

Biological Assessment

Four bridges on Chuckwalla Valley Road between Interstate 10/Corn Springs Road and Interstate 10/Palen Dunes Drive, Unincorporated Riverside County

08-Riv-Chuckwalla Valley Road

Over Aztec Ditch (Br. No. 56C0102; Federal Project No. BRLO-5956[239])

Over Tarantula Ditch (Br. No. 56C0103; Federal Project No. BRLO-5956[227])

Over Sutro Ditch (Br. No. 56C0104; Federal Project No. BRLO-5956[226])

Over Acari Ditch (Br. No. 56C0108; Federal Project No. BRLO-5956[225])

FWS File Number – 08ECAR00-2020-SLI-0123

February 2020

This page intentionally left blank

Chuckwalla Valley Road Bridge Replacements Project

Biological Assessment

Replacement of four bridges on Chuckwalla Valley Road between Interstate 10/Corn Springs Road
and Interstate 10/Palen Dunes Drive, Unincorporated Riverside County, California

08-Riv-Chuckwalla Valley Road

Over Aztec Ditch (Br. No. 56C0102; Federal Project No. BRLO-5956[239])


Over Tarantula Ditch (Br. No. 56C0103; Federal Project No. BRLO-5956[227])

Over Sutro Ditch (Br. No. 56C0104; Federal Project No. BRLO-5956[226])

Over Acari Ditch (Br. No. 56C0108; Federal Project No. BRLO-5956[225])

FWS File Number – 08ECAR00-2020-SLI-0123

February 2020

Prepared By:  Date: 2/26/2020

Colleen Martin, Senior Biologist
949-333-6622
ICF, 49 Discovery, Suite 250, Irvine, CA 92618

Prepared By:  Date: 2/26/2020

Frances Segovia, Senior Transportation Planner
951-551-1646
Riverside County Transportation Department
3525 14th Street, Riverside, CA 92501

Approved By:  Date: 3-17-2020

Aaron P. Burton, Senior Environmental Planner
909-383-2841
Local Assistance - Environmental Support
California Department of Transportation, District 8

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiotape, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to County of Riverside Transportation Department, Attn: Frances Segovia, 3525 14th Street, Riverside, CA 92501, (951) 955-1646; use the California Relay Service 1(800) 735-2929 TTY, 1(800)735-2929 (Voice) or 711.

This page intentionally left blank

Table of Contents

Chapter 1. Introduction	1
1.1. Purpose and Need of the Proposed Action.....	1
1.2. Threatened, Endangered, Proposed Threatened or Proposed Endangered Species, Critical Habitat	2
1.2.1. Candidate Species.....	2
1.2.2. Critical Habitat	3
1.3. Consultation History.....	3
1.4. Description of Proposed Action	3
1.4.1. Project Summary	3
1.4.2. Authorities and Discretion	4
1.4.3. Project Location	5
1.4.4. Define Action Area	6
1.4.5. Conservation Measures	6
Chapter 2. Study Methods	9
2.1. Summary	9
2.1.1. Desert Tortoise Protocol Surveys.....	9
2.2. Personnel and Survey Dates.....	10
2.3. Resource Agency Coordination and Professional Contacts	11
2.4. Limitations and Assumptions that May Influence Results	12
Chapter 3. Environmental Baseline.....	13
3.1. Habitat Conditions in the Action Area.....	13
3.2. Summary of Environmental Baseline	13
3.3. Describe the Action Area	14
3.3.1. Physical Conditions.....	14
3.3.2. Biological Conditions in the Action Area.....	15
Chapter 4. Federally Listed/Proposed Species and Designated Critical Habitat within the Action Area	19
4.1. Federally Listed/Proposed Species	19
4.2. Discussion of Desert Tortoise	19
4.3. Survey Results	20

4.4. Status of Designated Critical Habitat in the Action Area for Desert Tortoise.....	21
Chapter 5. Effects of the Project on the Action Area	23
5.1.1. Construction Scenario.....	23
5.1.2. Sequencing and Schedule	24
5.1.3. Stressors from Project Actions	24
5.1.4. Project Operation and Maintenance.....	25
5.2. Exposure to Stressors from the Action.....	26
5.3. Response to the Exposure.....	27
5.4. Effects of the Action	27
5.5. Conservation Measures and Compensation Proposal.....	28
5.5.1. Conservation Measures	28
5.5.2. Compensation.....	31
5.6. Effects of Interrelated and Interdependent Actions/Conclusions and Determination	31
5.7. Cumulative Effects.....	32
5.7.1. Cumulative Effects on Desert Tortoise	32
5.8. Determination.....	32
5.8.1. Species and Critical Habitat Determination	32
5.8.2. Discussion Supporting Determination	32
Chapter 6. Literature Cited.....	35

Appendices

- Appendix A. Project Figures
- Appendix B. USFWS Official Species List
- Appendix C. Site Photos
- Appendix D. Desert Tortoise Survey Data Sheets
- Appendix E. Plant and Wildlife Species Observed

List of Tables and Figures

Tables

Table 1. Federally Listed Species Potentially Affected by the Project.....	2
Table 2. USGS 7.5-Minute Quadrangle and Section, Township, Range for Each Bridge	6
Table 3. Field Personnel Qualifications	10
Table 4. Survey Dates, Bridge Location, and Personnel	11
Table 5. Vegetation Communities/Land Use Types within the BSA.....	15
Table 6. Impacts on Desert Tortoise Critical Habitat with PBFs.....	24

Figures (*in Appendix A*)

Figure 1. Regional Vicinity Map
Figure 2. Project Location/USGS Topographic Map
Figure 3. USFWS Critical Habitat
Figure 4. Proposed Project Design
Figure 5. Project Impact Areas
Figure 6. Biological Study Area
Figure 7. Desert Tortoise Protocol Surveys
Figure 8. Vegetation Communities/Land Use Types

Acronym List

amsl	above mean sea level
BMP	Best Management Practices
BSA	Biological Study Area
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of Riverside
CWA	Clean Water Act
Department	California Department of Transportation
ESAs	Environmentally Sensitive Areas
FCR	Field Contact Representative
FESA	Federal Endangered Species Act
I-10	Interstate 10
IPaC	USFWS Information, Planning, and Conservation System
JSA	Jurisdictional Study Area
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
PBFs	Physical and Biological Features
Project	Chuckwalla Valley Road Bridge Replacement Project
RWQCB	Regional Water Quality Control Board
SD	Structurally Deficient
SR	Sufficiency Rating
USC	United State Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
ZOI	Zone of Influence

Executive Summary

The purpose of this Biological Assessment is to provide technical information and to review the proposed Project in sufficient detail to determine to what extent the proposed Project may affect threatened, endangered, or proposed species. The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Biological Assessment under its assumption of responsibility at 23 United States Code (U.S.C.) 326 or 23 U.S.C 327. The Biological Assessment is also prepared in accordance with 50 Code of Federal Regulations (CFR) 402; legal requirements found in Section 7 (a)(2) of the federal Endangered Species Act (FESA) (16 U.S.C. 1536(c)); and with FHWA and Department regulation, policy, and guidance. The document presents technical information upon which later decisions regarding Project effects are developed.

The County of Riverside (County), in cooperation with the Department, is proposing to replace the Aztec Ditch Bridge (#56C0102), Tarantula Ditch Bridge (#56C0103), Sutro Ditch Bridge (#56C0104), and Acari Ditch Bridge (#56C0108) on Chuckwalla Valley Road. These bridges have been identified as scour critical and structurally deficient bridges along Chuckwalla Valley Road east of Desert Center in unincorporated Riverside County, California. The County proposes replacing the existing four 2-lane timber bridges along Chuckwalla Valley Road with new 2-lane modern bridges with a curb-to-curb roadway width of 32 feet at the same locations. Modern traffic barriers/railings meeting current Department safety design standards would also be constructed.

In order to identify and determine potential direct, indirect, and cumulative effects on federally listed species within, and adjacent to, the Project, a Biological Study Area (BSA) was established, which included a 300-foot buffer from the edge of proposed permanent disturbance limits determined from preliminary engineering design. Reconnaissance studies and surveys conducted within the BSA determined that potential habitat occurs for one federally listed species: desert tortoise (*Gopherus agassizii*). Protocol field surveys determined that desert tortoise is absent from the BSA. In accordance with Section 7 of the FESA, the Department has determined that the proposed replacement of Aztec Ditch Bridge (#56C0102), Tarantula Ditch Bridge (#56C0103), Sutro Ditch Bridge (#56C0104), and Acari Ditch Bridge (#56C0108) would have *no effect* on desert tortoise due to the species absence during protocol studies. However, the Project site occurs within federally designated Critical Habitat for desert tortoise. As such, the Project would result in a *may affect, but not likely to adversely affect* determination for the desert tortoise designated Critical Habitat based on the fact that Project construction impacts would be temporary in nature and would not affect the long-term conservation value of the Critical Habitat.

This page intentionally left blank

Chapter 1. Introduction

The County of Riverside (County), in cooperation with the California Department of Transportation (Department), proposes to replace the following four existing structurally deficient timber bridges along Chuckwalla Valley Road near Desert Center in Riverside County, California (Appendix A, Figures 1 and 2):

- Chuckwalla Valley Road Bridge over Aztec Ditch (State Br. No. 56C0102) (Federal Aid Project No. BRLO-5956[239])
- Chuckwalla Valley Road Bridge over Tarantula Ditch (State Br. No. 56C0103) (Federal Aid Project No. BRLO-5956[227])
- Chuckwalla Valley Road Bridge over Sutro Ditch (State Br. No. 56C0104) (Federal Aid Project No. BRLO-5956[226])
- Chuckwalla Valley Road Bridge over Acari Ditch (State Br. No. 56C0108) (Federal Aid Project No. BRLO-5956[225])

1.1. Purpose and Need of the Proposed Action

Chuckwalla Valley Road is an approximately 16-mile stretch of frontage road that runs parallel to Interstate 10 (I-10). It connects Corn Springs Road and I-10 at the west end and Ford Dry Lake Road and I-10 at the east end. The existing timber bridges carry two lanes (one lane in each direction) of traffic over the Aztec, Tarantula, Sutro, and Acari ditches. The timber bridges range from 41 to 60 feet in length and are approximately 24 feet, 8 inches wide from curb-to-curb. Currently, load restrictions posted on the four bridges limit the vehicular load-carrying capacity below normal standards. The bridges are listed in the federal Eligible Bridge List as “Structurally Deficient (SD)” with a low Sufficiency Rating (SR) between 39.3 and 49.2. An SR is essentially an overall rating of the bridge’s functional/geometric obsolescence, and its essentiality to the public. A low SR may be due to structural defects, narrow lanes, low vertical clearance, or any of many possible issues. A bridge is healthy when its sufficiency rating is more than 80.0. Bridges with an SR equal to or less than 80.0 and more than 50.0 require rehabilitation or widening. When the SR falls below 50.0, bridge replacement is considered for public safety.

