11.13 acres of occupied suitable desert tortoise habitat within the Project footprint and 28.49 acres within the temporary Project footprint, portions of which are located within all work areas; however, no occupied burrows would be directly impacted, as none are located within the Project footprint or temporary Project footprint.

California Mountain Lion

The proposed Project would result in impacts to approximately 11.13 acres of suitable mountain lion foraging and movement habitat within the Project footprint and 28.49 acres within the temporary Project footprint, portions of which are located within all work areas and storage stockpile/sorting areas.

Burrowing Owl

The proposed Project would result in impacts to approximately 7.74 acres of suitable burrowing owl habitat within the Project footprint and 18.19 acres within the temporary Project footprint, portions of which are located within all work areas; however, no occupied burrows would be directly impacted, as none are located within the Project footprint or temporary Project footprint.

5.4 Direct Impacts to Critical Habitat

The proposed Project would result in impacts to approximately 3.30 acres of lands designated as Critical Habitat for the Coachella Valley milk-vetch by the USFWS within the Project footprint and 6.23 acres occurring within the temporary Project footprint, 0.13 acre occurring within Storage Stockpile/Sorting areas, at Big Morongo Siphon [Work Area 24].

The proposed Project would also result in impacts to approximately 1.79 acres of lands designated as Critical Habitat for the desert tortoise by the USFWS within the Project footprint and 4.51 acres within the temporary Project footprint (including 0.71 acre within Storage Stockpile/Sorting areas). Approximately 0.32 acre of impacts within the Project footprint and 0.69 acre of impacts within the temporary Project footprint would occur at the No Name Siphon [Work Area 1], approximately 0.37 acre of impacts within the Project footprint and 0.70 acre of impacts within the temporary Project footprint would occur at Shavers Siphon [Work Area 2], approximately 0.39 acre of impacts within the Project footprint and 0.86 acre of impacts within the temporary Project footprint would occur at Cottonwood Springs Siphon [Work Area 3], approximately 0.31 acre of impacts within the Project footprint and 0.64 acre of impacts within the temporary Project footprint would occur at East Cottonwood No. 1 [Work Area 4], approximately 0.09 acre of impacts within the Project footprint and 0.49 acre of impacts within the temporary Project footprint would occur at East Cottonwood No. 2 [Work Area 5], and approximately 0.31 acre of impacts within the Project footprint and 1.11 acres of impacts within the temporary Project footprint would occur at End Wash Siphon [Work Area 6]. An additional 0.02 acre of impacts within the temporary Project footprint would occur at the Mecca No. 1 Siphon [Work Area 7] [Exhibit 10].

5.5 Direct Impacts to Nesting Birds

The proposed Project has the potential to impact active bird nests if vegetation removal and/or ground-disturbing activities are initiated during the nesting season (generally February 1 to September 15). Impacts to nesting birds are prohibited by the MBTA and California Fish and Game Code.

5.6 Direct Impacts to Jurisdictional Waters

Implementation of the proposed Project would result in impacts to 0.56 acre (976 linear feet) of potential CWA and Porter-Cologne jurisdiction, none of which consists of jurisdictional wetlands [Exhibit 7A – Corps Jurisdictional Delineation Map]. The proposed Project would also result in impacts to 0.61 acre (976 linear feet) of CDFW jurisdiction, of which 0.09 acre consists of jurisdictional riparian habitat [Exhibit 7B – CDFW Jurisdictional Delineation Map]. A detailed summary of impacts to jurisdictional waters by work area is provided in Table 5-2, below.

Impacts to jurisdictional waters would likely require CWA Sections 401 and 404 and Fish and Game Code Section 1602 permits/authorizations.

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Table 5-2. Summary of Potential Corps, Regional Board, and CDFW Jurisdiction Impacts.

Work Area	Drainage Feature	Resource Type	Regional Board: Impacts to Wetland Waters [Temporary] (acres)	Regional Board: Impacts to Non-wetland Waters [Temporary] (acres)	Regional Board: Total [Temporary] (acres)	CDFW: Impacts to Riparian [Temporary] (acres)	CDFW: Impacts to Non-riparian Streambed [Temporary] (acres)	CDFW: Total [Temporary] (acres)	Impact Length (linear feet)
West Thousand Palms Siphon [Work Area 16]	Drainage A	Ephemeral	0.00	0.03 [0.13]	0.03 [0.13]	0.00	0.03 [0.13]	0.03 [0.13]	169
	Drainage B	Ephemeral	0.00	0.05 [0.05]	0.05 [0.05]	0.00	0.05 [0.05]	0.05 [0.05]	121
East Wide Canyon Siphon [Work Area 17]	Drainage C	Ephemeral	0.00	0.03 [0.05]	0.03 [0.05]	0.00	0.03 [0.05]	0.03 [0.05]	94
	Drainage D	Ephemeral	0.00	0.01 [0.02]	0.01 [0.02]	0.00	0.01 [0.02]	0.01 [0.02]	74
Long Canyon Siphon [Work Area 19]	Drainage E	Ephemeral	0.00	0.04 [0.05]	0.04 [0.05]	0.00	0.04 [0.05]	0.04 [0.05]	153
	Drainage F	Ephemeral	0.00	0.01 [0.03]	0.01 [0.03]	0.00	0.01 [0.03]	0.01 [0.03]	202
West Blind Canyon Siphon [Work Area 21]	Drainage G	Ephemeral	0.00	0.01 [0.01]	0.01 [0.01]	0.00	0.01 [0.01]	0.01 [0.01]	60
	Drainage H	Ephemeral	0.00	0.01 [0.02]	0.01 [0.02]	0.00	0.01 [0.02]	0.01 [0.02]	104
Whitehouse Siphon [Work Area 23]	Drainage I	Ephemeral	0.00	0.01 [0.08]	0.01 [0.08]	0.00	0.01 [0.08]	0.01 [0.08]	123
	Drainage J	Ephemeral	0.00	0.01	0.01	0.00	0.01	0.01	183
Big Morongo Siphon [Work Area 24]	Drainage K	Ephemeral	0.00	0.07 [0.09]	0.07 [0.09]	0.00	0.07 [0.09]	0.07 [0.09]	382
	Drainage L	Ephemeral	0.00	0.01 [0.02]	0.01 [0.02]	0.00	0.01 [0.02]	0.01 [0.02]	135
	Drainage M	Ephemeral	0.00	0.02 [0.05]	0.02 [0.05]	0.00	0.02 [0.05]	0.02 [0.05]	88
	Drainage N	Ephemeral	0.00	0.02 [0.04]	0.02 [0.04]	0.01 [0.01]	0.02 [0.04]	0.03 [0.05]	123
	Drainage O	Ephemeral	0.00	0.14 [0.26]	0.14 [0.26]	0.05 [0.06]	0.09 [0.20]	0.14 [0.26]	213
	Drainage P	Ephemeral	0.00	0.05 [0.13]	0.05 [0.13]	0.02	0.05 [0.13]	0.07 [0.13]	125
	Drainage Q	Ephemeral	0.00	0.02 [0.04]	0.02 [0.04]	0.01 [0.01]	0.02 [0.04]	0.03 [0.05]	88
	Drainage R	Ephemeral	0.00	0.03 [0.04]	0.03 [0.04]	0.00	0.03 [0.04]	0.03 [0.04]	116
TOTAL			**0.00**	**0.58 [1.11]**	**0.58 [1.11]**	**0.09 [0.08]**	**0.52 [1.05]**	**0.61 [1.13]**	**2,553**

5.7 Indirect Impacts to Biological Resources

In the context of biological resources, indirect effects are those effects associated with developing areas adjacent to adjacent native open space. Potential indirect effects associated with development include water quality impacts associated with drainage into adjacent open space/downstream aquatic resources; lighting effects; noise effects; invasive plant species introduction; and effects from human access into adjacent open space.

As Project components represent the construction of supporting infrastructure for the existing Colorado River Aqueduct facility, which is subject to continuous on-going maintenance, expected indirect effects include the potential for an increase in noise and vibration during the duration of construction; however, this is not expected to extend post-construction, as operations and maintenance activities will be identical and will follow the same schedule as the existing Colorado River Aqueduct facility.

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7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Signed:  Date: October 6, 2020

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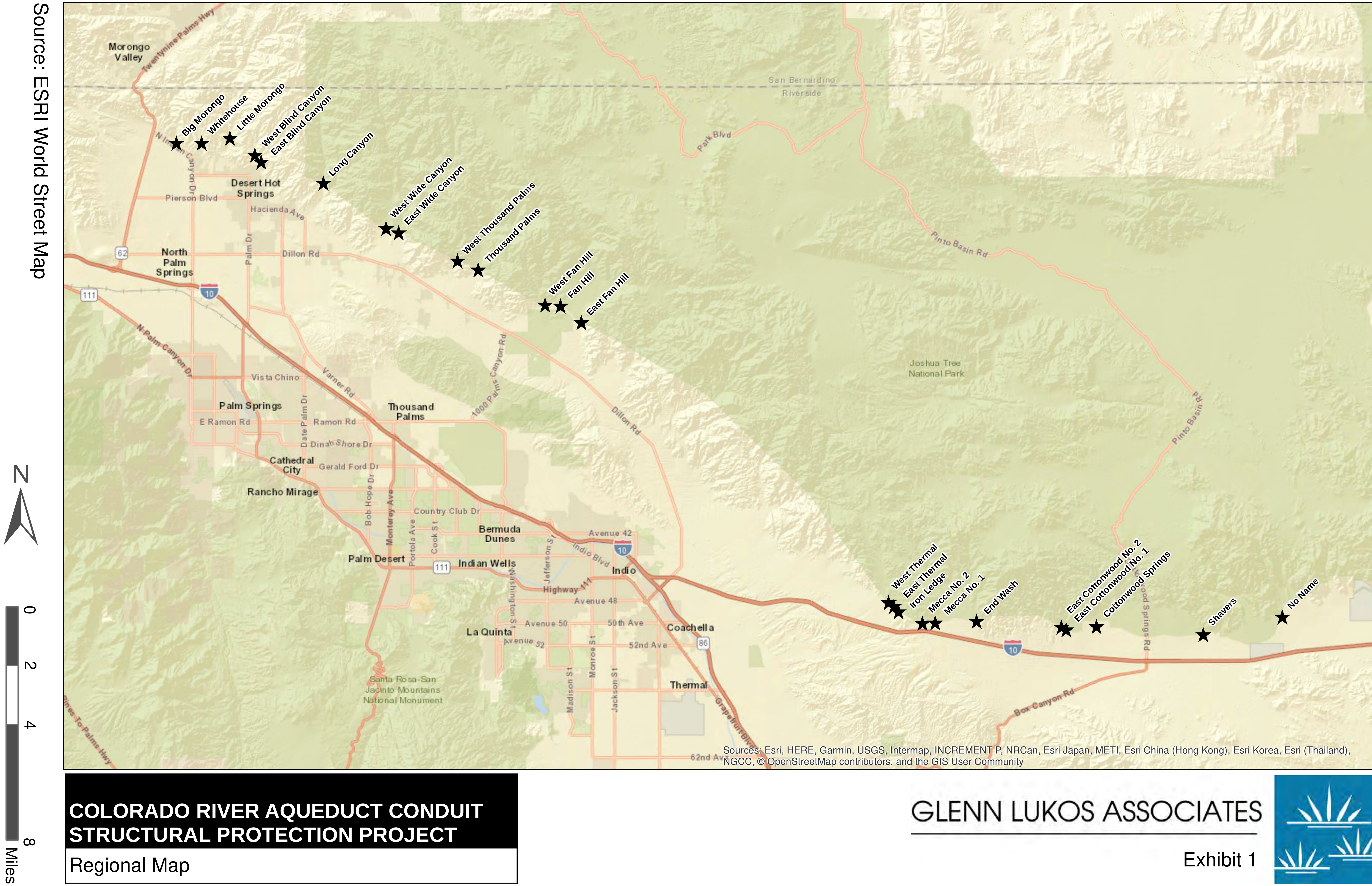
Source: ESRI World Street Map



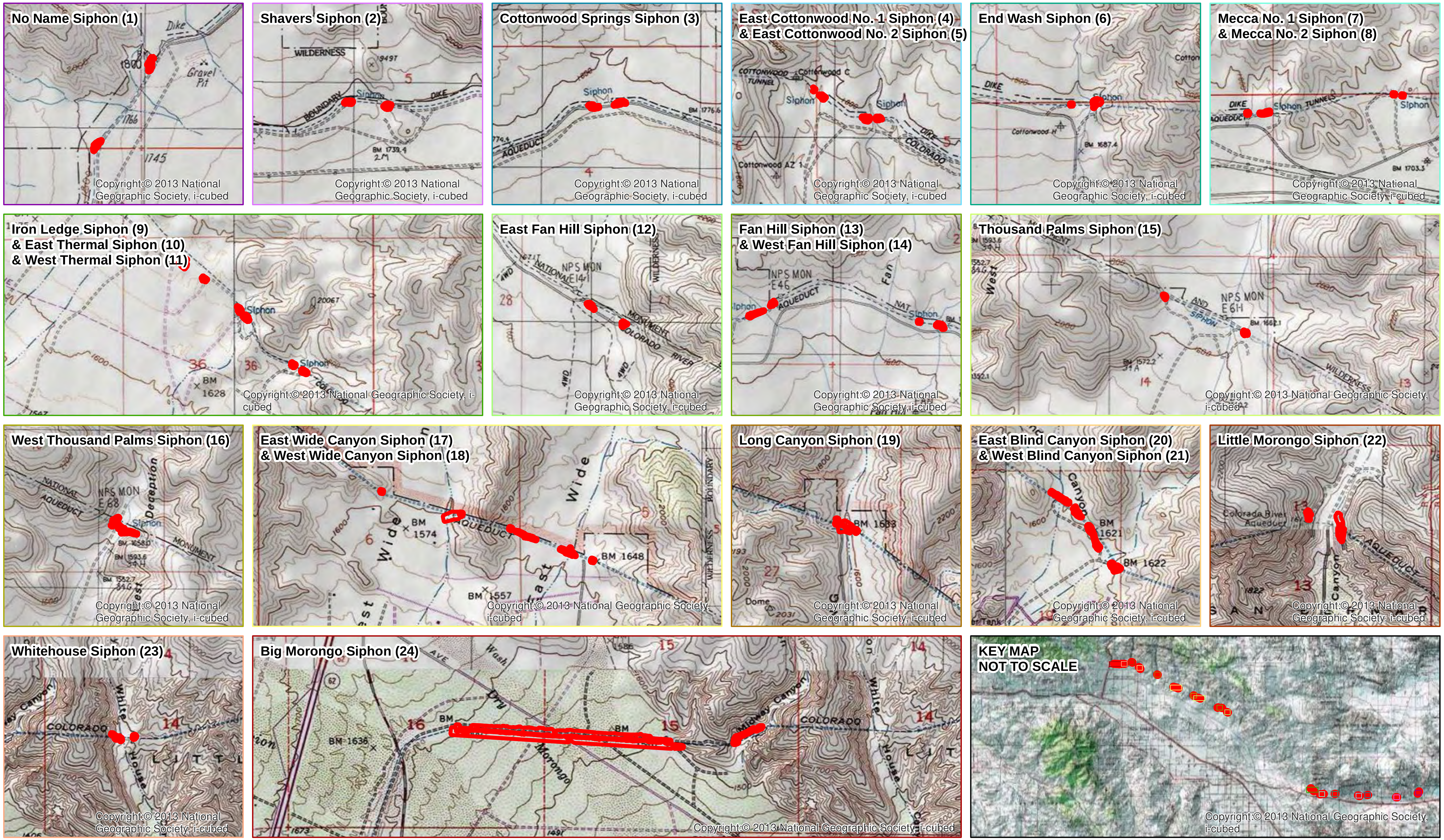
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1

Adapted from USGS Desert Hot Springs, Morongo Valley, Seven Palms Valley, East Deception Canyon, Keys View, Thermal Canyon, Cottonwood Basin, Cottonwood Spring, and Hayfield, CA quadrangles



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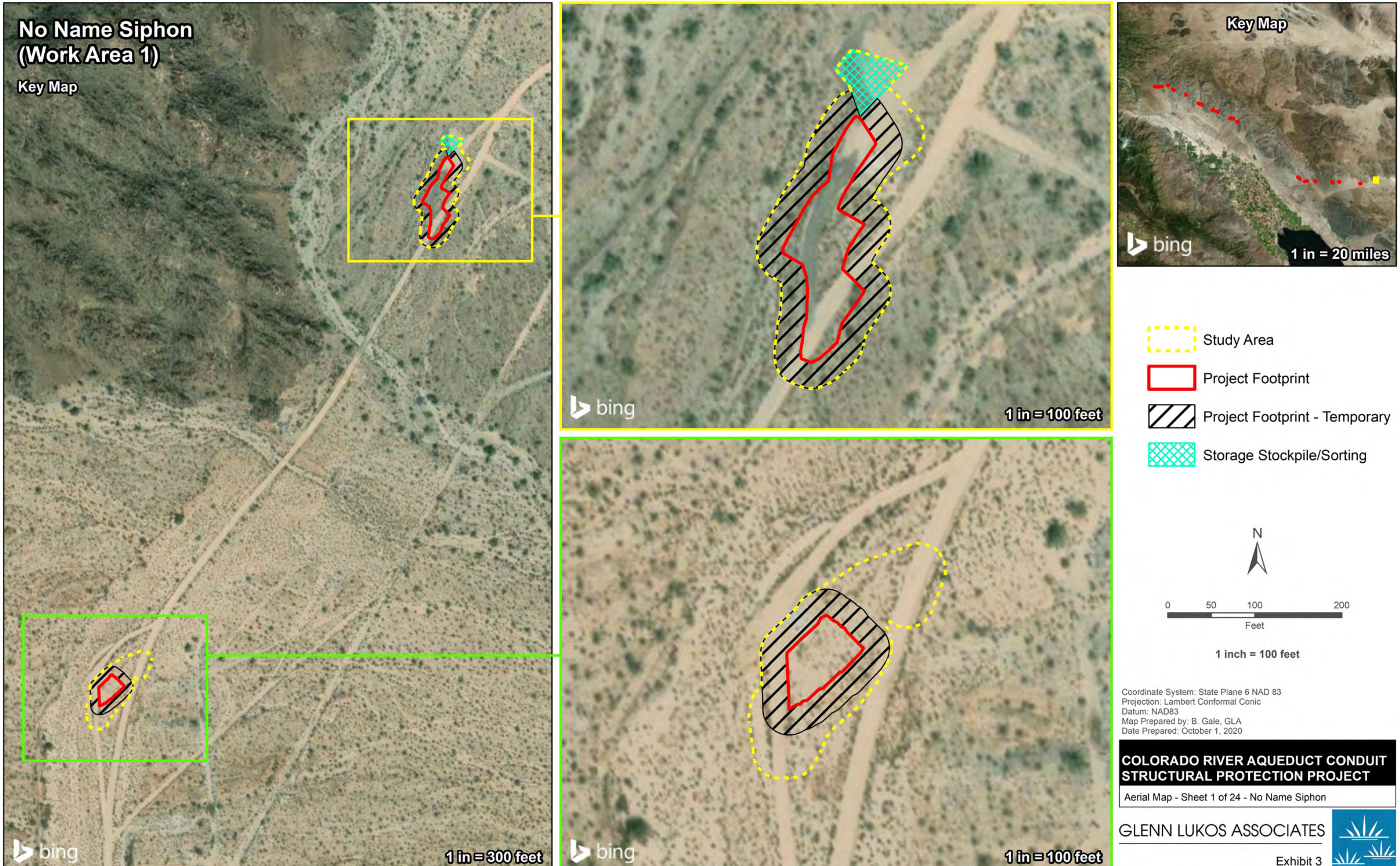
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



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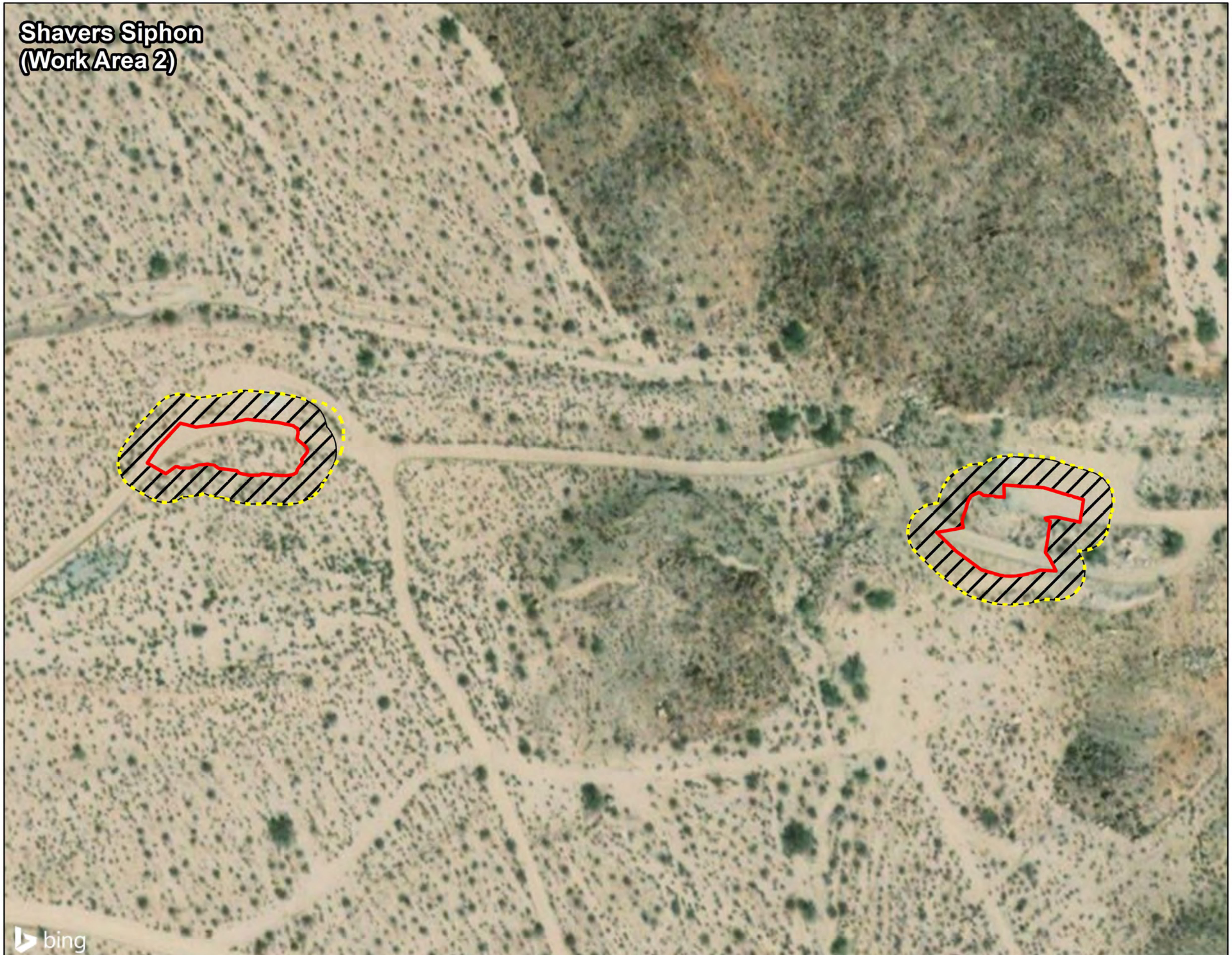

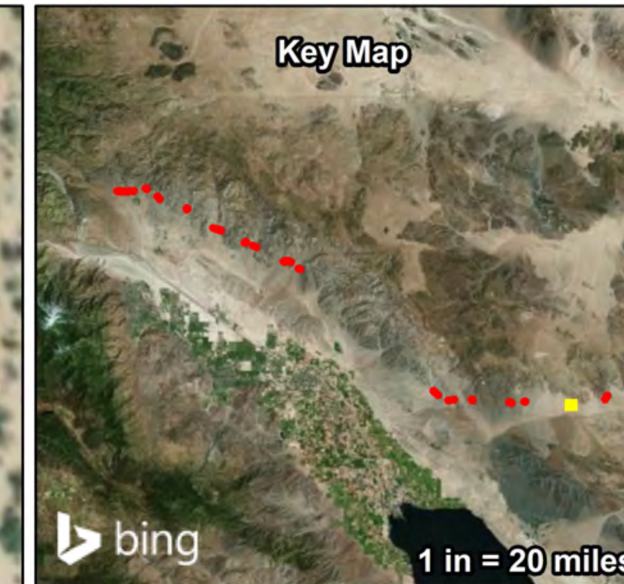

Study Area

Project Footprint

Project Footprint - Temporary

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Feet

1 inch = 100 feet

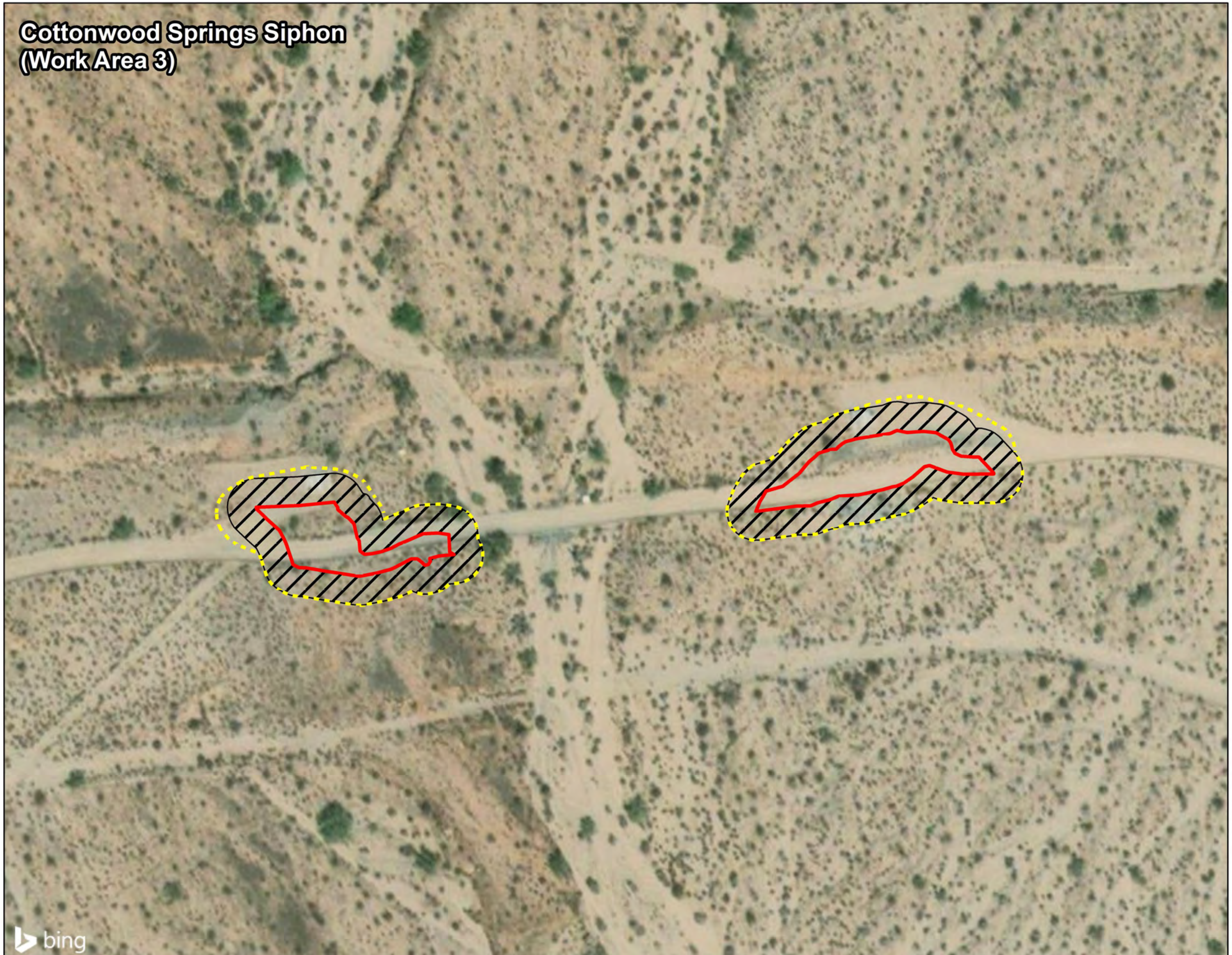
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

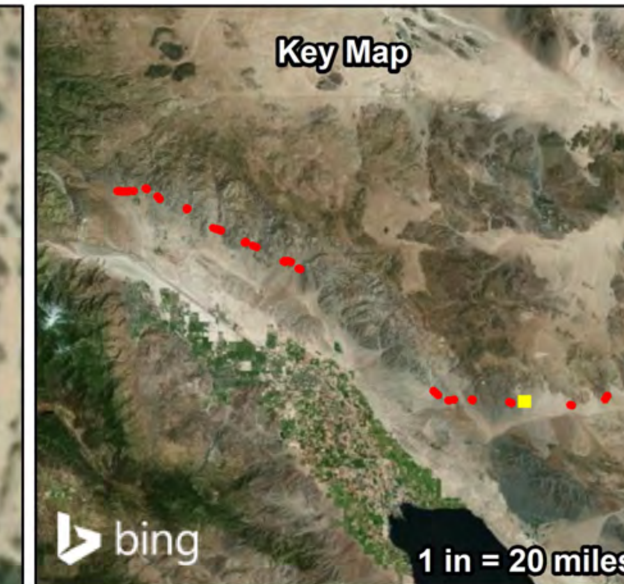
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 2 of 24 - Shavers Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3





Study Area

Project Footprint

Project Footprint - Temporary

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Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 3 of 24 - Cottonwood Springs Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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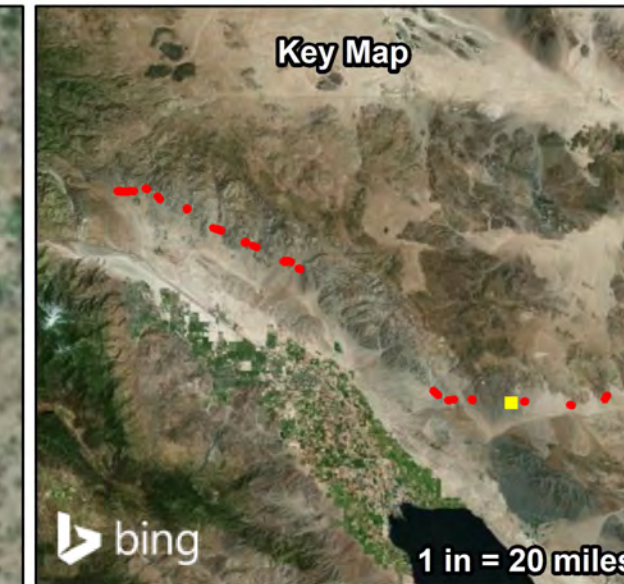

Study Area

Project Footprint

Project Footprint - Temporary

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Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 4 of 24 - East Cottonwood No. 1 Siphon

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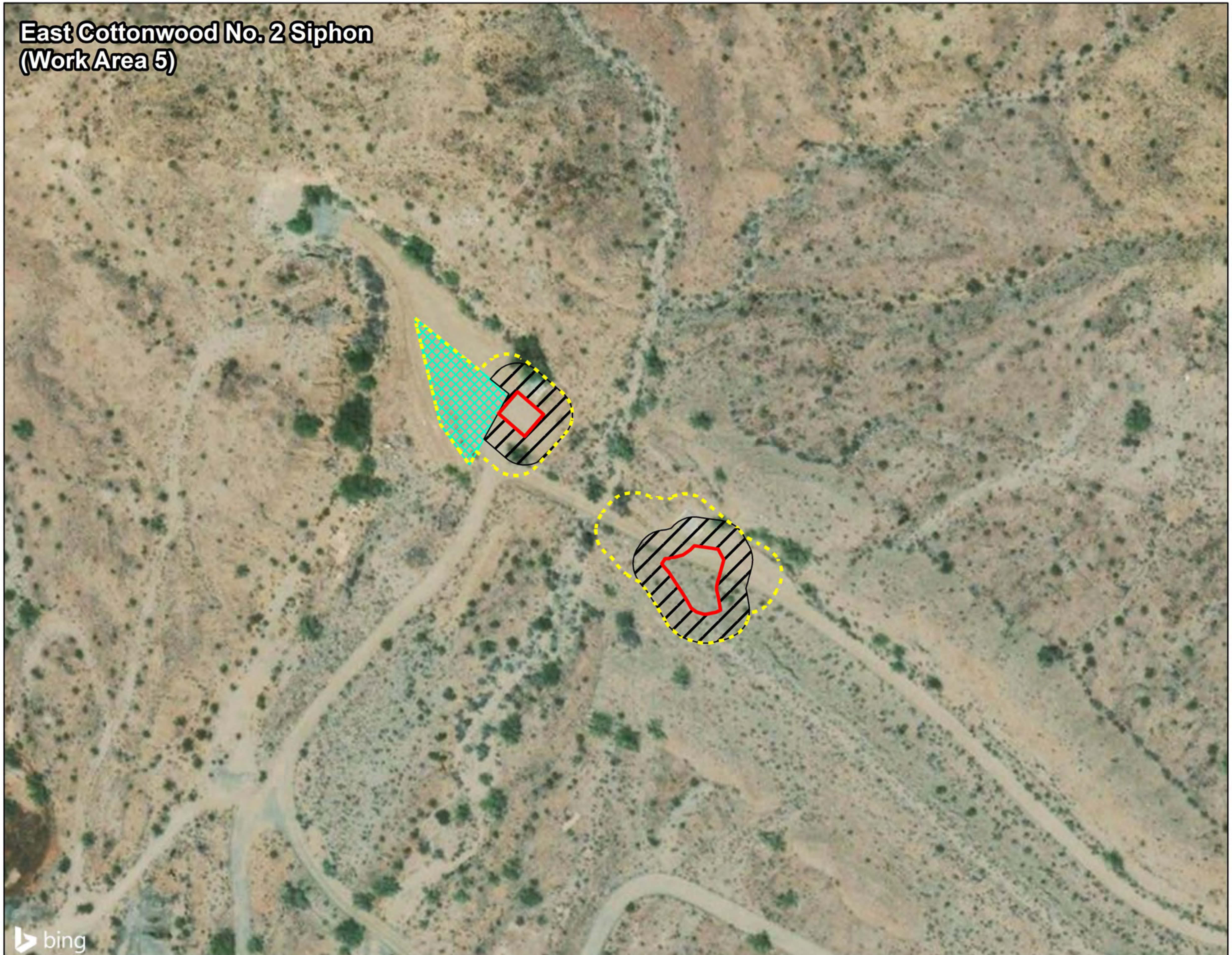
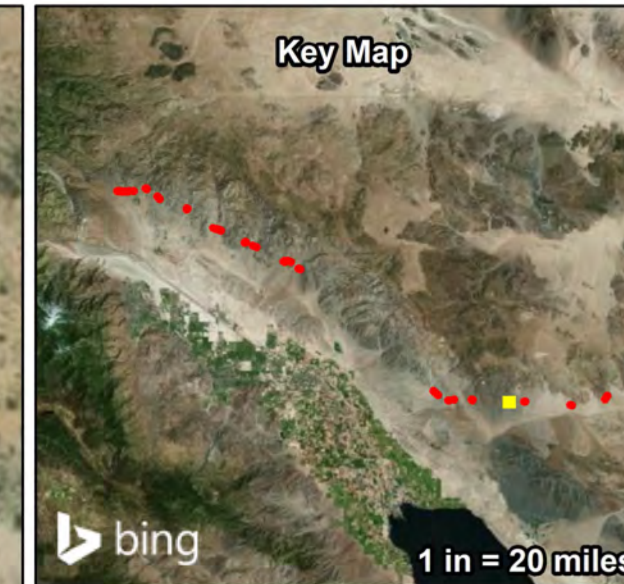
Exhibit 3





Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

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Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 5 of 24 - East Cottonwood No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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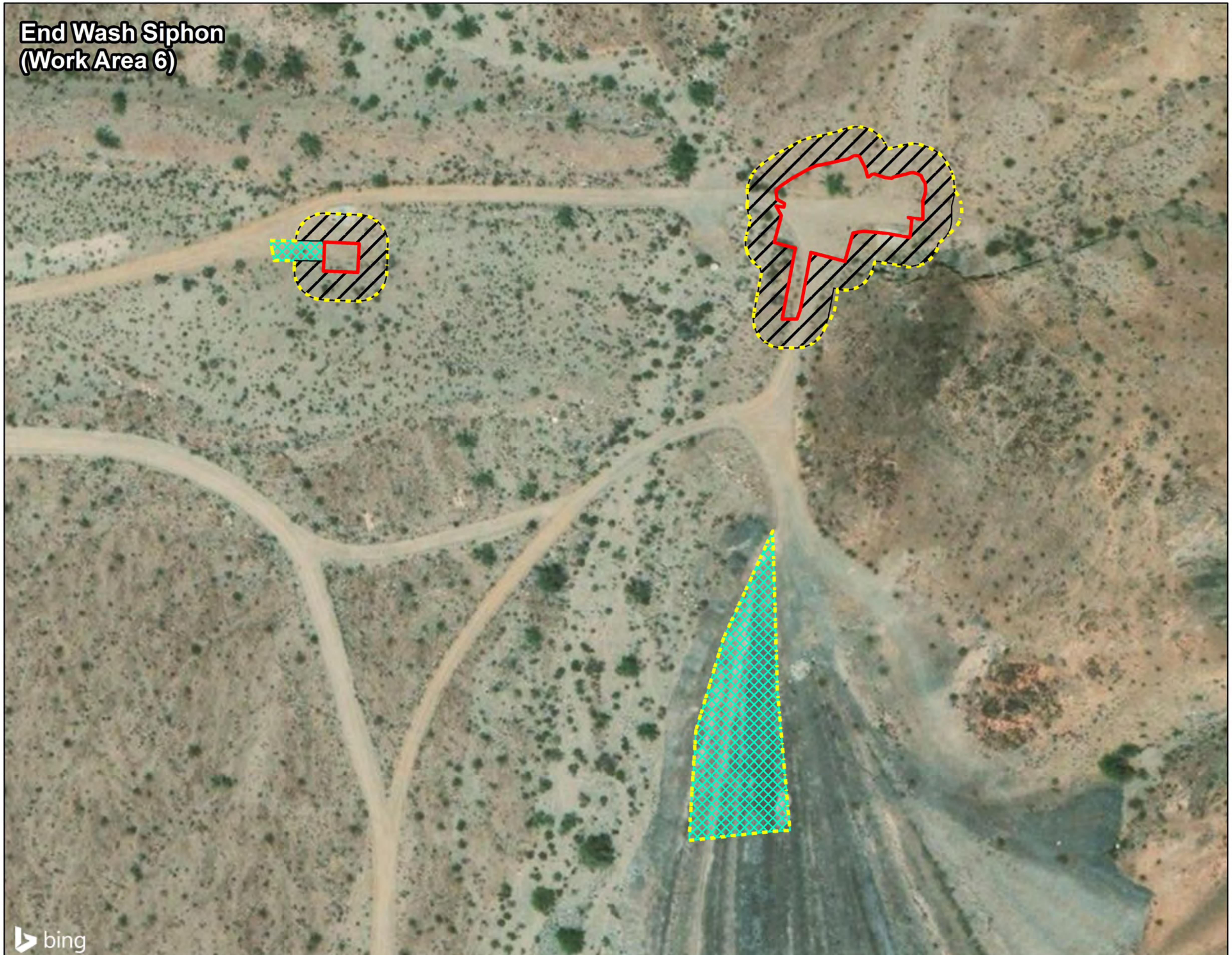
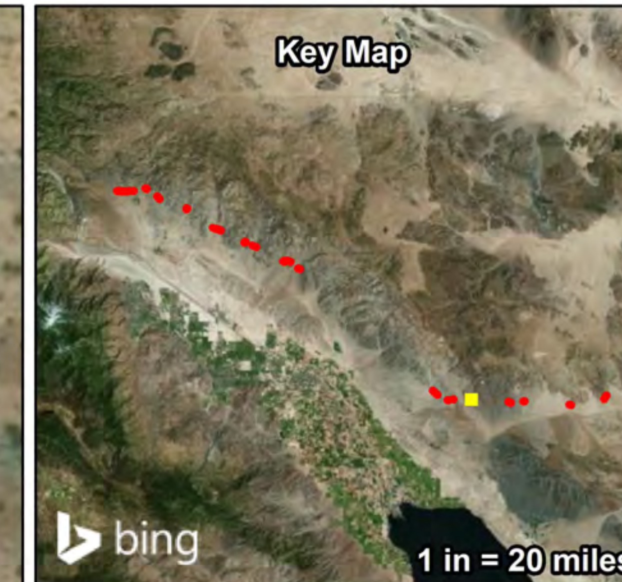




Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

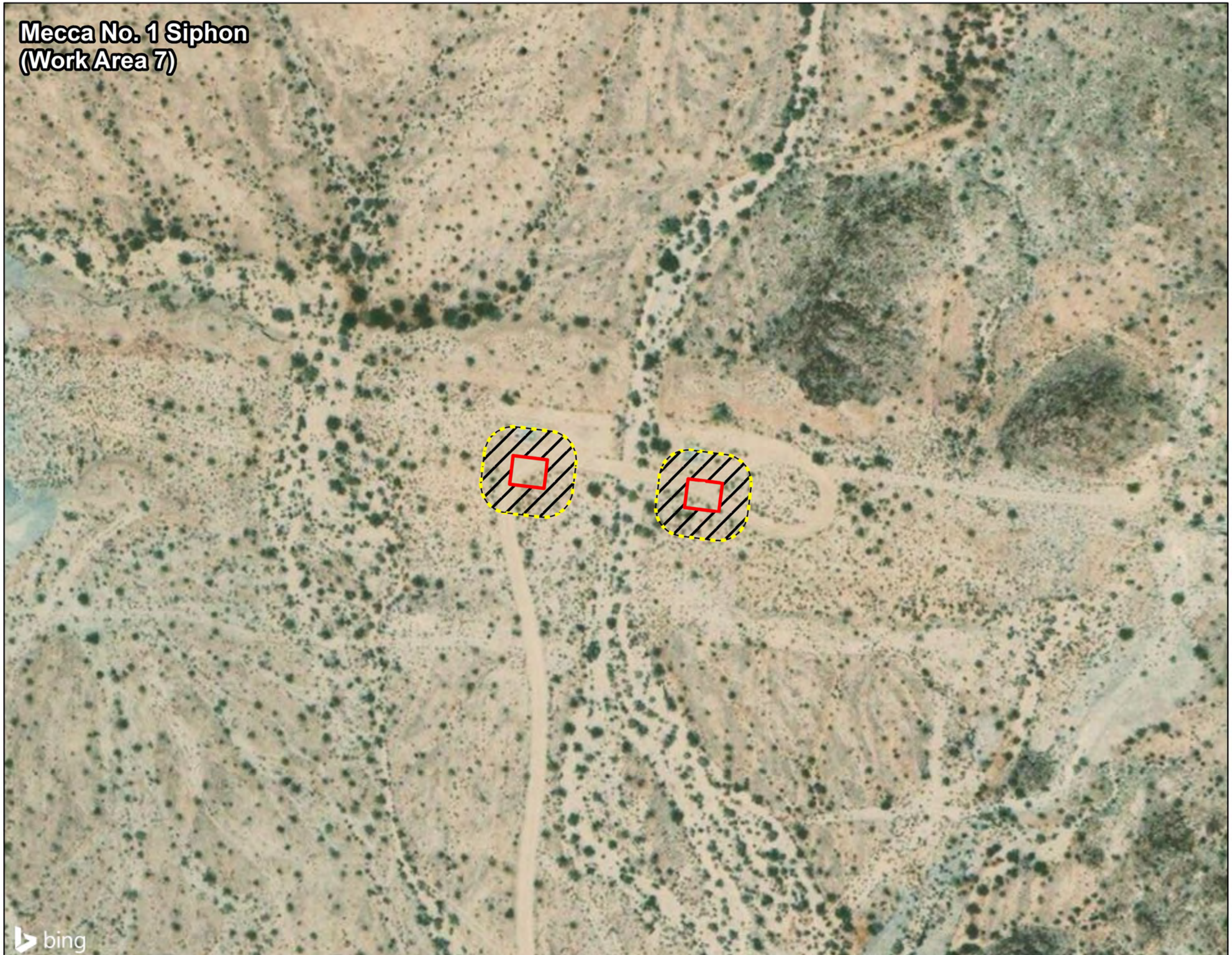
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

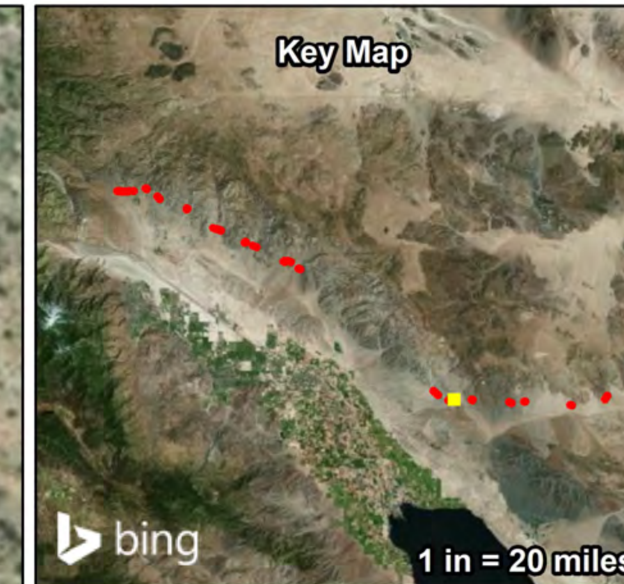
Aerial Map - Sheet 6 of 24 - End Wash Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\StudyAreaGIS\43-27CRAS_Aerial_06_EndWashSiphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

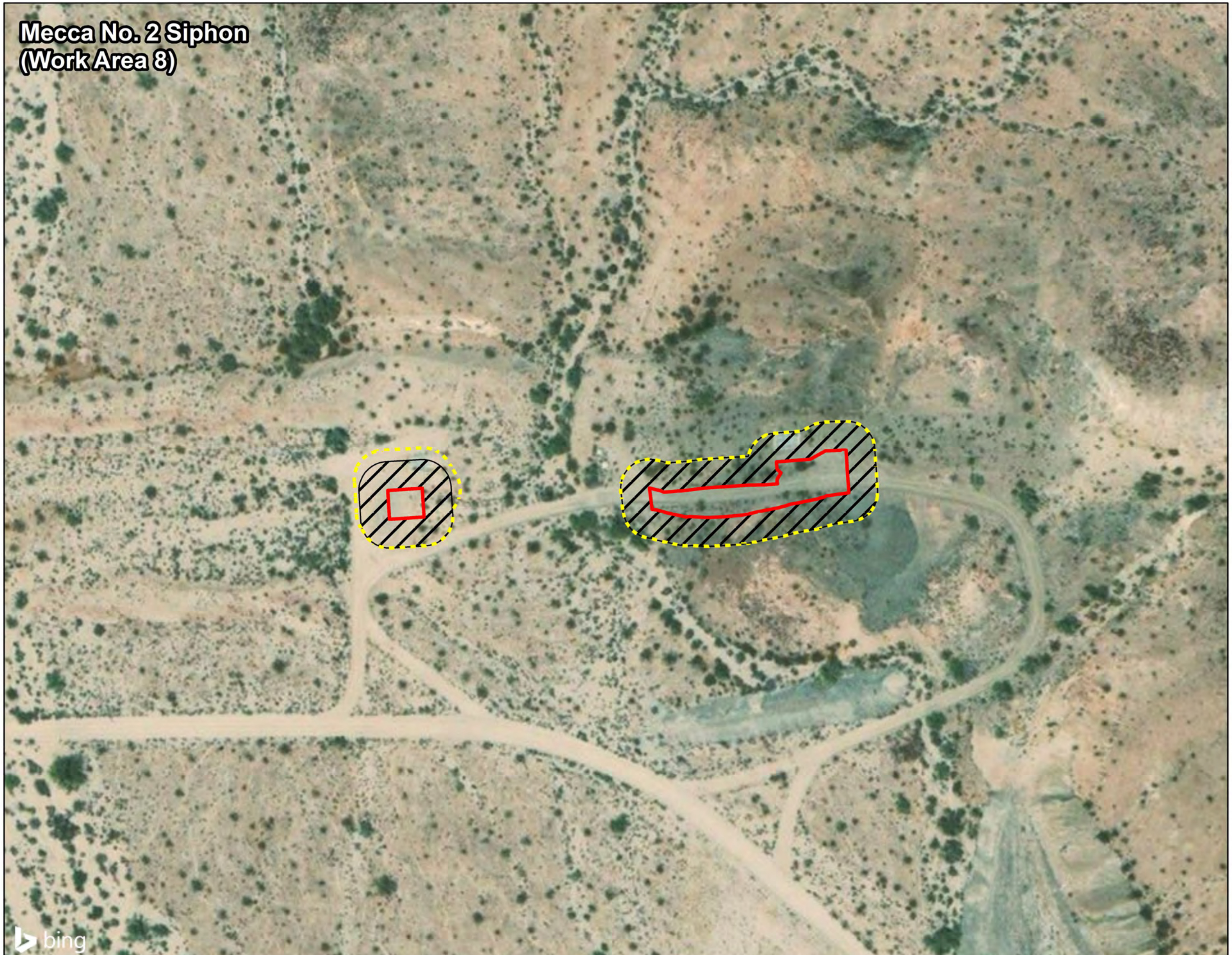
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

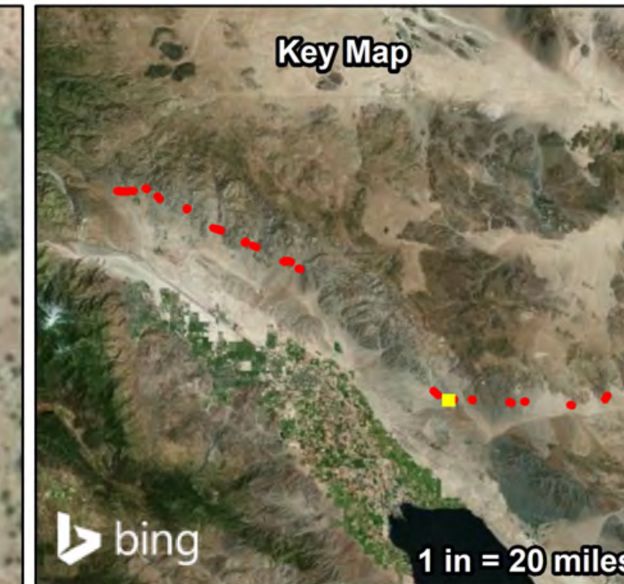
Aerial Map - Sheet 7 of 24 - Mecca No. 1 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\StudyAreaGIS\43-27CRAS_Aerial_07_MeccaNo1Siphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

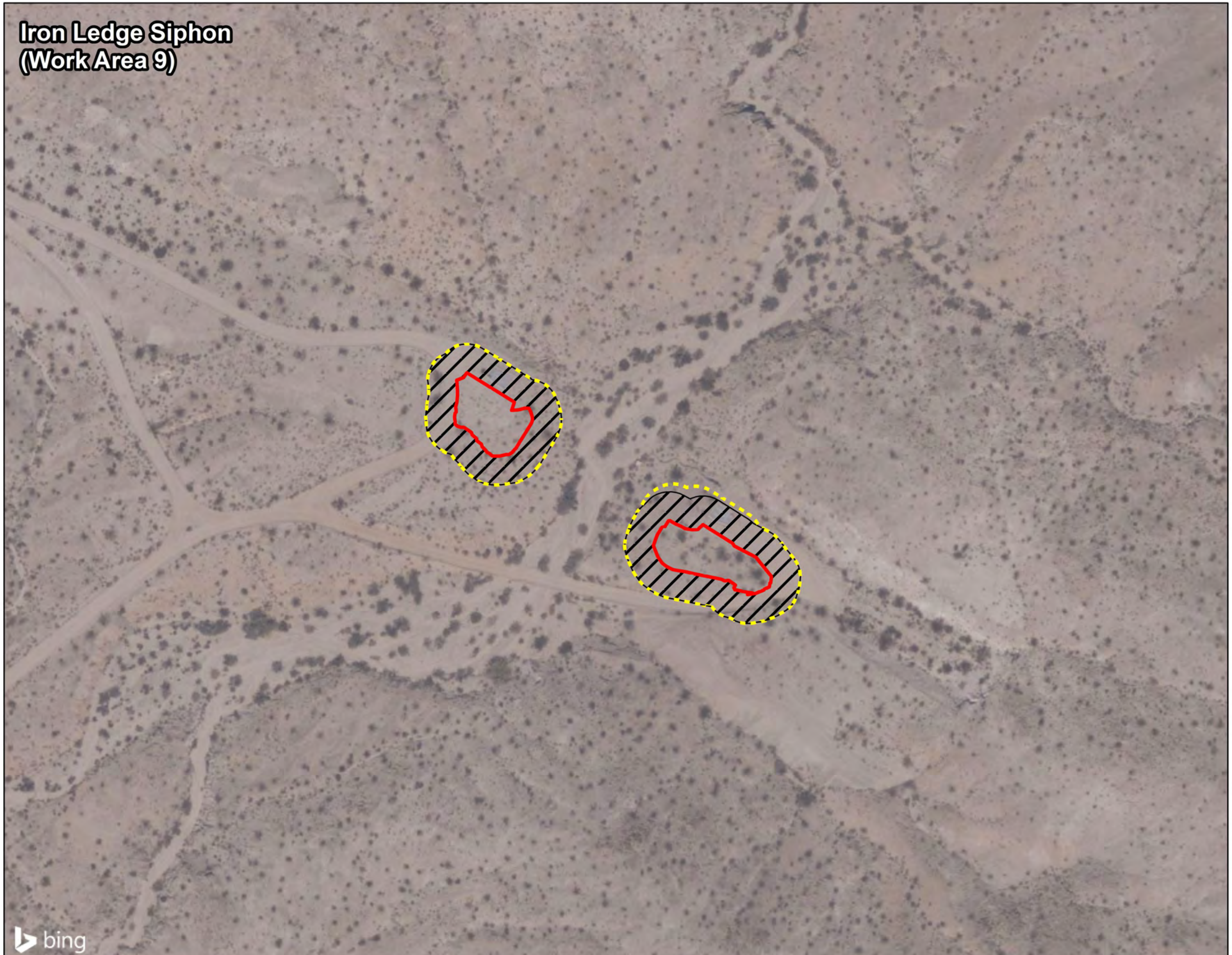
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

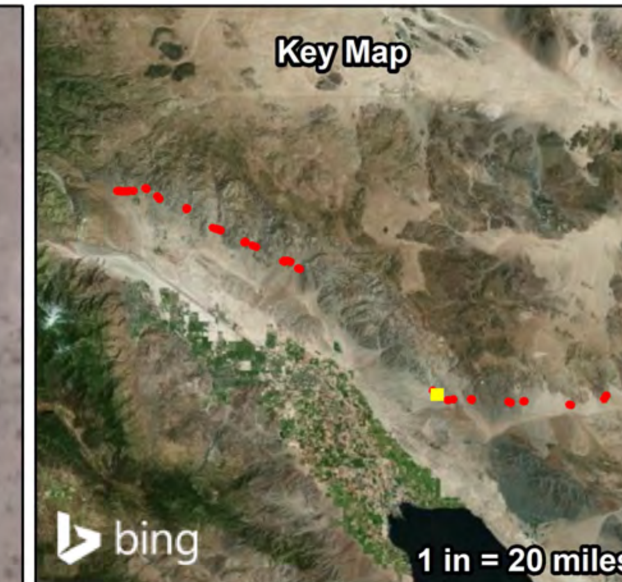
Aerial Map - Sheet 8 of 24 - Mecca No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\StudyAreaGIS\43-27CRAS_Aerial_08_MeccaNo2Siphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 9 of 24 - Iron Ledge Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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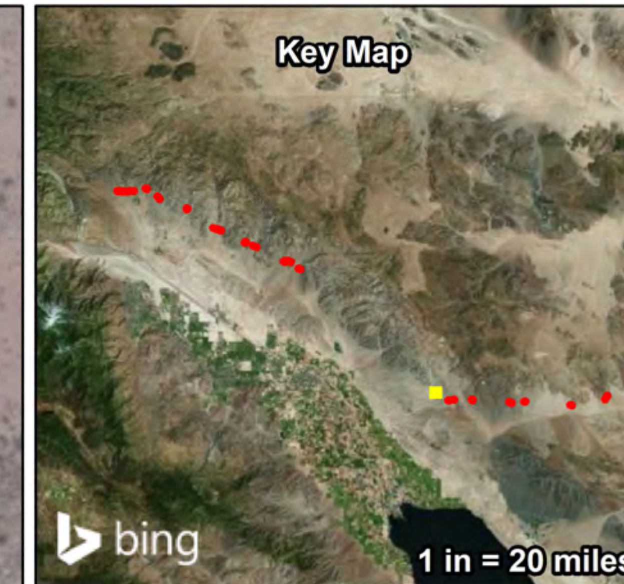

Study Area

Project Footprint

Project Footprint - Temporary

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 10 of 24 - East Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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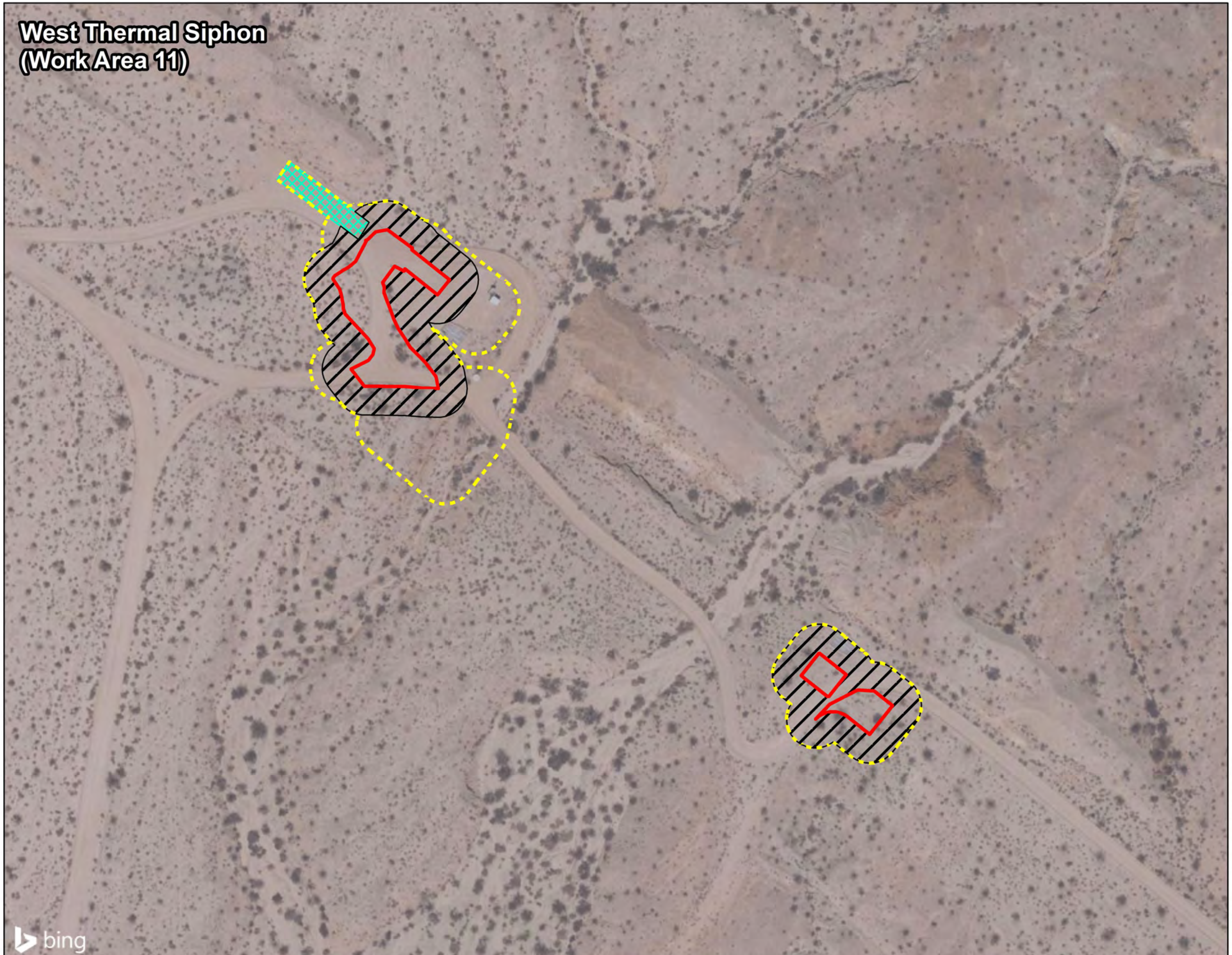

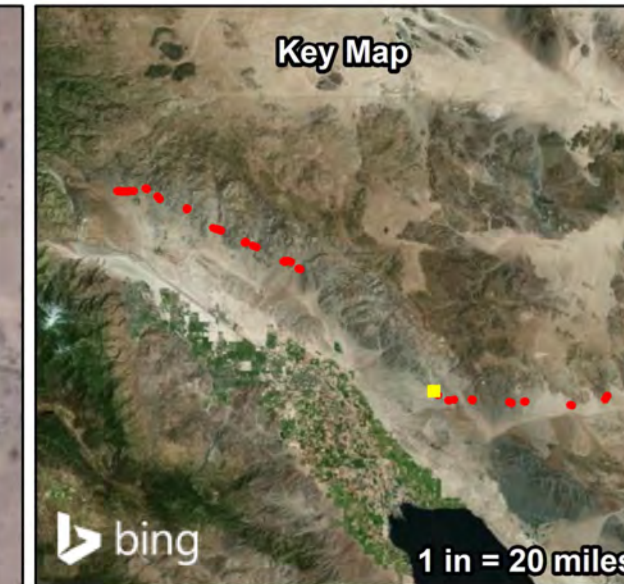

Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 11 of 24 - West Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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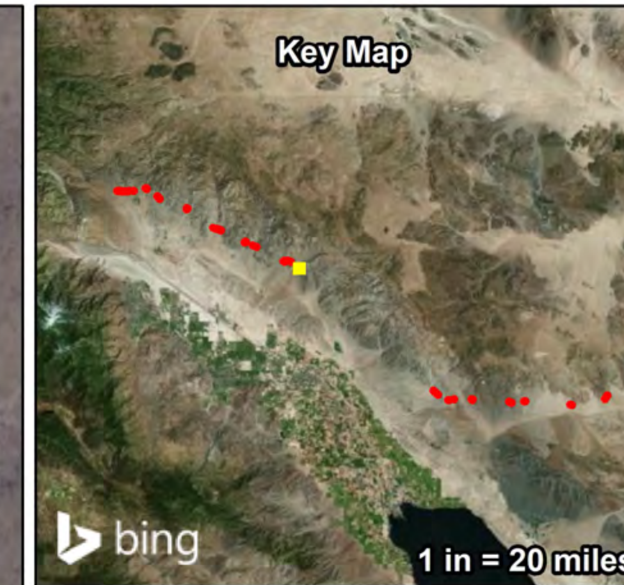

Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 12 of 24 - East Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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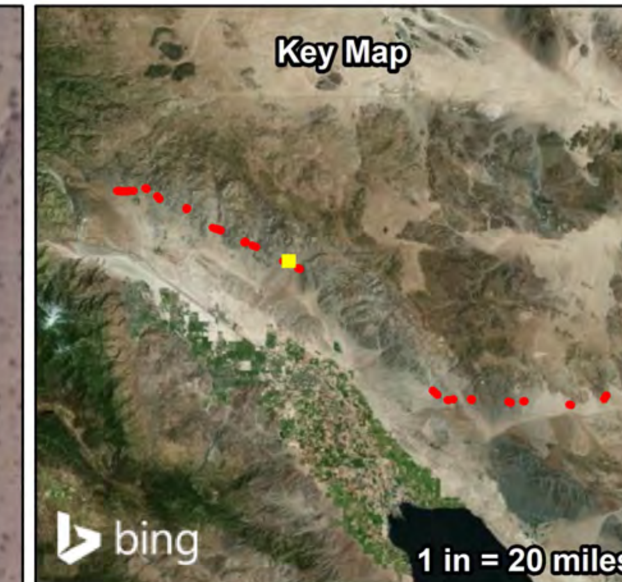

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 13 of 24 - Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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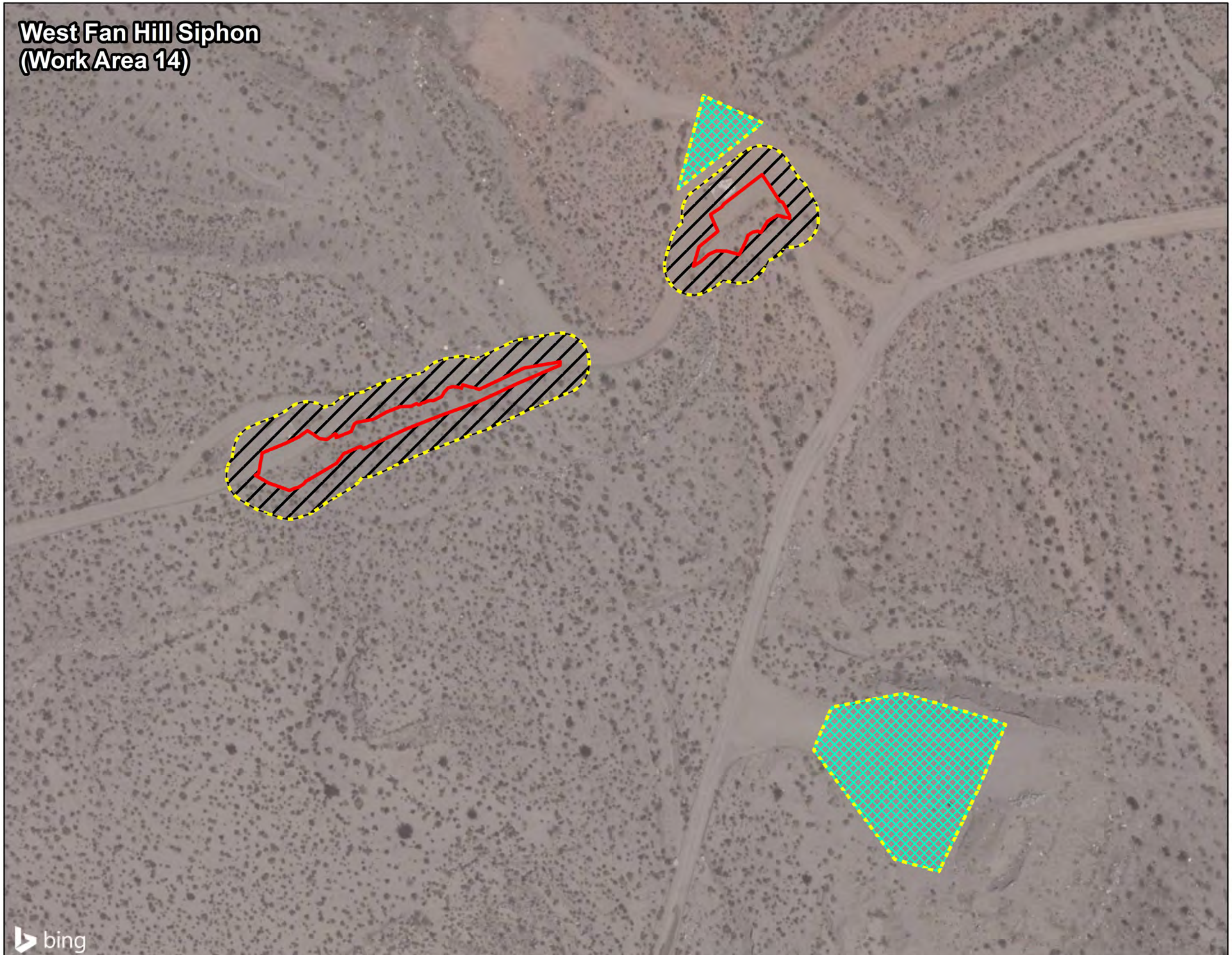

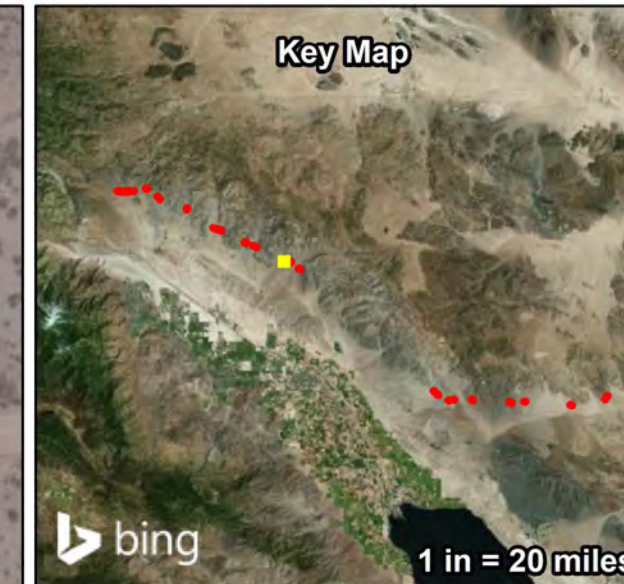

Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 14 of 24 - West Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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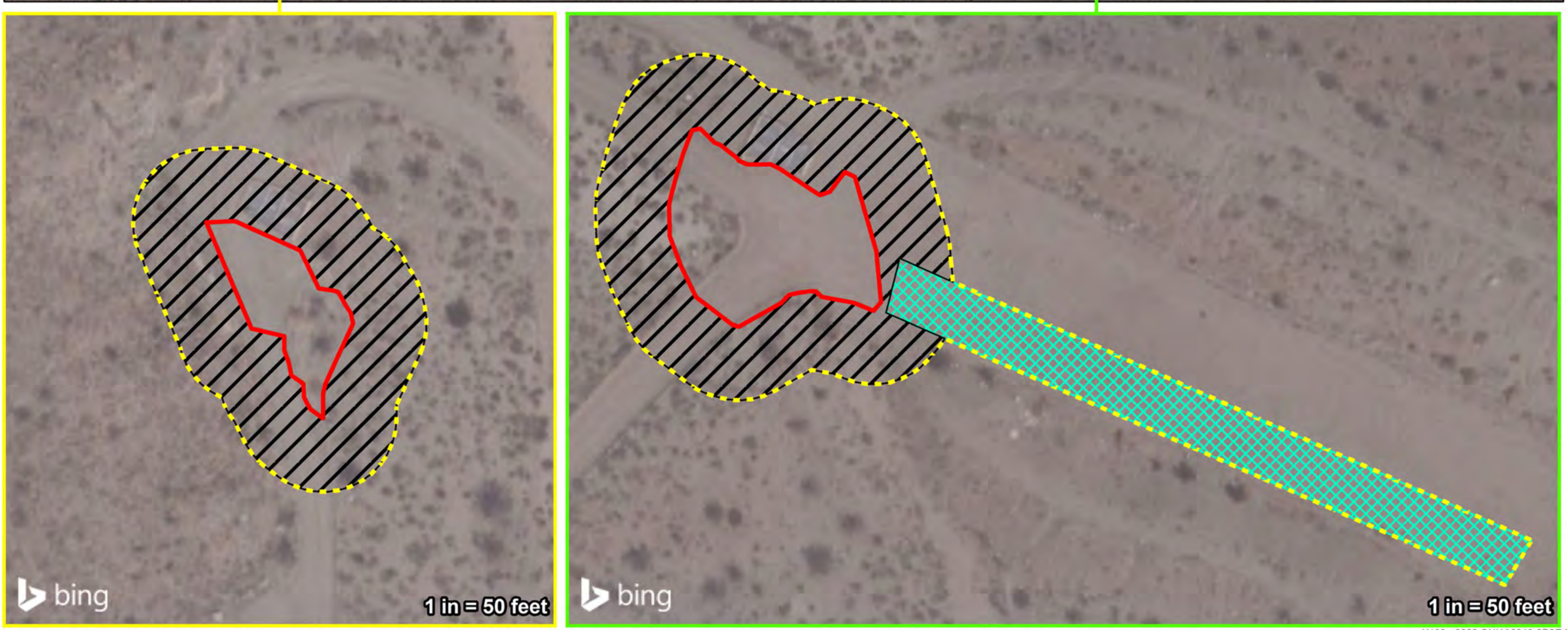

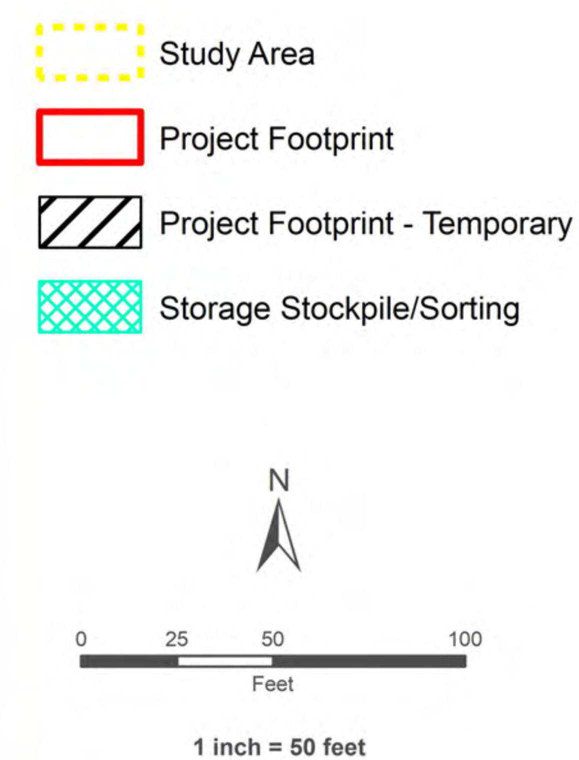

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 15 of 24 - Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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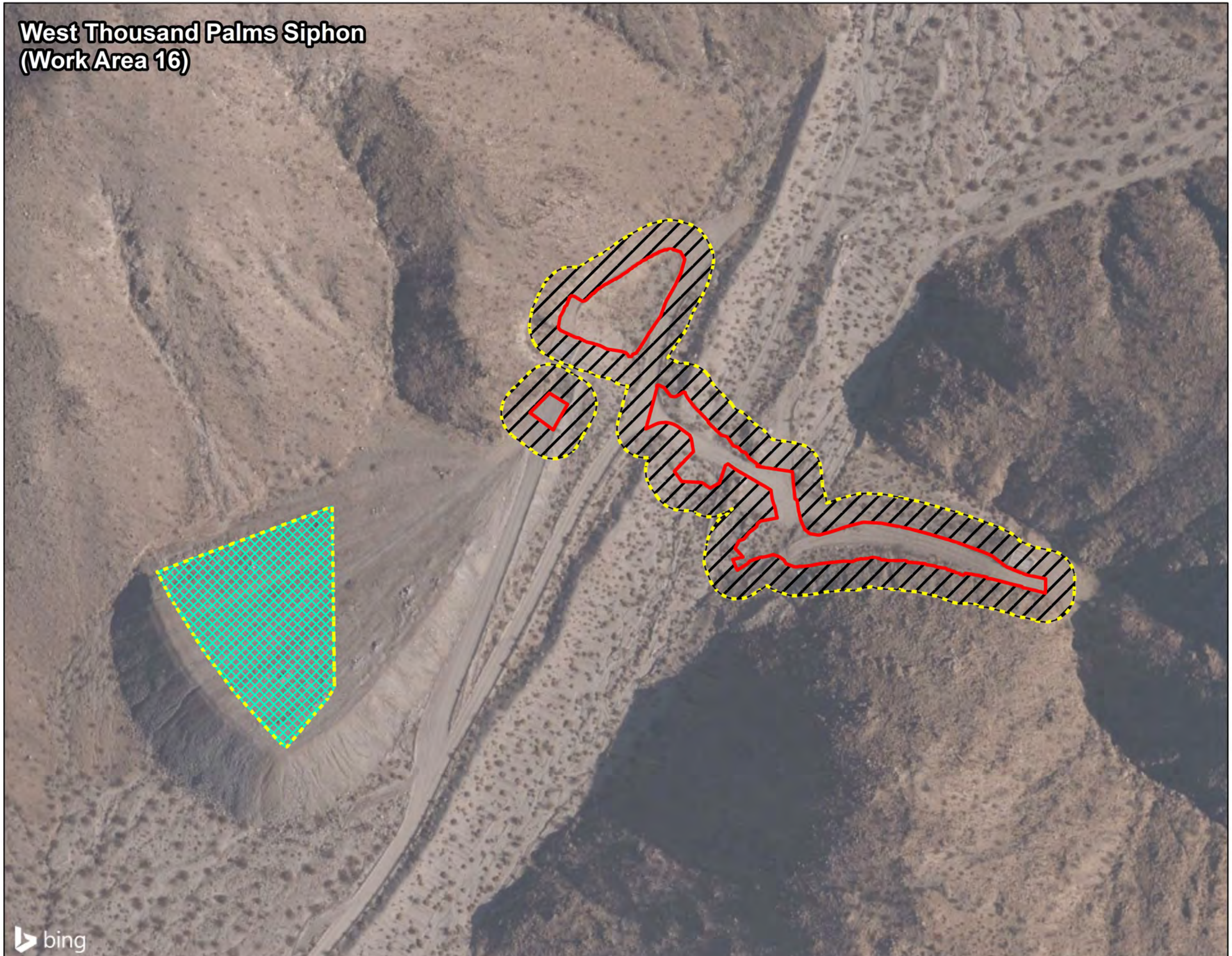
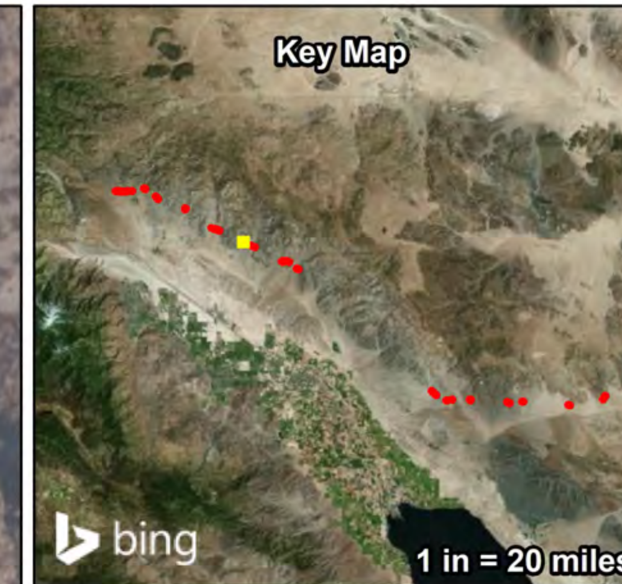




Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting

N

0 50 100 200
Feet

1 inch = 100 feet

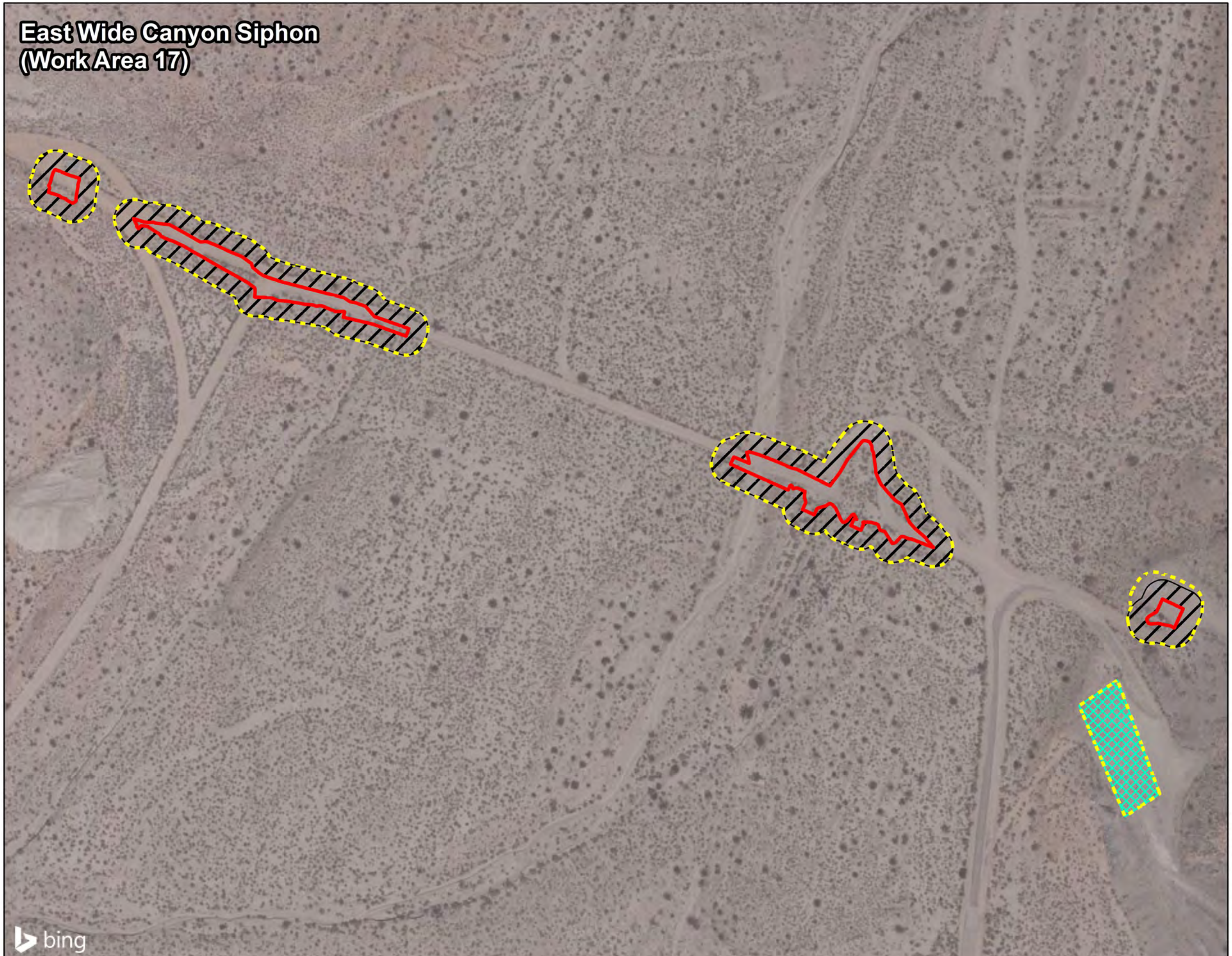
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

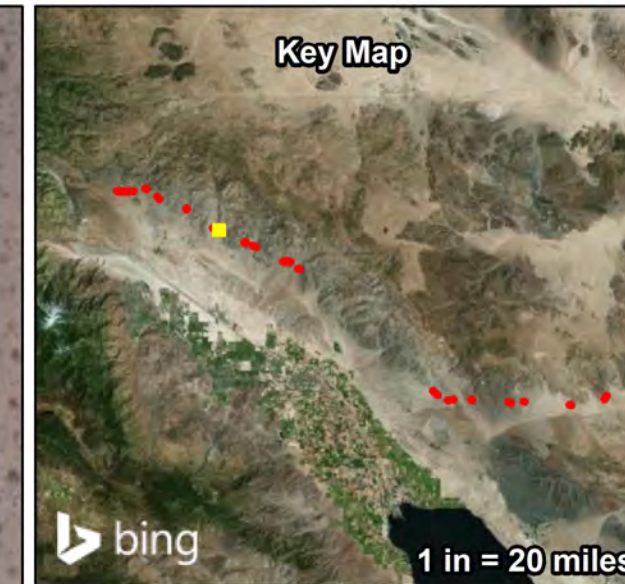
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 16 of 24 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3





Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

N

0 75 150 300

Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 17 of 24 - East Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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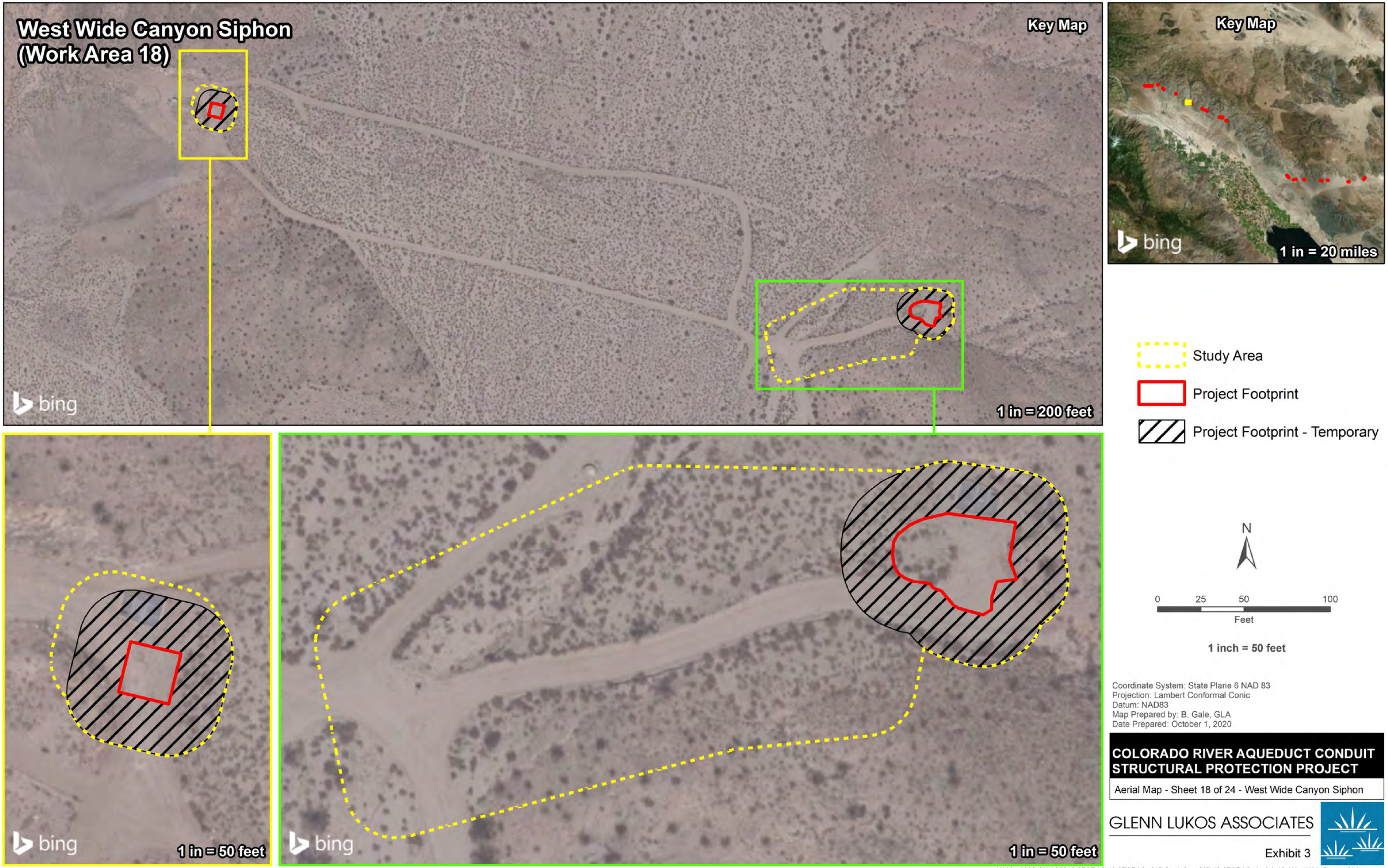
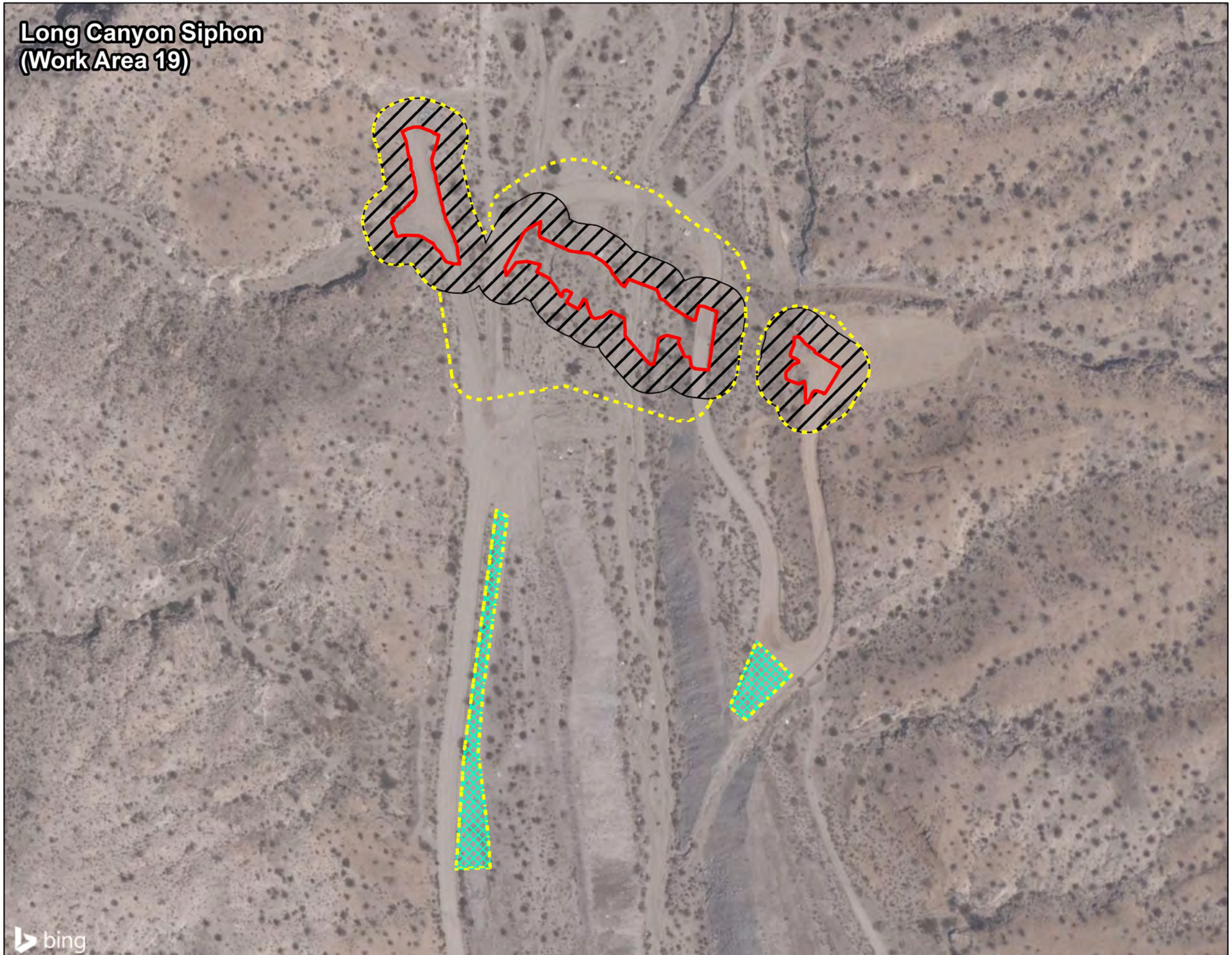
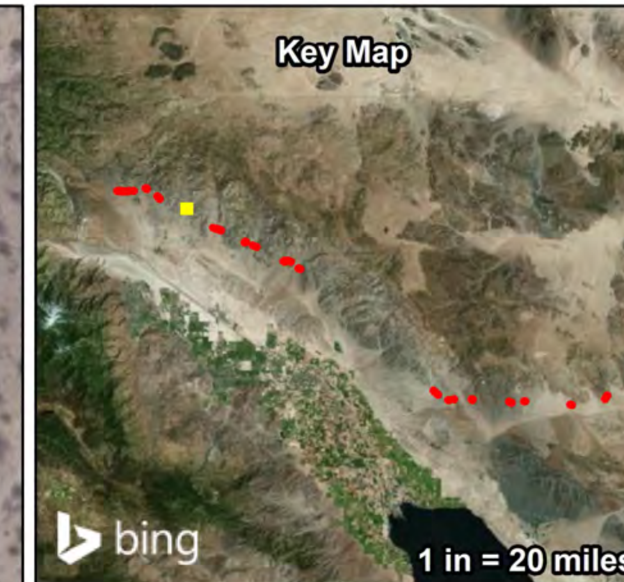


West Wide Canyon Siphon
(Work Area 18)
Key Map
Key Map
bing
1 in = 20 miles
bing
1 in = 200 feet
bing
1 in = 50 feet
bing
1 in = 50 feet
Study Area
Project Footprint
Project Footprint - Temporary
N
0
25
50
100
Feet
1 inch = 50 feet
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT
Aerial Map - Sheet 18 of 24 - West Wide Canyon Siphon
GLENN LUKOS ASSOCIATES
Exhibit 3
X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\StudyAreaGIS\43-27CRAS_Aerial_18_WestWideCanyonSiphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 19 of 24 - Long Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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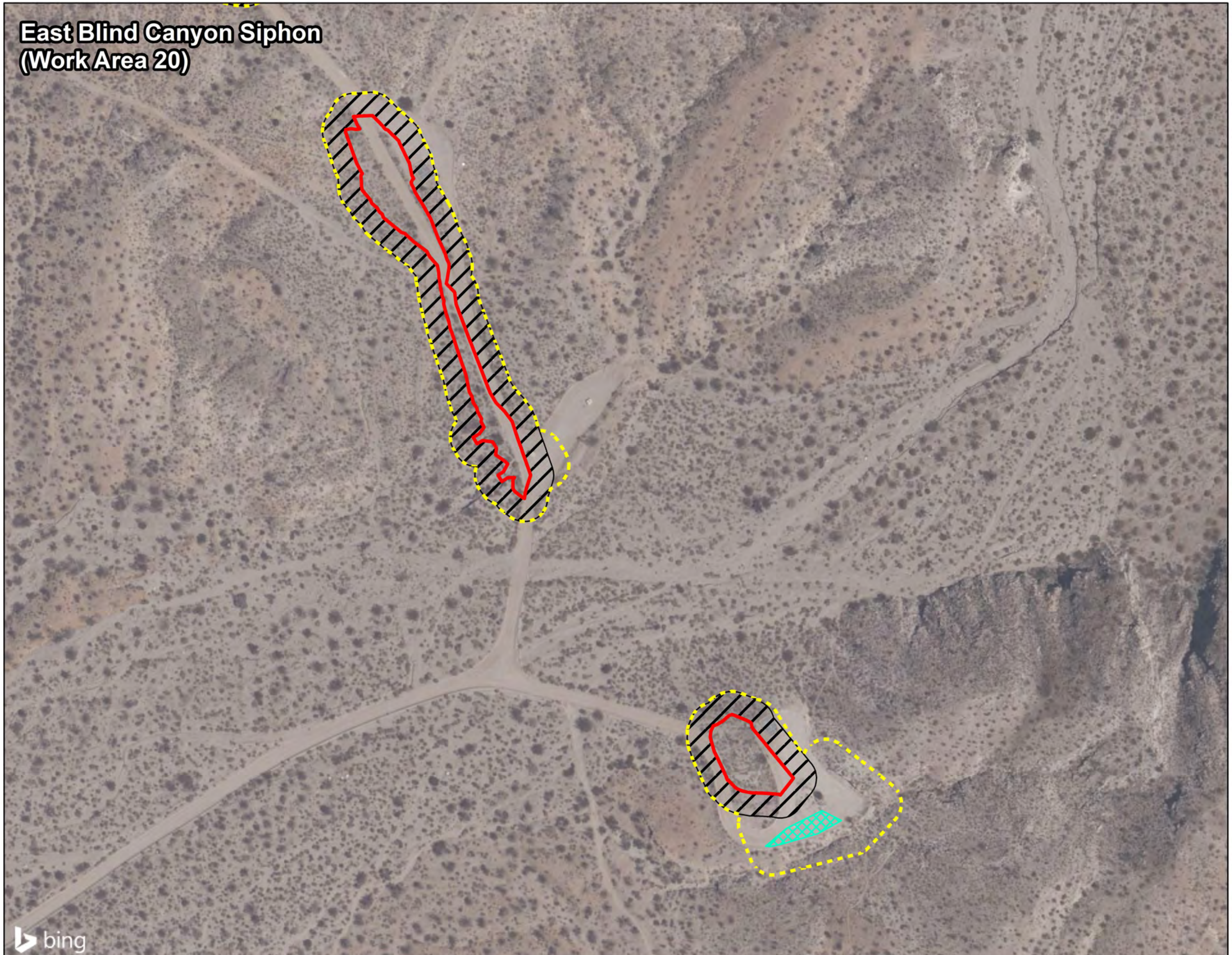

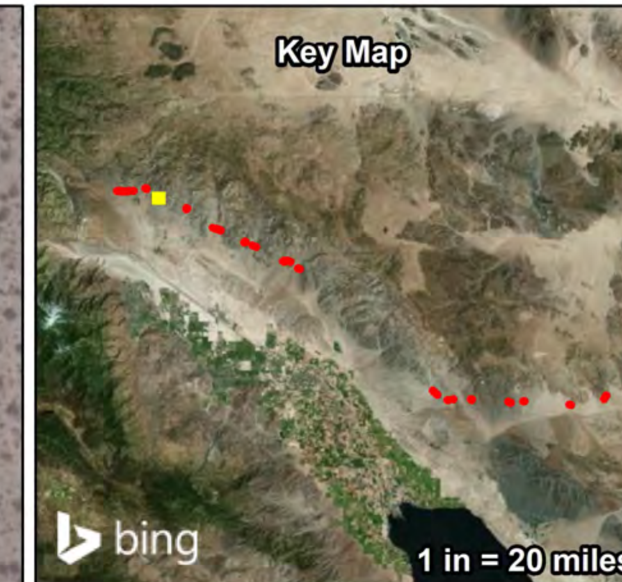

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting

N
0 62.5 125 250
Feet
1 inch = 125 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Aerial Map - Sheet 20 of 24 - East Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

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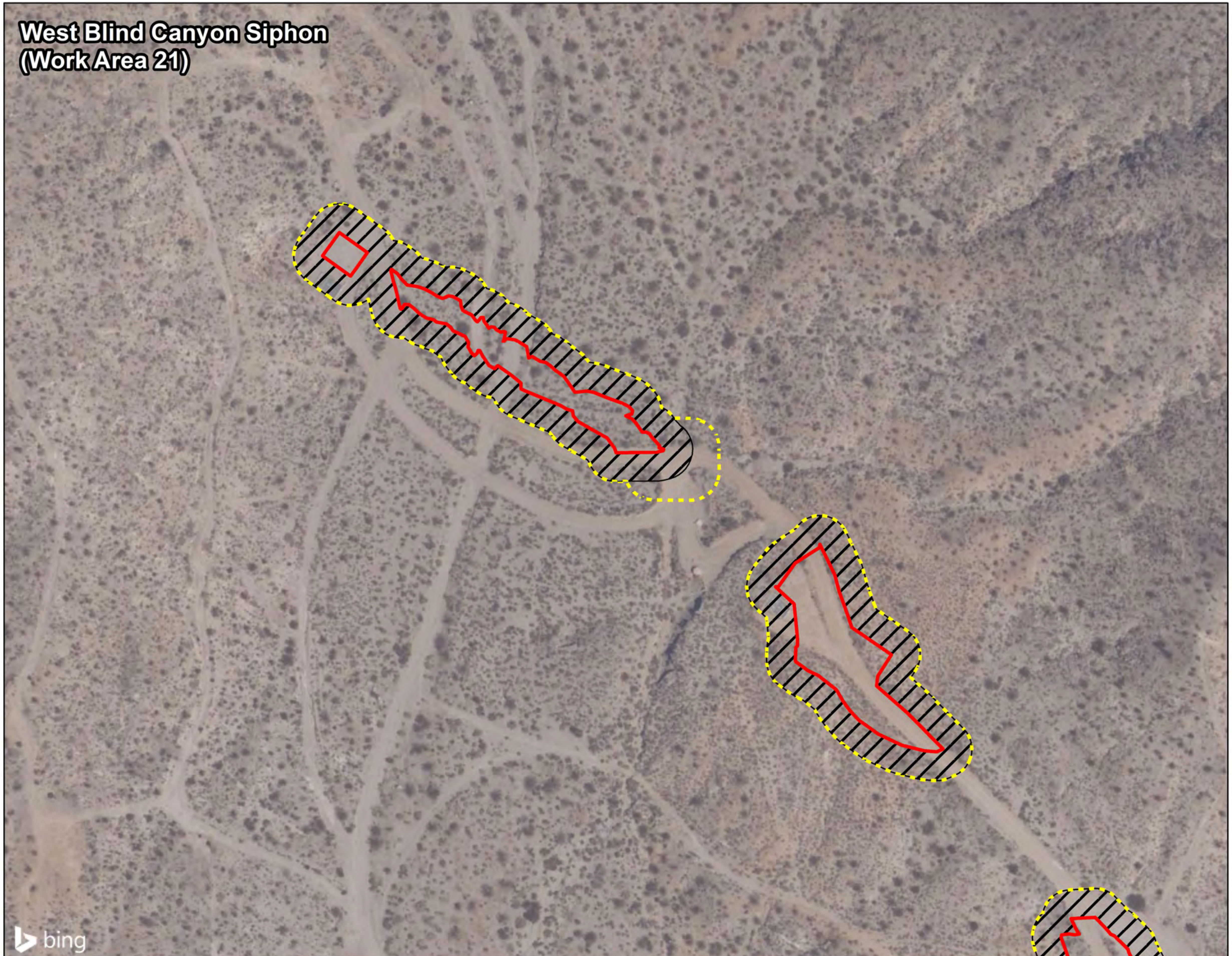
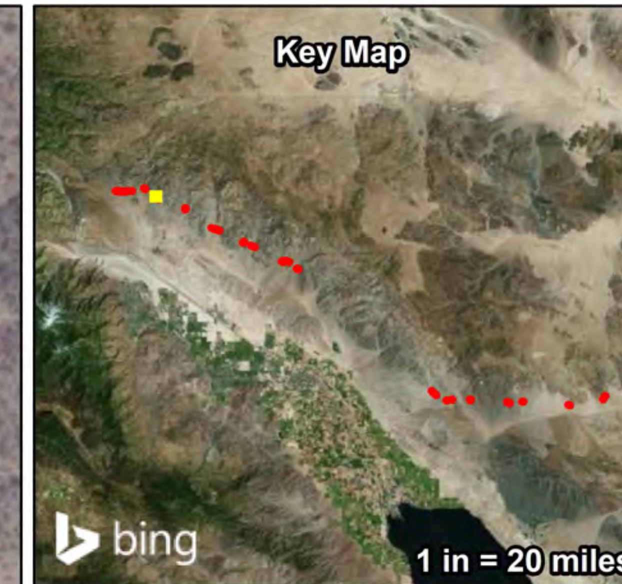




Study Area
Project Footprint
Project Footprint - Temporary

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

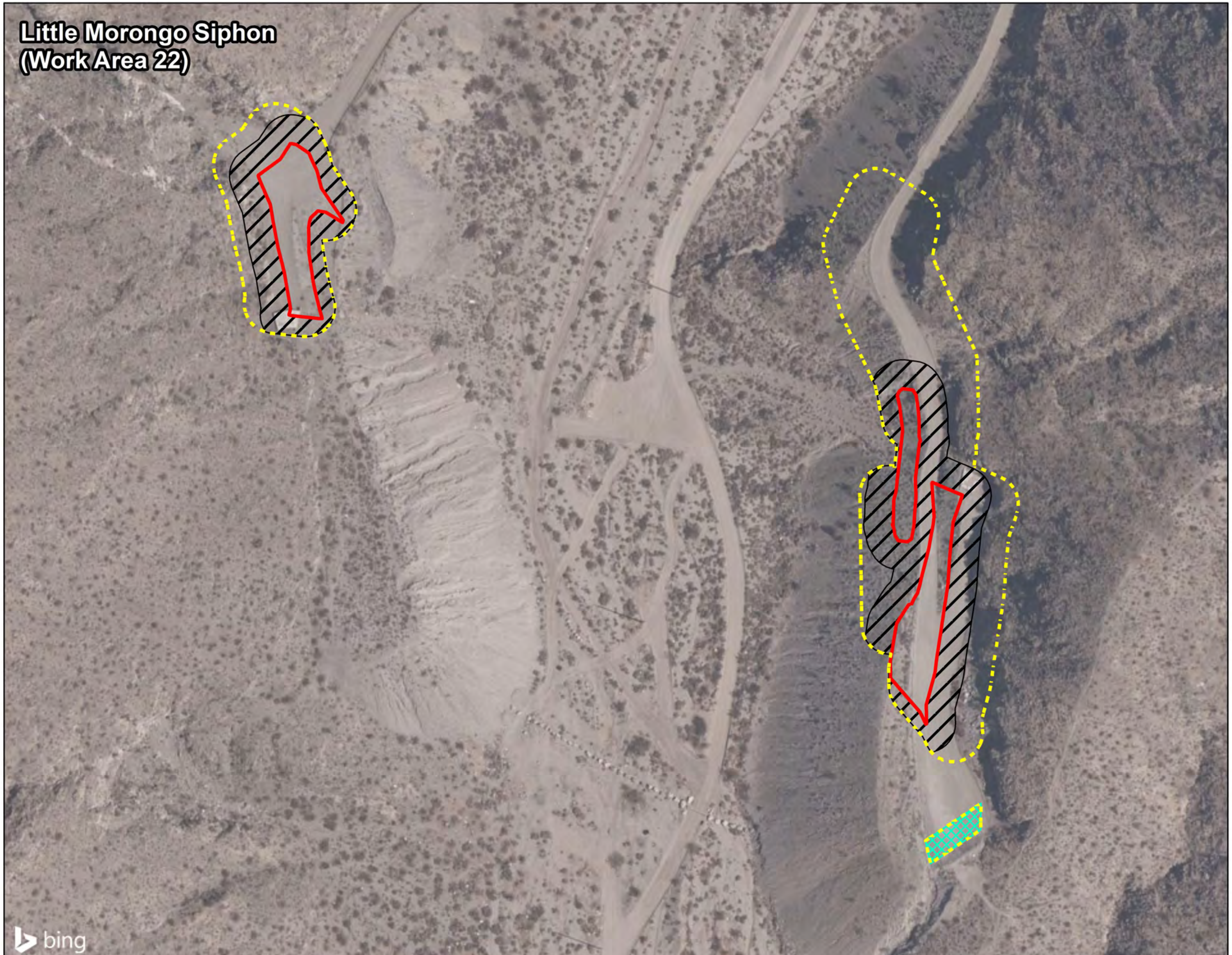
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

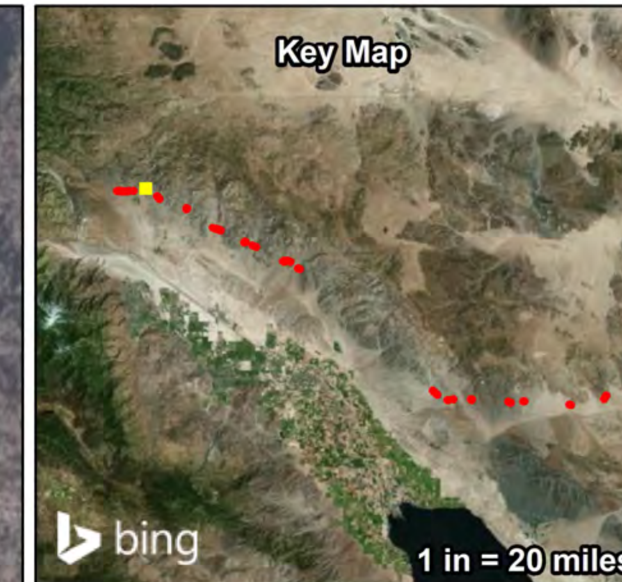
Aerial Map - Sheet 21 of 24 - West Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\StudyAreaGIS\43-27CRAS_Aerial_21_WestBlindCanyonSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

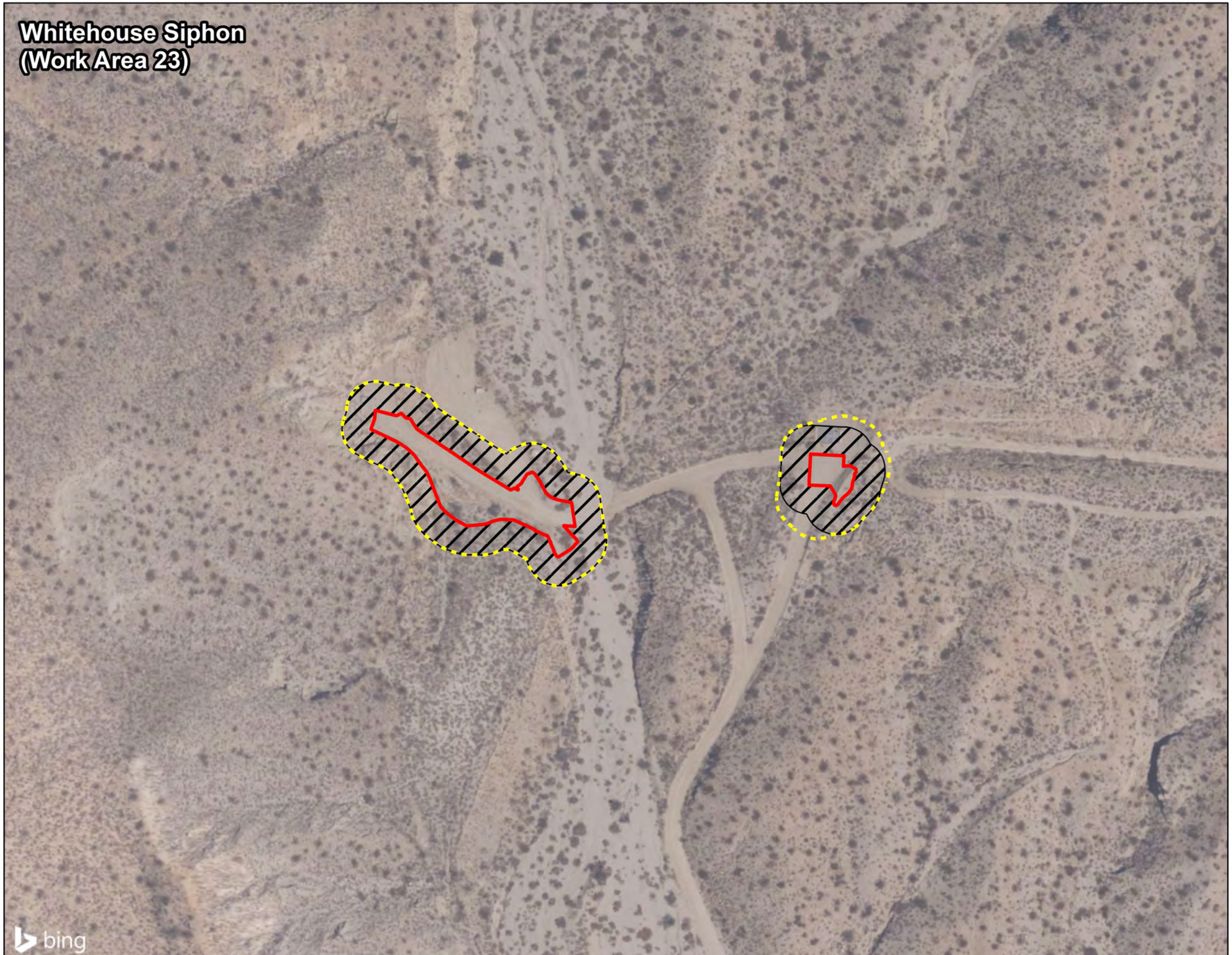
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

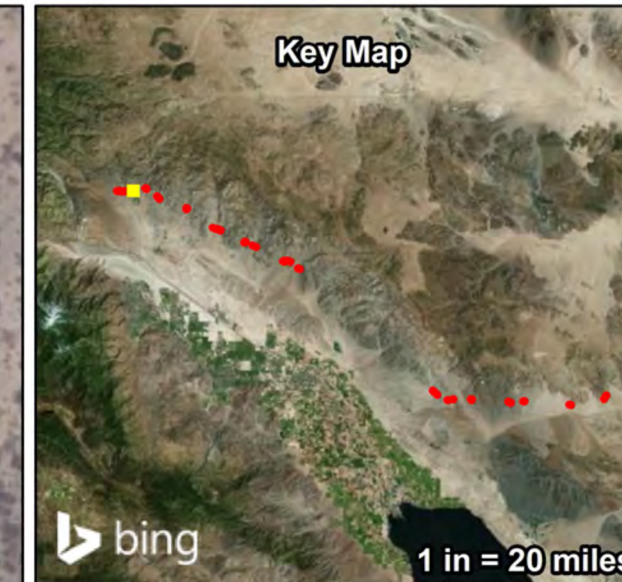
Aerial Map - Sheet 22 of 24 - Little Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\StudyAreaGIS\43-27CRAS_Aerial_22_LittleMorongoSiphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

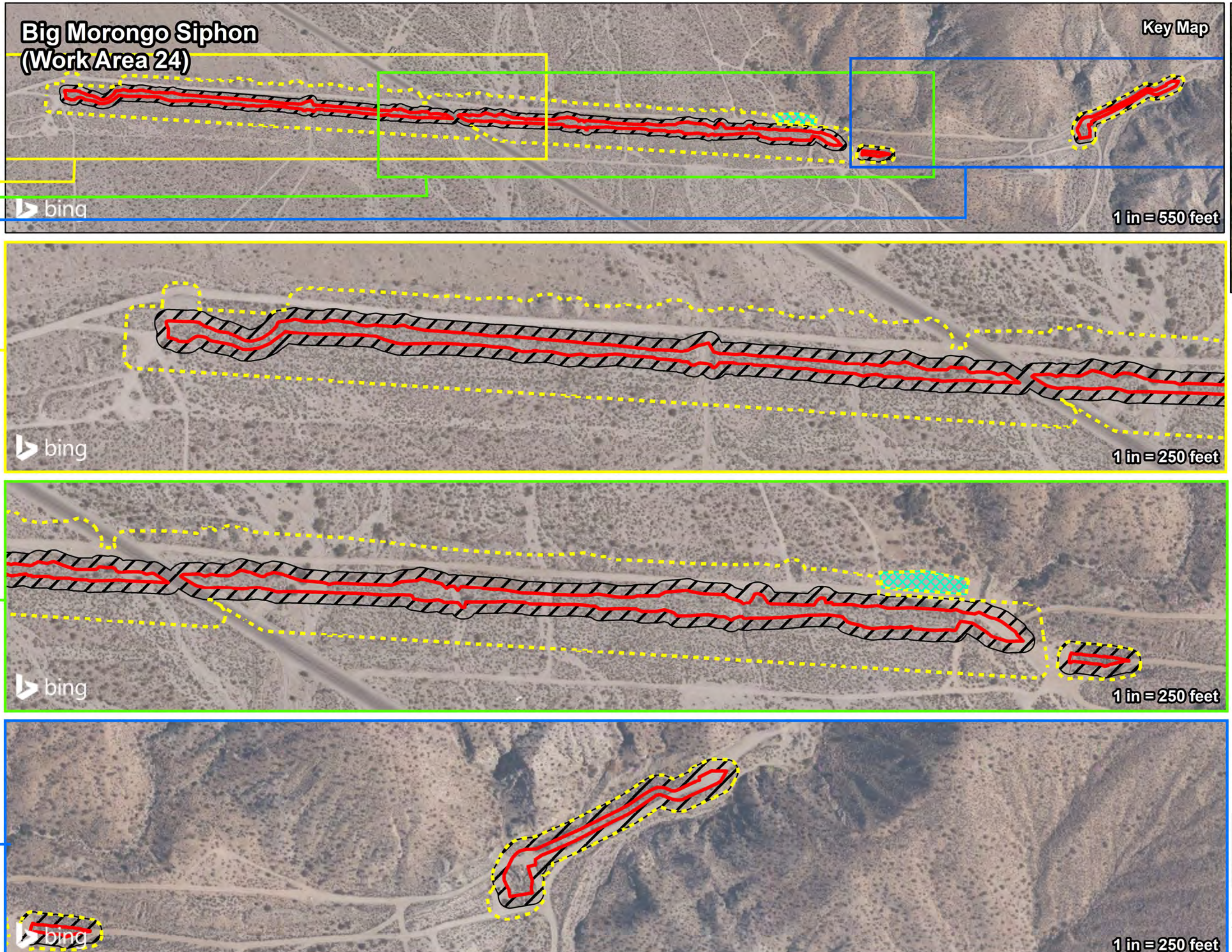
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

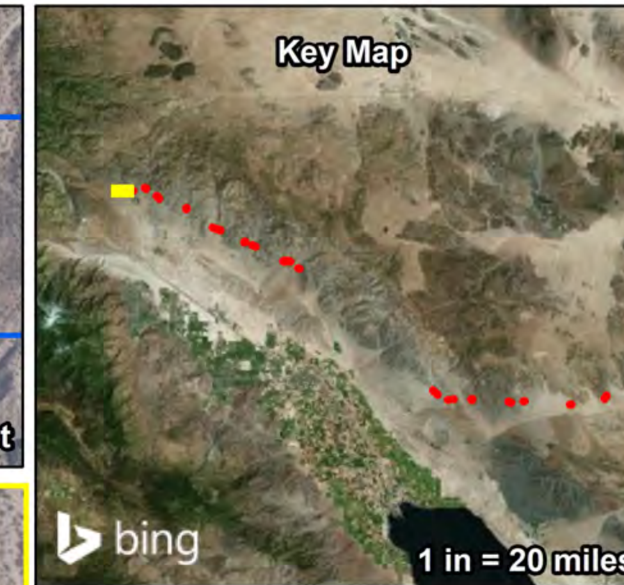
Aerial Map - Sheet 23 of 24 - Whitehouse Siphon

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\StudyAreaGIS\43-27CRAS_Aerial_23_WhitehouseSiphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

N

0 125 250 500

Feet

1 inch = 250 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

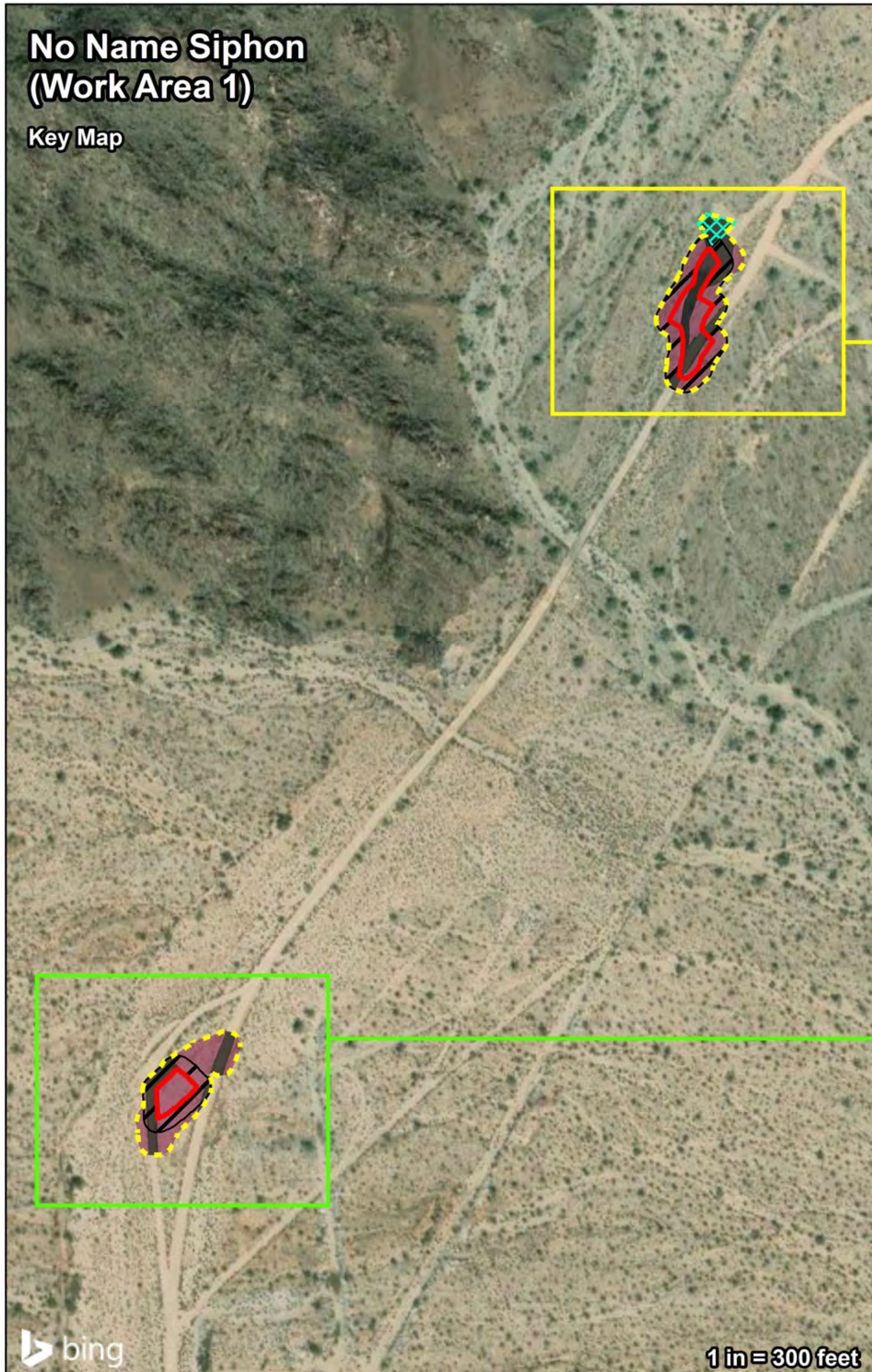
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

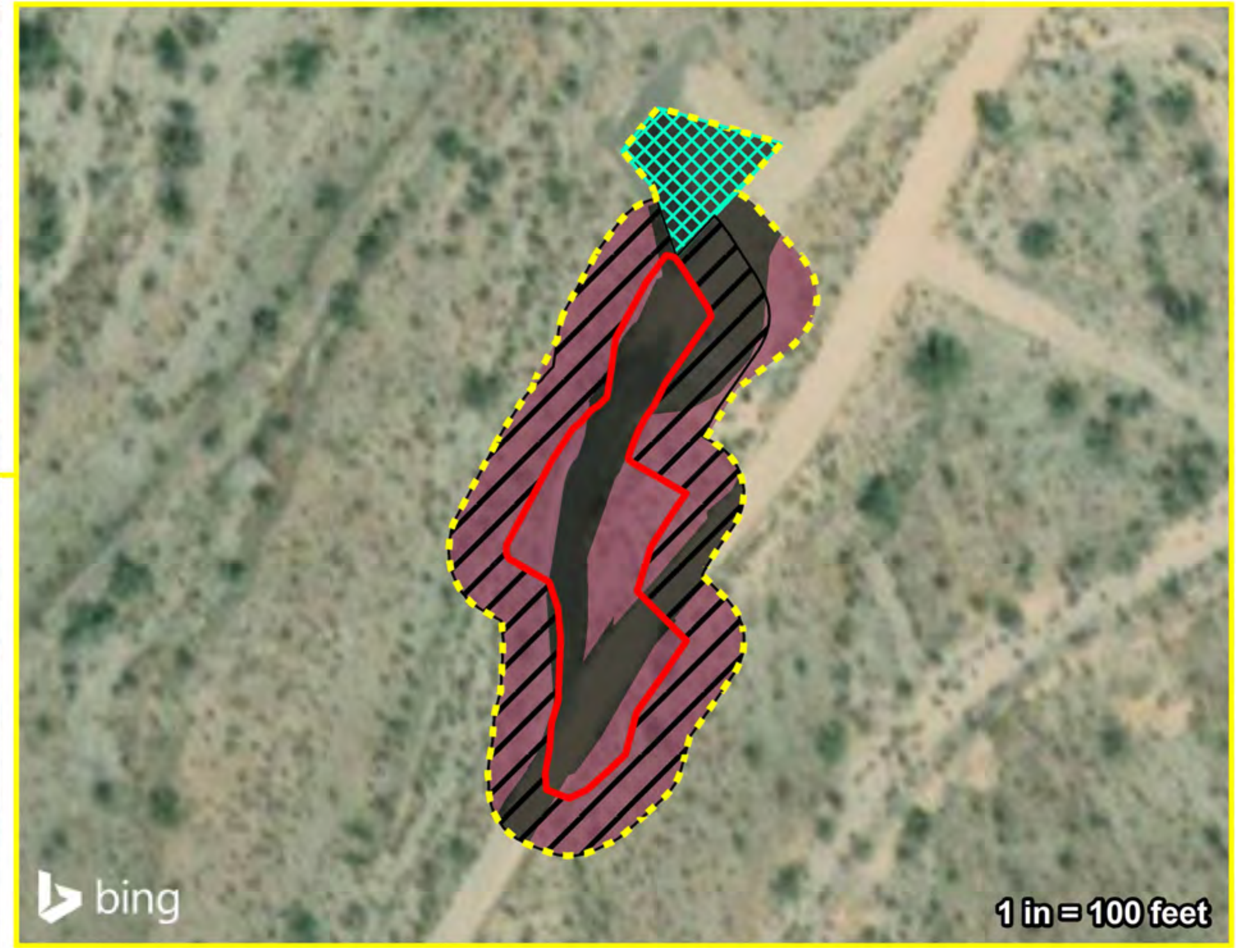
Aerial Map - Sheet 24 of 24 - Big Morongo Siphon

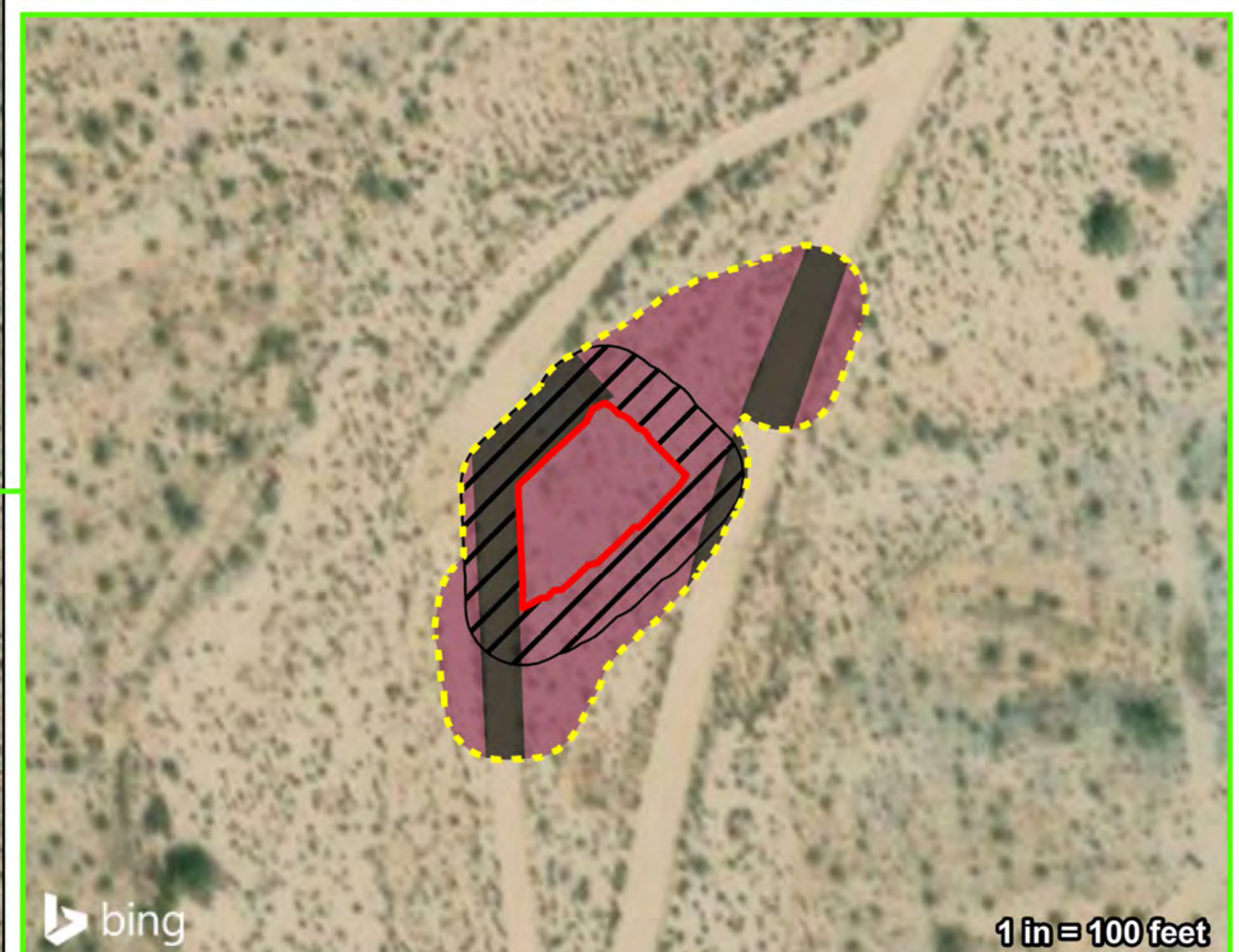
GLENN LUKOS ASSOCIATES

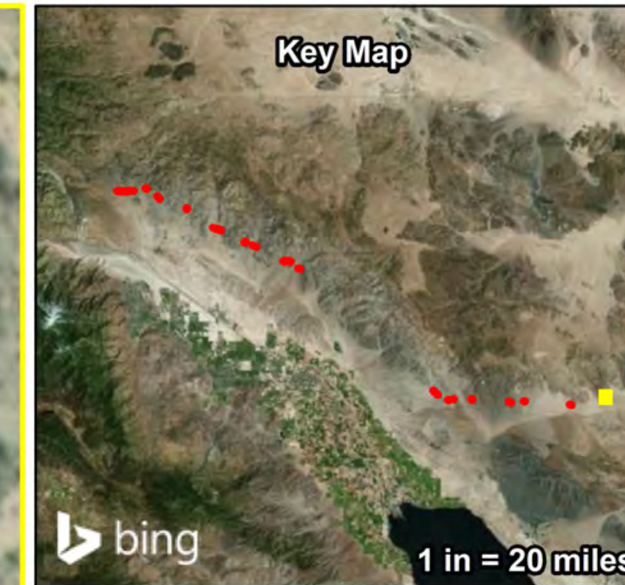
Exhibit 3

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\StudyAreaGIS\43-27CRAS_Aerial_24_BigMorongoSiphon.mxd









- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- Encelia farinosa - Ambrosia salsola Shrubland Alliance
- Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

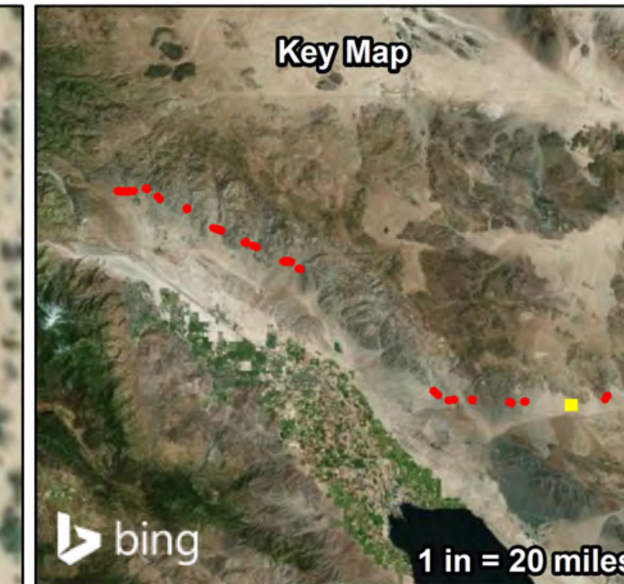
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 1 of 24 - No Name Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_01_NoNameSiphon.mxd



- Study Area
- Project Footprint
- Project Footprint - Temporary
- Ambrosia salsola - Ambrosia dumosa Shrubland Alliance
- Larrea tridentata - Ambrosia salsola Shrubland Alliance
- Developed

0 50 100 200
Feet

1 inch = 100 feet

N

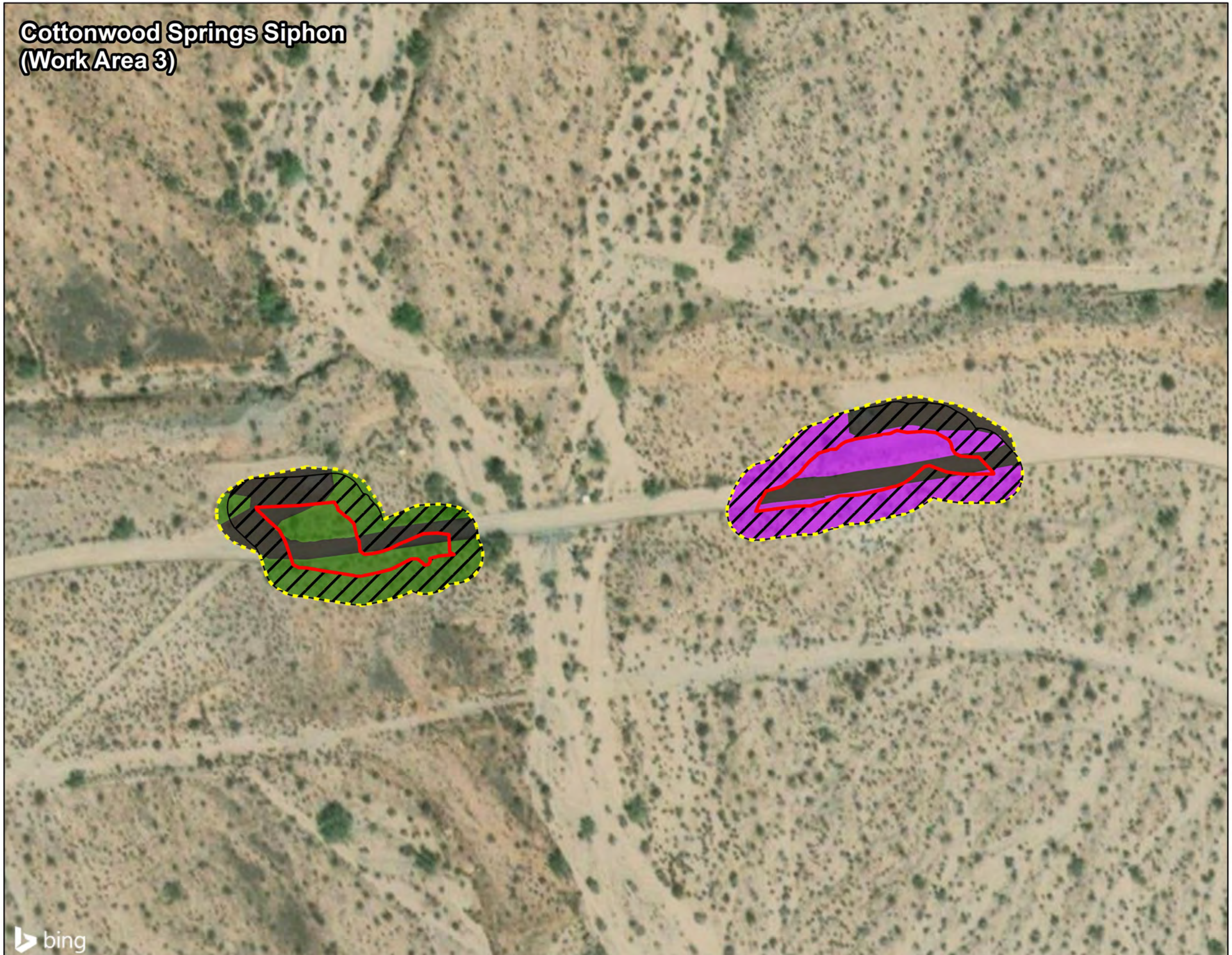
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

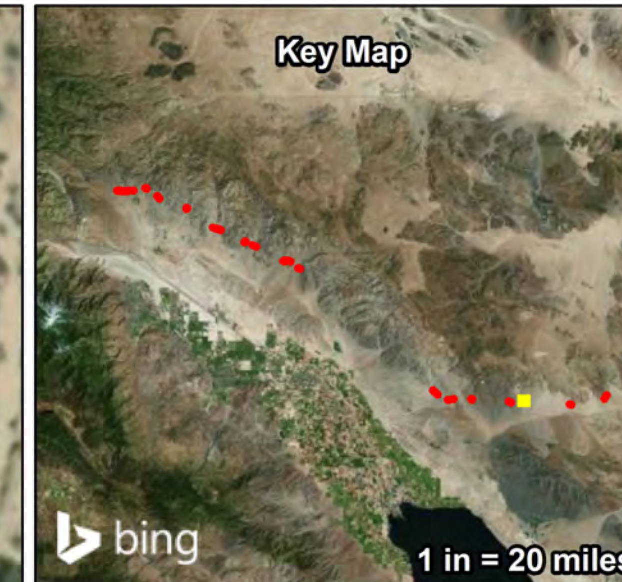
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 2 of 24 - Shavers Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4





Study Area
Project Footprint
Project Footprint - Temporary
Ambrosia salsola - Encelia farinosa Shrubland Alliance
Larrea tridentata - Ambrosia salsola Shrubland Alliance
Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

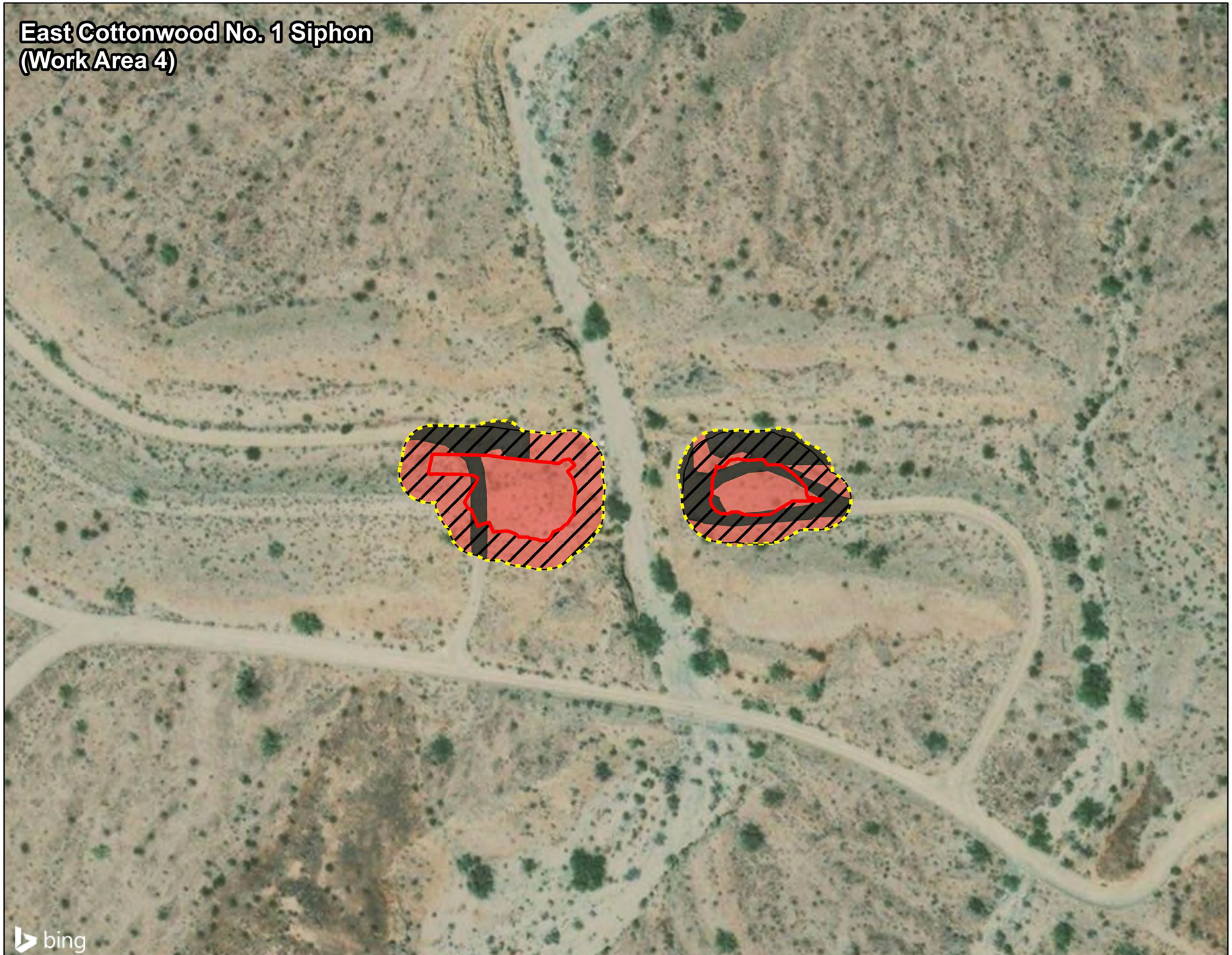
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

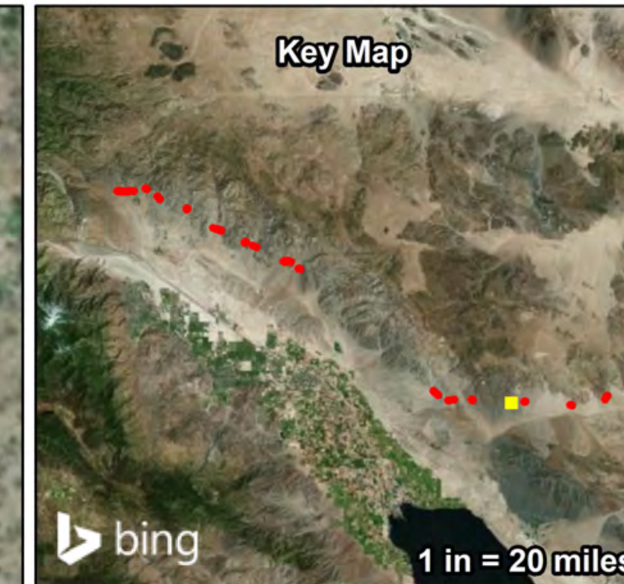
Vegetation Map - Sheet 3 of 24 - Cottonwood Springs Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_03_CottonwoodSpringsSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Encelia farinosa - Peucephyllum schottii Shrubland Alliance
Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

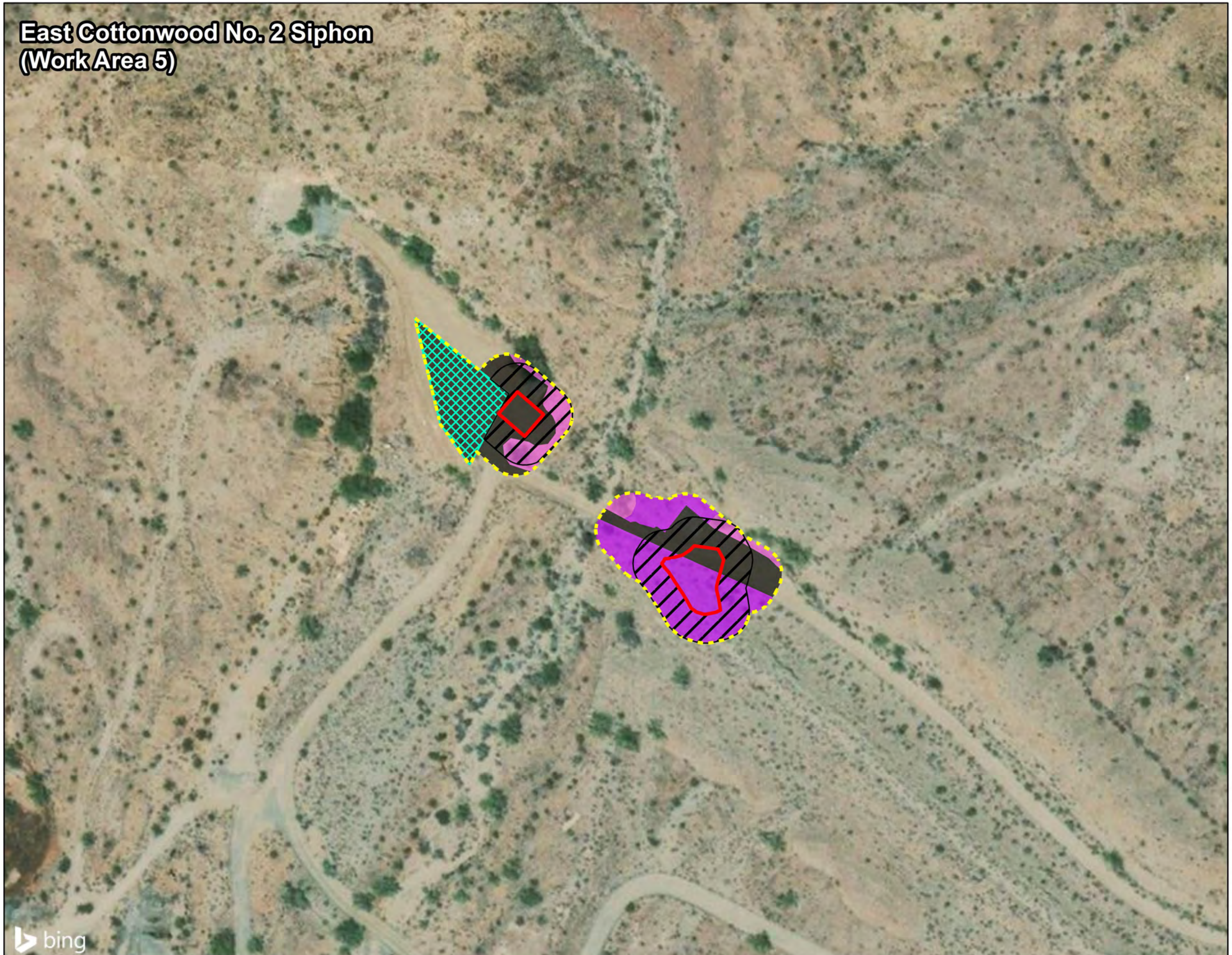
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

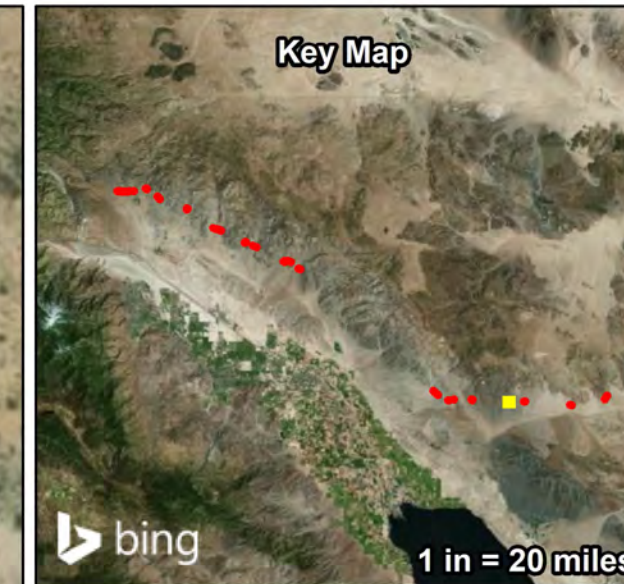
Vegetation Map - Sheet 4 of 24 - East Cottonwood No. 1 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_04_EastCottonwoodNo1Siphon.mxd





Study
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Ambrosia salsola - Encelia farinosa Shrubland Alliance
Parkinsonia florida Woodland
Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

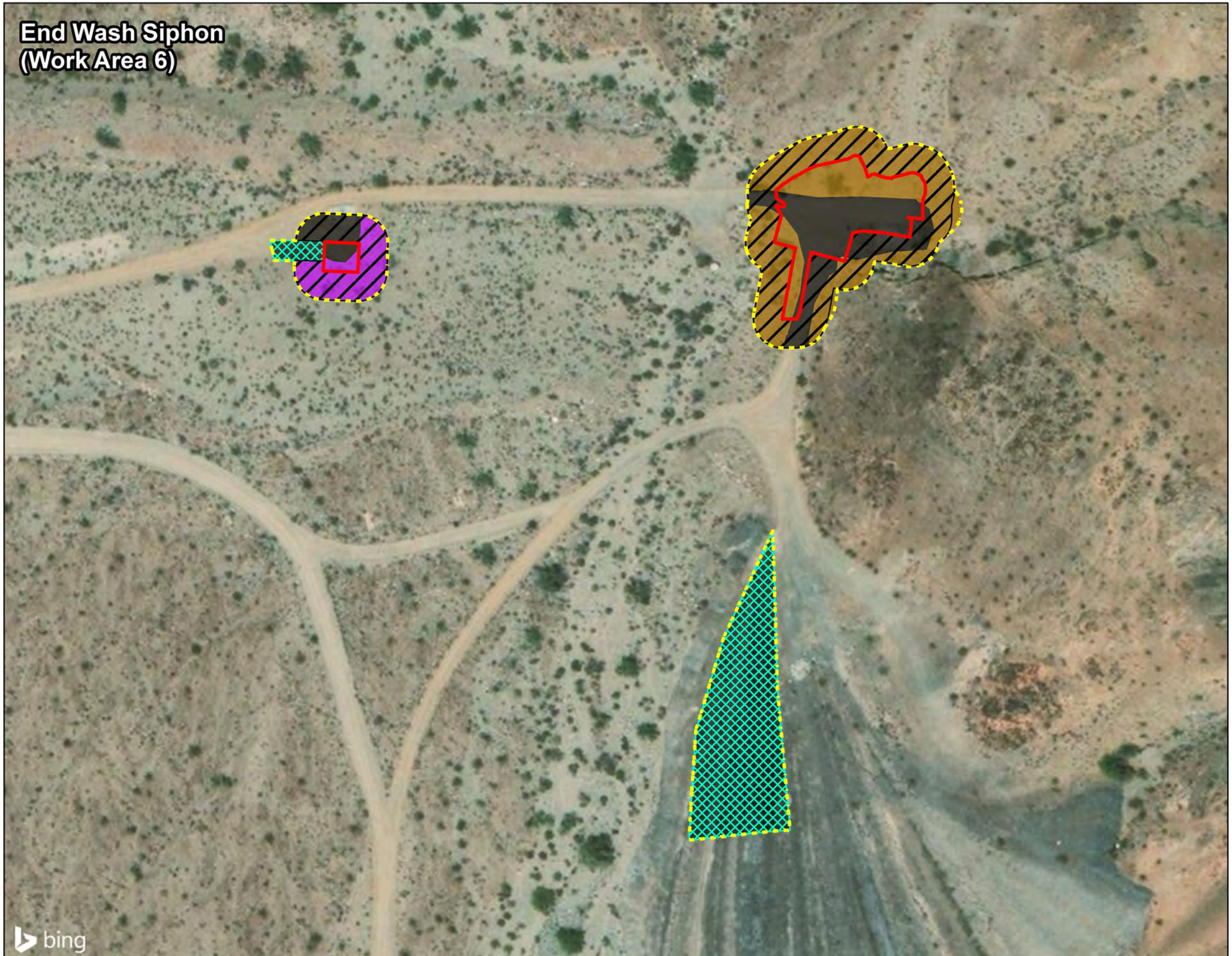
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

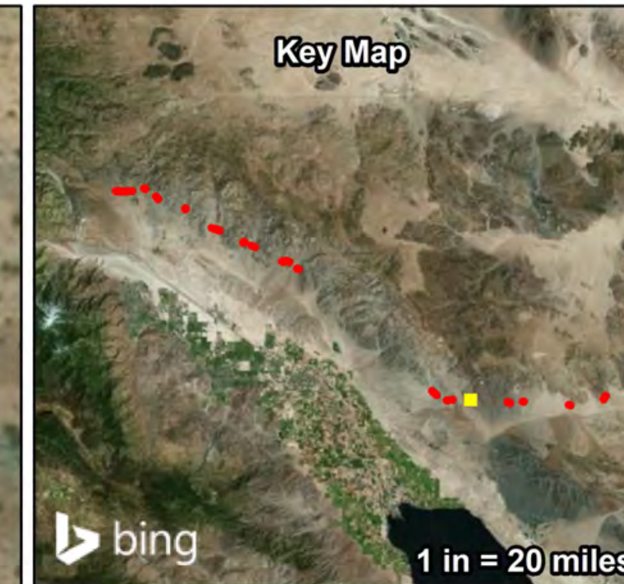
Vegetation Map - Sheet 5 of 24 - East Cottonwood No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_05_EastCottonwoodNo2Siphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Ambrosia salsola - Encelia farinosa Shrubland Alliance
Larrea tridentata - Encelia farinosa Shrubland Alliance
Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

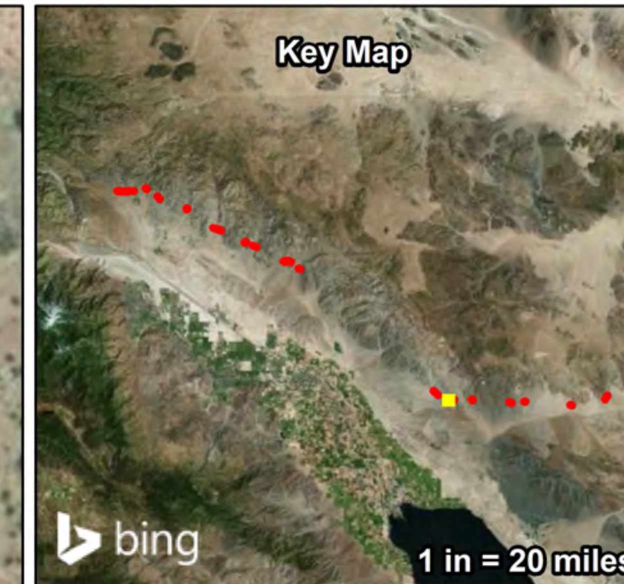
Vegetation Map - Sheet 6 of 24 - End Wash Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_06_EndWashSiphon.mxd

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_07_MeccaNo1Siphon.mxd



Study Area
Project Footprint
Project Footprint - Temporary
Larrea tridentata - Encelia farinosa Shrubland Alliance
Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

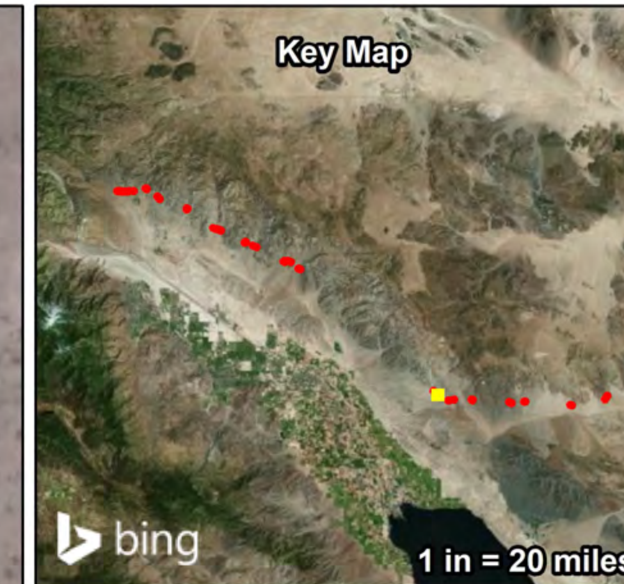
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 8 of 24 - Mecca No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_08_MeccaNo2Siphon.mxd



Study Area

Project Footprint

Project Footprint - Temporary

Larrea tridentata - Ambrosia salsola Shrubland Alliance

Larrea tridentata - Encelia farinosa Shrubland Alliance

Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

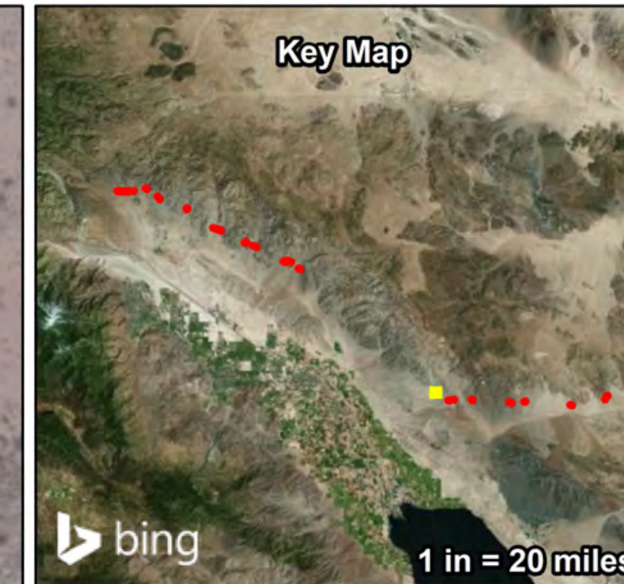
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 9 of 24 - Iron Ledge Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_09_IronLedgeSiphon.mxd



Study Area
Project Footprint
Project Footprint - Temporary
Larrea tridentata - Encelia farinosa Shrubland Alliance
Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

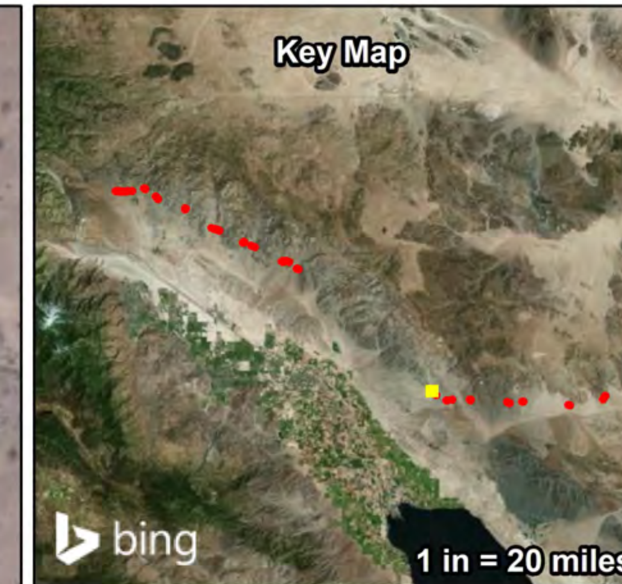
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 10 of 24 - East Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_10_EastThermalSiphon.mxd



Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Encelia farinosa - Ambrosia salsola Shrubland Alliance
Larrea tridentata - Ambrosia dumosa Shrubland Alliance
Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

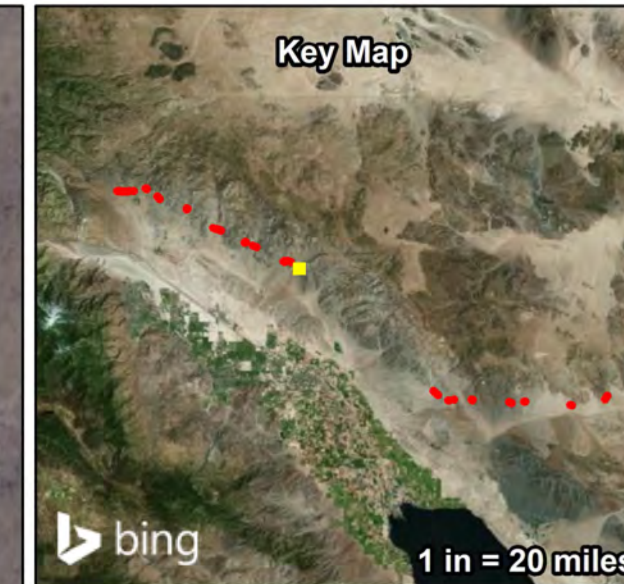
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 11 of 24 - West Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_11_WestThermalSiphon.mxd



Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

Ambrosia salsola - Encelia farinosa Shrubland Alliance

Ambrosia salsola - Psorothamnus schottii Shrubland Alliance

Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 12 of 24 - East Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

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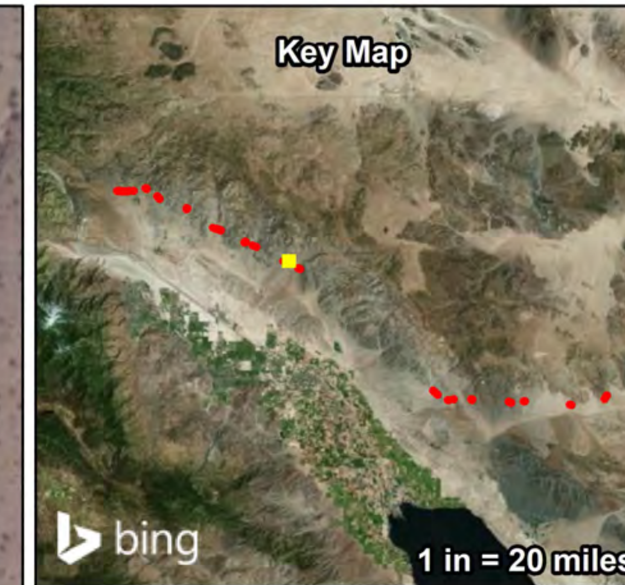

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Ambrosia salsola - Encelia farinosa Shrubland Alliance
Larrea tridentata - Ambrosia salsola Shrubland Alliance
Developed

0 75 150 300
Feet

1 inch = 150 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 13 of 24 - Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

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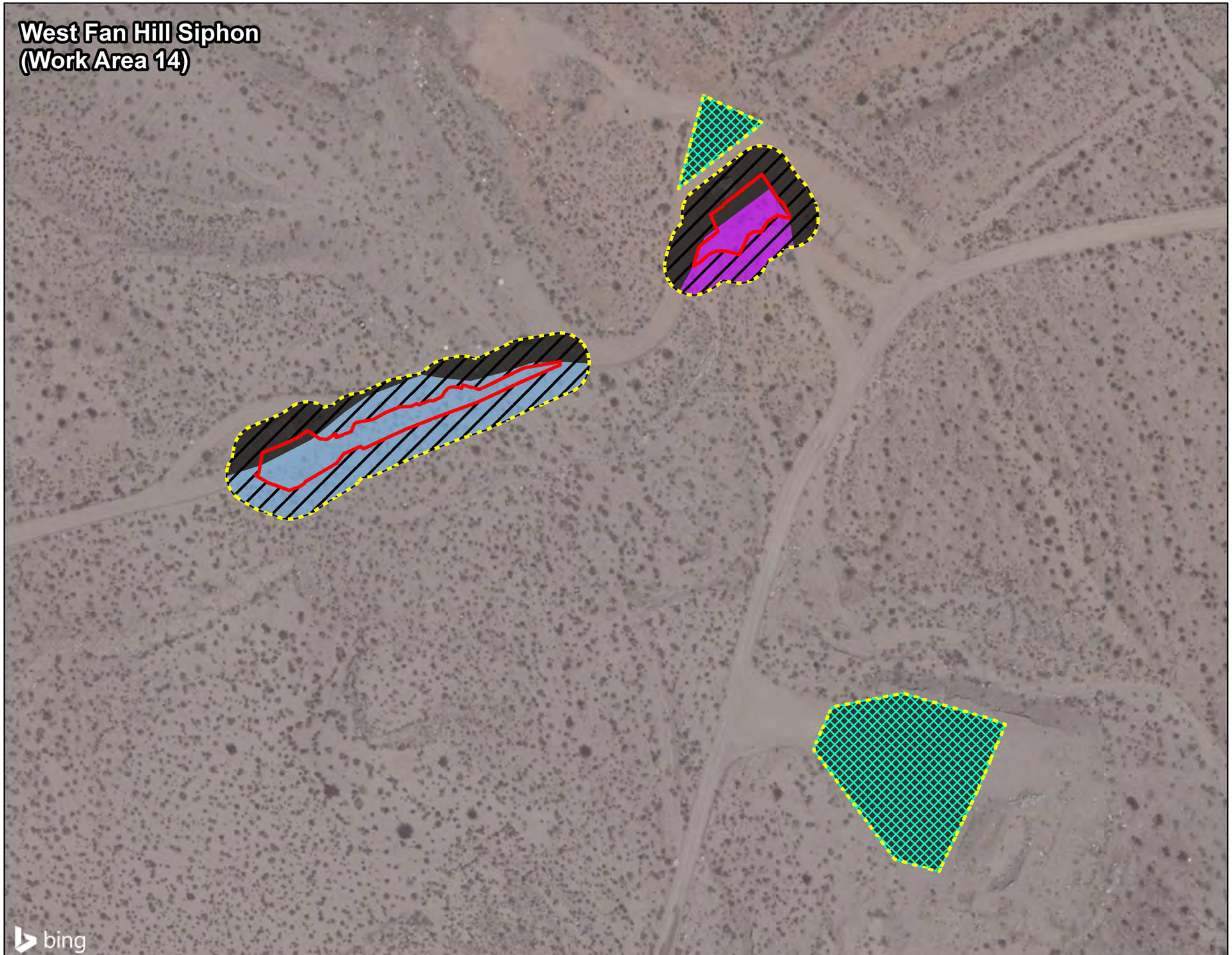
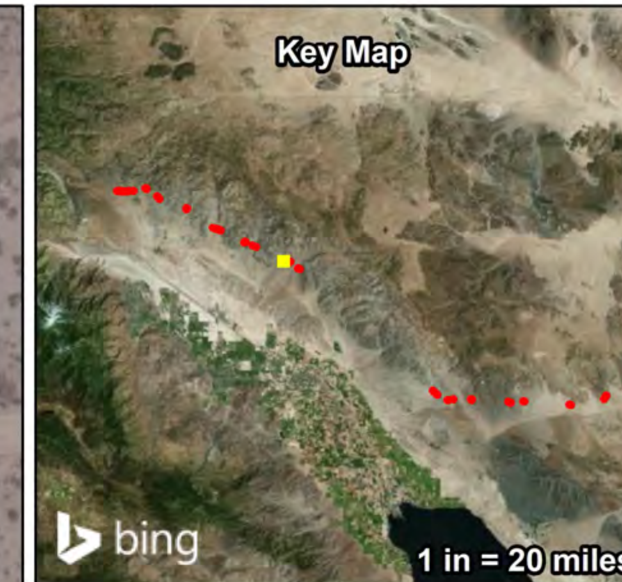




Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

Ambrosia salsola - Encelia farinosa Shrubland Alliance

Ambrosia salsola - Petalonyx thurberi Shrubland Alliance

Developed

0 50 100 200

Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

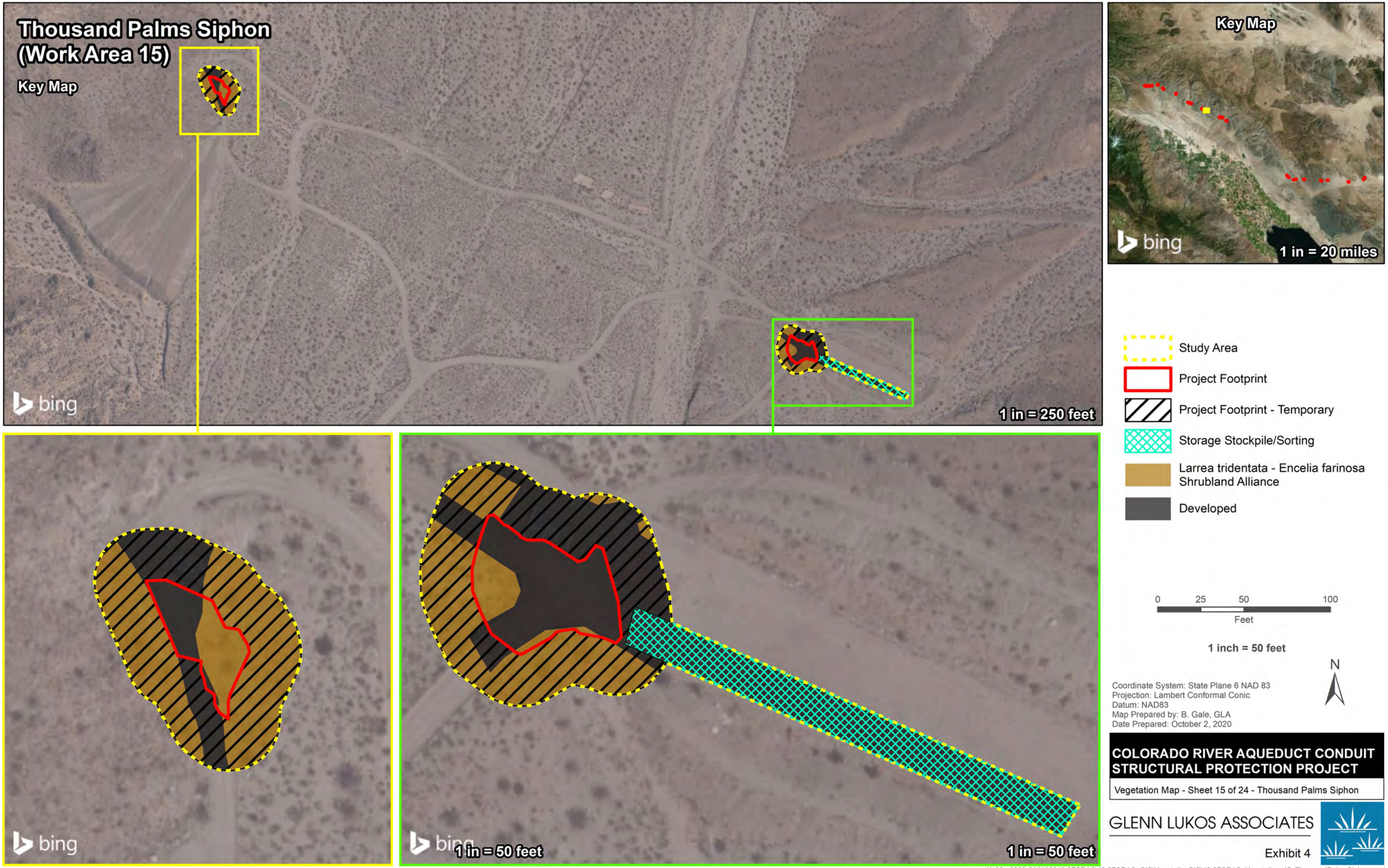
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

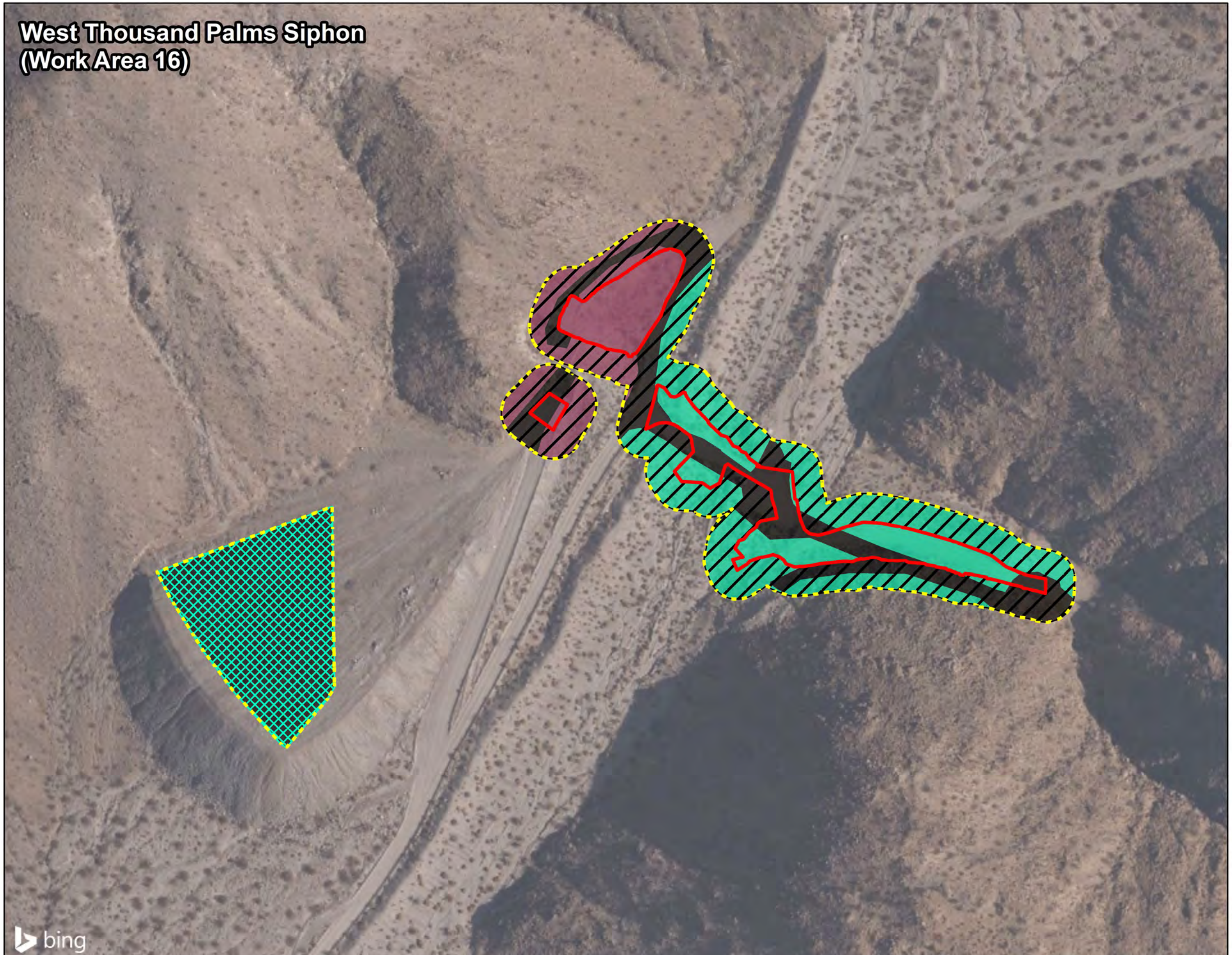
Vegetation Map - Sheet 14 of 24 - West Fan Hill Siphon

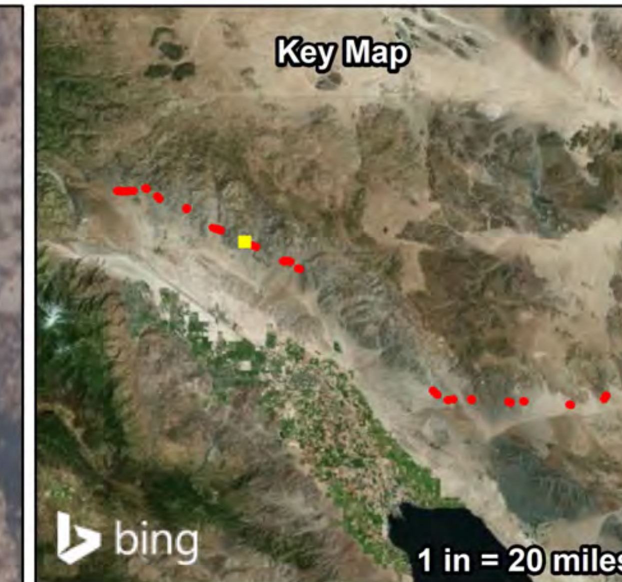
GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_14_WestFanHillSiphon.mxd


Thousand Palms Siphon
(Work Area 15)
Key Map
1 in = 250 feet
Key Map
1 in = 20 miles
1 in = 50 feet
1 in = 50 feet
Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Larrea tridentata - Encelia farinosa Shrubland Alliance
Developed
0 25 50 100
Feet
1 inch = 50 feet
N
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT
Vegetation Map - Sheet 15 of 24 - Thousand Palms Siphon
GLENN LUKOS ASSOCIATES
Exhibit 4
X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_15_ThousandPalmsSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Ambrosia salsola - Hyptis emoryi Shrubland Alliance
Encelia farinosa - Ambrosia salsola Shrubland Alliance
Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

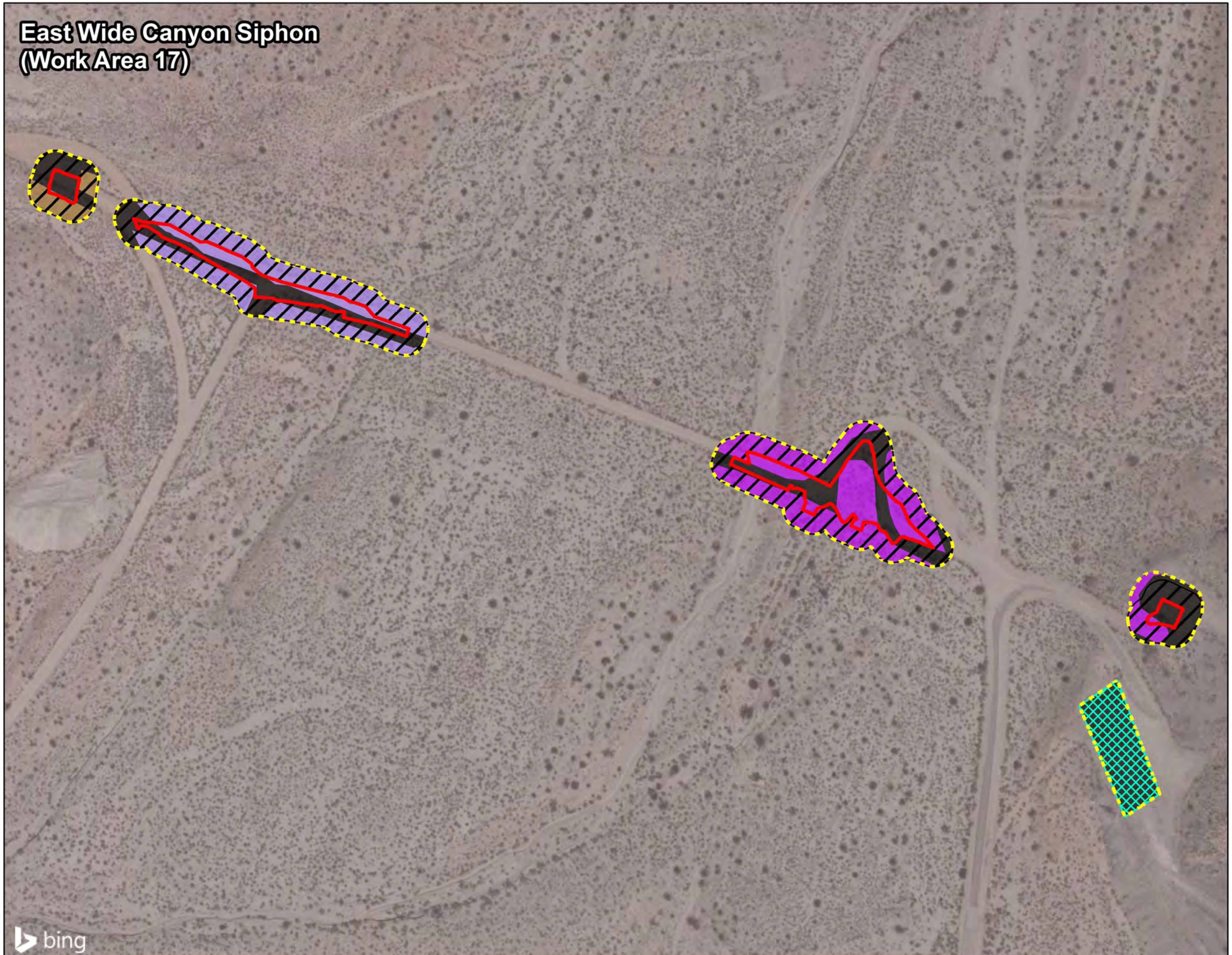
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

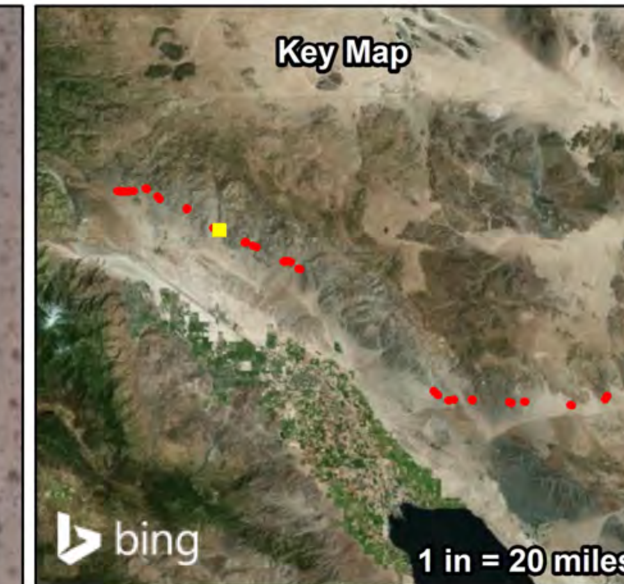
Vegetation Map - Sheet 16 of 24 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_16_WestThousandPalmsSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Ambrosia salsola - Ambrosia dumosa Shrubland Alliance
Ambrosia salsola - Encelia farinosa Shrubland Alliance
Encelia farinosa - Ambrosia dumosa Shrubland Alliance
Developed

0 75 150 300
Feet

1 inch = 150 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

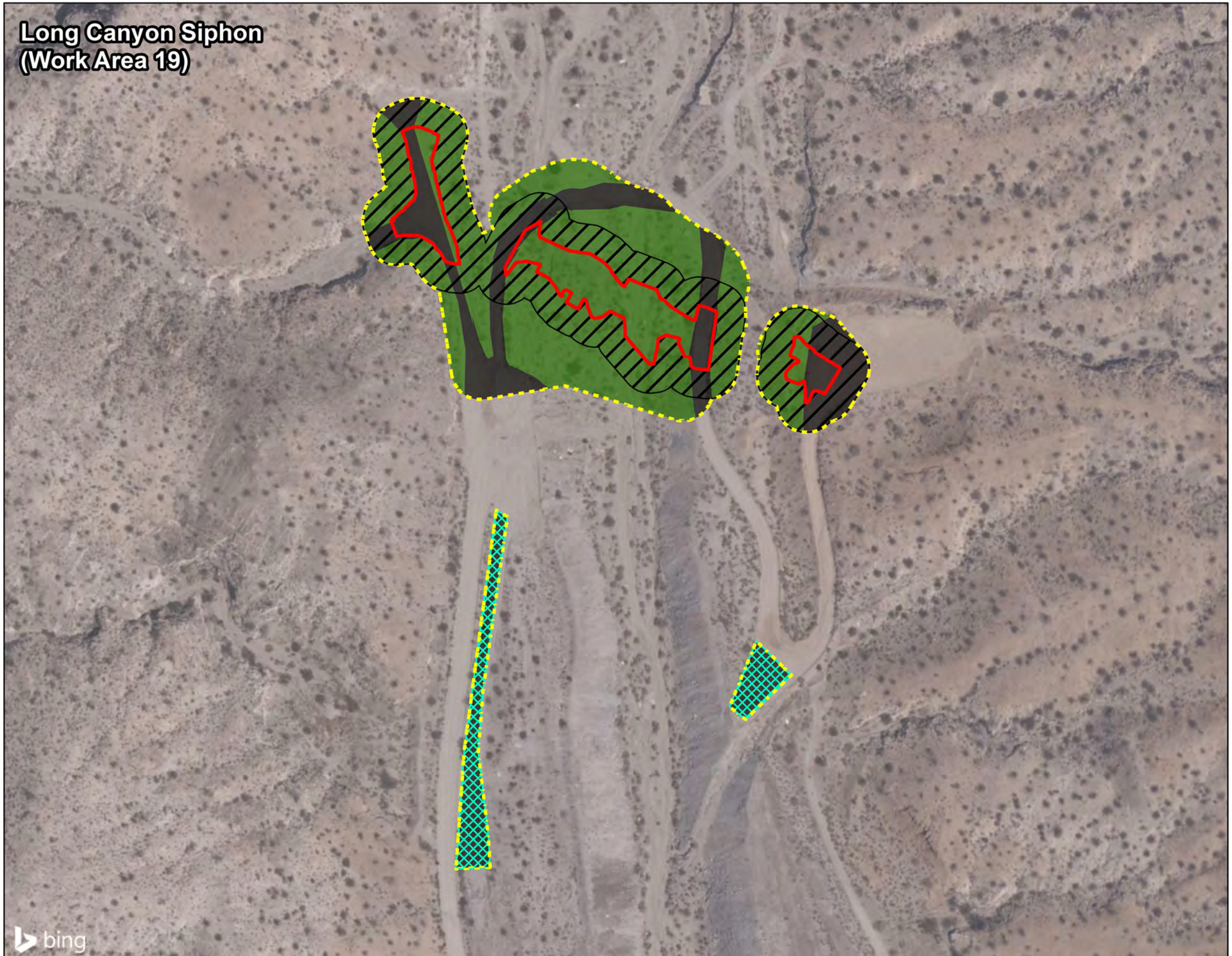
Vegetation Map - Sheet 17 of 24 - East Wide Canyon Siphon

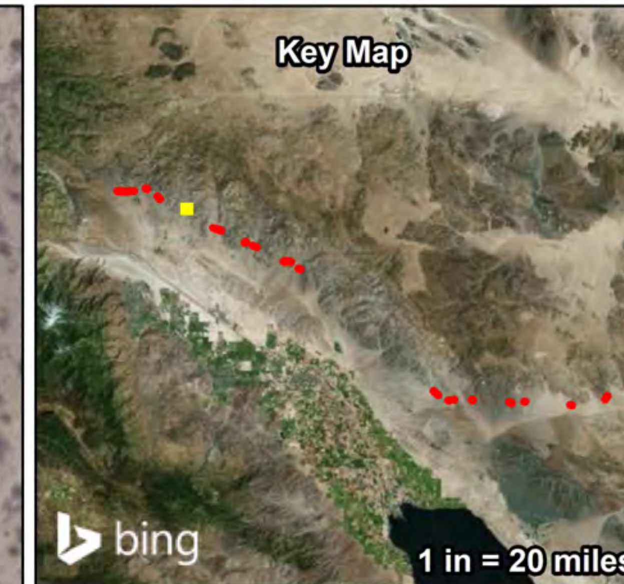
GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_17_EastWideCanyonSiphon.mxd


West Wide Canyon Siphon
(Work Area 18)
Key Map
1 in = 200 feet
Key Map
1 in = 20 miles
1 in = 50 feet
1 in = 50 feet
Study Area
Project Footprint
Project Footprint - Temporary
Ambrosia salsola - Encelia farinosa Shrubland Alliance
Developed
0 25 50 100
Feet
1 inch = 50 feet
N
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT
Vegetation Map - Sheet 18 of 24 - West Wide Canyon Siphon
GLENN LUKOS ASSOCIATES
Exhibit 4
X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_18_WestWideCanyonSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Larrea tridentata - Ambrosia salsola Shrubland Alliance
Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

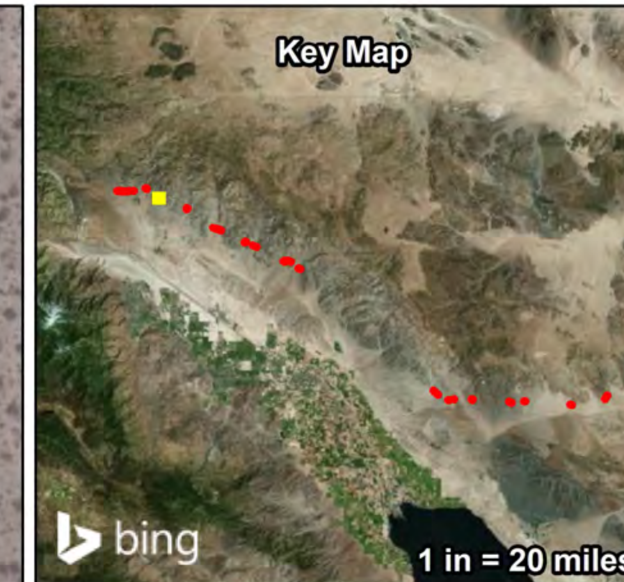
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 19 of 24 - Long Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_19_LongCanyonSiphon.mxd



Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Ambrosia dumosa - Encelia farinosa Shrubland Alliance
Encelia farinosa - Ambrosia dumosa Shrubland Alliance
Larrea tridentata - Ambrosia dumosa Shrubland Alliance
Larrea tridentata - Encelia farinosa Shrubland Alliance
Developed

0 62.5 125 250
Feet

1 inch = 125 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

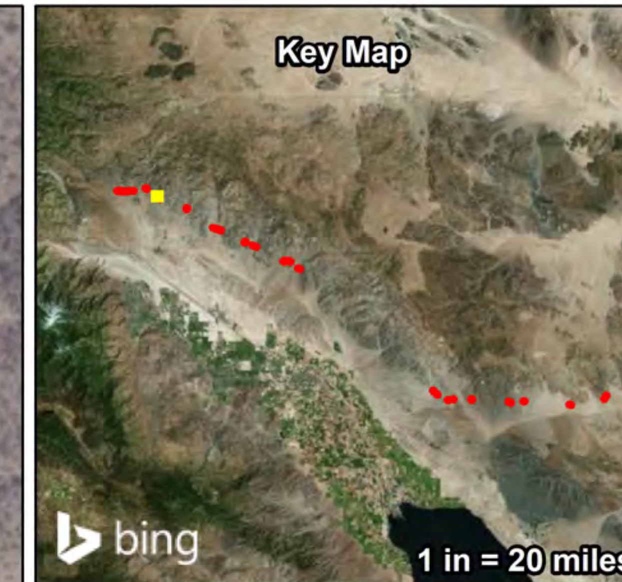
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 20 of 24 - East Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_20_EastBlindCanyonSiphon.mxd



Study Area

Project Footprint

Project Footprint - Temporary

Ambrosia dumosa - Encelia farinosa Shrubland Alliance

Larrea tridentata - Ambrosia salsola Shrubland Alliance

Larrea tridentata - Encelia farinosa Shrubland Alliance

Developed

0 50 100 200
Feet

1 inch = 100 feet

N

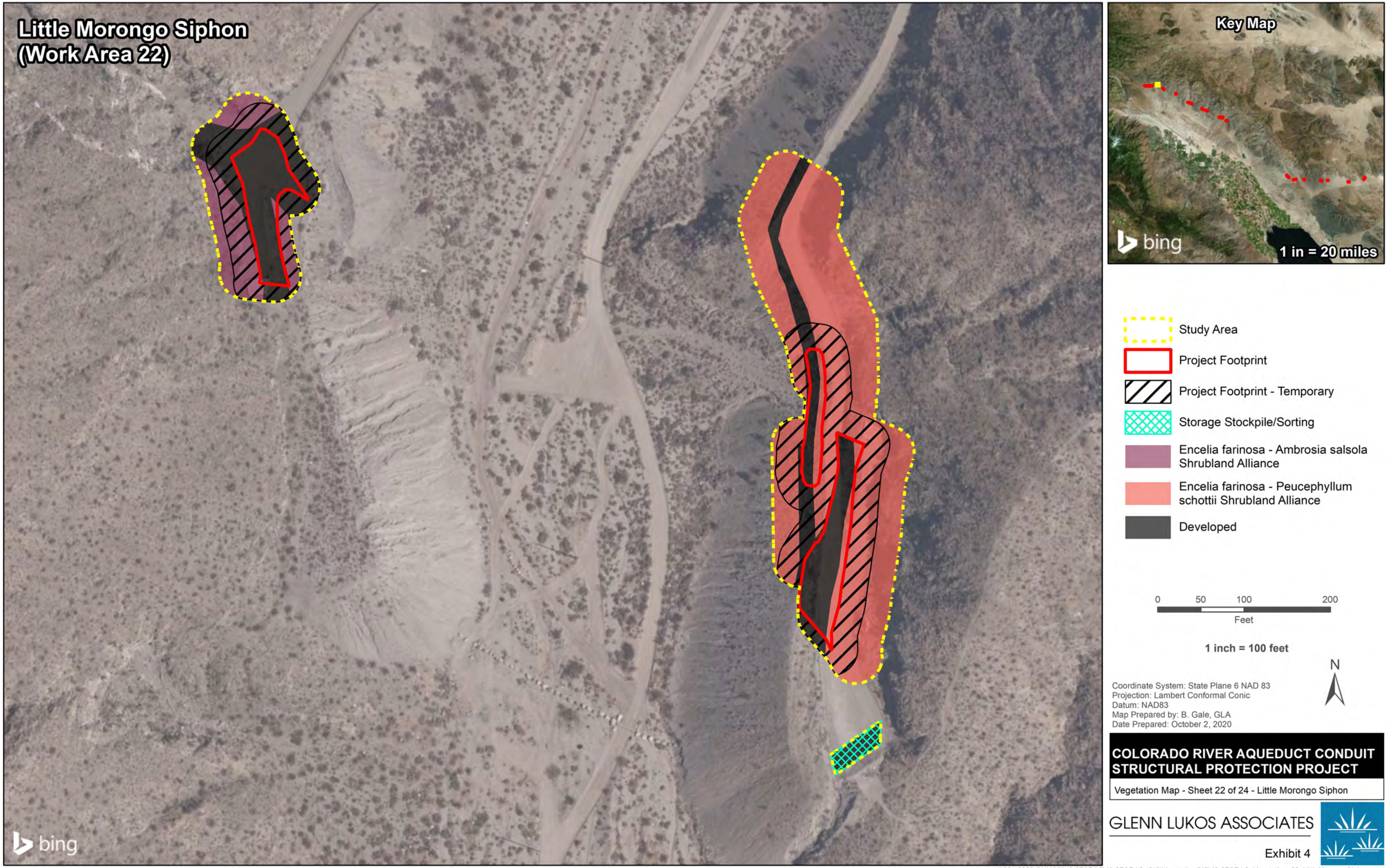
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

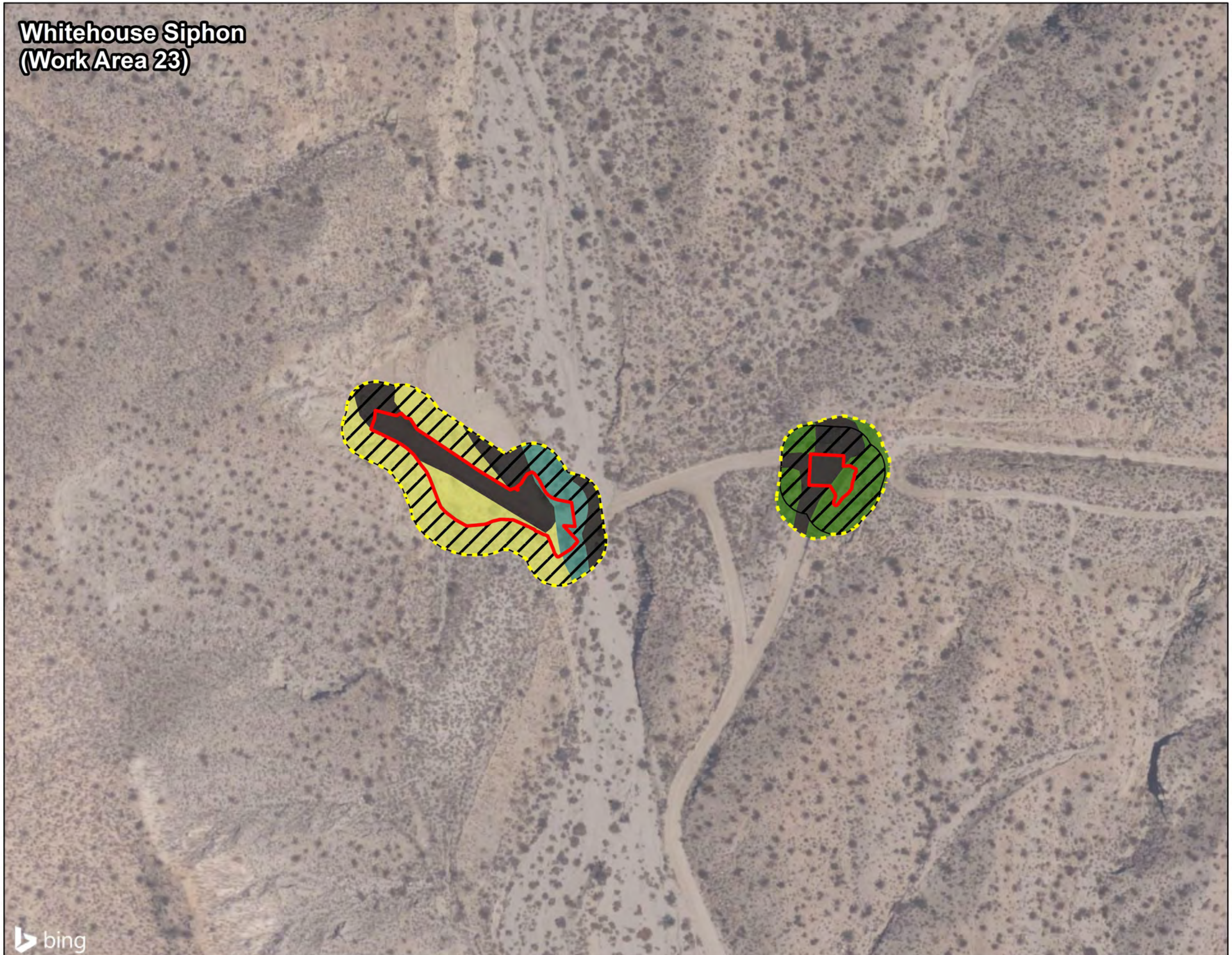
Vegetation Map - Sheet 21 of 24 - West Blind Canyon Siphon

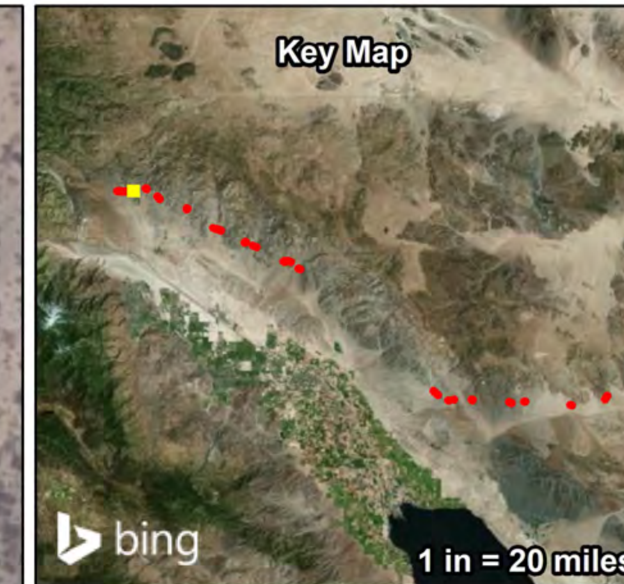
GLENN LUKOS ASSOCIATES

Exhibit 4



Little Morongo Siphon
(Work Area 22)
bing
Key Map
bing
1 in = 20 miles
Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Encelia farinosa - Ambrosia salsola Shrubland Alliance
Encelia farinosa - Peucephyllum schottii Shrubland Alliance
Developed
0 50 100 200
Feet
1 inch = 100 feet
N
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT
Vegetation Map - Sheet 22 of 24 - Little Morongo Siphon
GLENN LUKOS ASSOCIATES
Exhibit 4
X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_22_LittleMorongoSiphon.mxd





- Study Area
- Project Footprint
- Project Footprint - Temporary
- Ambrosia dumosa - Encelia farinosa Shrubland Alliance
- Larrea tridentata - Ambrosia salsola Shrubland Alliance
- Lepidospartum squamatum Shrubland Alliance
- Developed

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

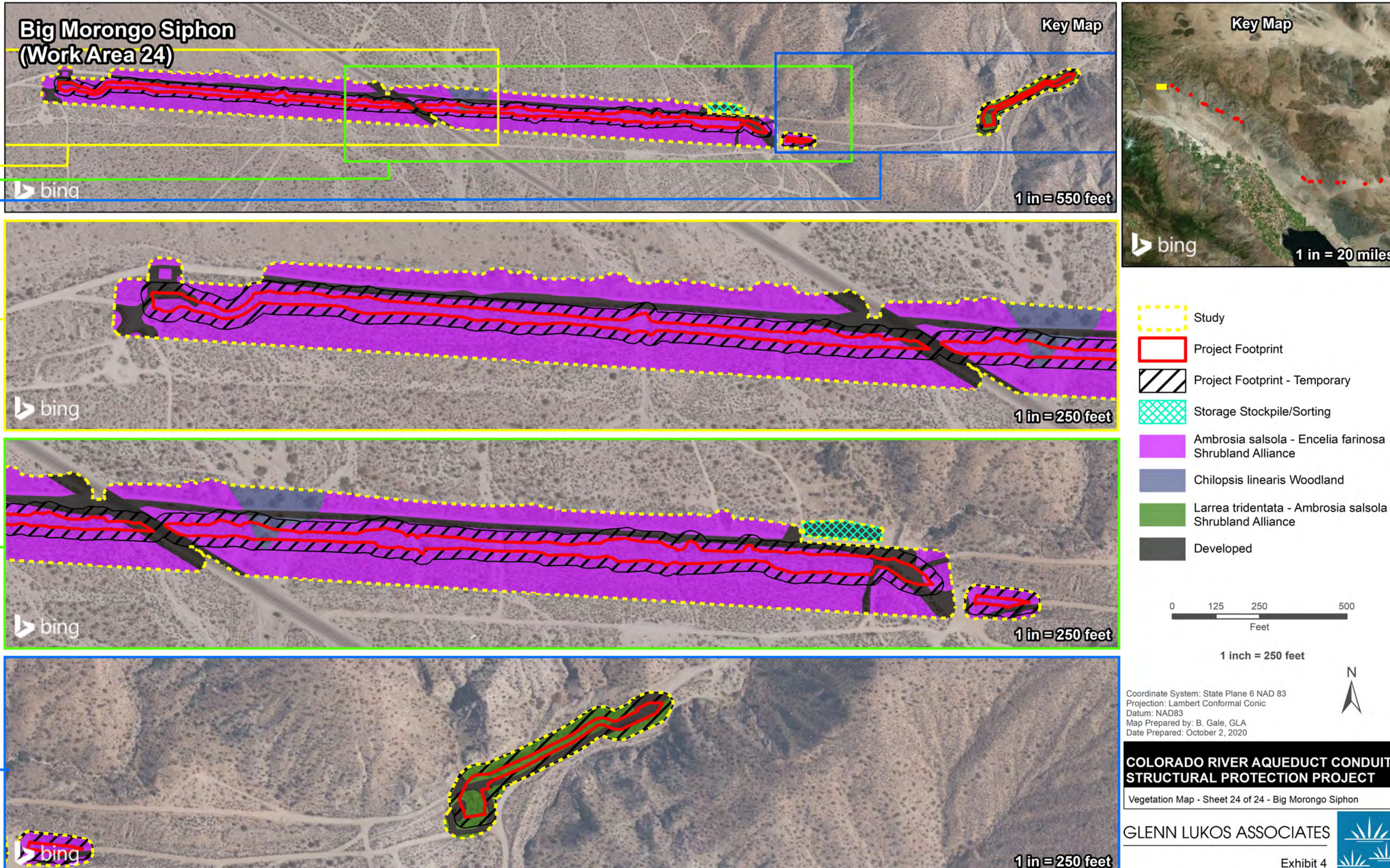
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Vegetation Map - Sheet 23 of 24 - Whitehouse Siphon