The purpose of the Chuckwalla Valley Road Bridge Replacement Project (Project) is outlined below:

- Replace the existing structurally deficient 2-lane bridges with new, modern 2-lane bridges to provide safe facilities.
- Meet current design standards and accommodate the local roadway requirements.
- Continue to use the Chuckwalla Valley Road as a frontage road to carry detoured traffic and emergency vehicles when the I-10 is closed due to construction or during emergency incidents.

- Maintain access for vehicles serving various utilities and farmlands located along the road.

1.2. Threatened, Endangered, Proposed Threatened or Proposed Endangered Species, Critical Habitat

An updated species list was provided by U.S. Fish and Wildlife Service (USFWS) for the Action Area of this Project (see Appendix B). The following listed and proposed species and/or designated Critical Habitats were identified on the updated federal species list and were considered during this analysis (Table 1).

- Desert tortoise (*Gopherus agassizii*), Threatened

Table 1. Federally Listed Species Potentially Affected by the Project

Common Name	Scientific Name	Status	Determination
Species			
Desert tortoise	<i>Gopherus agassizii</i>	T	No effect
Critical Habitat			
Desert tortoise Critical Habitat	N/A	CH	May affect, not likely to adversely affect

T = Federally Threatened, CH = Critical Habitat

In order to identify and determine potential direct, indirect, and cumulative effects on federally listed species within, and adjacent to, the Project, a Biological Study Area (BSA) was established, which included a 300-foot buffer from the edge of proposed permanent disturbance limits determined from preliminary engineering design. Reconnaissance studies and surveys conducted within the BSA determined that potential habitat occurs for one federally listed species: desert tortoise (*Gopherus agassizii*). Protocol field surveys determined that desert tortoise is absent from the BSA. In accordance with Section 7 of the federal Endangered Species Act (FESA), the Department has determined that the proposed replacement of Aztec Ditch Bridge, Tarantula Ditch Bridge, Sutro Ditch Bridge, and Acari Ditch Bridge would have *no effect* on desert tortoise due to the species absence during protocol studies. However, the Project site does occur within federally designated Critical Habitat for desert tortoise. As such, the Project would result in a *may affect, but not likely to adversely affect* determination for the desert tortoise designated Critical Habitat based on the fact that Project construction impacts would be temporary in nature and would not affect the long-term conservation value of the Critical Habitat.

1.2.1. Candidate Species

No federal candidate species would be affected by the Project.

1.2.2. Critical Habitat

The proposed Action addressed within this document falls within the northern edge of the desert tortoise Chuckwalla Critical Habitat Unit within the Colorado Desert Recovery Unit (Appendix A, Figure 3; USFWS 1994, 2009). The creosote bush scrub and desert wash vegetation communities within the Action Area provide the Physical Biological Features (PBFs) for desert tortoise, including: foraging, dispersal, shelter, genetic exchange, and egg laying. Existing pressures on the PBFs within the Action Area include vehicular traffic along Chuckwalla Valley Road, maintenance of the road right-of-way and local utilities, and off-road vehicle use of open lands in the vicinity. These activities have left the Project site sparsely vegetated and have degraded habitat quality in areas adjacent to the road. Regardless, the bridge undercrossings may serve as an important core habitat linkage for desert tortoise movement and genetic exchange through the Chuckwalla Valley, even if the species is not present within the Action Area.

1.3. Consultation History

The following coordination with agencies and other partners for this Project has occurred (see Section 2.3 for details):

- March 18, 2019. An official USFWS species list of proposed, threatened, and endangered species and Critical Habitat within and adjacent to the BSA was obtained through the USFWS Information, Planning, and Conservation (IPaC) System.
- May 2019. Aaron Burton (Department) contacted John Taylor (USFWS) to discuss the proposed Project. Since the proposed bridge replacements occur within Critical Habitat for desert tortoise, it was determined that a Biological Assessment for the Project will be required and that formal Section 7 consultation with USFWS for potential effects on desert tortoise Critical Habitat will be necessary.
- January 16, 2020. An updated official USFWS species list was obtained (USFWS 2020; Appendix B).

1.4. Description of Proposed Action

1.4.1. Project Summary

Chuckwalla Valley Road is an approximately 16-mile stretch of frontage road that runs parallel to I-10. It connects Corn Springs Road and I-10 at the west end and Ford Dry Lake Road and I-10 at the east end. The four existing bridges were constructed in 1931 and widened in 1944. These timber bridges are supported on timber cap beams at the bents and abutment seats, all on timber pile columns. Classified as a Local Rural Road, Chuckwalla Valley Road mostly serves vehicles accessing local utilities and off-road recreation. The average daily traffic volume is approximately 40 vehicles. Periodically, the road carries detoured traffic from the heavily traveled I-10 when the freeway is temporarily closed for construction or emergency incidents. Therefore, it is important to maintain this frontage road in sound condition at all times.

The proposed Project would replace the existing 2-lane timber bridges with new 2-lane modern bridges with a curb-to-curb roadway width of 32 feet at the same locations. Modern traffic barriers/railings meeting current Caltrans safety design standards would also be constructed. The proposed road width would consist of two 12-foot-wide travel lanes, one lane in each direction, and a 4-foot-wide shoulder on each side. Modern traffic barriers/railings meeting current Department safety design standards would be constructed. The proposed bridges would be approximately 60 to 80 feet long, depending on the channel hydraulic capacity and water surface freeboard requirements. Raising the elevation of the bridges is not anticipated. However, if raising the bridge elevation is found to be necessary to meet freeboard requirements, the total vertical increase is not anticipated to exceed 1 foot. Additionally, approach roadway improvements would be provided and channel improvements would be administered to avoid future scour problems. It is envisioned that the channel bottom will remain earthen. Proposed Project design and Project impacts of each bridge are depicted in Appendix A, Figures 4 and 5.

The existing bridges do not carry any utilities and the proposed bridge construction is not expected to include new utilities. A telephone line runs along the north side of the Action Area and may be near bridge wingwalls. Further coordination with the utility provider will determine whether relocation will be required.

All construction activities would be conducted within the existing roadway right-of-way, with construction staging and material laydown areas on the roadway itself. Chuckwalla Valley Road between the Corn Springs Road intersection to 6.3 miles east of the intersection would be closed during construction. The construction duration would be further determined during the Project development phase. It is envisioned that all four bridges would be either constructed at the same time or staged in sequence, depending on the finding of available access to adjacent utilities and properties. A traffic management plan would be prepared to address closure of the road and access to local utilities and properties.

1.4.2. Authorities and Discretion

The Project is being proposed by the County, in coordination with the Department. The Project is needed to ensure safety of the bridge facilities, maintain access to local utilities and farmlands along the roadway, and ensure the continued use of Chuckwalla Valley Road as a frontage road to carry detoured traffic and emergency vehicles when I-10 is closed due to construction or during emergency incidents. The Department has inspected the bridges and determined them to be structurally deficient and in need of replacing.

Relevant federal, state, and local laws and regulations to protect or manage biological resources within the BSA are as follows:

Federal

- FESA of 1973, including designated Critical Habitat for listed species

- Federal Water Pollution Control Act (Clean Water Act [CWA] Sections 401 and 404)
- Migratory Bird Treaty Act (MBTA)
- Executive Order 13112, Invasive Species
- National Environmental Policy Act of 1969

State

- California Environmental Quality Act
- California Endangered Species Act (CESA)
- California Native Plant Protection Act
- California Fish and Game Code, including codes for the CESA (Sections 2080.1 and 2081[b]), those related to the federal MBTA (Sections 3503, 3503.5, 3505, 3800, 3801.6), and those for Lake or Streambed Alteration Agreements (Section 1600 et. Seq.)
- Porter-Cologne Water Quality Act (coordinated with CWA Section 401)

Local

- No Local Plans or Habitat Conservation Plans cover the Project BSA

1.4.3. Project Location

The proposed Project is located within the Mojave Desert in the central portion of the Chuckwalla Valley in an unincorporated area of Riverside County, California. It is approximately 10 miles east of the Town of Desert Center and 24 miles west of the City of Blythe (Appendix A, Figure 1). The four bridges are located along Chuckwalla Valley Road, a frontage road that runs west/east south of I-10 (Appendix A, Figure 2). Table 2 lists the U.S. Geological Survey (USGS) 7.5-Minute topographic quadrangles (USGS 1983) and section, township, and ranges of each bridge location. Coordinates of the center of each work site are: Aztec Ditch 33°40'27.19"N, 115°13'56.85"W; Tarantula Ditch 33°39'49.62"N, 115°12'51.88"W; Sutro Ditch 33°39'6.91"N, 115°11'37.98"W; and Acari Ditch 33°37'29.77"N, 115° 8'49.31"W. The majority of the Project site and surrounding area is open natural lands. Land uses include local and County road rights-of-way, off-road recreation, and utility and roadway maintenance activities. Project site photographs are available in Appendix C. Photographs were taken in June and July of 2017.

Table 2. USGS 7.5-Minute Quadrangle and Section, Township, Range for Each Bridge

Bridge	USGS 7.5 Minute Quadrangle	Section/Township/Range
Aztec Ditch Bridge (#56C0102)	Sidewinder Well	Section 6-Township 65-Range 17E
Tarantula Ditch Bridge (#56C0103)	Sidewinder Well	Section 9-Township 65-Range 17E
Sutro Ditch Bridge (#56C0104)	Sidewinder Well	Section 15-Township 65-Range 17E
Acari Ditch Bridge (#56C0108)	Sidewinder Well and Aztec Mines	Section 30, Township 65, Range 18E

1.4.4. Define Action Area

The Action Area for the Project includes the Project footprint and the 300-foot buffer for each of the four bridges (Appendix A, Figures 6 and 7). The Action Area was determined based on Project limits of disturbance, locations for construction staging and access areas, and the types of construction activities that are planned for the Project. Factors considered when determining the Action Area for desert tortoise included potential for direct and indirect impacts from Project construction, including vegetation removal, as well as degradation of suitable habitat from sedimentation, erosion, pollutants, dust, and invasive plant species. The Action Area covers all areas that are to be affected both directly and indirectly by the proposed project Action. Any areas containing suitable habitat that were outside of the Action Area were not included in the analyses for this Biological Assessment as they would not be impacted directly or indirectly by the Project.