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\VegetationGIS\43-27CRAS_Vegetation_23_WhitehouseSiphon.mxd



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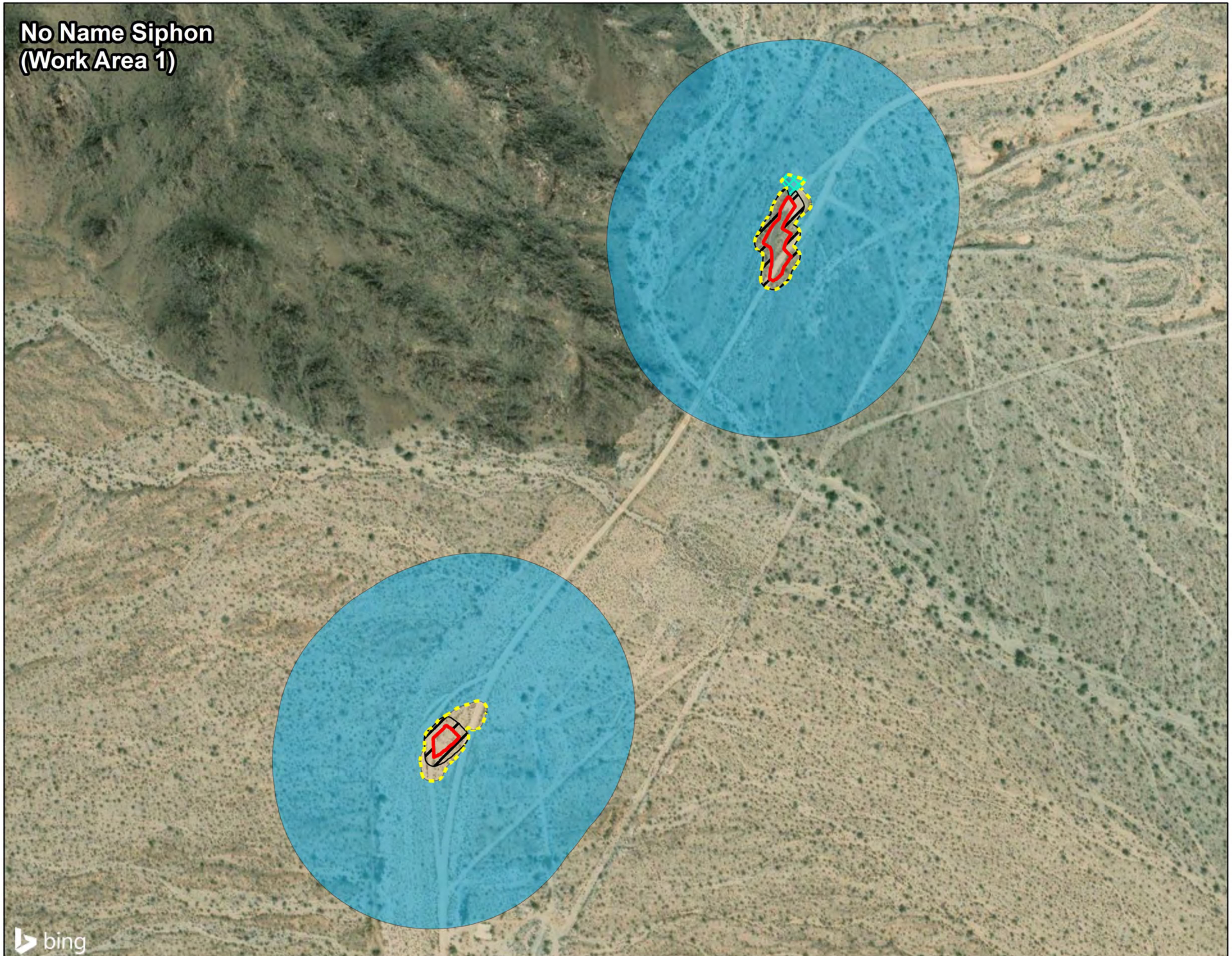
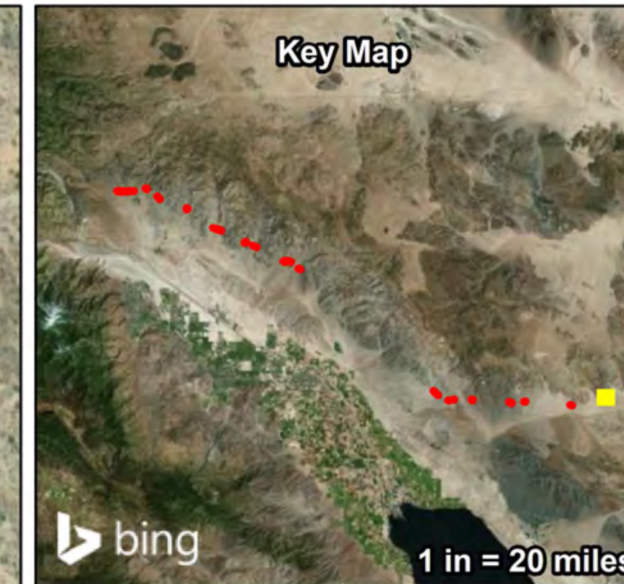




Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
500' Buffer Area

N

0 162.5 325 650
Feet

1 inch = 325 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

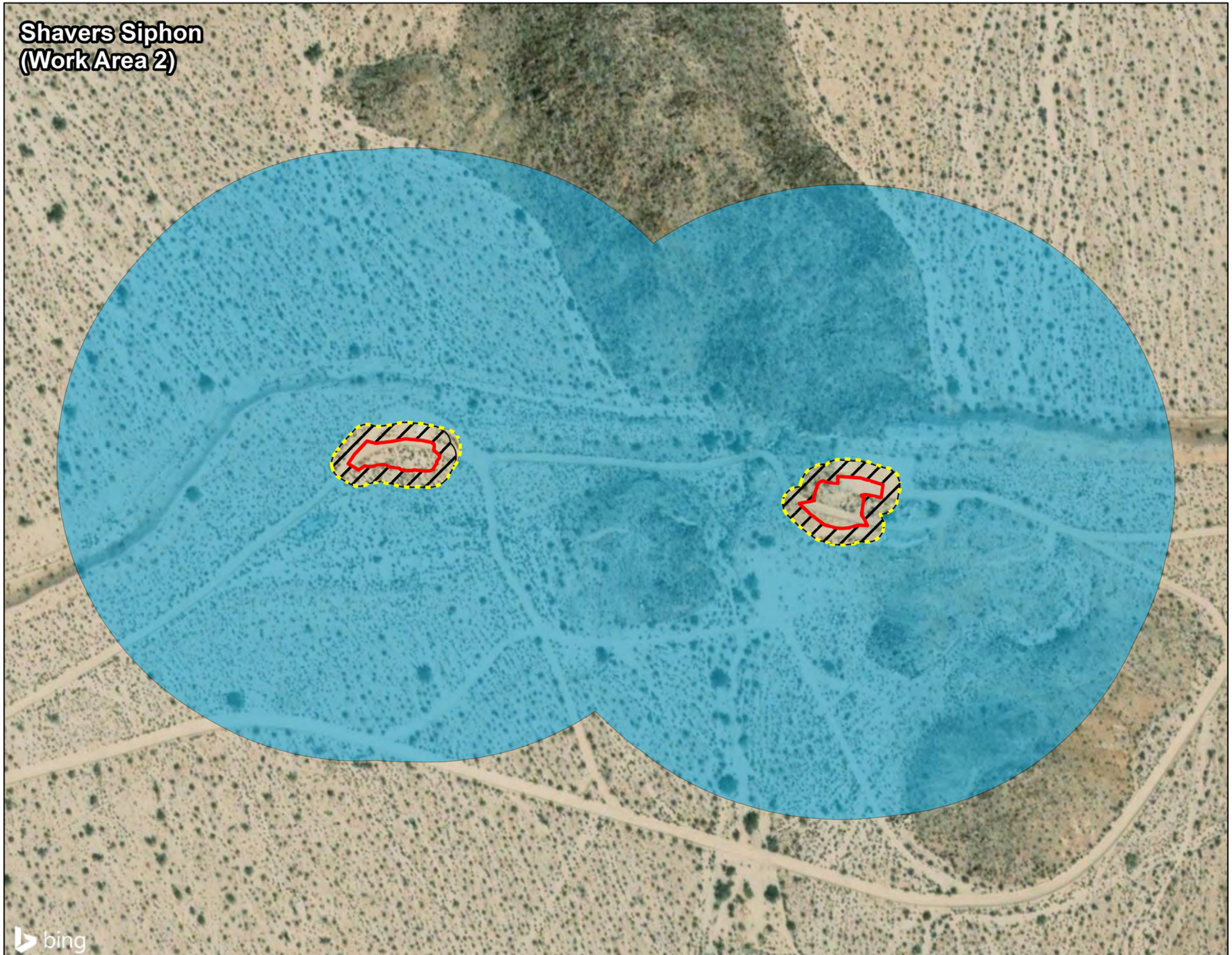
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

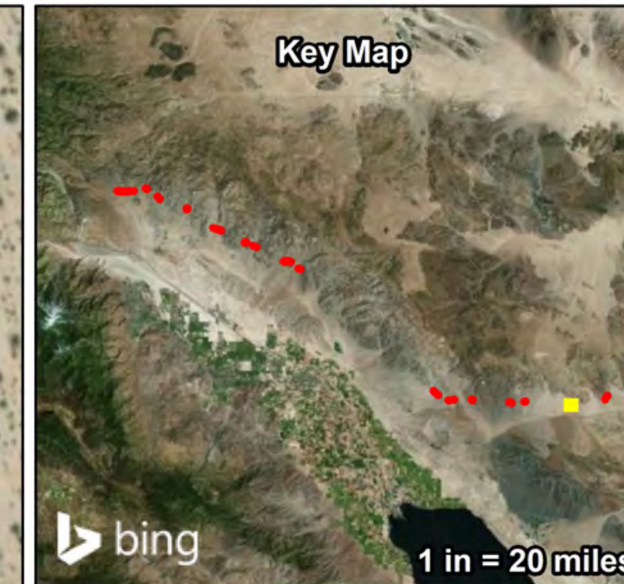
Burrowing Owl Survey Area Map -
Sheet 1 of 24 - No Name Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_01_NoNameSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
500' Buffer Area

N

0 87.5 175 350
Feet

1 inch = 175 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 2 of 24 - Shavers Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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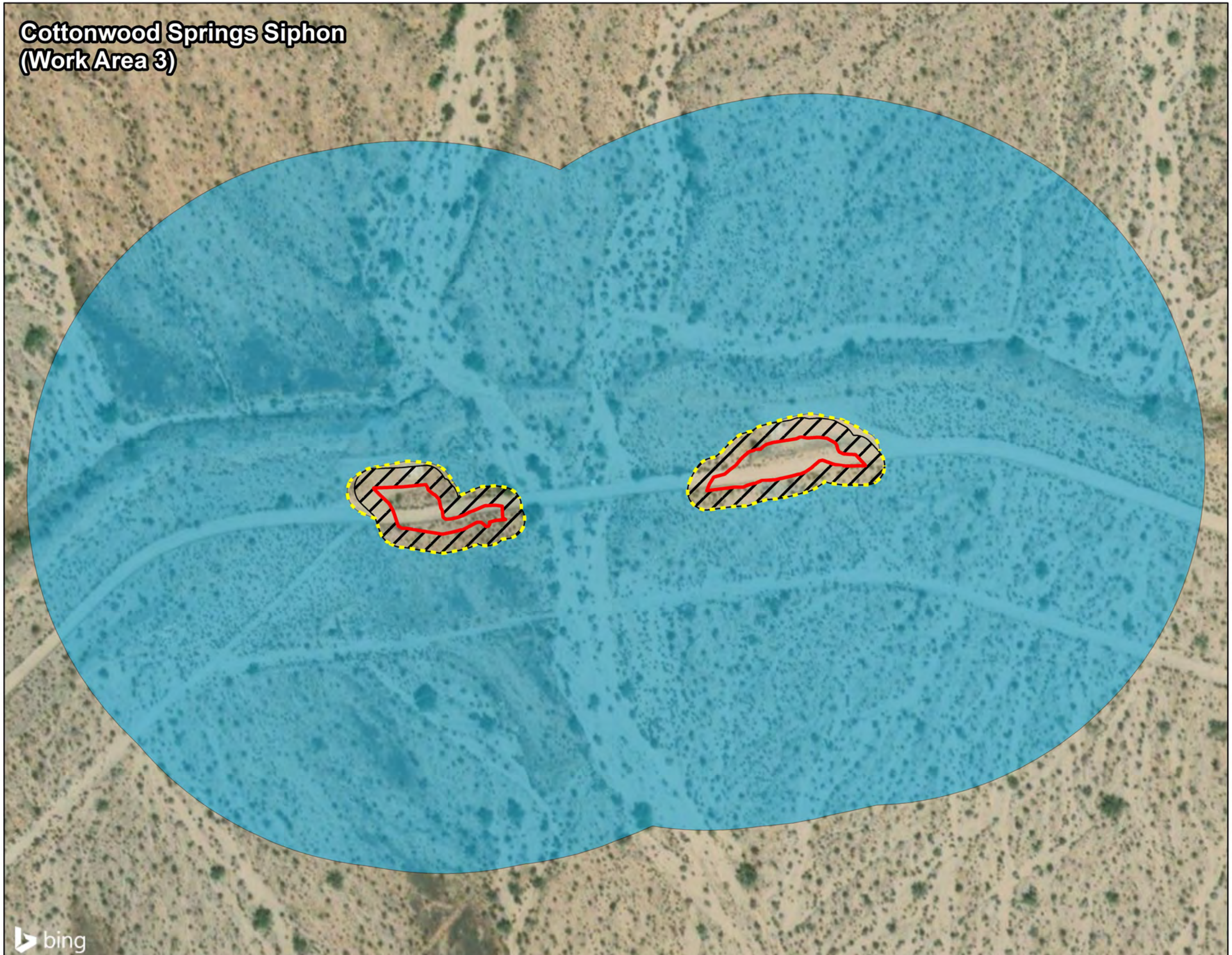

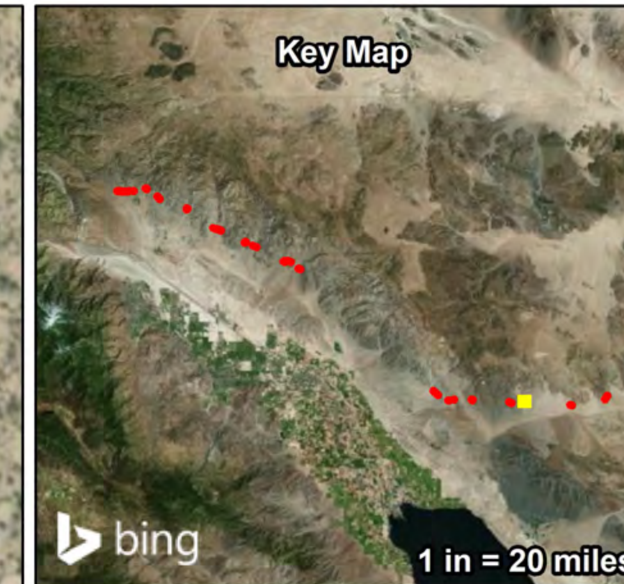

Study Area

Project Footprint

Project Footprint - Temporary

500' Buffer Area

N

0 75 150 300

Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 3 of 24 - Cottonwood Springs Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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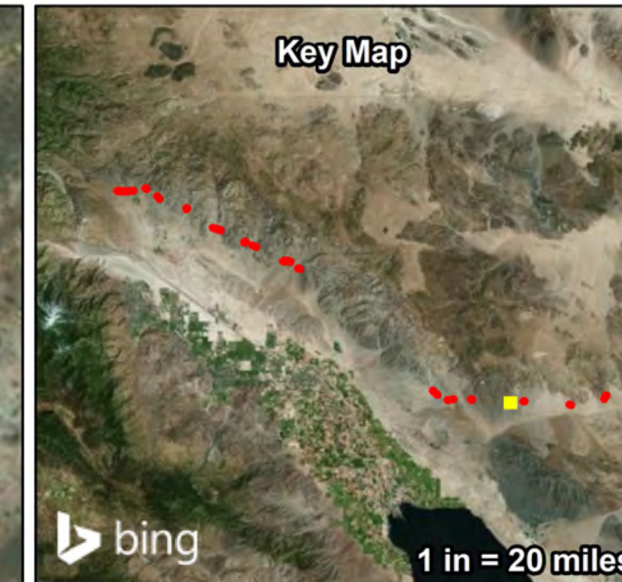

Study Area

Project Footprint

Project Footprint - Temporary

500' Buffer Area

N

0 62.5 125 250

Feet

1 inch = 125 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 4 of 24 - East Cottonwood No. 1 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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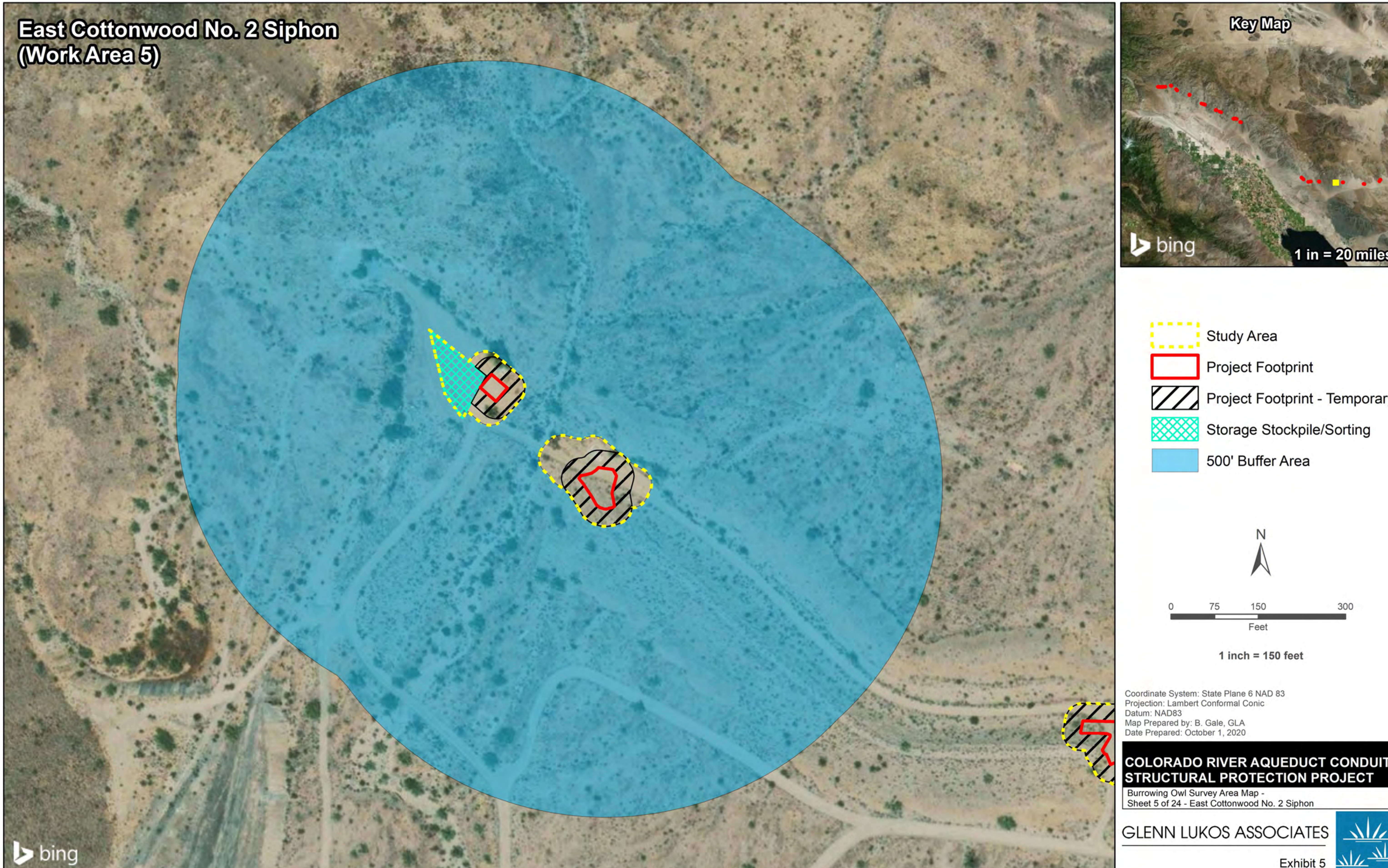

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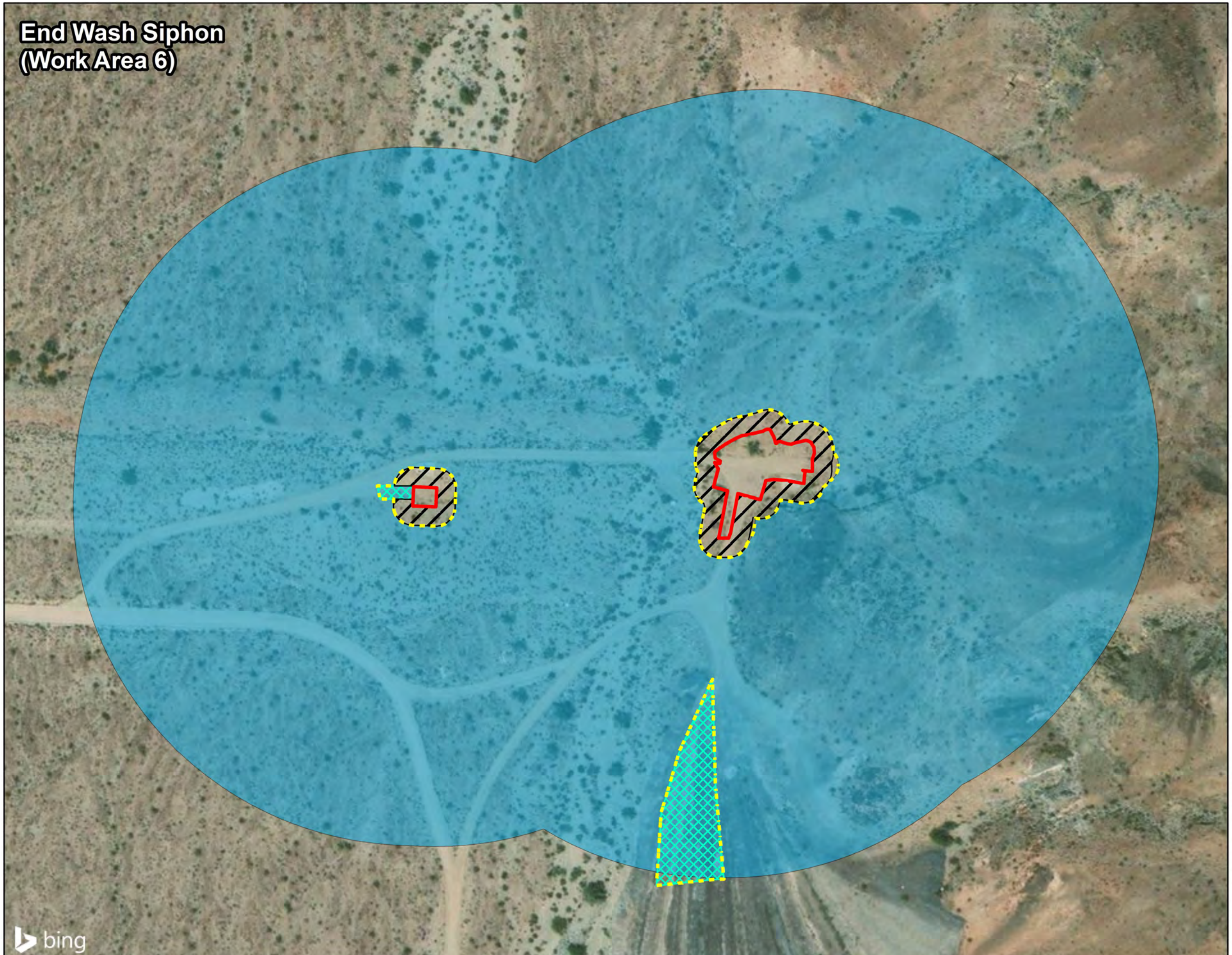
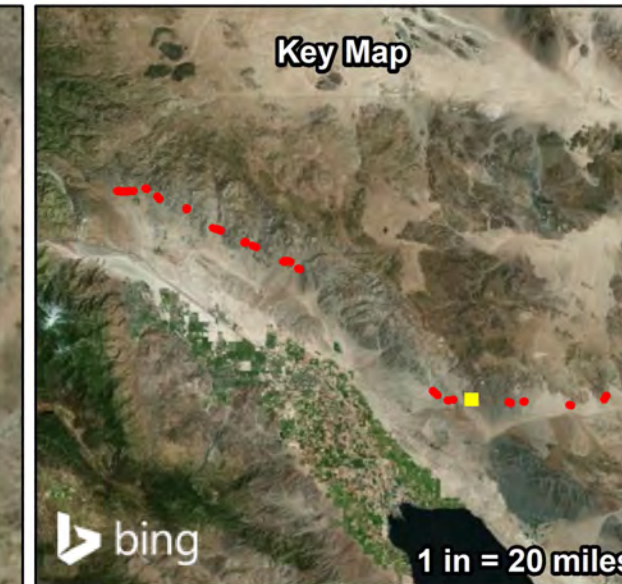




Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
500' Buffer Area

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

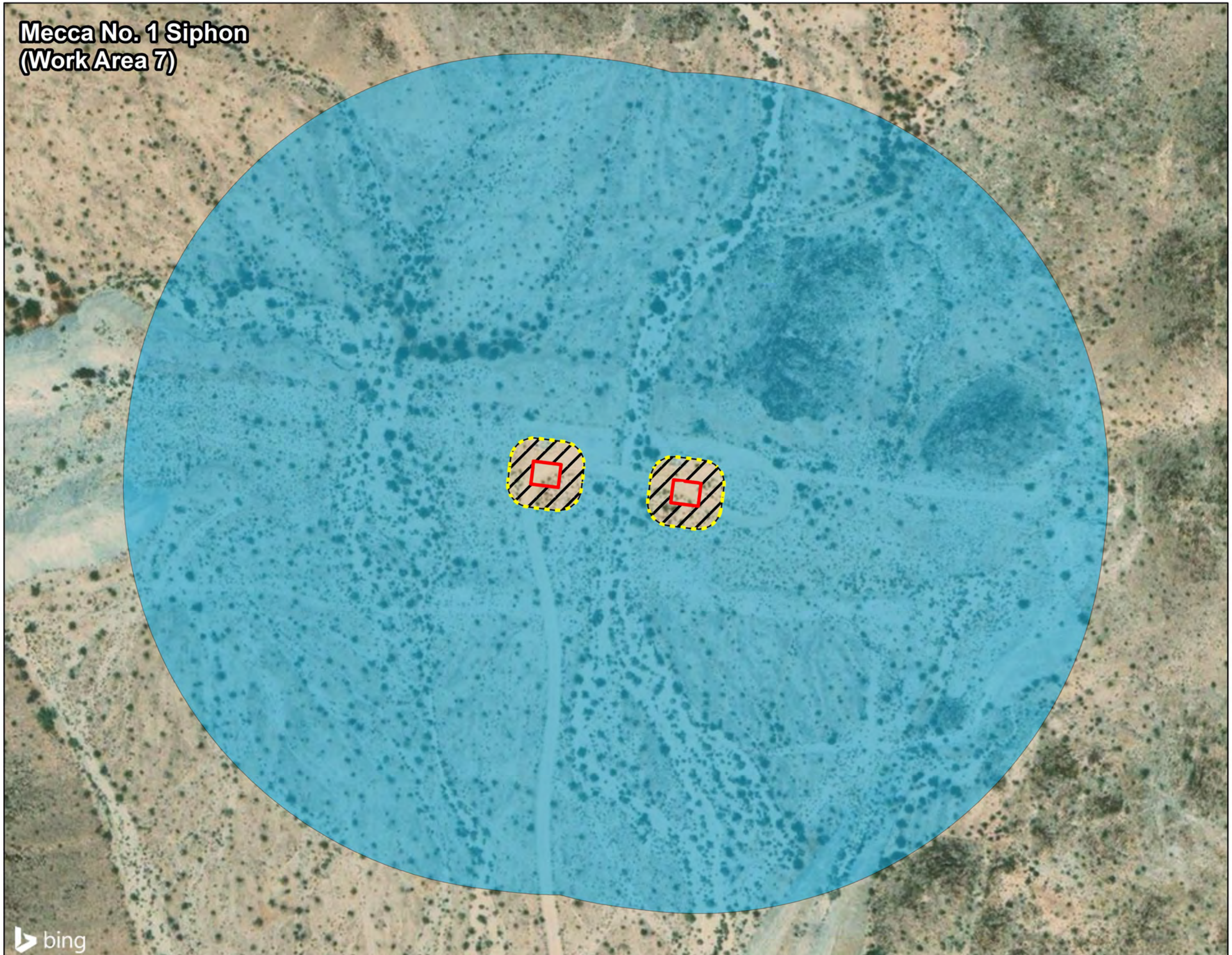
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

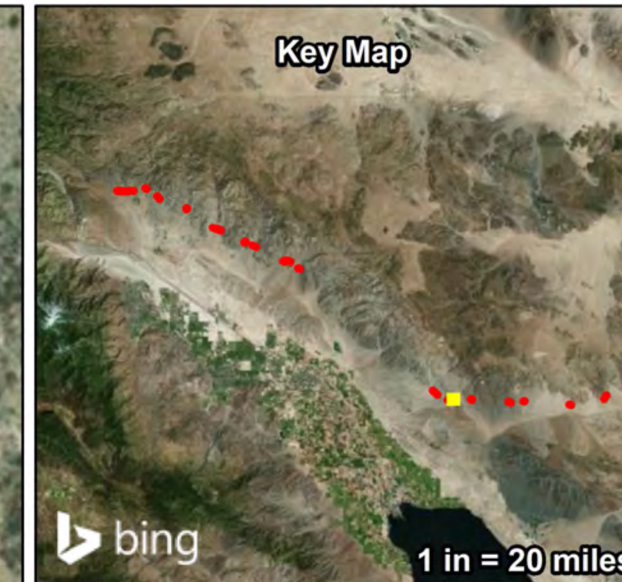
Burrowing Owl Survey Area Map -
Sheet 6 of 24 - End Wash Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_06_EndWashSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
500' Buffer Area

N

0 62.5 125 250
Feet

1 inch = 125 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

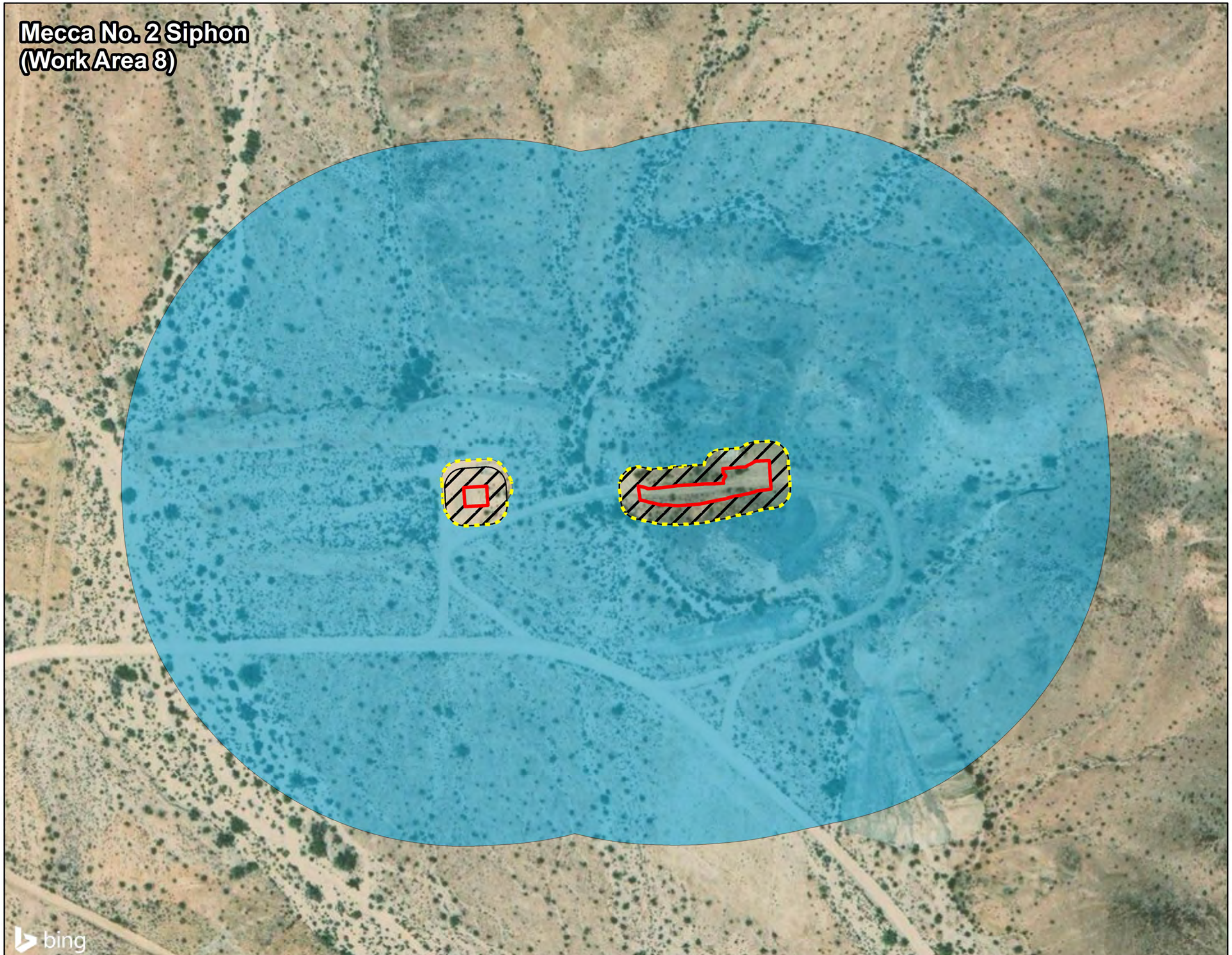
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

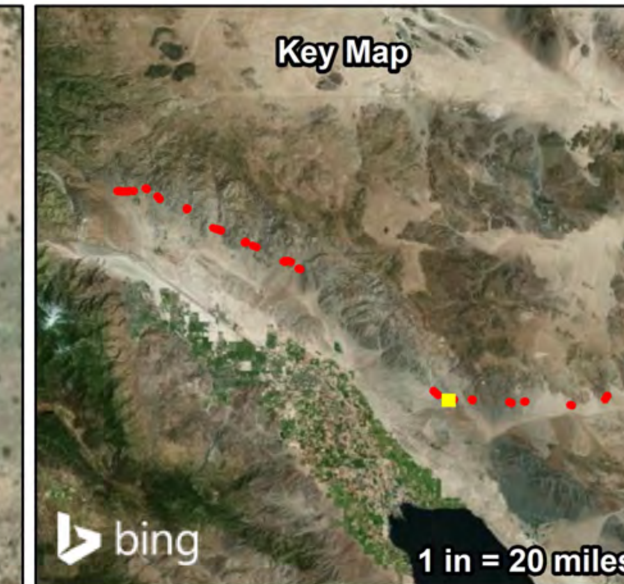
Burrowing Owl Survey Area Map -
Sheet 7 of 24 - Mecca No. 1 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_07_MeccaNo1Siphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
500' Buffer Area

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

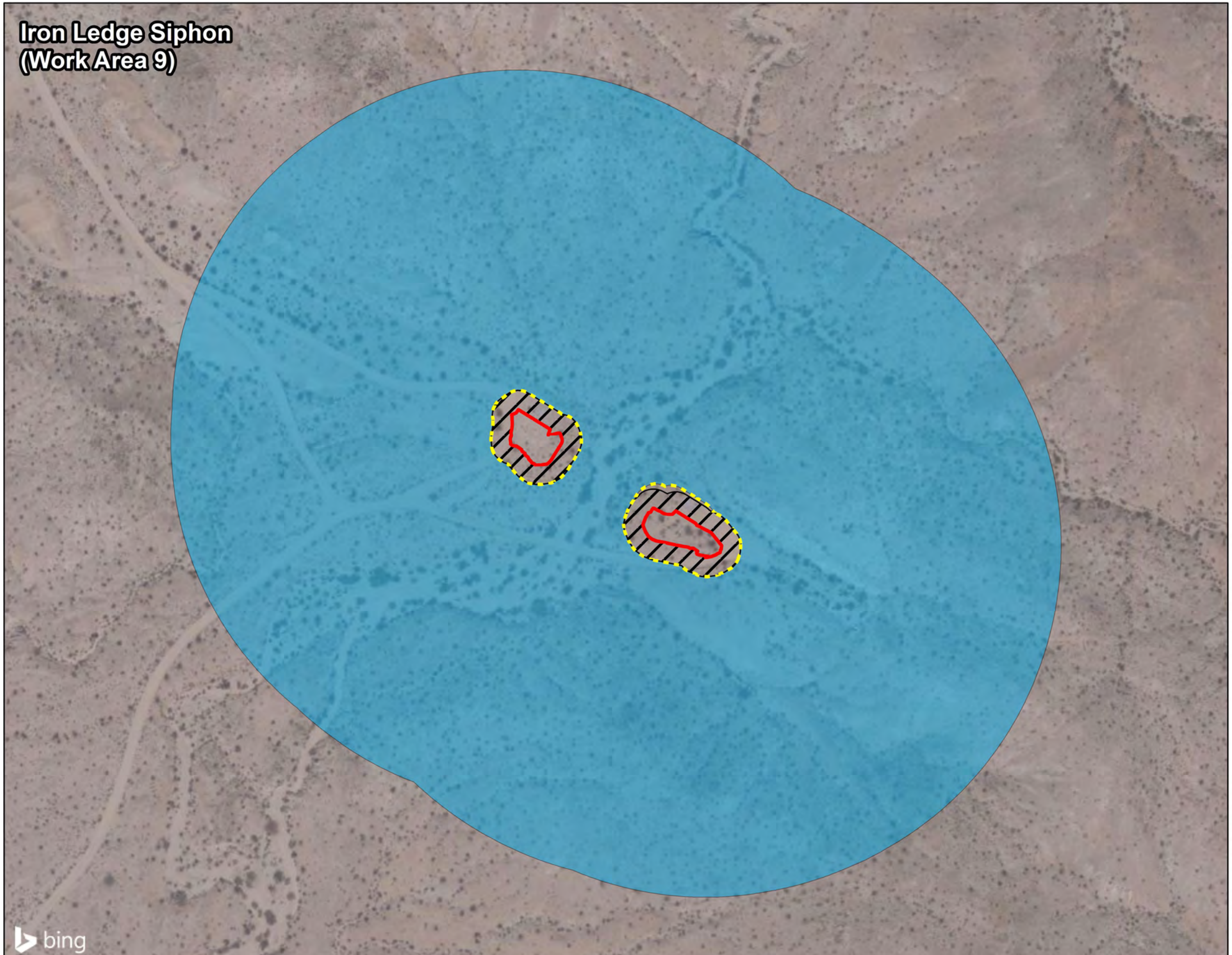
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

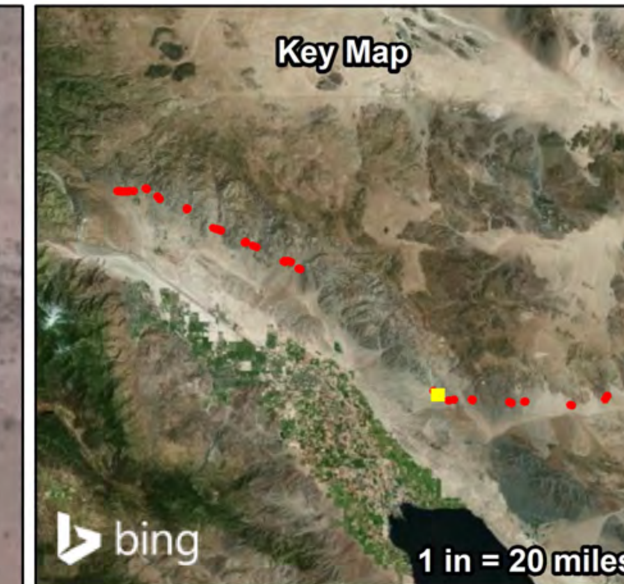
Burrowing Owl Survey Area Map -
Sheet 8 of 24 - Mecca No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_08_MeccaNo2Siphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

500' Buffer Area

N

0 75 150 300

Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

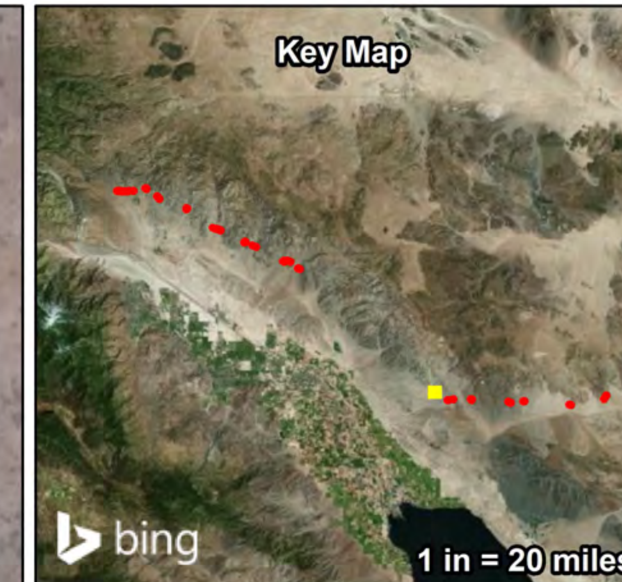
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 9 of 24 - Iron Ledge Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_09_IronLedgeSiphon.mxd



Study Area
Project Footprint
Project Footprint - Temporary
500' Buffer Area

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 10 of 24 - East Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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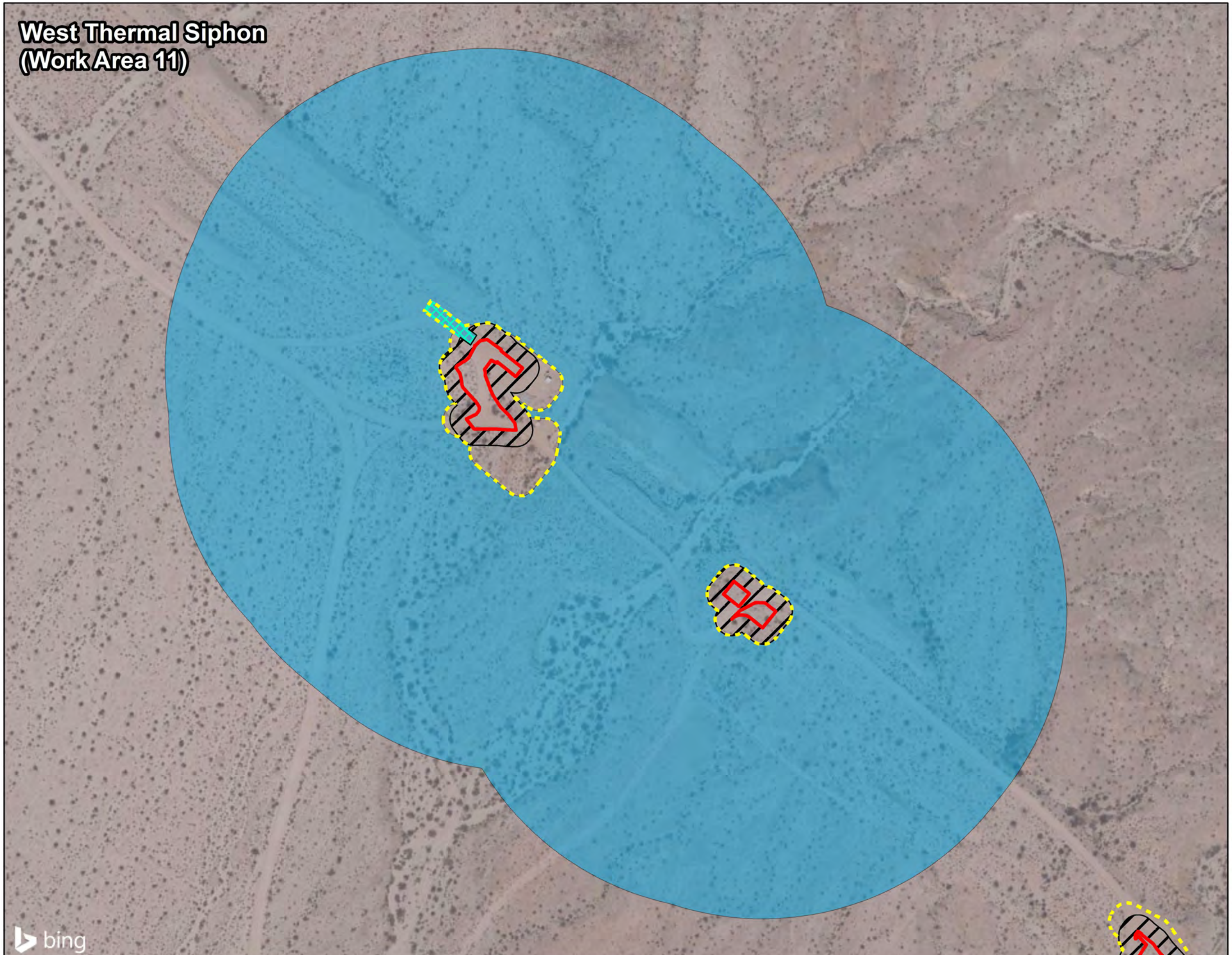

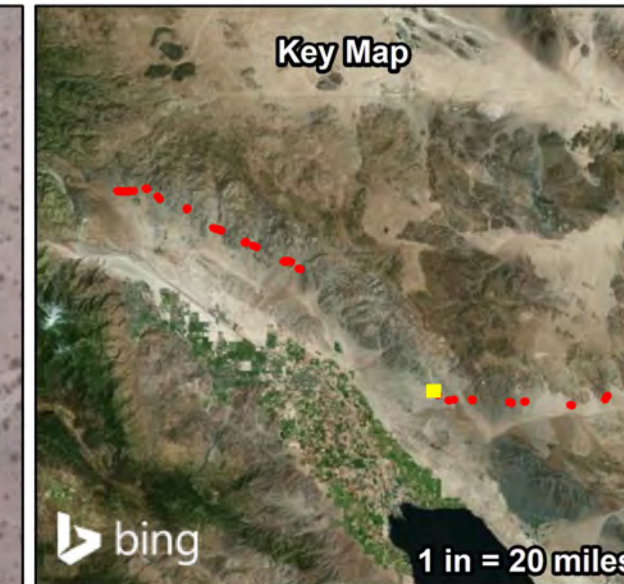

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
500' Buffer Area

N

0 87.5 175 350
Feet

1 inch = 175 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 11 of 24 - West Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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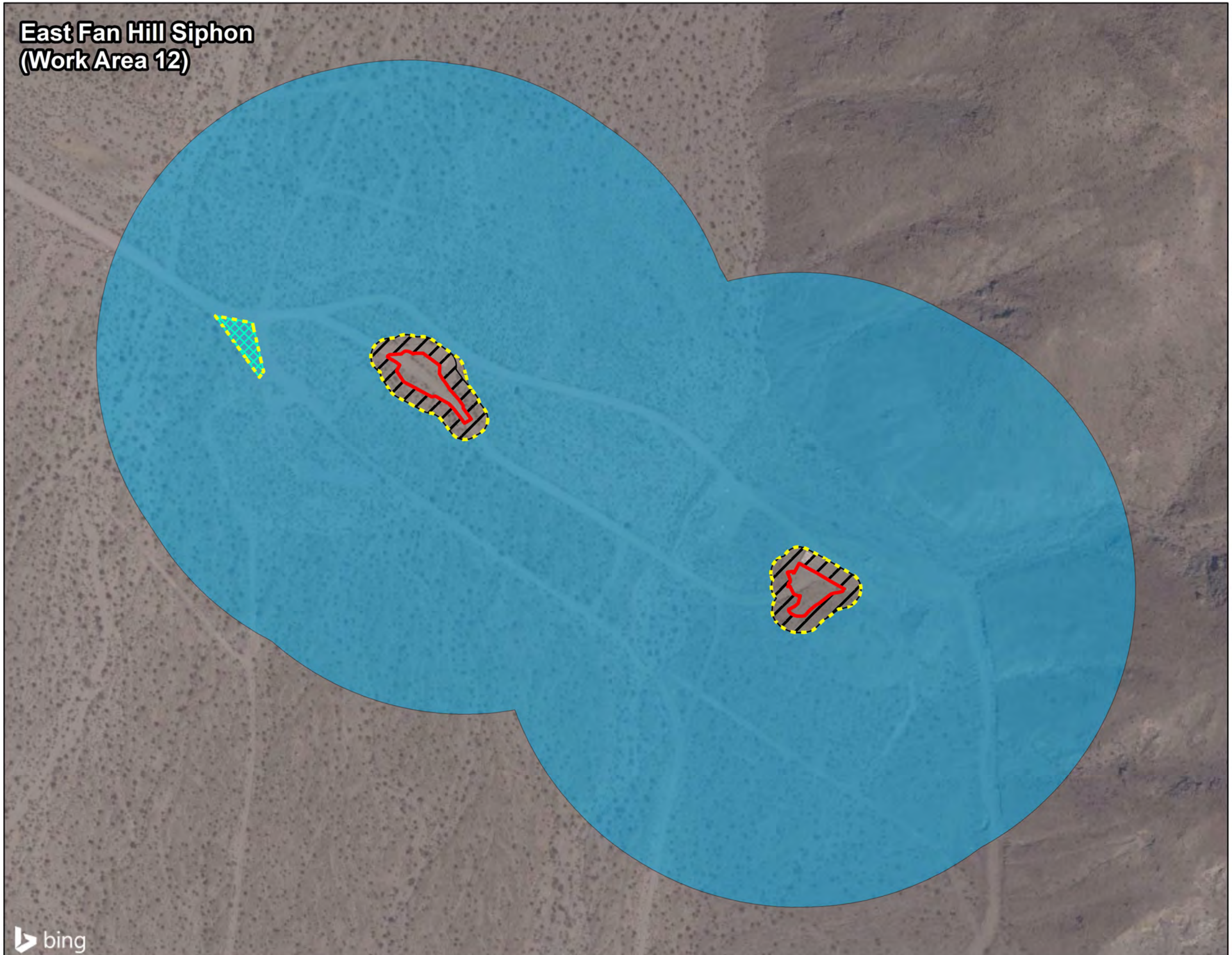

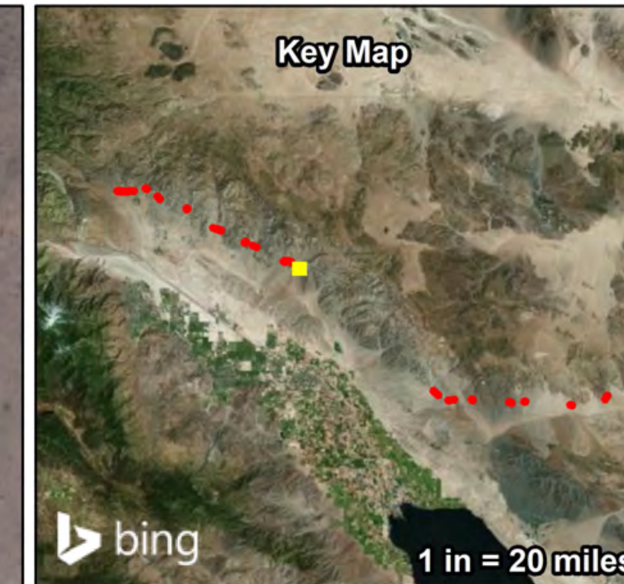

- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- 500' Buffer Area

N

0 87.5 175 350
Feet

1 inch = 175 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 12 of 24 - East Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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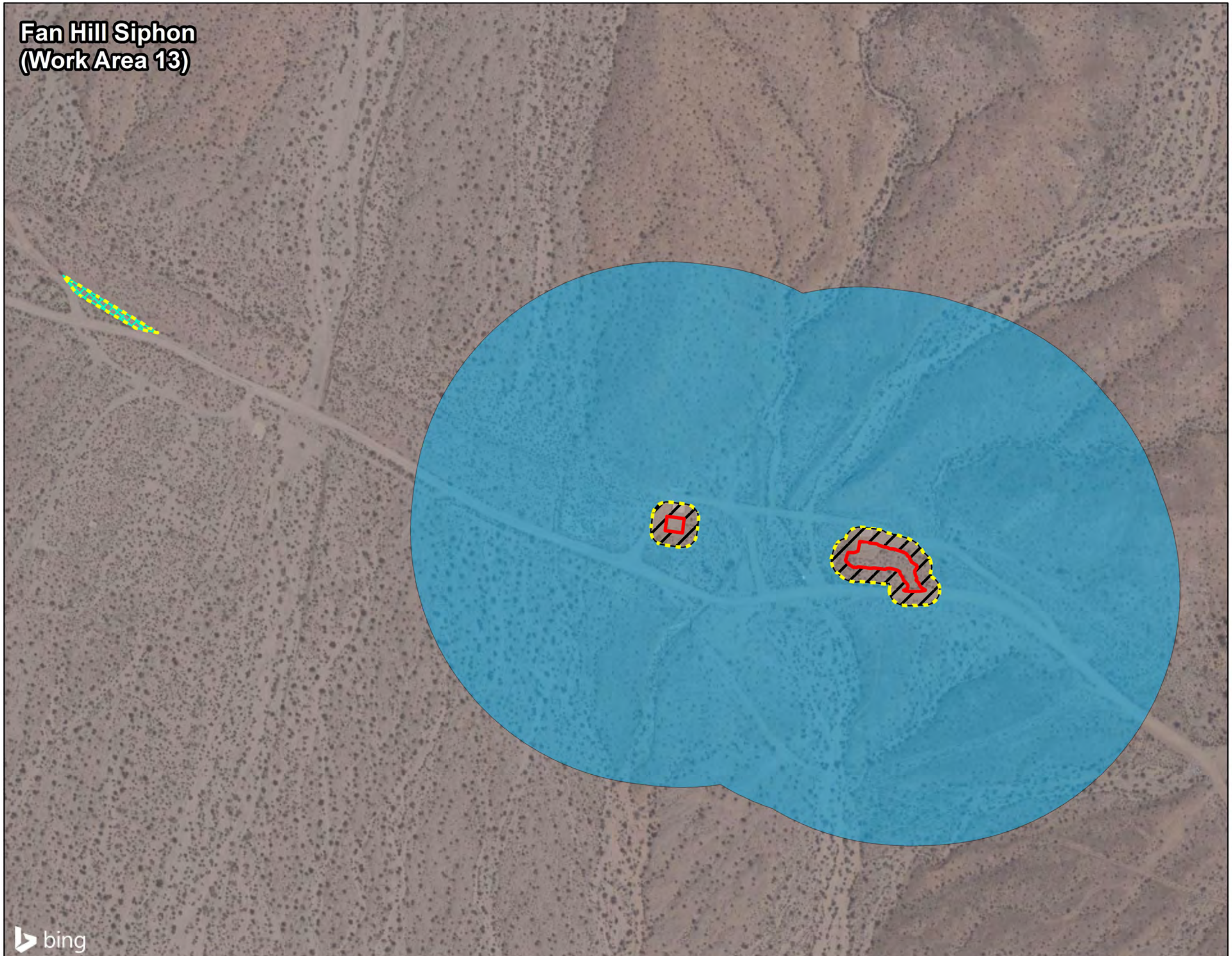

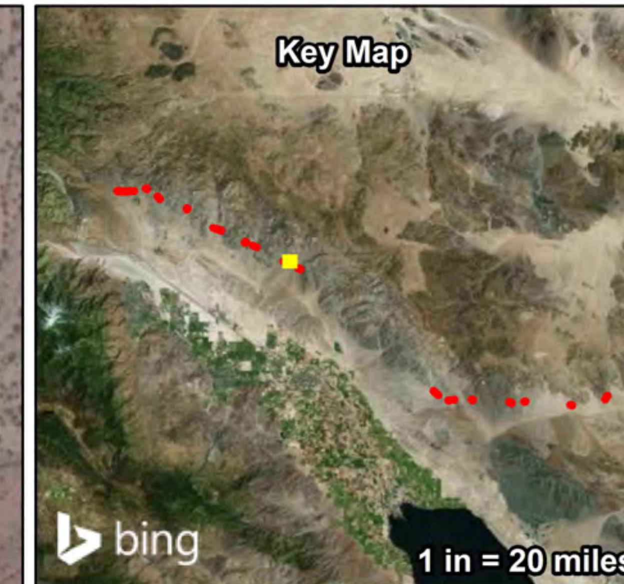

- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- 500' Buffer Area

N

0 100 200 400
Feet

1 inch = 200 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 13 of 24 - Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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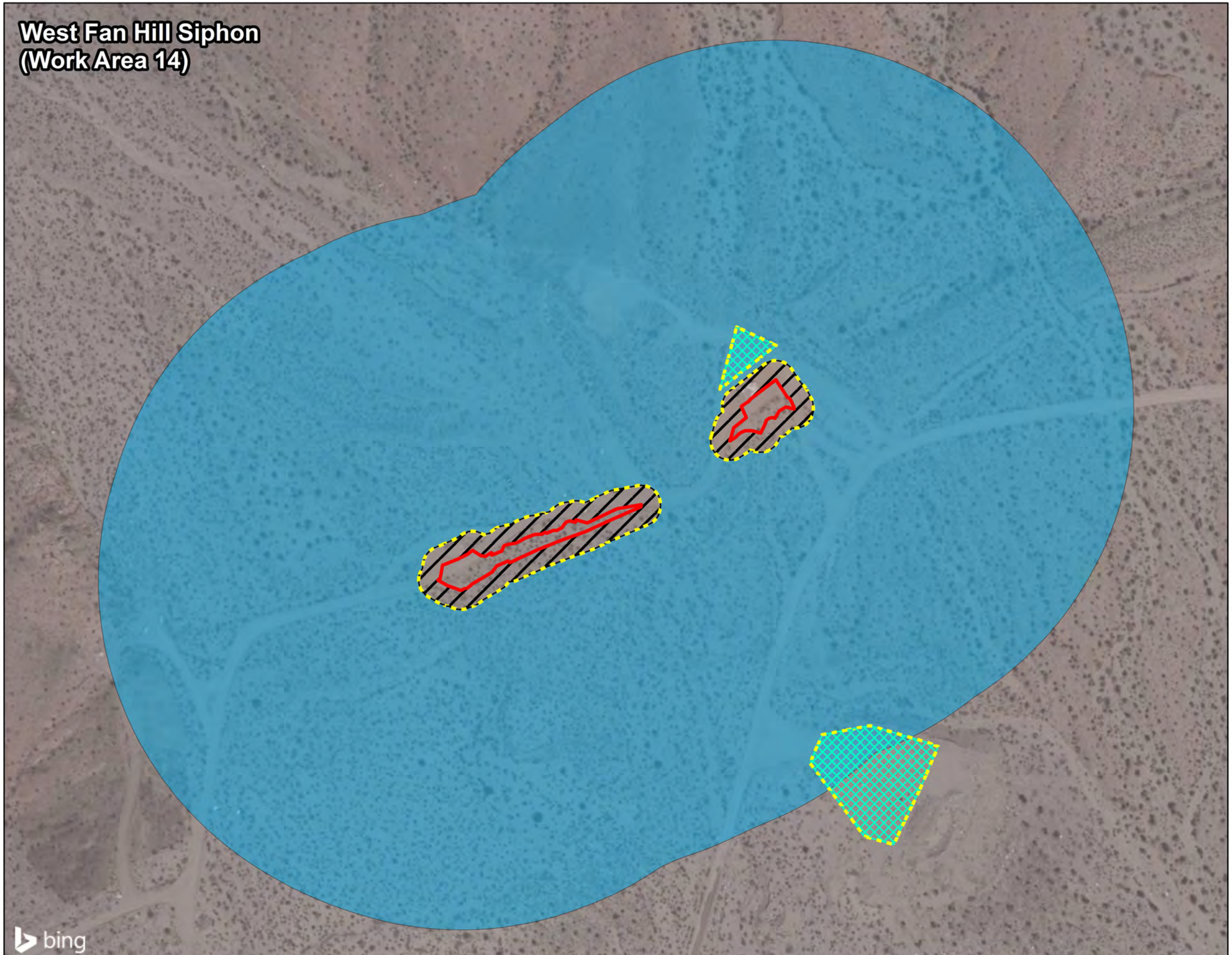

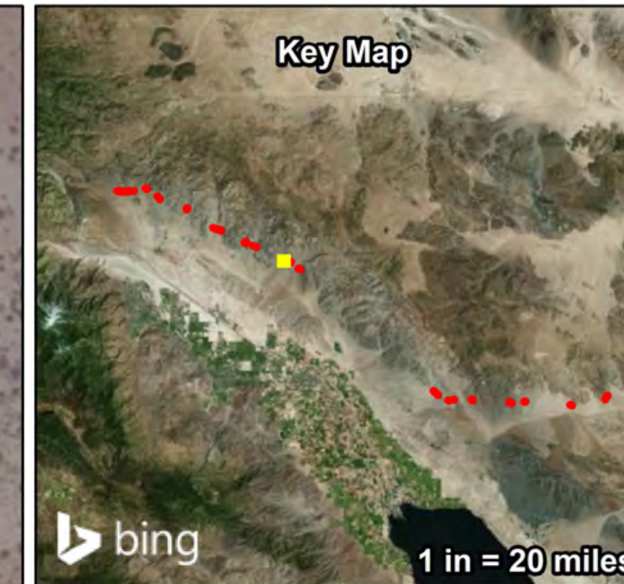

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
500' Buffer Area

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 14 of 24 - West Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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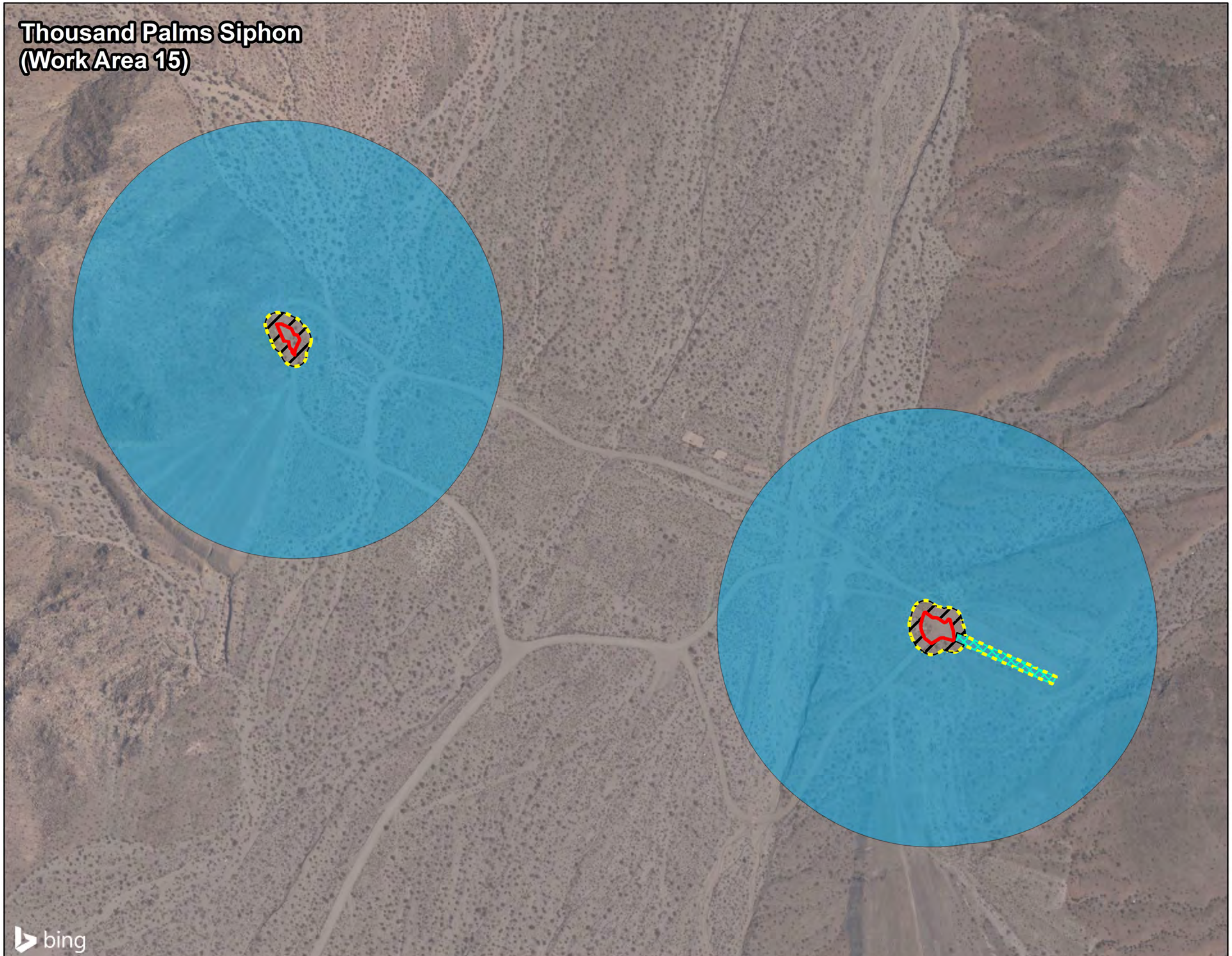

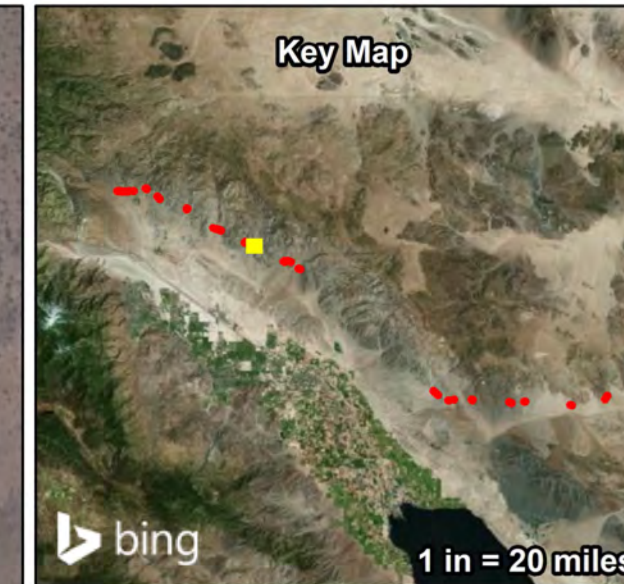

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
500' Buffer Area

N

0 125 250 500
Feet

1 inch = 250 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 15 of 24 - Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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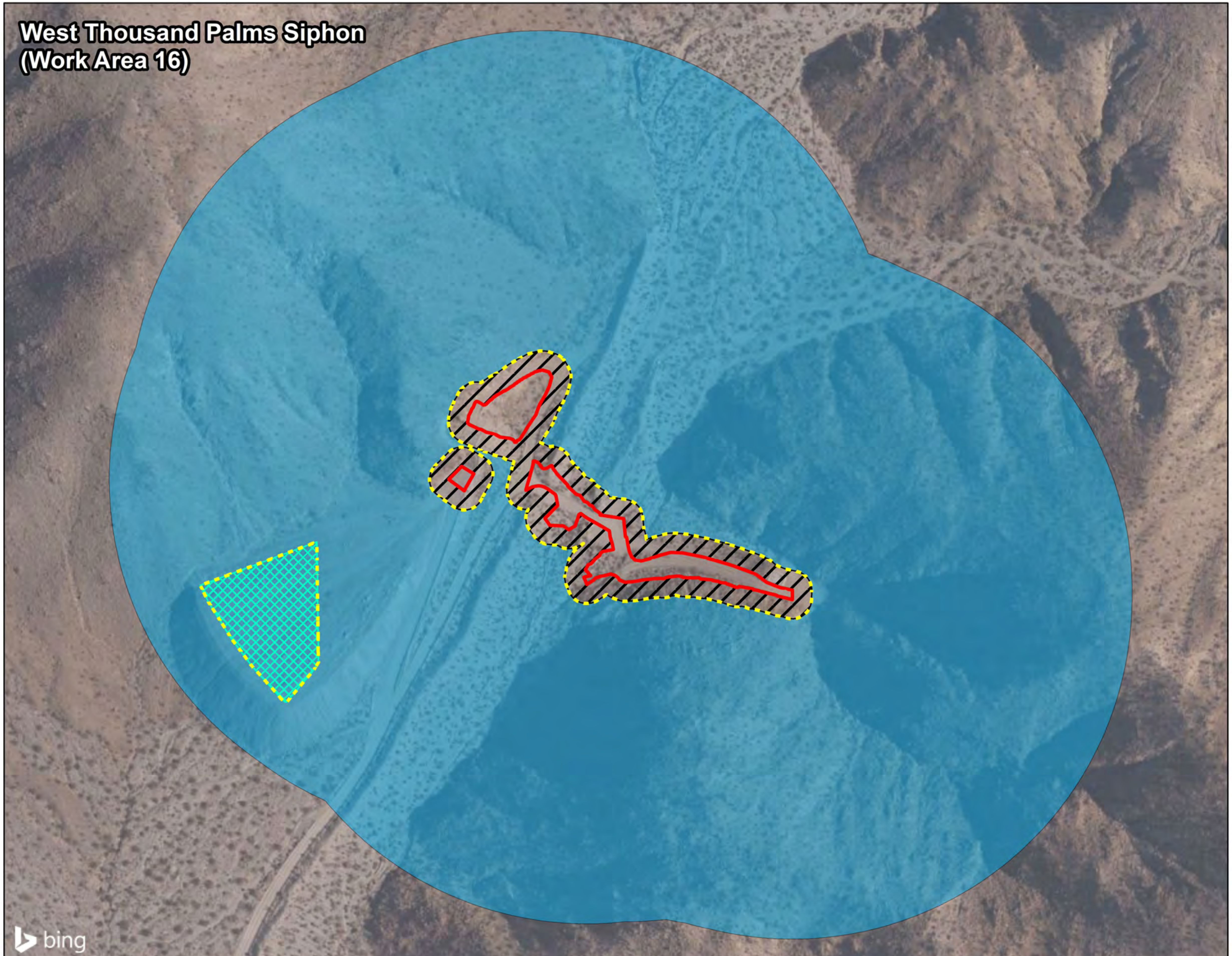

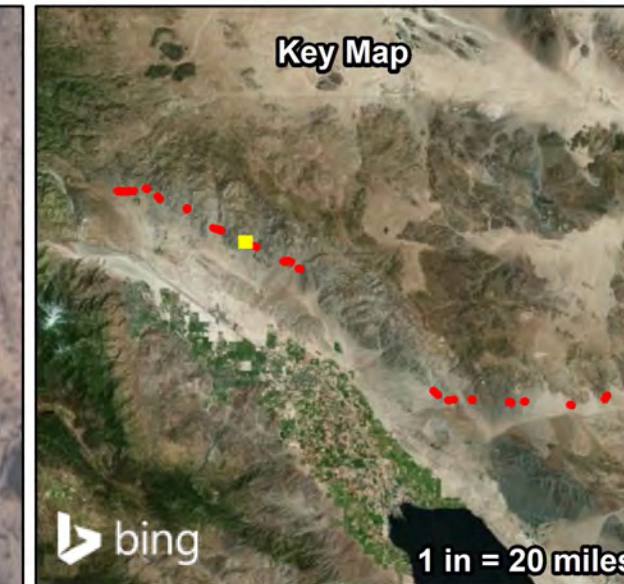

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
500' Buffer Area

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 16 of 24 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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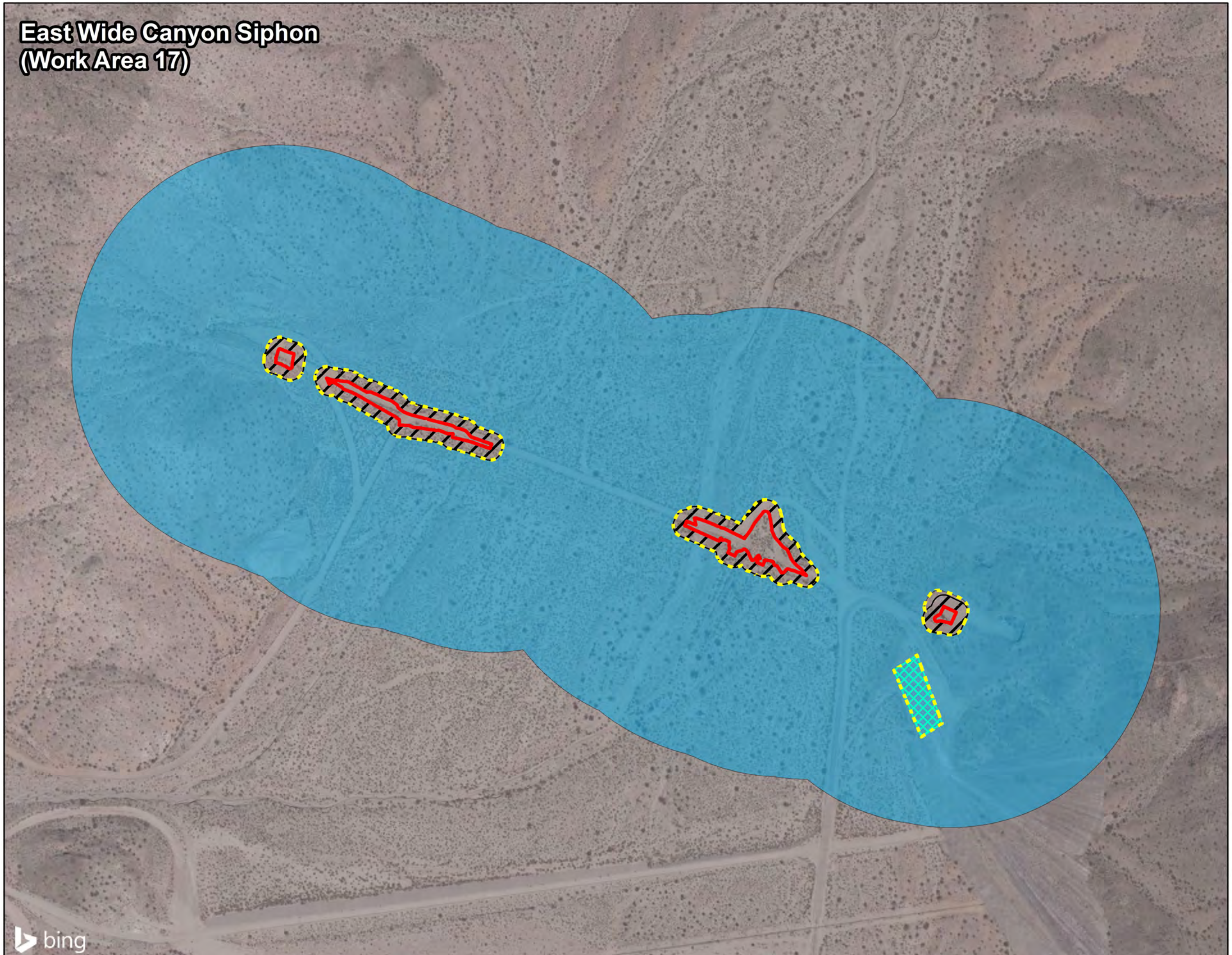
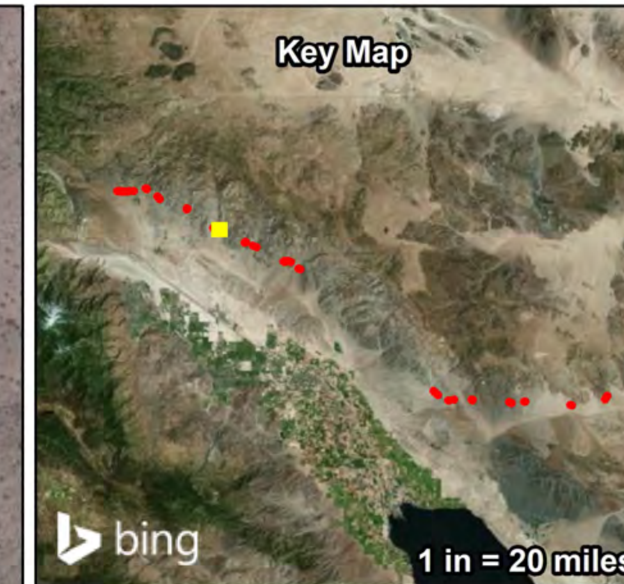




- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- 500' Buffer Area

N

0 125 250 500
Feet

1 inch = 250 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

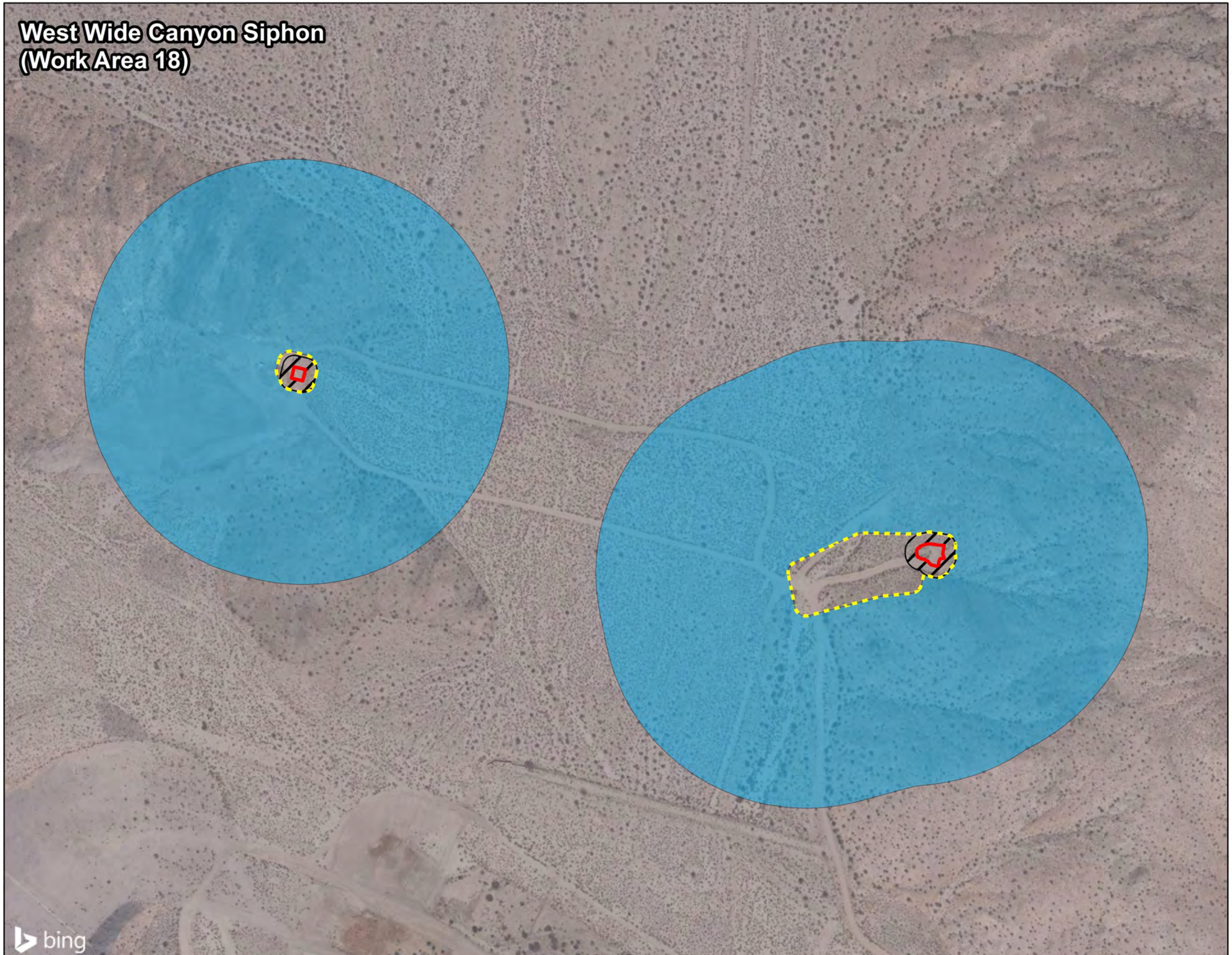
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

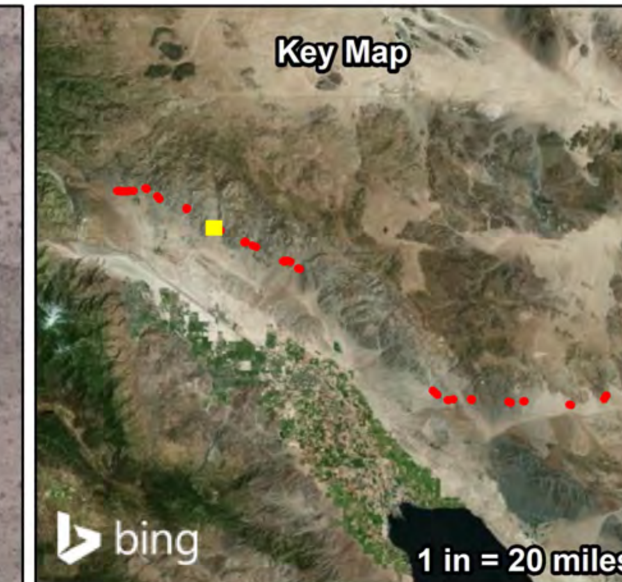
Burrowing Owl Survey Area Map -
Sheet 17 of 24 - East Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_17_EastWideCanyonSiphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

500' Buffer Area

N

0 125 250 500

Feet

1 inch = 250 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

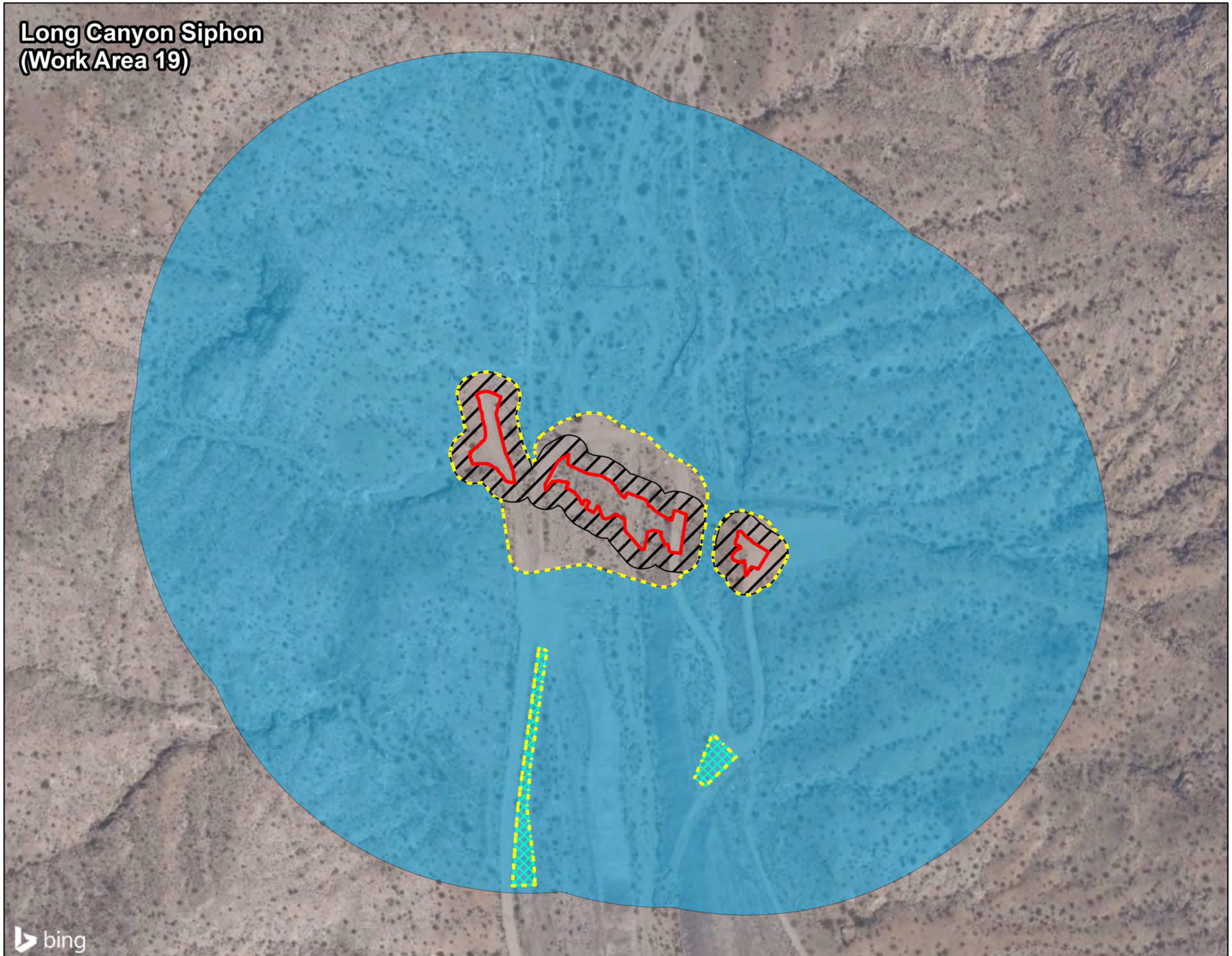
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

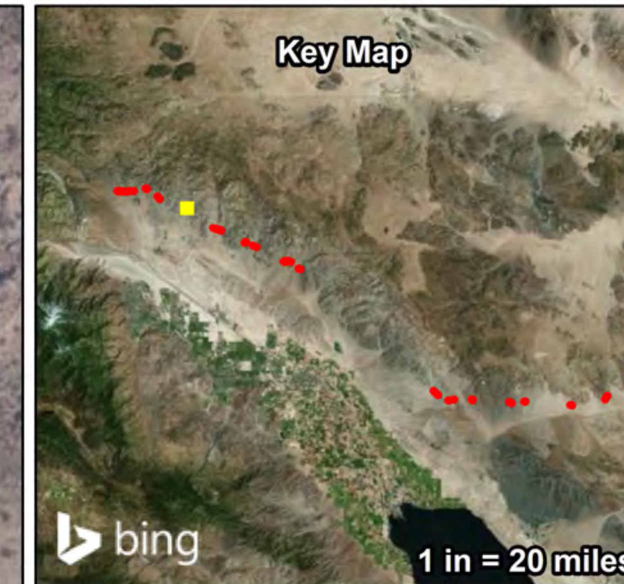
Burrowing Owl Survey Area Map -
Sheet 18 of 24 - West Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_18_WestWideCanyonSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
500' Buffer Area

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

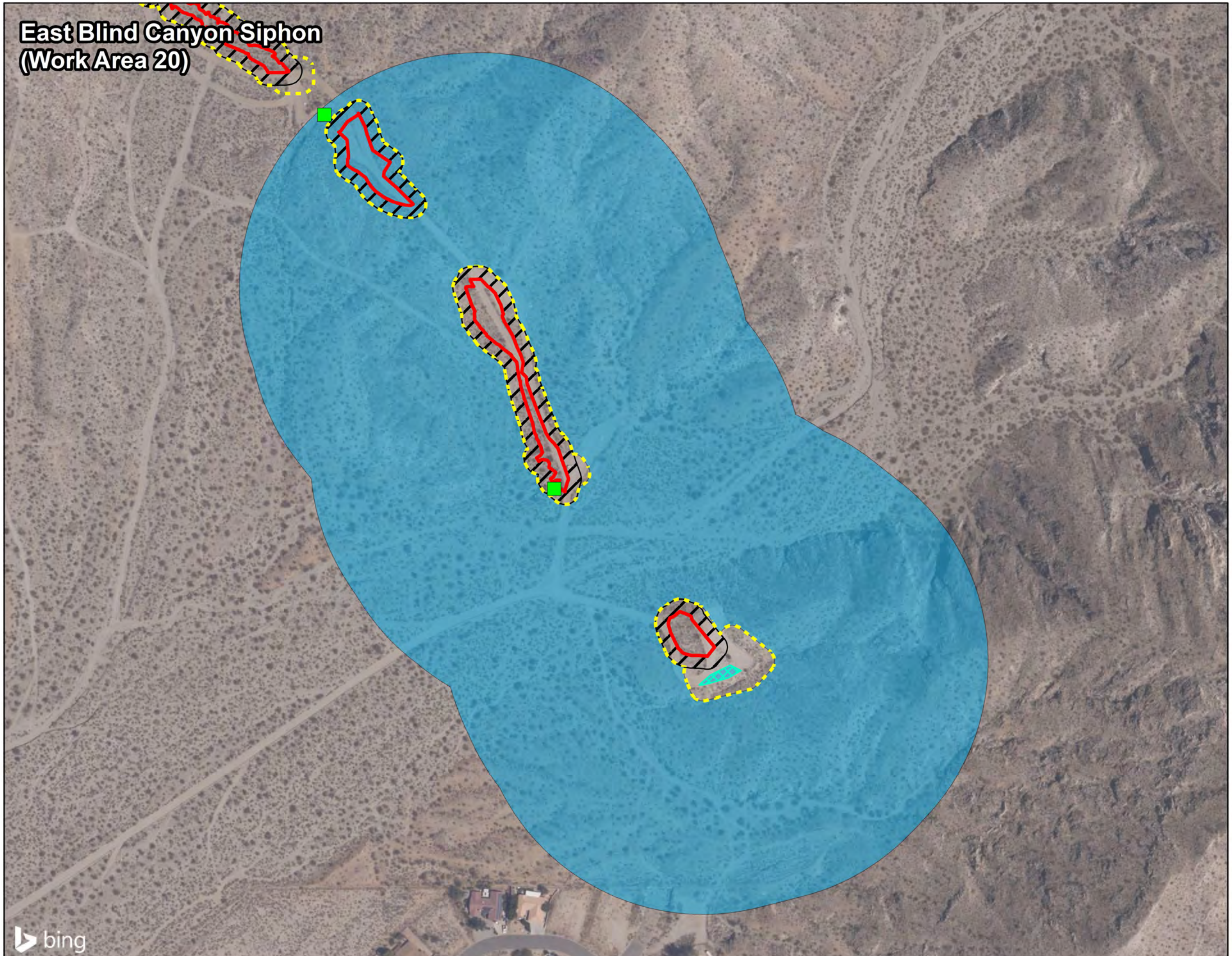
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

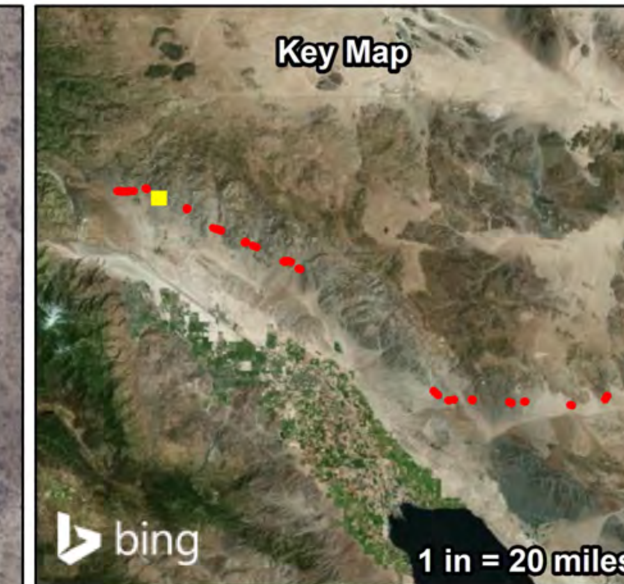
Burrowing Owl Survey Area Map -
Sheet 19 of 24 - Long Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_19_LongCanyonSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
500' Buffer Area
Potentially Suitable Burrow

N

0 112.5 225 450
Feet

1 inch = 225 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 20 of 24 - East Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

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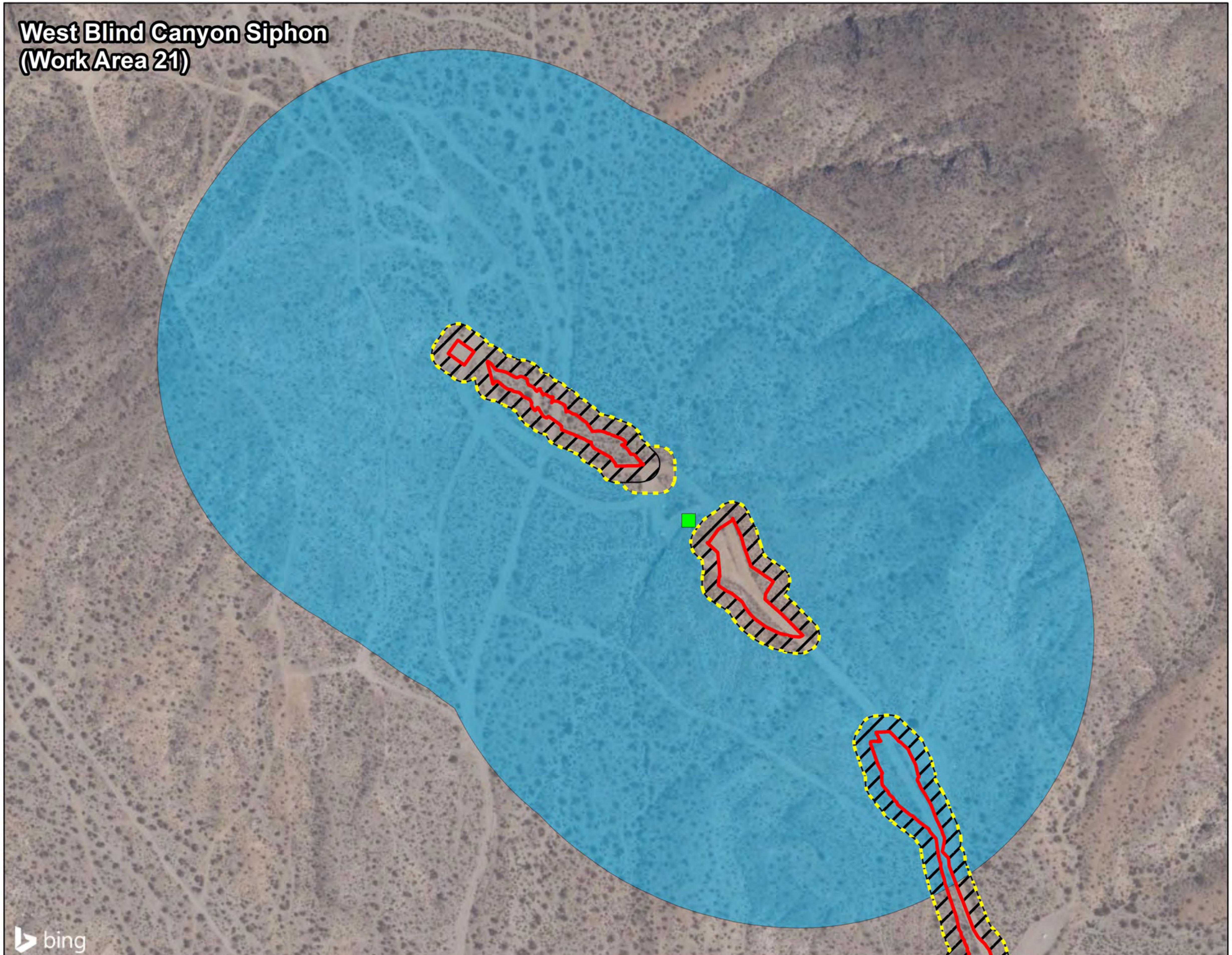
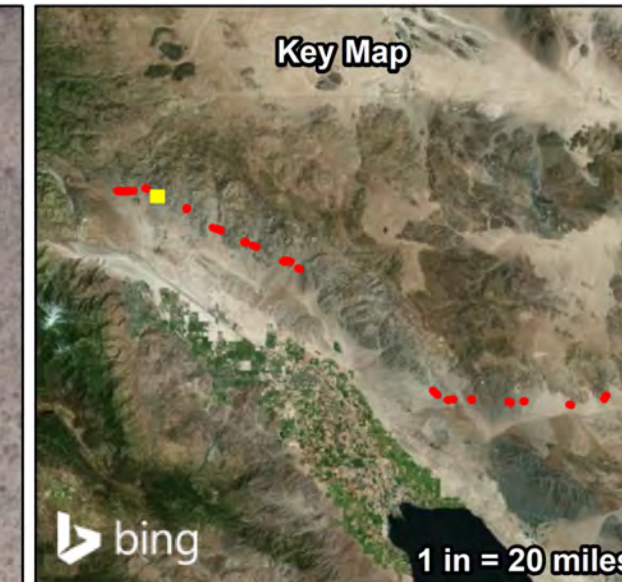




Study Area
Project Footprint
Project Footprint - Temporary
500' Buffer Area
Potentially Suitable Burrow

N

0 87.5 175 350
Feet

1 inch = 175 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

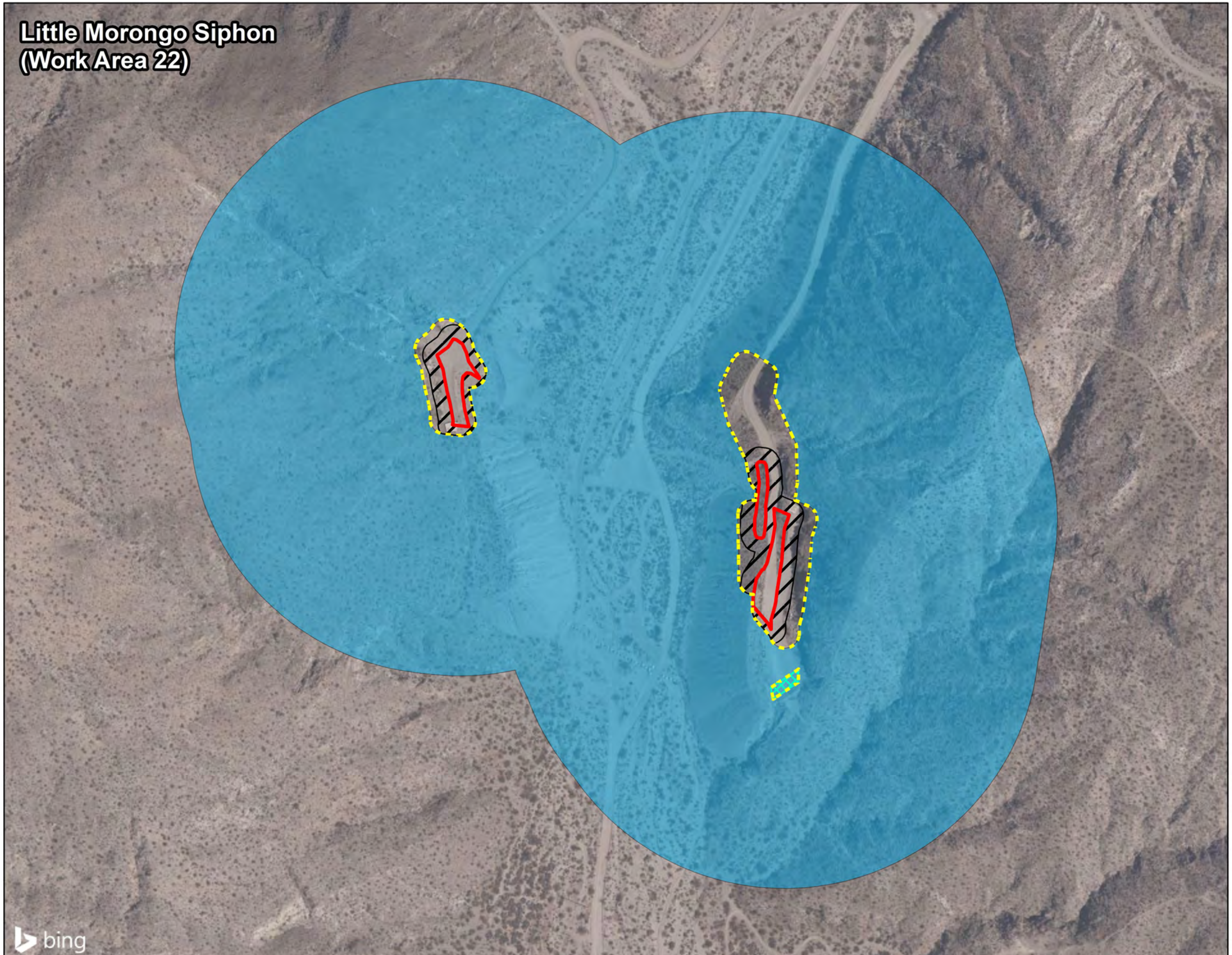
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

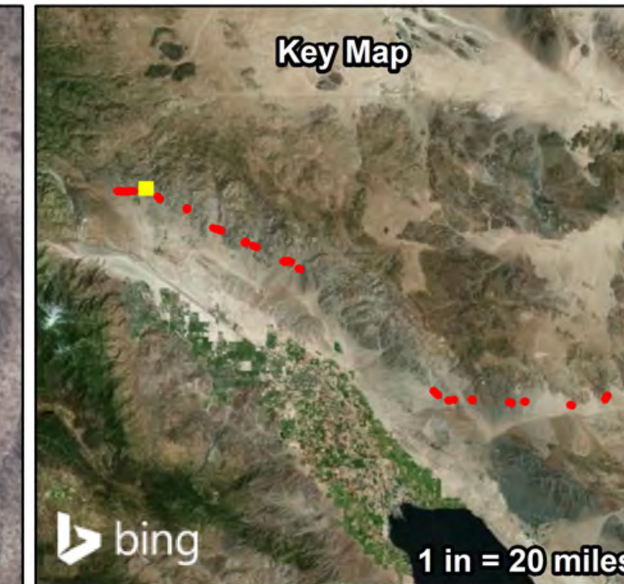
Burrowing Owl Survey Area Map -
Sheet 21 of 24 - West Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_21_WestBlindCanyonSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
500' Buffer Area

N

0 100 200 400
Feet

1 inch = 200 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

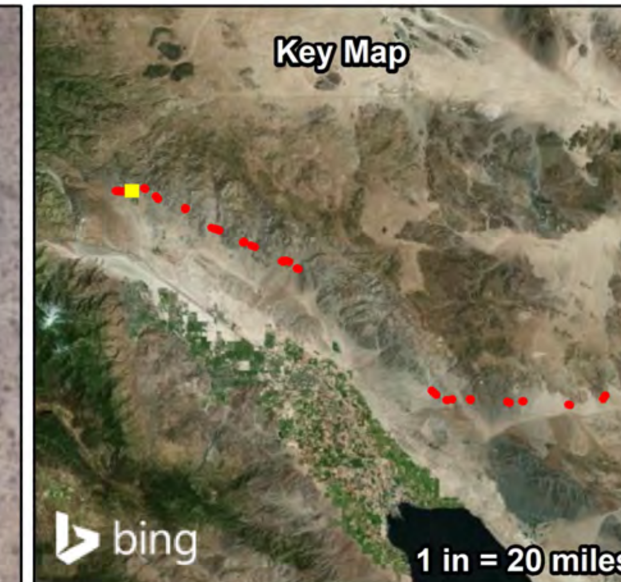
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 22 of 24 - Little Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_22_LittleMorongoSiphon.mxd



Study Area

Project Footprint

Project Footprint - Temporary

500' Buffer Area

N

0 75 150 300

Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

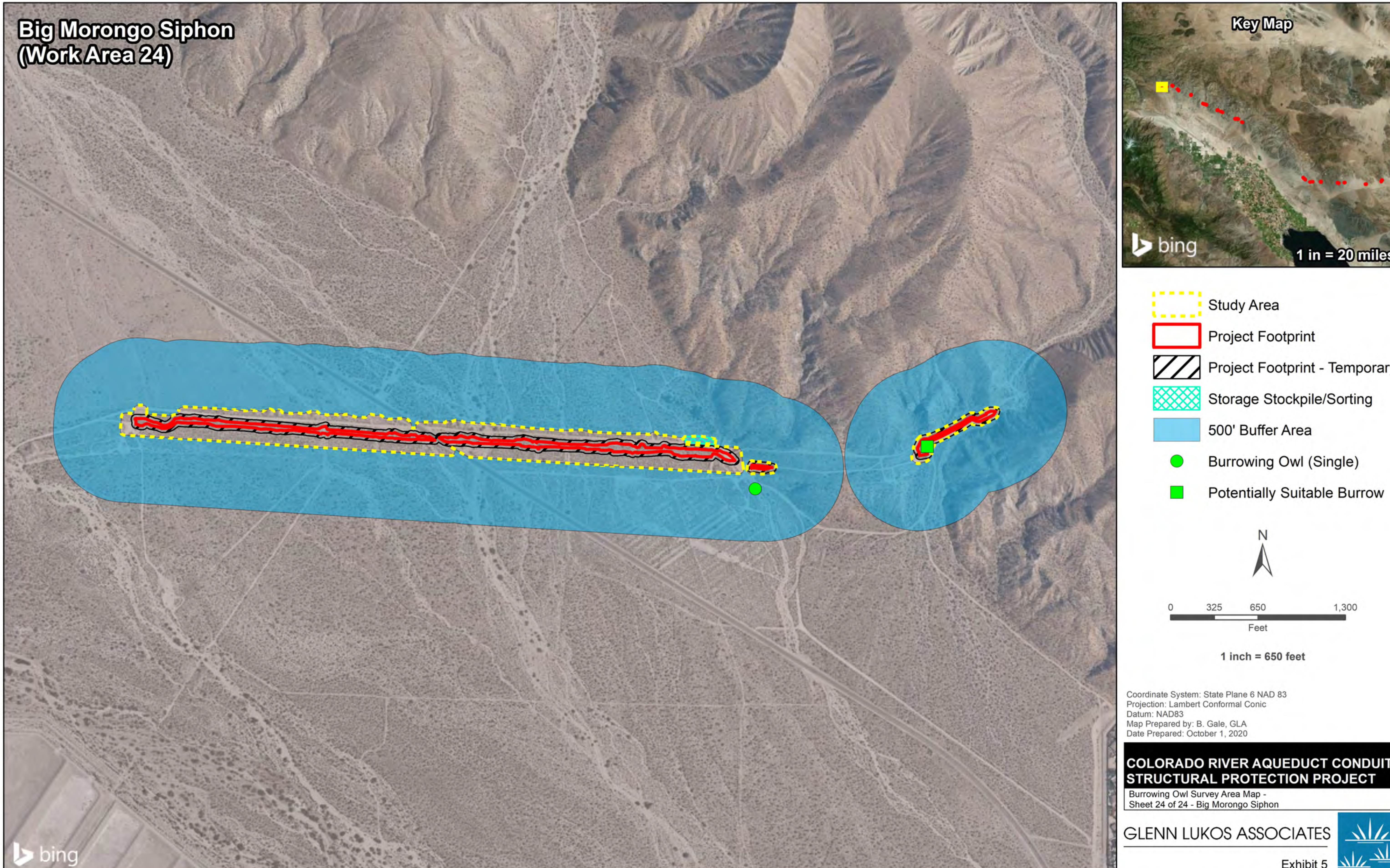
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Burrowing Owl Survey Area Map -
Sheet 23 of 24 - Whitehouse Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_23_WhitehouseSiphon.mxd



Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

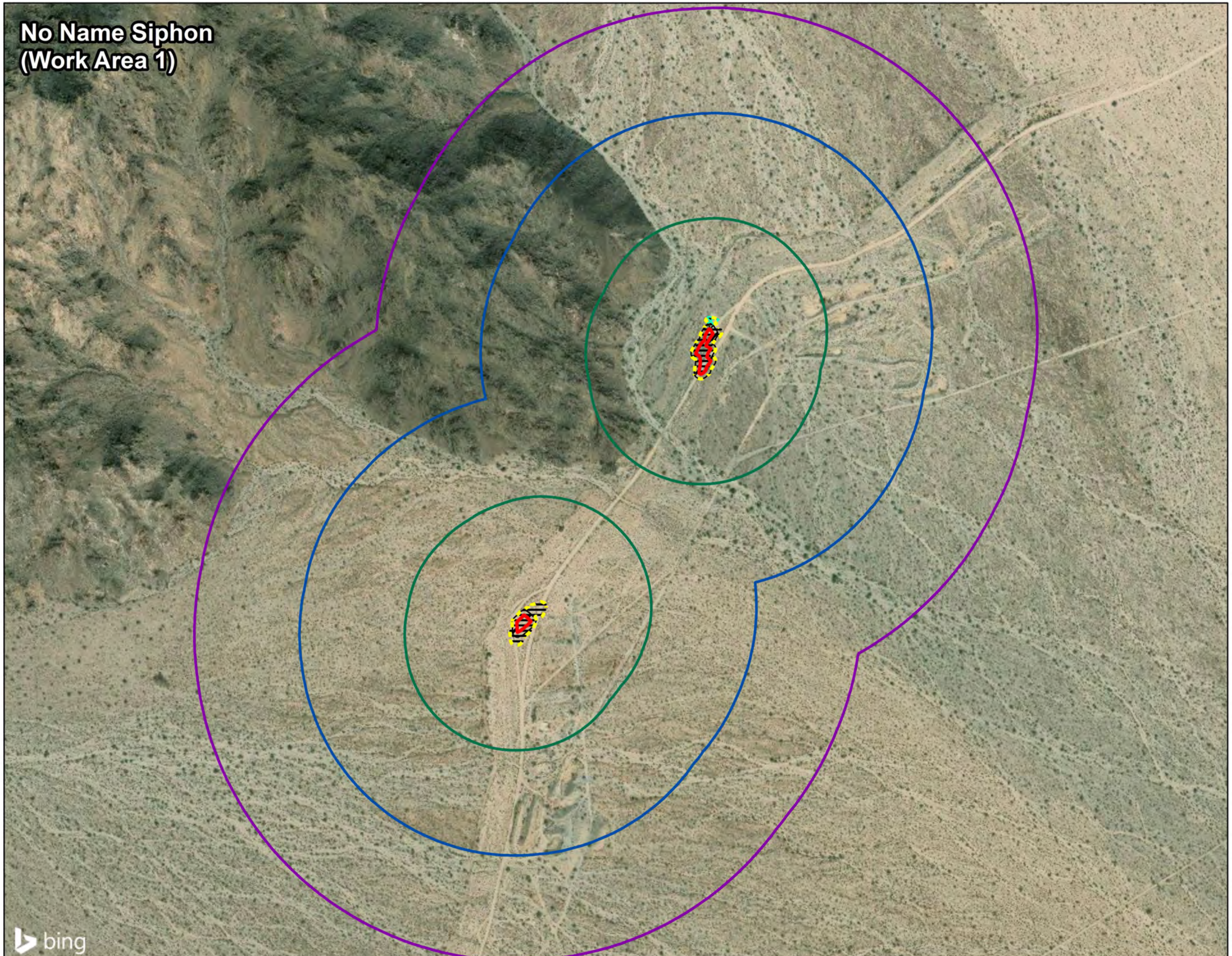
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

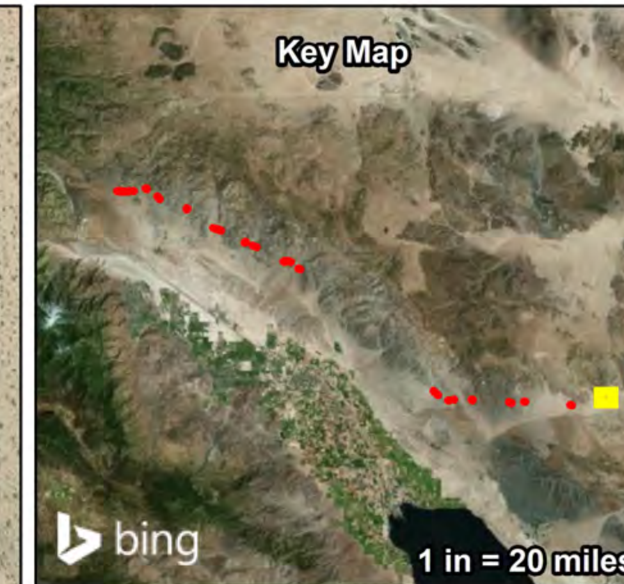
Burrowing Owl Survey Area Map -
Sheet 24 of 24 - Big Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\BUOWGIS\43-27CRAS_BUOW_24_BigMorongoSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects

0 300 600 1,200
Feet

1 inch = 600 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

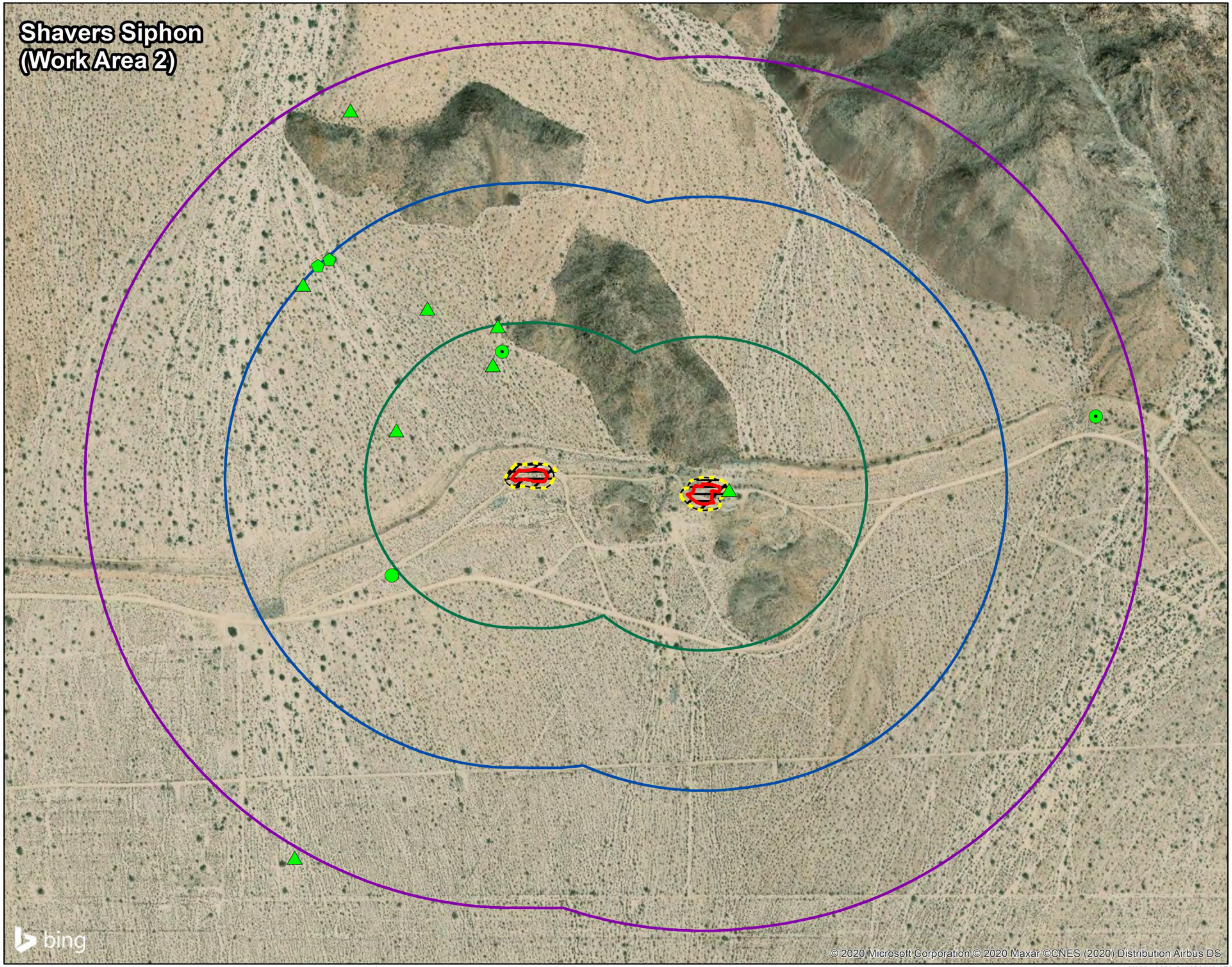
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 1 of 19 - No Name Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DesertTortoiseGIS\43-27CRAS_DETO_01_NoNameSiphon.mxd



Study
Project Footprint
Project Footprint - Temporary
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects
Adult Tortoise
Occupied Burrow
Suitable Burrow
Scat

0 225 450 900
Feet

1 inch = 450 feet

N

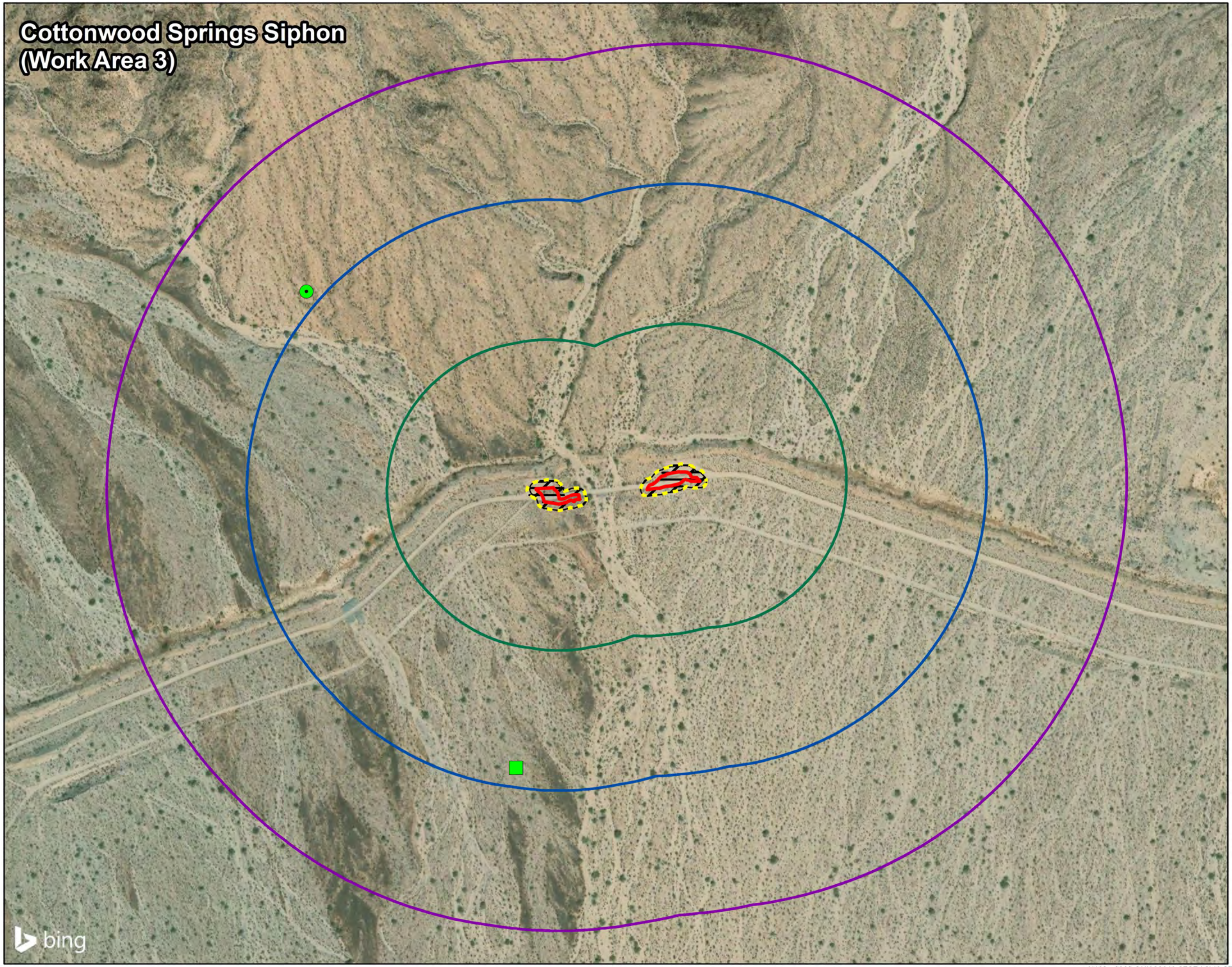
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 2 of 19 - Shavers Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6



Study Area
Project Footprint
Project Footprint - Temporary
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects
Occupied Burrow
Pallet

0 225 450 900
Feet

1 inch = 450 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

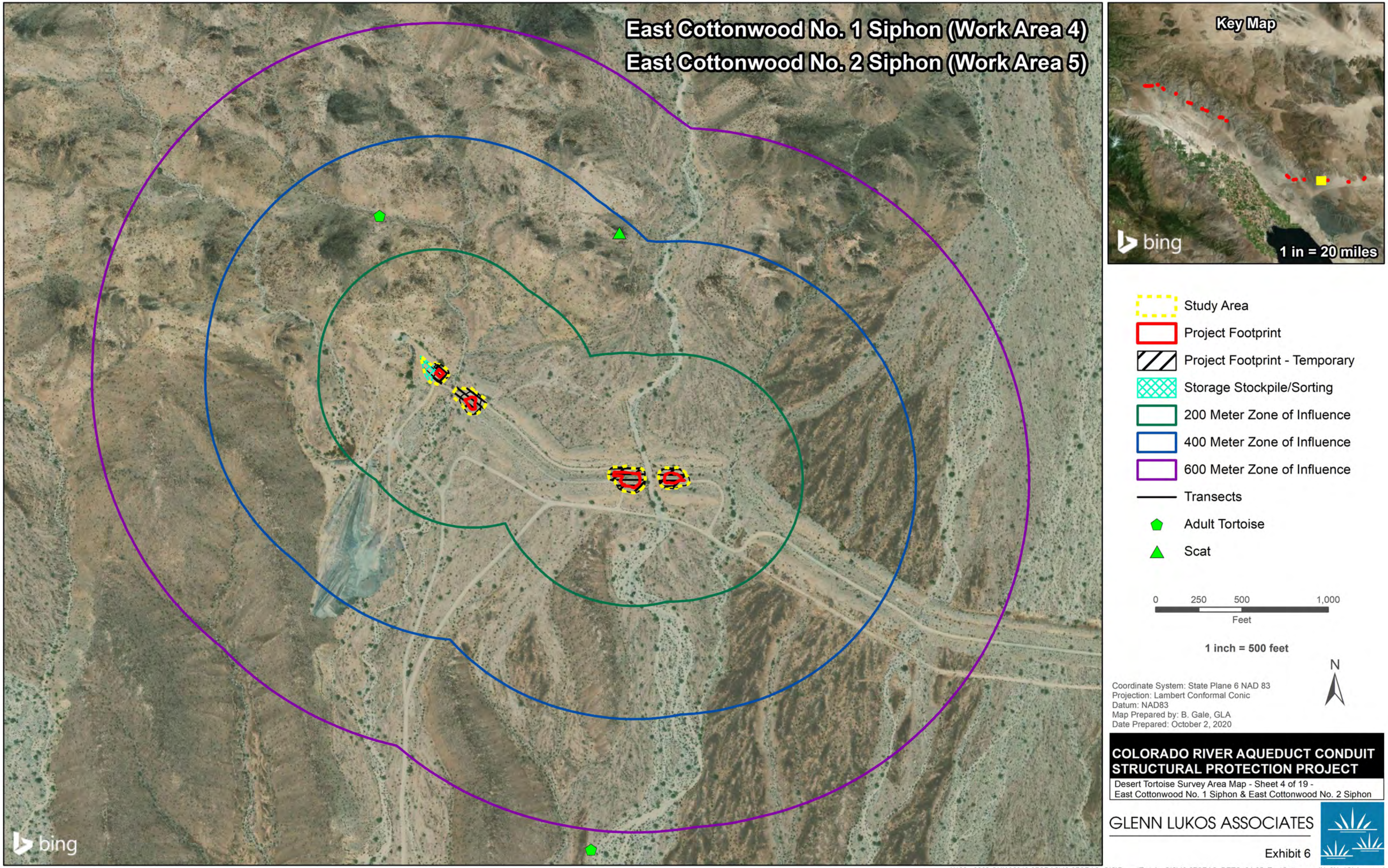
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 3 of 19 - Cottonwood Springs Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DesertTortoiseGIS\43-27CRAS_DETO_03_CottonwoodSpringsSiphon.mxd



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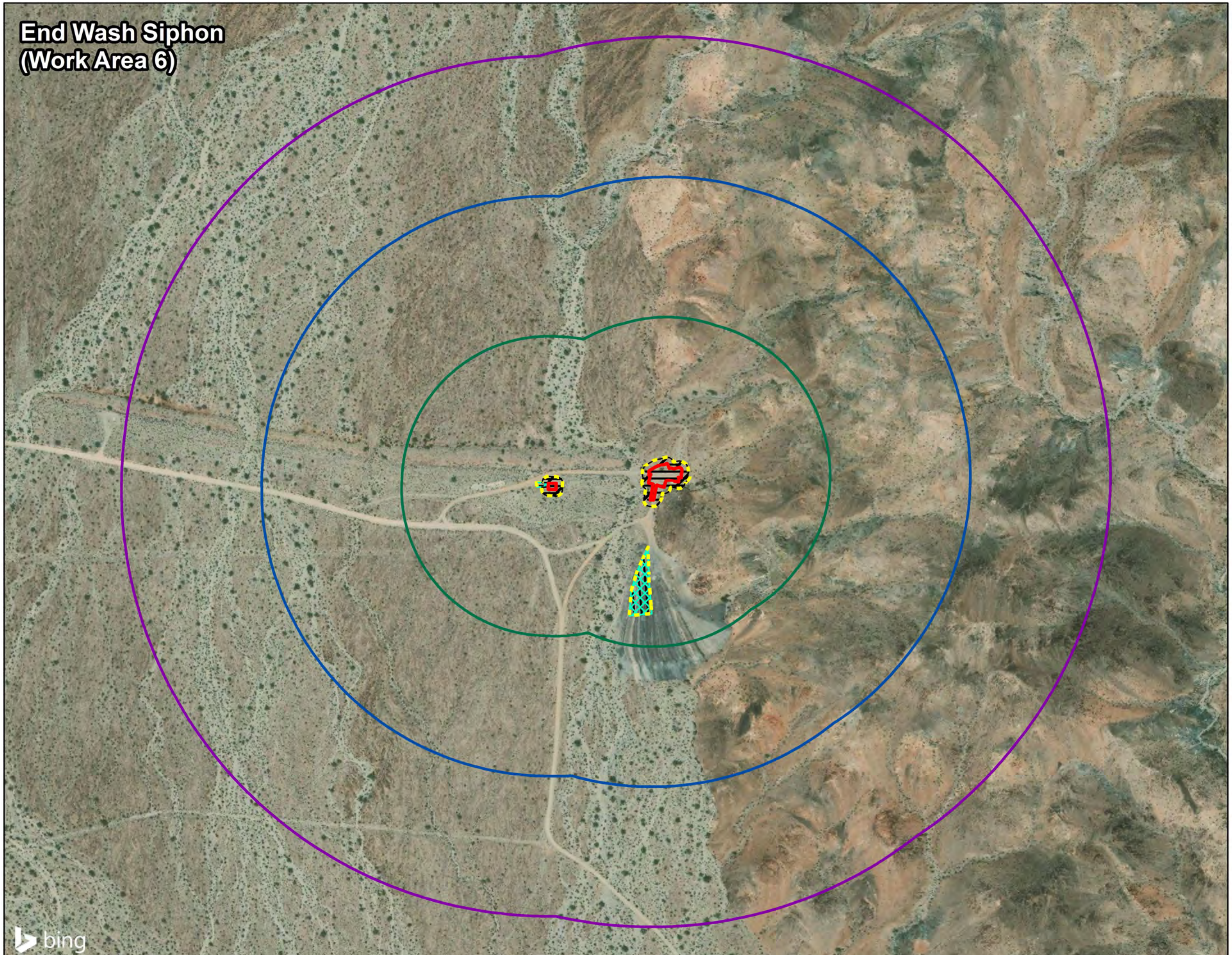

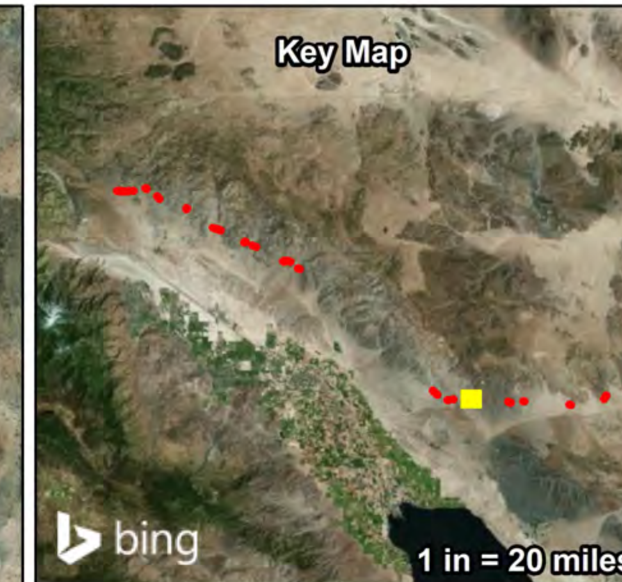

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects

0 225 450 900
Feet

1 inch = 450 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 5 of 19 - End Wash Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

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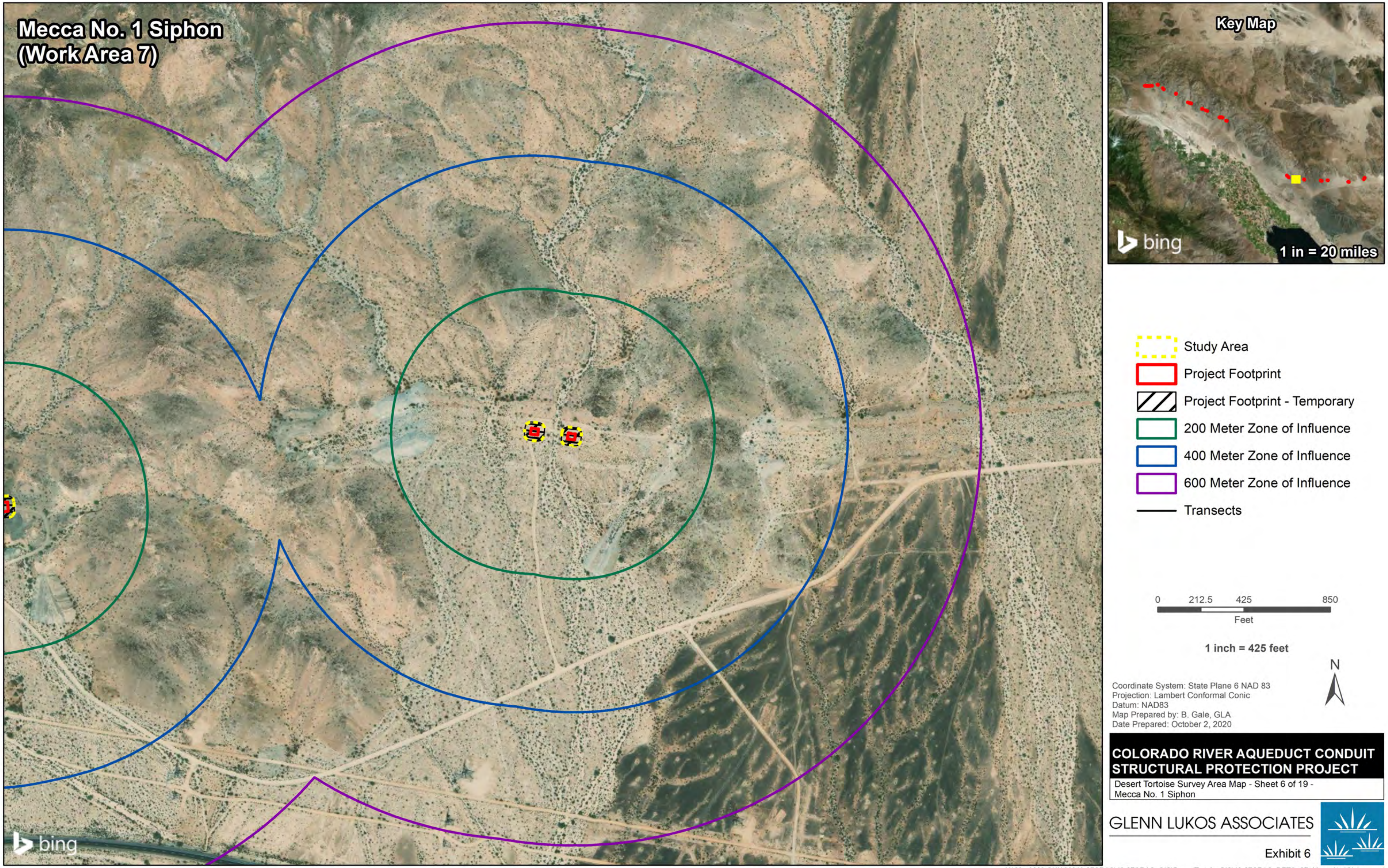

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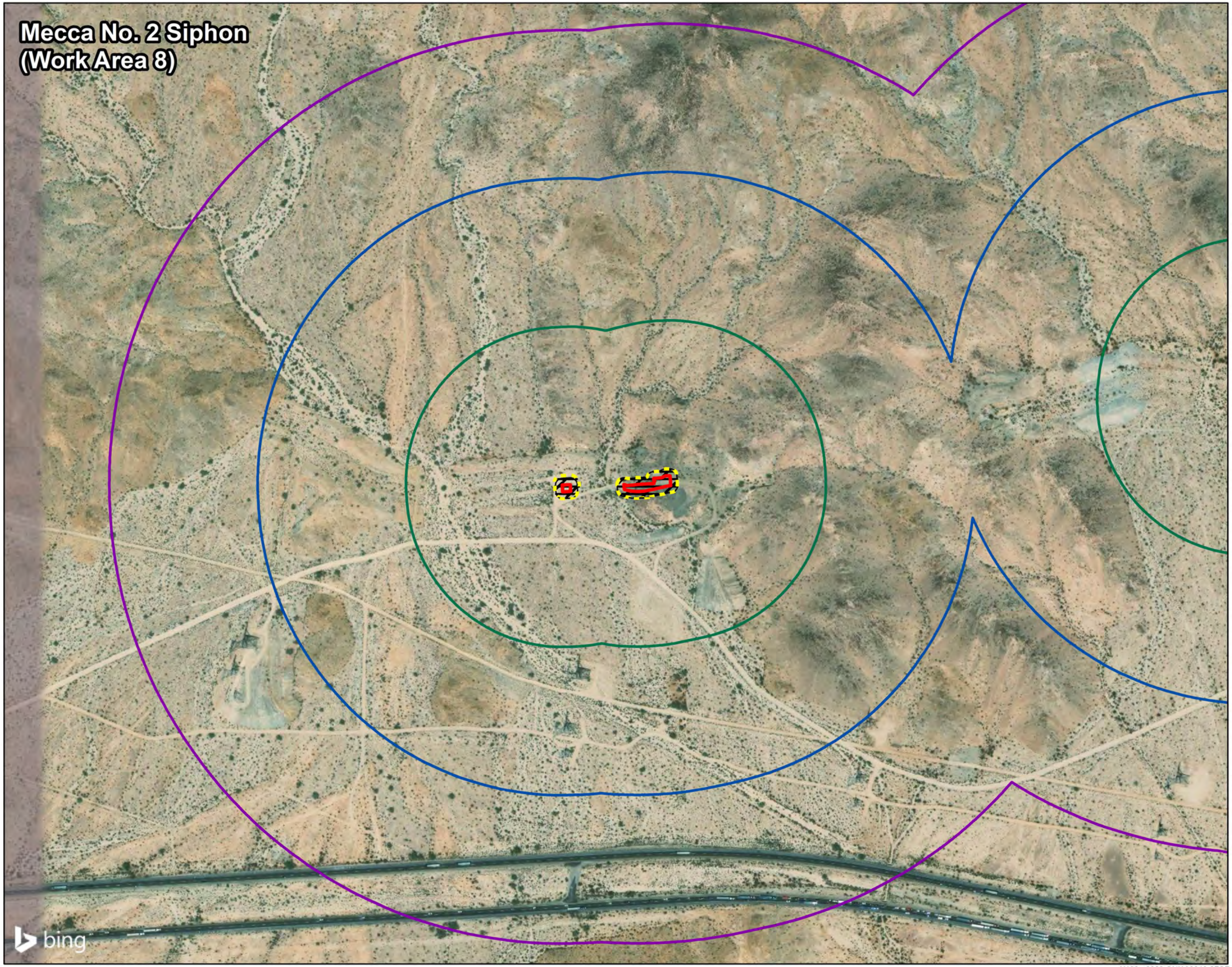


Study Area
Project Footprint
Project Footprint - Temporary
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects

0 212.5 425 850
Feet

1 inch = 425 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

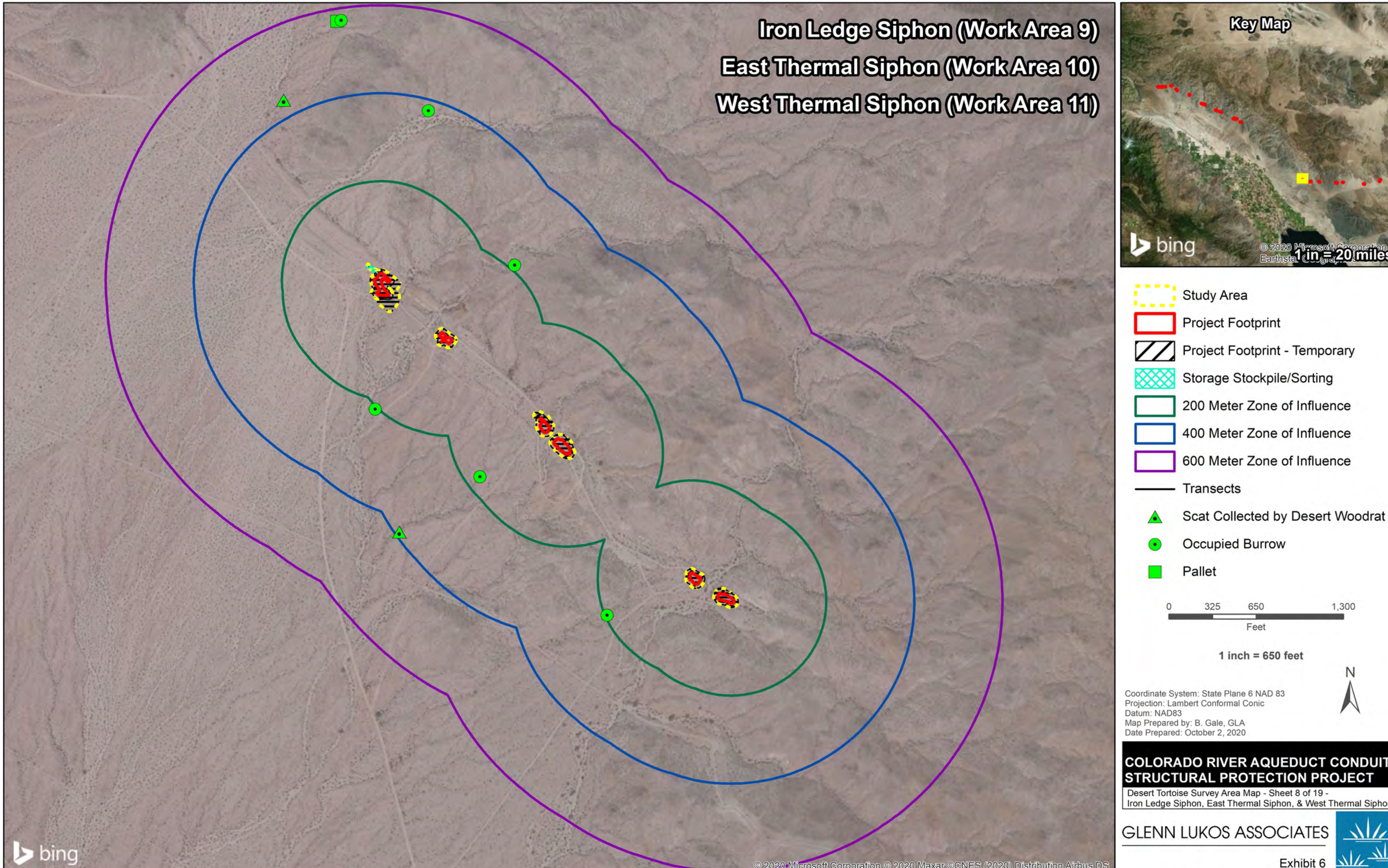
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 7 of 19 - Mecca No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DesertTortoiseGIS\43-27CRAS_DETO_08_MeccaNo2Siphon.mxd



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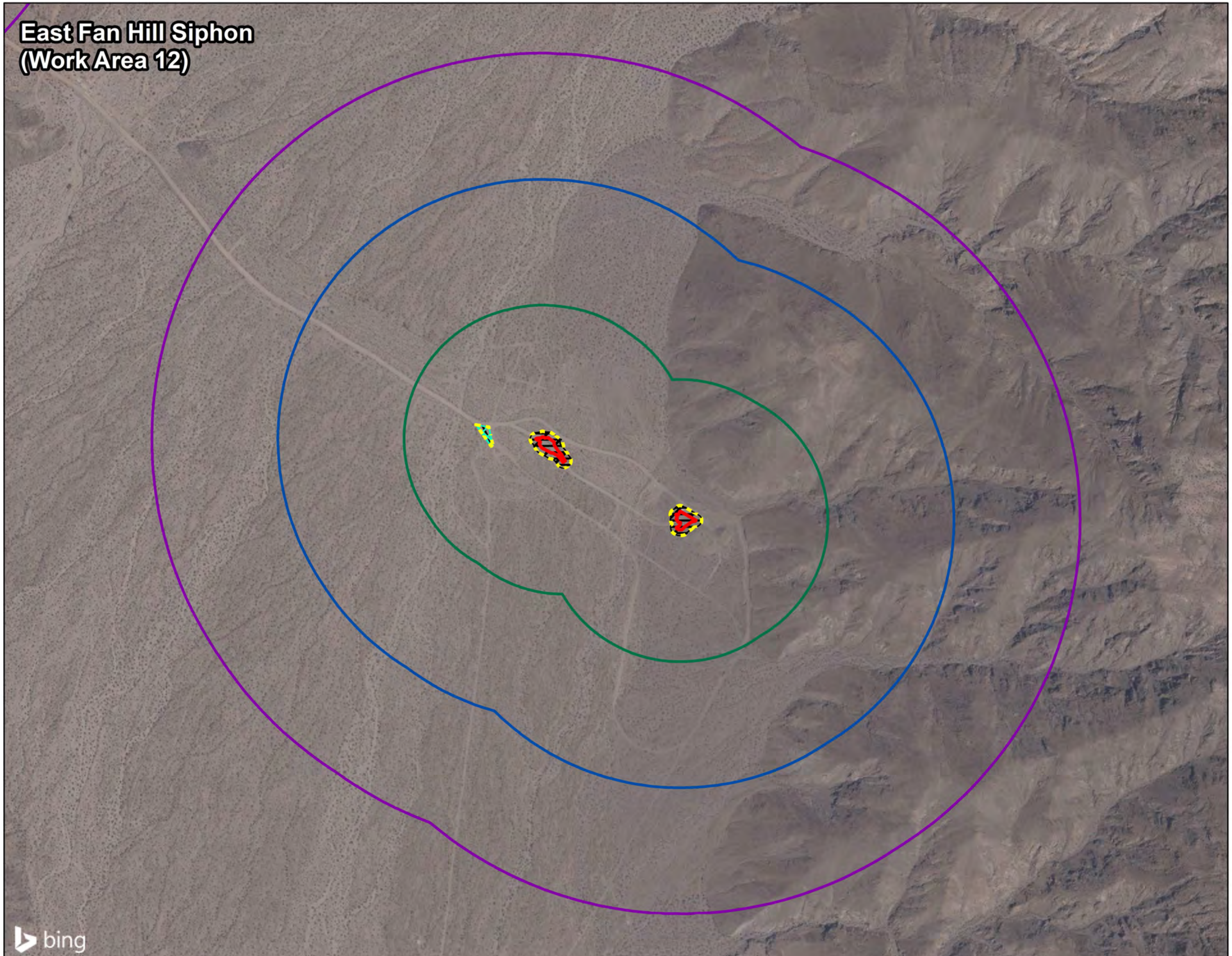

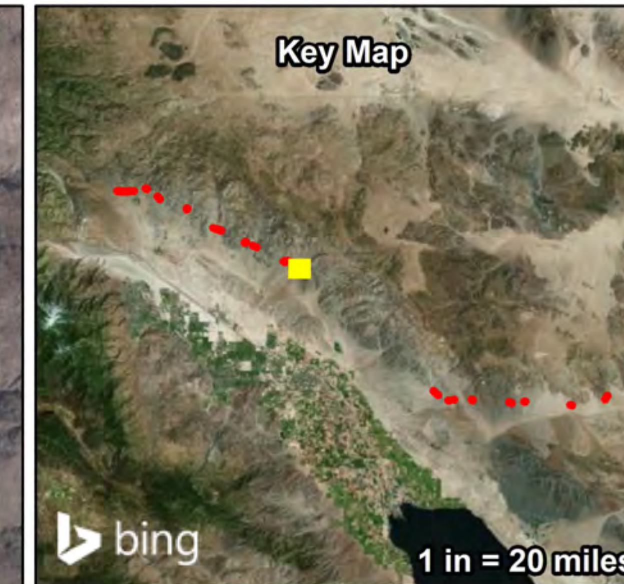

- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- 200 Meter Zone of Influence
- 400 Meter Zone of Influence
- 600 Meter Zone of Influence
- Transects

0 250 500 1,000
Feet

1 inch = 500 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 9 of 19 - East Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

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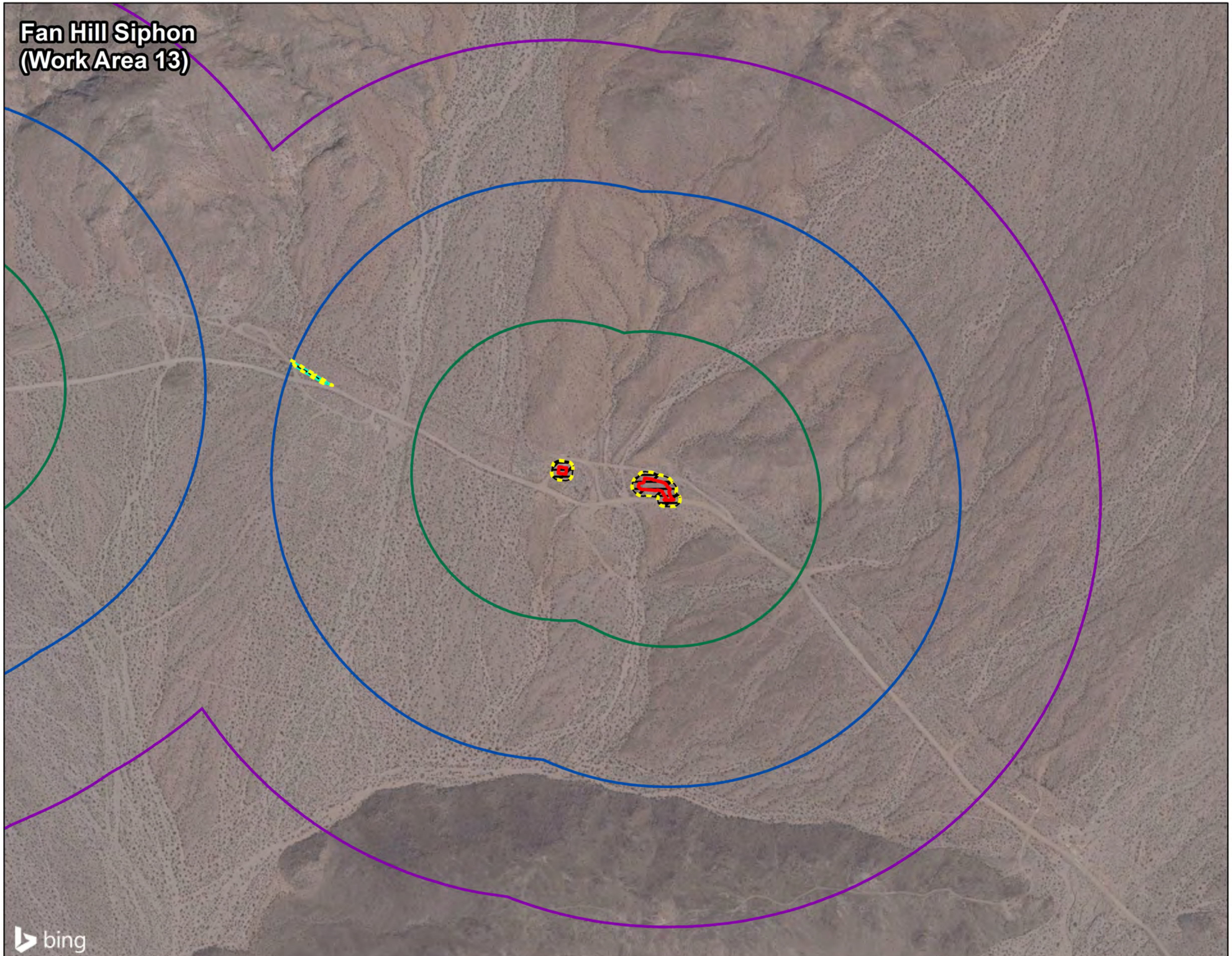

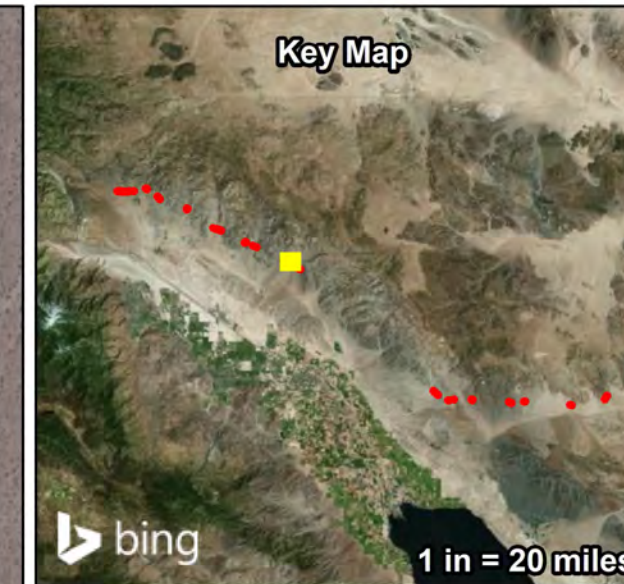

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects

0 225 450 900
Feet

1 inch = 450 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 10 of 19 - Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

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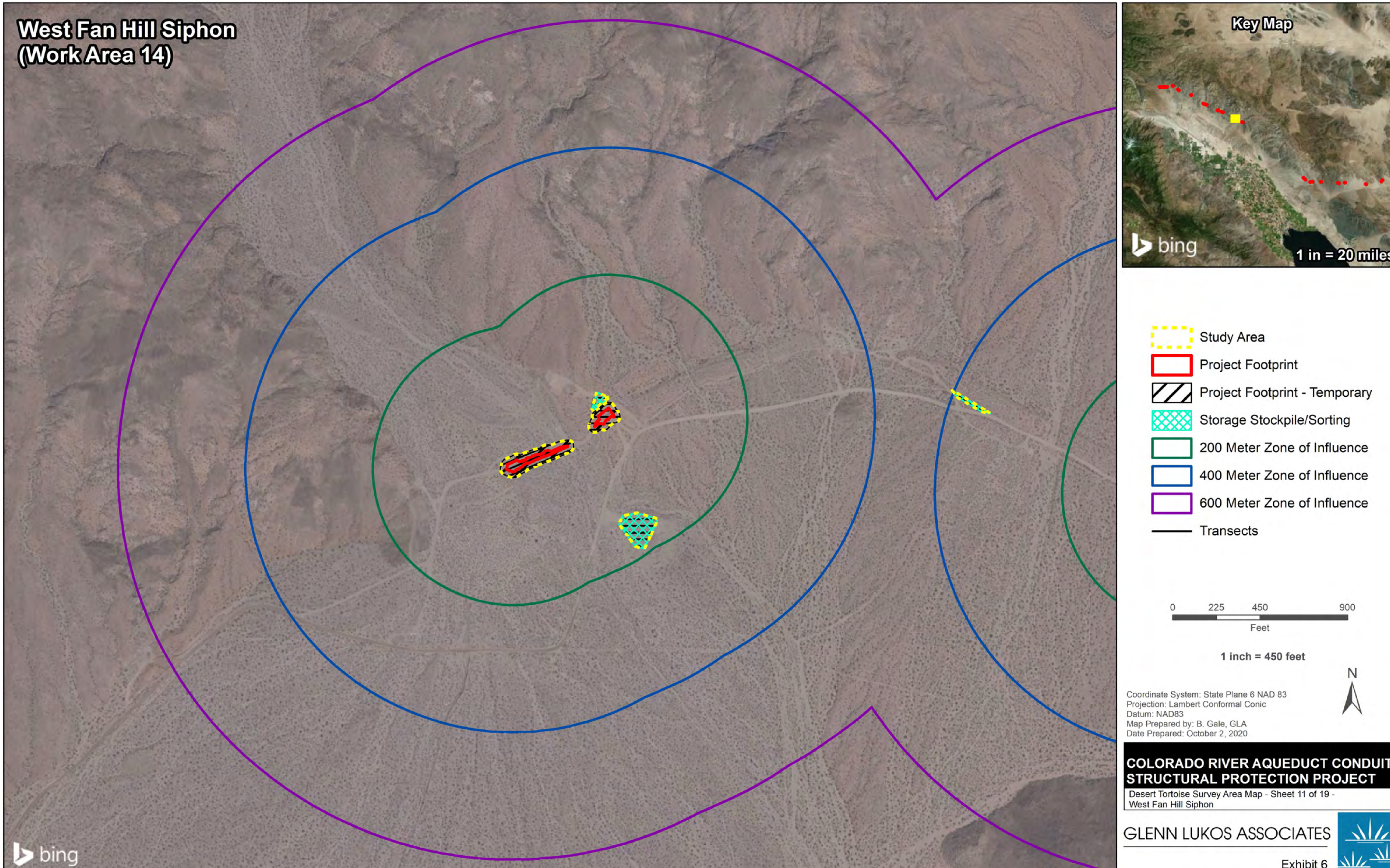

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 11 of 19 - West Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

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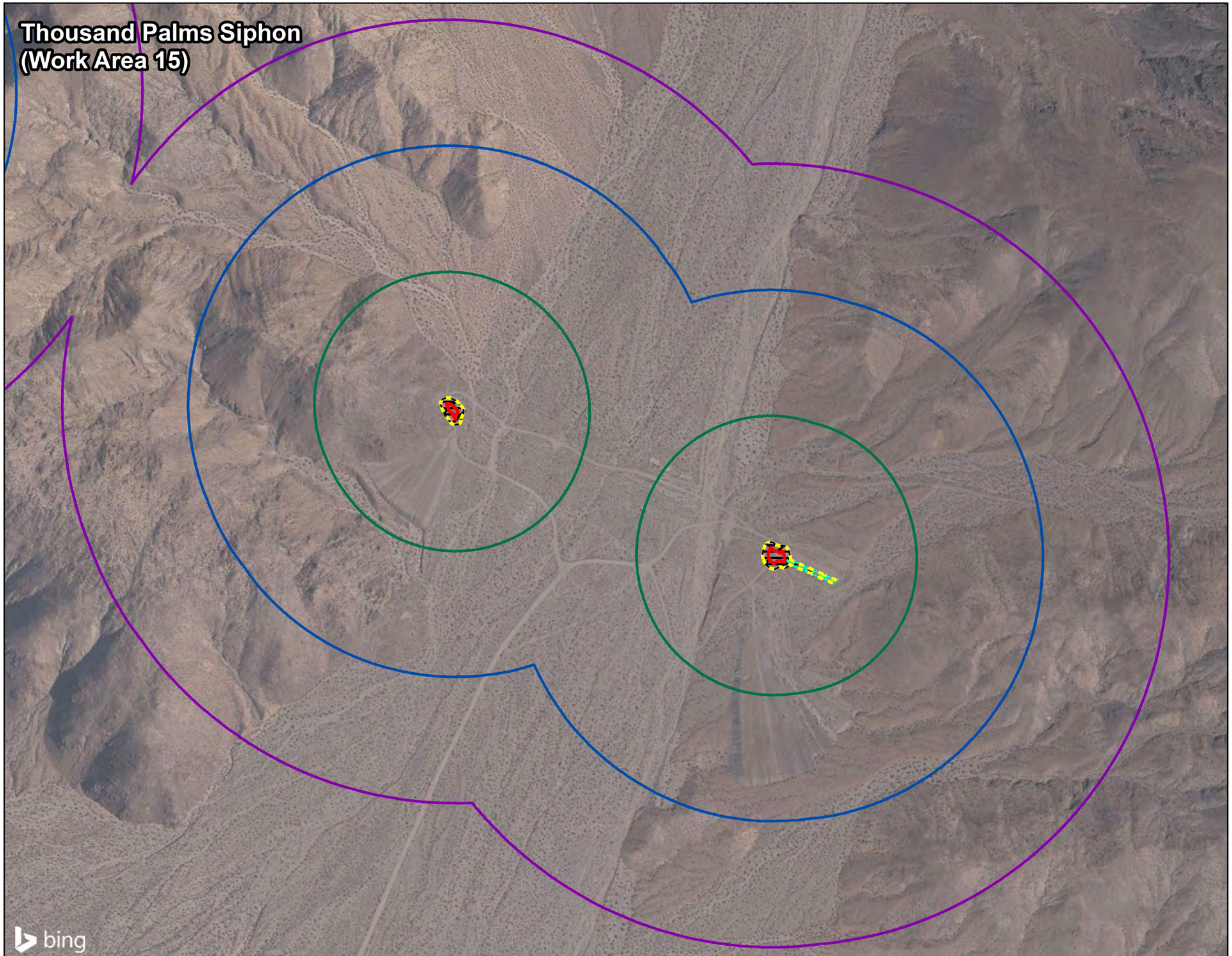

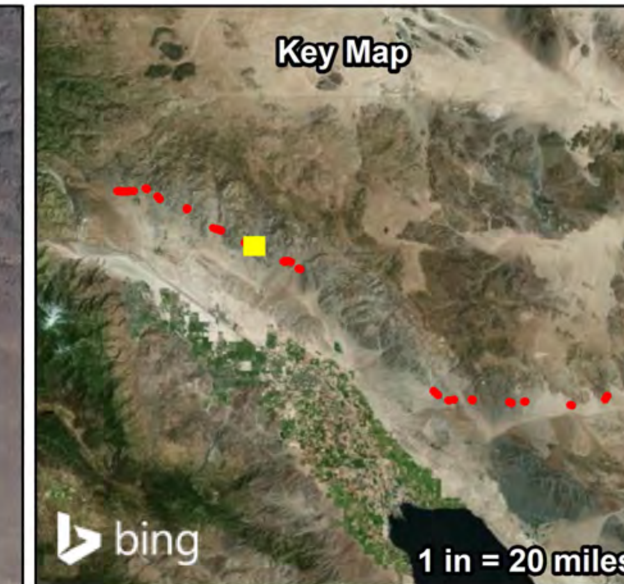

- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- 200 Meter Zone of Influence
- 400 Meter Zone of Influence
- 600 Meter Zone of Influence
- Transects

0 250 500 1,000
Feet

1 inch = 500 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 12 of 19 - Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

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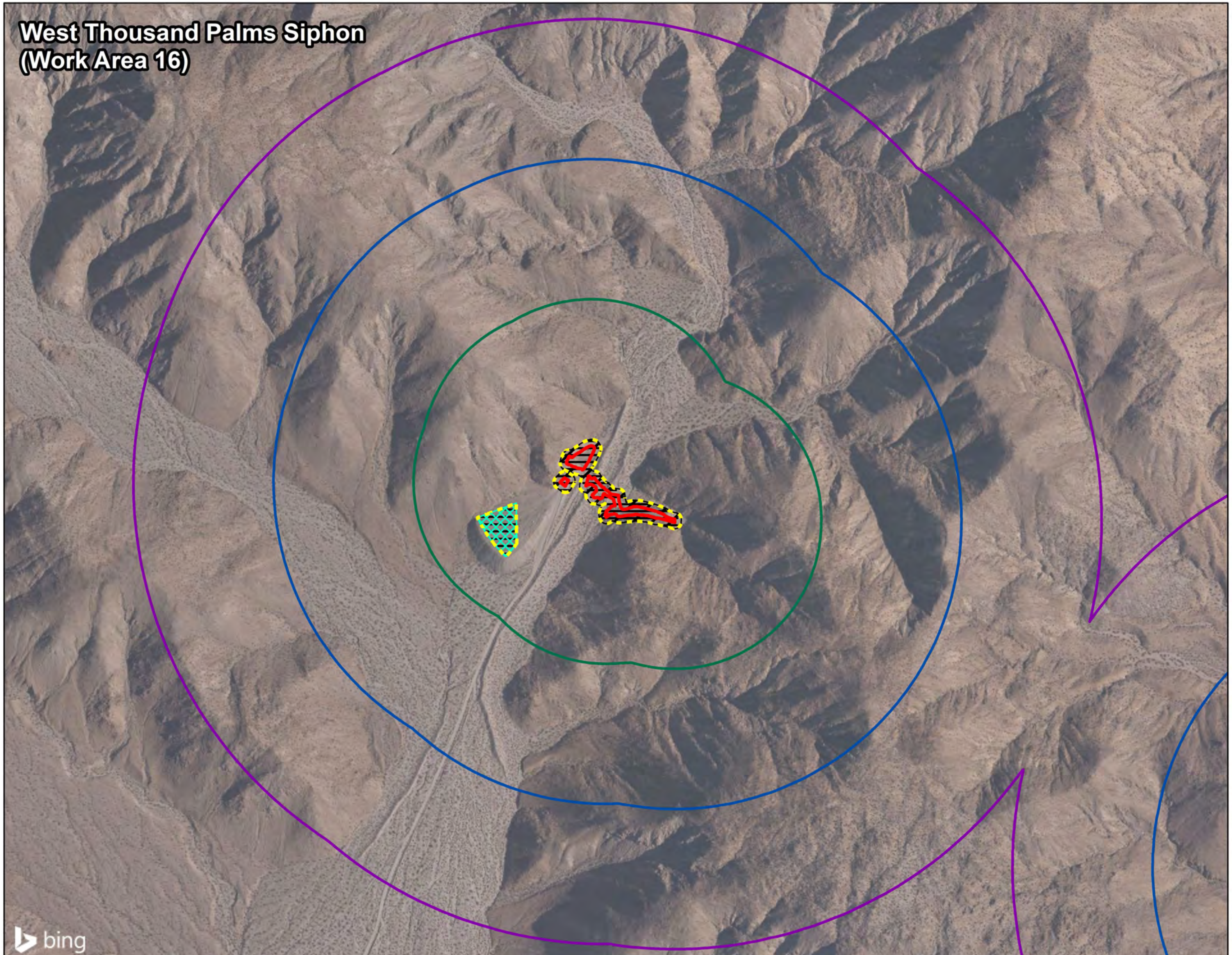

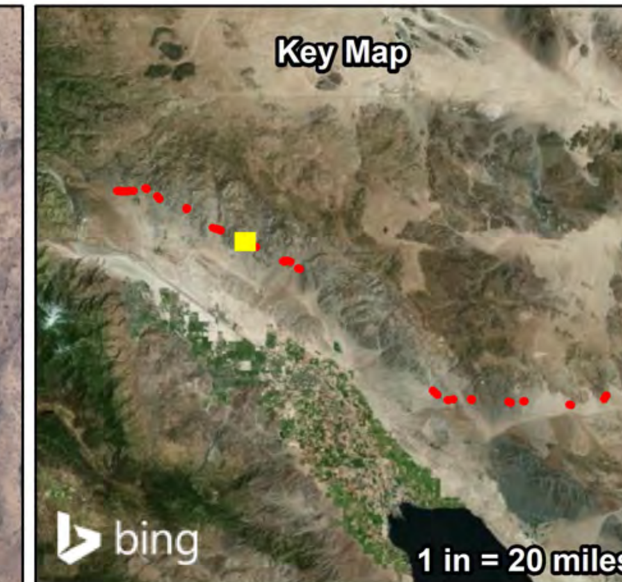

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects

0 225 450 900
Feet

1 inch = 450 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 13 of 19 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

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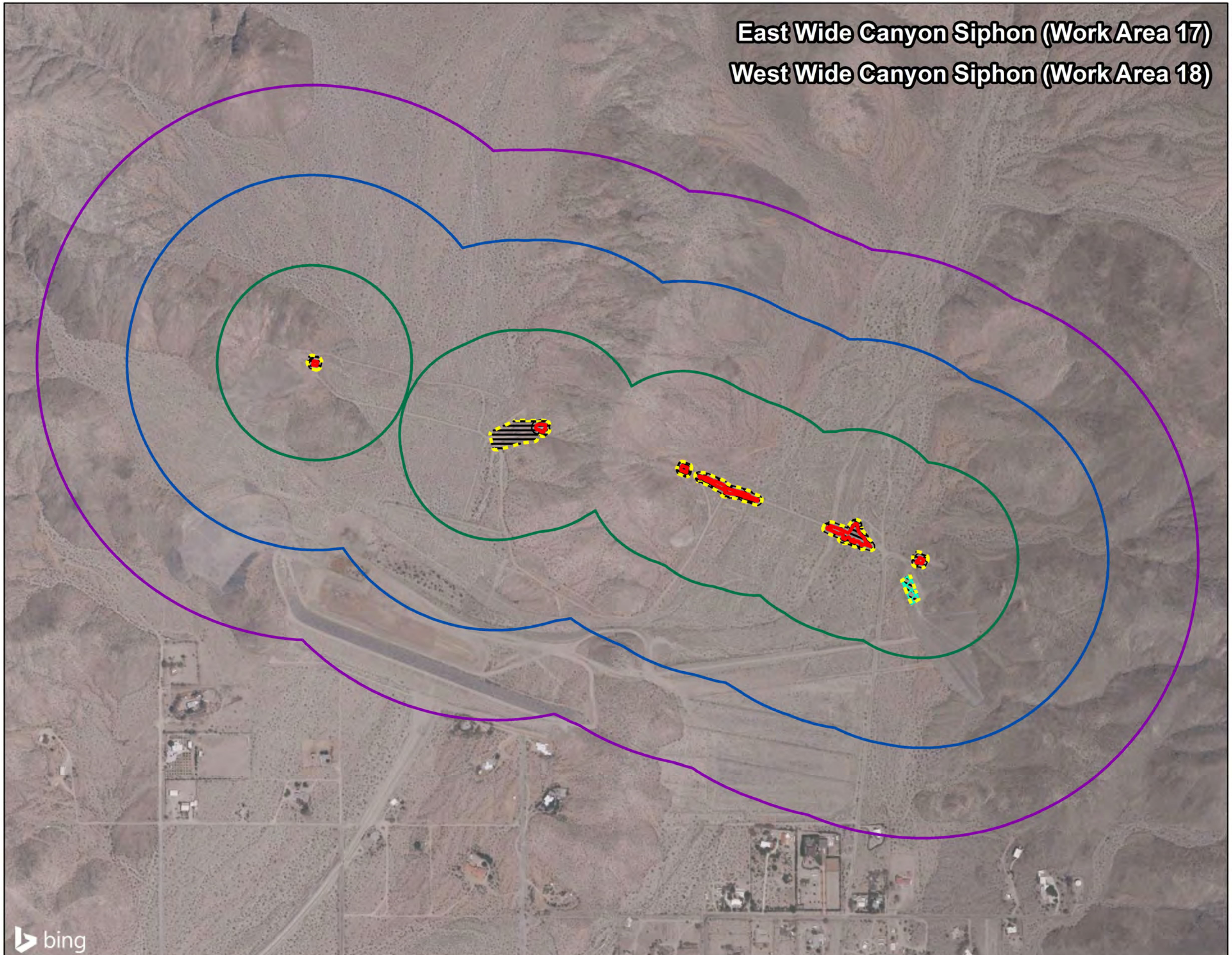
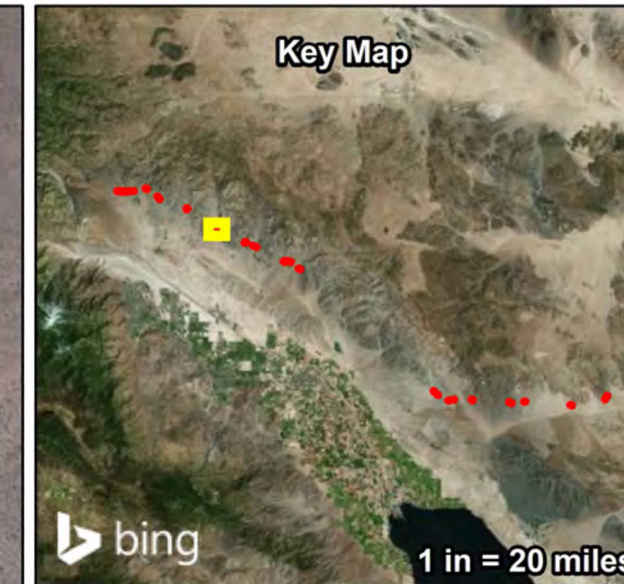




Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects

0 350 700 1,400
Feet

1 inch = 700 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

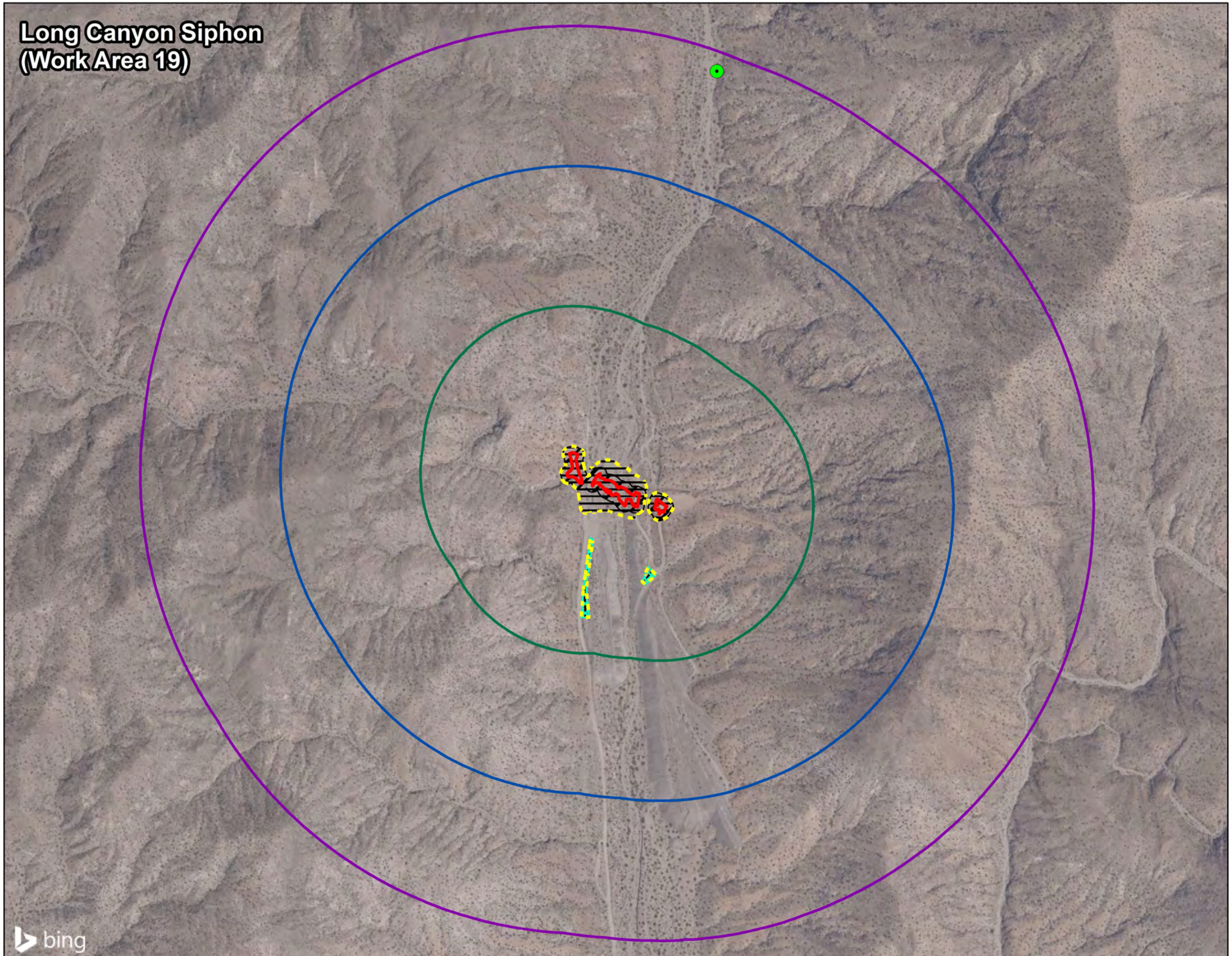
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

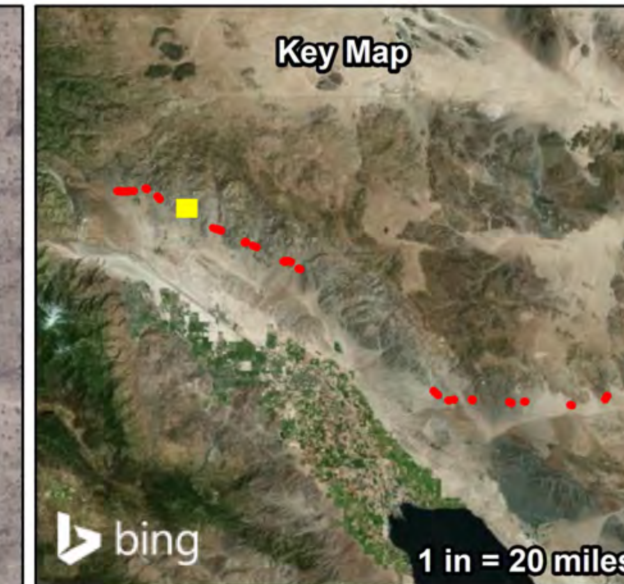
Desert Tortoise Survey Area Map - Sheet 14 of 19 -
East Wide Canyon Siphon & West Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DesertTortoiseGIS\43-27CRAS_DETO_17-18_WestEastWideCanyonSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects
Occupied Burrow

0 225 450 900
Feet

1 inch = 450 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 15 of 19 - Long Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

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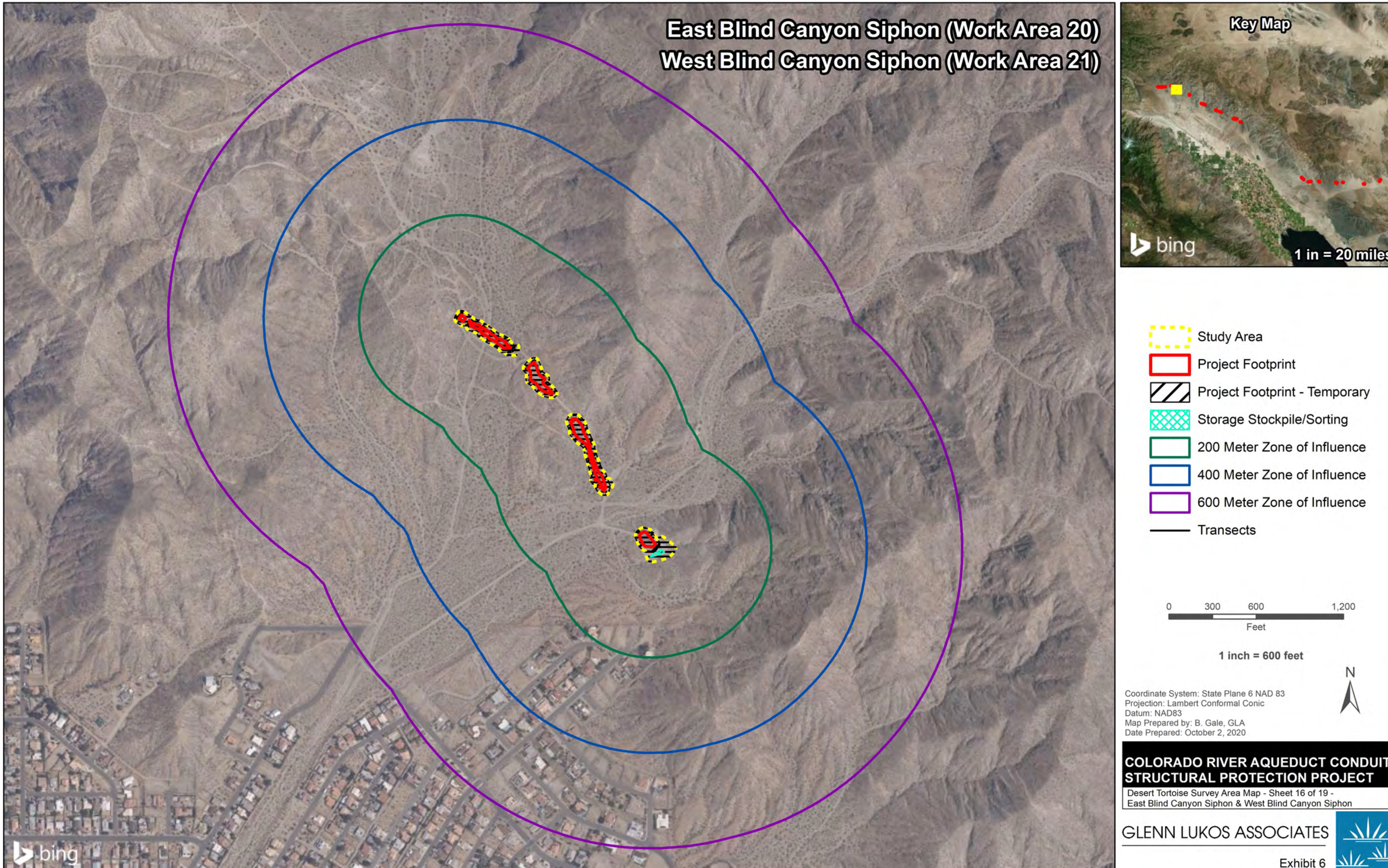

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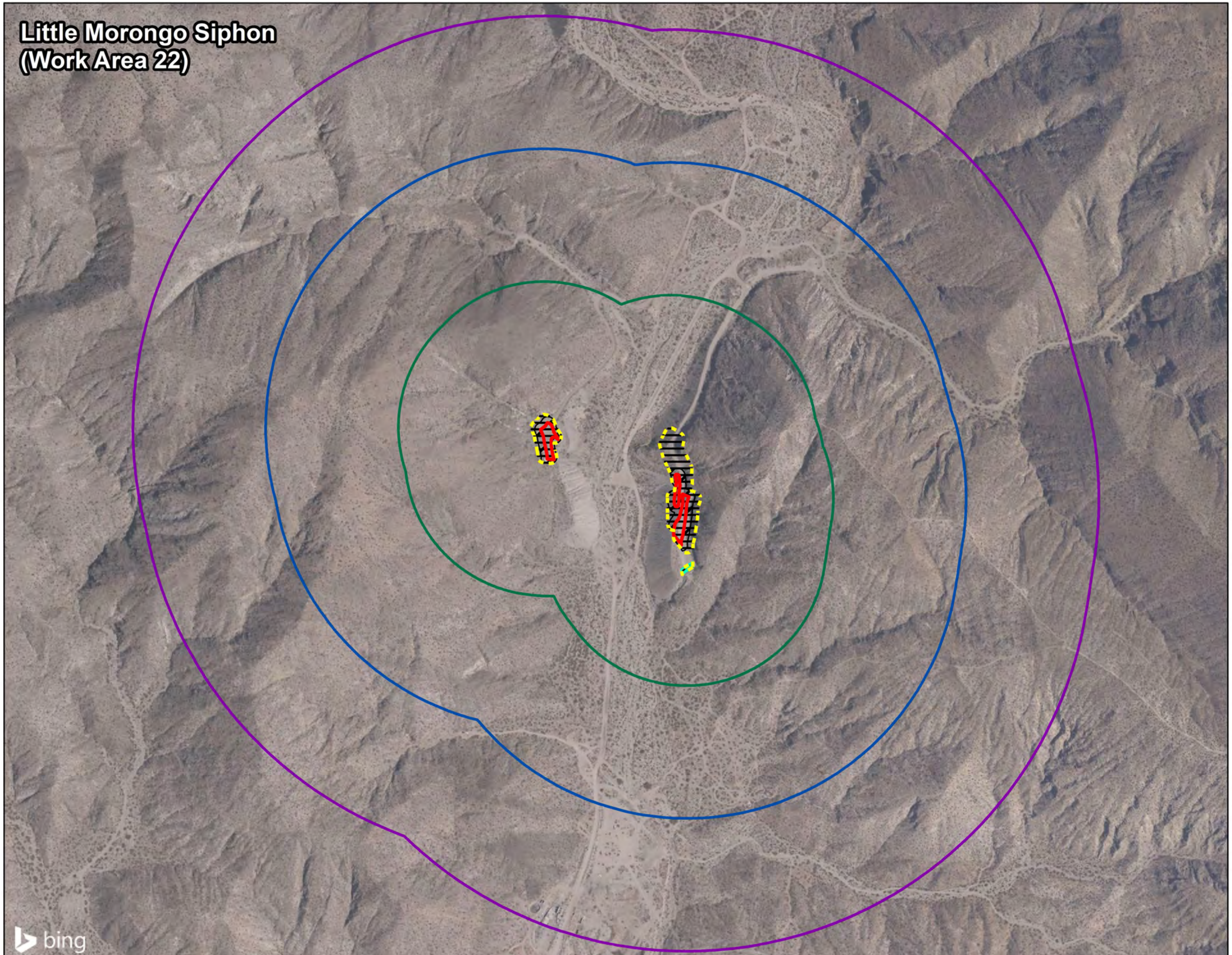

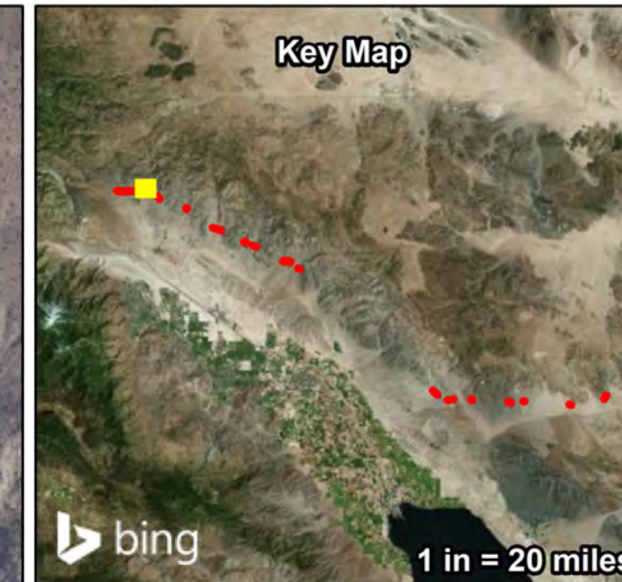

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects

0 237.5 475 950
Feet

1 inch = 475 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Desert Tortoise Survey Area Map - Sheet 17 of 19 - Little Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

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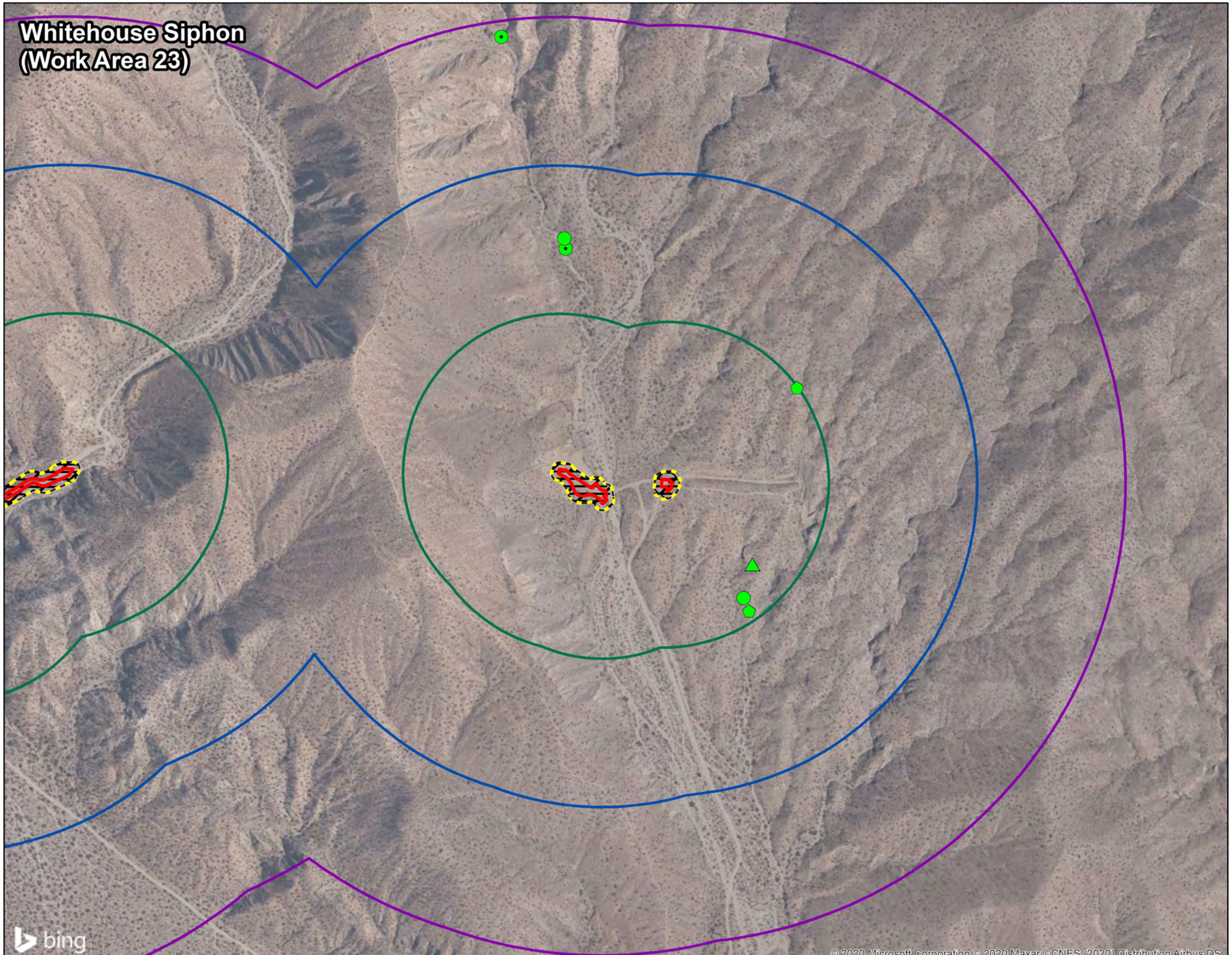
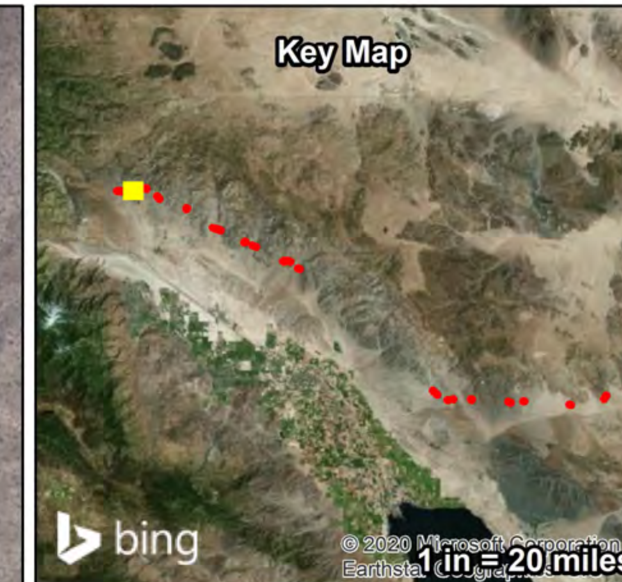




Study Area
Project Footprint
Project Footprint - Temporary
200 Meter Zone of Influence
400 Meter Zone of Influence
600 Meter Zone of Influence
Transects
Adult Tortoise
Occupied Burrow
Suitable Burrow
Scat

0 212.5 425 850
Feet

1 inch = 425 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

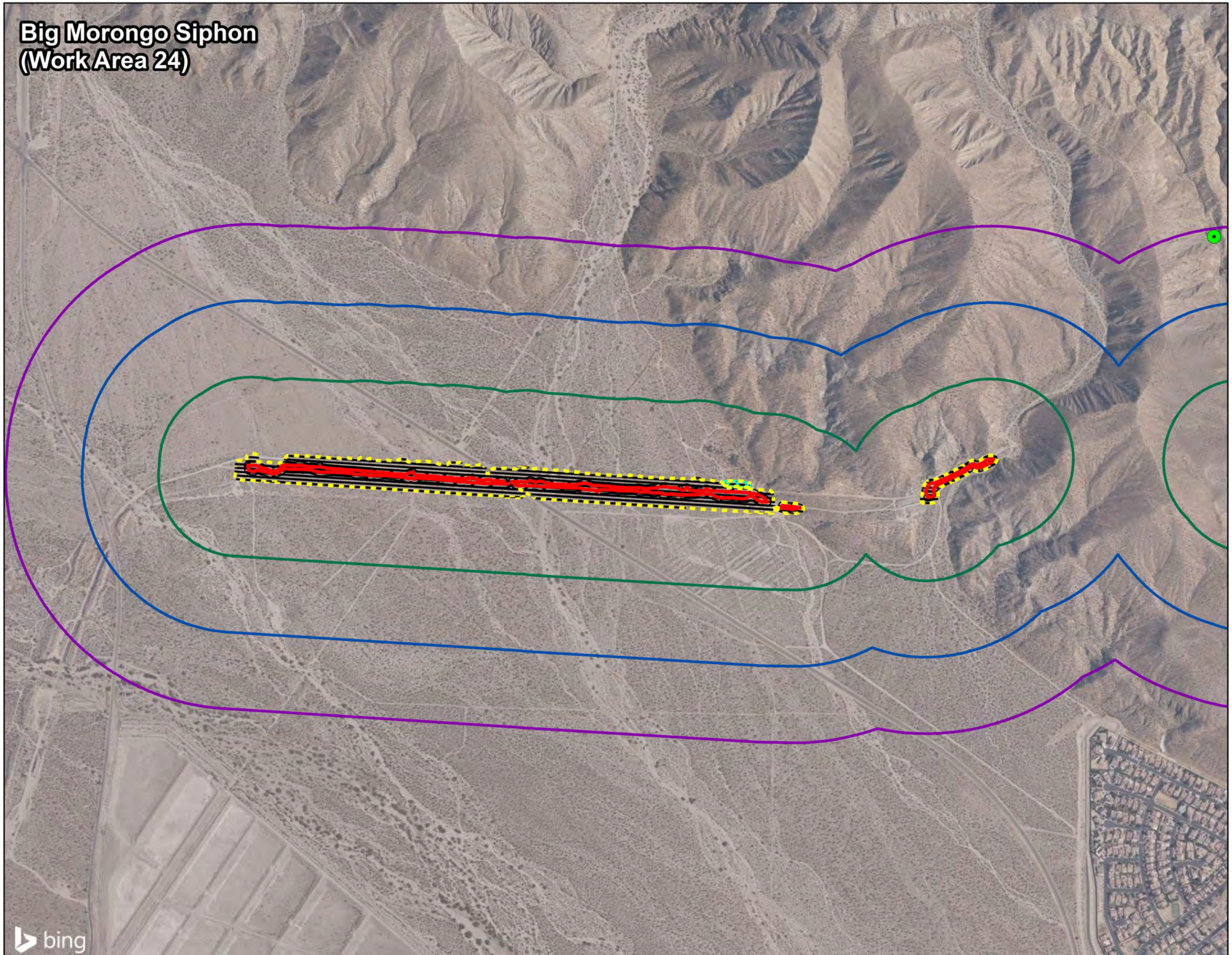
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

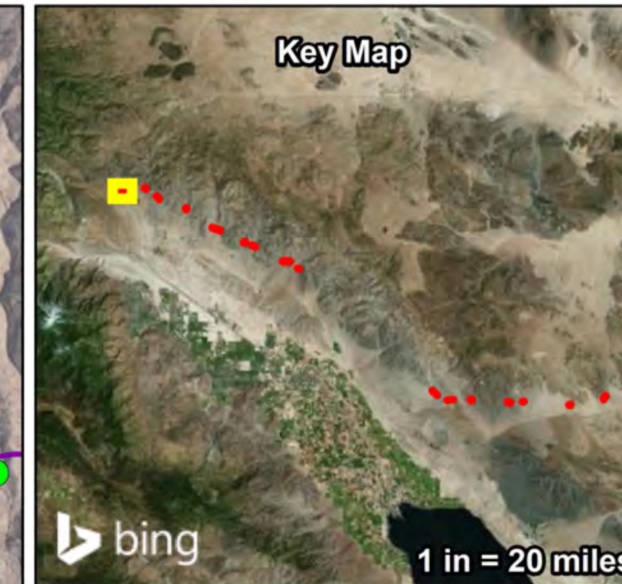
Desert Tortoise Survey Area Map - Sheet 18 of 19 - Whitehouse Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DesertTortoiseGIS\43-27CRAS_DETO_23_WhitehouseSiphon.mxd





- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- 200 Meter Zone of Influence
- 400 Meter Zone of Influence
- 600 Meter Zone of Influence
- Transects
- Occupied Burrow

0 412.5 825 1,650
Feet

1 inch = 825 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

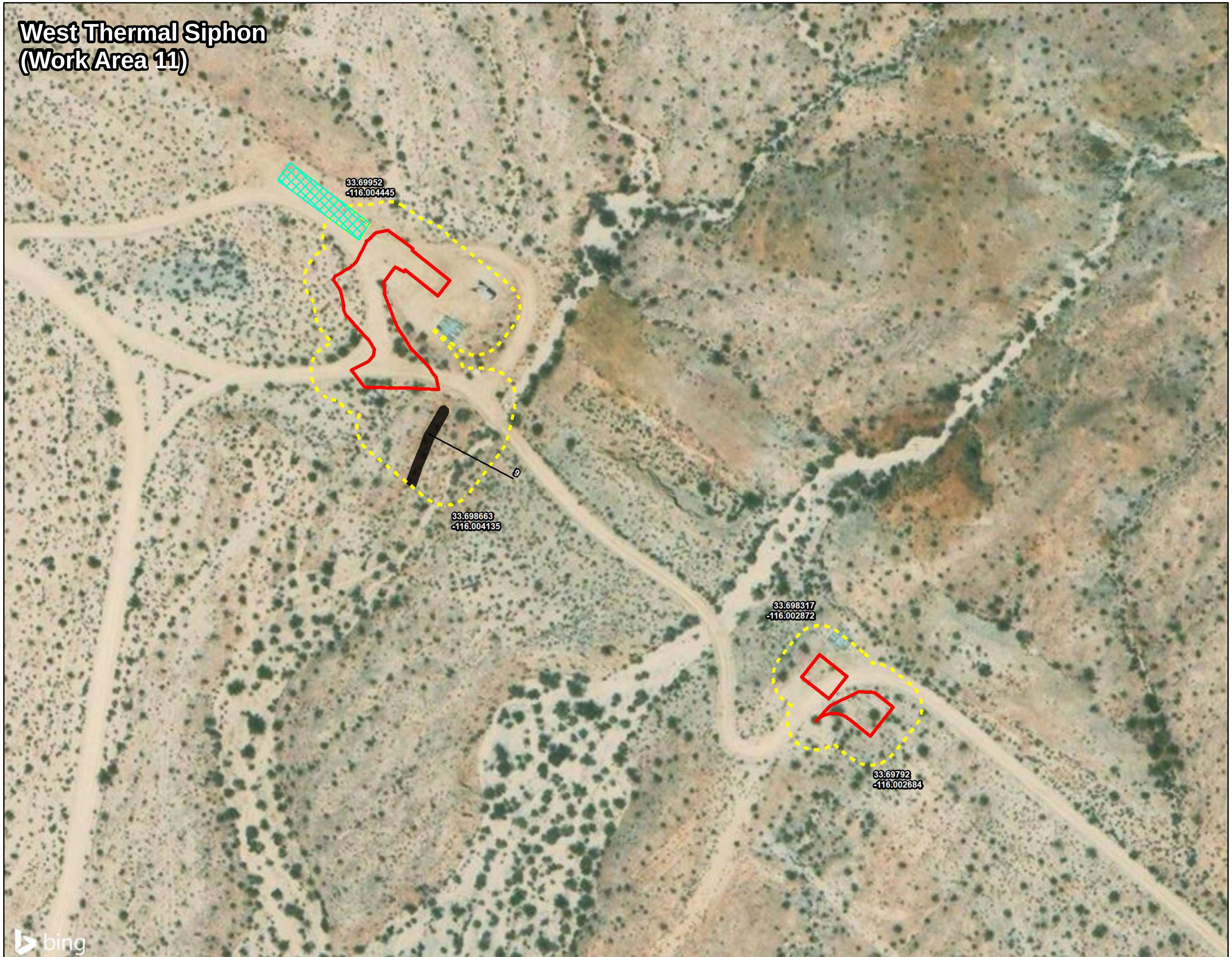
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

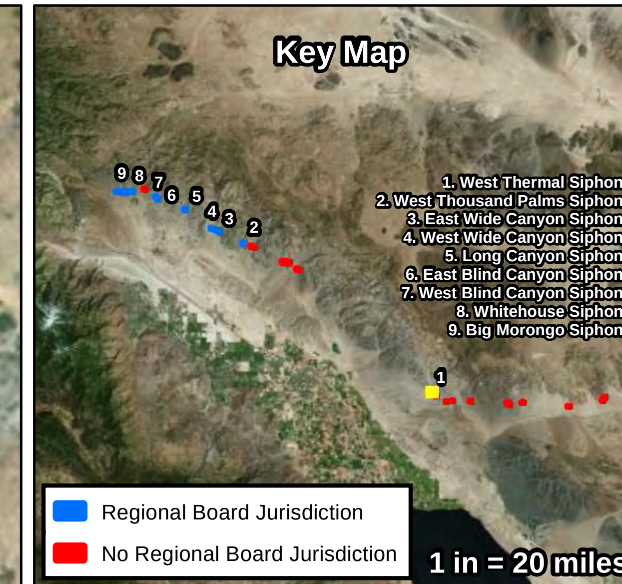
Desert Tortoise Survey Area Map - Sheet 19 of 19 - Big Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 6

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DesertTortoiseGIS\43-27CRAS_DETO_24_BigMorongoSiphon.mxd