1.4.5. Conservation Measures

1.4.5.1. Project Design Modifications for Avoidance and Minimization

A number of features were incorporated into the Project design to avoid and minimize impacts on the federally listed desert tortoise and its Critical Habitat. Construction work would utilize the existing roadway and County right-of-way and avoid native vegetation communities to the maximum extent possible. Staging and material laydown areas would be placed within the existing roadway, avoiding areas that contain sensitive resources. The channel bottoms of all four ditches would remain earthen, rather than being paved, to maintain natural wash conditions. The original Project design placed riprap across the entire width of the desert washes on the up- and down-stream sides of the bridges. However, this was modified during design revisions to only occur along the toe of the bank slopes and will be buried underground to minimize impacts on the washes or on wildlife movement via the washes.

1.4.5.2. Species Specific Avoidance and Minimization Measures

The following summarized measures will be implemented to avoid effects on desert tortoise and its Critical Habitat during Project construction (see Section 5.5.1 for detailed measures). These

measures include standard Best Management Practices (BMPs), as well as specific desert tortoise avoidance measures to ensure no impacts will occur.

M-1: Temporary Construction Areas. Post-construction, all temporary construction areas within waters and uplands will be returned to preconstruction conditions.

M-2: Best Management Practices. The following BMPs will be included at a minimum to reduce impacts on biological and aquatic resources.

- Dust control measures will be implemented to minimize airborne dust impacts on adjacent vegetation.
- Activities that may produce sparks will use protective gear to reduce fire risks, and fire suppression capabilities will be available on site whenever construction occurs during the fire season.
- Trash will be stored in closed containers and will be removed from the construction sites daily.
- Exotic plant species removed during construction will be properly handled to prevent sprouting or regrowth.
- Plans for water pollution and erosion control will be developed and implemented in accordance with Regional Water Quality Control Board (RWQCB) requirements.

M-3: Preconstruction Desert Tortoise Survey. An Approved Biologist will conduct a preconstruction survey of all work areas for desert tortoise no more than 7 days prior to the start of construction activities, including staging within the Project Area.

M-4: Desert Tortoise Exclusion Fencing. The construction area will be the minimal area necessary to complete the proposed Project and will be specified in the construction plans. Desert tortoise-proof fencing will be installed under the direction of an Approved Biologist around the perimeter of the Project site to prevent desert tortoise from entering. Fencing will be monitored and maintained at a frequency necessary to ensure its effectiveness.

M-5: Biological Monitor. An Approved Biologist will monitor construction activities throughout Project construction to ensure that practicable measures are being employed to avoid incidental disturbance of areas of desert tortoise Critical Habitat outside of the Project limits of disturbance.

M-6: Worker Environmental Awareness Program Training. A worker education program will be developed and presented to all construction personnel prior to the start of construction activities. The training will be presented by a qualified biologist. The biologist will describe the work limits within which the project must be accomplished and all approved access routes. The training will include general behavior and ecology of desert tortoise and other sensitive species (i.e. nesting birds, identification of the

species, reporting requirements, and protection measures being implemented for the project. Interrelated and Interdependent Actions

No interrelated or interdependent actions are associated with the Project. The Project is a small, independent bridge replacement project that is not part of a larger action. No additional interdependent activities outside of the specified Project construction would occur as a result of the proposed Action.

Chapter 2. Study Methods

2.1. Summary

Prior to conducting field surveys, relevant reference literature and natural resource databases were reviewed for potentially occurring plant and wildlife species and natural vegetation communities with special regulatory or management status and having a reasonable potential to occur within the Action Area. This evaluation included a review of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB) Special Animals List (CDFW 2019a); California Native Plant Society (CNPS) Electronic Inventory (CNPS 2019); USFWS IPaC decision support system (USFWS 2020, Appendix B), and USFWS National Wetlands Inventory (USFWS 2019). A search of the CNDDDB (CDFW 2019a) and CNPS Electronic Inventory (CNPS 2019) was performed for the USGS 7.5-minute topographic Sidewinder Well and Aztec Mines quadrangle maps, on which the Project is located, as well as the surrounding quadrangles (Aztec Mines, East of Aztec Mines, Ford Dry Lake, Palen Mountains, Palen Lake, East of Victory Pass, Corn Spring, and Pilot Mountain; USGS 1983). The publication *A Linkage Network for the California Desert* was reviewed to research the wildlife that use the Chuckwalla Valley as a movement corridor and the likelihood of wildlife pathways near the Action Area based on a least-cost path modeling program (Penrod et al. 2012).

Surveys were conducted a study area which was comprised of the limits of disturbance and a 300-ft buffer in 2017 and 2019. Surveys included a reconnaissance biological survey, vegetation mapping, analysis of habitats and focused studies for special-status species, and a jurisdictional delineation for aquatic resources. During the habitat assessment, photos of the study area were taken (Appendix C). Protocol surveys were performed for desert tortoise. Survey methodology, survey dates, and personnel for desert tortoise surveys are detailed in Section 2.2 below. Species information and assessment is based on the January 2020 Natural Environment Study (Minimal Impacts) report that was prepared for the Project (ICF 2020, *in draft*).

2.1.1. Desert Tortoise Protocol Surveys

Desert tortoise protocol surveys for the Project were initiated in May 2017 at all four bridge replacement areas in accordance with the USFWS Pre-Project Field Survey Protocol for Potential Desert Tortoise Habitats (USFWS 2010)¹. Using the 2010 protocol methodology, a pedestrian survey was conducted throughout the Project limits of disturbance to ensure 100% survey coverage. The 2010 protocol request focused studies within the Zone of Influence (ZOI) and includes walking transects established at 200-, 400-, and 600-meter intervals from each bridge and surveyed where legally accessible (Appendix A, Figure 7). All desert tortoise sign

¹ The Desert Tortoise (Mojave Population) Field Manual (*Gopherus agassizii*) (USFWS 2010) was the current survey protocol at the time of the 2017 field surveys. The current survey protocol was updated in 2018 and was used for the 2019 surveys.

(e.g., scat, burrows, carcasses) observed were recorded using the USFWS 2010 Desert Tortoise Pre-Project Survey Data Sheets (provided in Appendix D). An updated desert tortoise protocol survey was conducted in 2019 and followed the most recent USFWS guidance (USFWS 2018, using the Small Project survey method). The 2018 protocol requires an Action Area to be established on a project-by-project basis based on an evaluation of the potential effects. An Action Area is the area surveyed based on the specific area that may be affected by the Proposed Action including all areas to be affected directly or indirectly. As the Proposed Action is mainly confined to the immediate bridge being replaced the Action Area was defined as the limits of disturbance and a 300-foot buffer to account for indirect effects of the project. For the 2019 surveys, a pedestrian survey of the Action Area was performed, and transects were spaced approximately 30 feet apart to allow for 100% coverage (Appendix A, Figure 7).

2.2. Personnel and Survey Dates

Surveys for the Project included protocol-level surveys for desert tortoise. Information on field personnel and their qualifications are provided in Table 3 below and study methods are described in Section 2.1.1 above.

Table 3. Field Personnel Qualifications

Personnel	Company	Years of Experience
Danny Cuellar	SWCA*	5 years of experience conducting general biological surveys.
Shelly Dayman	ICF	17 years of experience as a wildlife biologist. Performs surveys for vegetation mapping, habitat assessments for rare plants and special-status wildlife in southern California, and protocol surveys for several special-status species, including burrowing owl and desert tortoise.
Camilla Estes	ICF	5 years of experience performing general biological assessments and general biological surveys. Performs surveys for small mammals, nesting birds, burrowing owl, and desert tortoise.
James Hickman	ICF	15 years of experience performing general biological assessments in southern California for sensitive species. Performs surveys for burrowing owl, least Bell's vireo, bats, desert tortoise, rare plants, and jurisdictional delineations.
Ryan Layden	ICF	8 years of experience performing general biological assessments in southern California for sensitive

Personnel	Company	Years of Experience
		species, including burrowing owl, riparian birds, and desert tortoise.
Francis Lin	ICF	6 years of experience conducting general biological surveys. Performs surveys for rare plants, burrowing owl, desert tortoise, and jurisdictional delineations.

* SWCA – Steven W. Carothers & Associates

Surveys were performed in May 2017 and April 2019. All survey dates and personnel are listed in Table 4.

Table 4. Survey Dates, Bridge Location, and Personnel

Dates	Bridge Location	Personnel
2017		
5/03/2017	Acari Ditch Bridge (#56C0108)	Ryan Layden and Camilla Estes
5/08/2017	Aztec Ditch Bridge (#56C0102)	Shelly Dayman, Danny Cuellar, and Camilla Estes
5/08/2017	Sutro Ditch Bridge (#56C0104)	Shelly Dayman, Danny Cuellar, and Camilla Estes
5/08/2017	Tarantula Ditch Bridge (#56C0103)	Shelly Dayman, Danny Cuellar, and Camilla Estes
2019		
4/16/2019	Acari Ditch Bridge (#56C0108)	James Hickman and Frances Lin
4/16/2019	Aztec Ditch Bridge (#56C0102)	James Hickman and Frances Lin
4/16/2019	Sutro Ditch Bridge (#56C0104)	James Hickman and Frances Lin
4/16/2019	Tarantula Ditch Bridge (#56C0103)	James Hickman and Frances Lin

2.3. Resource Agency Coordination and Professional Contacts

On March 18, 2019, an official USFWS List of Proposed, Threatened, and Endangered Species, and Critical Habitats was obtained through the USFWS IPaC system. During the drafting of the Natural Environment Study (Minimal Impacts) and Biological Assessment, over 90 days had elapsed since the original USFWS Official Species List was obtained for the Project. The most recent USFWS Official Species List was generated on January 16, 2020 (Appendix B; USFWS 2020).