Project Footprint

Study Area

Storage Stockpile/Sorting

Non-jurisdictional Outlet Rill

14 Width of Jurisdiction in Feet

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: July 10, 2020

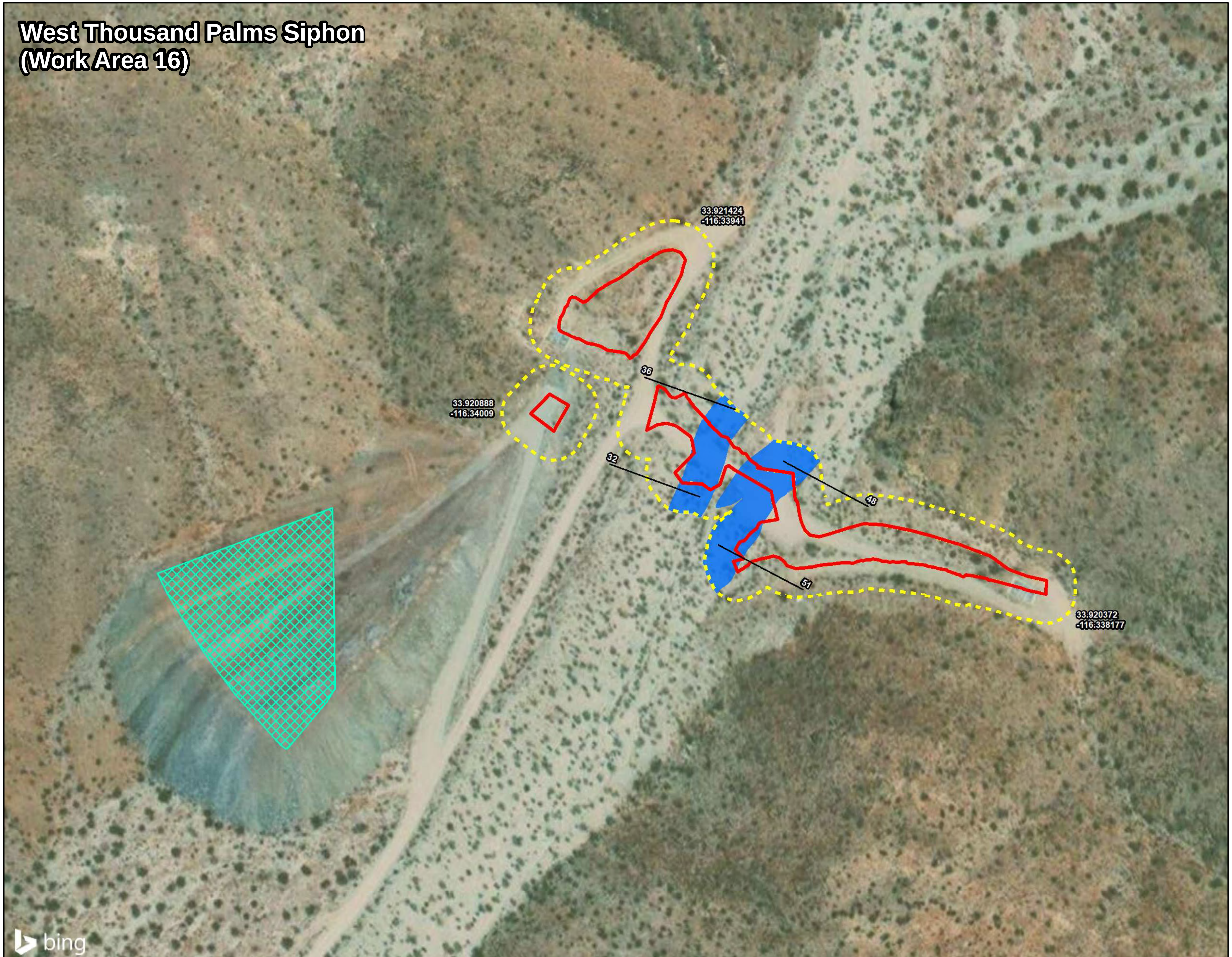
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

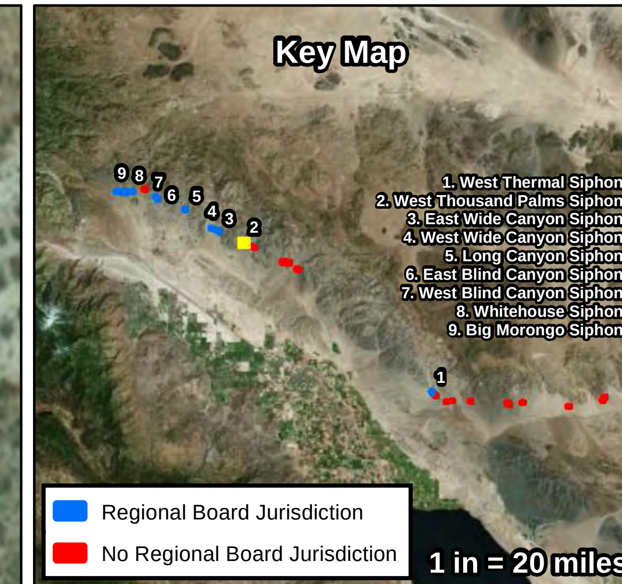
Regional Board Jurisdictional Delineation Map - Sheet 1 of 9 - West Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7A

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_RWQCB_11_WestThermalSiphon.mxd





Project Footprint
Study Area
Storage Stockpile/Sorting
Non-federal Waters of the State
Width of Jurisdiction in Feet

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: July 10, 2020

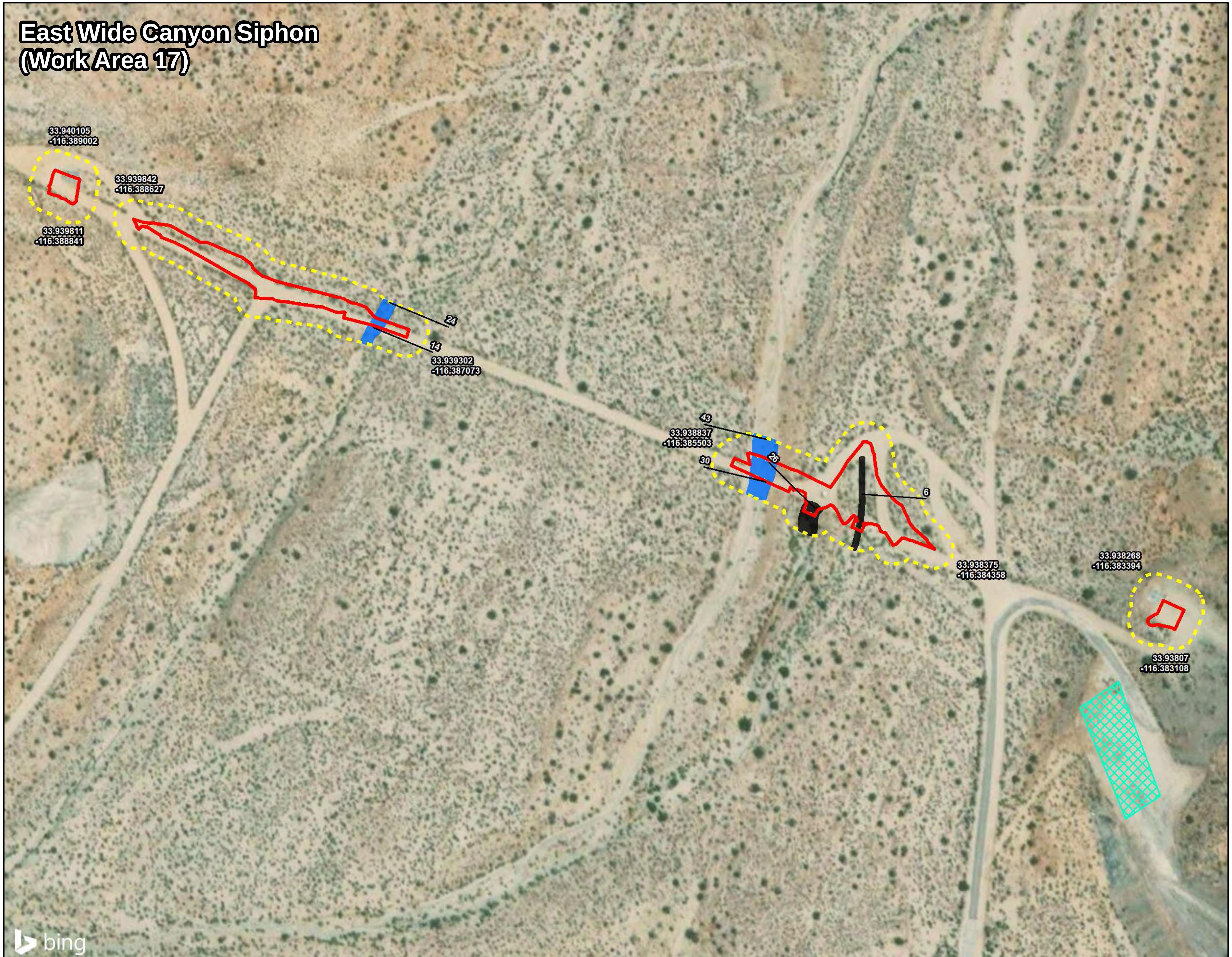
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

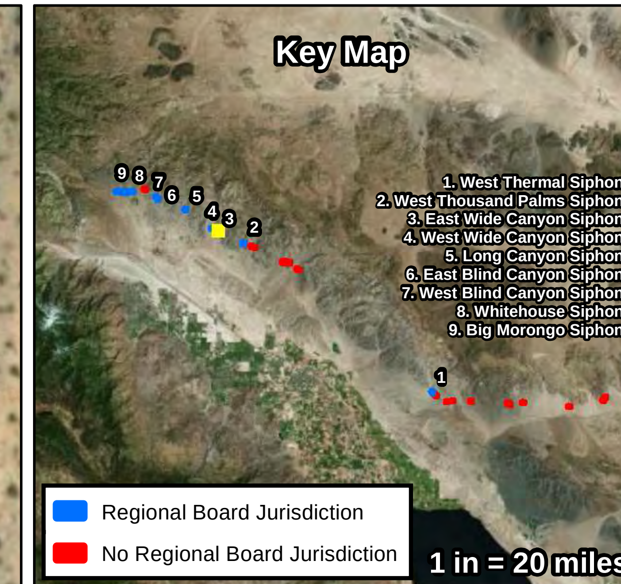
Regional Board Jurisdictional Delineation Map -
Sheet 2 of 9 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7A

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_RWQCB_16_WestThousandPalmsSiphon.mxd





Project Footprint

Study Area

Storage Stockpile/Sorting

Non-federal Waters of the State

Non-jurisdictional Outlet Rill

14 Width of Jurisdiction in Feet

N

0 75 150 300

Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: July 10, 2020

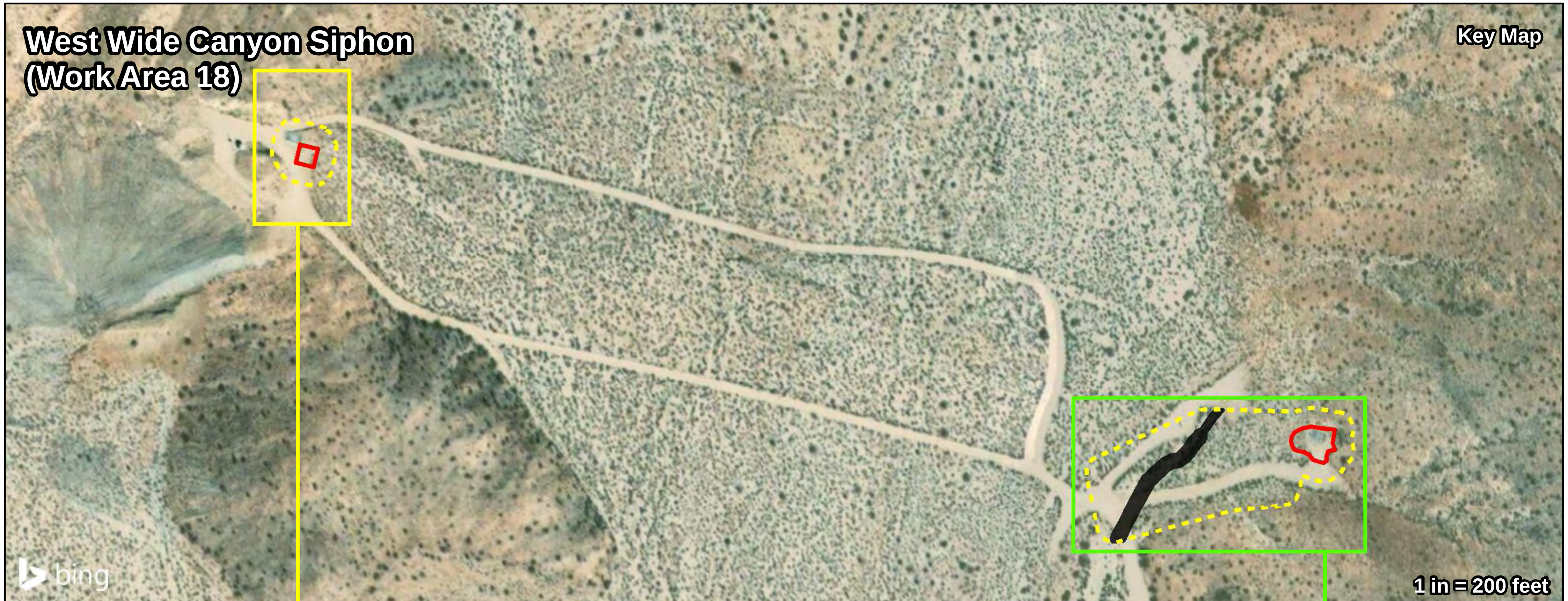
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

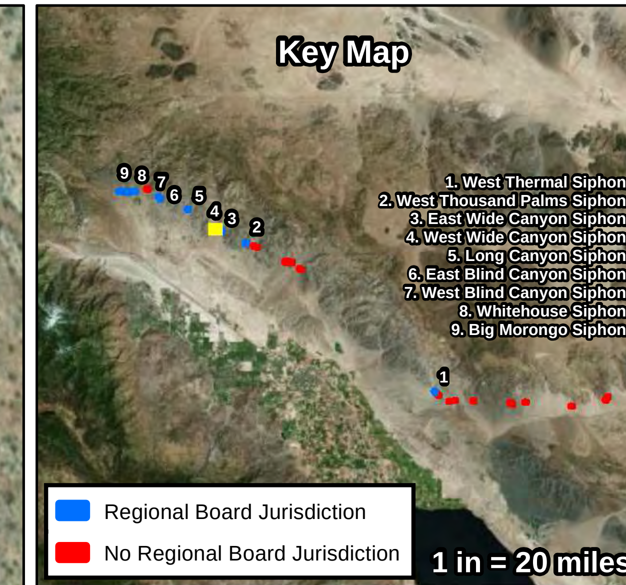
Regional Board Jurisdictional Delineation Map -
Sheet 3 of 9 - East Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7A

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_RWQCB_17_EastWideCanyonSiphon.mxd



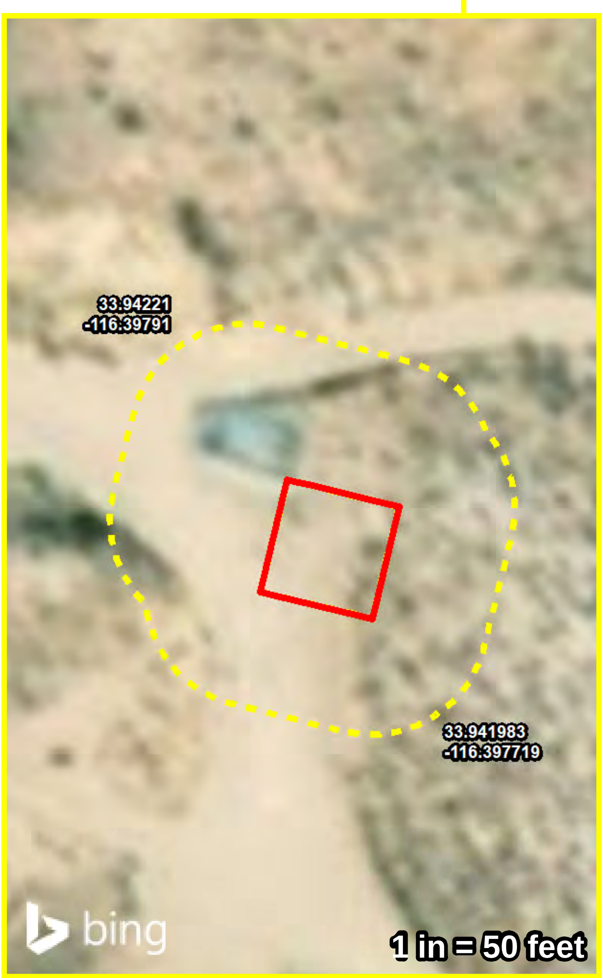


Project Footprint

Study Area

Non-jurisdictional Outlet Rill

14 Width of Jurisdiction in Feet



N

0 25 50 100

Feet

1 inch = 50 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: July 10, 2020

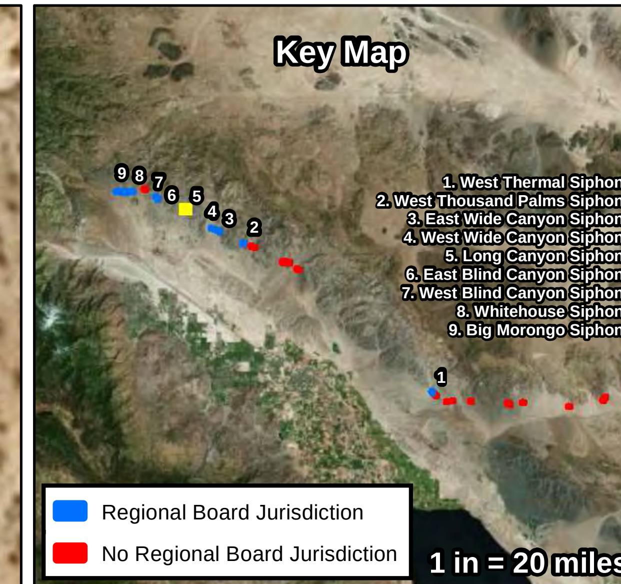
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

Regional Board Jurisdictional Delineation Map - Sheet 4 of 9 - West Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7A

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_RWQCB_18_WestWideCanyonSiphon.mxd



Project Footprint
Study Area
Storage Stockpile/Sorting
Non-federal Waters of the State
14 Width of Jurisdiction in Feet

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: July 10, 2020

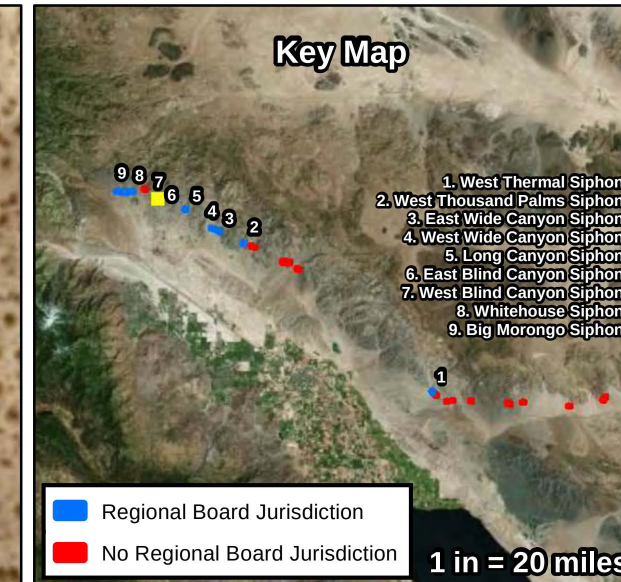
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

Regional Board Jurisdictional Delineation Map - Sheet 5 of 9 - Long Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7A

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_RWQCB_19_LongCanyonSiphon.mxd



Project Footprint

Study Area

Storage Stockpile/Sorting

Non-jurisdictional Outlet Rill

14 Width of Jurisdiction in Feet

N

0 62.5 125 250

Feet

1 inch = 125 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: July 10, 2020

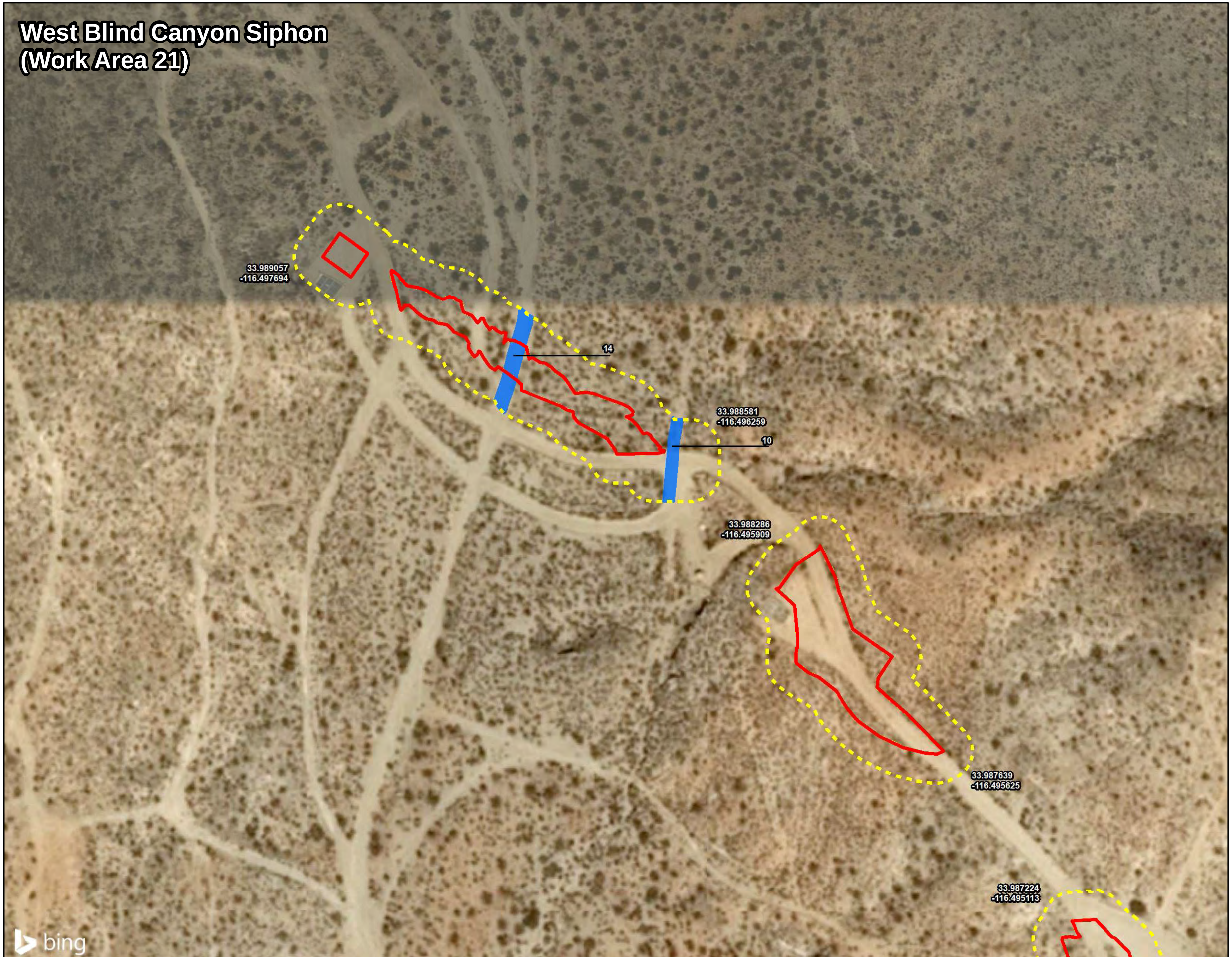
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

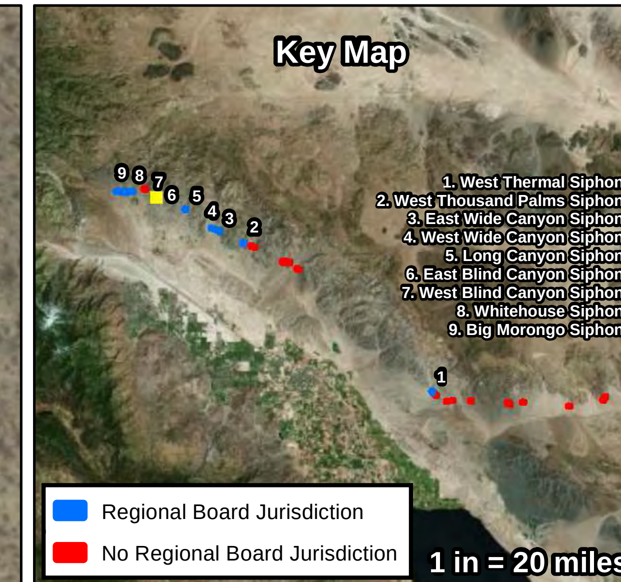
Regional Board Jurisdictional Delineation Map -
Sheet 6 of 9 - East Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7A

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_RWQCB_20_EastBlindCanyonSiphon.mxd





Project Footprint

Study Area

Non-federal Waters of the State

14 Width of Jurisdiction in Feet

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: July 10, 2020

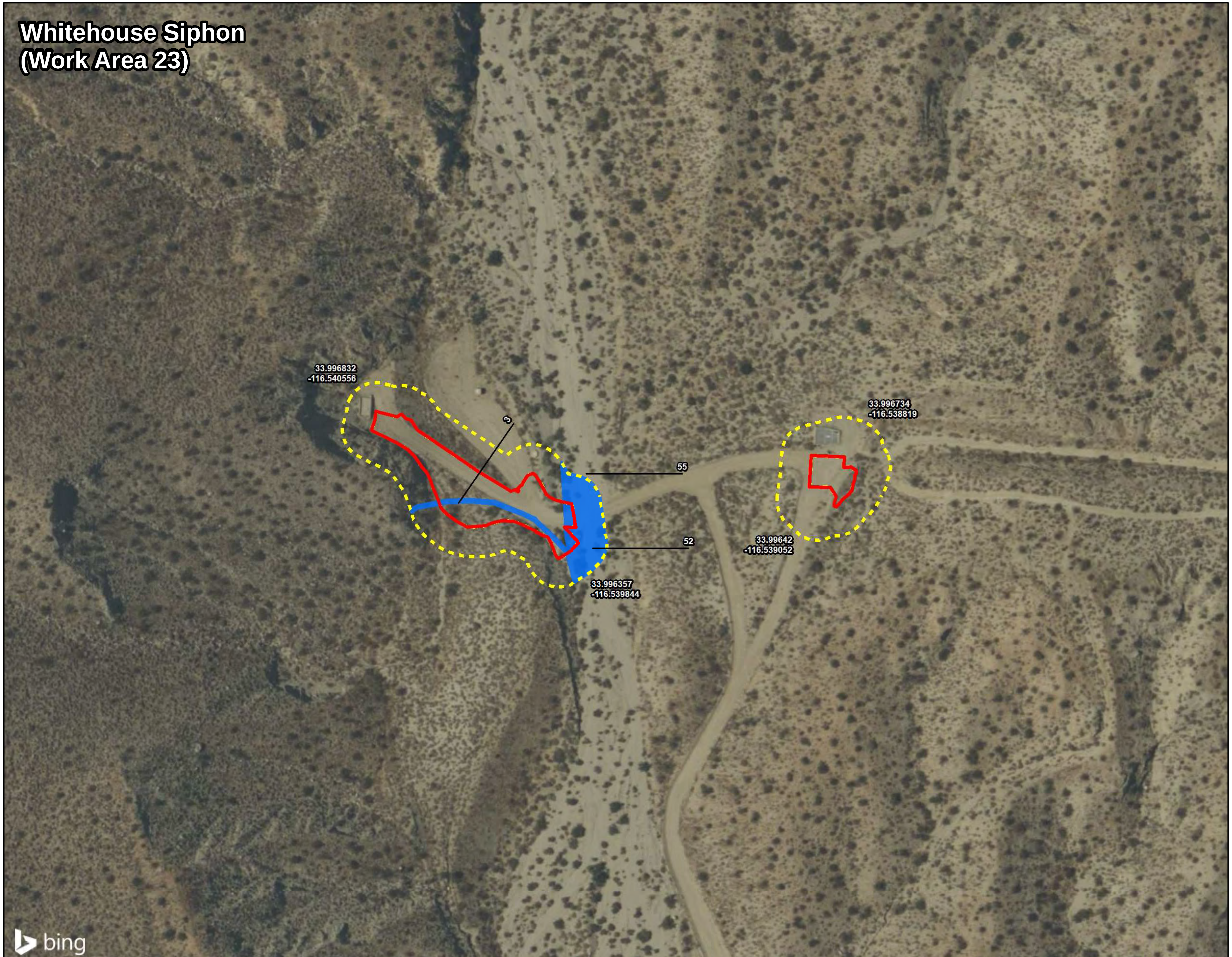
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

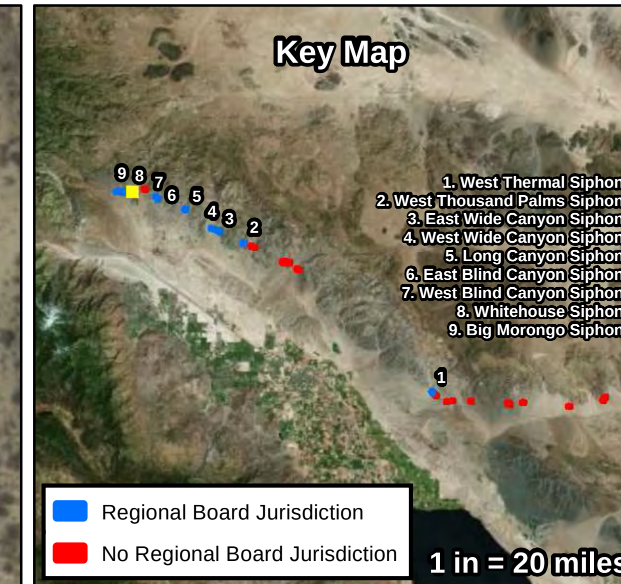
Regional Board Jurisdictional Delineation Map - Sheet 7 of 9 - West Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7A

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_RWQCB_21_WestBlindCanyonSiphon.mxd





Project Footprint

Study Area

Non-federal Waters of the State

14 Width of Jurisdiction in Feet

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: July 10, 2020

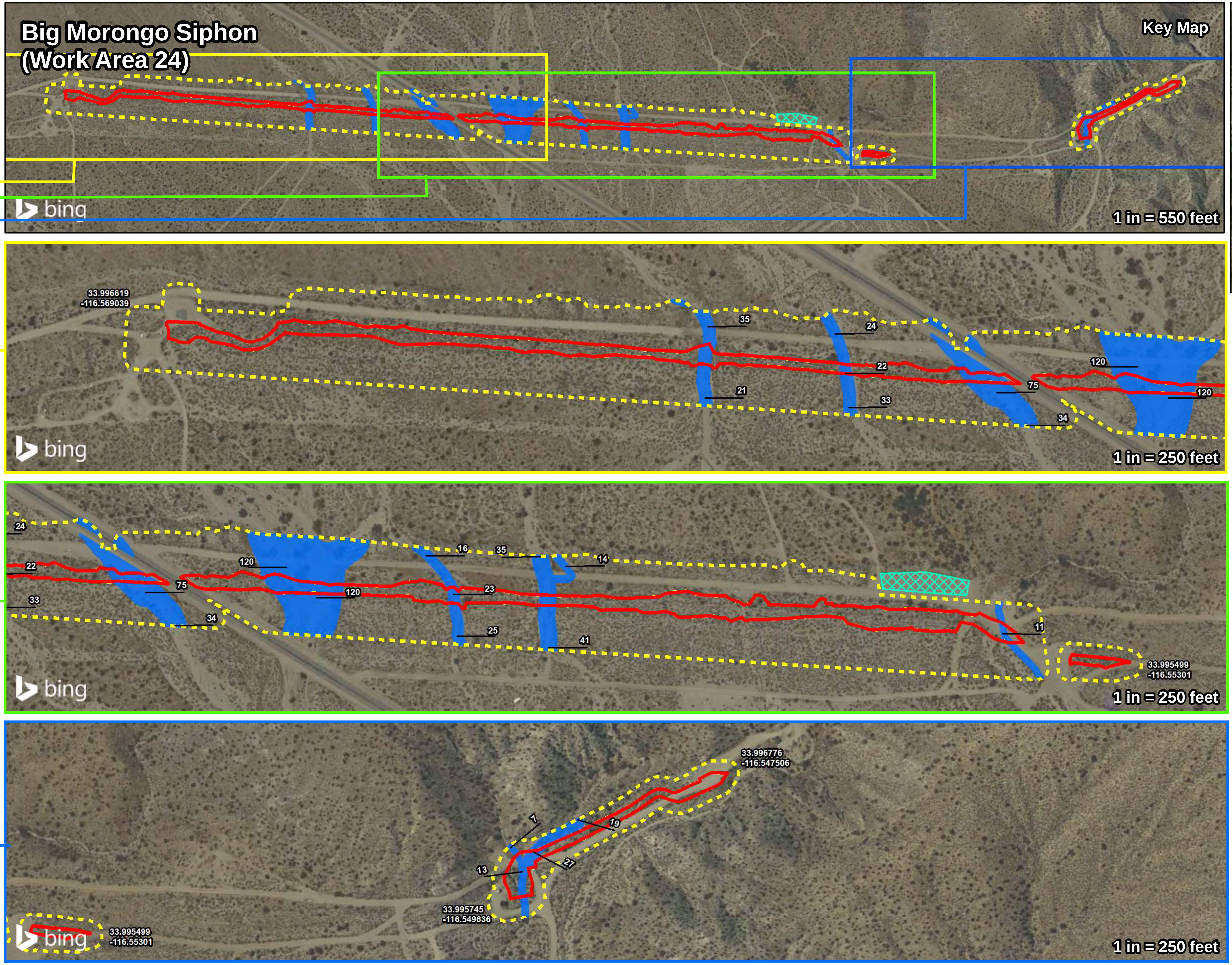
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

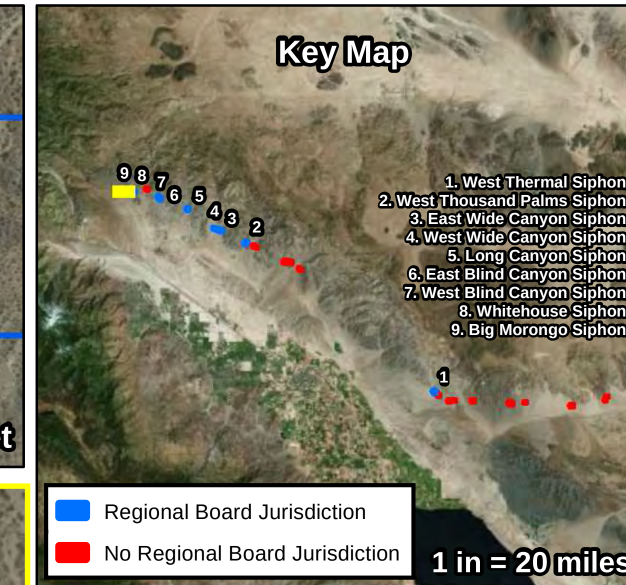
Regional Board Jurisdictional Delineation Map -
Sheet 8 of 9 - Whitehouse Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7A

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_RWQCB_23_WhitehouseSiphon.mxd





Project Footprint
Study Area
Storage Stockpile/Sorting
Non-federal Waters of the State
14 Width of Jurisdiction in Feet

N

0 125 250 500
Feet

1 inch = 250 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: July 10, 2020

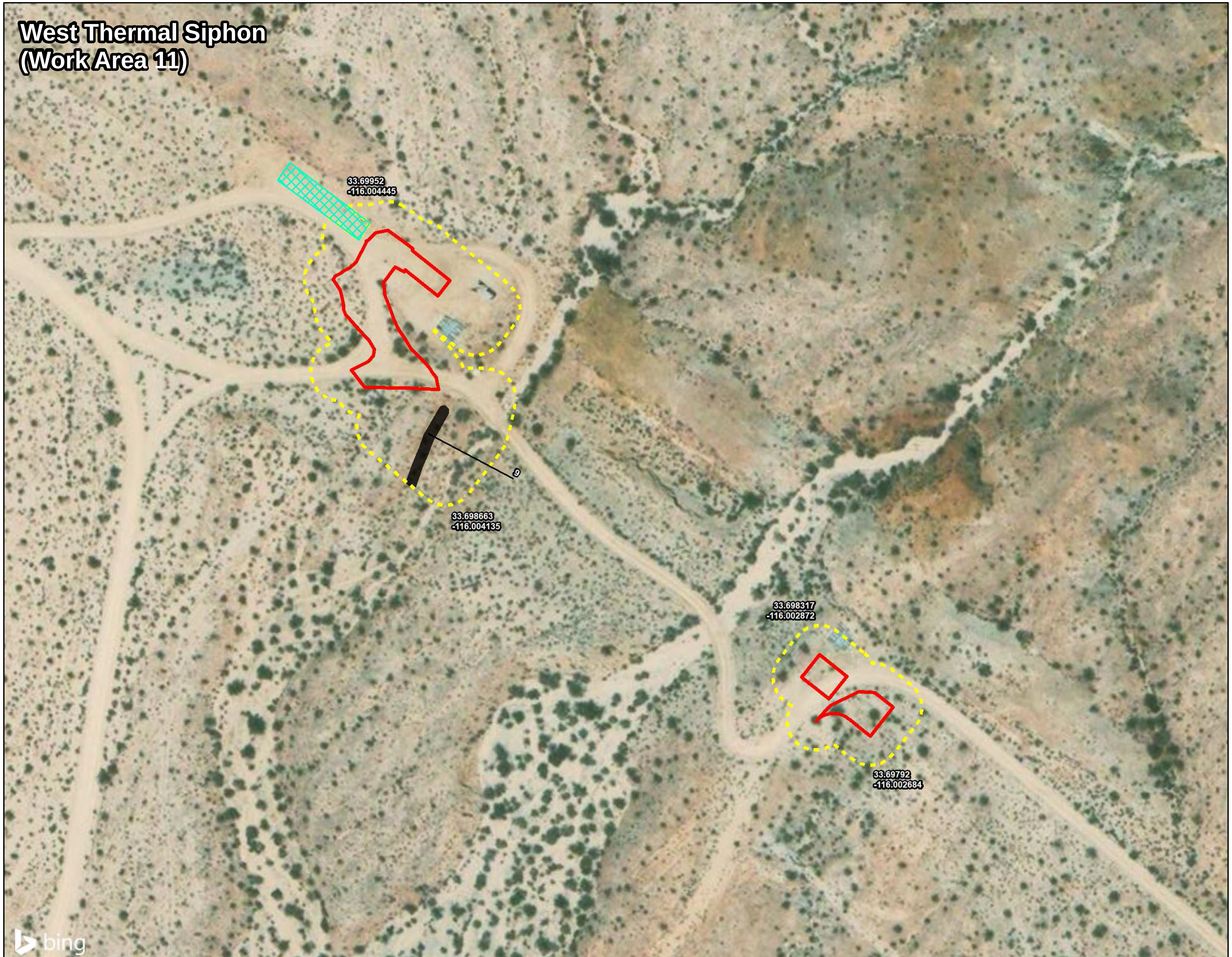
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

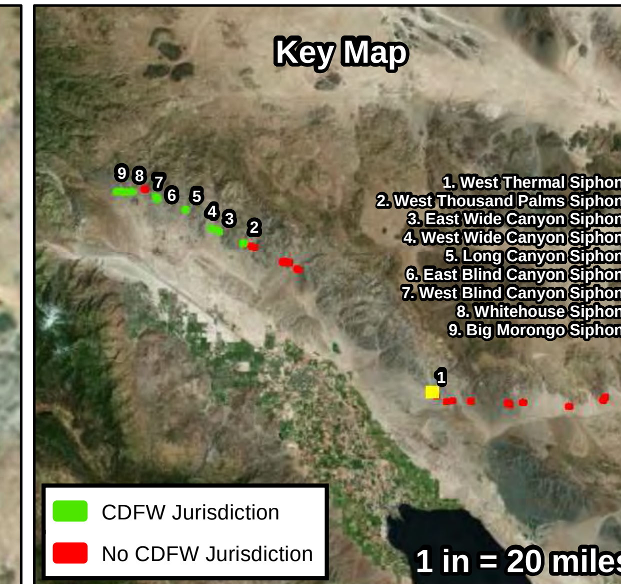
Regional Board Jurisdictional Delineation Map - Sheet 9 of 9 - Big Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7A

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_RWQCB_24_BigMorongoSiphon.mxd





Project Footprint
Study Area
Storage Stockpile/Sorting
Non-jurisdictional Outlet Rill
14 Width of Jurisdiction in Feet

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: May 14, 2020

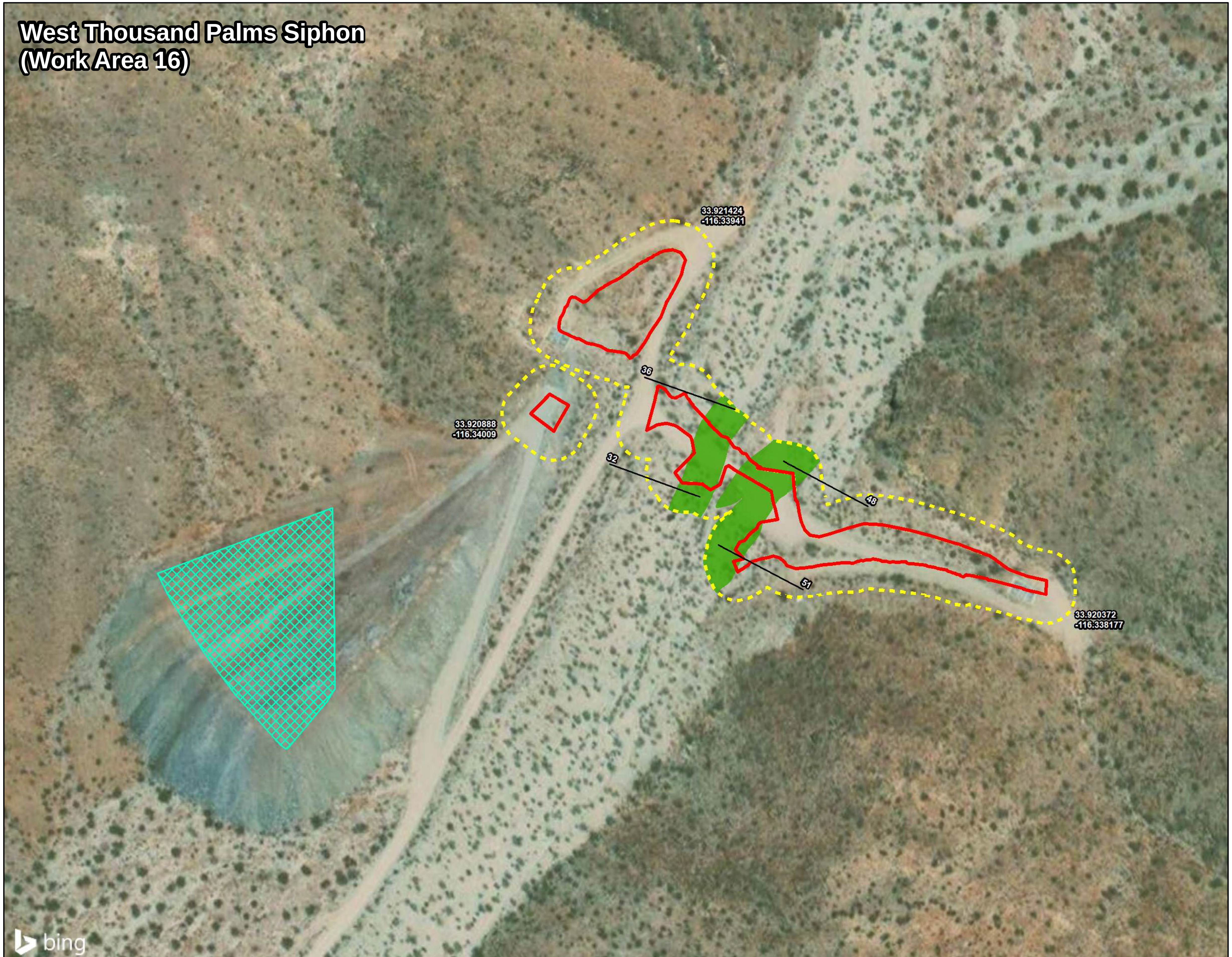
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

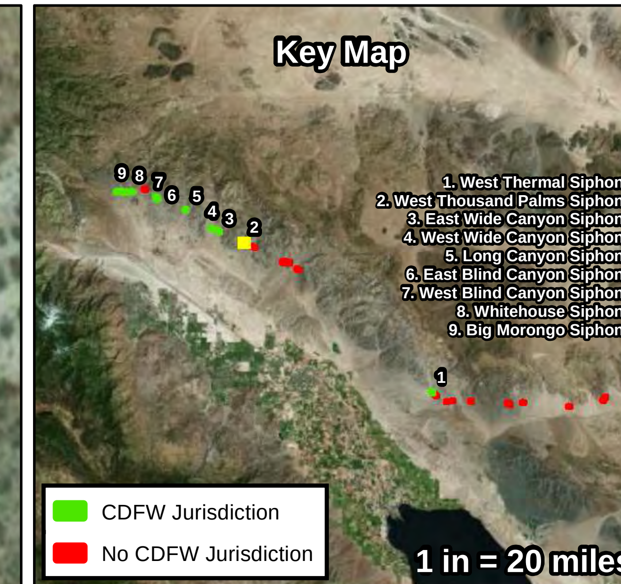
CDFW Jurisdictional Delineation Map -
Sheet 1 of 9 - West Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7B

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_CDFW_11_WestThermalSiphon.mxd





Project Footprint
Study Area
Storage Stockpile/Sorting
CDFW Non-Riparian Streambed
14 Width of Jurisdiction in Feet

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: May 18, 2020

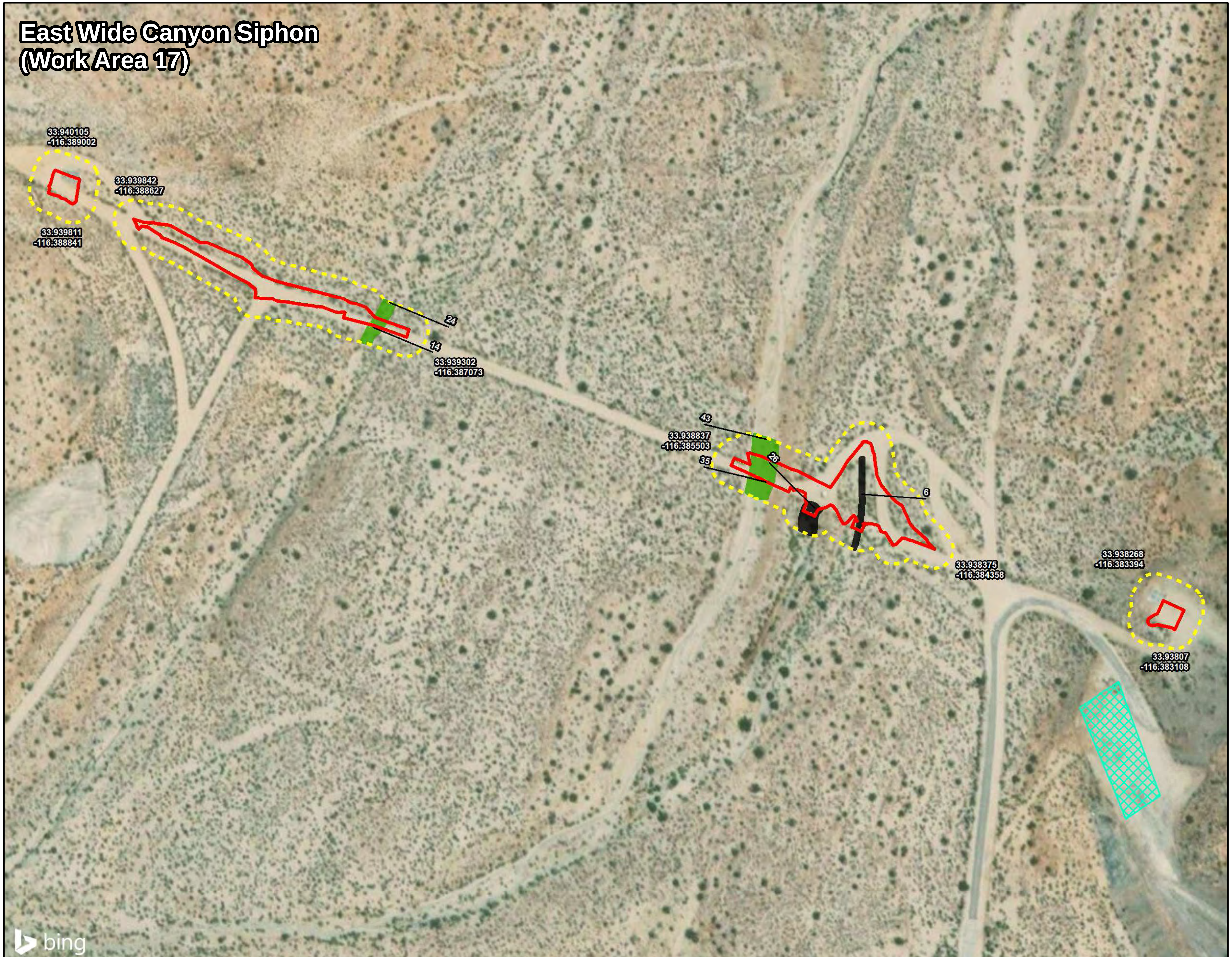
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

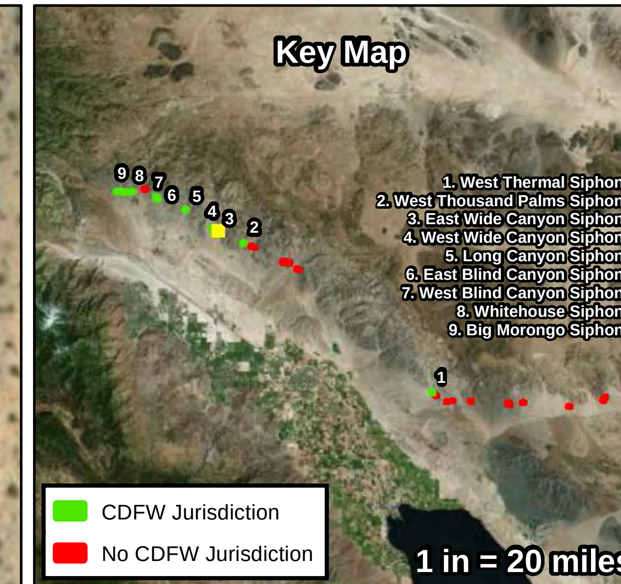
CDFW Jurisdictional Delineation Map -
Sheet 2 of 9 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7B

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_CDFW_16_WestThousandPalmsSiphon.mxd





Project Footprint
Study Area
Storage Stockpile/Sorting
CDFW Non-Riparian Streambed
Non-jurisdictional Outlet Rill
14 Width of Jurisdiction in Feet

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: May 18, 2020

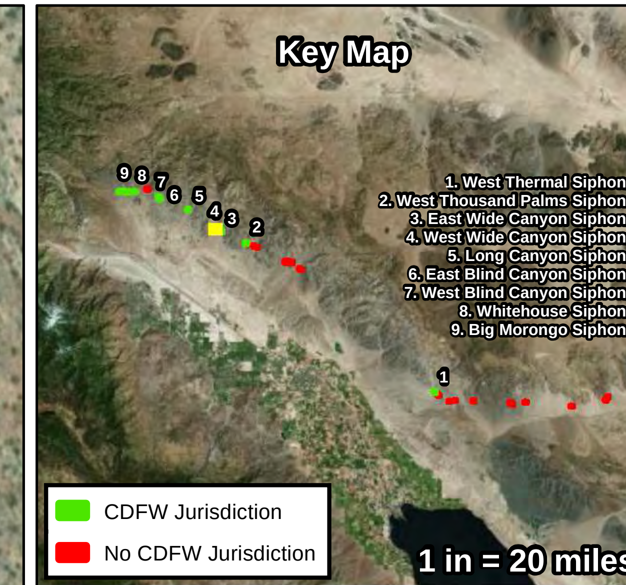
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

CDFW Jurisdictional Delineation Map -
Sheet 3 of 9 - East Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7B

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_CDFW_17_EastWideCanyonSiphon.mxd



Project Footprint
Study Area
Non-jurisdictional Outlet Rill
Width of Jurisdiction in Feet

N

0 25 50 100
Feet

1 inch = 50 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: May 18, 2020

COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

CDFW Jurisdictional Delineation Map -
Sheet 4 of 9 - West Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7B

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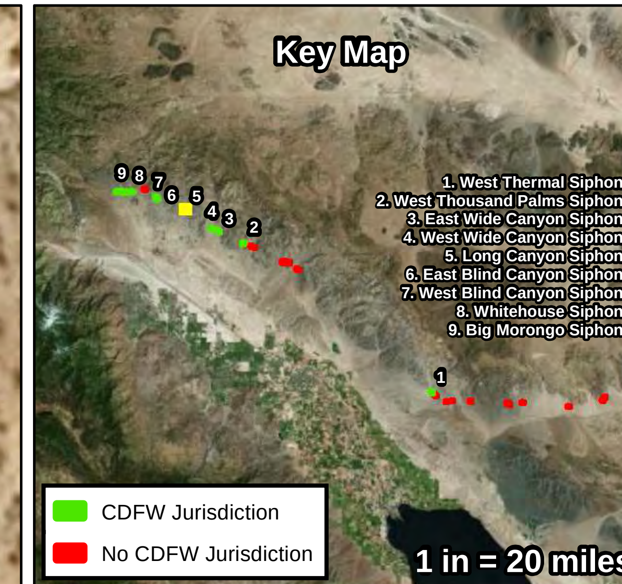


Project Footprint

Study Area

Storage Stockpile/Sorting

CDFW Non-Riparian Streambed

14 Width of Jurisdiction in Feet

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: May 14, 2020

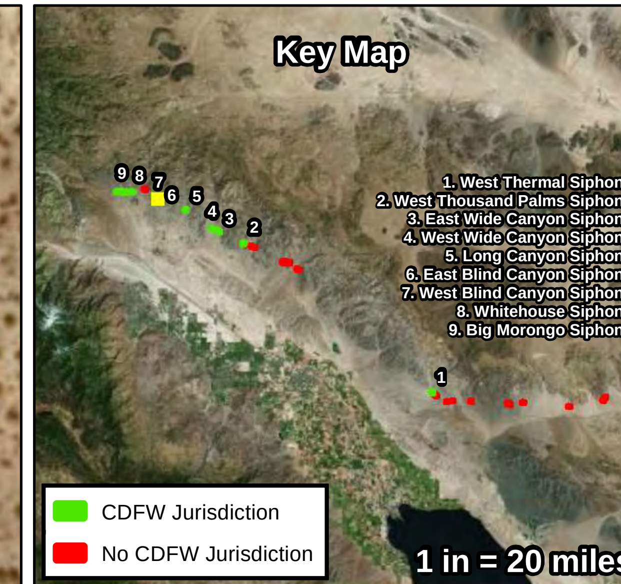
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

CDFW Jurisdictional Delineation Map -
Sheet 5 of 9 - Long Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7B

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_CDFW_19_LongCanyonSiphon.mxd



Project Footprint
Study Area
Storage Stockpile/Sorting
Non-jurisdictional Outlet Rill
14 Width of Jurisdiction in Feet

N

0 62.5 125 250
Feet

1 inch = 125 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: May 15, 2020

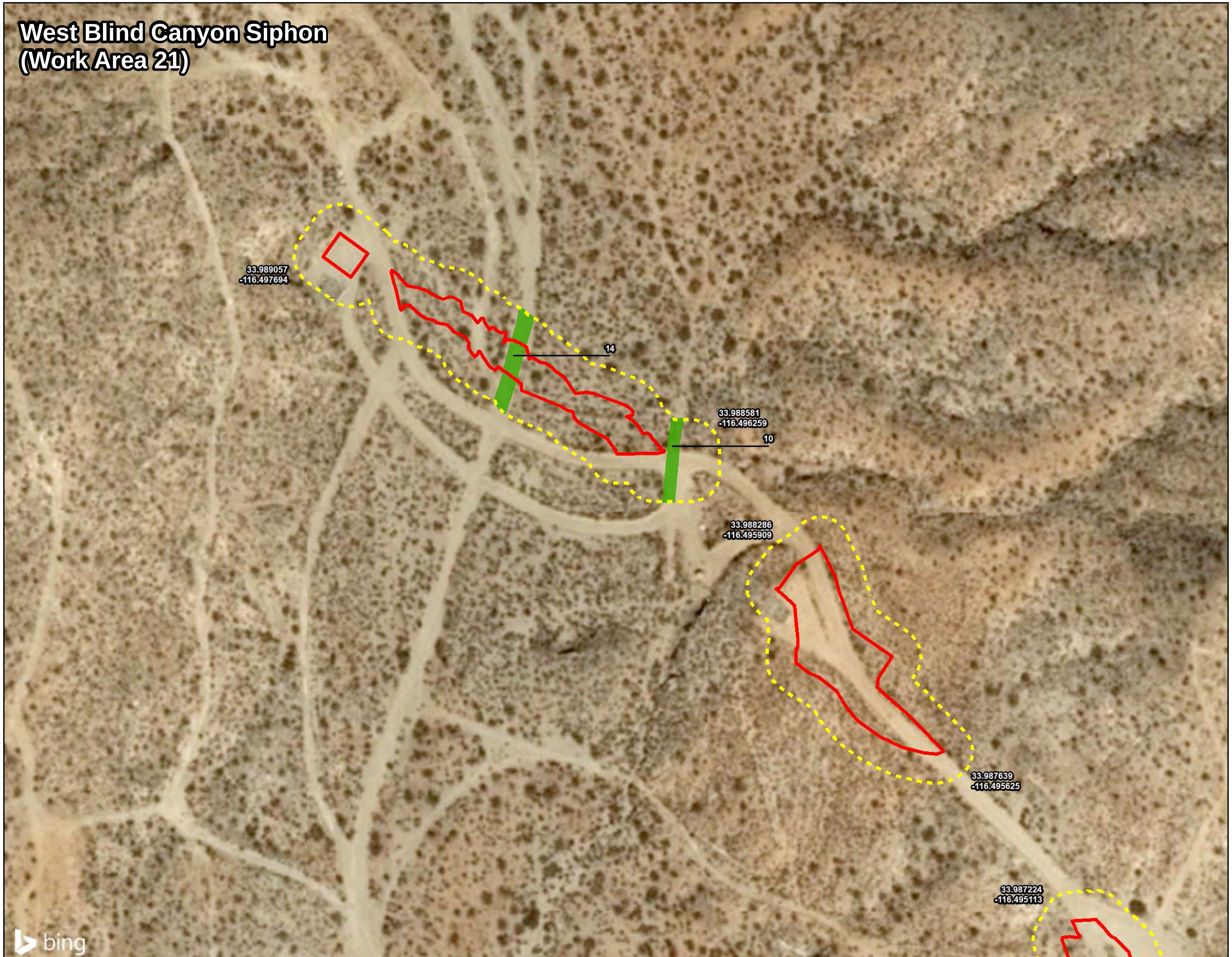
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

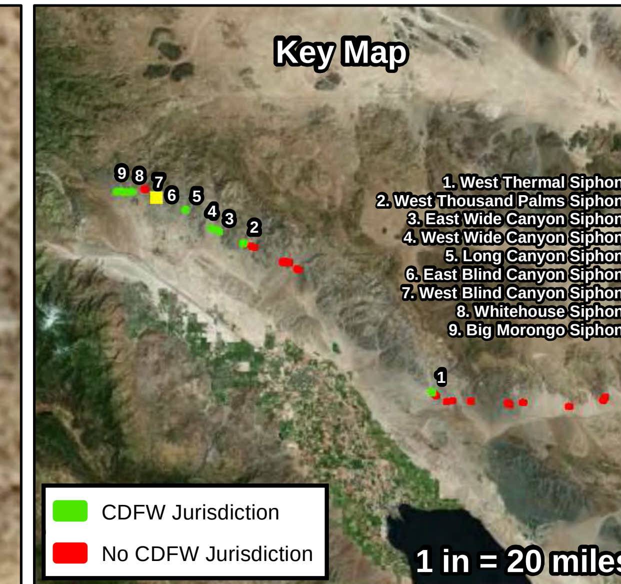
CDFW Jurisdictional Delineation Map -
Sheet 6 of 9 - East Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7B

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_CDFW_20_EastBlindCanyonSiphon.mxd





Project Footprint

Study Area

CDFW Non-Riparian Streambed

14 Width of Jurisdiction in Feet

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: May 18, 2020

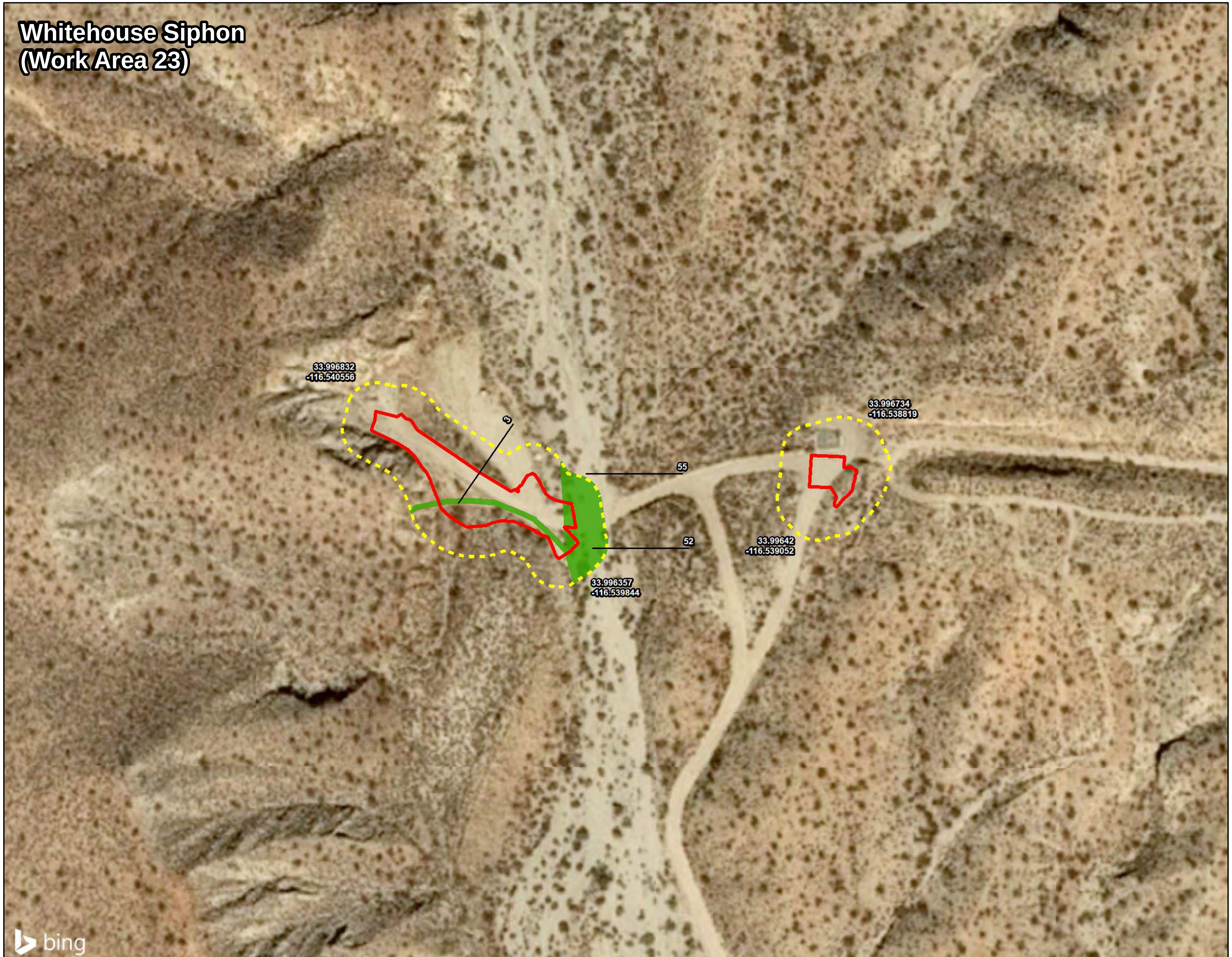
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

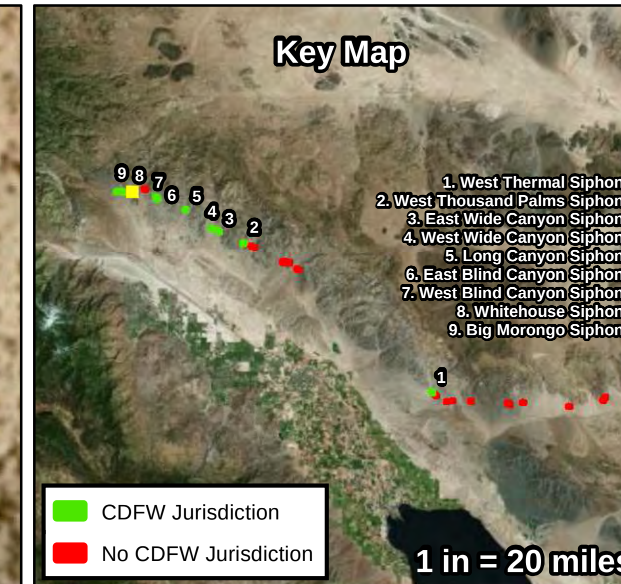
CDFW Jurisdictional Delineation Map -
Sheet 7 of 9 - West Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7B

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_CDFW_21_WestBlindCanyonSiphon.mxd





Project Footprint

Study Area

CDFW Non-Riparian Streambed

14 Width of Jurisdiction in Feet

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: May 18, 2020

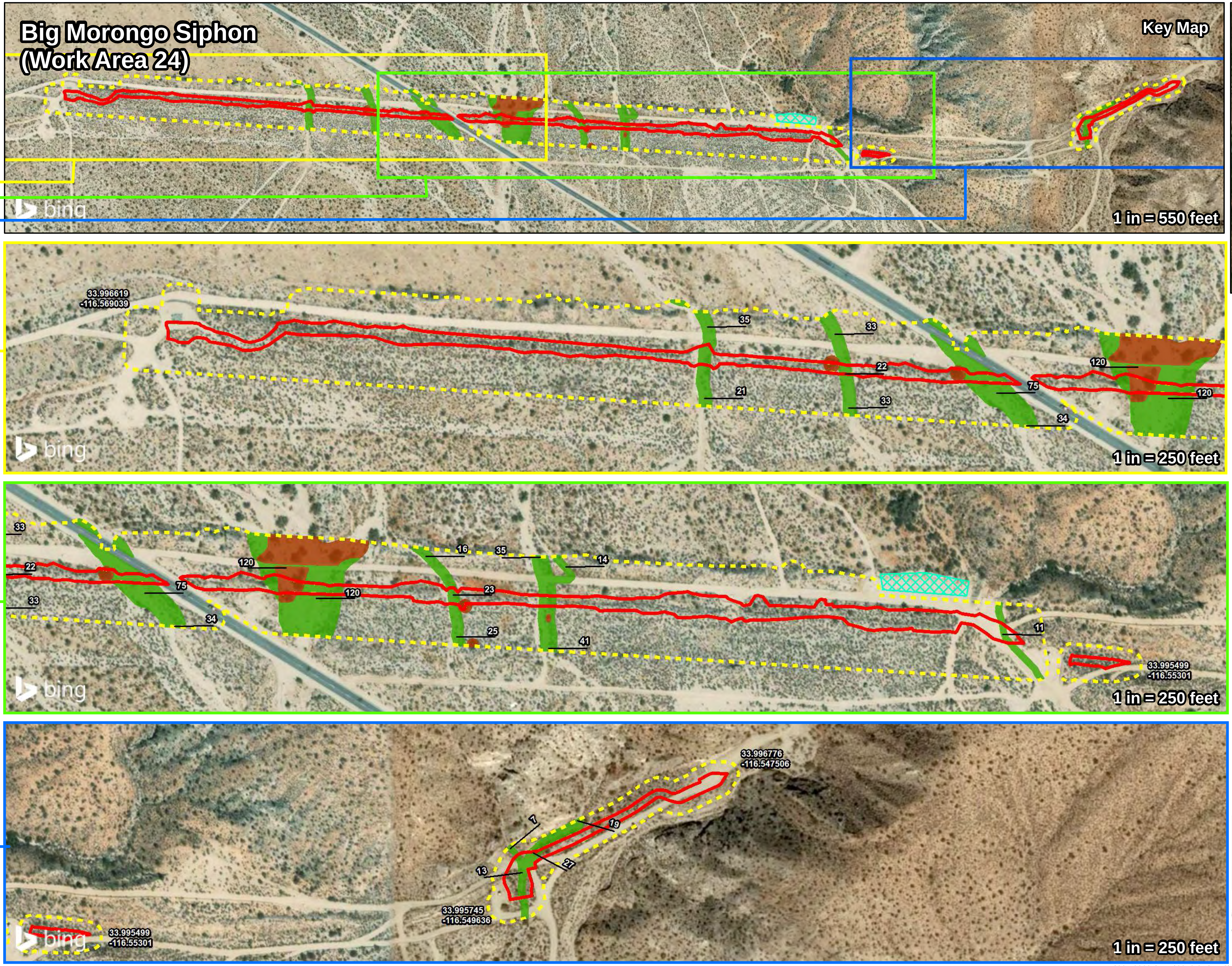
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

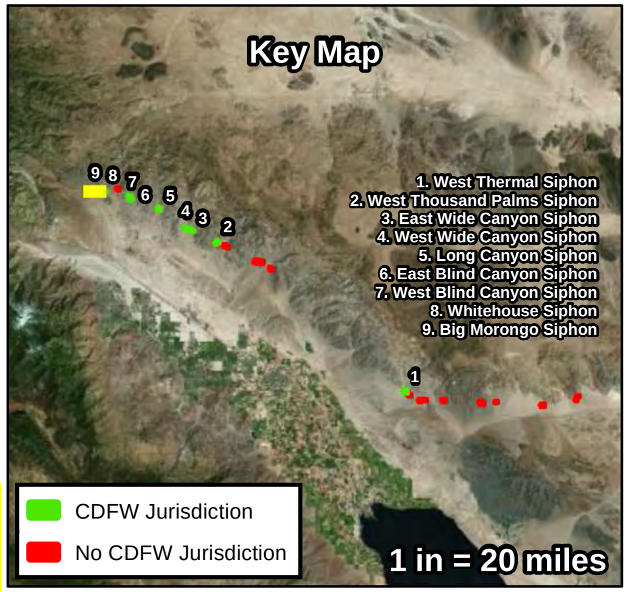
CDFW Jurisdictional Delineation Map -
Sheet 8 of 9 - Whitehouse Siphon

GLENN LUKOS ASSOCIATES

Exhibit 7B

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_CDFW_23_WhitehouseSiphon.mxd





Project Footprint

Study Area

Storage Stockpile/Sorting

CDFW Riparian

CDFW Non-Riparian Streambed

14 Width of Jurisdiction in Feet

N

0 125 250 500

Feet

1 inch = 250 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: June 2, 2020

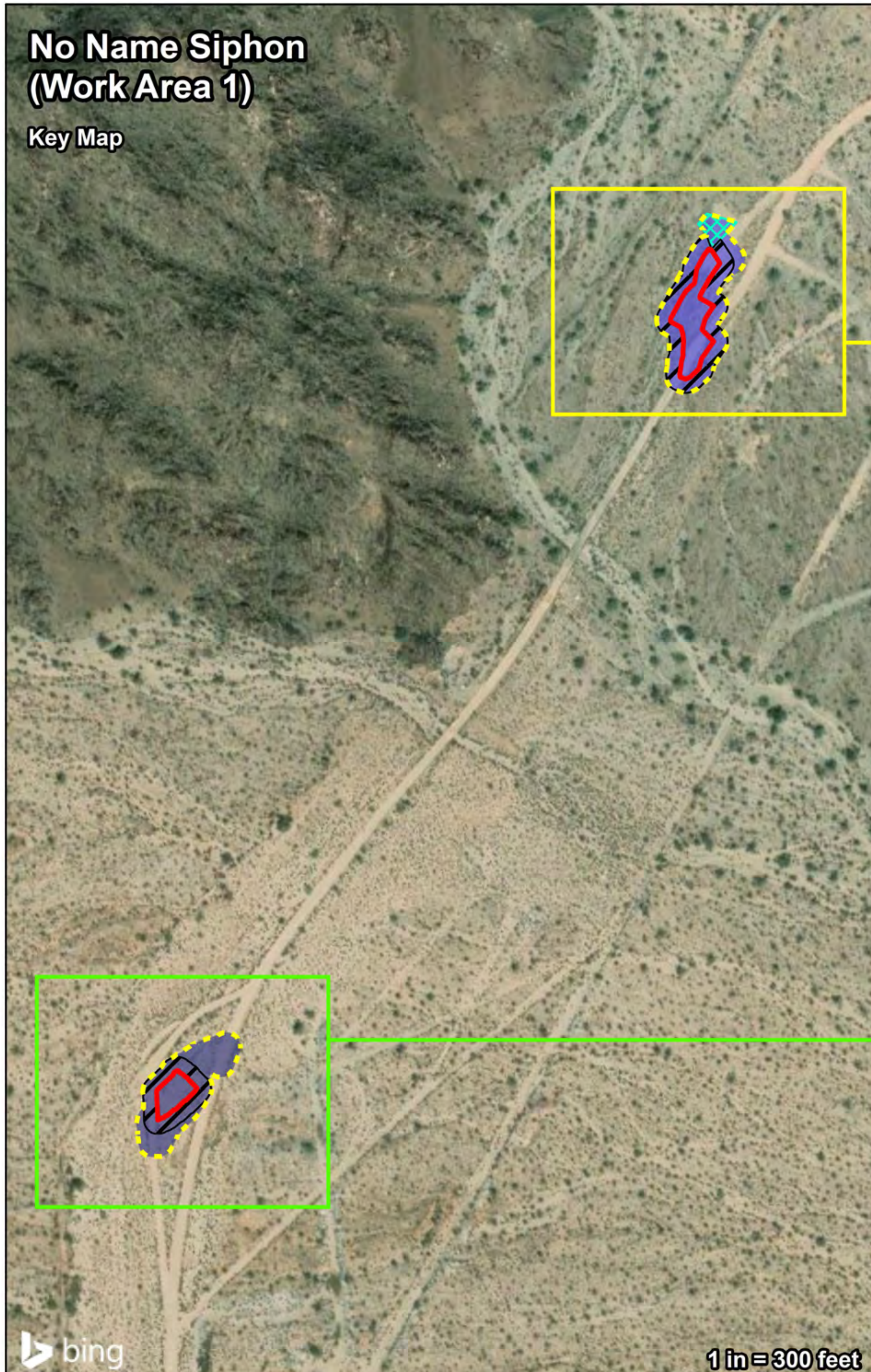
COLORADO RIVER AQUEDUCT STRUCTURAL IMPROVEMENTS PROJECT

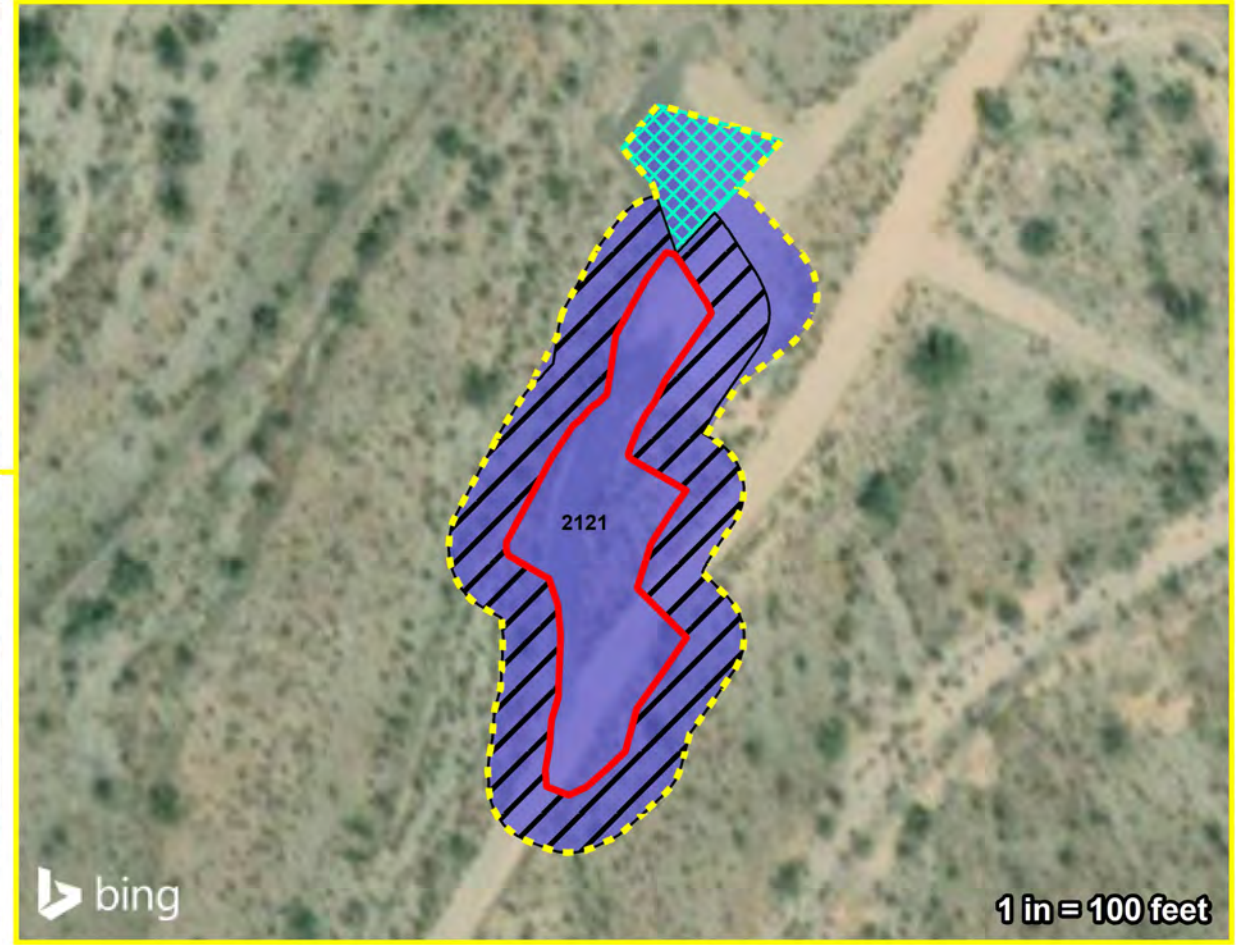
CDFW Jurisdictional Delineation Map - Sheet 9 of 9 - Big Morongo Siphon

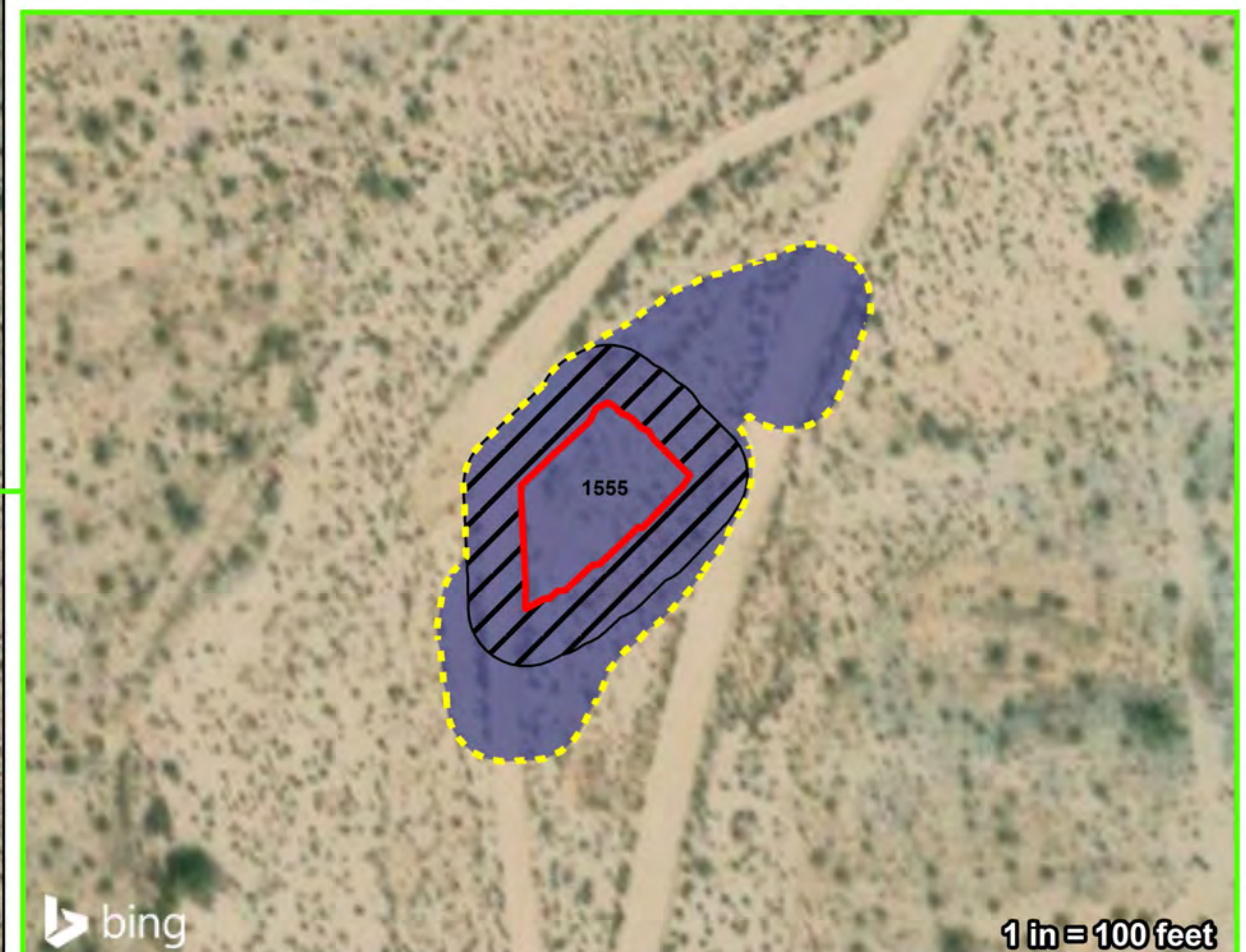
GLENN LUKOS ASSOCIATES

Exhibit 7B

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\DelineationGIS\43-27CRAS_JD_CDFW_24_BigMorongoSiphon.mxd







Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

1555 - Goldrose - Carsitas - Chemwash complex, 4 to 8 percent slopes

2121 - Rizzo very cobbly coarse sandy loam, 4 to 15 percent slopes, rubbly

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

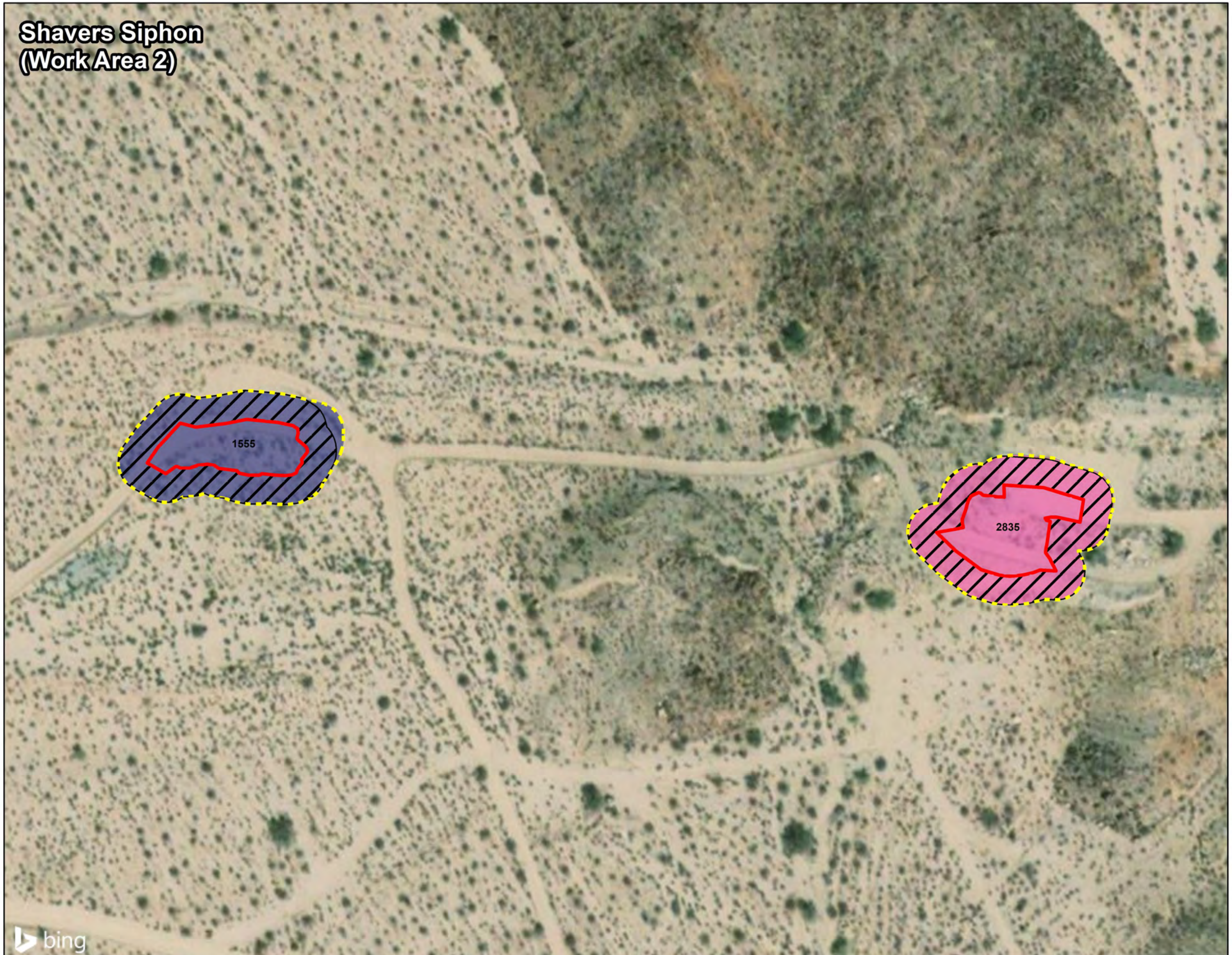
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

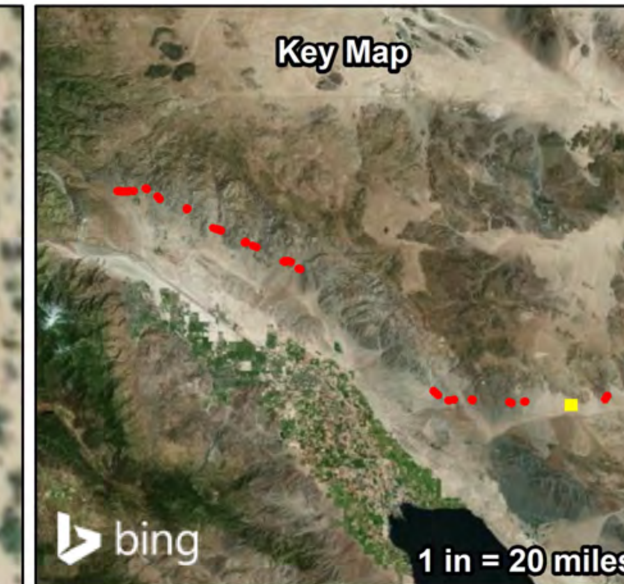
Soils Map - Sheet 1 of 24 - No Name Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_01_NoNameSiphon.mxd





Study

Project Footprint

Project Footprint - Temporary

1555 - Goldrose - Carsitas - Chemwash complex, 4 to 8 percent slopes

2835 - Rock outcrop - Blackeagle complex, 30 to 75 percent slopes

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

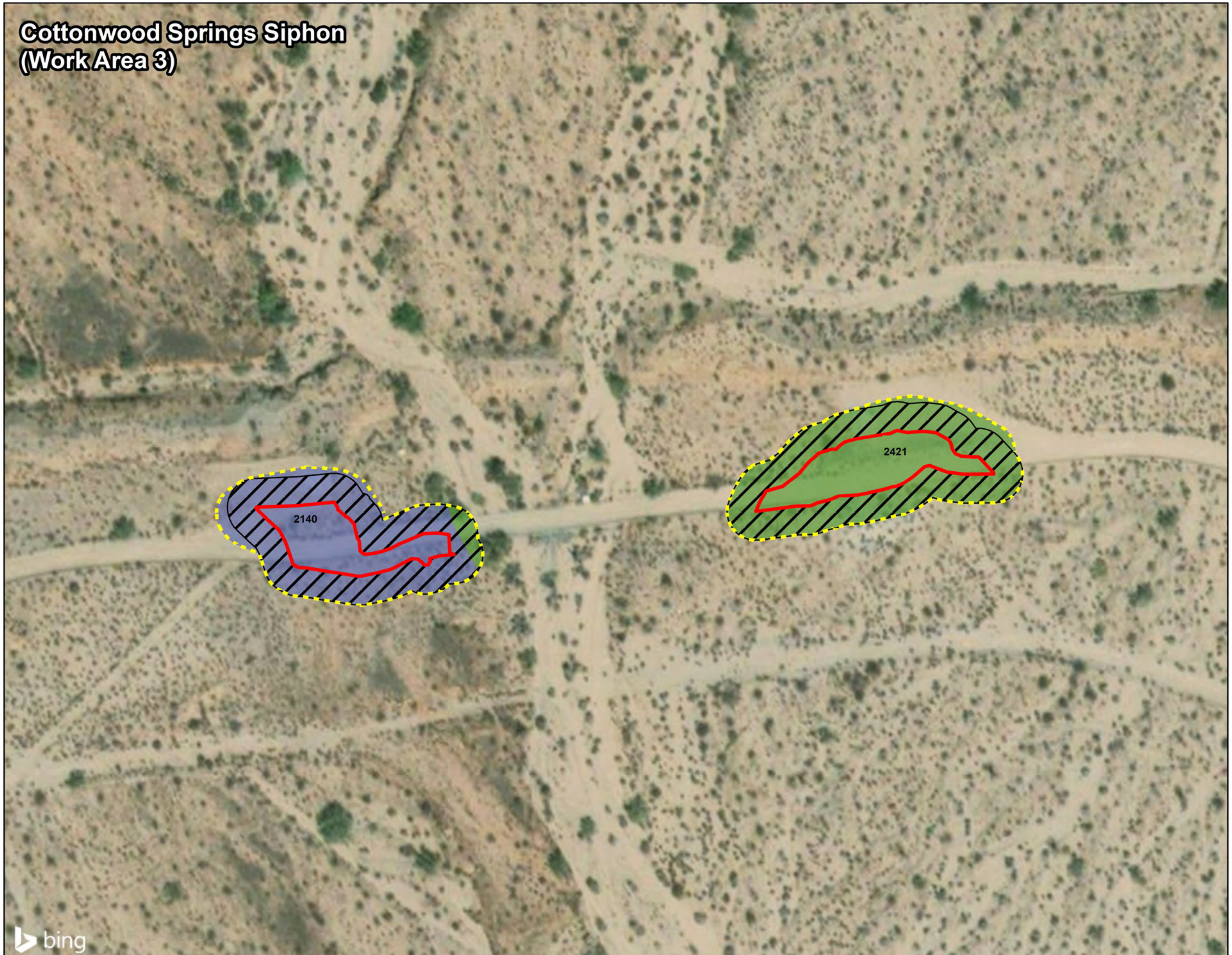
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

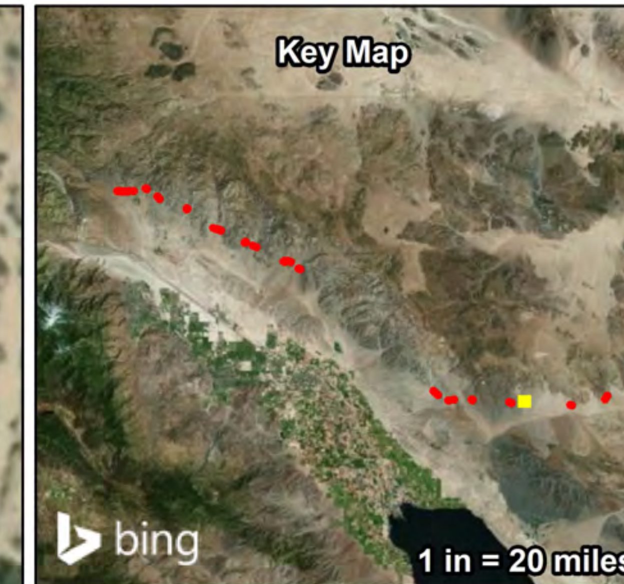
Soils Map - Sheet 2 of 24 - Shavers Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_02_ShaversSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
2140 - Rockhound extremely gravelly loam, 4 to 15 percent slopes
2421 - Carsitas complex, 4 to 8 percent slopes

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 3 of 24 - Cottonwood Springs Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

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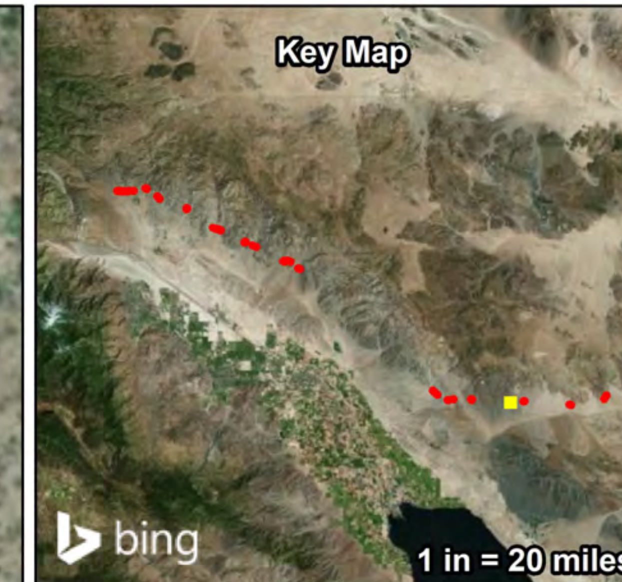


Study Area

Project Footprint

Project Footprint - Temporary

2140 - Rockhound extremely gravelly loam, 4 to 15 percent slopes

0 50 100 200

Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

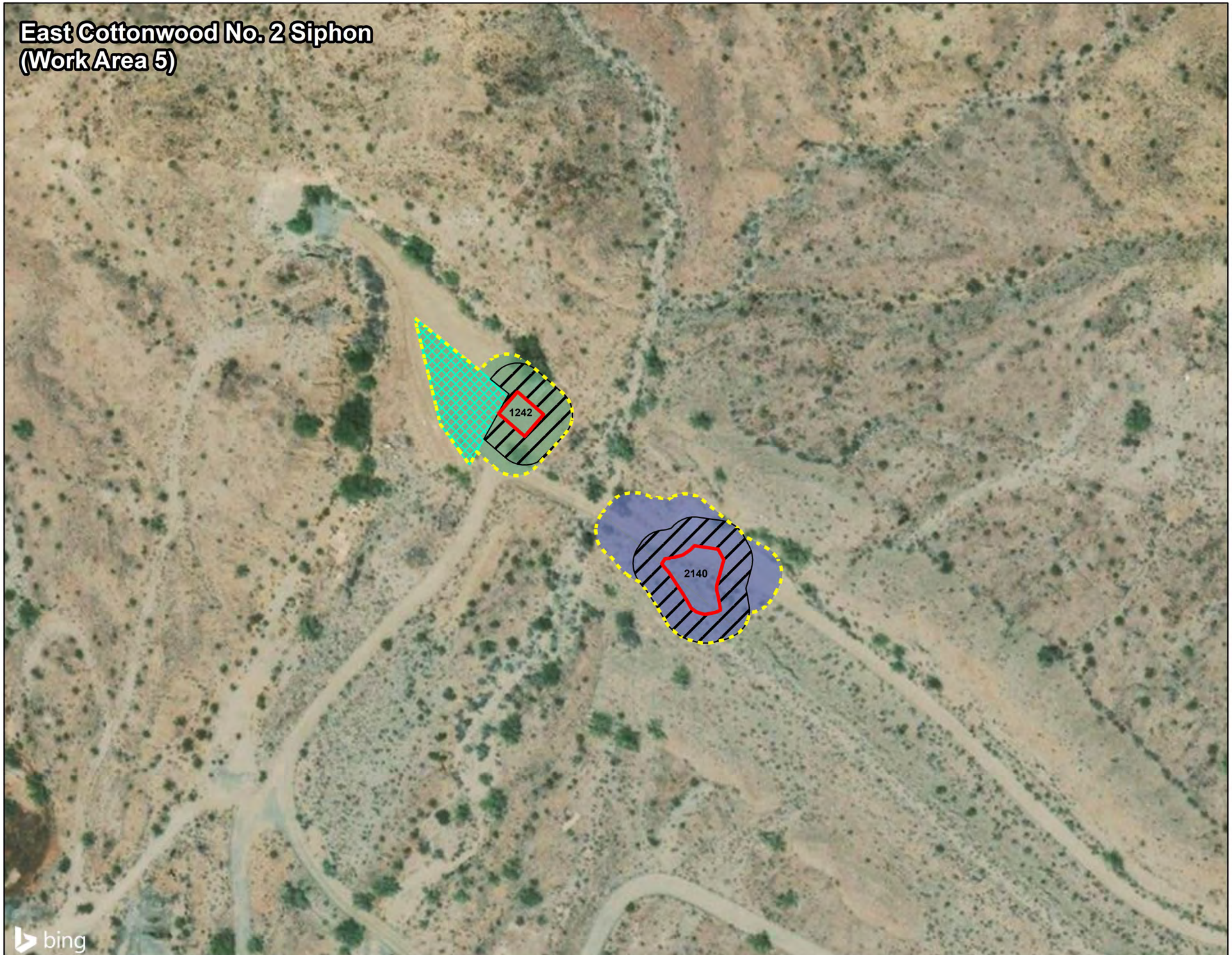
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

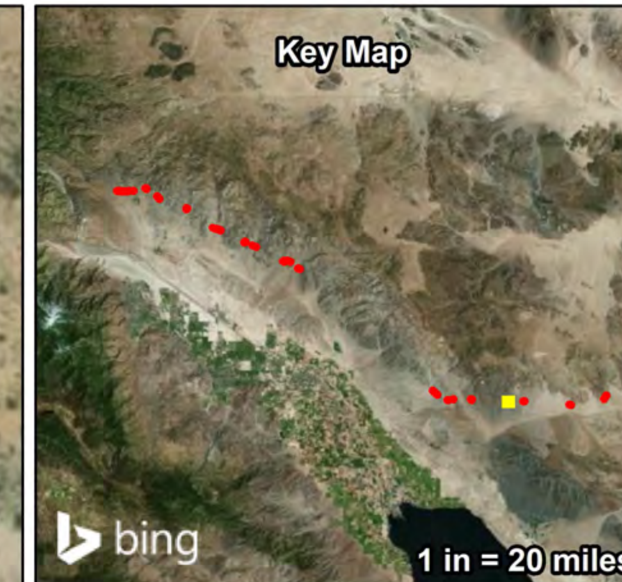
Soils Map - Sheet 4 of 24 - East Cottonwood No. 1 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_04_EastCottonwoodNo1Siphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
1242 - Meccapass - Jadestorm - Rock outcrop complex, 15 to 75 percent slopes
2140 - Rockhound extremely gravelly loam, 4 to 15 percent slopes

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

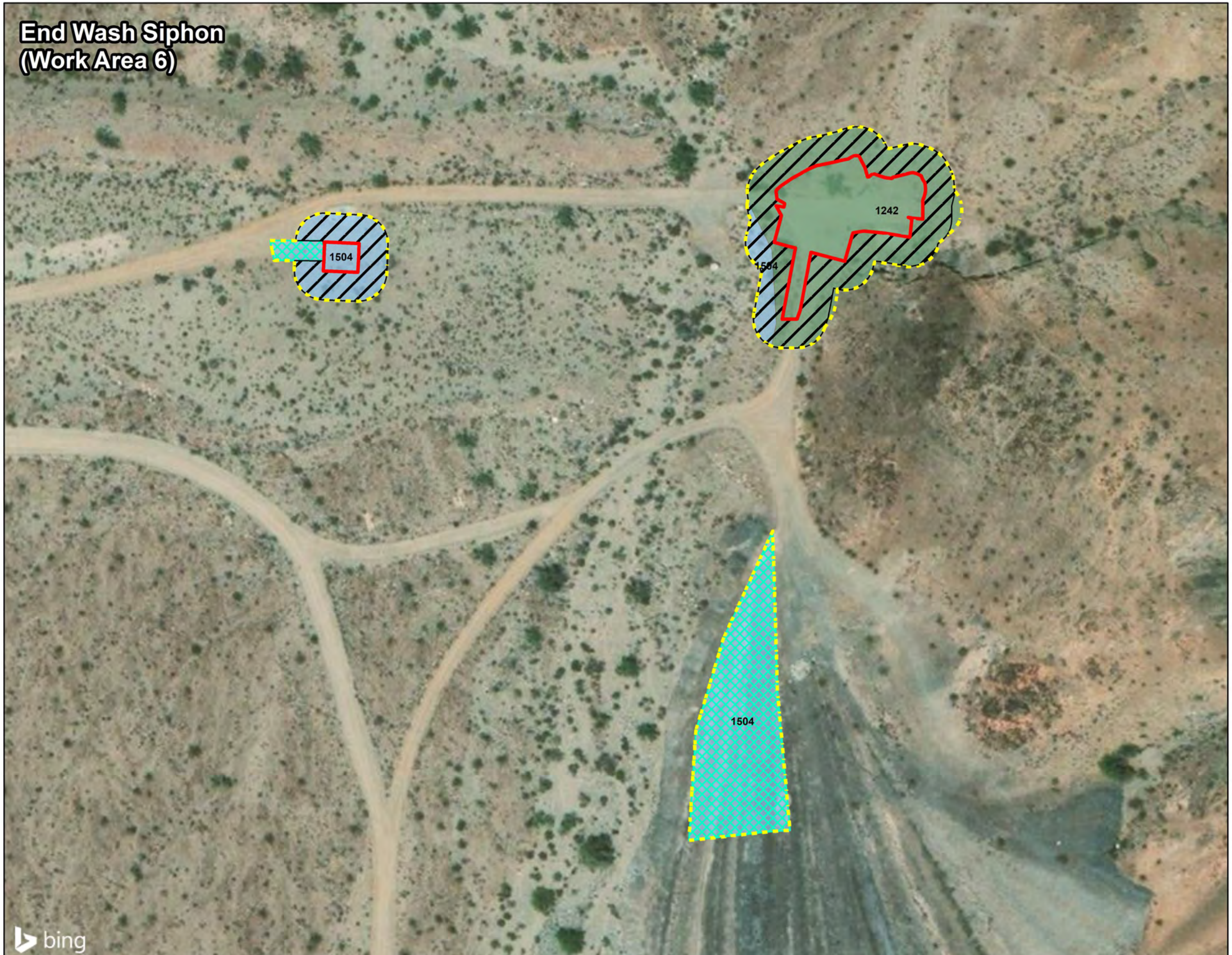
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

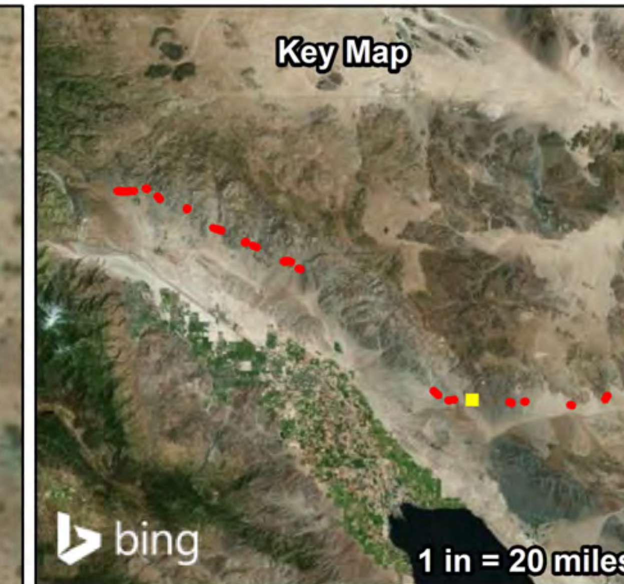
Soils Map - Sheet 5 of 24 - East Cottonwood No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_05_EastCottonwoodNo2Siphon.mxd





Study

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

1242 - Meccapass - Jadestorm - Rock outcrop complex, 15 to 75 percent slopes

1504 - Rizzo association, 4 to 15 percent slopes, rubbly

0 50 100 200

Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 6 of 24 - End Wash Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

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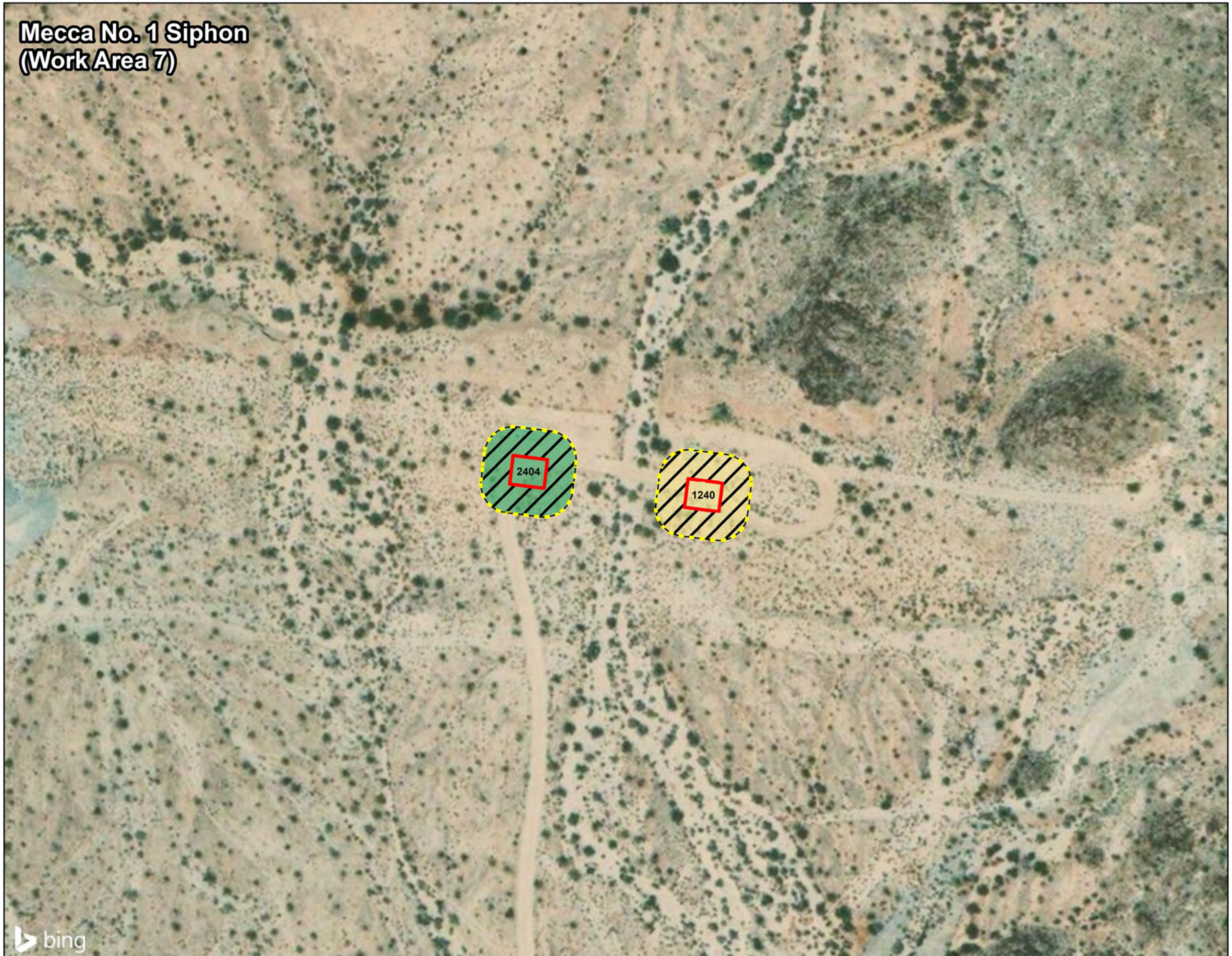

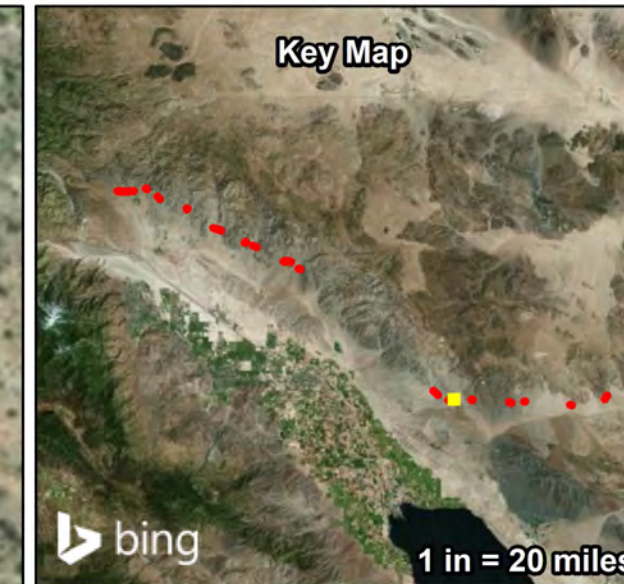

Study

Project Footprint

Project Footprint - Temporary

1240 - Meccapass - Bulletproof - Rock outcrop complex, 30 to 75 percent slopes

2404 - Rizzo complex, 2 to 8 percent slopes, channeled

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 7 of 24 - Mecca No. 1 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

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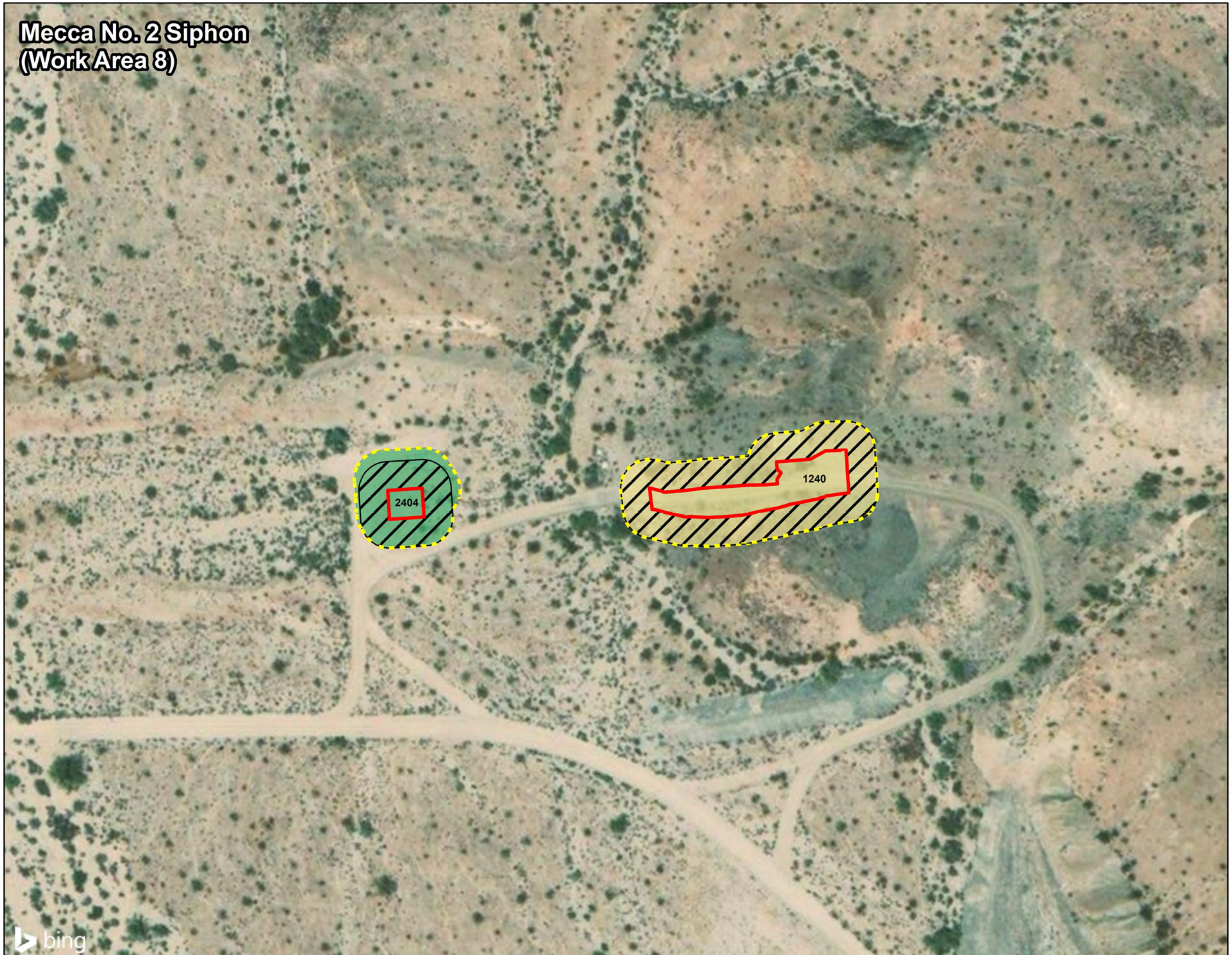
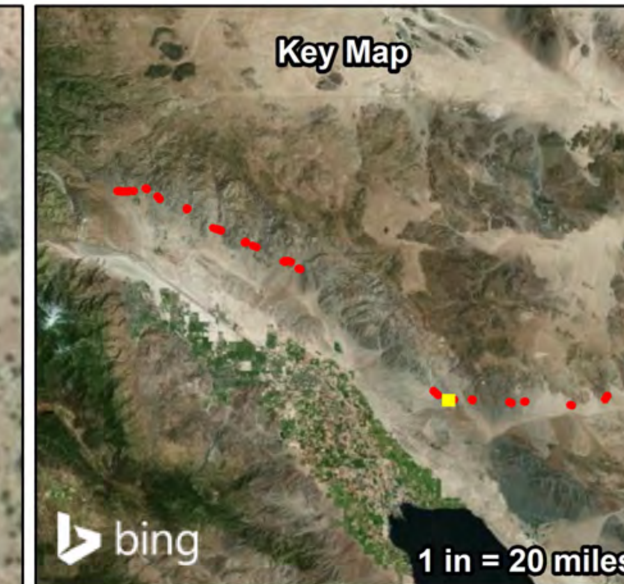




Study

Project Footprint

Project Footprint - Temporary

1240 - Meccapass - Bulletproof - Rock outcrop complex, 30 to 75 percent slopes

2404 - Rizzo complex, 2 to 8 percent slopes, channeled

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

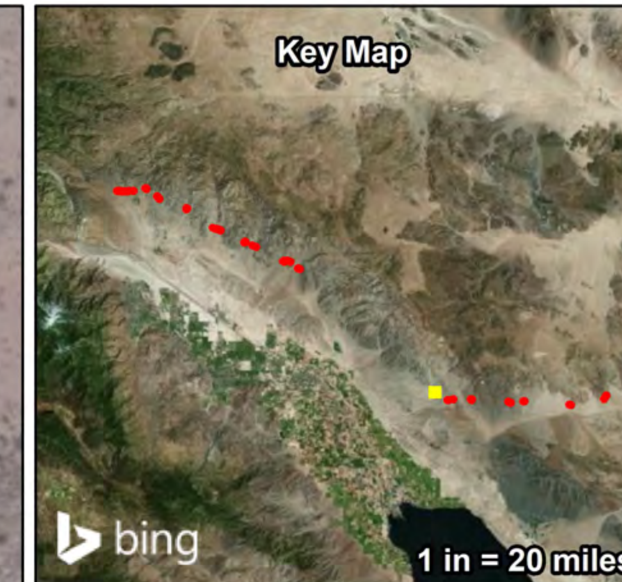
Soils Map - Sheet 8 of 24 - Mecca No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_08_MeccaNo2Siphon.mxd


Iron Ledge Siphon
(Work Area 9)
1240
1240
bing
Key Map
bing
1 in = 20 miles
Study
Project Footprint
Project Footprint - Temporary
1240 - Meccapass - Bulletproof - Rock outcrop complex, 30 to 75 percent slopes
0 50 100 200
Feet
1 inch = 100 feet
N
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT
Soils Map - Sheet 9 of 24 - Iron Ledge Siphon
GLENN LUKOS ASSOCIATES
Exhibit 8
X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_09_IronLedgeSiphon.mxd



Study

Project Footprint

Project Footprint - Temporary

1240 - Meccapass - Bulletproof - Rock outcrop complex, 30 to 75 percent slopes

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 10 of 24 - East Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

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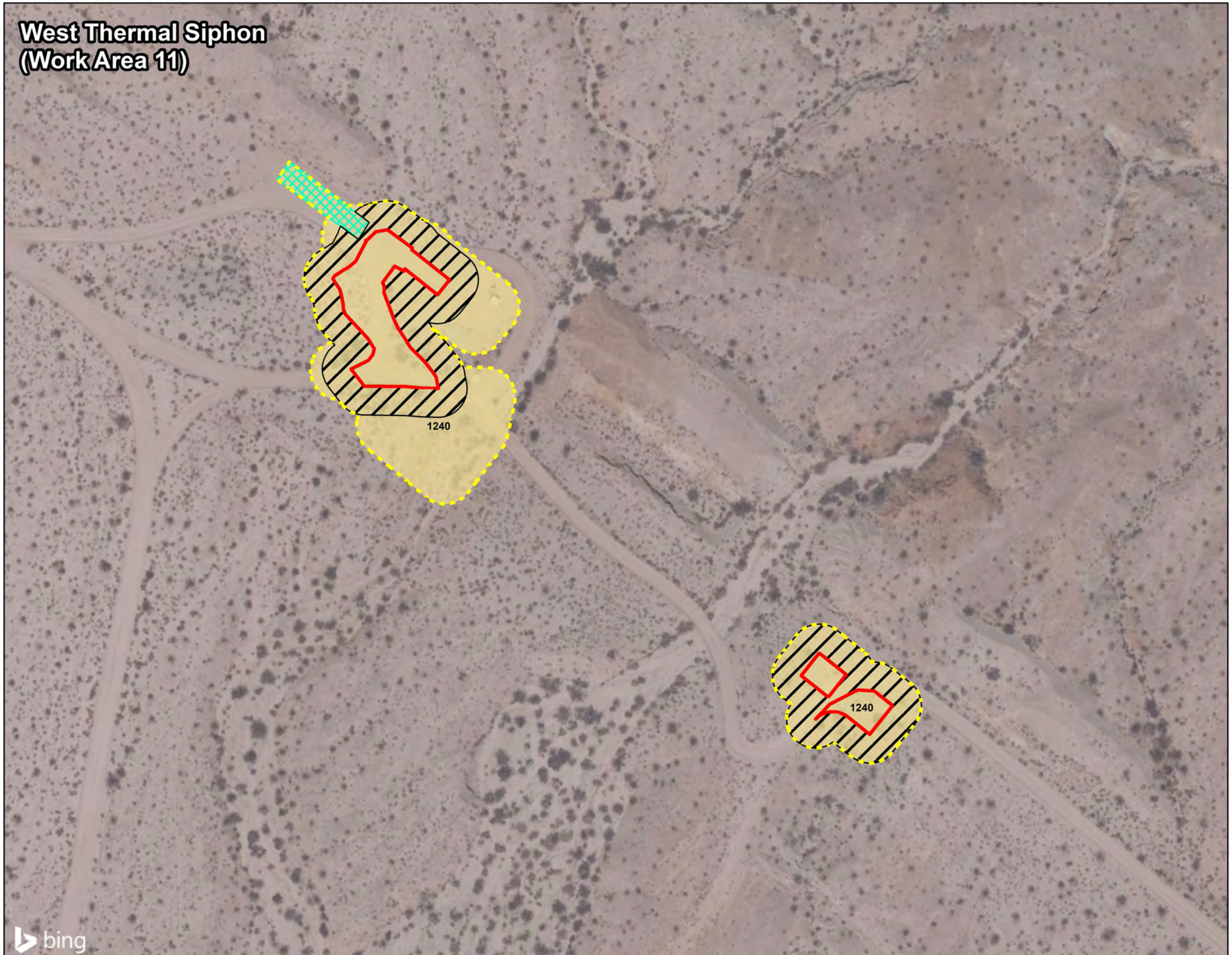

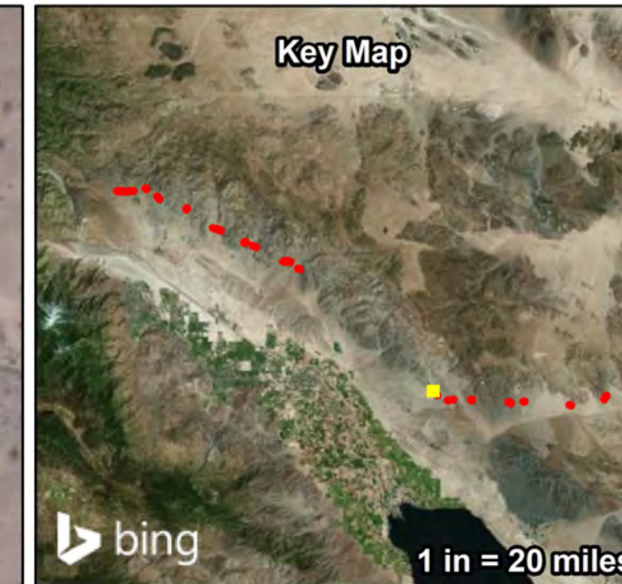

Study

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

1240 - Meccapass - Bulletproof - Rock outcrop complex, 30 to 75 percent slopes

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 11 of 24 - West Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

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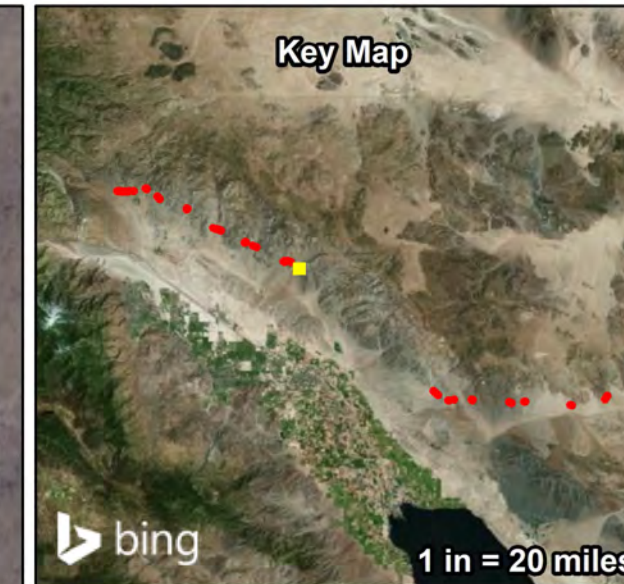

Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

CcC - Carrizo stony sand, 2 to 9 percent slopes

N/A - No Data

0 50 100 200

Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 12 of 24 - East Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

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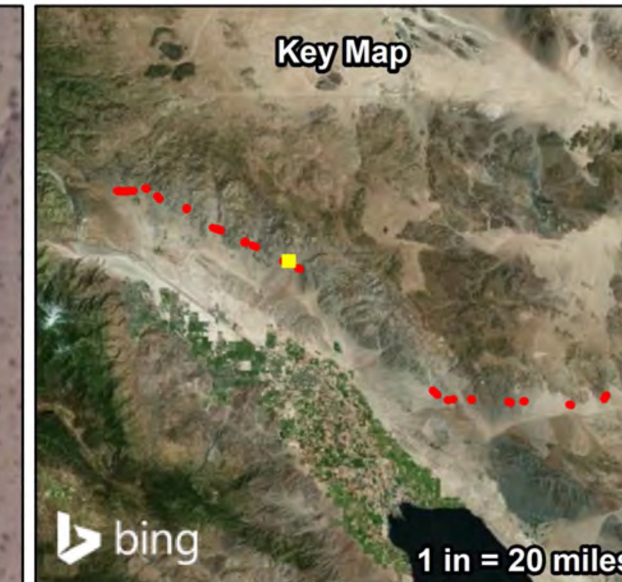

Study

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

ChC - Carsitas cobbly sand, 2 to 9 percent slopes

CoD - Chuckawalla very gravelly sandy clay loam, 5 to 15 percent slopes

0 75 150 300
Feet

1 inch = 150 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 13 of 24 - Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

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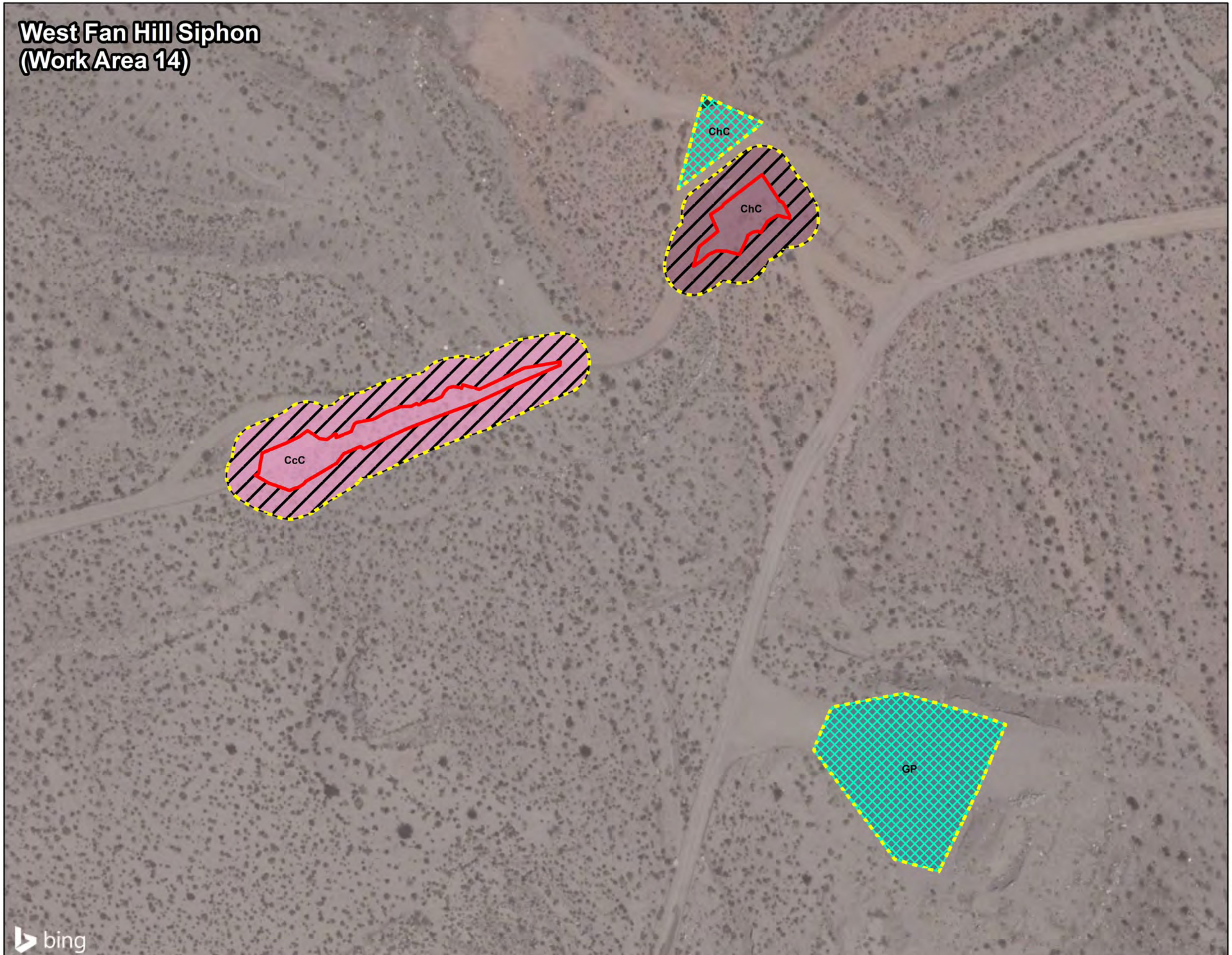

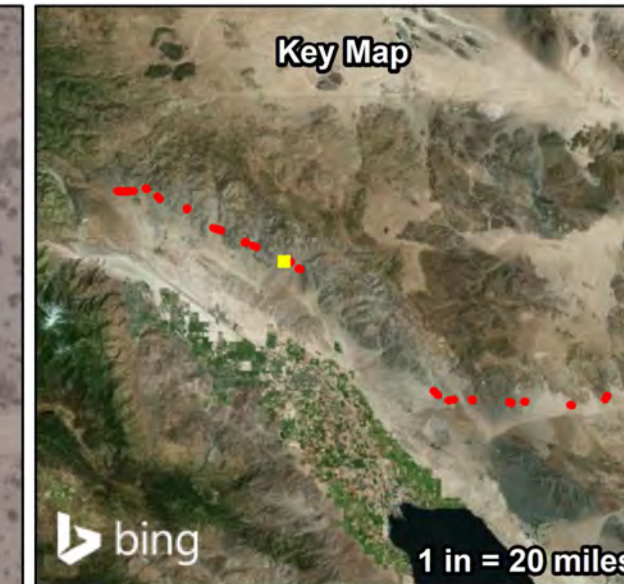

Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

CcC - Carrizo stony sand, 2 to 9 percent slopes

ChC - Carsitas cobbly sand, 2 to 9 percent slopes

GP - Gravel pits and dumps

N/A - No Data

0 50 100 200

Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 14 of 24 - West Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

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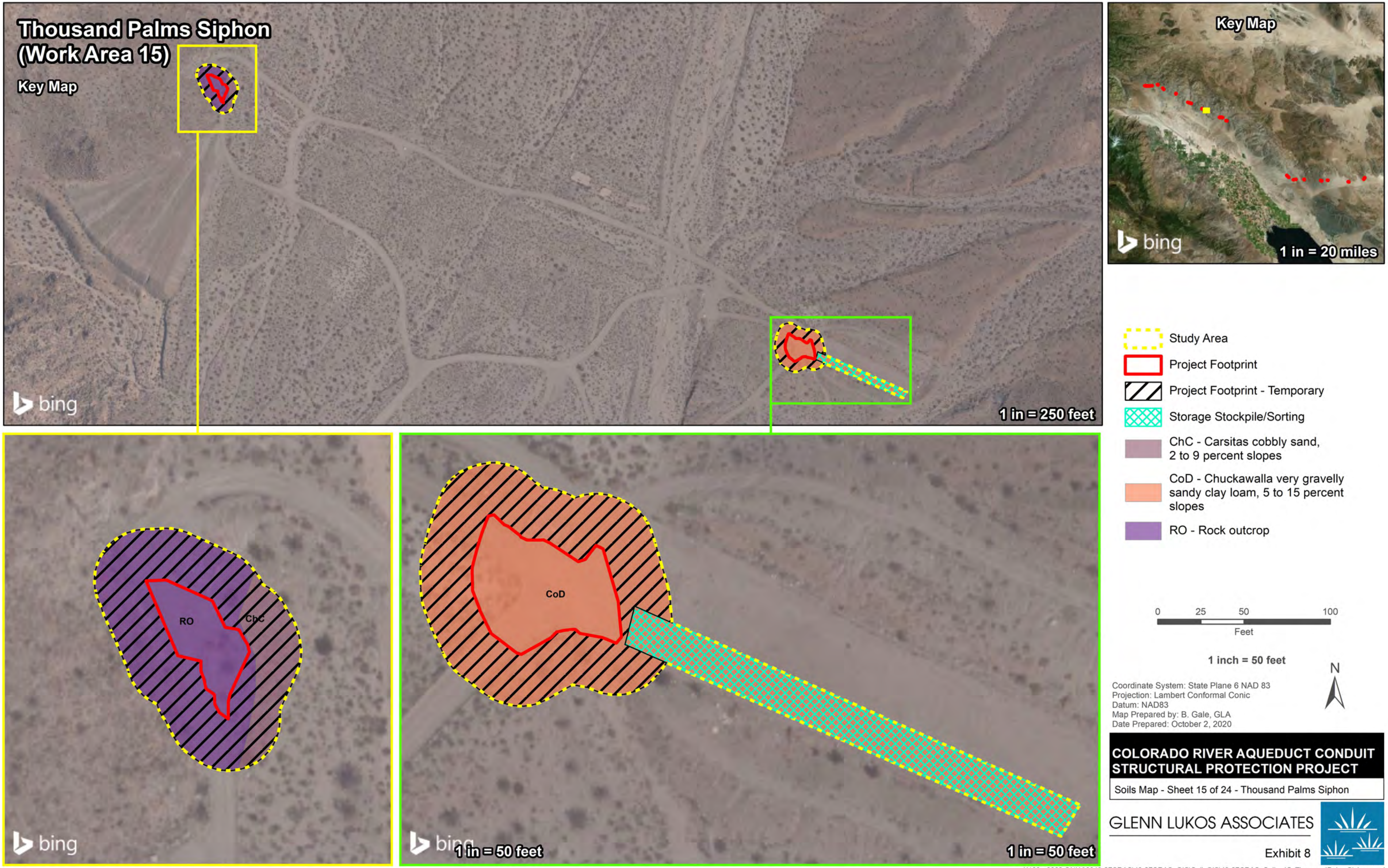

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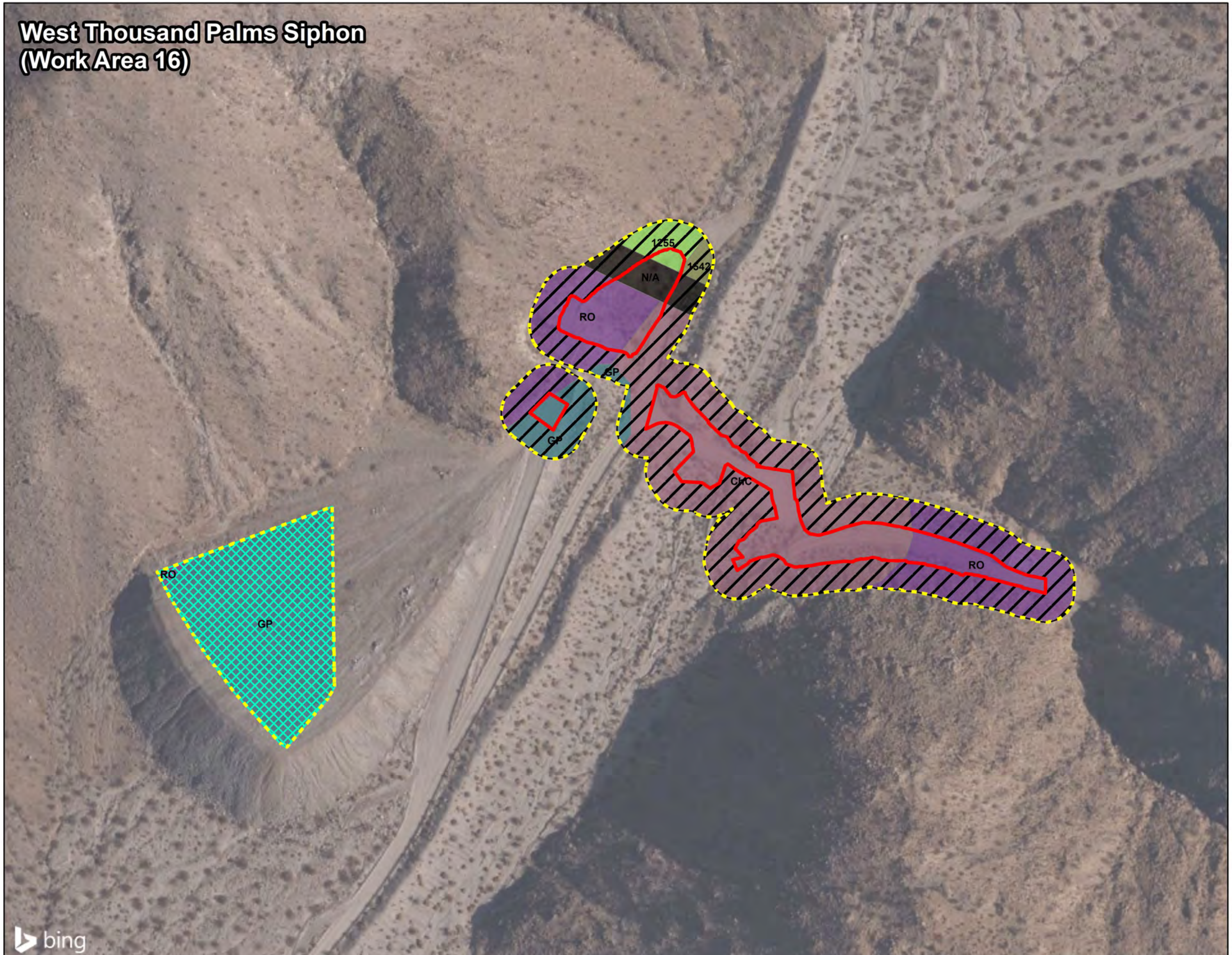
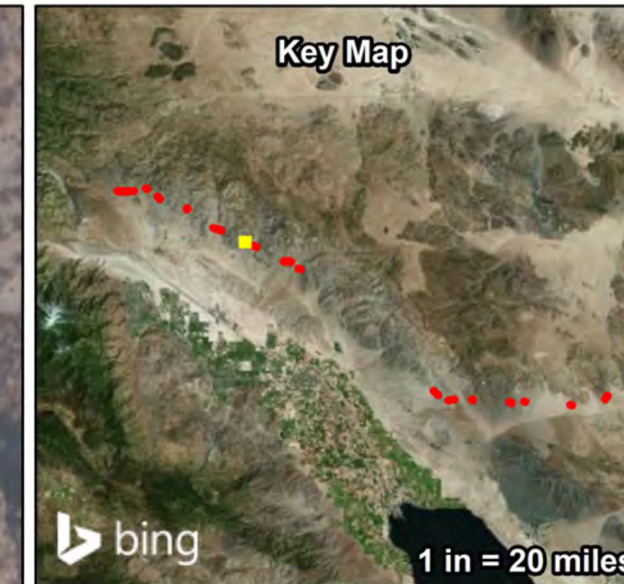




Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
ChC - Carsitas cobbly sand, 2 to 9 percent slopes
GP - Gravel pits and dumps
RO - Rock outcrop
1255 - Goldenhills - Bulletproof - Fanhill - Whiterobe complex, 30 to 75 percent slopes
1542 - Carrizo complex, 4 to 15 percent slopes
N/A - No Data

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

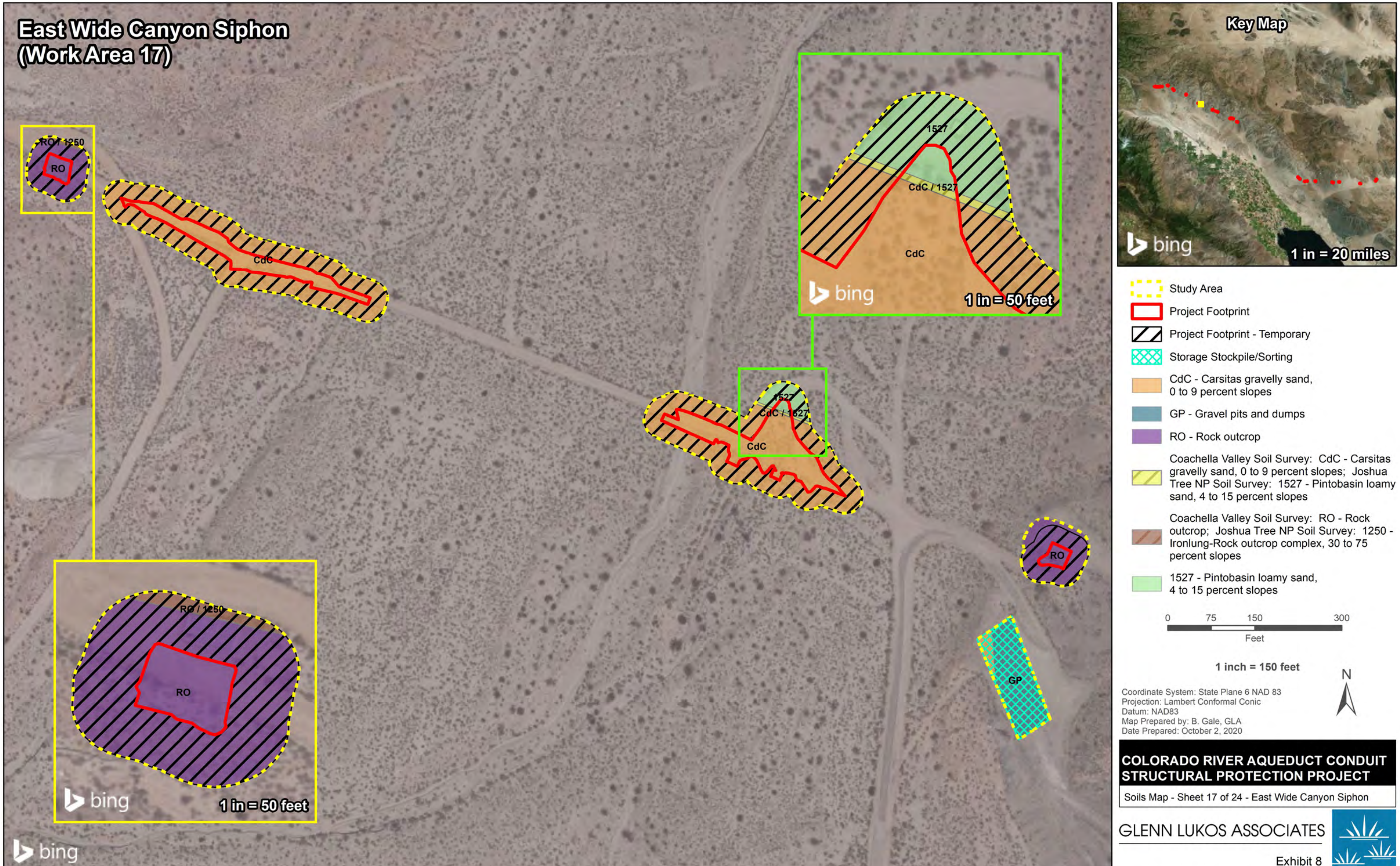
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 16 of 24 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_16_WestThousandPalmsSiphon.mxd



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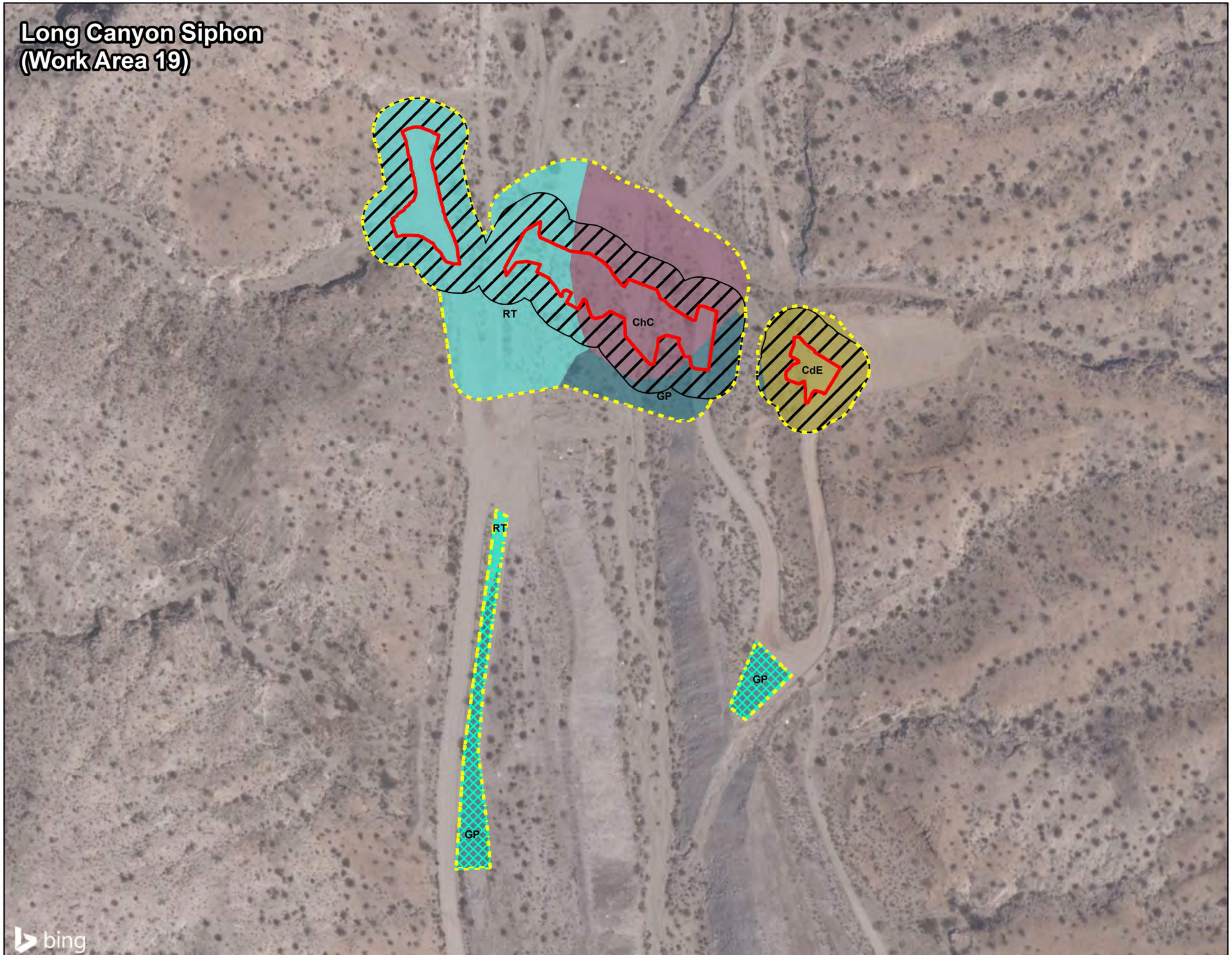
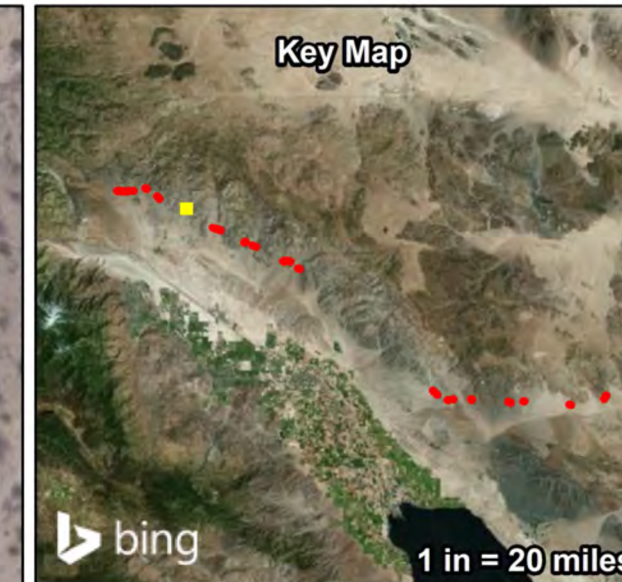
West Wide Canyon Siphon
(Work Area 18)
Key Map
1 in = 200 feet
bing
RO
1 in = 50 feet
CdC
RO
RO / 1250
1250
1 in = 50 feet
Key Map
1 in = 20 miles
Study
Project Footprint
Project Footprint - Temporary
CdC - Carsitas gravelly sand, 0 to 9 percent slopes
RO - Rock outcrop
Coachella Valley Soil Survey: RO - Rock outcrop; Joshua Tree NP Soil Survey: 1250 - Ironlung-Rock outcrop complex, 30 to 75 percent slopes
1250 - Ironlung-Rock outcrop complex, 30 to 75 percent slopes
0 25 50 100
Feet
1 inch = 50 feet
N
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT
Soils Map - Sheet 18 of 24 - West Wide Canyon Siphon
GLENN LUKOS ASSOCIATES
Exhibit 8
X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_18_WestWideCanyonSiphon.mxd





- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- CdE - Carsitas gravelly sand, 9 to 30 percent slopes
- ChC - Carsitas cobbly sand, 2 to 9 percent slopes
- GP - Gravel pits and dumps
- RT - Rock outcrop - Lithic Torripsamments complex

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

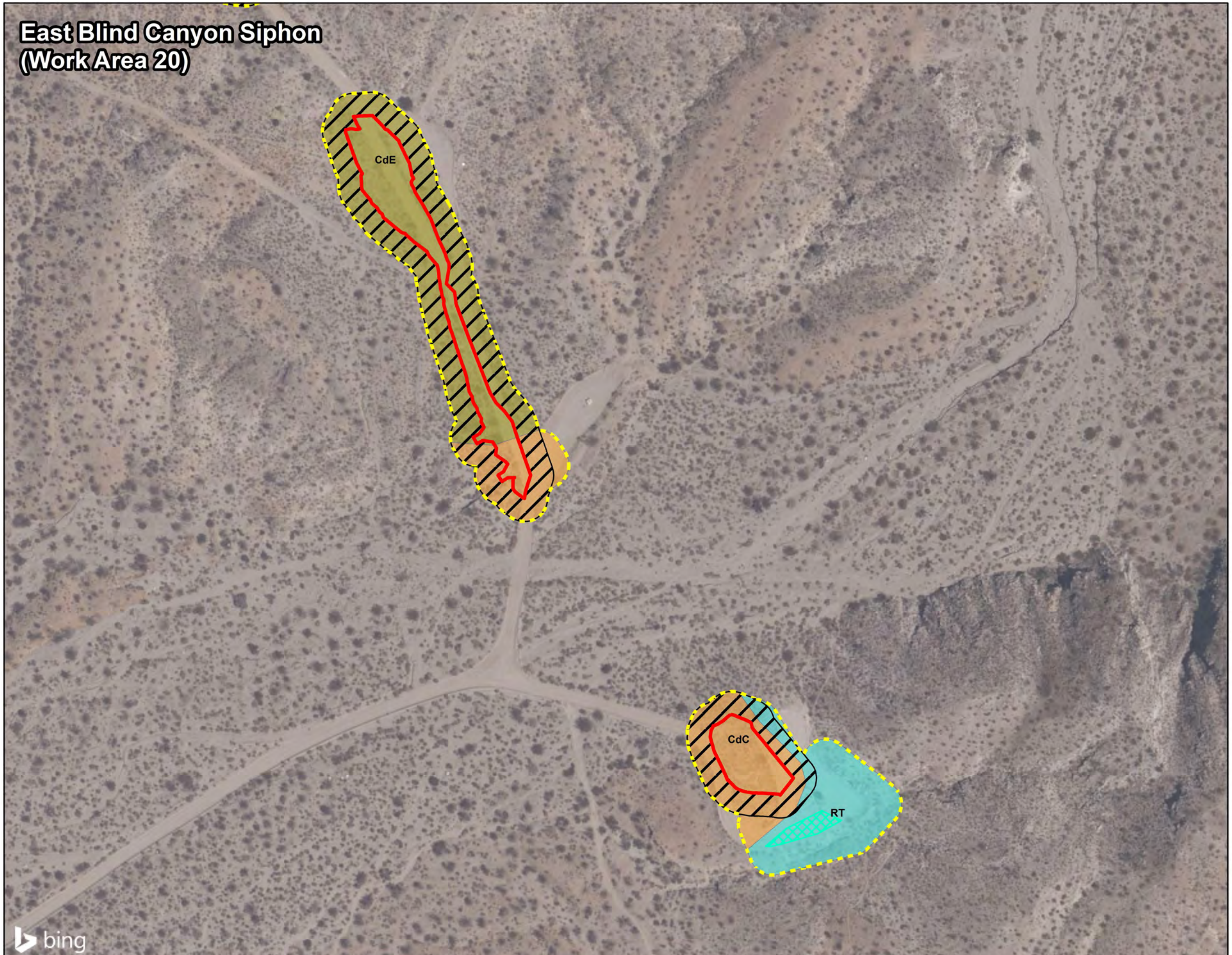
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

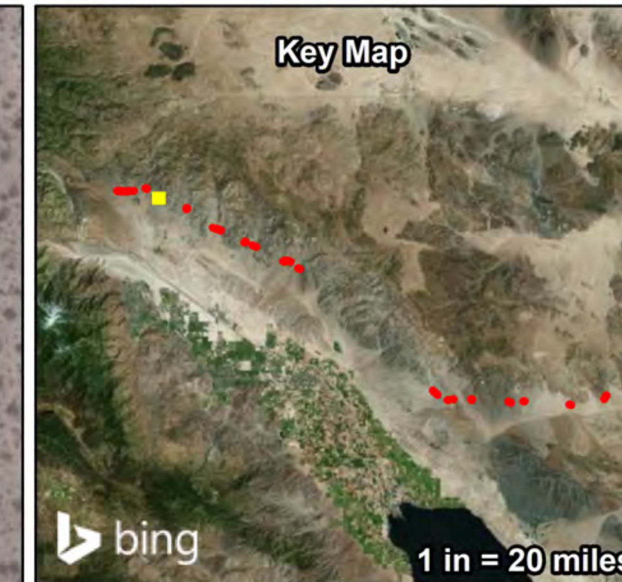
Soils Map - Sheet 19 of 24 - Long Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_19_LongCanyonSiphon.mxd





- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- CdC - Carsitas gravelly sand, 0 to 9 percent slopes
- CdE - Carsitas gravelly sand, 9 to 30 percent slopes
- RT - Rock outcrop - Lithic Torripsamments complex

0 62.5 125 250
Feet

1 inch = 125 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

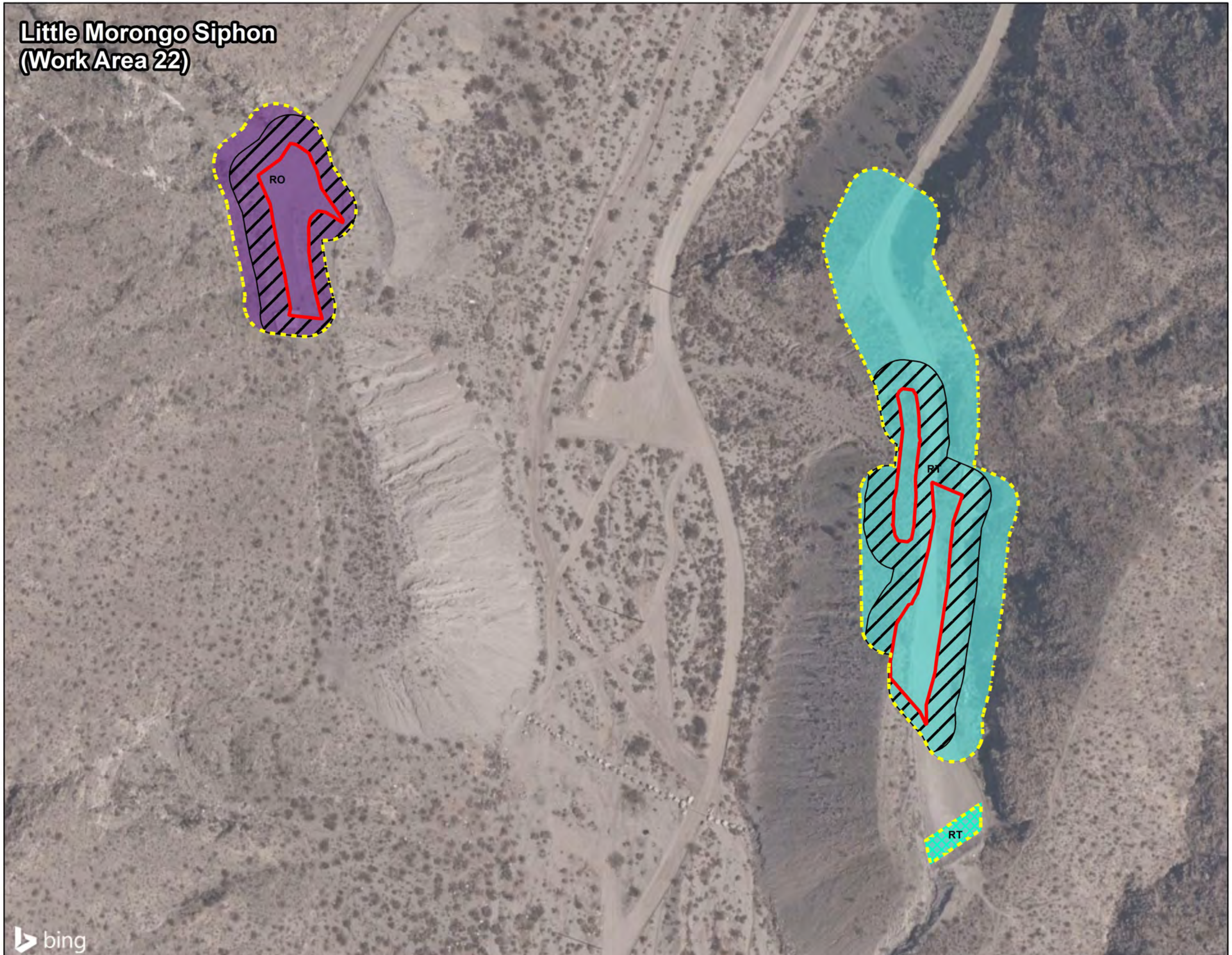
Soils Map - Sheet 20 of 24 - East Blind Canyon Siphon

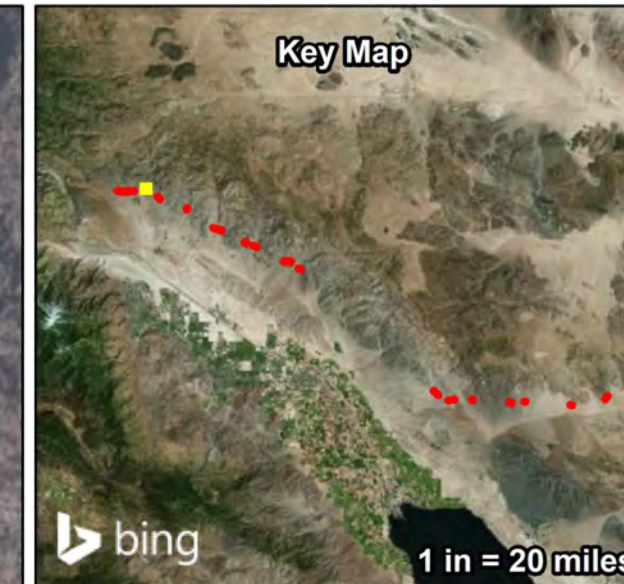
GLENN LUKOS ASSOCIATES

Exhibit 8

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_20_EastBlindCanyonSiphon.mxd

West Blind Canyon Siphon
(Work Area 21)
RT
CdC
CdE
Key Map
bing
1 in = 20 miles
Study Area
Project Footprint
Project Footprint - Temporary
CdC - Carsitas gravelly sand, 0 to 9 percent slopes
CdE - Carsitas gravelly sand, 9 to 30 percent slopes
RT - Rock outcrop - Lithic Torripsamments complex
0 50 100 200
Feet
1 inch = 100 feet
N
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT
Soils Map - Sheet 21 of 24 - West Blind Canyon Siphon
GLENN LUKOS ASSOCIATES
Exhibit 8
X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_21_WestBlindCanyonSiphon.mxd
bing





Study
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
RO - Rock outcrop
RT - Rock outcrop - Lithic Torripsamments complex

0 50 100 200
Feet

1 inch = 100 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

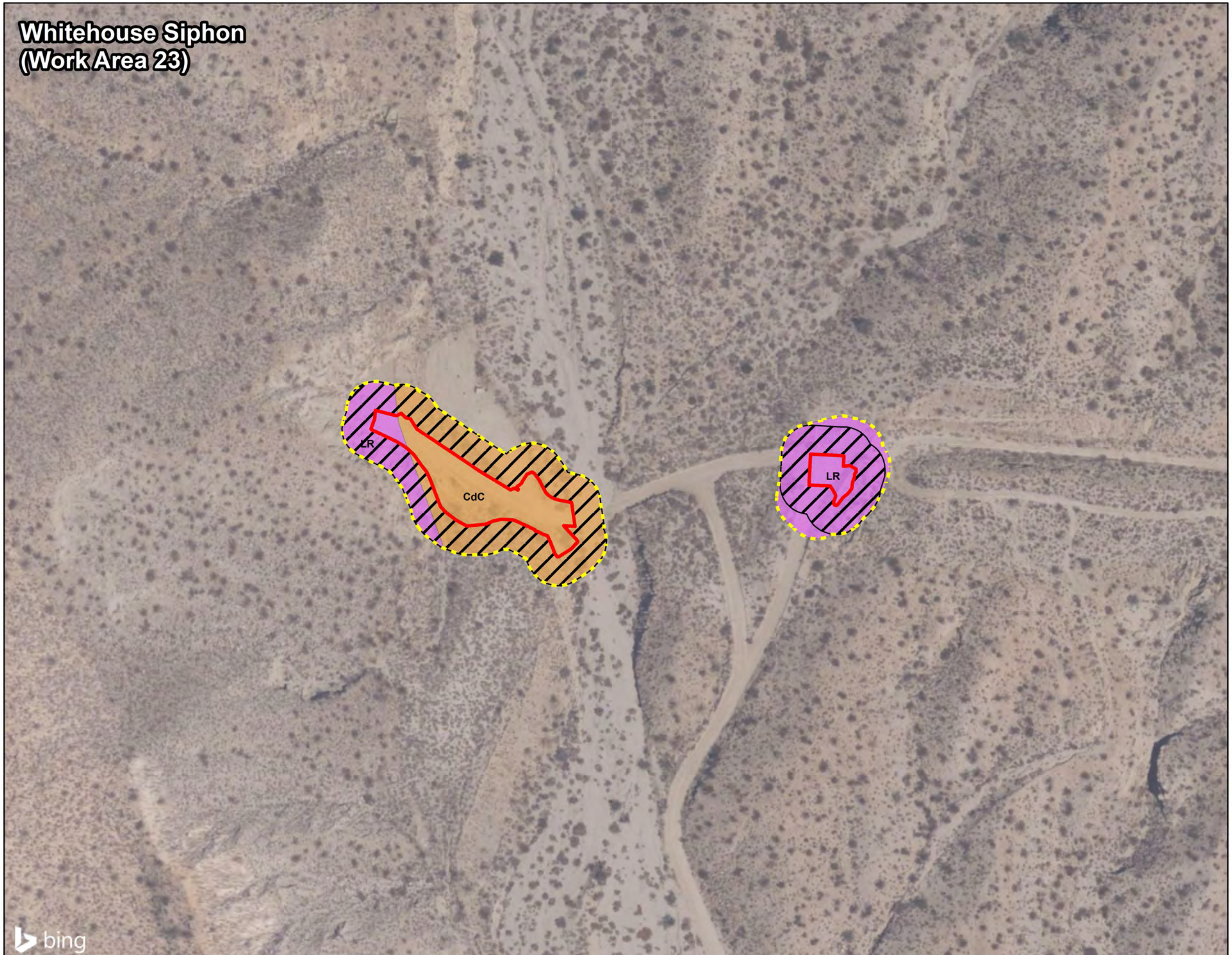
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

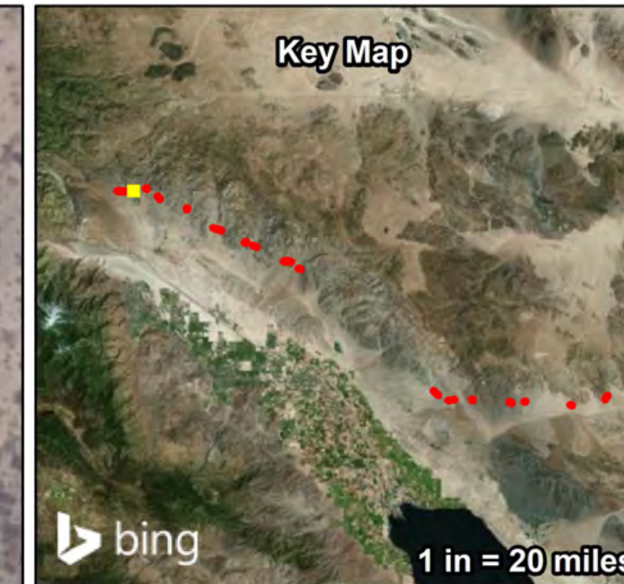
Soils Map - Sheet 22 of 24 - Little Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\SoilsGIS\43-27CRAS_Soils_22_LittleMorongoSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
CdC - Carsitas gravelly sand, 0 to 9 percent slopes
LR - Lithic Torripsamments - Rock outcrop complex

0 50 100 200
Feet

1 inch = 100 feet

N

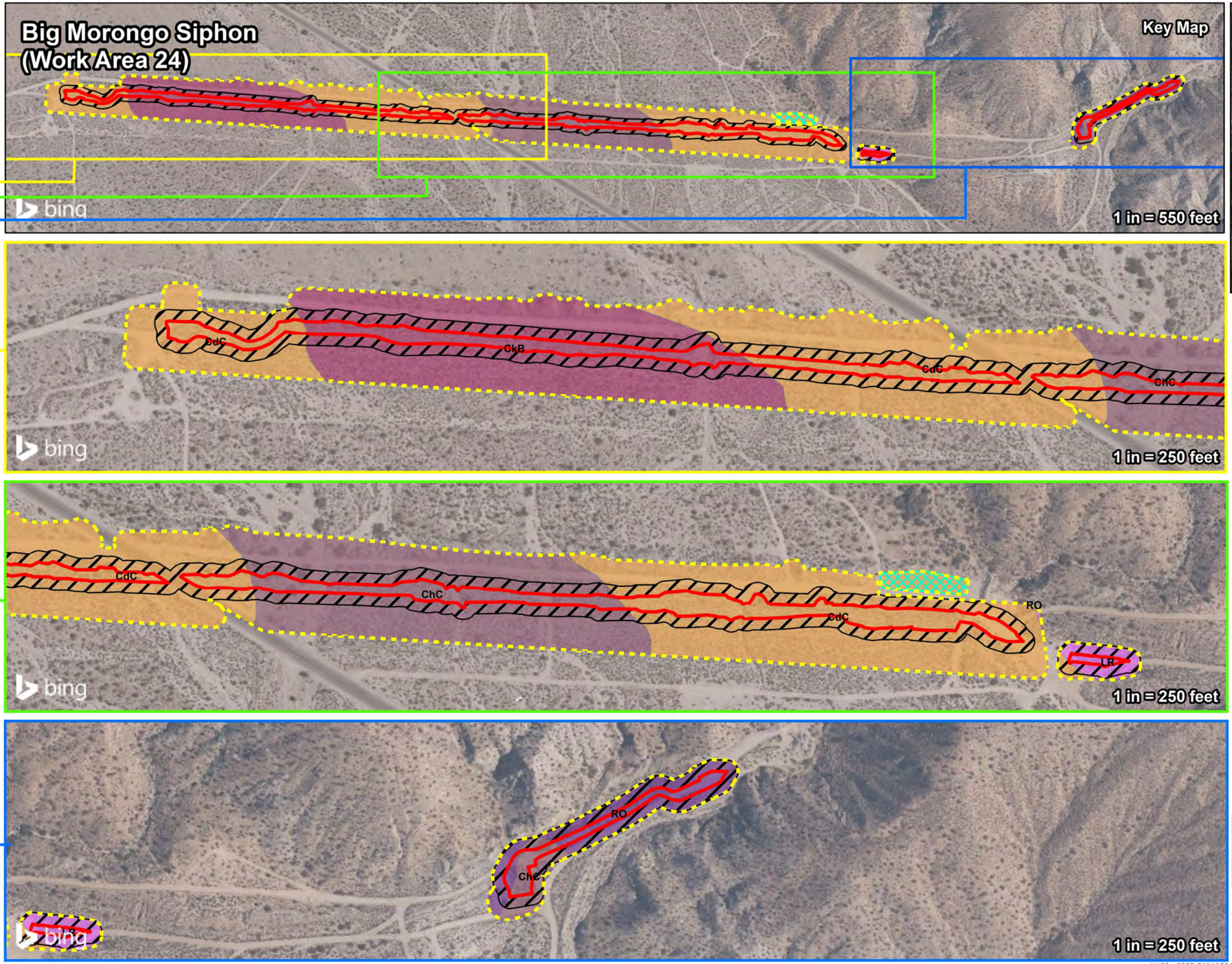
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

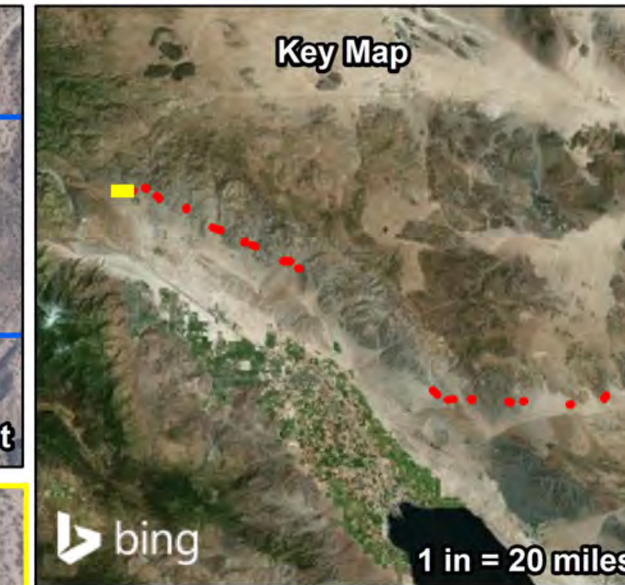
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 23 of 24 - Whitehouse Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8





Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

CdC - Carsitas gravelly sand, 0 to 9 percent slopes

ChC - Carsitas cobbly sand, 2 to 9 percent slopes

CkB - Carsitas fine sand, 0 to 5 percent slopes

LR - Lithic Torripsamments - Rock outcrop complex

RO - Rock outcrop

0 125 250 500

Feet

1 inch = 250 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Soils Map - Sheet 24 of 24 - Big Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 8

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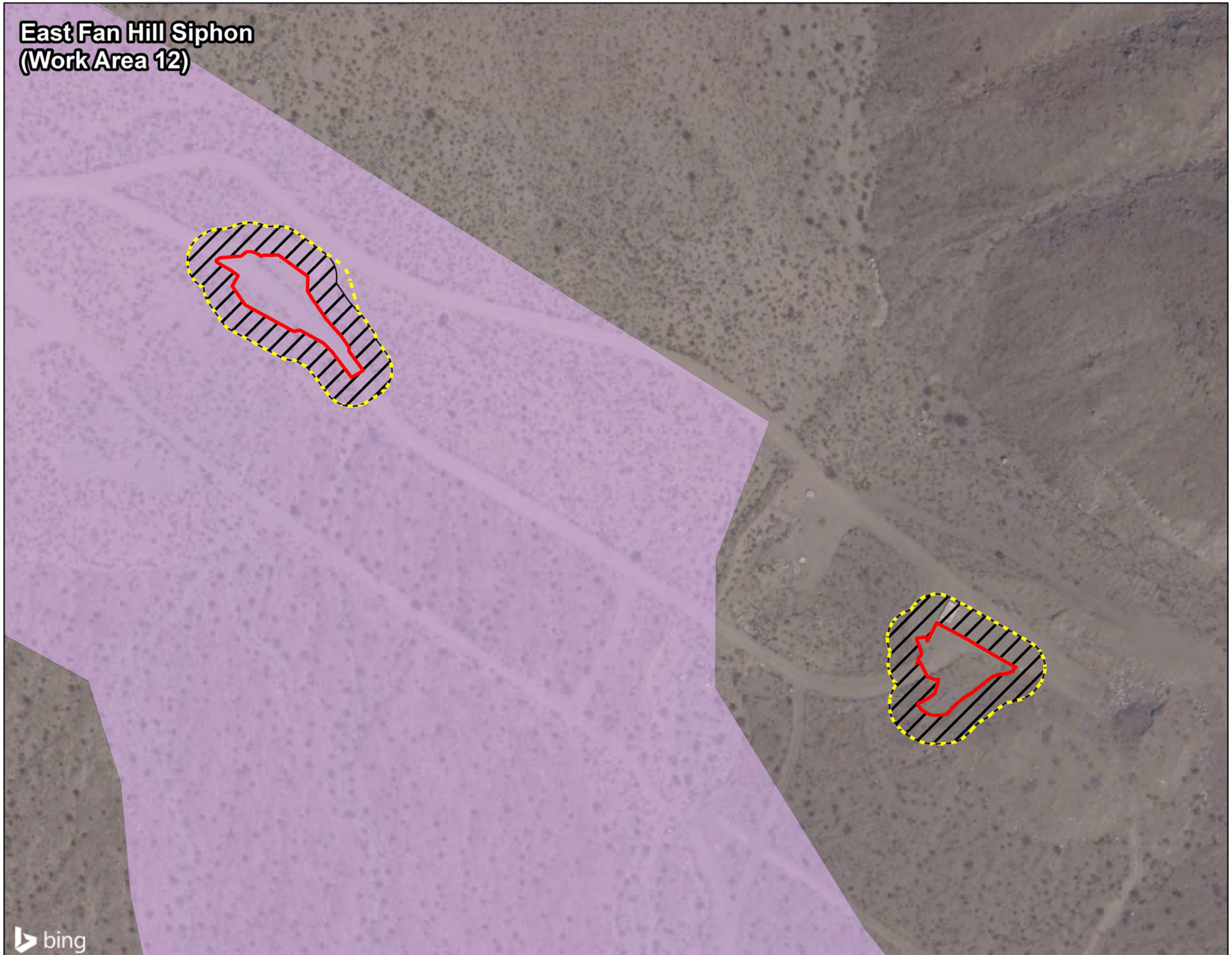
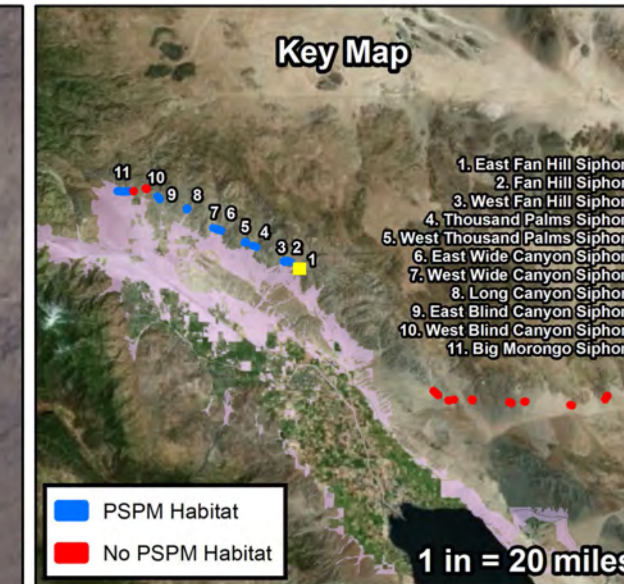




Study Area

Project Footprint

Project Footprint - Temporary

Palm Springs Pocket Mouse Model

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map - Sheet 1 of 11 - East Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\MSHCPGIS\43-27CRAS_MSHCPOverlayPSPM_12_EastFanHillSiphon.mxd

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

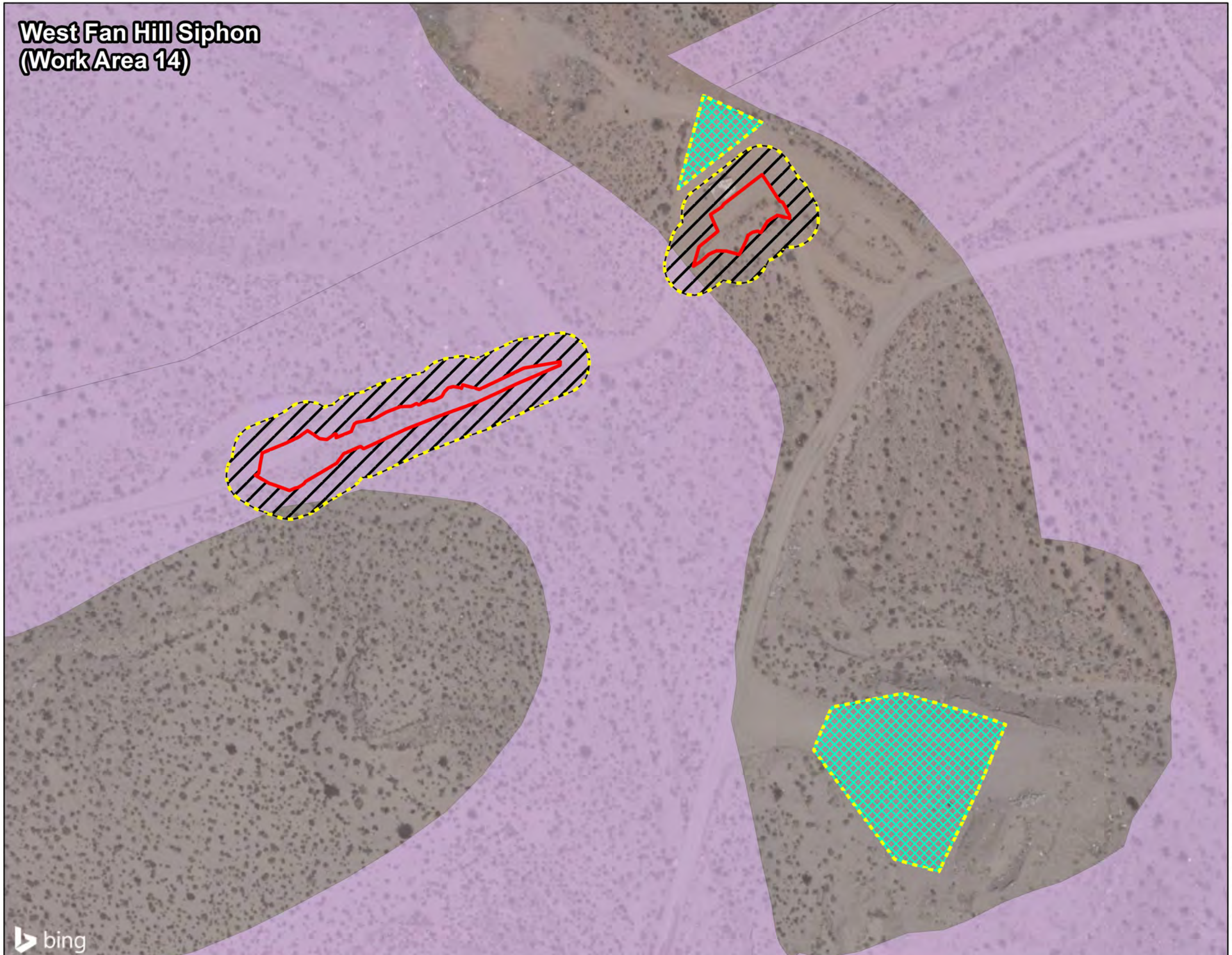
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

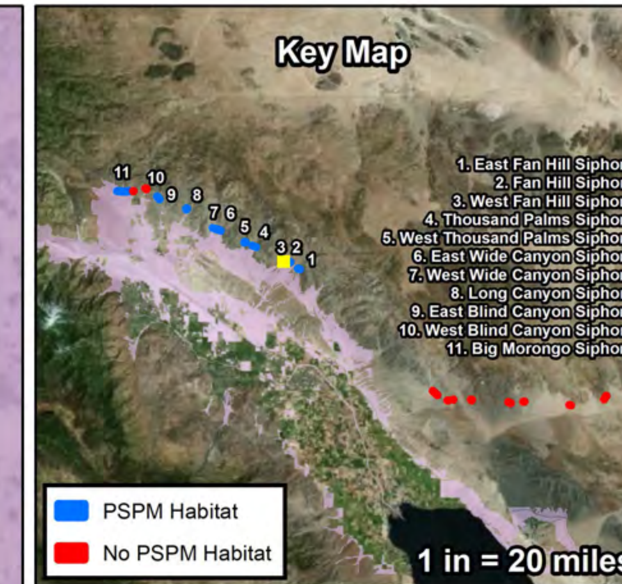
CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map - Sheet 2 of 11 - Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\MSHCPGIS\43-27CRAS_MSHCPOverlayPSPM_13_FanHillSiphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

Palm Springs Pocket Mouse Model

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

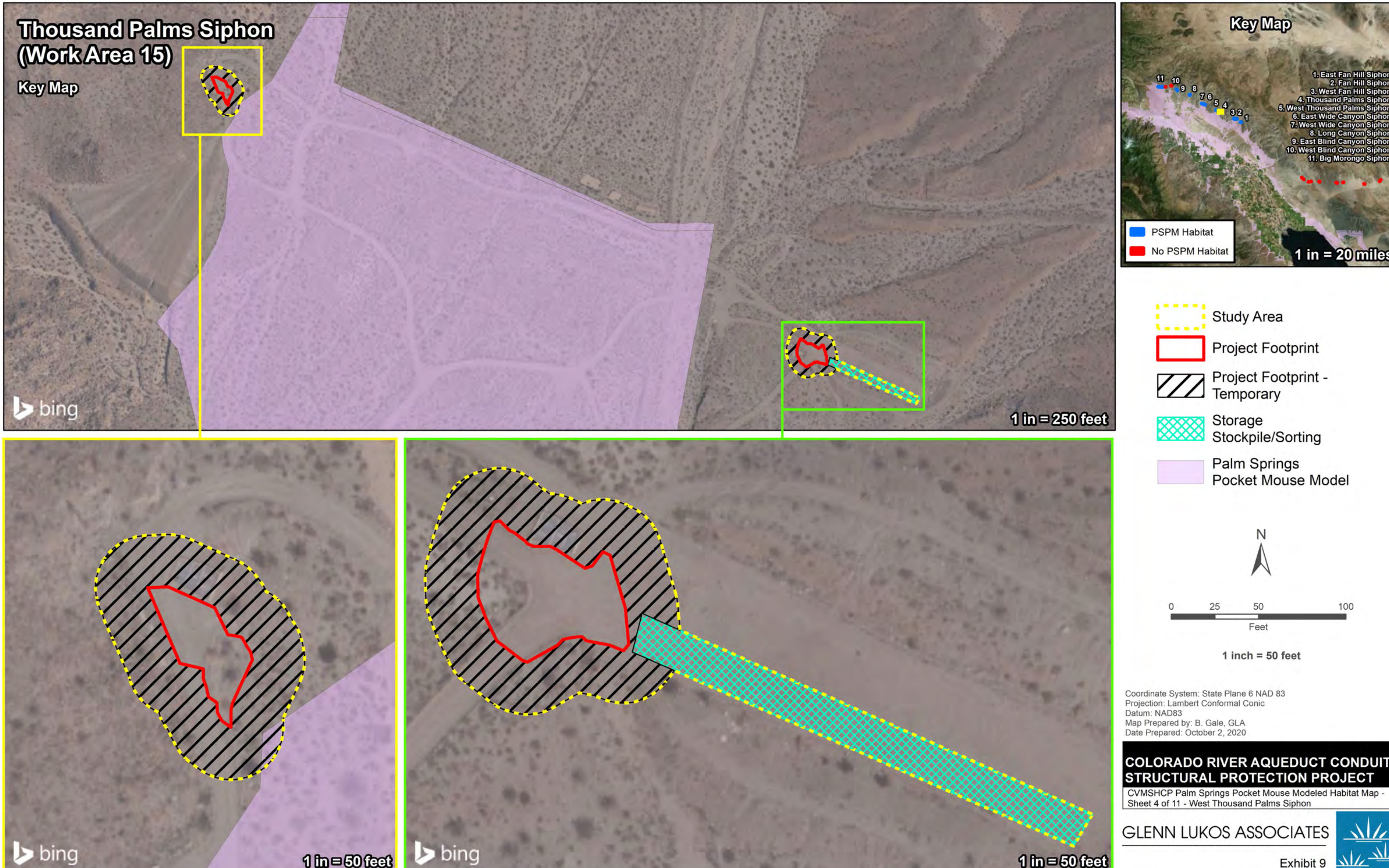
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map - Sheet 3 of 11 - West Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\MSHCPGIS\43-27CRAS_MSHCPOverlayPSPM_14_WestFanHillSiphon.mxd



Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

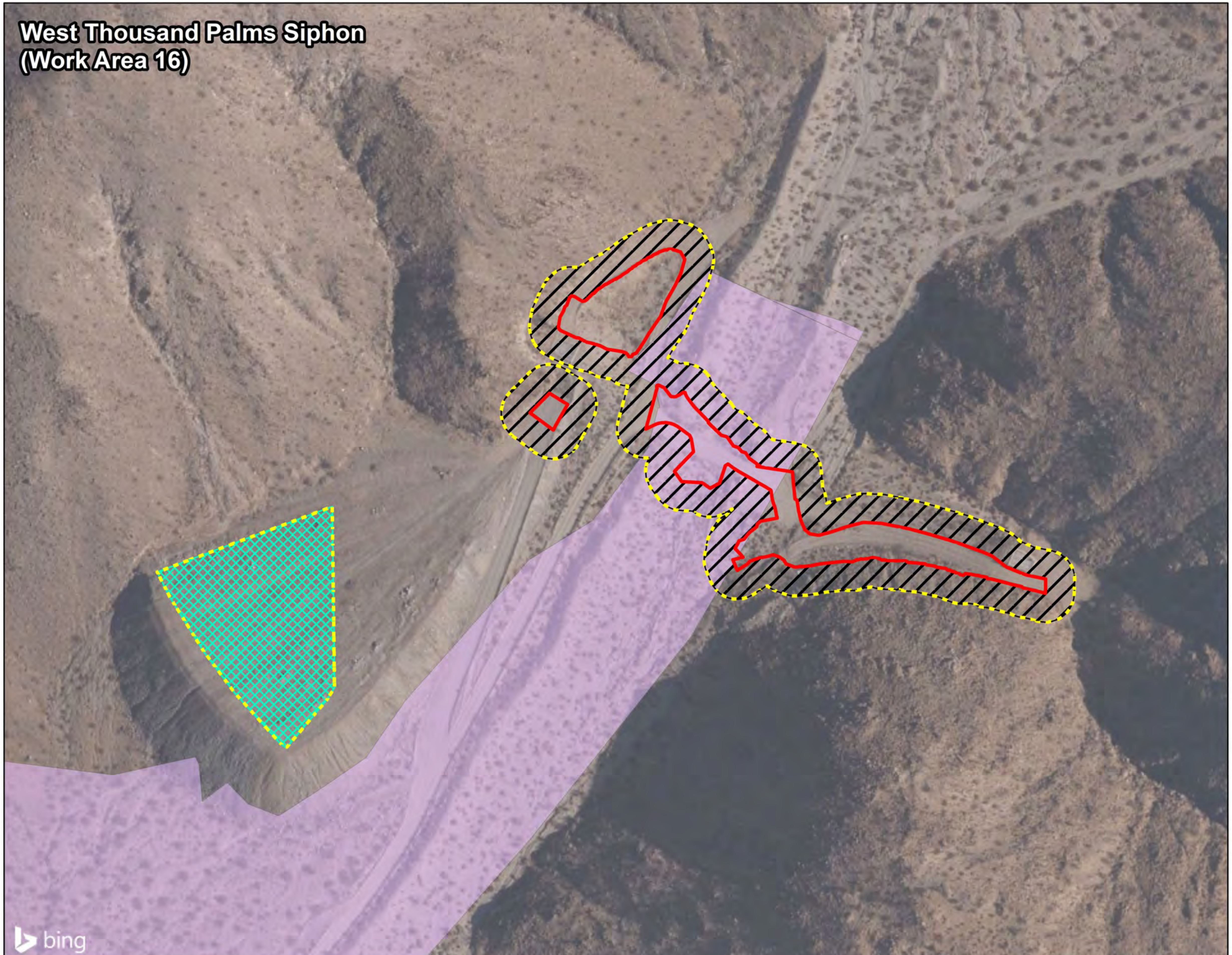
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

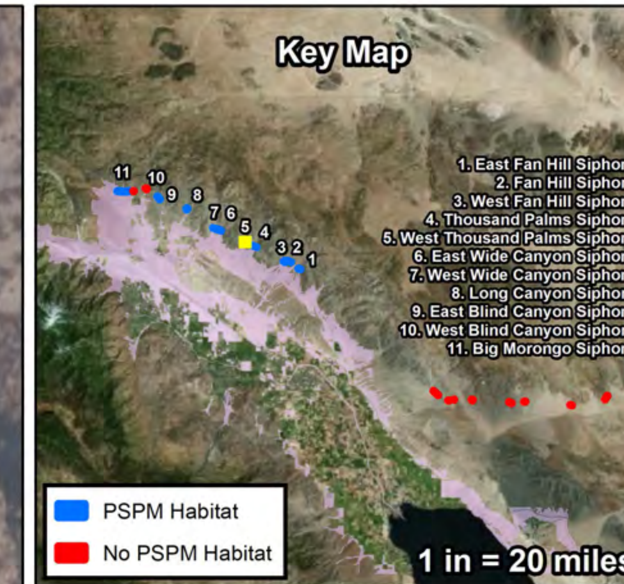
CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map - Sheet 4 of 11 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\MSHCPGIS\43-27CRAS_MSHCPOverlayPSPM_15_ThousandPalmsSiphon.mxd





Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

Palm Springs Pocket Mouse Model

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

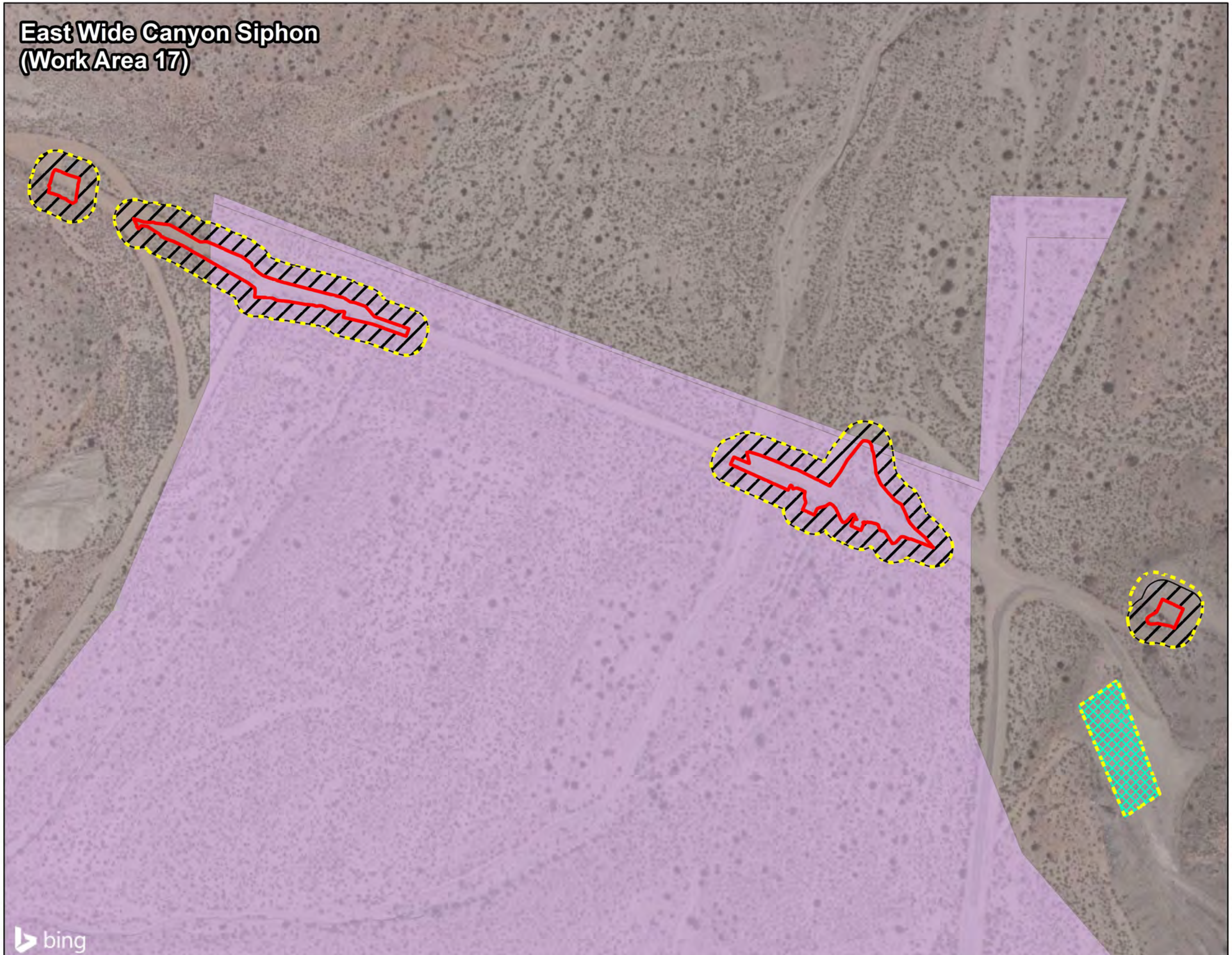
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

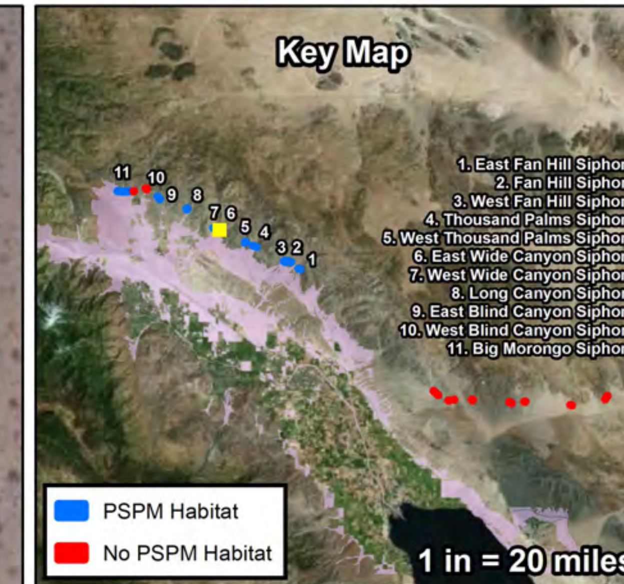
CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map - Sheet 5 of 11 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\MSHCPGIS\43-27CRAS_MSHCPOverlayPSPM_16_WestThousandPalmsSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Palm Springs Pocket Mouse Model

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map - Sheet 6 of 11 - East Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 9

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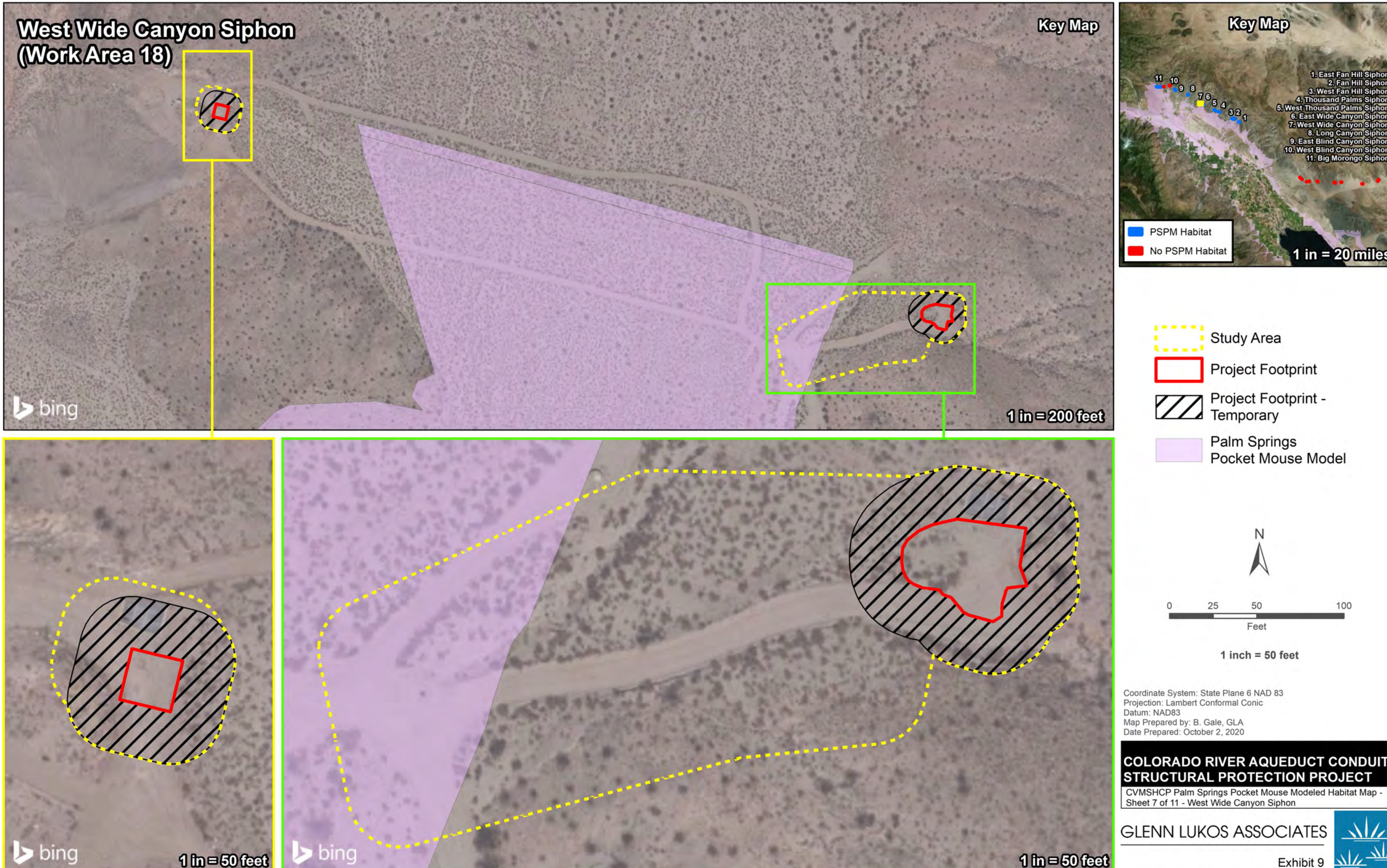

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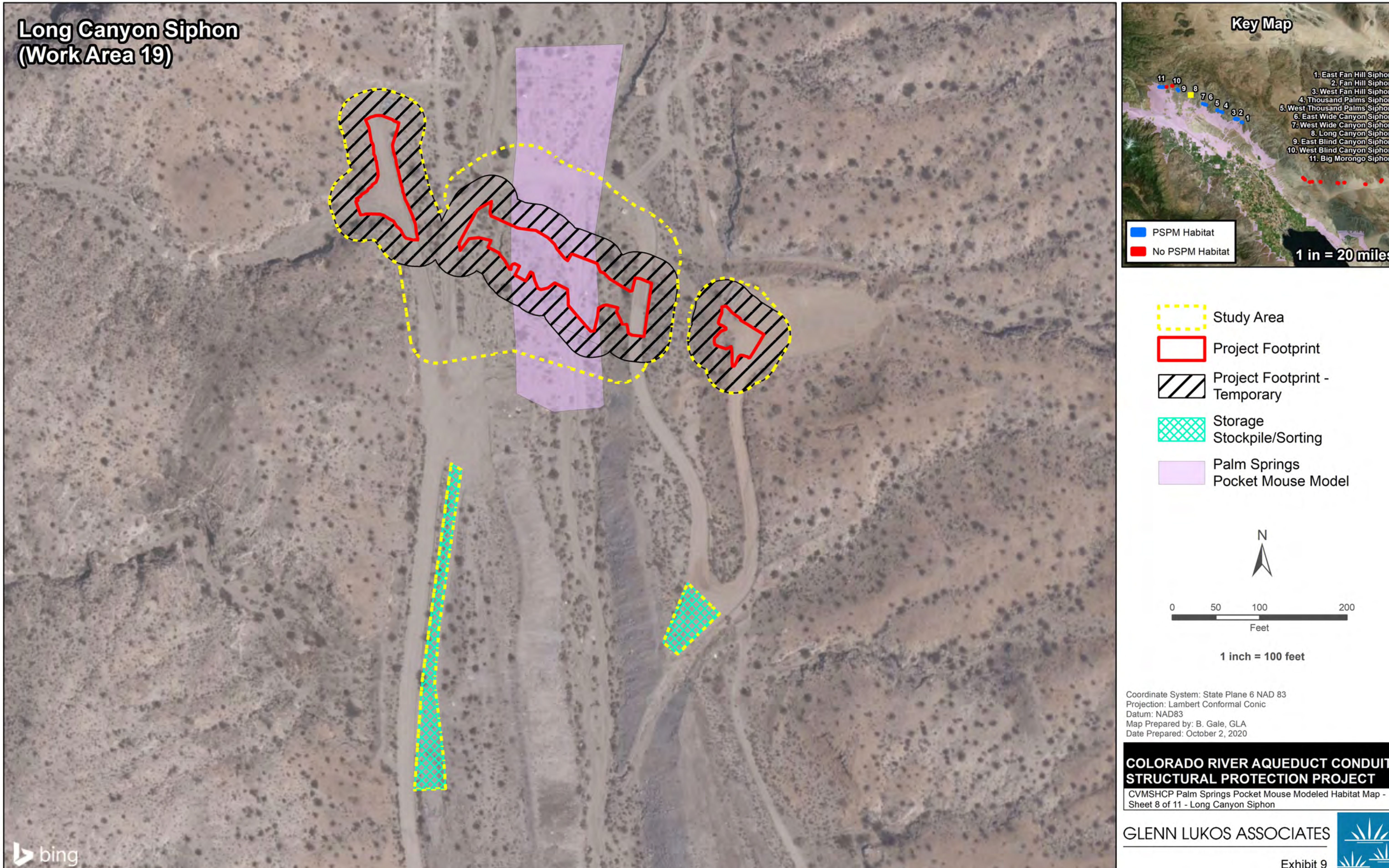