In May 2019, Aaron Burton (Department) contacted John Taylor (USFWS) to discuss the proposed Project. During the call, it was determined that because the proposed bridge replacements occur within Critical Habitat for desert tortoise, a Biological Assessment and

formal Section 7 consultation with USFWS will be required for potential effects on desert tortoise Critical Habitat.

The Project site occurs outside of the boundaries of the National Marine Fisheries Service (NMFS) jurisdiction and no Essential Fish Habitat is present. For this reason, an NMFS species list for the Project was not obtained and consultation with NMFS is not necessary.

2.4. Limitations and Assumptions that May Influence Results

Standard USFWS, CDFW, and CNPS survey protocols were used for all biological field surveys. The Project design of the proposed bridge replacements was not available at the time of the 2017 biological resource studies. Therefore, the study area established for the 2017 biological resource surveys was based on the limits of the existing Chuckwalla Valley Road bridges—Aztec Ditch Bridge, Tarantula Ditch Bridge, Sutro Ditch Bridge, and Acari Ditch Bridge—plus a 300-foot buffer. The LOD was developed in January 2019 and the final Action Area was slightly extended east and west along Chuckwalla Valley Road to accommodate staging areas on the existing paved roadway. Due to small portions of the LOD of the four bridges occurring within lands outside of the original study areas and to ensure the desert tortoise surveys remained valid, the focused survey for desert tortoise surveys was repeated in 2019 within the extended Action Area using the most current survey protocol around the current LOD. Despite the Project footprint expansion, site conditions did not differ appreciably between the 2017 and 2019 field seasons, and there are no limitations that influenced the results or analysis provided in this Biological Assessment.

Chapter 3. Environmental Baseline

The environmental baseline describes the setting in which the Project will occur and includes the effects from past and present federal, state, and private actions; proposed federal projects with completed Section 7 consultations; and contemporaneous state or private actions with consultation in progress. The environmental baseline also considers non-permitted actions (i.e., other nonfederal actions occurring within the Action Area).

3.1. Habitat Conditions in the Action Area

The environmental setting within and surrounding the Action Area is predominately undeveloped and contains native desert scrub habitats. Each of the four Action Areas have similar physical and biological conditions. Vegetation communities within the Action Area are relatively undisturbed and are composed primarily of native species, with areas adjacent to the roadway more sparsely vegetated and degraded than areas away from the road. The creosote bush scrub and desert wash vegetation communities provide suitable habitat for the federally listed desert tortoise. Ephemeral sandy channels occur throughout the Action Area and surrounding area, with seasonal flows originating in the Chuckwalla Mountains southwest of the Action Area and flowing in a southwest to northeast direction. Representative photographs of the habitat conditions within the Action Area are provided in Appendix C.

The Action Area is located within the Chuckwalla Critical Habitat Unit for desert tortoise, and desert tortoise Critical Habitat occurs throughout the entirety of the Action Area of all four bridges (USFWS 2020; Appendix A, Figure 3). Federally designated Critical habitat is a geographic area which contains features that are essential to the conservation of a listed species and which may require management or protection for that species. The creosote bush scrub and desert wash habitats in the Action Area provide PBFs for desert tortoise. Existing pressures on the PBFs within the Action Area include vehicular traffic along Chuckwalla Valley Road, maintenance of the road right of way and local utilities, and off-road vehicle use of open lands in the vicinity. These activities have left the project sites sparsely vegetated and degraded habitat quality in areas adjacent to the road. Regardless, the bridge undercrossings may serve as an important core habitat linkage for desert tortoise movement and genetic exchange through the Chuckwalla Valley even if the species is not present within the Action Area.

3.2. Summary of Environmental Baseline

The majority of the BSA and surrounding area is open natural habitats, with Chuckwalla Valley Road intersecting the Action Area of all four bridges. The road is primarily used to access local utilities and recreational areas, making daily traffic minimal. It is also used as an emergency access bypass road for I-10, which occurs approximately 1,300 feet north of the westernmost Action Area and 10,000 feet north of the easternmost Action Area. There are no major developed areas within the nearby vicinity. The closest cities are Desert Center, located 10 miles to the east, and Blythe, located 24 miles to the west.

3.3. Describe the Action Area

This section describes the existing biological and physical conditions of the Action Area, and surrounding area. Indirect impacts were also considered when determining the Action Area for desert tortoise. The Action Area was determined by considering stressors that may occur from the construction phase of the Project, including both preconstruction preparation and construction activities; no stressors are anticipated to listed species as a result of Project operation and maintenance (see Section 5.1.4). Preconstruction preparation includes staging of Project equipment and vegetation clearing. Construction activities included the proposed Build Alternative improvements (e.g., removal of old bridges, construction of new bridges, addition of riprap), and the potential introduction of sedimentation, erosion, pollutants, dust, and invasive plant species from those activities. Potential noise and vibration effects on wildlife from bridge pilings were also considered when evaluating the Action Area. The Project's limits of disturbance is depicted in Figure 5 and the Action Area in Figure 6 and 7 (provided in Appendix A), respectively.

3.3.1. Physical Conditions

The Action Area is located within the Sidewinder Well and Aztec Mines USGS 7.5-minute topographic quadrangles (USGS 1983; see Section 1.4.3 for details). The four bridges are located along an approximately 6-mile stretch of Chuckwalla Valley Road, a frontage road that runs west/east south of I-10. The Action Area is composed of the existing right-of-way and adjacent open natural areas that have human disturbance from off-road vehicle recreation and utility maintenance. Land uses within the Action Area include local and county road rights-of-way used to access utilities and conduct maintenance activities, as well as surrounding open lands.

3.3.1.1. Topography

The Action Area is located in the lowlands of the Chuckwalla Valley between the Chuckwalla and Palen-McCoy mountain ranges and contains relatively flat lands within the bajadas of the Chuckwalla Mountains. Elevations within the Action Area increase from northeast to southwest and range from 687–698 feet above mean sea level (amsl) for Aztec Ditch Bridge, 665–677 feet amsl for Tarantula Ditch Bridge, 642–650 feet amsl for Sutro Ditch Bridge, and 552–559 feet amsl for Acari Ditch Bridge.

3.3.1.2. Soils

Soils have not been digitally mapped by USGS within the Action Area of the four bridges. Associated point data indicates that soil types Carrizo and coarse-silty, mixed superactive, hypothermic typic haplogy exist within the map unit containing the Action Area (USDA/NRCS 2019). Soils observed in the Action Area were composed of a loamy sand with coarser soils in the desert washes.

3.3.1.3. Hydrology and Aquatic Resources

The Action Area of the bridges occurs within a floodplain composed of sandy washes within the Southern Mojave Watershed. Hydrological flows originate in the Chuckwalla Mountains to the southwest and flow from southwest to northeast. Historically, flows passed unaltered across the landscape; however, the flow paths of the various drainages located south of Chuckwalla Valley Road have been manipulated upstream with human-made earthen berms or dikes designed to funnel flows toward single concentrated flow paths under Chuckwalla Valley Road. Within the Action Area, these flow paths occur within Aztec Ditch, Tarantula Ditch, Sutro Ditch, and Acari Ditch. Based on historical topography maps, the berms were put in place before I-10 was built and when Chuckwalla Valley Road was the primary roadway in the area (Historic Aerials 1953).

During biological studies, a jurisdictional delineation was performed within 100-feet of the Project limits of disturbance (Jurisdictional Study Area [JSA]). A total of 34 aquatic features were mapped within the JSA (six within the Aztec Ditch JSA, seven within the Tarantula Ditch JSA, ten within the Sutro Ditch JSA, and 11 within the Acari Ditch JSA). All features consisted of ephemeral sandy channels, either small shallow channels formed by swales or road runoff, or large channels that have been altered with human-made dikes designed to convey flows toward the bridges and under Chuckwalla Valley Road (ICF 2020).

3.3.2. Biological Conditions in the Action Area

Native desert scrub habitat areas constitute the majority of the Action Area. Natural vegetation communities provide suitable habitat for a variety of native plant and wildlife species, including the federally threatened desert tortoise (see Chapter 4). Developed/disturbed lands are limited to the paved Chuckwalla Valley Road and dirt shoulders.

3.3.2.1. Natural Communities and Vegetation

The vegetation communities/land use types mapped within the Action Area of each bridge were similar, which is expected based on the bridges occurring within relatively short distances between each bridge in the same geographical area. Three vegetation communities/land use types were identified within the Action Area of the bridges: creosote bush scrub, desert wash, and developed/disturbed (Table 5). The vegetation communities and land use types are shown in Appendix A, Figure 8 and are described below. Refer to Appendix C for representative site photos and Appendix E for a complete list of the plant species detected during field surveys.

Table 5. Vegetation Communities/Land Use Types within the Action Area

Vegetation Community	Chuckwalla Valley Road Bridges (acres)				Total
	Aztec Ditch Bridge (#56C0102)	Tarantula Ditch Bridge (#56C0103)	Sutro Ditch Bridge (#56C0104)	Acari Ditch Bridge (#56C0108)	
Creosote Bush Scrub	18.96	19.02	20.38	17.48	75.84
Desert Wash	4.27	3.94	3.06	2.82	14.09
Developed/Disturbed	1.50	1.41	1.30	1.11	5.32

Total Within Action Area	24.73	24.37	24.74	21.41	95.25
---------------------------------	--------------	--------------	--------------	--------------	--------------

Creosote Bush Scrub

The creosote bush scrub (*Larrea tridentata* shrubland alliance) vegetation community is characteristically dominated by creosote bush but may also include other shrubs, such as white bursage (*Ambrosia dumosa*). The community may also include a low cover of emergent trees, such as smoketree (*Psoralea argophylla*), catclaw acacia (*Senegalia greggii*), and palo verde (*Parkinsonia aculeata*), as well as seasonal annuals or perennial grasses. Within the Action Area, the community is composed primarily of creosote bush, white bursage, cheesebush (*Ambrosia salsola*), kidney leaf buckwheat (*Eriogonum reinforme*), and Thomas' eriogonum (*Eriogonum thomasi*), along with other small herbaceous species. Areas of creosote bush scrub adjacent to the roadway were more sparsely vegetated and degraded with a higher presence of non-native grass and forb species compared to areas farther away from the road.

Desert Wash

The desert wash vegetation community occurs within Aztec Ditch, Tarantula Ditch, Sutro Ditch, and Acari Ditch. The bottom of the wash channel is composed of coarse sandy soil splays from past rain events. The desert washes either have no vegetation or are sparsely vegetated with species from the adjacent creosote bush scrub vegetation communities described above. Within the Action Area, cheesebush and palo verde were observed sparsely scattered within and adjacent to the desert washes.

Developed/Disturbed

The developed/disturbed land use type was designated for the existing paved roadway and shoulder that has been mechanically disturbed by road maintenance activities.

3.3.2.2. Common Plant and Wildlife Species

A total of 71 plant species and 36 wildlife species, including 23 birds, seven mammals, and six reptiles, were observed or detected within the Action Area during surveys. The majority of wildlife species detected was birds, followed by mammals and reptiles. Common bird species included northern mockingbird (*Mimus polyglottos*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), mourning dove (*Zenaidura macroura*), rock pigeon (*Columba livia*), cactus wren (*Campylorhynchus brunneicapillus*), and Costa's hummingbird (*Calypte costae*). Two reptiles were observed: gopher snake (*Pituophis catenifer*) and side-blotched lizard (*Uta stansburiana*). Mammals included black-tailed jackrabbit (*Lepus californicus*), woodrat (*Neotoma* sp.), and canyon bat (*Parastrellus hesperus*). Refer to Appendix E for a complete list of plant and wildlife species detected within the Action Area.

3.3.2.3. Invasive Species

Seven invasive plant species were identified per the California Invasive Plant Council (Cal-IPC) plant inventory within the Action Area as weeds and ornamental landscape vegetation (Cal-IPC 2019). Two of these are ranked as high, two as moderate, and three as limited. Invasive species

that have severe ecological effects are given a rating of high by Cal-IPC. Common invasive plant species observed included: common Mediterranean grass (*Schismus barbatus*), Russian thistle (*Salsola tragus*), Saharan mustard (*Brassica tournefortii*), and Mediterranean hoary mustard (*Hirschfeldia incana*). Non-native and invasive plant species observed within the Action Area are listed in Appendix E.

3.3.2.4. Habitat Connectivity

Wildlife movement corridors are habitat linkages used by wildlife for movement between suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, substantial changes in vegetation communities, or human disturbance. The scale of use of these corridors can vary (e.g., dispersal, daily foraging, migration routes). Natural features such as canyon drainages, ridgelines, or areas with vegetation cover may provide corridors for wildlife movement, as can engineered structures such as bridges, culverts, and flood-control channels. Wildlife corridors are important because they provide many species access to resources such as habitats, food, water, and mates; allow species dispersal and migration; and facilitate genetic connectivity between populations (Beier and Loe 1992). These corridors also provide similar value and function to plant species and natural communities, such as dispersal and connectivity.

Regionally, the Chuckwalla Valley acts as a natural corridor between the Chuckwalla Mountains and Little San Bernardino Mountains in eastern Riverside County. There is low disturbance from human development, with I-10 being the major impediment to wildlife movement in the region. Due to the low average daily traffic volumes on Chuckwalla Valley Road (approximately 40 vehicles per day), there is already a low potential for wildlife vehicle encounters from crossing Chuckwalla Valley Road. There is a potential that diversion dikes south of Chuckwalla Valley Road could funnel some wildlife toward the Chuckwalla Valley Road bridge undercrossings and provide value for wildlife connectivity; however, many species, including desert tortoise, can climb the dikes and are not restricted to the ditches. Because there are no obstructions or barriers that would prevent wildlife from crossing over the Chuckwalla Valley Road, wildlife are not currently forced to utilize the bridge undercrossings. Due to the heights of the existing bridges (5 to 9 feet), there is a potential for birds, reptiles (e.g., desert tortoise), and small- to medium-sized wildlife (e.g., coyote [*Canis latrans*], kit fox [*Vulpes macrotis*], black-tailed jackrabbit) with low to high mobility to use the undercrossing of bridges.

This page intentionally left blank

Chapter 4. Federally Listed/Proposed Species and Designated Critical Habitat within the Action Area

4.1. Federally Listed/Proposed Species

Based on literature reviews and habitat assessment, the federally listed desert tortoise was determined to potentially occur within the Action Area. This species is discussed in detail below. No other federally listed species, or proposed candidate species, have a potential to occur within the Action Area.

4.2. Discussion of Desert Tortoise

Desert tortoise was listed as a threatened species by CDFW in August 1989 (CDFW 2019b) and by USFWS in April 1990 (USFWS 1990). Critical habitat for this species was designated in February 1994 (USFWS 1994).

Desert tortoise inhabits the Mojave, Colorado, and Sonoran deserts in the southwestern United States and northwestern Mexico, and occurs west of the Colorado River in southwestern Utah, northwestern Arizona, southern Nevada, and California. In California, the desert tortoise occurs in the southwestern portion of the state from Inyo County to Imperial County, including eastern Kern, Los Angeles, San Bernardino, Riverside, and San Diego counties (Berry et al. 2002).

Desert tortoise are primarily associated with Mojave creosote bush scrub habitat but have also been found in succulent scrub, cheesebush scrub, blackbush scrub, hopsage scrub, shadscale scrub, microphyll woodland, and Mojave atriplex-allscale vegetation communities (Boarman 2002). This species typically inhabits flats, gently sloping terrain, valleys and bajadas, washes, rocky hillsides, and open flat desert areas with sandy to sandy-gravel soils that offer suitable substrates for burrowing and nesting (Boarman 2002, USFWS 1994). Desert tortoise are typically found at an elevation range of approximately 1,968 to 3,280 feet amsl but have occasionally been found above 3,937 feet amsl (Boarman 2002). Desert tortoise can occupy a home range of 0.75 to 1.5 square miles and travel long distances for resource use (USFWS 1994).

Desert tortoise activity patterns are controlled primarily by ambient temperature and precipitation. The species is most active from March through June and from September through October when the herbaceous vegetation they prefer (grasses and flowers of annual plants) is most abundant. They have also been known to eat other items, such as insects, lizards, and feces, but these items make up a very small proportion of their diets. In periods of harsh or unusually dry conditions, desert tortoise can retreat to burrows where they lower their metabolism and loss of water and consume very little food. During inactive periods, desert tortoises hibernate, aestivate, or rest in subterranean burrows; they spend approximately 98%

of the time in these cover sites. During active periods, they usually spend nights and the hotter part of the day in their burrow or resting under shrubs (Boarman 2002).

The range of desert tortoise has declined because of several factors, including habitat loss due to human-related activities, disease caused by reintroduction efforts and contamination by humans, illegal collection, road kills, habitat degradation by invasive plants, and predation on tortoises by dogs and on juvenile tortoises by ravens (Berry and Medica 1995). As part of the *Determination of Critical Habitat for the Mojave Population of the Desert Tortoise*, the USFWS has identified the following five physical and biological features as PBFs essential for the conservation of the desert tortoise (USFWS 1994):

1. Space for individual and population growth, and for normal behavior.
2. Food, water, or other nutritional or physiological requirements.
3. Cover or shelter.
4. Sites for breeding, reproduction, and rearing of offspring.
5. Generally, habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of a species.

4.3. Survey Results

Suitable habitat for desert tortoise is present within desert wash and creosote bush scrub communities in the four bridges Action Areas as follows:

- Aztec Ditch Bridge (#56C0102): 23.23 acres
- Tarantula Ditch Bridge (#56C0103): 22.96 acres
- Sutro Ditch Bridge (#56C0104): 23.44 acres
- Acari Ditch Bridge (#56C0108): 20.30 acres

There were a few burrows documented during the 2017 survey season within the ZOI² that were potentially suitable for desert tortoise, but no potential burrows were found in 2019 surveys within the Action Area (Appendix A, Figures 7a through 7d). The desert wash and creosote bush scrub may be used by individuals foraging in the Action Area. There are also some shrubs in the Action Area that could be used for shade. All of the CNDDDB records of desert tortoise occur southwest of Chuckwalla Valley Road with the nearest CNDDDB record approximately $\frac{3}{4}$ mile from the I-10/ Chuckwalla Valley Road interchange. No desert tortoise or definitive desert tortoise sign was observed during either the 2017 or 2019 surveys. Because desert tortoise was not found during protocol surveys, it is considered absent from the Action Area.

² As stated in Section 2.1.1, the USFWS protocol methodology for surveys in 2017, used the USFWS 2010 guidelines, whereas the 2019 surveys used the most recent USFWS 2019 guidelines. The USFWS 2010 survey protocol describes the Zone of Influence as the survey area and USFWS 2018 survey protocol describes the Action Area as the area surveyed. Both ZOI and Action Area refer to the survey area used for desert tortoise surveys.

4.4. Status of Designated Critical Habitat in the Action Area for Desert Tortoise

The Action Area is within the northeastern edge of the Chuckwalla Critical Habitat Unit for desert tortoise, which is a part of the Colorado Desert Recovery Unit for desert tortoise (Appendix A, Figure 3) (USFWS 1994, 2009). Critical habitat for the Mojave population of desert tortoise was established in 1994 and considered essential to the recovery of this population of the species. The creosote bush scrub and desert wash in the Action Area provides the PBFs for desert tortoise. PBFs are the main physical and biological features that support the species' life-history and are essential for the species' conservation. The biological and physical factors for desert tortoise PBFs contribute to foraging, dispersal, shelter, genetic exchange, and egg laying. Existing pressures on the PBFs within the Action Area include vehicular traffic along Chuckwalla Valley Road, maintenance of the road right-of-way and local utilities, and off-road vehicle use of open lands in the vicinity. These activities have left the Project site sparsely vegetated and have degraded habitat quality in areas directly adjacent to the road. Regardless, the Action Area and bridge undercrossings may serve as an important core habitat linkage for desert tortoise movement and genetic exchange through the Chuckwalla Valley even if the species is not present within the Action Area.