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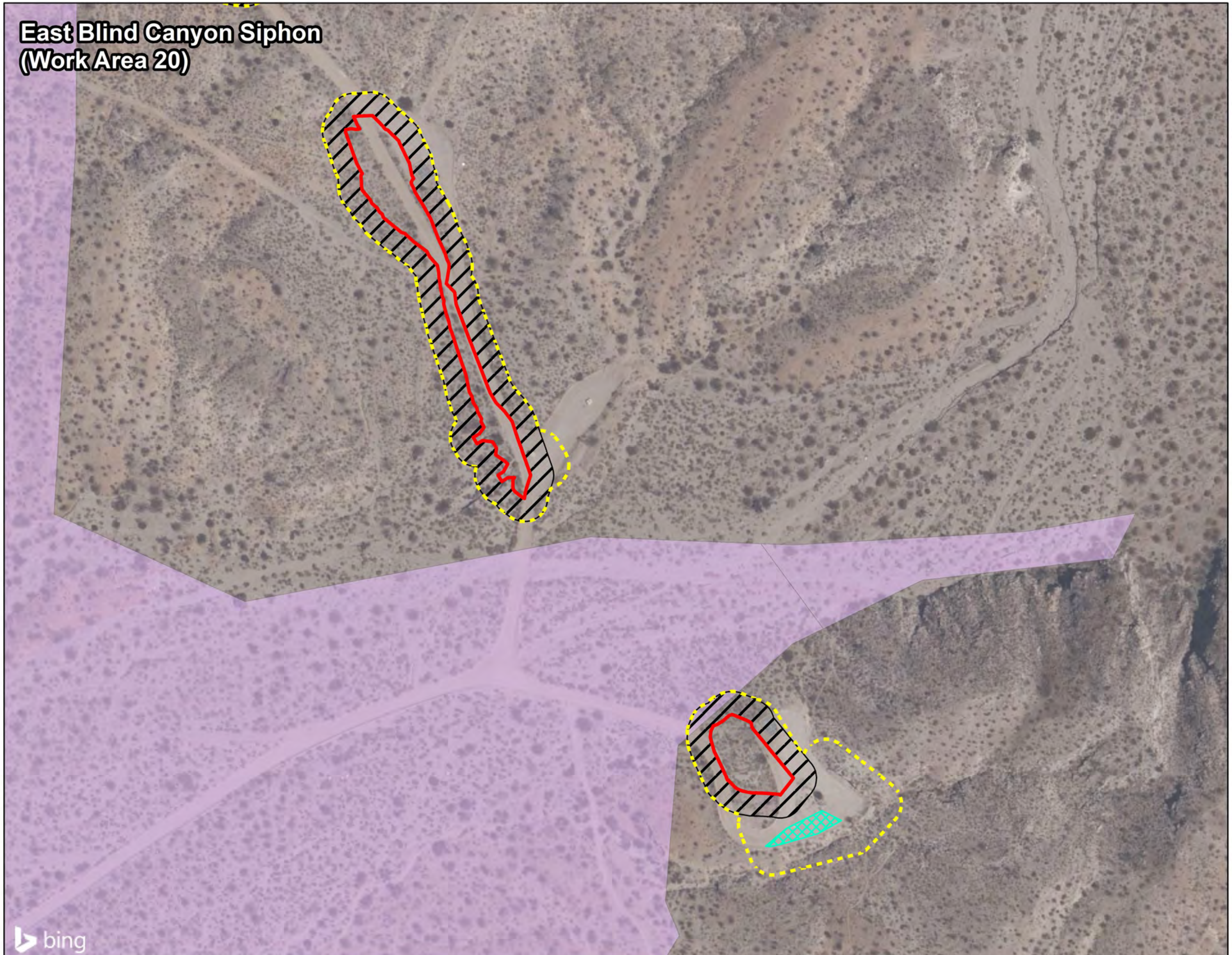
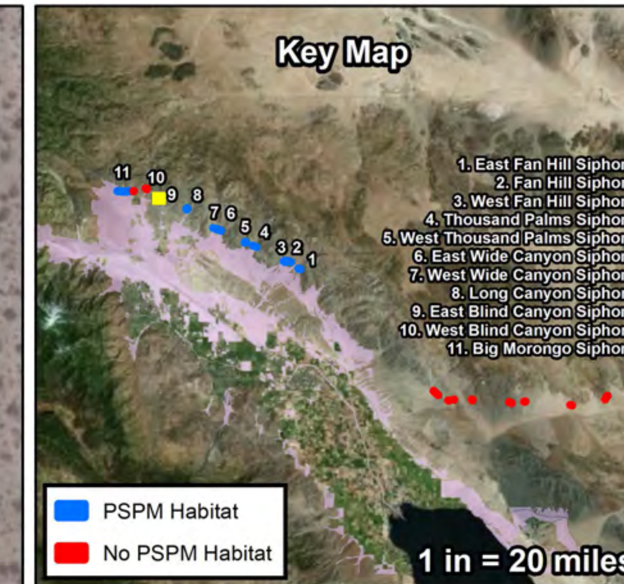




Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

Palm Springs Pocket Mouse Model

N

0 62.5 125 250

Feet

1 inch = 125 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

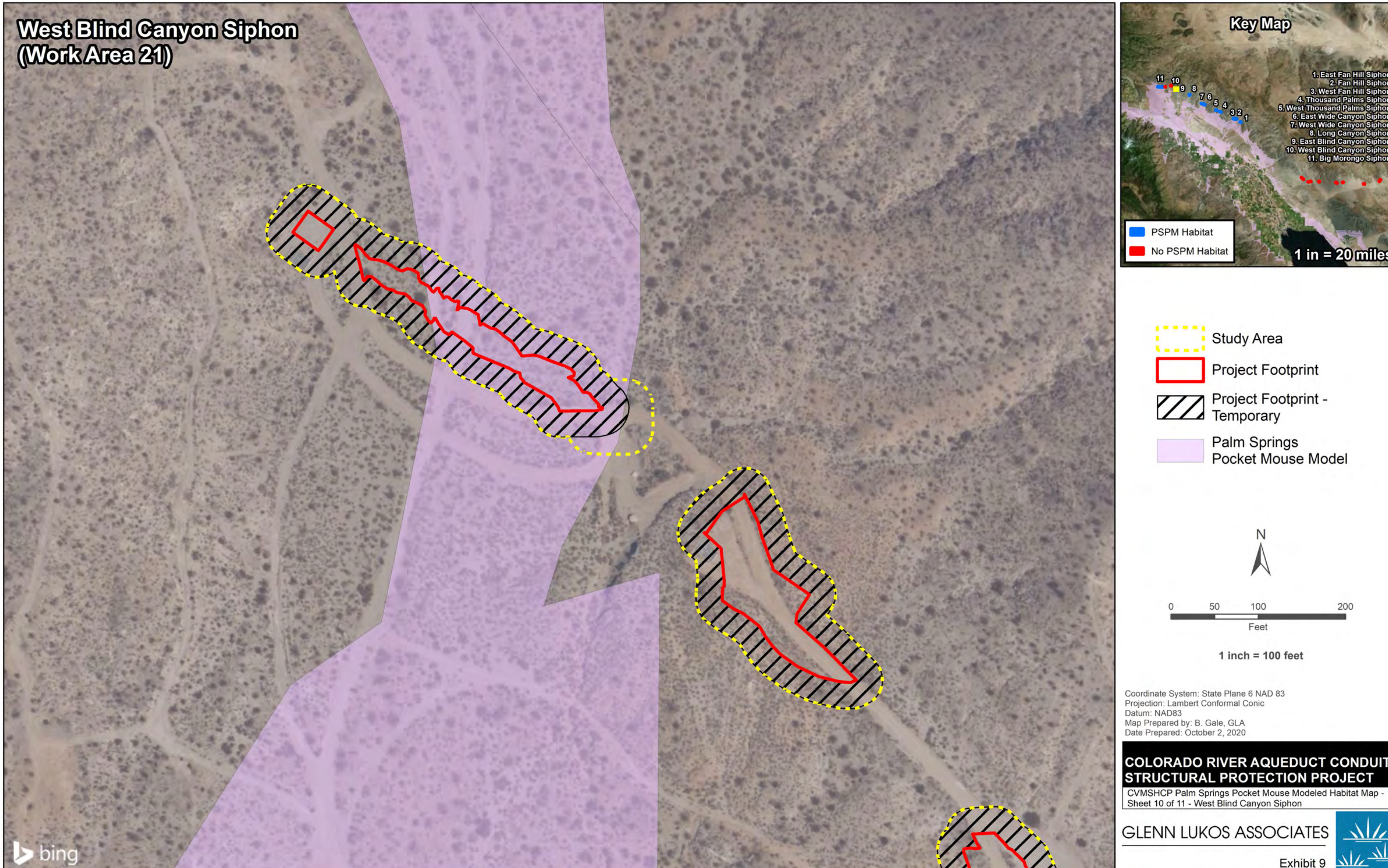
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map - Sheet 9 of 11 - East Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\MSHCPGIS\43-27CRAS_MSHCPOverlayPSPM_20_EastBlindCanyonSiphon.mxd



Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map - Sheet 10 of 11 - West Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 9

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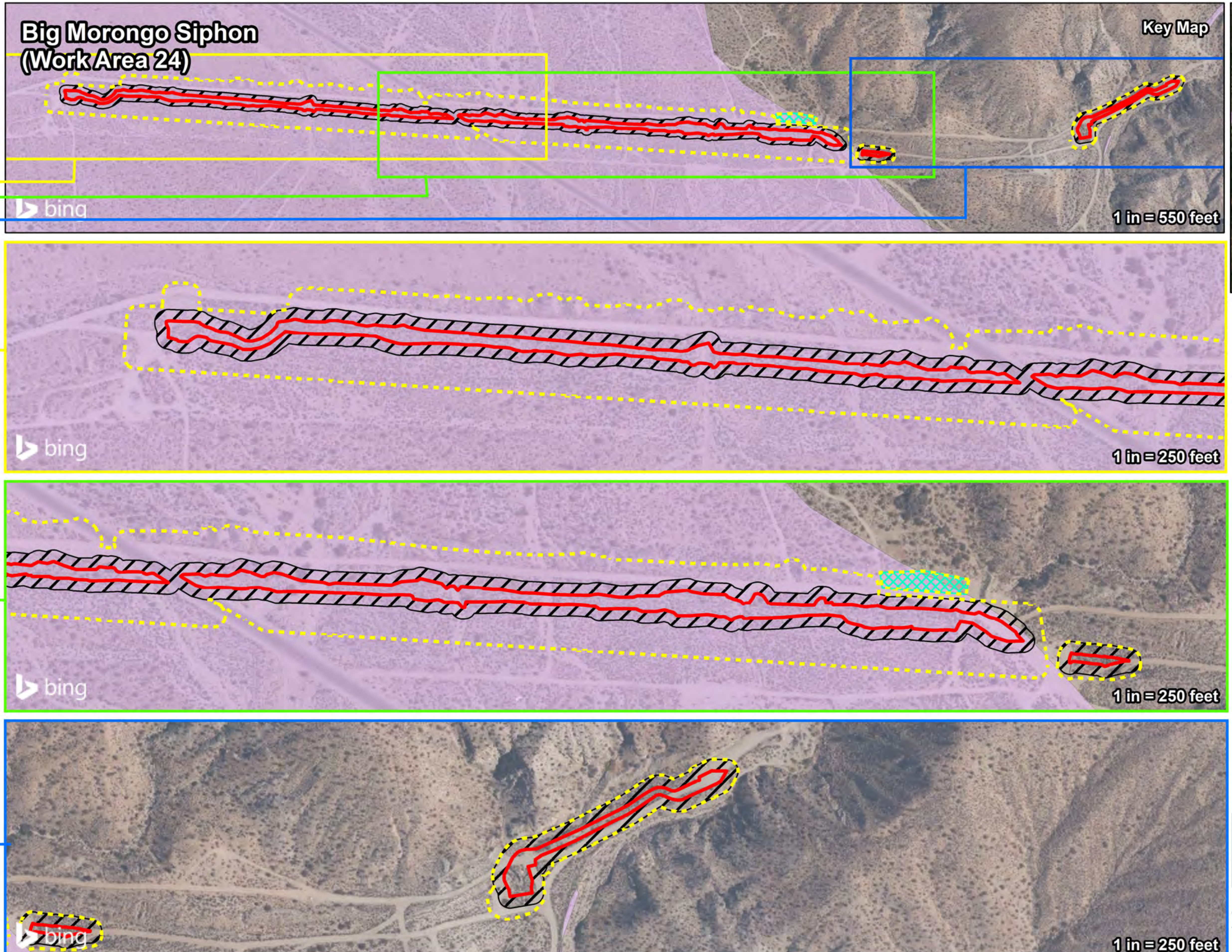
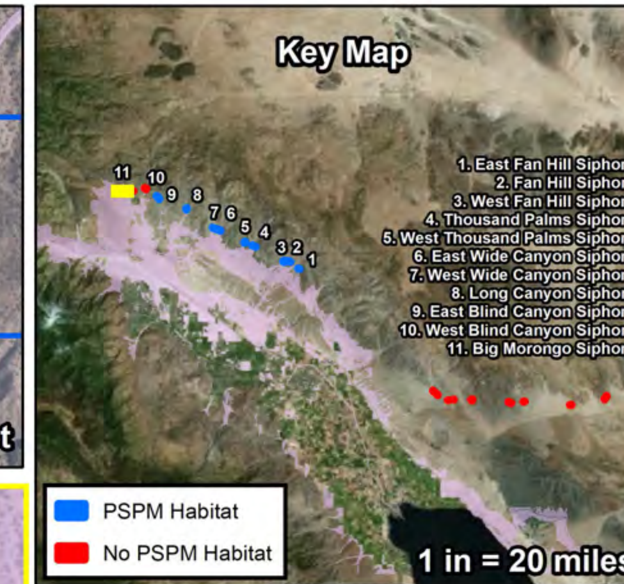




Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

Palm Springs Pocket Mouse Model

N

0 125 250 500

Feet

1 inch = 250 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 2, 2020

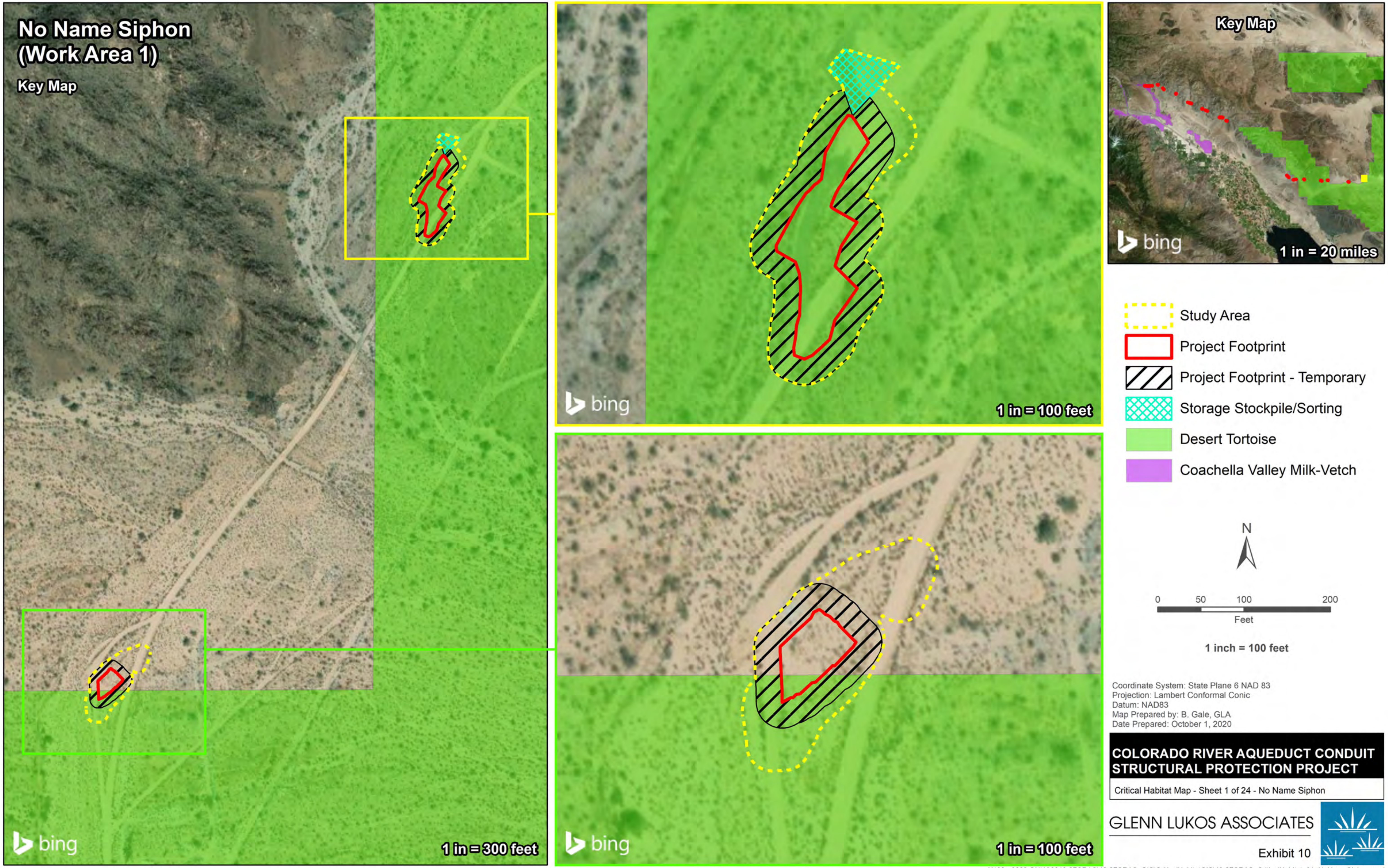
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

CVMSHCP Palm Springs Pocket Mouse Modeled Habitat Map - Sheet 11 of 11 - Big Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\MSHCPGIS\43-27CRAS_MSHCPOverlayPSPM_24_BigMorongoSiphon.mxd



No Name Siphon
(Work Area 1)
Key Map
bing
1 in = 300 feet
bing
1 in = 100 feet
bing
1 in = 100 feet
Key Map
bing
1 in = 20 miles
Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch
N
0
50
100
200
Feet
1 inch = 100 feet
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT
Critical Habitat Map - Sheet 1 of 24 - No Name Siphon
GLENN LUKOS ASSOCIATES
Exhibit 10
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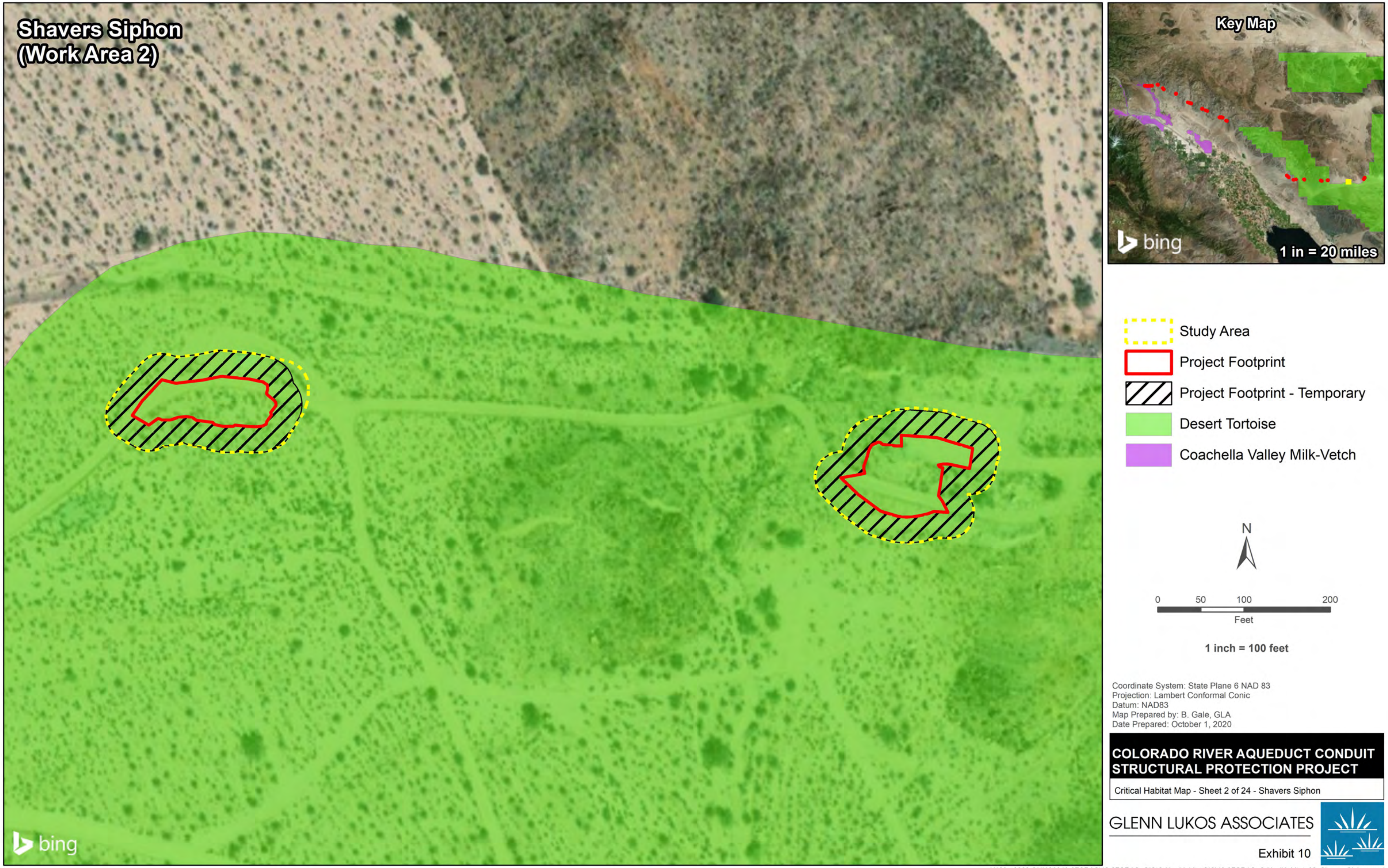

Shavers Siphon
(Work Area 2)
bing
Key Map
bing
1 in = 20 miles
Study Area
Project Footprint
Project Footprint - Temporary
Desert Tortoise
Coachella Valley Milk-Vetch
N
0
50
100
200
Feet
1 inch = 100 feet
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT
Critical Habitat Map - Sheet 2 of 24 - Shavers Siphon
GLENN LUKOS ASSOCIATES
Exhibit 10
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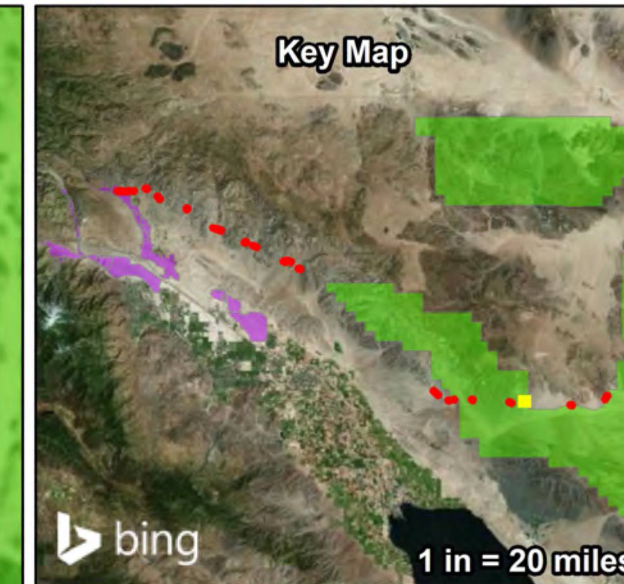


Study Area
Project Footprint
Project Footprint - Temporary
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

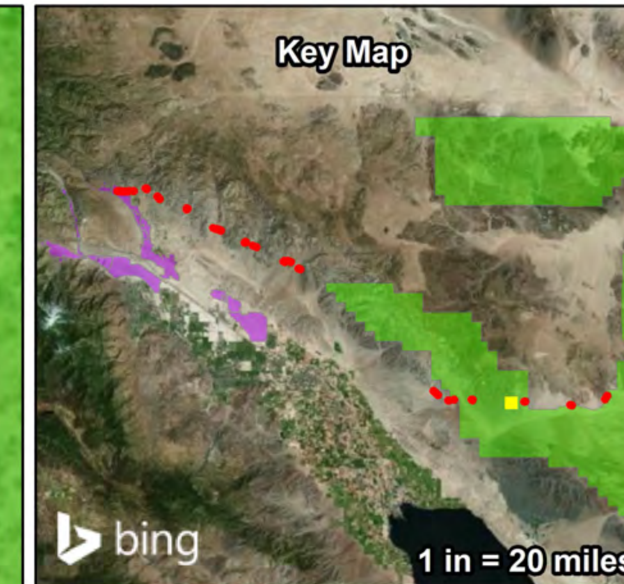
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 3 of 24 - Cottonwood Springs Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_03_CottonwoodSpringsSiphon.mxd



- Study Area
- Project Footprint
- Project Footprint - Temporary
- Desert Tortoise
- Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

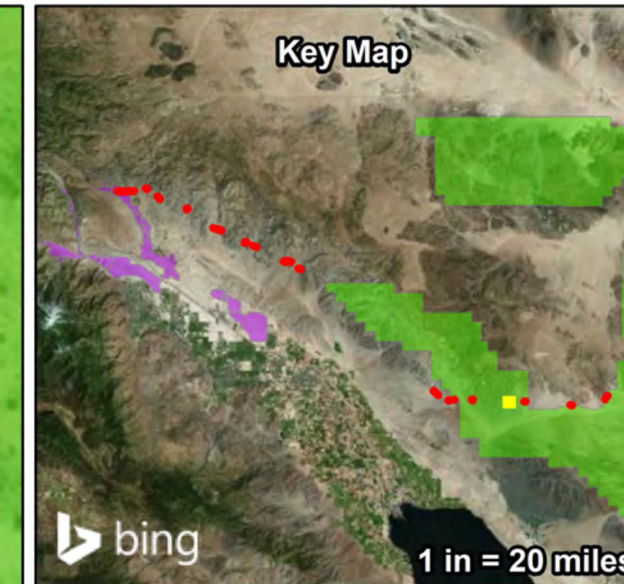
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 4 of 24 - East Cottonwood No. 1 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_04_EastCottonwoodNo1Siphon.mxd



Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

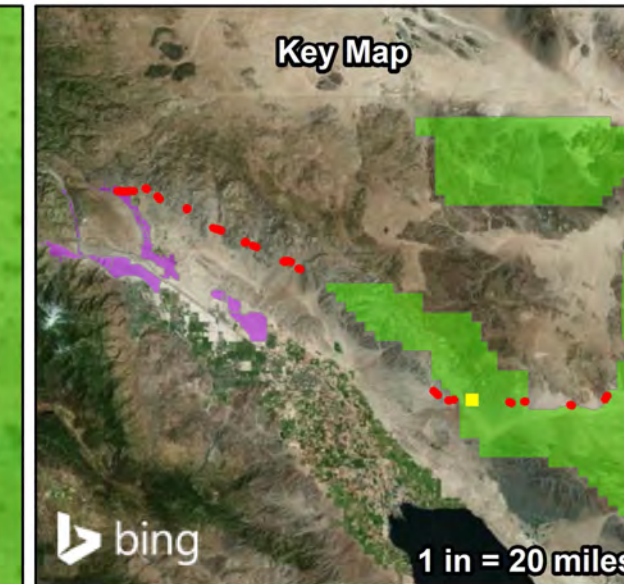
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 5 of 24 - East Cottonwood No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_05_EastCottonwoodNo2Siphon.mxd



Study Area

Project Footprint

Project Footprint - Temporary

Storage Stockpile/Sorting

Desert Tortoise

Coachella Valley Milk-Vetch

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 6 of 24 - End Wash Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

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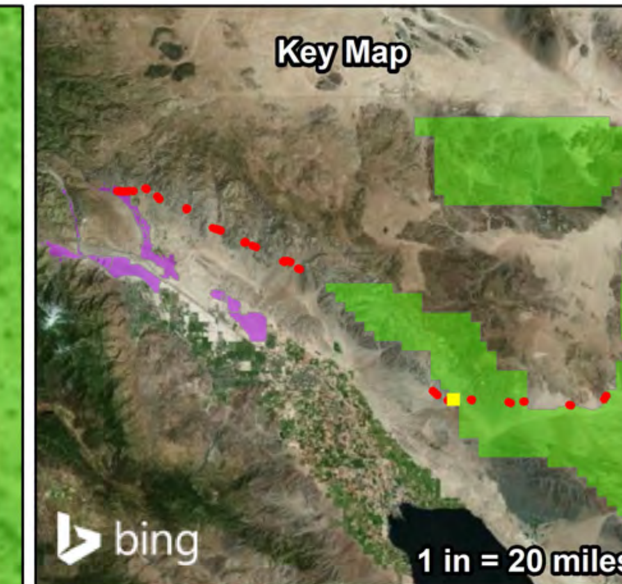


Study Area
Project Footprint
Project Footprint - Temporary
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

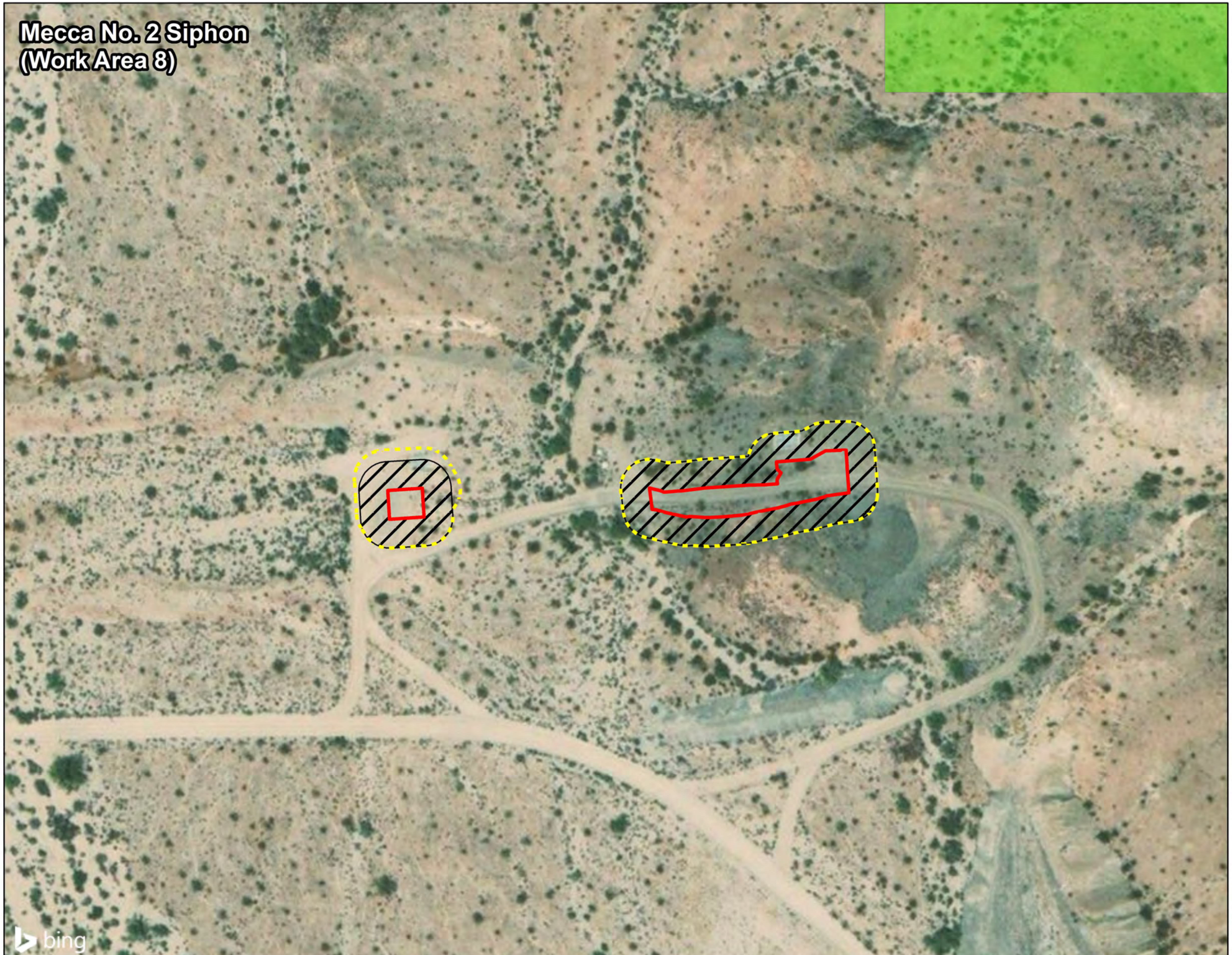
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

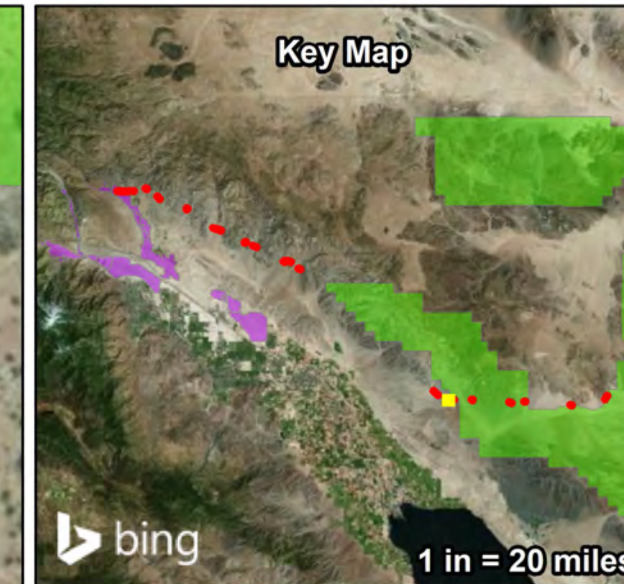
Critical Habitat Map - Sheet 7 of 24 - Mecca No. 1 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_07_MeccaNo1Siphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 8 of 24 - Mecca No. 2 Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

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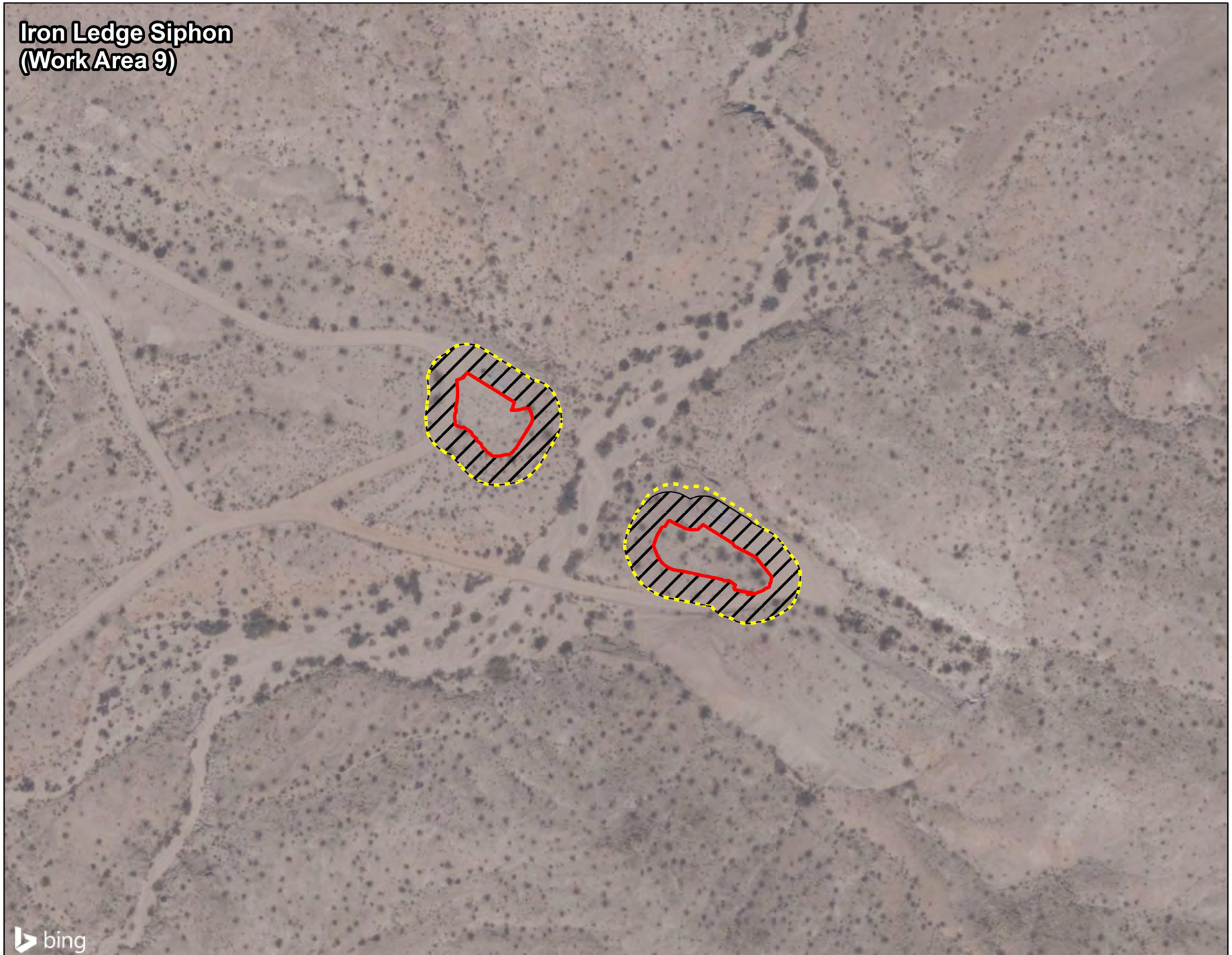
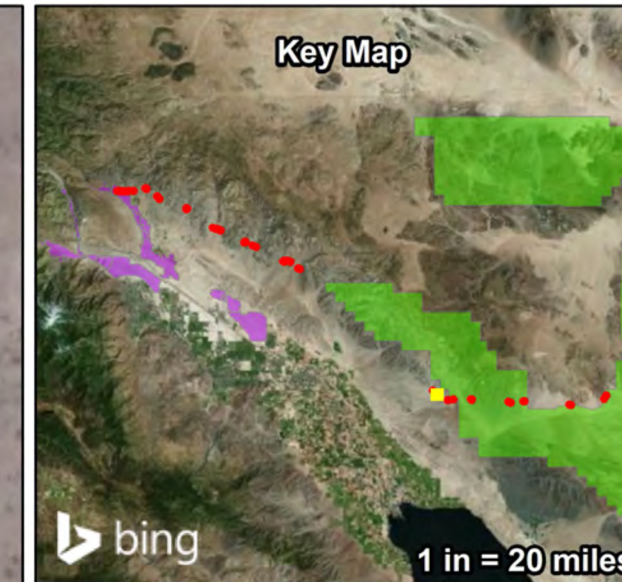




Study Area
Project Footprint
Project Footprint - Temporary
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

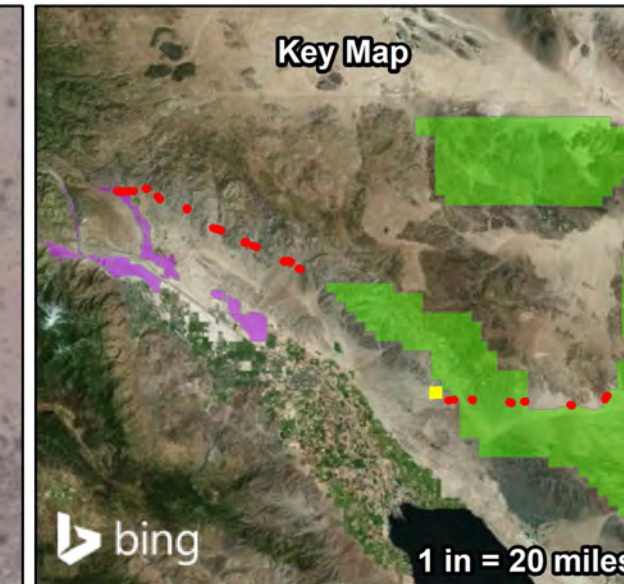
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 9 of 24 - Iron Ledge Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10



- Study Area
- Project Footprint
- Project Footprint - Temporary
- Desert Tortoise
- Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 10 of 24 - East Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

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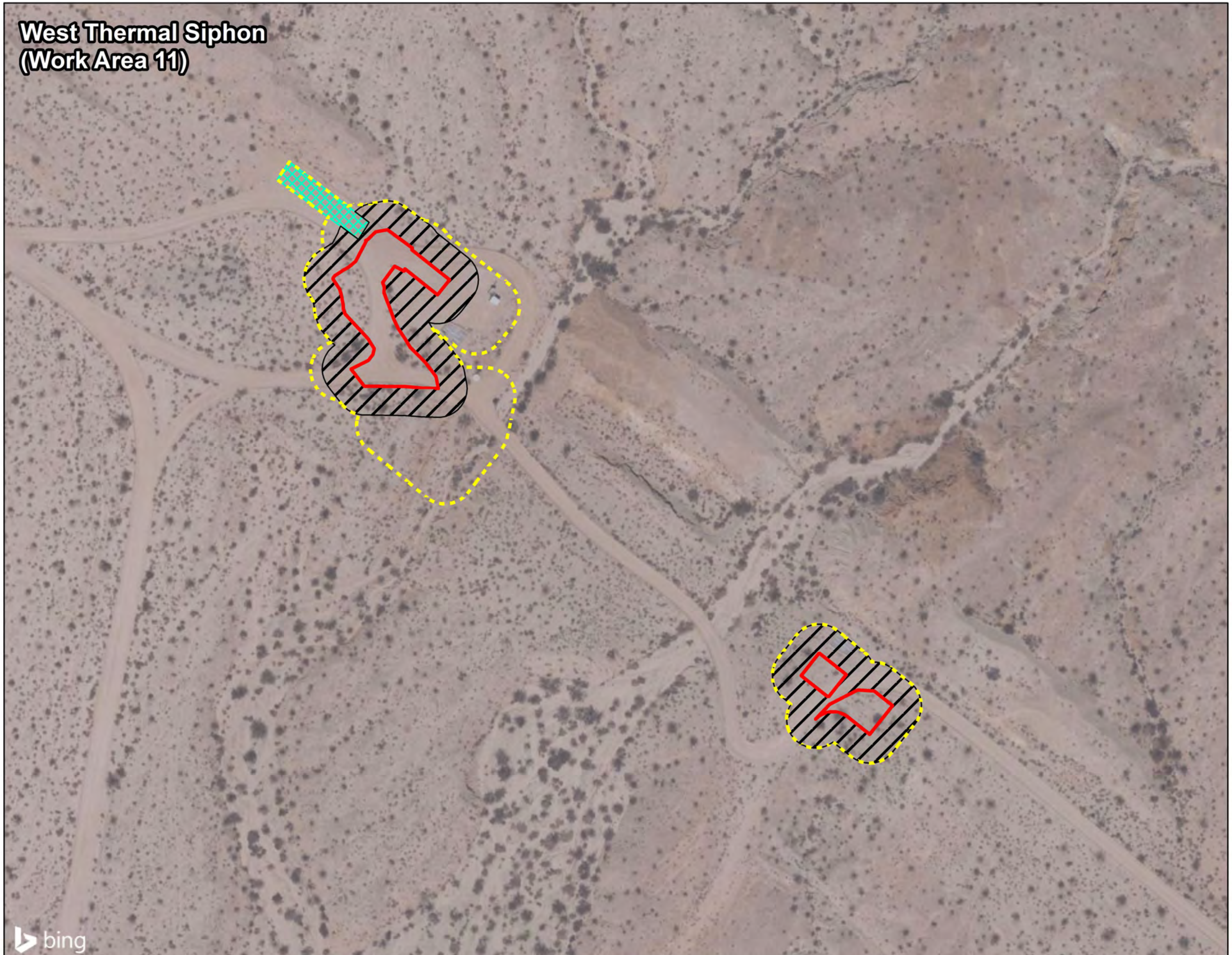

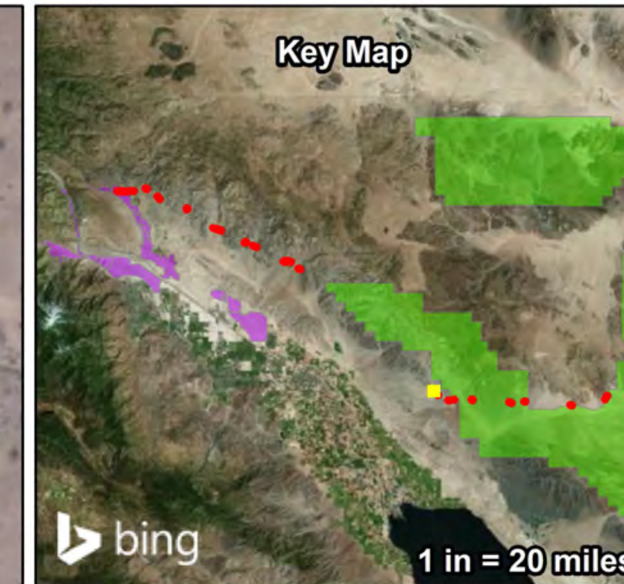

Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 11 of 24 - West Thermal Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

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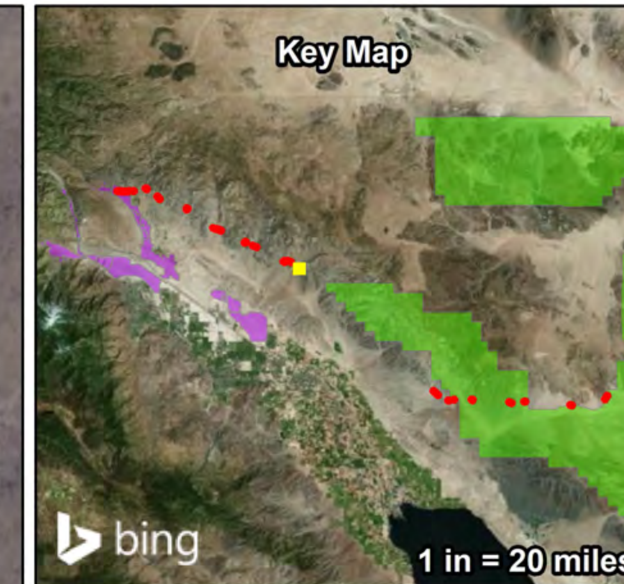


Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

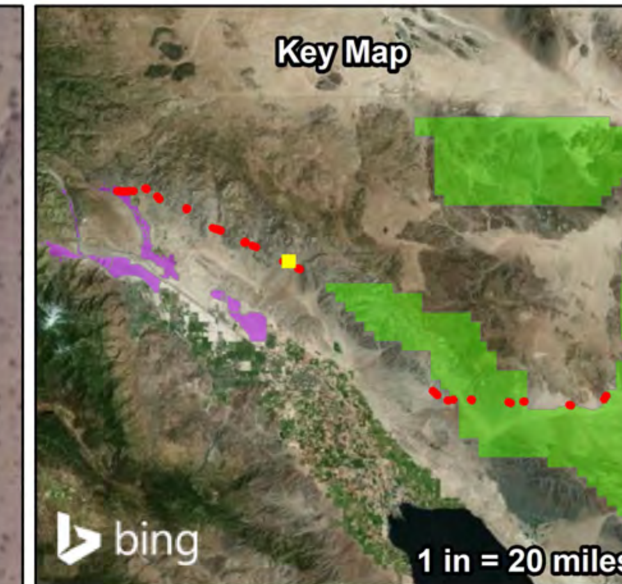
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 12 of 24 - East Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_12_EastFanHillSiphon.mxd



Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 13 of 24 - Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

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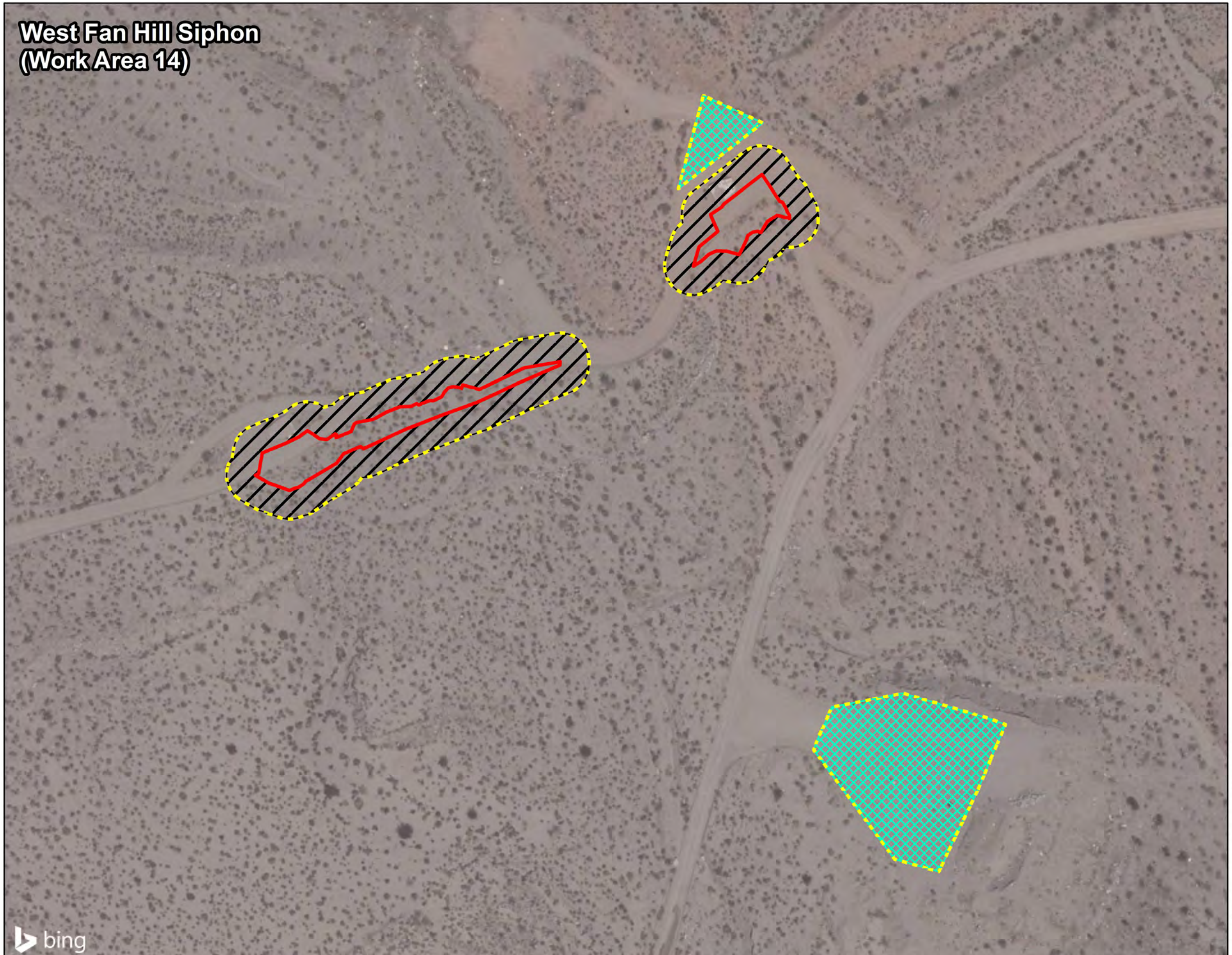
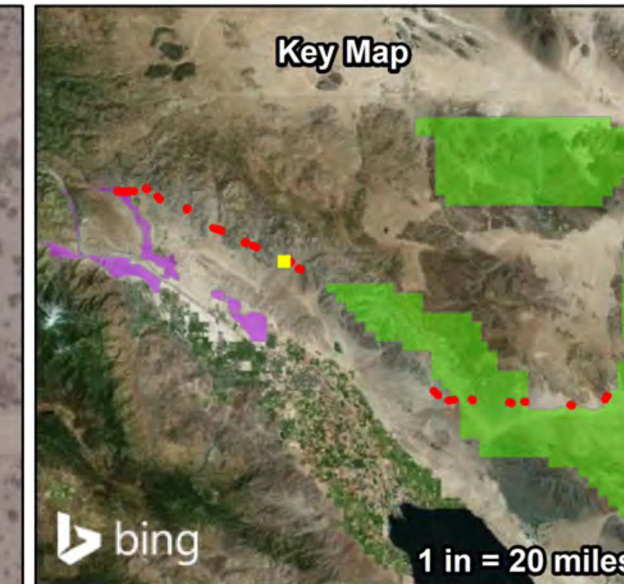




Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

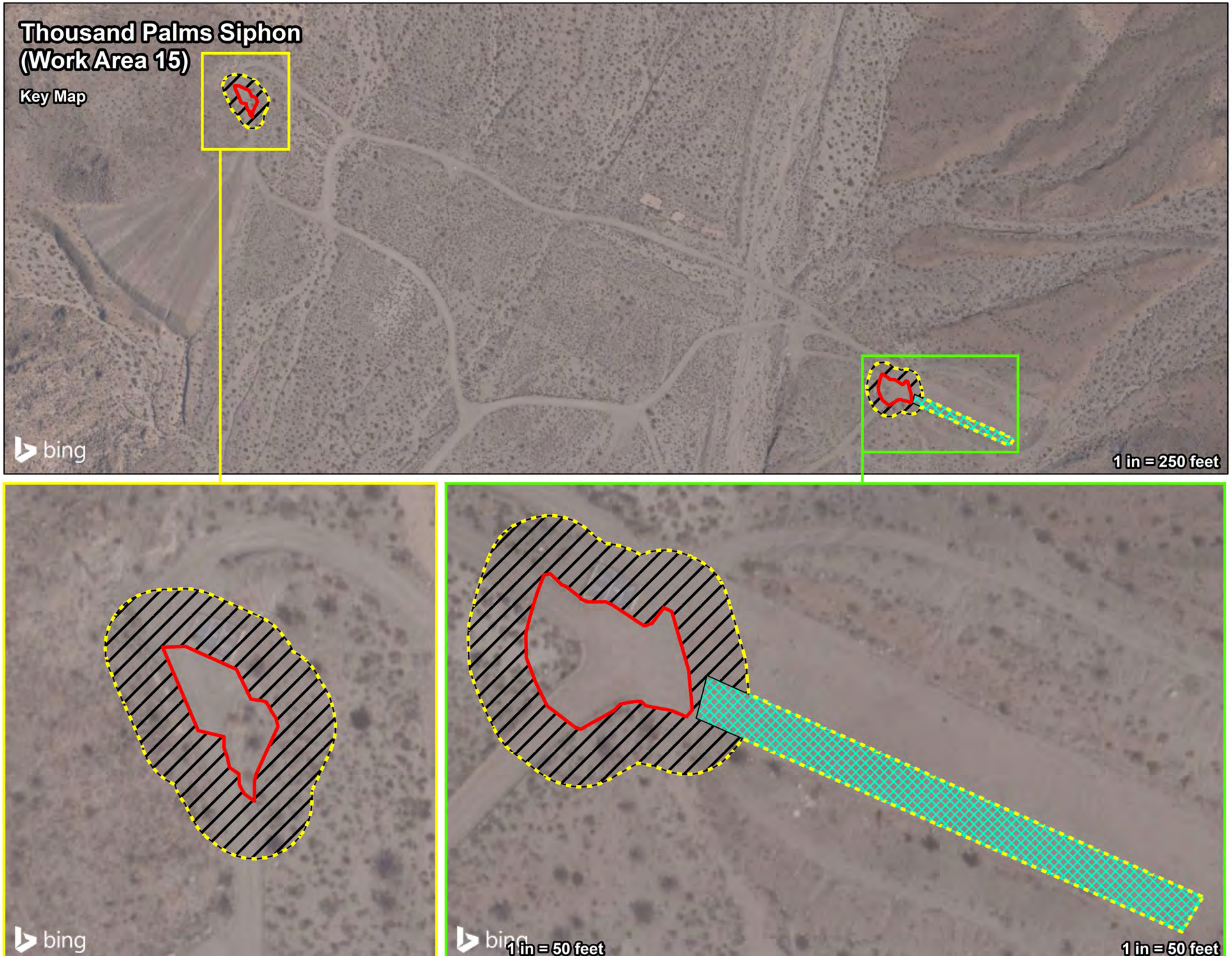
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

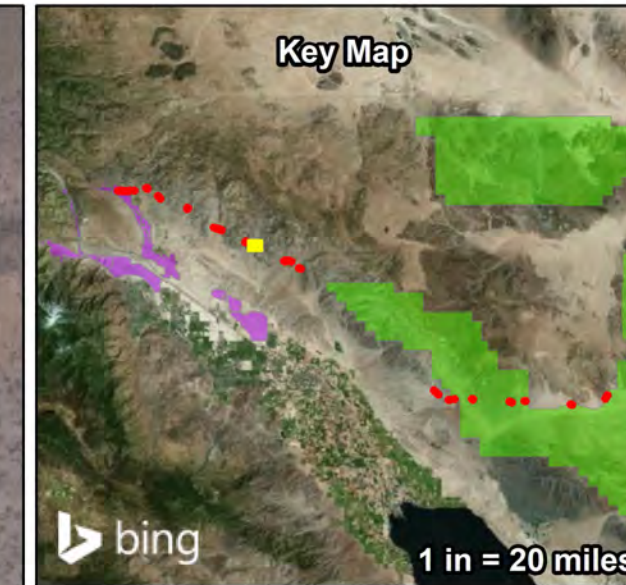
Critical Habitat Map - Sheet 14 of 24 - West Fan Hill Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_14_WestFanHillSiphon.mxd





- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- Desert Tortoise
- Coachella Valley Milk-Vetch

N

0 25 50 100
Feet

1 inch = 50 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

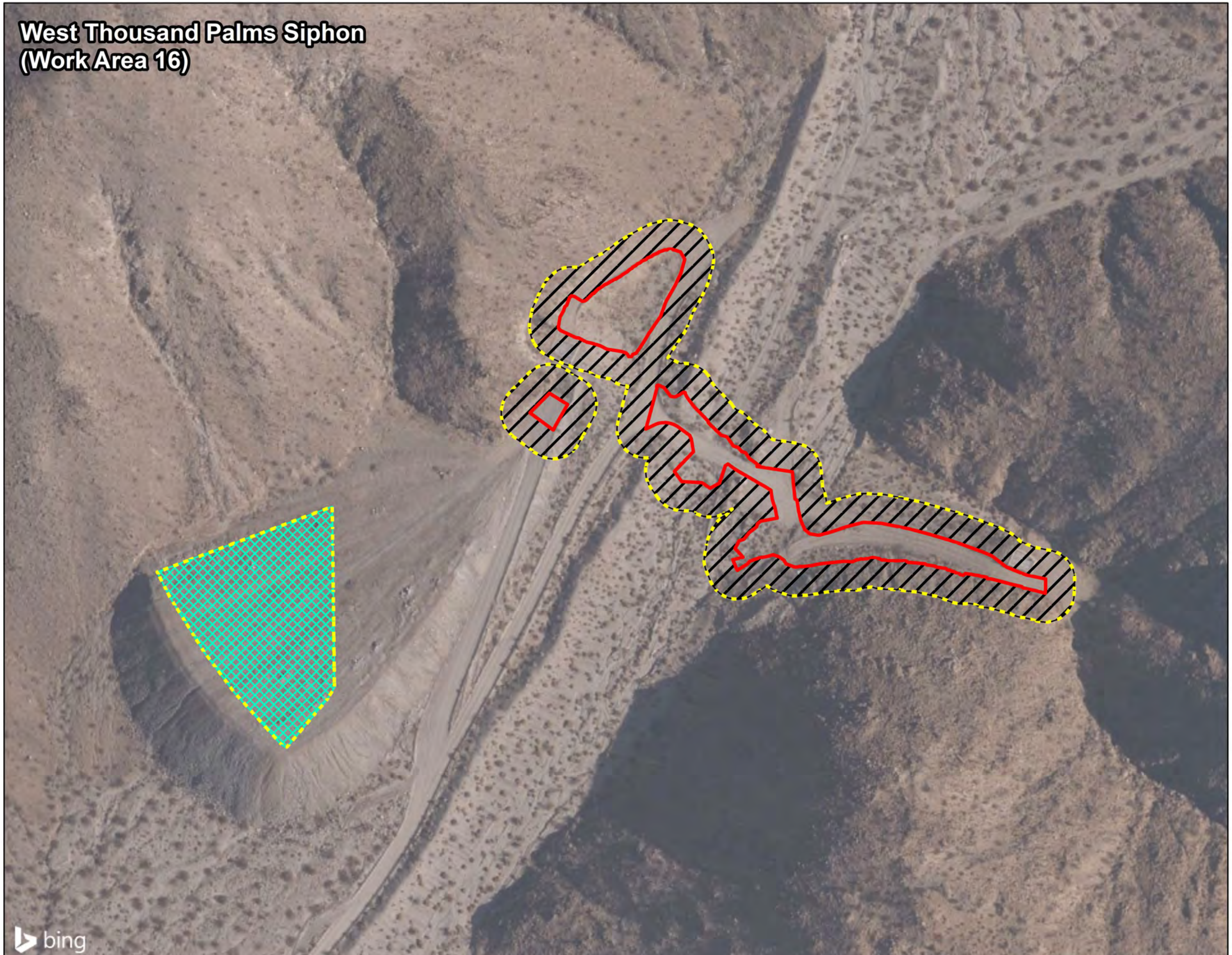
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

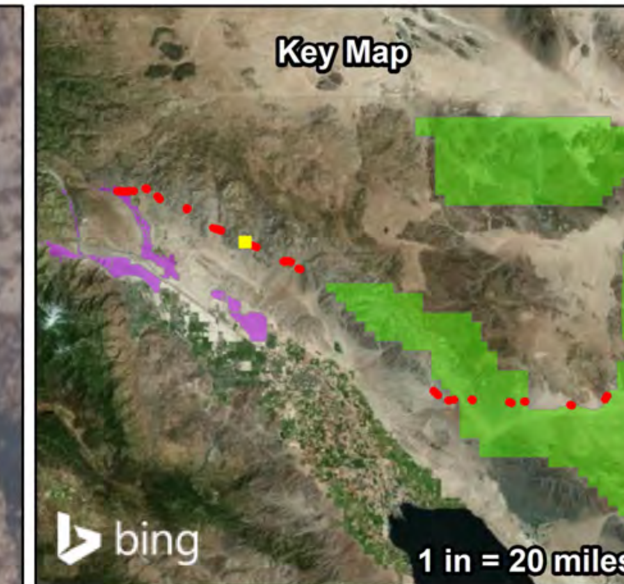
Critical Habitat Map - Sheet 15 of 24 - Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_15_ThousandPalmsSiphon.mxd





- Study Area
- Project Footprint
- Project Footprint - Temporary
- Storage Stockpile/Sorting
- Desert Tortoise
- Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

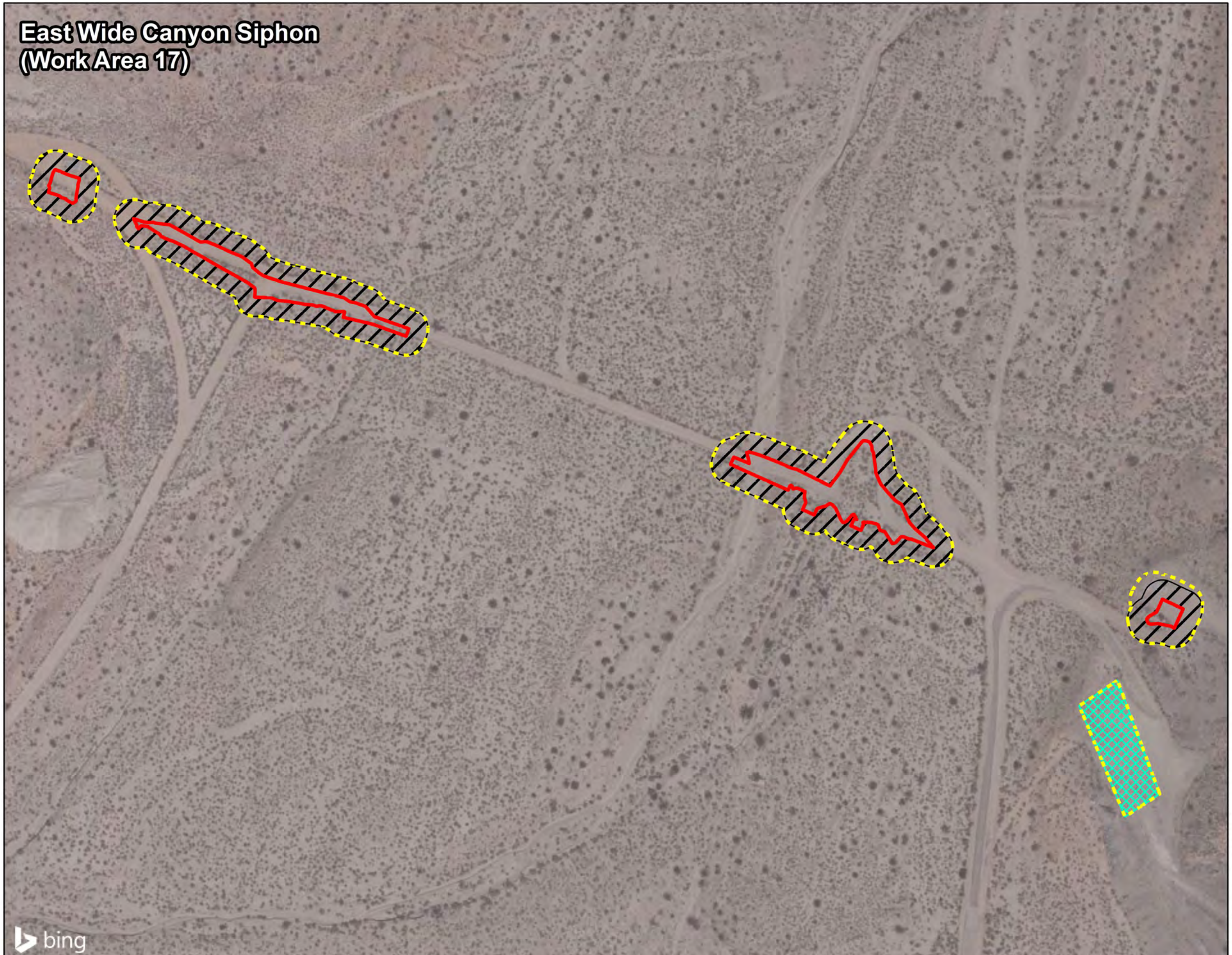
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

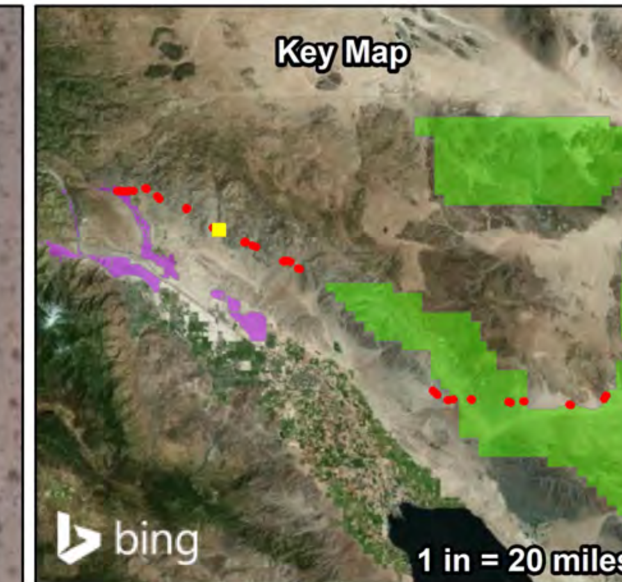
Critical Habitat Map - Sheet 16 of 24 - West Thousand Palms Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_16_WestThousandPalmsSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 75 150 300
Feet

1 inch = 150 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

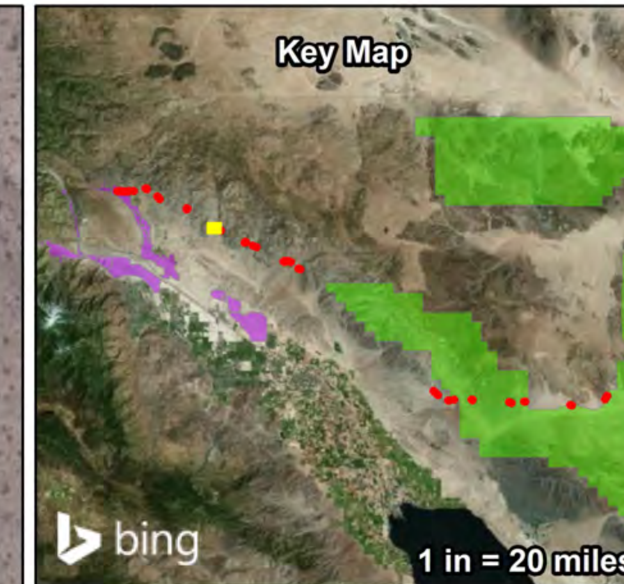
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

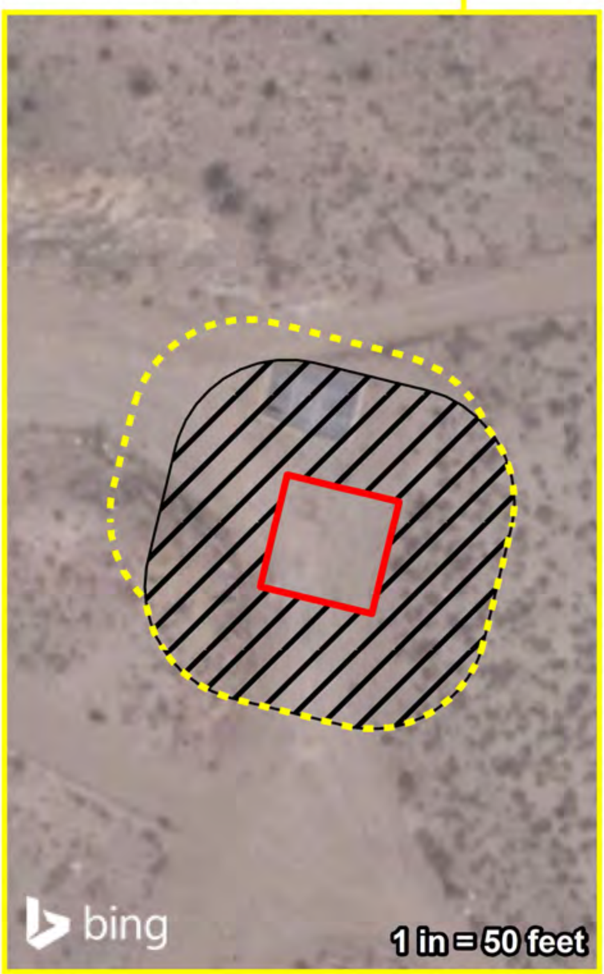
Critical Habitat Map - Sheet 17 of 24 - East Wide Canyon Siphon

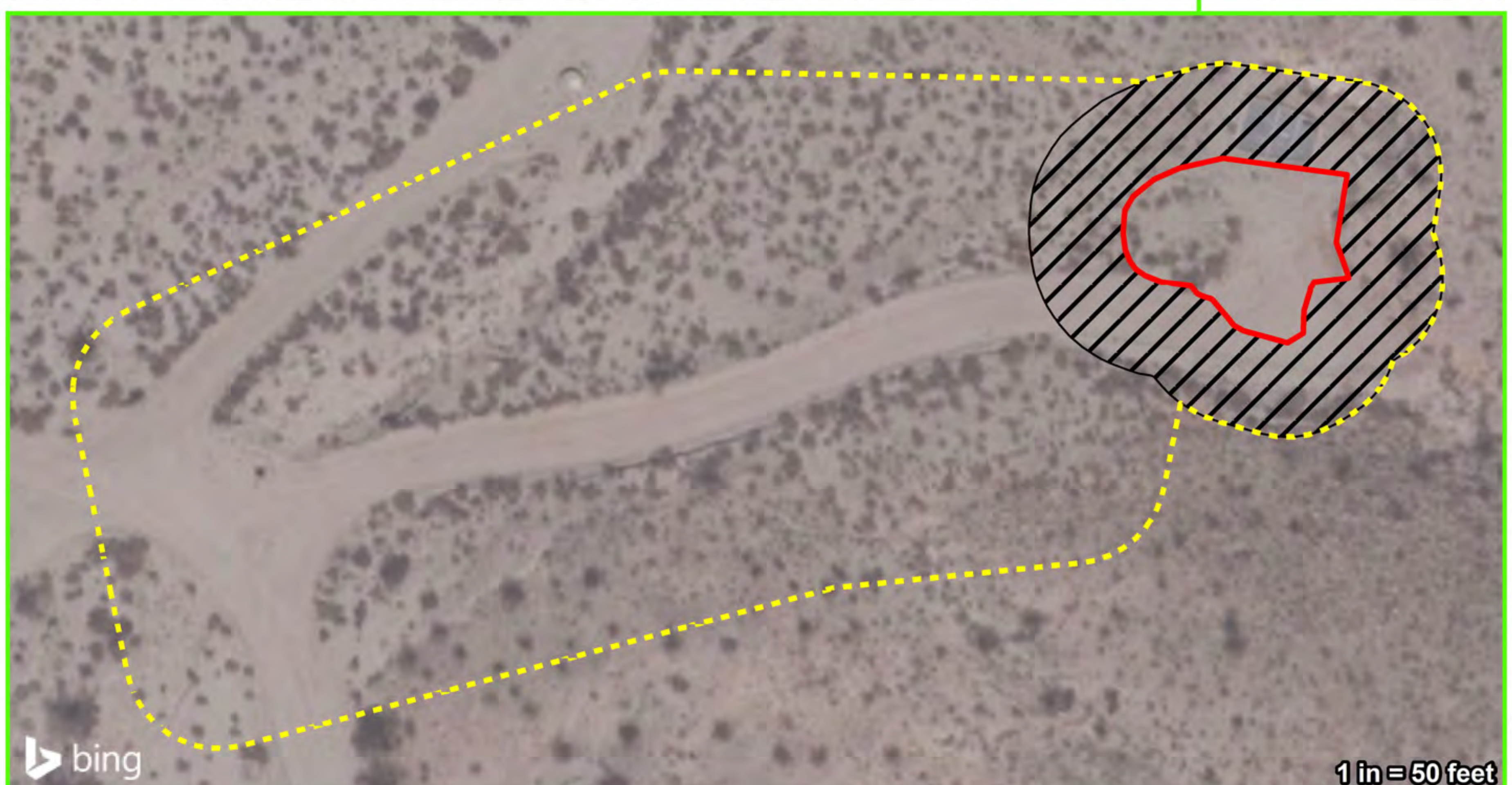
GLENN LUKOS ASSOCIATES

Exhibit 10

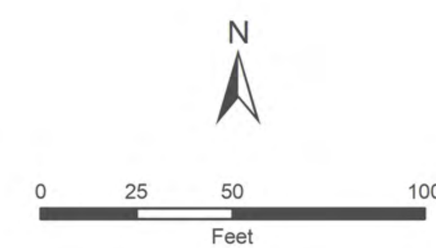
X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_17_EastWideCanyonSiphon.mxd







Study Area
Project Footprint
Project Footprint - Temporary
Desert Tortoise
Coachella Valley Milk-Vetch



1 inch = 50 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

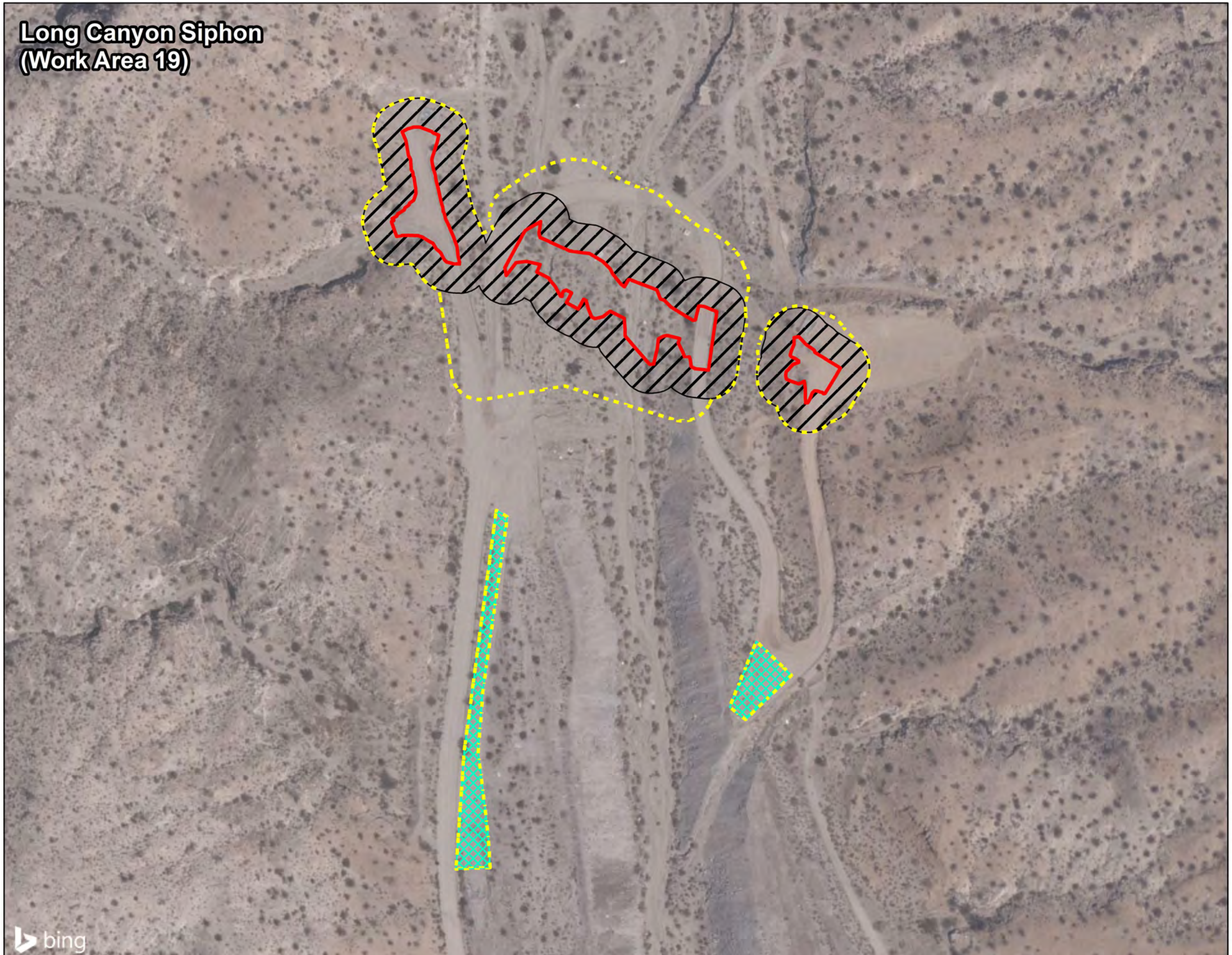
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

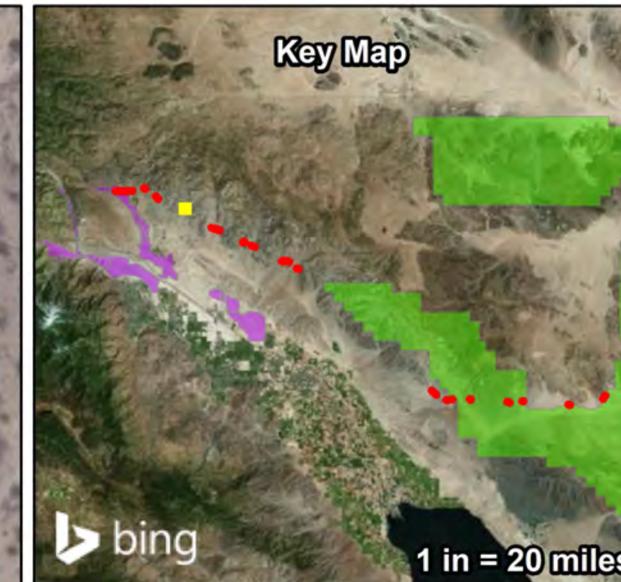
Critical Habitat Map - Sheet 18 of 24 - West Wide Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_18_WestWideCanyonSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

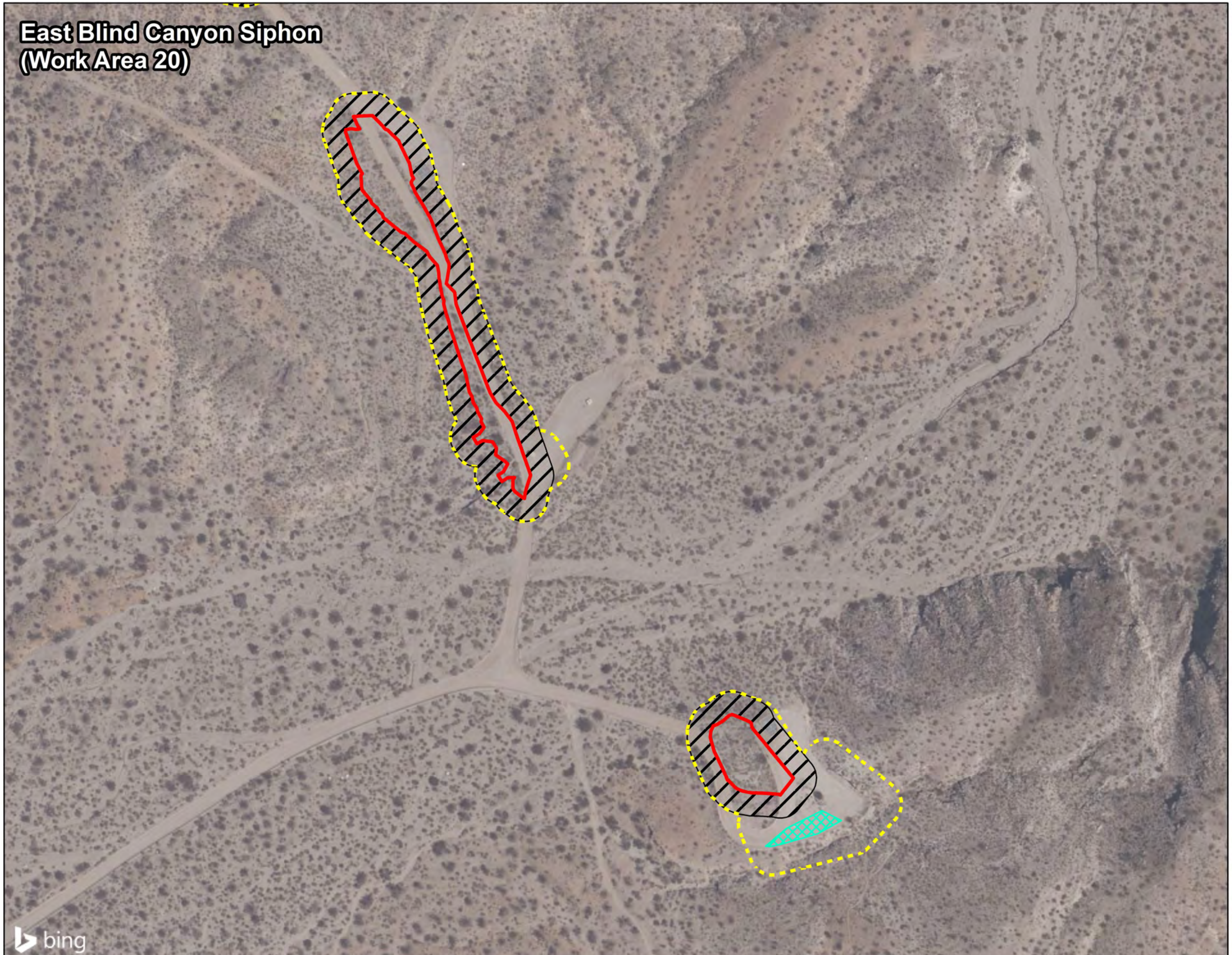
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

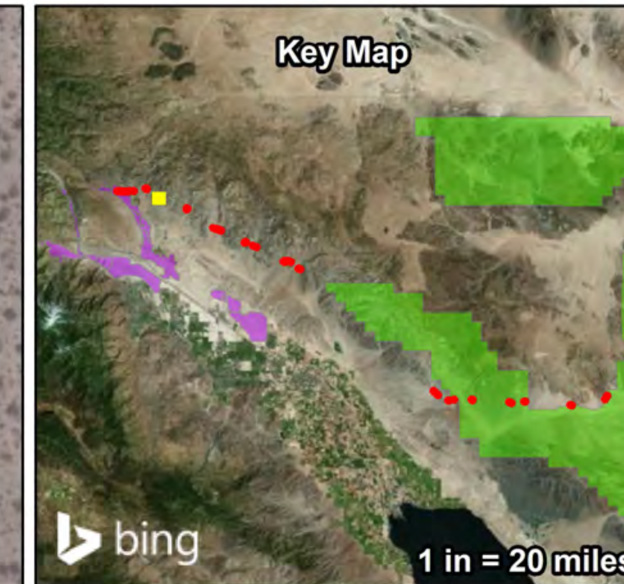
Critical Habitat Map - Sheet 19 of 24 - Long Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_19_LongCanyonSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 62.5 125 250
Feet

1 inch = 125 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

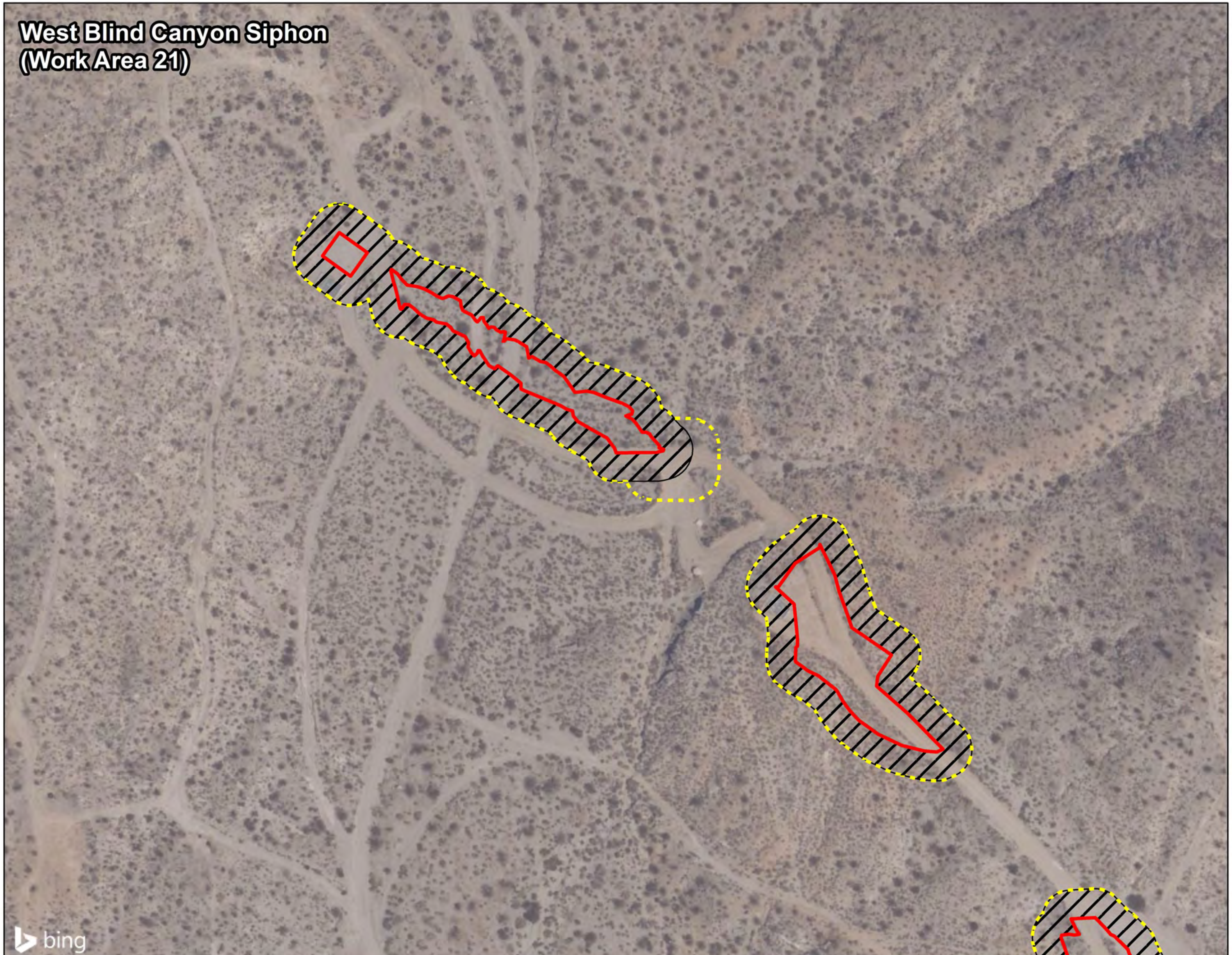
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

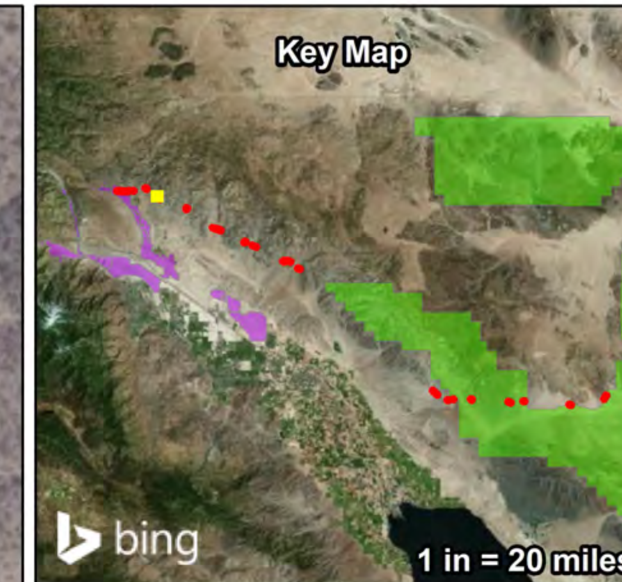
Critical Habitat Map - Sheet 20 of 24 - East Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_20_EastBlindCanyonSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 21 of 24 - West Blind Canyon Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

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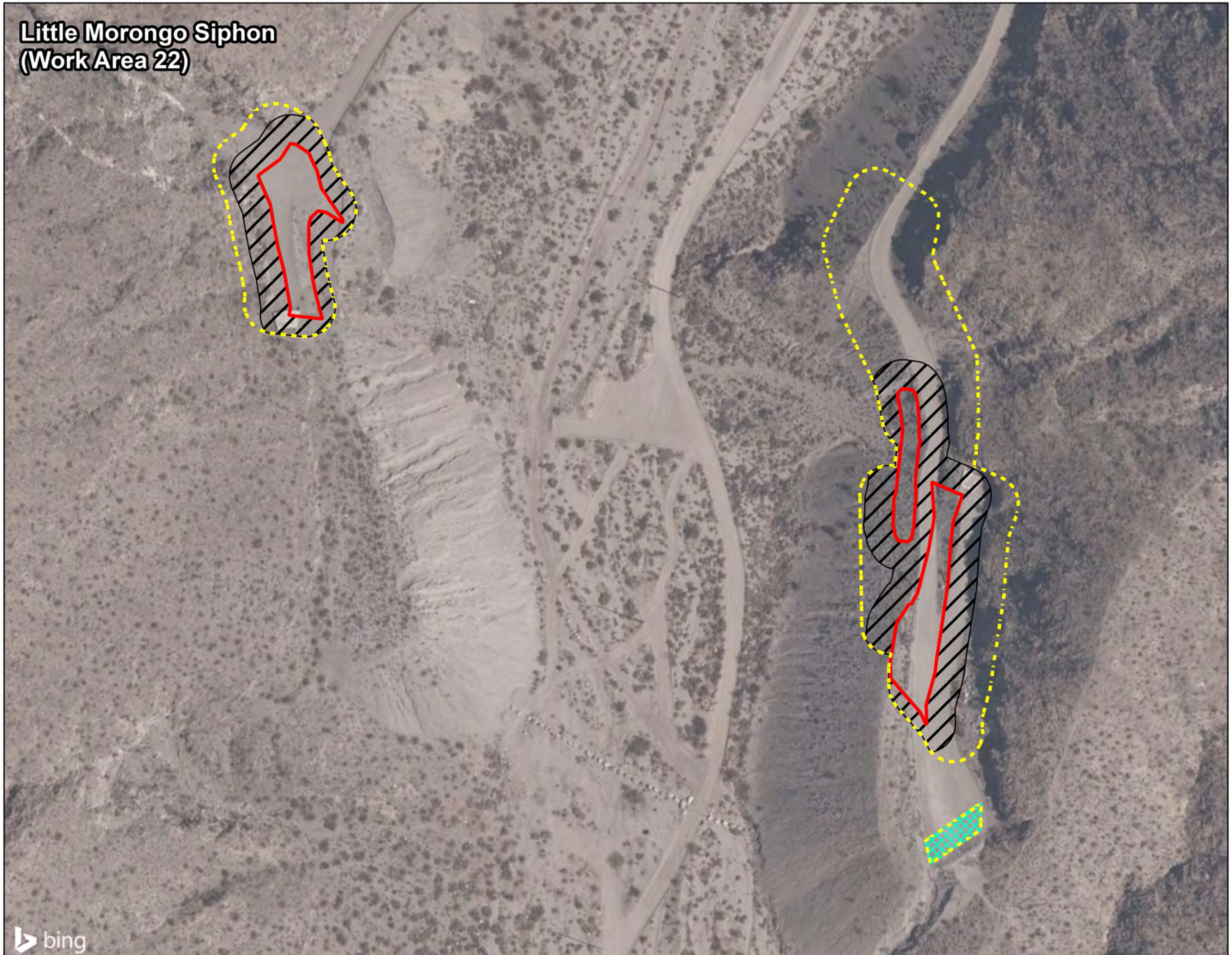
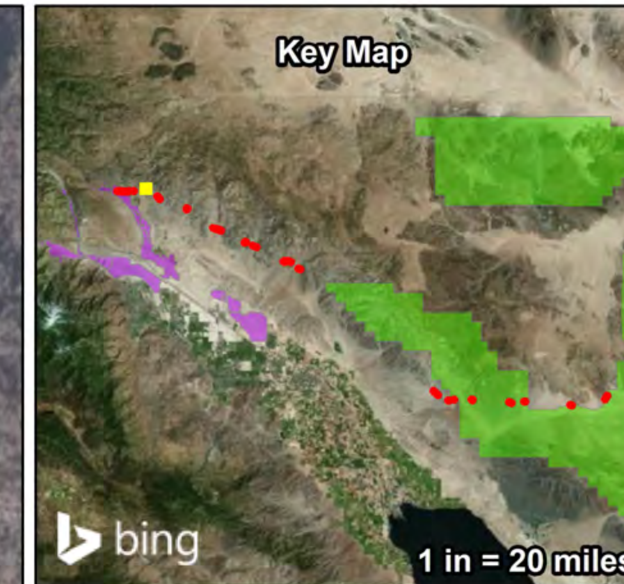




Study Area
Project Footprint
Project Footprint - Temporary
Storage Stockpile/Sorting
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

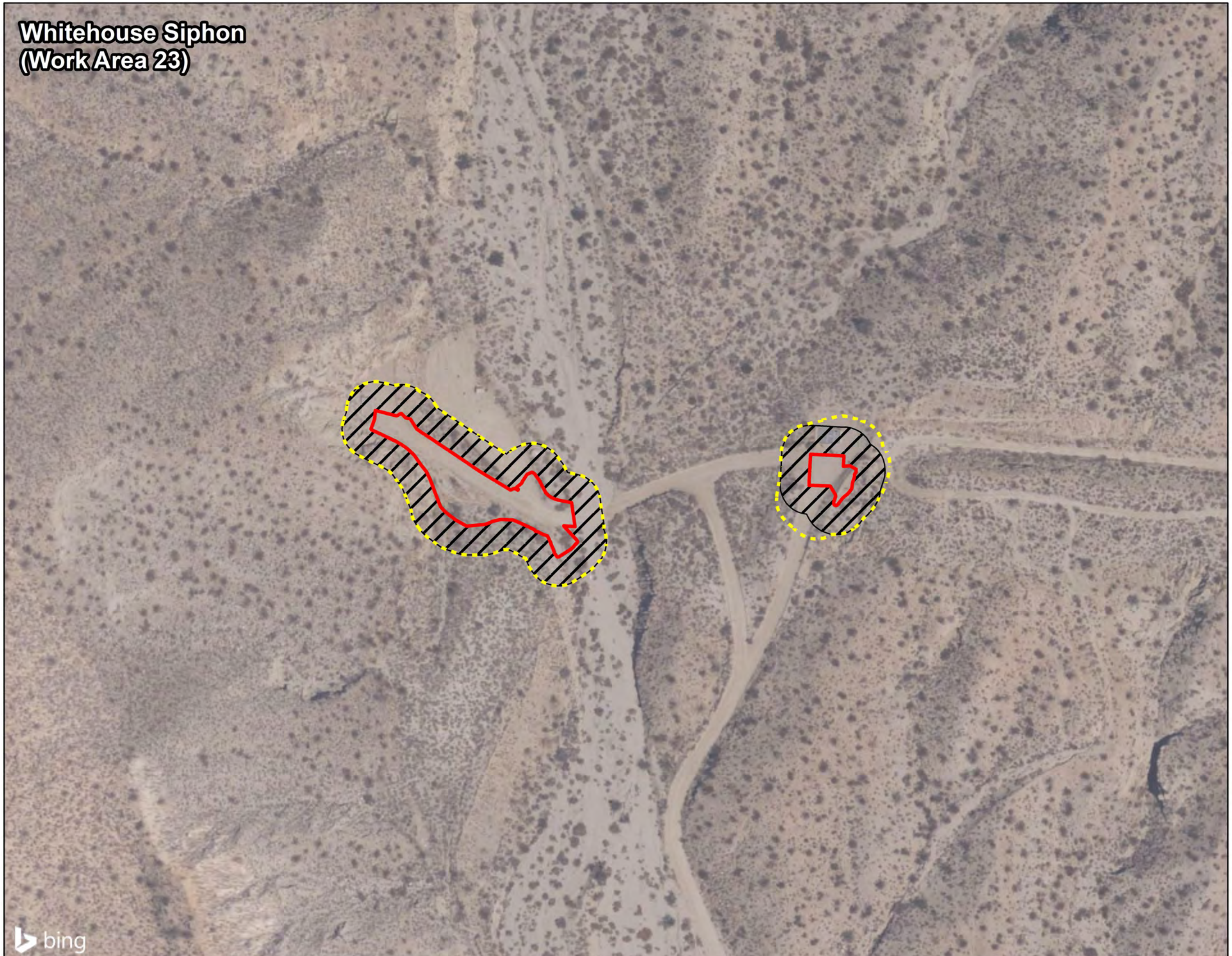
COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

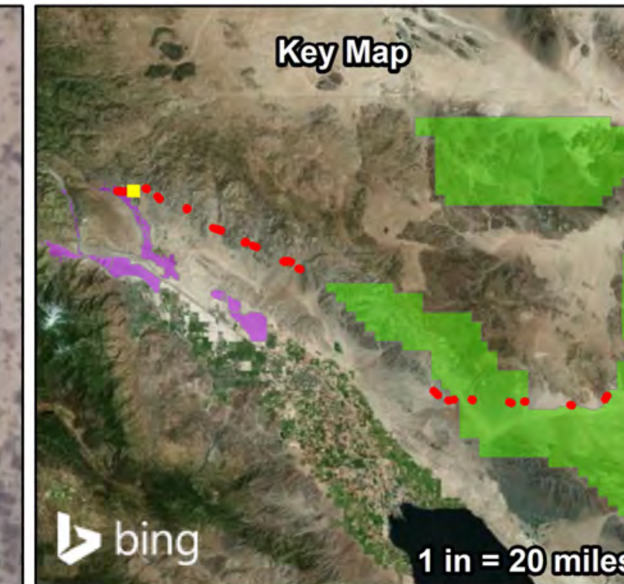
Critical Habitat Map - Sheet 22 of 24 - Little Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_22_LittleMorongoSiphon.mxd





Study Area
Project Footprint
Project Footprint - Temporary
Desert Tortoise
Coachella Valley Milk-Vetch

N

0 50 100 200
Feet

1 inch = 100 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 23 of 24 - Whitehouse Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

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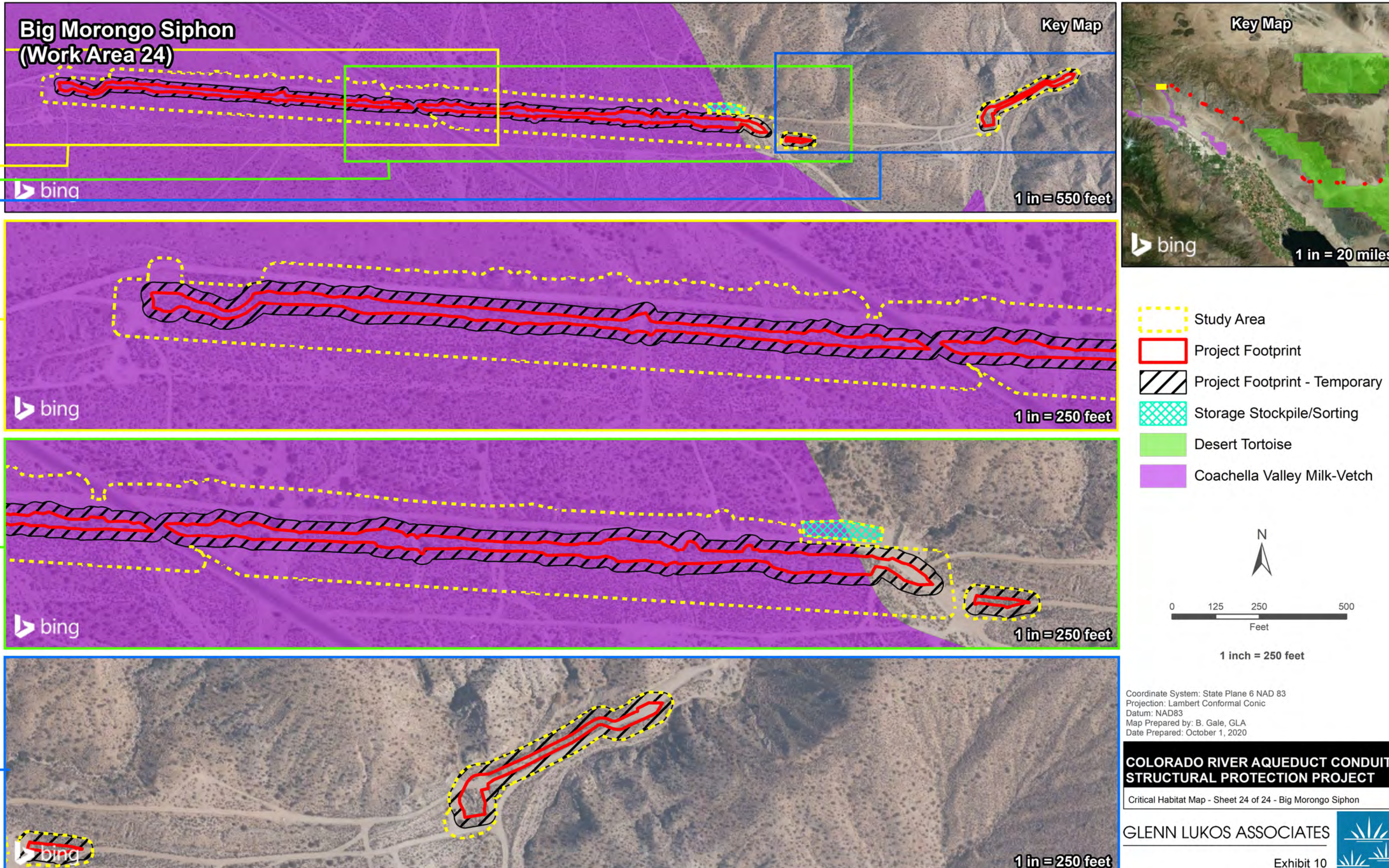

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: October 1, 2020

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Critical Habitat Map - Sheet 24 of 24 - Big Morongo Siphon

GLENN LUKOS ASSOCIATES

Exhibit 10

X:\00 - 0362 ONLY\0043-27CRAS\43-27CRAS_GIS\CriticalHabitatGIS\43-27CRAS_CriticalHabitat_24_BigMorongoSiphon.mxd

Photograph 1: View to the northwest of East Cottonwood No. 1 Siphon [Work Area 4].