This page intentionally left blank

Chapter 5. Effects of the Project on the Action Area

5.1 Deconstruct Action

5.1.1. Construction Scenario

The Project would replace the existing Aztec Ditch, Tarantula Ditch, Sutro Ditch, and Acari Ditch timber bridges with new, modern concrete bridges. The Tarantula Ditch Bridge would be a single-span bridge while the Acari Ditch, Aztec Ditch, and Sutro Ditch bridges would be a 2-span bridge supported on a single row of four 2.5-foot-diameter columns. All four bridges would be supported by steel piles, abutments, and wingwalls. The new bridges would include two 12-foot-wide lanes, standard 4-foot-wide shoulders, and guardrails.

Project construction would also involve regrading roadway slopes and improvements to the approach roadways and shoulders. Additionally, channel improvements consisting of rock slope protection (i.e., riprap) on the upstream and downstream slopes, is proposed at the bridge crossings to minimize potential for future erosion and scour. No new utilities or utility relocation are expected as a part of the Project.

In areas of bridge removal and grading, Project construction would require some clearing and grubbing of vegetation. All work would occur within the existing County right-of-way.

During Project construction, a variety of equipment would be used and may include, but not be limited to, the following:

- Graders
- Backhoes/dozers
- Compaction machine
- Crane to lower bridge materials
- Pile driving machine for piling
- Jack hammers
- Dump trucks
- Cement mixer trucks with concrete
- Paver
- Water truck

Construction staging areas would be located on the existing paved portion of Chuckwalla Valley Road. No construction staging areas are proposed within native vegetation communities.

Proposed Project design plans and staging area locations are illustrated on Figure 4 (Appendix

A), and Project limits of disturbance and impact type (i.e., permanent and temporary) are illustrated on Figure 5 (Appendix A).

5.1.2. Sequencing and Schedule

Construction of the proposed Project is anticipated to commence in 2023 and would be completed within 18 months. All Project activities would take place during the daylight hours; no nighttime construction work would occur. Chuckwalla Valley Road between the Corn Springs Road intersection to 6.3 miles east of the intersection would be closed during construction. The current design plan for all four bridges is to either construct all bridges simultaneously or stage in sequence, which will be based on the finding of available access to adjacent utilities and properties at the time of construction.

5.1.3. Stressors from Project Actions

Stressors induce an adverse response in an organism by any physical, chemical, or biological alteration of the environment (or resource) that can lead to a response from the individual. Stressors can act directly on an individual, or indirectly through effects on a resource.

5.1.3.1. Stressors from Project Actions to Desert Tortoise

The Project Action could result in direct stressors on habitat which provides suitable habitat for desert tortoise. In addition, the Project would permanently remove and temporarily disturb federally designated Critical Habitat containing PBFs within the Chuckwalla Critical Habitat Unit during the replacement and construction of the new bridges. Temporary and permanent impacts on desert tortoise Critical Habitat are shown in Table 6. The temporary impacts on desert tortoise Critical Habitat along Aztec Ditch, Tarantula Ditch, Sutro Ditch, and Acari Ditch are based on conservative preliminary design estimates to allow for flexibility of temporary construction work areas during the final design phase of the Project. The actual temporary impacts on suitable habitat desert tortoise and federally designated Critical Habitat may be refined lower from those described in this report during further design. Any increase in impact areas will be provided to USWFS.

Table 6. Impacts on Desert Tortoise Critical Habitat with PBFs

Railroad Avenue Bridges	Permanent Impact (acres)	Temporary Impact (acres)	Total Impact on Critical Habitat (acres)
Aztec Ditch Bridge (#56C0102)			
Creosote Bush Scrub	0.10	2.41	2.51
Desert Wash	0.07	0.37	0.44
Total	0.17	2.78	2.95
Tarantula Ditch Bridge (#56C0103)			
Creosote Bush Scrub	0.09	2.36	2.45
Desert Wash	0.07	0.39	0.46
Total	0.16	2.75	2.91
Sutro Ditch Bridge (#56C0104)			

Railroad Avenue Bridges	Permanent Impact (acres)	Temporary Impact (acres)	Total Impact on Critical Habitat (acres)
Creosote Bush Scrub	0.12	2.39	2.51
Desert Wash	0.07	0.49	0.56
Total	0.19	2.88	3.07
Acari Ditch Bridge (#56C0108)			
Creosote Bush Scrub	0.11	0.98	1.09
Desert Wash	0.03	0.12	0.15
Total	0.14	1.10	1.24

* PBFs = Physical Biological Features. Critical Habitat containing PBFs includes natural land cover types. Critical habitat without PBFs includes paved roads.

The Project Action could also result in indirect stressors on desert tortoise suitable habitat and federally designated Critical Habitat. Construction and mechanical soil disturbance may adversely affect desert tortoise suitable habitat and federal designated Critical Habitat onsite by increased dust, erosion, and encouraging the spread of invasive plant species. Construction activities could increase the potential for fire in the area. These effects could be both short- and long-term in nature.

Desert tortoise was determined to be absent from the Action Area during 2017 and 2019 protocol surveys. As such, no direct or indirect stressors are expected to occur on individual desert tortoise as a result of Project construction. However, there is a potential for the species to occur in the vicinity of the Project limits of disturbance prior to and during construction. Should any individual desert tortoise be present within the Action Area during construction, direct effects could occur from the use of construction equipment, machinery, and vehicles. Clearing and grading activities would disturb and compress soils. Unburied pipes and conduits and uncovered trenches and holes could create areas of entrapment. Indirect effects could occur from heavy equipment and machinery, which could produce loud noises and vibrations. The presence of construction personnel could disturb individuals occupying the area and attract opportunistic predators.

5.1.4. Project Operation and Maintenance

The operation of the Project would not be substantially different from current conditions; thus, no major stressors to desert tortoise are anticipated as a result of Project operation and maintenance. The roadway would remain two lanes, so traffic use (which could potentially increase litter, noise, and vehicle strikes) is not expected to increase. No new disturbances, such as street lighting are proposed with this Project. The bridge underpasses would be fully permeable for wildlife movement, including desert tortoise. The new bridge columns that will be constructed at Aztec Ditch, Sutro Ditch, and Acari Ditch bridges would be replacing existing columns and, thus, would not add any new impediments to wildlife movement once construction is completed. When traffic is re-routed from I-10, there would be an increase in the volume of vehicular traffic compared to normal traffic. However, Chuckwalla Valley Road is already used

as a frontage road to carry detoured traffic when the I-10 is closed, so this would not be a change from current conditions. Consequently, no appreciable increases in impacts or risks to desert tortoise from Project operation and maintenance are anticipated.

5.2. Exposure to Stressors from the Action

Exposures are defined as the interaction of the species, their resources, and the stressors that result from the Project Action.

5.2.1.1. Exposure to Stressors to Desert Tortoise

The permanent and temporary removal of Critical Habitat for desert tortoise would result in a loss of available Critical Habitat that provides PBFs for the species in the region. Compaction of soil due to construction vehicles could decrease the availability of friable soils for burrow creation.

Construction activities could expose suitable habitat and Critical Habitat for desert tortoise to indirect stressors such as dust, erosion, and increased risk of fire. It could also expose suitable habitat and Critical Habitat to invasive plant species via mud or other debris tracked in from other Project sites that may contain invasive plants and/or seeds. These exposures could indirectly affect desert tortoise Critical Habitat by degrading suitable habitat.

Desert tortoise are considered absent from the Action Area. However, should individuals move into the Action Area prior to or during construction, the use of construction equipment, machinery, and vehicles could cause individuals to be struck during construction work, leading to injury or mortality. Ground disturbance could crush or entomb individuals in their burrows. Should any desert tortoise become trapped in pipes, conduits, holes, or trenches, they could be injured or killed. If they were unharmed, they would require capturing, handling, and relocation. Capture and relocation could cause strain and stress on, and displacement of, individual desert tortoise.

The Project Action would expose desert tortoise to indirect stressors as well, should they be present. Use of heavy equipment and machinery would result in increased noise levels and vibrations, which could cause stress and strain to individuals. Increased human activity could produce trash and construction-related debris piles, which could draw opportunistic predators that are attracted to litter to the area, such as common raven (*Corvus corax*). Project personnel could collect individuals or bring pets onsite, which could harass or kill desert tortoise.

The Action Area also occurs within a desert tortoise core movement area (Penrod et al. 2012). Although the Project site is sparsely vegetated and degraded in the areas adjacent to the road, the bridge undercrossings may serve as an important core habitat linkage for desert tortoise movement and genetic exchange through the Chuckwalla Valley even if the species is not present within the Action Area. Should any desert tortoise be moving through the area, construction activities and the increase of human presence would generate noises and vibrations that may deter them from the Project site or from using the undercrossings.

5.3. Response to the Exposure

5.3.1.1. Response of Desert Tortoise to Exposure

If areas that are temporarily disturbed are not successfully restored and suitable habitat for desert tortoise does not re-establish, then there would be less available Critical Habitat containing PBFs for the species within the Chuckwalla Critical Habitat Unit. Soil that is not decompacted following construction so that it is friable enough for digging burrows could prevent desert tortoise from utilizing the area in the future.

Indirect effects from dust, erosion, increased fire risk, and invasive plant species could prevent desert tortoise from using the area if habitat degradation was severe enough to diminish resources needed for foraging and burrow creation.

Desert tortoise are considered absent from the Action Area. However, should they move into the area prior to or during construction, capturing, handling, and relocating any desert tortoise that occur within the construction area could cause injury or death if proper handling and relocation techniques are not used. Exposure of any desert tortoise present to increased noise levels and vibrations as a result of Project construction could lead to various behavioral modifications, including habitat avoidance and burrow abandonment. Increased stress could result in negative physiological effects. Depending on the time of year during which construction occurs, all life stages of desert tortoise associated with the breeding season could be exposed to noise and vibration stressors. Harassment from Project personnel, pets brought onsite, or increased risk of predation could also cause negative physiological effects resulting from increased stress and strain and/or burrow abandonment.

If construction activities deterred desert tortoise from the Project site and caused them to avoid the Project Area, desert tortoise movement within and between populations in the Chuckwalla Valley could be temporarily restricted.

5.4. Effects of the Action

Effect is a description of the manner in which the action may affect any listed species or Critical Habitat and an analysis of any cumulative effect (50 Code of Federal Regulations [CFR] 402.02). The effect of the action is the consequence (behavioral, physical, or physiological) of a response to a stressor.

5.4.1.1. Effect of the Action on Desert Tortoise

Loss of suitable habitat and diminished habitat quality could result in less available Critical Habitat with PBFs for desert tortoise in the region. Areas that are degraded due to indirect stressors may no longer be suitable to support desert tortoise or provide PBFs essential to their conservation. However, the majority of the permanent impacts on Critical Habitat would be limited to areas directly adjacent to the existing roadway and diversion dikes. These areas are degraded and sparsely vegetated due to vehicle traffic, roadway and local utility maintenance, and off-road vehicle use, and, thus, do not contain high quality habitat for desert tortoise.

Temporary impacts on Critical Habitat would be limited to the construction duration and, following construction, would be restored to pre-Project conditions, including returning affected areas to original contour grades, decompacting the soil, and replanting with a plant palette composed of the species found onsite prior to the disturbance.

If desert tortoise are present within the Action Area during Project construction, there is a potential that construction activities could result in a decline of the population in the region, either from Project-related mortality or not successfully re-establishing temporarily disturbed areas. Negative physiological stressors resulting from construction-related injury or behavioral modifications could lead to energetic losses and increased stressors to desert tortoise, potentially resulting in lowered reproductive performance, increased susceptibility to diseases, and death. However, because desert tortoise are not expected to occur due to their absence from the Action Area, no effects of the Project Action on desert tortoise individuals are anticipated. Should they be present prior to or during construction, impacts on desert tortoise would be addressed and minimized with the implementation of measures **M-3** through **M-6** provided in this Biological Assessment (see Section 5.5.1) and those outlined in the Biological Opinion that will be issued for the Project.

Potential disturbances that may deter desert tortoise from the Project site or from using the undercrossings would be temporary in nature. Movement within and among populations of desert tortoise through the Chuckwalla Valley would be unimpeded following the completion of Project construction.

5.5. Conservation Measures and Compensation Proposal

5.5.1. Conservation Measures

To ensure that direct and indirect impacts from Project construction will not negatively affect desert tortoise, the following avoidance and minimization measures will be implemented. These measures include standard BMPs, as well as desert tortoise specific measures to ensure minimal impacts occur.

M-1: Temporary Construction Areas. Post-construction, all temporary construction areas within waters and uplands will be returned to preconstruction contours, decompacted, and hydroseeded with a native seed mix. Ephemeral washes and their banks will be recontoured with native sandy soils. No riprap or other obstructive material will be placed under the new bridges other than what is proposed for the Project.

M-2: Best Management Practices. The following BMPs will be included at a minimum to reduce impacts on biological and aquatic resources.

- Dust control measures will be implemented to minimize airborne dust impacts on adjacent vegetation.

- Activities that may produce sparks, including welding or grinding, will use protective gear to reduce fire risks, such as shields and protective mats. Fire suppression capabilities, including extinguishers, shovels, and water tankers, will be available on site whenever construction occurs during the fire season (as determined by the Riverside County Fire Department).
- Trash will be stored in closed containers so that it is not readily accessible to wildlife and will be removed from the construction site daily to avoid attracting wildlife to the Project site.
- Exotic plant species removed during construction will be properly handled to prevent sprouting or regrowth. Trucks carrying vegetation that will be removed from the Project site will be covered and vegetation disposed of in accordance with applicable laws and regulations.
- Plans for water pollution and erosion control will be developed and implemented in accordance with RWQCB requirements. The plans will describe sediment and hazardous materials control, dewatering or diversion structures, fueling and equipment management practices, and use of plant material for erosion control. Plans will be reviewed and approved by the Department prior to construction. The water pollution and erosion control plan will include the following at a minimum:
 - No fluids or sediment from construction will enter into ephemeral washes.
 - Sediment and erosion control measures will be implemented until such time soils are determined to be successfully stabilized.
 - No erodible materials will be deposited into watercourses. Brush, loose soils, or other debris material will not be stockpiled within stream channels or on adjacent banks.
 - Equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances will occur only in designated areas within the proposed grading limits of the Project site. These designated areas will be clearly marked and located in such a manner as to contain runoff into watercourses.
 - Storage of equipment, fueling, and staging areas will be located on non-sensitive upland sites with minimal risks of direct drainage into watercourses. These designated areas will be located to prevent runoff from entering sensitive habitat, including watercourses. Necessary precautions will be taken to prevent the release of cement or other toxic substances into surface waters. Project-related spills of hazardous materials will be reported to appropriate entities including, but not limited to, the applicable jurisdictional County, USFWS, CDFW, and RWQCB, and will be cleaned up immediately and contaminated soils removed to approved disposal areas.

M-3: Preconstruction Desert Tortoise Survey. An Approved Biologist will conduct a preconstruction survey of all work areas for desert tortoise no more than 7 days prior to

the start of construction activities, including staging of the Project Area. The Approved Biologist will review the Action Area for fresh sign of desert tortoise, including living tortoises, tortoise remains, burrows, tracks, scat, or egg shells. If desert tortoise or their sign is found, the Approved Biologist will immediately contact the USFWS, Caltrans, and the County. No work activities (including staging of the project site) would be permissible until consultation has been completed.

If no desert tortoise or sign are found, measure **BIO-4** (Desert Tortoise Exclusion Fencing) will be implemented immediately before the start of construction or project staging.

If construction activities cease for at least 7 days, a new preconstruction survey will be required prior to construction activities resuming. This will ensure desert tortoise have not moved into the project site, and any repairs of exclusion fencing (**M-4**) can be conducted prior to work activities.

M-4: Desert Tortoise Exclusion Fencing. The construction areas will be the minimal area necessary to complete the proposed Project and will be specified in the construction plans. Desert tortoise exclusion fencing will be installed under the direction of an Approved Biologist around the perimeter of the Project site to exclude desert tortoise from the construction areas. This temporary fencing will be installed after the preconstruction survey (**M-3**) and prior to the initiation of construction activities. Exclusion fencing will be maintained until the completion of all construction-related activities. Specifications for the temporary exclusion fencing will use the most recent USFWS guideline for fence installation. The Approved Biologist will inspect the exclusion fencing at least monthly and immediately following a rainfall event (i.e., the same day or the morning after an evening rain). Any fencing that has been damaged will be repaired within two days. Fencing will be monitored and maintained at a frequency necessary to ensure its effectiveness.

M-5: Biological Monitor. An Approved Biologist will monitor construction activities throughout Project construction to ensure that practicable measures are being employed to avoid incidental disturbance of areas of desert tortoise Critical Habitat outside of the Project limits of disturbance. The project proponent will submit the qualifications of the Approved Biologist to the USFWS and CDFW at least 30 days prior to the preconstruction survey in measure **M-3**. Ongoing monitoring and reporting will occur throughout the duration of construction activities to ensure BMPs in measure **M-2** are implemented and desert tortoise fencing (**M-5**) is maintained. The biological monitor will inspect all work areas each day before work can begin. The biological monitor will not capture, handle, or move desert tortoise from the Action Area without prior authorization from the USFWS.

M-6: Worker Environmental Awareness Program Training. A worker education program will be developed and presented to all construction personnel prior to the start of construction activities. The training will be presented by a qualified biologist. The

biologist will describe the work limits within which the project must be accomplished and all approved access routes. The training will include general behavior and ecology of desert tortoise and other sensitive species (i.e. nesting birds), identification of the species, reporting requirements, and protection measures being implemented for the project, which may include but not be limited to:

- Project personnel will not be allowed to bring pets into the Project site.
- No hazards to desert tortoise (e.g., auger holes, trenches, pits, or other steep-sided depressions) will be left unfenced or uncovered; such hazards will be eliminated prior to the construction crew and the biologist(s) leaving the Project construction site for the day.
- During construction-related activities for the Project, motor vehicles will be limited to approved designated roadways and areas identified as permanently or temporarily affected by construction of the Project. All motor vehicles driving on approved non-paved roads in the Project Area will not exceed 20 miles per hour.
- Anyone who operates a motor vehicle or construction equipment will check under the parked vehicles/equipment for the presence of desert tortoises before the vehicle/equipment is moved.
- Should any desert tortoise be injured or killed, all activities will be halted within 500 feet of the incident, and the FCR and/or Authorized Biologist immediately contacted. The FCR and/or Authorized Biologist will be responsible for reporting the incident to the USFWS and CDFW.

5.5.2. Compensation

The effects of the Action are limited to temporary effects on desert tortoise Critical Habitat, which would be minimized with the implementation of avoidance and minimization measures, as described in Section 5.5.1 above. No direct impacts on desert tortoise would occur. Consequently, no compensatory mitigation is proposed for desert tortoise.

5.6. Effects of Interrelated and Interdependent Actions/Conclusions and Determination

Interrelated actions are actions that are part of a larger action and depend on the larger action for their justification [50 CFR 402.02] (i.e., this project would not occur “but for” a larger project). Interrelated actions are typically associated with the proposed action. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification.

Interdependent actions are actions having no independent utility apart from the proposed action. [50 CFR 402.02]. Interdependent actions are those that have no independent utility apart from the action under consideration.

No interrelated or interdependent actions are associated with the Project. The Project is a small, independent bridge replacement project that is not part of a larger action. No additional interdependent activities outside of the specified Project construction would occur as a result of the proposed Action.

5.7. Cumulative Effects

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the Action Area described in this Biological Assessment. Future federal actions that are unrelated to the proposed Action are not considered in this section because they require separate consultation pursuant to Section 7 of the FESA.

5.7.1. Cumulative Effects on Desert Tortoise

Desert tortoise was determined to be absent from the Action Area, and, as a result, the Project does not add any cumulative effects, now or in the reasonably foreseeable future, that contribute to the loss of desert tortoise in the region.

The Project consists of replacing existing bridges within the existing County right-of-way, it would have relatively small permanent impacts on desert tortoise Critical Habitat that would be mitigated per the stipulations of the Biological Opinion issued for the Project. As a result, no cumulative impacts on desert tortoise Critical Habitat are anticipated. Future transportation and infrastructure projects planned in the region include pavement rehabilitation on the I-10 east of the Action Area. Implementation of avoidance and minimization measures for impacts on desert tortoise Critical Habitat for all future projects would ensure that impacts are mitigated and that desert tortoise and its Critical Habitat would be sustained in perpetuity within the region.

5.8. Determination

5.8.1. Species and Critical Habitat Determination

No Effect

A *no effect* determination was made for the following species. No consultation is required.