Photograph 2: View to the west of Cottonwood Springs Siphon [Work Area 3].

Photograph 3: View to the southwest of Shavers Siphon [Work Area 2].

Photograph 4: View to the northeast of No Name Siphon [Work Area 1].

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Exhibit 11
Sheet 1

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Site Photographs

Photograph 5: View to the southeast of Mecca No. 2 Siphon [Work Area 8].

Photograph 6: View to the west of Mecca No. 1 Siphon [Work Area 7].

Photograph 7: View to the northeast of End Wash Siphon [Work Area 6].

Photograph 8: View to the northeast of East Cottonwood No. 2 Siphon [Work Area 5].

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Exhibit 11
Sheet 2

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Site Photographs

Photograph 9: View to the northwest of East Fan Hill Siphon [Work Area 12].

Photograph 10: View to the northwest of West Thermal Siphon [Work Area 11]

Photograph 11: View to the northwest of East Thermal Siphon [Work Area 10].

Photograph 12: View to the northwest of Iron Ledge Siphon Work Area 9].

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Exhibit 11
Sheet 3

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Site Photographs

Photograph 13: View to the southeast of West Thousand Palms Siphon [Work Area 16].

Photograph 14: View to the northwest of Thousand Palms Canyon Siphon [Work Area 15].

Photograph 15: View to the southwest of West Fan Hill Siphon [Work Area 14].

Photograph 16: View to the west of Fan Hill Siphon [Work Area 13].

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Exhibit 11
Sheet 4

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Site Photographs

Photograph 17: View to the southeast of East Blind Canyon Siphon [Work Area 20].

Photograph 18: View to the southwest of Long Canyon Siphon [Work Area 19].

Photograph 19: View to the west of West Wide Canyon Siphon [Work Area 18].

Photograph 20: View to the southeast of East Wide Canyon Siphon [Work Area 17].

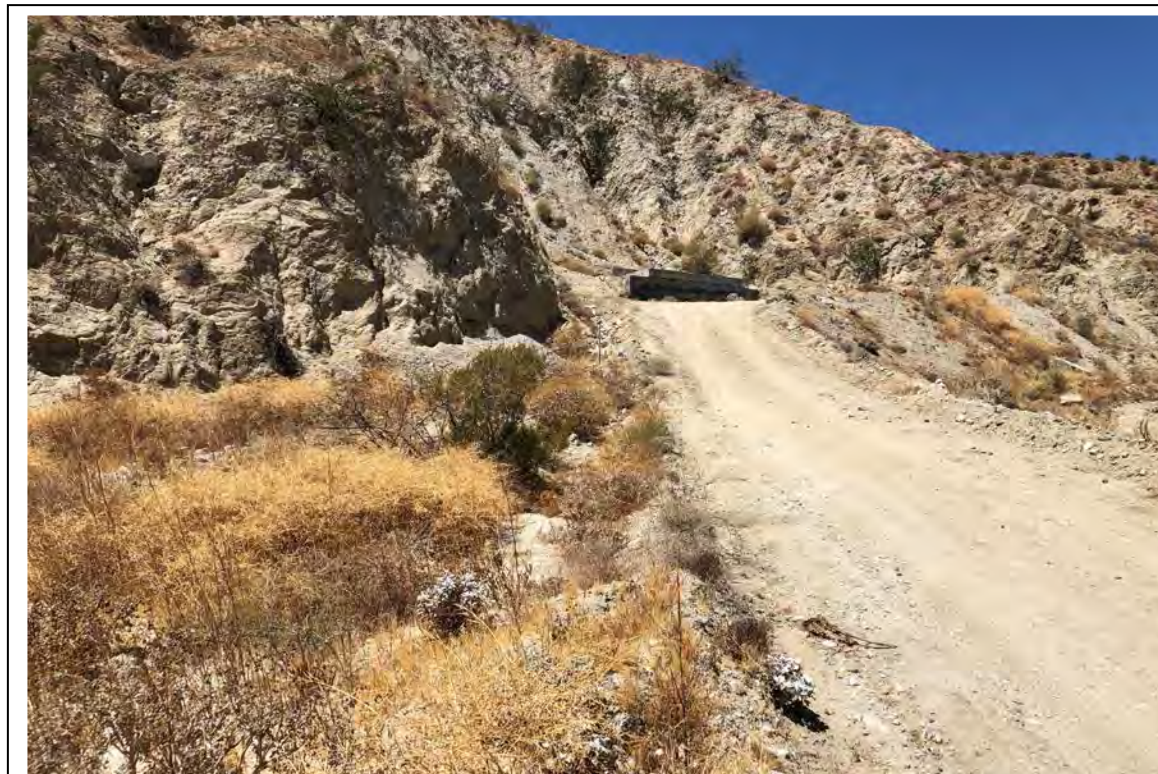
GLENN LUKOS ASSOCIATES

Exhibit 11
Sheet 5

COLORADO RIVER AQUEDUCT CONDUIT STRUCATURAL PROTECTION PROJECT

Site Photographs

Photograph 21: View to the west of Big Morongo Siphon [Work Area 24].



Photograph 22: View to the northwest of Whitehouse Siphon [Work Area 23].

Photograph 23: View to the south of Little Morongo Siphon [Work Area 22].

Photograph 24: View to the northwest of West Blind Canyon Siphon [Work Area 21].

GLENN LUKOS ASSOCIATES

Exhibit 11
Sheet 6

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Site Photographs

Photograph 25: View to the northwest of the proposed storage stockpile/sorting area located at East Cottonwood No. 2 Siphon [Work Area 5].

Photograph 26: View to the south of the proposed storage stockpile/sorting area located near End Wash Siphon [Work Area 6].

Photograph 27: View to the west of the proposed storage stockpile/sorting area located near Fan Hill Siphon [Work Area 13].

Photograph 28: View to the northeast of the proposed storage stockpile/sorting area located at Big Morongo Siphon [Work Area 24].

GLENN LUKOS ASSOCIATES

Exhibit 11
Sheet 7

COLORADO RIVER AQUEDUCT CONDUIT STRUCTURAL PROTECTION PROJECT

Site Photographs

APPENDIX A: FLORAL COMPENDIUM

The floral compendium lists species identified on the project site. Taxonomy follows the Jepson Manual (Baldwin et. al 2012) and, for sensitive species, the California Native Plant Society's Rare Plant Inventory (Tibor 2001). Common plant names are taken from Baldwin (2012), Hickman (1993), Munz (1974), and Roberts et al (2004). An asterisk (*) denotes a non-native species.

Scientific Name	Common Name
MAGNOLIOPHYTA	**FLOWERING PLANTS**
DICOTYLEDONS	**DICOTS**
APOCYNACEAE	**Dogbane Family**
Asclepias albicans	white stemmed milkweed
Funastrum hirtellum	hairy milkweed
ASTERACEAE	**Sunflower Family**
Ambrosia salsola	burrobrush
Atrichoseris platyphylla	parachute plant
Bebbia juncea	sweetbush
Chaenactis stevioides	desert pincushion
Encelia farinosa	brittlebush
Ericameria cooperi	Cooper's goldenbush
Ericameria linearifolia	interior goldenbush
Lepidospartum squamatum	scalebroom
Malacothrix glabrata	desert dandelion
Perityle emoryi	Emory's rock daisy
Psathyrotes ramosissima	velvet turtleback
Rafinesquia neomexicana	desert chicory
Stephanomeria parryi	Parry rock pink
Trixis californica	American threefold
BIGNONIACEAE	**Bignonia Family**
Chilopsis linearis	desert willow
BORAGINACEAE	**Borage Family**
Amsinckia tessellata	devil's lettuce
Cryptantha angustifolia	narrow leaved forget me not
Cryptantha maritima	Guadalupe island cryptantha
Emmenanthe penduliflora	whispering bells

Nama demissa var. *demissa*	purplemat
Nama hispidum	bristly nama
Phacelia campanularia	desert bells
Phacelia crenulata	notch leaved phacelia
Plagiobothrys sp.	popcorn flower
Tiquilia plicata	fanleaf crinklemat
BRASSICACEAE	**Mustard Family**
**Brassica tournefortii*	Saharan mustard
Lepidium fremontii	desert pepper grass
CACTACEAE	**Cactus Family**
Cylindropuntia bigelovii	teddybear cholla
Cylindropuntia ramosissima	branched pencil cholla
Echinocereus engelmannii	Engelmann's hedgehog cactus
Ferocactus cylindraceus	California barrel cactus
Opuntia basilaris	beavertail
Sclerocactus polyancistrus	Mojave fish hook cactus
CAMPANULACEAE	**Bellflower Family**
Nemacladus glanduliferus	glandular thread plant
Nemacladus rubescens	desert thread plant
CHENOPODIACEAE	**Amaranthus Family**
**Salsola tragus*	Russian thistle
CLEOMACEAE	**Cleome Family**
Peritoma arborea	bladderpod
CUCURBITACEAE	**Cucumber Family**
Cucurbita foetidissima	Missouri gourd
Cucurbita palmata	coyote melon
EUPHORBIACEAE	**Spurge Family**
Croton californicus	California croton
FABACEAE	**Legume Family**
Acmispon glaber	deerweed
Acmispon strigosus	strigose lotus
Hoffmannseggia microphylla	wand holdback
Lupinus arizonicus	Arizona lupine
Prosopis glandulosa	honey mesquite

Psorothamnus schottii	Schott's indigo bush
Senegalia greggii	catclaw
Senna armata	desert senna
FOUQUIERIACEAE	**Octotillo Family**
Fouquieria splendens	ocotillo
KRAMERIACEAE	**Rhatany Family**
Krameria bicolor	White rhatany
LAMIACEAE	**Mint Family**
Hyptis emoryi	desert lavender
Salvia columbariae	chia
LOASACEAE	**Loasa Family**
Mentzelia albicaulis	white stemmed blazing star
Mentzelia involucrata	sand blazing star
Petalonyx thurberi	sandpaper plant
MALVACEAE	**Mallow Family**
Sphaeralcea ambigua	desert mallow
NYCTAGINACEAE	**Four O'Clock Family**
Abronia villosa var. *villosa*	Hairy sand verbena
Allionia incarnata	Windmills
Mirabilis laevis var. *villosa*	Wishbone bush
ONAGRACEAE	**Evening Primrose Family**
Chylismia brevipes ssp. *brevipes*	golden suncup
Chylismia claviformis	clavate fruited primrose
PAPAVERACEAE	**Poppy Family**
Eschscholzia parishii	pygmy poppy
PHRYMACEAE	**Monkeyflower Family**
Diplacus bigelovii	Bigelow's monkeyflower
PLANTAGINACEAE	**Plantain Family**
Mohavea confertiflora	Mojave flower
Plantago ovata	desert plantain

POLEMONIACEAE	**Phlox Family**
Eriastrum eremicum	desert woollystar
Loeseliastrum matthewsii	desert calico
Saltugilia australis	southern gilia
POLYGONACEAE	**Buckwheat Family**
Chorizanthe brevicornu	brittle spine flower
Eriogonum deflexum	flat topped buckwheat
Eriogonum inflatum	desert trumpet
Eriogonum thomasii	Thomas' buckwheat
SIMMONDSIACEAE	**Jojoba Family**
Simmondsia chinensis	Jojoba
SOLANACEAE	**Nightshade Family**
Datura wrightii	jimsonweed
Physalis crassifolia	thick-leaved ground cherry
ZYGOPHYLLACEAE	**Caltrop Family**
Fagonia laevis	California fagonbush
Fagonia pachyacantha	sticky fagonbush
Larrea tridentata	creosote bush

MONOCOTYLEDONES — MONOCOTS

POACEAE	**Grass Family**
Aristida purpurea	purple three awn
**Bromus rubens*	red brome
**Pennisetum setaceum*	fountaingrass
**Schismus barbatus*	common Mediterranean grass

FAUNAL COMPENDIA

Vertebrates identified in the field by sight, calls, tracks, scat, or other signs are cited according to the nomenclature of Collins (1997) for amphibians and reptiles, AOU (2009) for birds, and Jones et al. (1992) for mammals. Species were noted by direct observation, call identification, or detection of tracks, scat, or other diagnostic signs.

LEGEND

† Denotes special-status species
* Denotes non-native species

TERRESTRIAL INVERTEBRATES

ACRIDIDAE	**Grasshoppers**
Trimerotropis pallidipennis	pallid-winged grasshopper
APIDAE	**Bees**
**Apis mellifera*	western honey bee
FORMICIDAE	**Ants**
Messor sp.	harvester ant species
NYMPHALIDAE	**Brush-footed Butterflies**
Danaus gilippus	queen butterfly
Vanessa atalanta	red admiral
Vanessa cardui	painted lady
LYCAENIDAE	**Gossamer-wings**
Leptotes marina	marine blue
PAPILIONIDAE	**Swallowtails**
Papilio rutulus	western tiger swallowtail
PIERIDAE	**Whites and Sulphurs**
**Pieris rapae*	cabbage white
**Pontia protodice*	checkered white
Phoebis sennae	cloudless sulfur
Zerene eurydice	California dogface butterfly

SPHINGIDAE	**Sphinx Moths**
Hyles lineata	white-lined sphinx moth

TERRESTRIAL VERTEBRATES

REPTILES

COLUBRIDAE	**Colubrid Snakes**
Coluber flagellum piceus	red racer
Mastacophis flagellum	coachwhip
Salvadora hexalepis hexalepis	desert patch-nosed snake
IGUANIDAE	**IGUANID LIZARDS**
Dipsosaurus dorsalis	desert iguana
Sauromalus ater	common chuckwalla
Sceloporus occidentalis longipes	Great Basin fence lizard
Uta stanisburiana	common side-blotched lizard
PHRYNOSOMATIDAE	**NORTH AMERICAN SPINY LIZARDS**
Callisaurus draconoides rhodostictus	western zebra-tailed lizard
Phrynosoma platyrhinos	desert horned lizard
Sceloporus magister	desert spiny lizard
Uta stansburiana elegans	common side-blotched lizard
TEIIDAE	**WHIPTAIL LIZARDS**
Aspidoscelis uniparens	desert whiptail
TESTUDINIDAE	**Tortoises**
†*Gopherus aggassizii*	desert tortoise
VIPERIDAE	**Vipers**
Crotalus mitchellii pyrrhus	speckled rattlesnake

BIRDS

ACCIPITRIDAE	**Hawks**
Buteo jamaicensis	red-tailed hawk
ALAUDIDAE	**Larks**
Eremophila alpestris	horned lark
APODIDAE	**Swifts**
Aeronautes saxatilis	white-throated swift
CATHARTIDAE	**New World Vultures**
Cathartes aura	turkey vulture
CAPRIMULGIDAE	**Nightjars**
Chordeiles acutipennis	lesser nighthawk
CARDINALIDAE	**Cardinals and Allies**
Pheucticus melanocephalus	black-headed grosbeak
Piranga ludoviciana	western tanager
CERTHIIDAE	**Tree Creepers**
Polioptila melanura	black-tailed gnatcatcher
COLUMBIDAE	**Pigeons and Doves**
**Columba livia*	rock pigeon
**Streptopelia decaocto*	Eurasian collared dove
Zenaida asiatica	white-winged dove
Zenaida macroura	mourning dove
CORVIDAE	**Jays and Crows**
Corvus brachyrhynchos	American crow
Corvus corax	common raven
CUCULIDAE	**Cuckoos**
Geococcyx californianus	greater roadrunner
EMBERIZIDAE	**Sparrows, Buntings, Warblers, and Relatives**
Amphispiza bilineata	black-throated sparrow

FRINGILLIDAE	**Finches**
Carduelis psaltria	lesser goldfinch
Carpodacus mexicanus	house finch
Haemorhous cassinii	Cassin's finch
HIRUNDINIDAE	**Swallows**
Hirundo rustica	barn swallow
ICTERIDAE	**Blackbirds and Orioles**
Icterus bullockii	Bullock’s oriole
Icterus parisorum	Scott's oriole
LANIIDAE	**Shrikes**
Lanius ludovicianus	loggerhead shrike
MIMIDAE	**Thrashers**
Mimus polyglottos	northern mockingbird
ODONTOPHORIDAE	**New World Quails**
Callipepla gambelii	Gambel's quail
PARULIDAE	**Wood Warblers**
Cardellina pusilla	Wilson's warbler
Setophaga tigrina	Cape May warbler
Setophaga townsendi	Townsend's warbler
Vermivora celata	orange-crowned warbler
PASSERELLIDAE	**American Sparrows**
Artemisiospiza nevadensis	sagebrush sparrow
Chondestes grammacus	lark sparrow
Pipilo chlorurus	green-tailed towhee
PTILIOGONATIDAE	**Silky-flycatchers**
Phainopepla nitens	Phainopepla
REMIZIDAE	**Penduline Tits**
Auriparus flaviceps	verdin

STRIGIDAE	**True Owls**
†*Athene cunicularia*	burrowing owl
TROCHILIDAE	**Hummingbirds**
Archilochus alexandri	black-chinned hummingbird
Calypte anna	Anna's hummingbird
Calypte costae	Costa's hummingbird
TROGLODYTIDAE	**Wrens**
Campylorhynchus brunneicapillus	cactus wren
Catherpes mexicanus	canyon wren
Salpinctes obsoletus	rock wren
Thryomanes bewickii	Bewick's wren
TYRANNIDAE	**Tyrant Flycatchers**
Contopus sordidulus	western wood pewee
Empidonax difficilus	pacific-slope flycatcher
Myiarchus cinerascens	ash-throated flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrranis verticalis	western kingbird
Tyrranis vociferans	Cassin’s kingbird

MAMMALS

BOVIDAE	**Bovids**
†*Ovis canadensis nelsoni*	desert bighorn sheep
CANIDAE	**Foxes, Wolves, and Allies**
**Canis familiaris*	domestic dog
Canis latrans mearnsi	coyote
Vulpes macrotis arsipus	desert kit fox
CERVIDAE	**Deer, Elk, and Allies**
Odocoileus hemionus fuliginatus	southern mule deer
CRICETIDAE	**New World Rats, Mice, Voles, and Relatives**
Neotoma lepida	desert woodrat

FELIDAE	**Wildcats**
Lynx rufus	bobcat
Puma concolor californica	California mountain lion
LEPORIDAE	**Rabbits and Hares**
Lepus californicus deserticola	desert black-tailed jackrabbit
Sylvilagus audubonii	desert cottontail
SCIURIIDAE	**Squirrels**
Ammospermophilus leucurus leucurus	white-tailed antelope ground squirrel
Otospermophilus beecheyi	California ground squirrel

Appendix C

Phase I Cultural Resources Assessment Report

Phase I Cultural Resources Assessment Report for the Colorado River Aqueduct Conduit Structural Protection Project, Riverside County, California

Prepared for:

Metropolitan Water District of Southern California

Prepared by:
Lauren DeOliveira, M.S., RPA
Elliot D'Antin, B.S.
James Allan, Ph.D, RPA

Aspen Environmental Group
5020 Chesebro Road
Agoura Hills, CA, 91301

USGS 7.5 Min Quadrangles: Hayfield, Cottonwood Spring, Cottonwood Basin, Thermal Canyon, Myoma, East Deception Canyon, Keys View, East Berdoo Canyon, Seven Palms Valley, Desert Hot Springs, Yucca Valley South, Morongo Valley, Whitewater.

Resources Identified in Project area: CA-RIV-6272H

May 2020

National Archaeological Database Information

Authors:	Lauren DeOliveira, M.S., RPA, Elliot D'Antin, B.S., and James Allan, Ph.D., RPA
Date:	April 2020
Title:	Phase I Cultural Resources Assessment Report for the Colorado River Aqueduct Conduit Structural Protection Project
Submitter:	Aspen Environmental Group 5020 Chesebro Road, Suite 200 Agoura Hills, CA 91301
Submitted to:	Metropolitan Water Distric of Southern California 700 North Alameda Street Los Angeles, CA 90012
Keywords:	Riverside County, Coachella Valley, Cahuilla, Serrano, Colorado River Aqueduct, Phase I Survey, CEQA.

This document contains sensitive information regarding the location of archaeological sites, which should not be disclosed to the general public or other unauthorized persons. Archaeological and other heritage resources can be damaged or destroyed through uncontrolled public disclosure of information regarding their location.

Therefore, information regarding the location, character, or ownership of archaeological or other heritage resources is exempt from the Freedom of Information Act under the National Historic Preservation Act (16 USC 470w-3) and Archaeological Resources Protection Act (16 USC Section 470[h]). This report and records that relate to archaeological site information maintained by the California Historical Resources Information System and the Bureau of Land Management are exempt from the California Public Records Act (Government Code Section 6250 et seq., see Government Code Section 6254.19). In addition, Government Code Section 6254 explicitly authorizes public agencies to withhold information from the public relating to Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission.

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Executive Summary

On behalf of the Metropolitan Water District of Southern California (Metropolitan), Aspen Environmental Group conducted archaeological literature reviews and record searches, as well as an intensive field survey in support of the Colorado River Aqueduct Conduit Structural Protection Project (Project) in January and April 2020. The main goal of this archaeological investigation was to gather and analyze the information needed to determine if the Project would impact cultural resources.

The purpose of the Project is to provide adequate heavy machinery access at 24 siphon locations on the Colorado River Aqueduct (CRA) that have been identified as being susceptible to structural damage associated with heavy loading. The Project improves road access to the siphon structures and constructs protective slabs over the top of CRA wherever vulnerable crossings occur. To accomplish this structural protection, three main activities will occur; (1) improvement of the access roads near each siphon location, (2) construction of concrete aqueduct crossing protection pads at grade, and (3) construction of crushed aggregate crane operating pads at grade.

On April 13 & 14, 2020 an intensive archaeological survey was conducted in support of the Project. Elliot D'Antin, Cultural Resource Specialist, B.S., of Aspen Environmental Group was accompanied by Victoria Banda representing Soboba Band of Luiseno Indians, and Michelle Morrison, Environmental Specialist for Metropolitan. The survey crew was guided by Malinda K. Stalvey, Senior Environmental Specialist of Metropolitan. Mr. D'Antin is qualified under the Secretary of the Interior's Qualification and Guidelines for Archaeology and Historic Preservation and has in-depth familiarity with the prehistoric and historic period cultural resources of Riverside County. The survey crew utilized intuitive survey methods covering 100% of each area surrounding the Project's siphons, with transects spaced 5-meters apart, or less. Ground visibility was high (90-95%).

No new prehistoric or historic resources were identified at any of the 24 siphon locations. Portions of the previously documented historic resource, CA-RIV-6726H, known as the CRA, were encountered during the field survey. CA-RIV-6726H has previously been recommended eligible for listing on the National Register of Historic Places and the Califiorni Register of Historical Resources. The Project area is considered unlikely to contain unknown buried cultural deposits, considering the extent of ground disturbance that occurred during the construction of CRA, and Metropolitan's continuing routine maintenance and grading of access roads that has occurred overthe last 75 years.

1. Introduction

On behalf of the Metropolitan Water District of Southern California (Metropolitan), Aspen Environmental Group (Aspen) completed a cultural resources assessment for the proposed Colorado River Aqueduct Conduit Structural Protection Project (Project) in Riverside County. This study meets the requirements for consideration of cultural resources under state and local regulations. To identify any cultural resources eligible for the California Register of Historical Resources (CRHR), Aspen conducted an intensive pedestrian archaeological survey of the Project area on April 13 and 14, 2020. The following report is a complete account of the survey methodology and results and includes recommendations for the treatment of resources potentially impacted by the proposed Project.

The Colorado River Aqueduct (CRA) is a regional water conveyance system that consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four regulating reservoirs and 242 miles of aqueducts, siphons, canals, conduits, and pipelines terminating at Lake Mathews in Riverside County, California. Metropolitan owns, operates, and manages the CRA and is responsible for operating, maintaining, rehabilitating, and repairing its various components.

Original CRA construction occurred from 1933–1941. By 1952, the aqueduct reached full capacity and was expanded to accommodate growing water demands. The expansion consisted of the addition of a second siphon barrel to accommodate increased flows. While the new siphon was built to withstand higher load capacities, the original construction was not designed to accommodate loads from heavy equipment used to conduct operations and maintenance activities today, specifically the tunnel cleaning machine and the 70-ton crane required to launch and retrieve the machine. The purpose of the Project is to provide adequate heavy machinery access at 24 siphon locations on the CRA that have been identified as being susceptible to structural damage associated with heavy loading. The Project improves road access to the siphon structures and constructs protective slabs over the top of CRA wherever vulnerable crossings occur.

Project Description

The proposed Project includes three main activities: (1) improving the access roads near each of the 24 siphon location, (2) constructing concrete aqueduct crossing protection pads, and (3) constructing crushed aggregate crane operating pads. The following discusses each of these three activities in greater detail:

- **Access Road Improvements**. Existing dirt roads provide access to each of the 24 Project site siphon locations, with each siphon location containing two crane operating pads and entry points into the aqueduct. Within each site, road spurs that lead to each crane operating pad require improvement. Necessary improvements to the main dirt access roads to each site would occur to ensure that safe access is maintained. These access road improvements would include, as needed:
  - Realigning the road to shift structural loading off of the CRA and create direct access to each crane pad.
  - Grading, widening, and realignment to better accommodate moving the crane to the pads.
  - Minor unpaved road repair work, as necessary, to ensure adequate access.
  - Low water crossings will be installed in instances where the improved access roads cross drainage features. The low water crossings will be designed as earthen crossings that convey storm flows across the access road, with riprap energy dissipation downstream to control and reduce erosion. The low water crossings are designed to ensure adequate water flow and sediment transport during

storm events, while reducing the annual maintenance needed to maintain reliable access along the CRA.

- Small retaining walls where access to crane operating pads require slight cuts into grade that warrant retaining walls for ensuring slope stability.

- **Concrete Aqueduct Crossing Protection Slabs**. The project would construct at-grade concrete crossing slabs to protect the buried aqueduct wherever the access road crosses it and existing ground cover is insufficient. The slab is intended to “bridge” the buried aqueduct and minimize the crane load to the aqueduct itself. This is accomplished by transferring the load from the slab to the spread footings on both sides of the slab, hence to the underlying soil. Additionally, soft foam would be placed under the slab which would compress when the crane drives over the slab, providing a cushion against the weight of the crane. The size of the protective concrete slabs are at least 46 feet wide and 4 feet deep to provide adequate protection over the width of the CRA, though the ultimate dimensions are dependent upon site-specific constraints.

- **Crane Operating Pads**. As described earlier, each siphon location has two crane operating pads (to launch and receive the tunnel cleaning machine). Currently, when CRA cleanouts are conducted, crane operating pads are established on natural ground surface. The Project would construct crane pads of compacted aggregate base material to ensure safe and stable crane operations while maintaining necessary clearances from transition structures. The crane operating pads are generally 36 feet by 30 feet, unless site-specific constraints necessitate design modifications. The proposed crane pads would occupy similar locations as used under existing conditions.

Project Location

The Project area encompasses a previsouly disturbed area of approximately 14.22 acres in northern Cochella Valley in unicorporated Riverside County (11.13 acres of project disturbance plus 3.09 acres of temporary construction laydown disturbance). The proposed project includes 24 individual locations, situated within Metropolitan rights-of-way (ROWs) above a buried segment of the CRA. Access to the overall Project area would occur via Interstate 10 (I-10). From I-10, various paved local roads would provide access to the unpaved roads leading to each siphon site. A description of public access roads to each of the 24 siphon sites is provided in Table 1. Additionally, Appendix A provides an overview map of the entire Project area.

Table 1. Project Site Details

No.	Site	Disturbance Area (Acres)	Main Public Access Road to the Site
1	No Name Siphon	0.42	Summit Road
2	Shavers Siphon	0.37	Cottonwood Springs Road
3	Cottonwood Springs Siphon	0.39	Cottonwood Springs Road
4	East Cottonwood No. 1 Siphon	0.31	Cottonwood Springs Road
5	East Cottonwood No. 2 Siphon	0.09	Cottonwood Springs Road
6	End Wash Siphon	0.31	Cactus City Frontage Road
7	Mecca No. 1 Siphon	0.05	Cactus City Frontage Road
8	Mecca No. 2 Siphon	0.18	Cactus City Frontage Road
9	Iron Ledge Siphon	0.21	Cactus City Frontage Road
10	East Thermal Siphon	0.26	Cactus City Frontage Road

Table 1. Project Site Details

No.	Site	Disturbance Area (Acres)	Main Public Access Road to the Site
11	West Thermal Siphon	0.28	Cactus City Frontage Road
12	East Fan Hill Siphon	0.26	Thousand Palms Canyon Road
13	Fan Hill Siphon	0.19	Thousand Palms Canyon Road
14	West Fan Hill Siphon	0.26	Thousand Palms Canyon Road
15	Thousand Palms Siphon	0.15	East Deception Road
16	West Thousand Palms Siphon	0.57	Penny Lane
17	East Wide Canyon Siphon	0.66	Prospect Road
18	West Wide Canyon Siphon	0.09	Prospect Road
19	Long Canyon Siphon	0.38	Long Canyon Road
20	East Blind Canyon Siphon	0.56	Palm Drive
21	West Blind Canyon Siphon	0.51	Palm Drive
22	Little Morongo Siphon	0.41	Annadale Avenue
23	Whitehouse Siphon	0.25	Silver Star Avenue
24	Big Morongo Siphon	3.98	Indian Canyon Drive

Specifically, the Project is located in the United States Geologic Survey (USGS) *Hayfield, Cottonwood Spring, Cottonwood Basin, Thermal Canyon, Myoma, East Deception Canyon, Keys View, East Berdoo Canyon, Seven Palms Valley, Desert Hot Springs, Yucca Valley South, Morongo Valley,and Whitewater* 7.5-minute quadrangles.

2. Regulatory Framework

The primary state regulation governing significant cultural resources is the California Environmental Quality Act (CEQA) and Public Resources Code (PRC) Section 5097.

California Environmental Quality Act (1970) (CEQA). CEQA established that historical and archaeological resources are afforded consideration and protection. CEQA Guidelines define significant cultural resources under three regulatory designations: historical resources, unique archaeological resources, and tribal cultural resources.

A historical resource is a "resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the [California Register of Historical Resources] CRHR"; or "a resource listed in a local register of historical resources or identified as significant in a historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code"; or "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record" (14 CCR Section 15064.5[a][3]).

Historical resources automatically listed in the CRHR include California cultural resources listed in or formally determined eligible for listing on the National Register of Historic Places (NRHP), and the California Historical Landmarks list from No. 770 onward (PRC 5024.1[d]). Locally listed resources are entitled to a presumption of significance unless a preponderance of evidence in the record indicates otherwise.

Under CEQA, a resource is generally considered historically significant if it meets the criteria for listing in the CRHR. A resource must meet at least one of the following criteria (PRC 5024.1; 14 CCR Section 15064.5[a][3]):

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage. Title 14, CCR Section 4852(b)(1) adds, "is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States."
2. Is associated with the lives of persons important in our past. Title 14, CCR Section 4852(b)(2) adds, "is associated with the lives of persons important to local, California, or national history."
3. Embodies the distinctive characteristics of a type, period, region, or method of construction; or represents the work of an important creative individual; or possesses high artistic values. Title 14, CCR 4852(b)(3) allows a resource to be CRHR eligible if it represents the work of a master.
4. Has yielded, or may be likely to yield, information important in prehistory or history. Title 14, CCR 4852(b)(4) specifies that importance in prehistory or history can be defined at the scale of "the local area, California, or the nation.

Historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (14 CCR 4852[c]).

An archaeological artifact, object, or site can meet CEQA's definition of a unique archaeological resource even if it does not qualify as a historical resource (PRC 21083.2[g]; 14 CCR 15064.5[c][3]). An archaeological artifact, object, or site is considered a unique archaeological resource if "it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria (PRC 21083.2[g]):

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

3. Sources Consulted

On January 16, 2020 and January 23, 2020, Aspen archaeologist Elliot D'Antin conducted a search of the cultural resource records and files at the California Historical Resources Information System (CHRIS) facility at the University of California Riverside.

The records search identified 49 previous studies within a 0.5-mile of the Project area. Of these 49 previous reports, four (4) of them are within the Project area and are shown in bold below. Details of these studies can be found in Table 1.

Table 1- Previous Cultural Resource Studies Conducted within 0.5-miles of the Project area. Reports in Bold are Within Project area.				
Report #	**Authors**	**Year**	**Report Title**	**Company**
RI-00220	Richard A. Cowan and Kurt Wallof	1977	Intermin Report Field Work and Data Analysis: Cultural Resource Survey of the Proposed Southern California Edison Palo Verde-Devers 500 Kv Transmission Line	Archaeological Research Unit, U.C. Riveside
RI-00221	Richard L. Carrico, Dennis K. Quillen, and Dennis Gallegos	1982	Cultural Resource Inventory and National Register Assessment of the Southern California Edison Palo Verde to Devers Transmission Line Corridor (California Portion)	WESTEC Service, Inc., San Diego, CA
RI-00222	Kurt Wallof and Richard A. Cowan	1977	Final Report: Cultural Resource Survey of the Proposed Southern California Edison Palo Verde-Devers 500 Kv Power Transmission Line	Archaeological Ressearch Unit, U.C. Riverside
RI-00227	Ken Daly	1977	Archaeological Assessment of the Nothern Half, of the Southern Quarter, Section 26, T. 6S, R. 2W, Bachelor Mountain Quadrangle, Riverside County, California	N/A
RI-00713	Michael Hogan and M.C Hall	1994	Cultural Resource Survey on Tentative Tract 24384 Northwest of Desert Hot Springs, Northern Coachella Valley, Riverside County, California	Archaeological Research Unit, U.C. Riverside
RI-01009	Sue Ann Cupples	1977	Archaeological Survey Report for a Proposed Material Site (Bernardino) 11-Riv-10 P.M. 72.7/73.7	Department of Transportation (CALTRANS) Sacramento, CA
RI-01473	WAGSTAFF AND BRADY and ROBERT ODLAND ASSOCIATES	1982	SAN GORGONIO WIND RESOURCE STUDY: ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT (CULTURAL RESOURCE PORTION ONLY)	WAGSTAFF AND BRADY AND ROBERT ODLAND ASSOCIATES
RI-01489	PORTILLO, GARTH	1986	CULTURAL RESOURCES ASSESSMENT OF THE NATURE CONSERVANCY EXCHANGE, JOSHUA TREE PARCELS, RIVERSIDE COUNTY, CALIFORNIA	BUREAU OF LAND MANAGEMENT-RIVERSIDE
RI-02210	UNDERWOOD, J., J. CLELAND, C.M. WOOD, and R. APPLE	1986	Preliminary Cultural Resources Survey Report for the Us Telecom Fiber Optic Cable Project, From San Timoteo Canyon to Socorro, Texas: The California Segment	DAMES AND MOORE
RI-02963	DUFFIELD, ANNE and GALE BROEKER	1990	WIDE CANYON LAND EXCHANGE PARTS I, II, AND III T3S R5E, SECTIONS 6, 8, AND 12.	BUREAU OF LAND MANAGEMENT
RI-02972	DUFFIELD, ANNE and GALE BROEKER	1990	CLASS III CULTURE RESOURCE INVENTORY OF EAST RIDGE WIND PARK RIGHT-OF-WAY.	BUREAU OF LAND MANAGEMENT, PSSC RESOURCE AREA
RI-03497	Owen, Debbra M.D.	1992	NEGATIVE ARCHAEOLOGICAL SURVEY REPORT - THE CACTUS CITY ROADSIDE REST AREA	CALTRANS DISTRICT 11 - SAN DIEGO
RI-03832	**Conkling, Steven And Bradley Sturm**	**1994**	**CULTURAL RESOURCES ASSESSMENT - RYAN OIL EXCHANGE PARCEL, RIVERSIDE COUNTY, CALIFORNIA**	**LSA ASSOCIATES**
RI-04151	Love, Bruce And Bai "Tom" Tang	1999	CULTURAL RESOURCES REPORT HABITAT GOLF COURSE SKY VALLEY AREA, RIVERSIDE COUNTY, CALIFORNIA	CRM TECH
RI-05572	White, Robert S. And Laura S. White	2005	ARCHAEOLOGICAL AND PALEONTOLOGICAL ASSESSMENT OF TT33394, A 12.01-ACRE PARCEL LOCATED ADJACENT TO CASA GRANDE DRIVE, IN THE CITY OF DESERT HOT SPRINGS, RIVERSIDE COUNTY, CALIFORNIA	ARCHAEOLOGICAL ASSOCIATES

Table 1- Previous Cultural Resource Studies Conducted within 0.5-miles of the Project area. Reports in Bold are Within Project area.				
Report #	**Authors**	**Year**	**Report Title**	**Company**
RI-06045	**Hinton, Sarah**	**2003**	**ARCHAEOLOGICAL CLEARANCE SURVEY FORM: SECURE CLOSURE OF SELECT PARK ROADS, JOSHUA TREE NATIONAL PARK, CALIFORNIA (RIVERSIDE COUNTY PORTIONS)**	**JOSHUA TREE NATIONAL PARK**
RI-06053	Tetra Tech, Inc.	2005	AN ARCHAEOLOGICAL RESOURCES SURVEY OF APPROXIMATELY 54.5 ACRES FOR THE DESERT HOT SPRINGS PROJECT, UNINCORPORATED TERRITORY NORTH OF THE CITY OF DESERT HOT SPRINGS, COUNTY OF RIVERSIDE, CALIFORNIA	TETRA TECH, INC.
RI-06071	Jay K. Sander, Roger D. Mason, Evelyn N. Chandler, and Cary D. Cotterman	2003	FINAL CULTURAL RESOURCES INVENTORY FOR THE COACHELLA VALLEY MANAGEMENT PLAN, RIVERSIDE COUNTY, CA	CHAMBERS GROUP, INC., Redlands, CA
RI-06071	Jay K. Sander, Roger D. Mason, Evelyn N. Chandler, and Cary D. Cotterman	2003	FINAL CULTURAL RESOURCES INVENTORY FOR THE COACHELLA VALLEY MANAGEMENT PLAN, RIVERSIDE COUNTY, CA	CHAMBERS GROUP, INC., Redlands, CA
RI-06379	TANG, BAI, MICHAEL HOGAN, MATTHEW WETHERBEE, JOHN EDDY, and DANIEL BALLESTER	2005	IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES, ASSESSOR'S PARCEL NUMBER 671-200-007, NEAR THE CITY OF DESERT HOT SPRINGS, RIVERSIDE COUNTY, CA	CRM TECH
RI-06521	TANG, BAI, MICHAEL HOGAN, JOSH SMALLWOOD, and DANIEL BALLESTER	2006	HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT, TENTATIVE TRACT MAP NO. 34183, NEAR THE CITY OF DESERT HOT SPRINGS, RIVERSIDE COUNTY, CALIFORNIA	CRM TECH
RI-06522	**TANG, BAI, MICHAEL HOGAN, JOSH SMALLWOOD, and DANIEL BALLESTER**	**2006**	**HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT, TENTATIVE TRACT MAP NO. 34184, NEAR THE CITY OF DESERT HOT SPRINGS, RIVERSIDE COUNTY, CALIFORNIA**	**CRM TECH**
RI-06649	HOGAN, MICHAEL, BAI "TOM" TANG, MARIAM DAHDUL, DANIEL BALLESTER, LAURA HENSLEY, and JOSH SMALLWOOD	2006	FINAL REPORT OF RESULTS AND FINDINGS: ARCHAEOLOGICAL TESTING AND EVALUATION PROGRAM AT SITES CA-RIV-360, -5505H, -7586, AND -7587/H, TENTATIVE TRACT MAP NOS. 34183 AND 34184, NEAR THE CITY OF DESERT HOT SPRINGS, RIVERSIDE COUNTY, CALIFORNIA	CRM TECH
RI-06695	**ROBINSON, LYNN**	**2006**	**ARCHAEOLOGICAL CLEARANCE SURVEY FORM: STUDY THE IMPACTS OF ANTHROPOGENIC NITROGEN DEPOSITION ON WEED INVASION, BIODIVERSITY AND THE FIRE CYCLE, JOSHUA TREE NATIONAL PARK, CALIFORNIA**	**JOSHUA TREE NATIONAL MONUMENT**
RI-07104	Hruby, Zachary X., Daniel Ballester, and Laura H. Shaker	2007	Historical/ Archaeological Resources Survey Report: Tentative Parcel Map No. 35056, near the Unincorporated Community of Sky Valley, Riverside County, California.	CRM TECH
RI-07385	Dice, Michael	2007	Phase I Cultural Resources Assessment Two Springs RV Resort Expansion Project 14200 Indian Avenue North Palm Springs, Riverside County, California	Michael Brandman Associates
RI-07873	Kind, Aaron S.	2006	Cultural Resources Inventory For Proposed Restoration and Fence Lines in Blind Canyon 2006	Bureau of Land Management
RI-07973	Carolyn Orbann	2006	Archeological Clearance Survey Form (Close Select Park Roads, Phase II, Joshua Tree National Park, California)	Joshua Tree National Park, California
RI-08200	Josh Smallwood, Terri Jacquemain, Daniel Ballester, and Laura Shaker	2009	Phase I Historical/ Archaeological Assessment: Paradise Valley Specific Plan (SP339), Shavers Valley, Riverside County, California	CRM TECH, Colton, CA
RI-08409	William T. Eckhardt, Kristen E. Walker, and Richard L. Carrico	2004	Draft Cultural Resources Inventory of the Proposed Vista to Devers Transmission Line, Riverside and San Bernardino Counties, California.	Mooney/Hayes Associatesm LLC

Table 1- Previous Cultural Resource Studies Conducted within 0.5-miles of the Project area. Reports in Bold are Within Project area.

Report #	Authors	Year	Report Title	Company
RI-08410	William T. Eckhardt, Kristen E. Walker, and Richard L. Carrico	2004	Draft Cultural Resources Inventory of the Proposed Devers to Palo Verde II 500 kV Transmission Line, Riverside County, California.	Mooney/Hayes Associates, LLC
RI-08496	Michaeol Mirro	2010	Letter Report: Cultural Resources Records Search for Shot Points Located on Private Lands for the U.S. Geological Survey (USGS) Salton Seismic Imaging Proje--> Addendum	Applied EarthWorks
RI-08911	Matthew M. DeCarlo	2012	Cultural Resources Inventory of the Variance for the Proposed PAR Temporary Landing Pad Locations for Towers 2308 and 2413, Southern California Edison (SCE) Devers-Palo Verde 2 (DPV2) Project, Riverside County, California	ASM Affiliates
RI-08968	Michael M. DeCarlo and William T. Echardt	2011	Additional Survey of the SCE DPV2 Helicopter Landing Zones, Riverside County, California	ASM Affiliates
RI-08981	Matthew M. DeCarlo, Scott C. Justus, and William T. Eckhardt	2013	Summary Class III Cultural Resource Inventory, Proposed Southern California Edison Devers-Palo Verde 2 500kV Transmission Line Project, Riverside County, California	ASM Affiliates
RI-08982	Diane L. Winslow, Scott Justus, Doug Mengers, Matthew M. DeCarlo, and William T. Eckhardt	2011	Draft: Evaluation and National Register of Historic Places Recommendation of the Eligibility for 28 Cultural Resources Within the Devers-Palo Verde 2 500kv Transmission Line Project Area of Potential Effect, Riverside County, California	ASM Affiliates
RI-09043	Matthew M. DeCarlo and William T. Eckhardt	2010	Cultural Resources Inventory of the Proposed Helicopter Assembly Site H-1, Devers-Palo Verde 2 Project, Riverside County, California	ASM Affiliates
RI-09167	Roderic McLean, Natalie Brodie, Jacqueline Hall, Shannon Carmack, Phil Fulton, Ingri Quon, Erin Martinelli, Richard Erickson, and Jay Michalski	2013	Cultural Resources Assessment and Class III Inventory Volume I West of Devers Project San Bernardino and Riverside Counties, California.	LSA
RI-09385	Mathew M. DeCarlo and Diane L. Winslow	2015	Engineering Refinement Survey and Recommendation of Eligibility for Cultural Resources with Southern California Edison Company's West of Devers Upgrade Project, Riverside and San Bernardino Counties, California	ASM Affiliates
RI-09570	Matthew M. DeCarlo, Diane L. Winslow, Audry Williams, and Andrew Belcourt	2015	Cultural Resource Impact Assessment and Evaluation Status Report for Southern California Edison Company's West of Devers Upgrade Project, Riverside and San Bernardino Counties, California	ASM Affiliates
RI-09970	Molly Valasik and Sherri Gust	2015	Phase I Cultural Resources Assesment Report for the Paradise Valley Specific Plan Project in Riverside County, California	Cogstone
RI-10254	Terri Jacquemain, Harry M. Quinn, Baniel Ballester, and Laura H. Shaker	2010	Identification and Evaluation of Historic Properties: Mission Springs Water District, Groundwater Protection Pipeline Project, in and near the City of Desert Hot Springs, Riverside County, California	CRM TECH
RI-10374	Joan George and Venessa Mirro	2013	Phase 1 Cultural Resources Assessment for the Coachella Valley Water District's Whitewater River- Coachella Valley Stormwater Channel Project, Riverside County, California	Applied EarthWorks, Inc.
RI-10406	Michael Mirro	2012	Archaeological Sensitivity Model for the Whitewater River Stormwater Channel, Riverside County, California	Applied EarthWorks, Inc.
RI-10451	Michael Mirro	2010	Cultural Resources Records Search for Shot Points Located on Private Land for the U.S. Geological Survey (USGS) Salton Seismic Imaging Project (SSIP)	Applied EarthWorks, Inc.

Table 1- Previous Cultural Resource Studies Conducted within 0.5-miles of the Project area. Reports in Bold are Within Project area.				
Report #	**Authors**	**Year**	**Report Title**	**Company**
RI-10461	William T. Eckhardt, Matthew M. DeCarlo, Doug Mengers, Sherri Andrews, Don Laylander, and Tony Quach	2015	Archaeological Investigations and Monitoring for the Construction of the Devers-Palo Verde No. 2 Transmission Line Project, Riverside County, California	ASM Affiliates
RI-10750	Shannon Clarendon	2018	Historic Property Survey Report	Caltrans
RI-10751	Shannon Clarendon	2019	ARCHAEOLOGICAL SURVEY REPORT INTERSTATE 10 BLYTHE PAVEMENT REHABILITATION 08-RIV-010 PM R60/R74.3 RIVERSIDE COUNTY, CALIFORNIA PROJECT NUMBER 08-1600-0086 EA: 1C081	Caltrans
RI-10752	Shannon Clarendon	2019	FINDING OF NO ADVERSE EFFECT INTERSTATE 10 BLYTHE PAVEMENT REHABILITATION 08-RIV-010 PM R60.7/R74.3 RIVERSIDE COUNTY, CALIFORNIA	Caltrans

Based upon the records search, 42 previously documented cultural resources were recorded within the 0.5-mile study area radius, as shown in Table 2. One previously documented resource, CA-RIV-6726H is within the Project area. CA-RIV-6726H is the CRA. The CRA is recommend as a resource eligible for listing on the NRHP.

Table 2- Cultural Resources Previously Recorded within 0.5-Mile of the Project area. Resources in Bold are within Project Area.					
Primary No.	**Trinomial**	**Age**	**Attributes**	**Recording Events**	**Reports**
P-33-000043	CA-RIV-000043	Prehistoric	Bedrock milling feature	1950 (Bill Merritt)	RI-00991
P-33-000250	CA-RIV-000250	Prehistoric	Native American trail	1962 (Johnston, n/a); 1974 (J. Binning, n/a); 1980 (D. McCarthy, n/a); 2004 (Mooney & Associates); 2011 (ASM Affiliates)	RI-00221, RI-00991, RI-04452, RI-08410, RI-08982
P-33-000360	CA-RIV-000360	Prehistoric	Bedrock milling feature and ceramic scatter	1964 (F.J. & P.H. Johnston, n/a); 1981 (BLM); 1994 (LSA Associates, Inc.); 1994 (LSA Associates, Inc.); 2005 (CRM Tech)	RI-00991, RI-03832, RI-06522, RI-06649
P-33-001117	CA-RIV-001117	Historic	Historic foundation and road	1976 (UC Riverside, CA.); 1979 (Westec Services, Inc.); 1979 (Westec Services, Inc.); 1981 (CALTRANS); 1995 (Bruce Love, n/a); 2004 (Mooney & Associates) 2005 (Mooney, Jones & Stokes); 2011 (AECOM); 2016 (AECOM)	RI-00220, RI-00221, RI-00991, RI-03716, RI-03948, RI-04452, RI-08375, RI-08410, RI-09837, RI-10451
P-33-003079	CA-RIV-003079	Historic	Historic debris scatter	1986 (USDI-BLM, Riverside, CA.)	RI-01489

Table 2- Cultural Resources Previously Recorded within 0.5-Mile of the Project area. Resources in Bold are within Project Area.

Primary No.	Trinomial	Age	Attributes	Recording Events	Reports
P-33-005573	CA-RIV-005504H	Historic	Historic mining structure	1994 (LSA Associates, Inc.)	RI-03832, RI-06522, RI-06918
P-33-005575	N/A	Prehistoric	Isolated ceramic sherd	1994 (LSA Associates, Inc.)	RI-06522
P-33-005576	N/A	Prehistoric	Ceramic sherds	1994 (LSA Associates, Inc.)	RI-06522
P-33-008693	CA-RIV-006191H	Historic	Historic foundation and reminants of Camp Thousand Palms, one of Metropolitans construction camps along CRA	1999 (CRM TECH, Riverside, CA)	RI-04151
P-33-011010	N/A	Historic	San Andres Fault	1983 (Riv. Co. Historical Commission)	N/A
P-33-011265	**CA-RIV-006726H**	**Historic**	**Colorado River Aqueduct**	**2000 (SWCA, Inc.); 2001 (L& L Environmental, Inc.); 2003 (Statistical Research, Inc.); 2005 (Mooney Jones & Stokes); 2005 (Applied EarthWorks, Inc.); 2005 (Applied EarthWorks, Inc.); 2009 (ICF Jones & Stokes); 2011 (SRI); 2016 (ACE Environmental, LLC.)**	**RI-04424, RI-06070, RI-06707, RI-06920, RI-07206, RI-07671, RI-08374, RI-08453, RI-09167**
P-33-012877	CA-RIV-007161H	Historic	Historic foundation and tailings from CRA construction	N/A	N/A
P-33-012879	CA-RIV-007162H	Historic	Historic water gage station	N/A	N/A
P-33-013133	CA-RIV-007312	Historic	Historic foundation and ceramics most likely associated with CRA construction	N/A	N/A
P-33-013577	CA-RIV-007489	Historic	Historic mining camp	2004 (Mooney & Associates); 2010 (ASM Affiliates); 2011 (KP Environmental)	RI-08410
P-33-013874	CA-RIV-007588	Prehistoric	Bedrock milling feature	2004 (CRM Tech)	RI-06522
P-33-013876	CA-RIV-007590	Prehistoric	Bedrock milling feature	2004 (CRM Tech)	RI-06522
P-33-013877	CA-RIV-007591	Prehistoric	Bedrock milling feature	2004 (CRM Tech)	RI-06522
P-33-013881	CA-RIV-007595	Prehistoric	Prehistoric rock feature	2004 (Joshua Tree National Park)	RI-05824
P-33-013889	CA-RIV-007598	Historic	Historic concrete foundation	2004 (BLM); 2007 (L & L Environmental, Inc.)	RI-07125
P-33-015035	N/A	Historic	Small segment of historic transmission corridor	1998 (Archaeological Advisory Group); 2006 (LSA Associates, Inc.); 2012 (LSA Associates, Inc.); 2013 (SWCA); 2013 (SWCA);	RI-06722, RI-07603, RI-08980, RI-09035, RI-09151, RI-09167, RI-10157, RI-

Table 2- Cultural Resources Previously Recorded within 0.5-Mile of the Project area. Resources in Bold are within Project Area.

Primary No.	Trinomial	Age	Attributes	Recording Events	Reports
				2013 (SWCA); 2014 (SWCA)	10435, RI-10754
P-33-015048	CA-RIV-008009	Historic	Remants of Patton Desert Training Center	2006 (Applied EarthWorks, Inc.)	N/A
P-33-016766	N/A	Historic	Historic two tract dirt road aligment	2007 (Applied EarthWorks, Inc.)	N/A
P-33-017765	N/A	Historic	Historic refuse deposit	2009 (ICF Jones & Stokes); 2010 (ASM Affiliates)	N/A
P-33-018088	CA-RIV-009290	Historic	Historic refuse deposit	2010 (J. Schroeder and C. Marrs)	N/A
P-33-018089	CA-RIV-009291	Historic	Historic can scatter and rock feature	2010 (J. Schroeder and C. Marrs)	N/A
P-33-018144	CA-RIV-009324	Historic	Historic habitation site	2010 (ASM Affiliates)	N/A
P-33-018145	CA-RIV-009325	Historic	Historic refuse deposit	2010 (ASM Affiliates)	N/A
P-33-018147	CA-RIV-009327	Historic	Historic refuse scatter	2010 (ASM Affiliates); 2011 (KP Environmental); 2016 (AECOM)	RI-09837
P-33-018148	CA-RIV-009328	Historic	Historic refuse scatter	2010 (ASM Affiliates); 2011 (KP Environmental)	N/A
P-33-018149	CA-RIV-009329	Historic	Historic refuse dump	2010 (ASM Affiliates)	N/A
P-33-018181	N/A	Historic	Historic isolate	2010 (ASM Affiliates)	N/A
P-33-018657	CA-RIV-009500	Historic	Historic refuse dump and rock alignment	2010 (J. Schroeder)	N/A
P-33-018660	CA-RIV-009503	Historic	Sparse historic can scatter	2010 (J. Schroeder)	N/A
P-33-019667	CA-RIV-009985	Historic	Historic refuse scatter	2011 (ASM Affiliates)	N/A
P-33-019668	CA-RIV-009986	Historic	Historic refuse scatter	2001 (ASM Affiliates)	N/A
P-33-019669	N/A	Historic	Historic isolate	2011 (ASM Affiliates)	N/A
P-33-019670	N/A	Historic	Historic isolate	2011 (ASM Affiliates)	N/A
P-33-019986	CA-RIV-010157	Prehistoric	Bedrock milling feature and rock shelter	2011 (SBNF Fieldschool)	N/A
P-33-022363	CA-RIV-011413	Historic	Historic refuse scatter	2012 (LSA Associates, Inc)	N/A
P-33-022364	CA-RIV-011414	Historic	Historic foundation and can scatter	2012 (LSA Associates, Inc); 2014 (Southern California Edison)	N/A
P-33-024042	N/A	Historic	Historic isolate	2014 (PanGIS, Inc.)	N/A

Native American Heritage Commission Sacred Land File Search

On January 8, 2020, Aspen requested that the Native American Heritage Commission (NAHC) complete a search of its Sacred Lands Files to determine if resources significant to Native Americans have been recorded within the Project footprint. On January 15, 2020, Aspen received a response from the NAHC stating that the search of its Sacred Lands File was negative for the presence of resources within the Project footprint (Appendix B). The NAHC also provided their contact list of Native American tribal governments to contact for additional information regarding resources in the area. Metropolitan prepared and mailed letters via Certified Mail to all contacts on the NAHC contact list, requesting a 30 day response time. One response has been received to date. A member of the San Manuel Band of Mission Indians stated via email on March 6, 2020 that the tribe had no information they wished to provide, but proposed several cultural resource and tribal cultural resource mitigation measures.

Tribal Cultural Resource Consultation

On November 13, 2019, Metropolitan sent letters via Certified Mail to four Native American tribal contacts who had previously requested notification (under CEQA Statue 21080.3) to be informed through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with those tribes. Letters were sent to the San Manuel Band of Mission Indians, Twenty-nine Palms Band of Mission Indians, Cabazon Band of Mission Indians, and Soboba Band of Luiseño Indians. One tribe, the Soboba Band of Luiseño Indians, requested formal consultation.

A consultation telephone conference meeting between Metropolitan staff and the Soboba took place on February 6, 2020. The Soboba Tribal Historic Preservation Officer, Joseph Ontiveros, expressed concerns that the project and Colorado River Aqueduct are located in areas considered sensitive by the Soboba and described in tribal songs. Mr. Ontiveros proposed measures to avoid or minimize effects to Tribal Cultural Resources and a subsequent meeting was set in order for Metropolitan staff to view tribal resource maps that could not be shared electronically.

A follow up consultation meeting took place at the Soboba Tribal Administration Offices on February 19, 2020. Mr. Ontiveros described the tribal history, tribal use of the project area, and the importance of features of the project that may be sensitive for unidentified tribal cultural resources. Tribal resource maps were available to Metropolitan staff and the tribal cultural resources in the vicinity of the CRA were described, with an emphasis on intangible resources. The Soboba noted during the consultation process that original CRA construction took place prior to the implementation of state and federal environmental laws, thus no previous archaeological or tribal monitoring at the project locations has occurred to analyze impacts to archaeological or tribal cultural resources. The Soboba recommend a tribal monitor during archaeological surveys of the Project area and the implementation of a Tribal Cultural Resource Management Plan, detailing processes and procedures for unanticipated tribal cultural resource discoveries during project ground disturbing activities.

4. Background

Environmental Setting

The Project area encompasses the foothills of Eagle Mountain, Cottonwood Mountains, and Little San Bernardino Mountains, as well as the Big Morongo Canyon, specifically crossing Big Morongo Wash at the Big Morongo Siphon. The foothills of the Eagle Mountains and Cottonwood Mountains are primarily composed of many Mesozoic Plutonic rocks, that are mostly granitic and dioritic, which are intrusive into Paleozoic and older Mesozoic layers. This Mesozoic layer includes locally pink granite, quartz monzonite, gray biotite-rich granodiorite, quartz diorite, and biotite quartz monzonite porphyry. Two areas along the Chuckwalla Valley include Precambrian metasedimentary rocks of gneiss, schist, and mixed granitic rocks most notably northwest of Hayfield lake and east of Pinkham Wash. The little San Bernardino Mountains, north of Indio, are also primarily composed of Precambrian metasedimentary rocks of gneiss, schist, and mixed granitic. The valley floor and canyons of the Project area are mostly unsorted alluvial clay, silt, sand, and gravel, however, a portion of the California River Aqueduct transverses through the fluvial-alluvial Ocotillo Formation at the southern base of the Little San Bernardino Mountains which is mostly grey boulder conglomerate (Dibblee and Minch 2004; Dibblee and Minch 2008a, 2008b, 2008c).

The elevation of the environment ranges from about 1,700 feet at the valley floor to a max height of 5,813 feet in the Little San Bernardino Mountains. Within the Project area, however, the elevation stays between 1,700 feet to 2,500 feet.

Figure 1: Overview of Plant Communities near East Cottonwood No.1 Siphon. Facing West.

The Project area is located within the Coachella Valley, in the Colorado Desert region. This area is characterized by hot, dry summers, and mild winters, with temputatures exceeding 100°F in the summer months. Rainfall in the area is generally around 3 inches per year and mostly occurs during the winter months, although monsoonal storms can occur in summer. The Project area is entirely found in the Mojave Desert Creosote Bush Scrub Community, with mostly creosote (*Larrea tridentate*), and brittlebrush (*Encelia farinosa*). Palo verde (*Parkinsonia microphylla*), Mojave lupin (*Lupinus sparsiflorus ssp. Mohavensis*), chia (*Salvia columbariae*), and Mojave dandelion (*Malacothrix glabrata*), which were thriving during the suvey. Annual grasses and flowers were in recent bloom after the early spring showers.

5. Prehistory and Ethnography

Three elements of the cultural setting are important for understanding the cultural resources that may be present in the Project area. Those elements are the prehistoric, ethnographic, and historic records. These three elements are briefly discussed below.

Prehistory

Southern California's desert region has a long history of human occupation. Prehistoric material culture within this region has been organized according to periods or patterns that define technological, social, economic, and ideological elements. Within these periods, archaeologists have defined a chronology specific to the prehistory of the desert region, including the Project area.

The Mojave Desert region is divided into four major periods; Paleoindian Period, Lake Mojave Period, Pinto Period, and the Late Holocene which includes the Gypsum, Rose Springs, and Late Prehistoric complexes. Each of these is briefly described below. Time is presented throughout this section as calibrated years before present (BP).

Paleoindian Period (>10,000 to 8,000 BP)

The only cultural complex dating to the Pleistocene that has been confidently identified in the Mojave Desert is Clovis (ca. 10,000 to 8000 years B.P). It is marked by the characteristic fluted projectile points of the same name. Fluted points appear more often in the north and west than in other sectors of the Mojave with concentrations in the drainage basins of Pleistocene China Lake, Thompson Lake and Lake Manix. These are areas of substantial external stream runoff that would have been well watered into the Early Holocene. The nature of Paleo-Indian cultural systems remains poorly defined but they were probably a highly mobile people, living in small, temporary camps near permanent water sources (Sutton et al. 2007).

Lake Mojave Period (8,000 to 5,000 BP)

Most Lake Mojave Period sites within the Mojave Desert and southwestern Great Basin are early Holocene lakeshore occupations. Sutton stated that the subsistence strategy during this period was presumably one of hunting and utilization of lacustrine resources (Sutton 1988). The best examples of sites from this period are associated with the shoreline of Pleistocene Lake Mojave (Campbell et al. 1937). Artifacts include percussion-flaked foliate points and knives, Lake Mojave and Silver Lake projectile points, and an unspecialized tool kit of scrapers, gravers, and perforating tools. Extra-local materials are common and suggest extensive annual foraging ranges; marine shell beads likewise imply wide spheres of interaction. Small numbers of groundstone implements occur regularly within these components, although wear on these tools is often light and suggests there was little reliance on vegetal resources.

Extensive residential accumulations are known in addition to workshops and small camps. The large sites appear to be functionally the same as smaller ones and represent locations of recurrent use rather than different settlement types. Thus, the Lake Mojave pattern appears to reflect a forager-like strategy organized around relatively small social units (Sutton et al. 2007). Available settlement data indicate it was not extensive lakeside marshes that attracted human occupation, but rich resource patches in a host of environmental niches. Faunal remains from archaeological sites dating to this period reflect reliance on smaller taxa such as jackrabbits, rabbits, rodents and some reptiles. However, this focus on smaller taxa seems inconsistent with the abundance of heavy projectile points, bifaces and formalized scrapers that appear suited for large game (Sutton et al. 2007; Justice 2002).

Pinto Period (5,000 to 2,000 BP)

The Pinto complex has the most widespread expression of any of the early cultural complexes. There appears to be a broad continuity in the flaked stone technologies of the Lake Mojave and Pinto complexes, both of which are characterized by extensive use of stones tools, and by the regular use of bifacial and unifacial core/tool forms. The signature stemmed, indented-base Pinto series projectile points show high levels of blade reworking and appear to have used the tips for thrusting spears rather than as darts. Reduced stone tool diversity may indicate a reduction in foraging range, meanwhile the continuing presence of marine shell indicates regular interaction with coastal groups (Sutton et al. 2007).

The most important distinction between the Lake Mojave and Pinto assemblages relates to the prevalence of ground stone implements. Milling tools are moderately abundant in nearly all known Pinto deposits and sometimes occur in high frequency. This is a characteristic of a subsistence shift that occurred during this period, with a great focus on the exploitation of plants (Campbell and Campbell 1935). Revised dating indicates that intensive levels of plant processing began by about 7,000 years BP. This coincides with the emergence of similar economies along the coast.

Sites of the Pinto complex occur in a diverse range of topographic and environmental zones. Larger sites correlate with well-watered locations and contain substantial middens with a breadth of cultural debris not present at earlier smaller sites. These data are consistent with residential bases that were occupied for prolonged periods by moderate to large numbers of people. Such groups probably consisted of multiple families, inferring a collector-like settlement strategy with centralized site complexes in favorable locations to stage logistical forays into surrounding resource patches. Judging by high frequencies of milling tools at many of these bases, access to plant resources must have been a key determinant for site placement (Sutton et al. 2007). Patterns of animal exploitation remain similar to those of the Lake Mojave complex, although deer frequencies drop and reliance on small fauna increases slightly (Justice 2002).

Late Holocene; Gypsum Period (2,000 BP to 1,800 BP)

The Gypsum complex is defined by the presence of a range of corner-notched (Elko), concave base (Humboldt) and well-shouldered contracting-stemmed (Gypsum) point forms. The most confounding aspect of the Gypsum complex is its evident scarcity in the southern and eastern reaches of the desert. The Gypsum complex emerged during a time when conditions were somewhat wetter and cooler than during the Middle Holocene. During the early part of this complex, it is thought that settlement and subsistence were centered near streams. At the same time, it appears that there were increases in trade and social complexity. Gypsum sites are more numerous than those of preceding occupations and are found over a more diverse array of locations. Artifact assemblages include evidence of ritual activities including quartz crystals, paint and rock art, as well as numerous bifaces. Exploitation of deer, jackrabbits, cottontails, and rodents is also evident (Sutton et al. 2007; Warren 1984).

In apparent association with Gypsum and Elko points forms, perishable artifacts were found in Newberry Cave, south of Box Canyon in the Mojave Desert (Smith et al. 1957; Davis and Smith 1981). Among the artifacts uncovered were an atlatl hook and dart, sandals, cordage, tortoise shell bowls, and split-twig figurines which were dated to approximately 3,000 year B.P. Newberry Cave contained other items that pointed to ritual activity such as quartz crystals painted green, pictographs, and red, green, white, black and purple pigment samples.

Late Holocene; Rose Springs Period (1,800 BP to 900 BP)

The Rose Springs complex is marked by the regional appearance of the bow and arrow beginning around 1,800 BP. Common artifacts include Eastgate and Rose Springs series projectile points, stone knives, drills, pipes, bone awls, various milling implements, marine shell ornaments, and large quantities of obsidian. Rose Springs sites are commonly found near springs, along washes, and sometimes along lakeshores. Evidence of architecture includes wickiups, pit houses, and other types of structures suggesting intensive occupation. Populations in the desert appear to have reached their peak during this time. Most of the obsidian has been sourced to the Coso Volcanic Field demonstrating either travel to the southern Owens Valley or trade with people living in that vicinity. Animal exploitation was dominated by the use of jackrabbits, rabbits, and rodents. As lakes began to desiccate, settlement patterns seem to have shifted from association with permanent water sources to more ephemeral ones (Sutton 1988).

Time-sensitive projectile points from this period include the Rose Spring, Cottonwood, and Desert Side-Notched series. It has been argued that assemblages with Cottonwood points and no Desert Side-Notched points represent an earlier occupation than sites with both Cottonwood and Desert Side-notched points and that the earlier occupation is associated with the Hakataya influence from the Southwest (Warren 1984; Warren and Crabtree 1986). The southern Mojave Desert region was influenced by culturals along the Lower Colorado River and diagnostic materials from this period include poor “Rose Spring” like projectile points. (Warren and Crabtree 1986).

Late Holocene; Late Prehistoric Period (900 BP to Contact)

After about 900 BP, environmental conditions continued to deteriorate, populations appear to have declined, new technologies were introduced, and several separate cultural complexes emerged that are believed to represent the prehistoric aspects of known ethnographic groups. Late Prehistoric occupation sites represent a variety of types including a few major villages with associated cemeteries, special purpose sites, and seasonal sites. Artifact assemblages consist of Desert Side-notched series projectile points, buffware and brownware ceramics, shell and steatite beads, slate pendants, incised stones and a variety of milling tools. Obsidian use dropped off, while the use of cryptocrystalline silica increased (Sutton et al. 2007).

This period reflects a continuation of cultural developments established during the previous period, but with adaptive modifications. Trade along the Mojave River likely affected the people of the eastern Antelope Valley, allowing active groups to acquire considerable amounts of wealth. Socioeconomic and sociopolitical organizations continued to increase in complexity. However, most Antelope Valley groups appear to have developed stronger ties with coastal groups rather than those of the eastern desert (Warren 1984).

Ethnography and Archaeology

The Project area was occupied by the Cahuilla and Serrano people. The following is a brief ethnographic and archaeological summary of the Cahuilla and Serrano.

Cahuilla

The Project site is located within the Cahuilla traditional territories. The Cahuilla occupied a roughly 2,400-square-mile territory that covered a wide ecological range extending from the San Jacinto Mountains to the desert to the Salton Sea and was divided into geographical areas claimed by corporate groups called a Sib, composed of several lineages and villages (Bean 1972; Bean and Smith 1978). The territory was in a strategic location that provided access to resources through trade, as it was bisected by the major trade route, the Coco-Maricopa Trail. In addition, the territory was located at the periphery of two other routes, the Santa Fe Trail (which connected what is now the city of Needles to Cajon Pass) and the Yuman Trail which crossed the Borrego Desert, beginning in the city of Yuma and ending in San Diego (Bean 1972; Bean and Smith 1978). The Cahuilla, although separated from neighboring tribes by geographical features, still interacted with groups such as the Serrano, with whom the Cahuilla shared a similar ecological base, subsistence system, social and political structure, and belief system. They also regularly interacted with the Gabrielino, a group essential in the diffusion of ideas and natural resources from the coast to inland (Bean 1972).

Cahuilla settlements were occupied year-round, with portions of the population, (sometimes up to one-half or two-thirds) practicing residential mobility patterns. This residential mobility was marked by faction groups leaving the main settlements for days or weeks at a time in order to engage in hunting, gathering, and trading activities. The settlements were located near ecological and geographical features, such as rivers, springs, or caves and canyons in order to maximize availability of resources. Hunting and gathering resources such as acorns, mesquite, pinyon, cacti, tubers, and wild game remained the primary lifeway through this time. Agriculture was minimally practiced and did not have a profound effect on settlement or subsistence patterns. The Cahuilla maximized food storage with the use of large granaries near households and ceremonial structures (Bean 1972).

The first extensive contact with Europeans occurred when the Juan Bautista de Anza expedition passed through the area, setting up a trade route to provide resources to the missions by land. While the first contact was hostile, later interaction included baptisms (at the surrounding missions) and, eventually, the adoption by the Cahuilla of Euro-American cattle and agricultural practices. The Cahuilla managed to maintain their political and economic autonomy through the Spanish period, Mexican period, and into the American pioneer period. A smallpox epidemic in 1863 decimated a large part of the population and weakened their sovereignty. The Cahuilla remained (for the most part) on their own lands until 1877 when reservations were established (Bean and Smith 1978).

Serrano

It is nearly impossible to assign boundaries of the Serrano territory due to their sociopolitical organization and lack of reliable data. The Serrano were organized into local lineages occupying favored territories, but rarely claiming any territory far from the lineage's home base (Bean and Smith 1978). Generally speaking, the Serrano occupied an area in and around the San Bernardino Mountains, extending west to the Cajon Pass, east to Twentynine Palms, north to Victorville and south to Yucaipa Valley. The estimated population of the Serrano before European contact was 1,500 to 2,500. It is difficult to estimate the number of Serrano living in each village; however, likely, the villages held only as many Serrano as could be accommodated by water sources (Stickle and Weinman-Roberts 1980; Kroeber 1908).

The Serrano relied on hunting and gathering of plants for subsistence, with the occasional fishing. Both large and small mammals were hunted such as deer, antelope, rabbits, small rodents, and various birds like quail. Plant staples included seeds like acorns, pinion nuts and chia, bulbs, blooms, tubers, and roots of various plants like berries, yucca, barrel cactus, and mesquite. It is noted that fire was used as a management tool to increase the yields of certain plants (Bean and Smith 1978; Bean and Vane 2002).

The Serrano lived in rounded dwellings, domed structures with tule thatching built over an excavated area. These structures were built with fire pits and primarily served as sleeping areas with tule mats. The majority of the daily norm was conducted outdoors under square ramadas, or in the open.

In the Serrano artifact assemblage, it is noted to be similar to that of the neighboring Cahuilla and includes musical instruments such as rattles and flutes; utensils and ornaments such as fire drills, mortars, metates, pipes, beads, awls, and projectile points from wood, shell, bone, and stone. The Serrano were talented pottery and basket makers. Baskets were often made of deergrass, and yucca fibers. Their pots were made of coiled clay smoothed out with a paddle and set in the sun to dry before being fired in a pit. The brownware pottery was sometimes decorated with circular designs and lines in either red or black (Bean and Smith 1978; Stickle and Weinman-Roberts 1980).

The Serrano were also known for their petroglyphs. Abstract and geometric designs are often seen with representational figures of sheep, lizards and human beings. Some state that their petroglyphs were records of important events, rough maps, and artistic representations of native life (Stickle and Weinman-Roberts 1980).

History

Spanish Period (A.D. 1542 to A.D. 1821)

In 1542, Spanish exploration of the California coast began with the expedition of Juan Rodríguez Cabrillo, whose crew first came ashore at the present-day harbor of San Diego. Cabrillo's expedition then sailed north to the Los Angeles area, passing San Pedro Bay (Chartkoff and Chartkoff 1984; Kielbasa 1997). Cabrillo visited Santa Catalina Island during this time and made peaceful contact with the native inhabitants present there. In 1602, another Spanish expedition led by Sebastián Vizcaíno also had a peaceful encounter with the Tongva on Catalina Island (Bean and Smith 1978). While these early Spanish expeditions and others made initial contact with the local Native Californians and facilitated trade networks, Spanish colonization did not fully commence until 1769 with the expeditions of the Franciscan administrator Junipero Serra and the Spanish military, under the command of Gaspár de Portola in San Diego (Chartkoff and Chartkoff 1984; Laylander 2000). The encounters continued to be peaceful, but conflicts would arise soon after (Bean and Smith 1978).

These expeditions preceded the Spanish missionization efforts, which involved the establishment of 21 California Missions whose purpose was to "convert" the Native Californians to Catholicism within 10 years, and then return the mission lands to them (Chartkoff and Chartkoff 1984; Laylander 2000). To support the Spanish settlements, missions used Native Californians to work on the local farms and ranches. The San Gabriel Mission was the fourth mission founded in California in September of 1771 in present-day San Gabriel, Los Angeles County, California. In 1774, Don Juan Bautista de Anza led the first expedition through the Colorado Desert on to the San Gabriel Mission.

From 1784 to 1821 land grants were given out to wealthy Hispanic settlers as concessions from the Spanish Crown, giving settlement and grazing rights on specific tracts of land while the crown retained the title. Within the Los Angeles, Orange, Riverside, and San Bernardino counties, eleven main *ranchos* were established containing numerous subdivisions. The primary use of these lands was for cattle and sheep ranching.

Mexican Period (1821 to 1848)

The year 1821 marks the beginning of the Mexican Period and is concurrent with Mexico's independence from Spain. Mexico became California's new ruling government, and at first little changed for California Native Americans. The Franciscan missions continued to utilize the unpaid labor the natives provided, despite the Mexican Republic's 1824 Constitution that declared Indians to be Mexican citizens. This monopoly of Native American labor by a system that accounted for nearly one-sixth of the land in the state angered the newly land-granted colonial citizens (Castillo 1998). During this period, extensive land grants were established in the interior regions to spread the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. Landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary Southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of non-native inhabitants increased during this period because of the influx of explorers, trappers, and ranchers (Chartkoff and Chartkoff 1984; Castillo 1998). American trappers and miners passed through the area using the San Gregorio pass for access to various California destinations. From 1823-1825 European explorers Jose Romero, Jose Maria Estudillo, and Romualdo Pacheco led a series of expeditions through the Coachella Valley in search of a route to Yuma, Arizona. Fur trappers such as Kit Carson and Jedediah Smith began making trips to the Lower Colorado River and the Salton Sink in 1825.

Independence from Spain in 1821 also brought an end to the ban on foreign trade in California. This brought merchants and immigrants to the state, and whaling became an important industry in Southern California. By 1840, Los Angeles had become the most populated area in Southern California. After 1834, during the secularization of the missions, plots of land were carved out of the mission lands and sold to individuals (Perez 1982). The ranchos replaced the missions as California’s primary land institutions (Lake 2006). Rather than returning land to Native Americans, the Mexican government allowed the padres to keep the church, priests’ quarters, and gardens of each mission.

During the Mexican-American War of 1846 to 1848, the Mexican army defeated U.S. forces at the Battle of the Old Woman's Gun in Dominguez Hills, the Battle of Chino, and the Siege of Los Angeles west of the Project area. But the hope of a Mexican victory faded, and California forces surrendered in exchange for pardons at Cahuenga in January 1847. This ended the resistance to the U.S. takeover of the territory and ushered in the American Period.

American Period (1847 to Present)

In February 1848 California became a U.S. holding with the signing of the Treaty of Guadalupe Hidalgo. This treaty ended the Mexican-American War and ceded much of the southwest (California, Nevada, Utah, and portions of Arizona, New Mexico, Colorado, and Wyoming) to the United States. Los Angeles County was officially established in 1850 with statehood and included portions of present-day Kern, San Bernardino, Orange, and Riverside counties. San Bernardino separated in 1853, Kern in 1866 and Orange County in 1889. Riverside County was created in 1893.

In 1848 gold was discovered at Sutter's Mill near Coloma on the south fork of the American River. By 1849 the rush to California's gold had begun. The southern route to reach California came by way of Santa Fe or Salt Lake City and essentially followed the Old Spanish Trail to cross the Mojave Desert and enter the southern California valley through Cajon Pass. This trail had previously been used to trade goods from Santa Fe and Mexican horses and mules from Los Angeles (Latta 1932). The Americanization of the Native American began in 1852 after the Mormons settled in San Bernardino. In the 1850s and 1860s, the eastern and western Mojave Desert was home to ranchers raising beef and sheep; gold, silver, lead, and borax miners; and small settlements of homesteaders and merchants.

Not long after California joined the Union in 1850, the U.S. Congress directed the United States Army to send teams of skilled land surveyors to investigate potential railroad routes not only to connect the east to the west but other routes as well. For two years, from 1853 to 1854, Lieutenant Robert Stockton Williamson of the United States Army Corps of Topographical Engineers and his team surveyed all the potential wagon road and railroad routes on the Pacific Coast between the Columbia River and San Diego. In 1862, William Bradshaw established the first road through Riverside County beginning at San Bernardino and ending at present-day Ehrenberg, AZ. After the Central Pacific Railroad and Union Pacific Railroad collaborated to construct a transcontinental line to connect the east to the west in 1869, the newly formed Southern Pacific Railroad ran a line from its terminal in Lathrop (south of Sacramento), through the Tehachapi Mountains east to Barstow, and then south through the Cajon Pass to their switching station in Colton, San Bernardino County. The Southern Pacific Railroad connected northern and southern California in 1876, effectively joining the San Joaquin Valley to the Los Angeles Basin (Morris 1977).

Metropolitan Water District of Southern California

Metropoltin was established in 1928 under California Legislature to build and operate the 242 mile Colorado River Aqueduct. The purpose of the major undertaking was to provide a consistant and reliable source of water to the gowing Southern California coastal areas but also to provide jobs during the Great Depression. Construction began in December 1931 and would employ about 35,000 people over the next 10 years, who worked 24 hours a day 7 days a week in the Mojave desert, completing major earth movement and excavations to construct four dams, five pumping plants, blasting 90 miles of tunnels, and excavating 150 miles of canals, siphons, conduits, and pipelines (Figures 2, 3 and 4).

Figure 2. Monolithic Siphon Construction (MWD 1941)

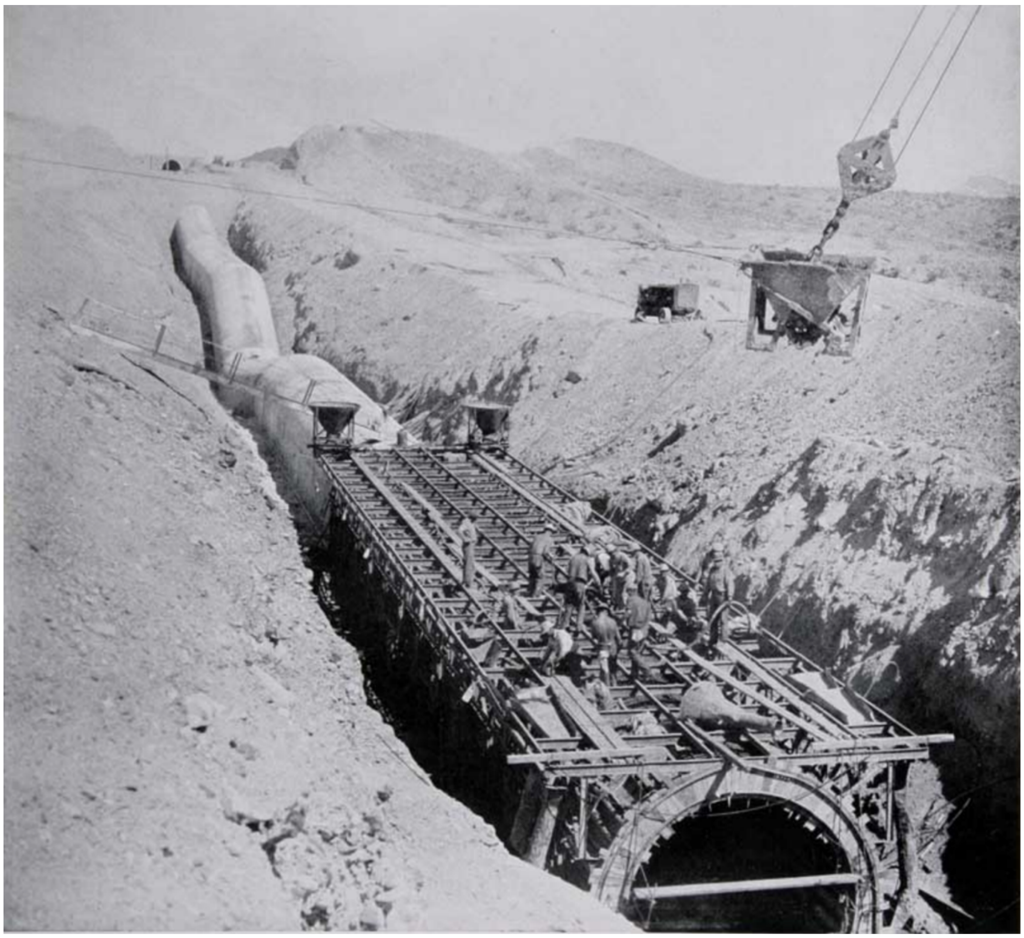

Figure 3. Final holing of the 13-mile San Jacinto Tunnel (MWD 1941)

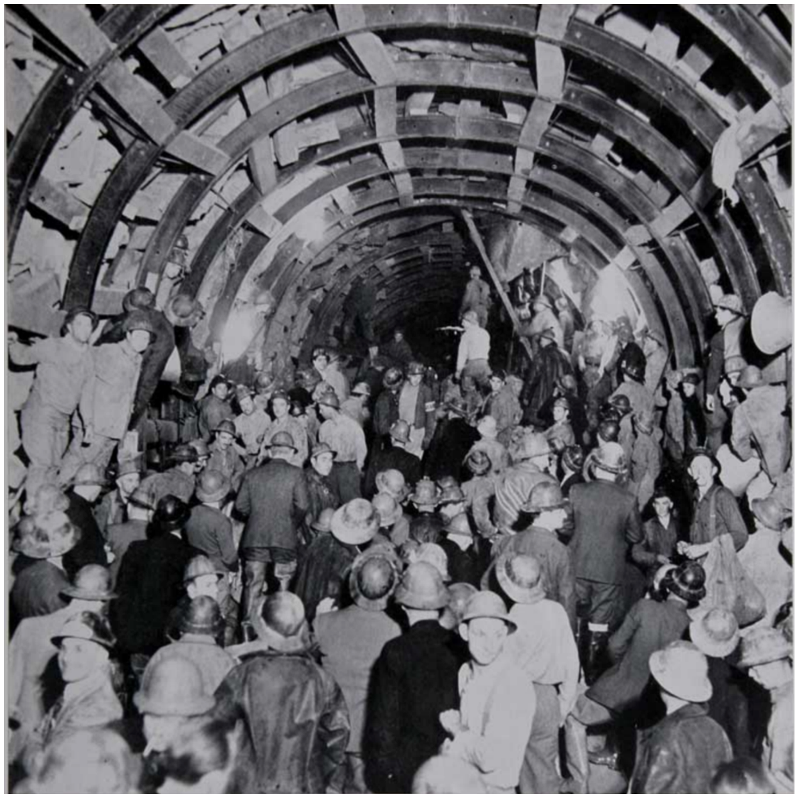

Figure 4. Aqueduct Canal Section (MWD 1941)

In June 1941, the valve at Weymouth Treatment Plant was first turned and water flowed to Pasadena, one of the first 13 original cities Metropolitan would service. By the end of July 1941, water would flow to Burbank, Beverly Hills, Compton, and Santa Monica with Orange County cities following soon after (MWD 1941; MWD 2020).

In the 1940s and 1950s, when World War II and drought hit Southern California, agencies from San Diego, Inland Empire, and Ventura contracted with Metroplitan, which expanded its water reliability to 5,200 square miles. Metroplitan put its support behind the State Water Project in the 1960s, and in the 1970s, Metroplitan expanded its distribution system to bring water from Northern California, as well as the Colorado River. Since California is susceptible to drought conditions, Metroplitan committed to diversifying its water supply in the late 1980s and early 1990s with the Integrated Water Resources Plan, which focused on water preservation through conservation, recycling, and recovery. For the last 75 years, Metropolitian has provided road grading of all access roads so regular maintence to CRA can occur. Today, Metropolitan serves about 19 million people in Southern California (MWD 2020).

6. Field Methods and Results

Methods

On April 13 and 14, 2020 an intensive archaeological survey was conducted by Elliot D'Antin, Cultural Resource Specialist, B.S., of Aspen. Mr. D'Antin was accompanied by Victoria Banda representing Soboba Band of Luiseno Indians, and Michelle Morrison, Environmental Specialist for Metropolitan. The survey crew was guided by Malinda K. Stalvey, Senior Environmental Specialist of Metropolitan. Mr. D'Antin is qualified under the Secretary of the Interior's Qualification Standards and Guidelines for Archaeology and Historic Preservation and has in-depth familiarity with the prehistoric and historic period cultural resources of Riverside County.

The survey crew utilized intuitive survey methods covering 100% of each Project area surrounding the siphons, with transects spaced 5-meters apart, or less. For prehistoric resources, the surveyor examined the ground surface searching visually for evidence that would suggest the presence of prehistoric deposits. Such evidence would typically include lithic fragments of economically important stone materials for cutting and hunting tools, stone tools used for grinding/pounding plants or animals (e.g., metates, manos, pestles, bedrock milling surfaces), evidence of rock art, remains of dietary materials that may have been consumed in the past (e.g., fragments of bone), evidence of pit houses, and rock shelters.

The ground surfaces surveyed were also inspected for elements of historic uses, including aged roadbeds, barbed wire fencing, standing or fallen wooden posts, structural remains of buildings, cairns, wells, prospects, and metal or tin debris (e.g., tin cans, abandoned machinery or vehicles), and historic campsites related to the construction of the CRA.

Results

All 24 siphon locations were intensively surveyed with ground visability being high, about 90-95%. After completing the survey, no new prehistoric or historic resources were discovered at any of the 24 siphon locations. One previously recorded historic resource was encounted, CA-RIV-6726H, which is the CRA. Most of the CRA is buried underground but small portions of each siphon access location were observed (Figures 5-6).

Figure 5. Overview of Cottonwood Springs Siphon. Facing West.

Figure 6. No Name Siphon East. Facing Southeast.

Previously Recorded Sites Relocated:

CA-RIV-6726H is the Colorado River Aqueduct. It was recorded within the last 5 years and appears to retain the same integrity as when it was originally recorded. Therefore, an updated DPR form was not completed for this resource**.** CA-RIV-6726H is eligible for inclusion in the NRHP and the CRHR.

7. Conclusions and Recommendations

Aspen conducted archaeological literature reviews and record searches, as well as an intensive field survey in support of the Project in January and April 2020. The main goal of this archaeological investigation was to gather and analyze the information needed to determine if the Project would impact cultural resources.

The record search and archival research revealed that one previously documented resource, CA-RIV-6726H, is located within the Project area. Additionally, the record search revealed that four cultural resource investigations had been conducted previously that encompassed all or a portion of the Project area. In addition, the NAHC sent results of its Scared Lands File search on January 15, 2020, which were negative. Aspen completed a field survey of the Project area on April 13-14, 2020 which yielded no new prehistoric or historic resources in any of the 24 siphon locations. Portions of the previously documented historic resource, CA-RIV-6726H, known as the CRA, were encountered during the field survey. CA-RIV-6726H has previously been recommended eligible for the NRHP and CRHR.

Since the portions of CA-RIV-6726H where the Project would occur is buried underground and will not be disturbed, the Project, as is, would not cause an adverse impact to CA-RIV-6726H, nor would the proposed

Project impact the integrity of the historic resource. Therefore, no further cultural resources investigations are recommended at this time.

The following guidelines are recommended in the event of an unanticipated cultural resource discovery during Project construction:

> If previously unknown cultural resources are encountered during any ground-disturbing activity related to the Project, a qualified archaeologist will be notified to asses the significance of the find. All excavations within 50 feet of any unanticipated cultural resources discovered during ground-disturbing actives shall be temporarily diverted or halted. If the qualified archaeologist determines the find to be potentially significant, ground-disturbing activities can continue once the find is mitigated accordingly.

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2008b. Geologic map of the Thousand Palms & Lost Horse Mountain 15 minute quadrangles, Riverside County, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-372, scale 1:62,500.

2008c. Geologic map of the Palm Desert & Coachella 15 minute quadrangles, Riverside County, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-373, scale 1:62,500

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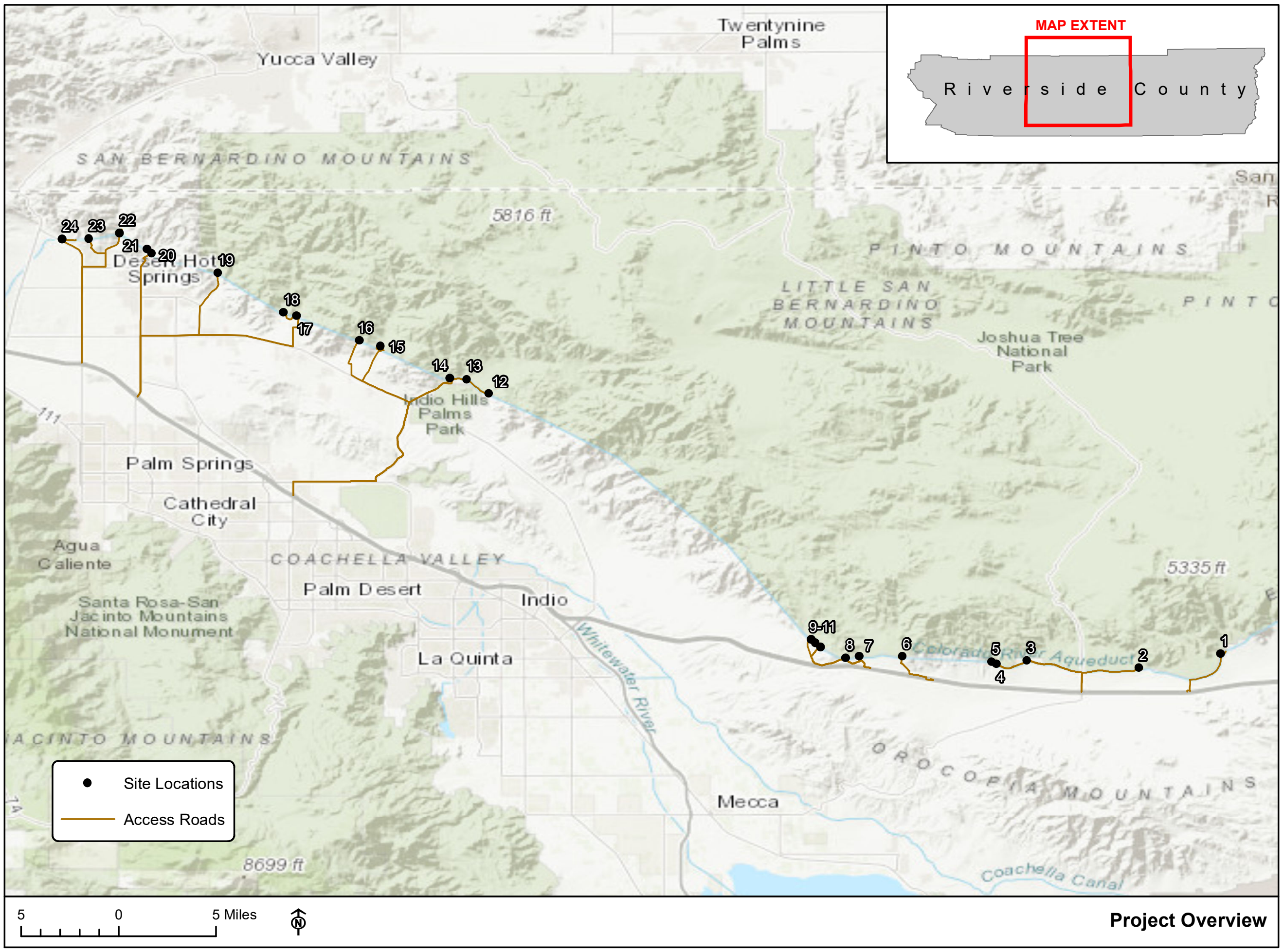
Appendix A: Project Map



Appendix B: NAHC Sacred Lands File Search Results

STATE OF CALIFORNIA **Gavin Newsom, *Governor***

NATIVE AMERICAN HERITAGE COMMISSION

January 15, 2020

James Allan
Aspen Environmental Group

Via Email to: jallan@aspeneg.com

Re: MWD-CRASPP Project, Riverside County

Dear Mr. Allan:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Staff Services Analyst

Attachment

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

Native American Heritage Commission
Native American Contact List
Riverside County
1/15/2020

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net
Cahuilla

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919
Cahuilla

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com
Cahuilla

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov
Cahuilla

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net
Cahuilla

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712
Cahuilla

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov
Cahuilla
Serrano

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Rroad
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov
Cahuilla
Serrano

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov
Cahuilla

Ramona Band of Cahuilla
John Gomez, Environmental Coordinator
P. O. Box 391670
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
jgomez@ramona-nsn.gov
Cahuilla

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed MWD-CRASPP Project, Riverside County.

Native American Heritage Commission
Native American Contact List
Riverside County
1/15/2020

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838
Newhall, CA, 91322
Phone: (503) 539 - 0933
Fax: (503) 574-3308
ddyocum@comcast.net
Kitanemuk
Vanyume
Tataviam

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov
Serrano

Santa Rosa Band of Cahuilla Indians
Steven Estrada, Chairperson
P.O. Box 391820
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mflaxbeard@santarosacahuilla-nsn.gov
Cahuilla

Santa Rosa Band of Cahuilla Indians
Mercedes Estrada,
P. O. Box 391820
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mercedes.estrada@santarosacahuilla-nsn.gov
Cahuilla

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com
Serrano

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com
Serrano

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487
San Jacinto, CA, 92581
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov
Cahuilla
Luiseno

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487
San Jacinto, CA, 92583
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov
Cahuilla
Luiseno

Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
P.O. Box 1160
Thermal, CA, 92274
Phone: (760) 399 - 0022
Fax: (760) 397-8146
mmirelez@tmdci.org
Cahuilla

Twenty-Nine Palms Band of Mission Indians
Darrell Mike, Chairperson
46-200 Harrison Place
Coachella, CA, 92236
Phone: (760) 863 - 2444
Fax: (760) 863-2449
29chairman@29palmsbomi-nsn.gov
Chemehuevi

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed MWD-CRASPP Project, Riverside County.

Native American Heritage Commission
Native American Contact List
Riverside County
1/15/2020

Twenty-Nine Palms Band of Mission Indians Anthony Madrigal, Tribal Historic Preservation Officer 46-200 Harrison Place Coachella, CA, 92236 Phone: (760) 775 - 3259 amadrigal@29palmsbomi-nsn.gov	Chemehuevi

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Confidential Appendix C: Previous Site Records

Provided to Metropolitan Seperately