- Desert tortoise

May Affect, Not Likely to Adversely Affect

A *may affect, not likely to adversely affect* determination was made for the following USFWS designated Critical Habitat. Formal consultation is required.

- Desert tortoise Critical Habitat

5.8.2. Discussion Supporting Determination

Under provisions of Section 7(a)(2) of the FESA, a federal agency (e.g., Federal Highway Administration) that permits, licenses, funds, or otherwise authorizes a project activity must consult with the USFWS to ensure that its actions would not jeopardize the continued existence of any listed species or destroy or adversely modify Critical Habitat. This Biological Assessment addresses the proposed Project's impacts on and avoidance and minimization measures for federally listed species.

5.8.2.1. No Effect

A *no effect* determination was made for one federally listed species obtained from USFWS, desert tortoise. While potentially suitable habitat occurs for desert tortoise within the Action Area for Aztec Ditch Bridge (#56C0102), Tarantula Ditch Bridge (#56C0103), Sutro Ditch Bridge (#56C0104), and Acari Ditch Bridge (#56C0108), as discussed in this Biological Assessment, this species was not detected in the Action Area during 2017 or 2019 protocol surveys. As such, desert tortoise is considered absent from the Action Area, and it was determined that *no effect* would occur.

5.8.2.2. May Affect, Not Likely to Adversely Affect

A *may affect, not likely to adversely affect* determination was made for desert tortoise Critical Habitat based on the permanent loss of Critical Habitat for this species. Permanent impacts from the Aztec Ditch Bridge (#56C0102), Tarantula Ditch Bridge (#56C0103), Sutro Ditch Bridge (#56C0104), and Acari Ditch Bridge (#56C0108) would occur on Critical Habitat containing PBFs located within the Chuckwalla Critical Habitat Unit (0.17 acre, 0.16 acre, 0.19 acre, and 0.14 acre, respectively). However, these lands are located along the existing Chuckwalla Valley Road within the County right-of-way and are degraded due to vehicular traffic and roadway maintenance. The majority of Project construction impacts are temporal in nature, and temporarily impacted areas will be restored to pre-Project conditions, including returning affected areas to original contour grades, decompacting the soil, and replanting with a plant palette composed of the species found onsite prior to the disturbance. Any potential desert tortoise movement occurring in the area would not be permanently impacted. In addition, measures **M-1** through **M-6** would be implemented to reduce direct and indirect effects on desert tortoise Critical Habitat. Consequently, the Project would not affect the long-term conservation value of the Critical Habitat onsite, and, thus, it was determined that the Project *may affect, but is not likely to adversely affect* desert tortoise Critical Habitat.

This page intentionally left blank

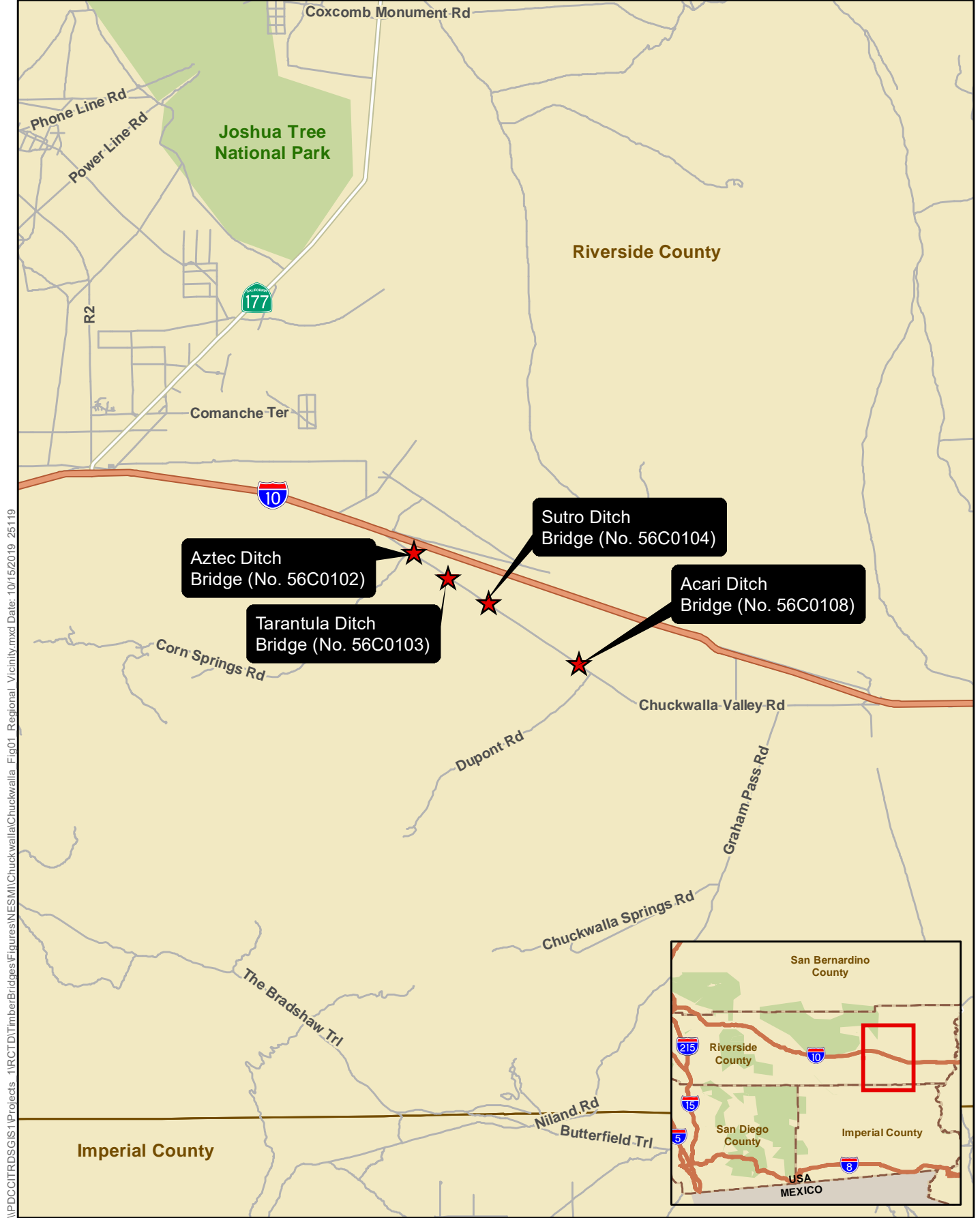
Chapter 6. Literature Cited

- Beier, P. and Loe, S. 1992. "In my experience: a checklist for evaluating impacts to wildlife movement corridors." *Wildlife Society Bulletin (1973-2006)*, 20(4), pp. 434–440.
- Berry, K. H. and P. Medica. 1995. Tortoises in the Mohave and Colorado Deserts. In E. T. LaRoe et al. (editors), *Our Living Resources: A Report to the Nation on the Distribution, Abundance and Health of U.S. Plants, Animals and Ecosystems*. Washington, DC: U.S. Department of the Interior, National Biological Service.
- Berry, K. H., D. J. Morafka, and R. W. Murphy. 2002. *Defining the Desert Tortoise(s): Our First Priority for a Coherent Conservation Strategy*. *Chelonian Conservation and Biology* 4(2):249–262.
- Boarman, W. 2002. Desert Tortoise (*Gopherus agassizii*). In W. Boarman and K. Beaman (editors), *The Sensitive Plant and Animal Species of the Western Mojave Desert*. Sacramento, CA: U.S. Geological Survey, Western Ecological Research Center.
- Cal-IPC (California Invasive Plant Council). 2019. *California Invasive Plant Inventory*. Available: www.cal-ipc.org. Berkeley, CA. Accessed: October 2019.
- CDFW (California Department of Fish and Wildlife). 2019a. *Element Reports for the Sidewinder Well and Aztec Mines and Immediately Surrounding USGS 7.5-Minute Quadrangle Maps*. California Natural Diversity Database. Sacramento, CA. Wildlife and Habitat Data Analysis Branch. Accessed: October 2019.
- . 2019b. *California Natural Diversity Database, Special Animals List*. August. Periodic publication. 67 pp.
- CNPS (California Native Plant Society). 2019. *Inventory of Rare and Endangered Plants (online edition, v8-11)*. Sacramento, CA. California Native Plant Society. Available: <https://www.cnps.org/rare-plants/cnps-inventory-of-rare-plants>. Accessed: October 2019.
- Historic Aerials. 1953. *Historic Topographic Imagery for the Project Site from 1957*. Available: <https://www.historicaerials.com/viewer>. Accessed: May 2019.
- ICF. 2020. *Natural Environment Study, Minimal Impacts, Chuckwalla Valley Road Bridge Replacement Project (in draft)*. December. Corona, CA.
- Penrod, K., P. Beier, E. Garding, and C. Cabanero. 2012. *A Linkage Network for the California Desert*. Produced for the Bureau of Land Management and The Wildlands Conservancy. Produced by Science and Collaboration for Connected Wildlands, Fair Oaks, CA. February 2012.
- USDA-NRCS (U.S. Department of Agriculture, Natural Resources Conservation Service). 2019. *Soil Survey Geographic (SSURGO) Database for Riverside County, California*. Soil Survey Staff. Accessed: March 2019.

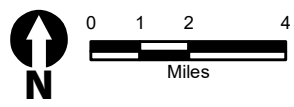
- USFWS (U.S. Fish and Wildlife Service). 1990. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Mojave Population of the Desert Tortoise. *Federal Register* 55(63):12178–12191.
- . 1994. *Desert Tortoise (Mojave Population) Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon.
- . 2009. *Desert Tortoise (Mojave Population) Field Manual: (Gopherus agassizii)*. Region 8, Sacramento, California.
- . 2010. *Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise (Gopherus agassizii)*. U.S. Fish and Wildlife Service, 2010 Field Season.
- . 2018. *Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise (Gopherus agassizii)*. U.S. Fish and Wildlife Service. Version October 26, 2018.
- . 2020. *Carlsbad Field Office List of Proposed, Threatened, and Endangered Species, and Critical Habitats for Chuckwalla Valley Road Bridge Replacement Project*. 08ECAR00-2020-SLI-0123. January 16, 2020.
- . 2019. *National Wetlands Inventory*. Washington, D.C. Available: <https://www.fws.gov/wetlands/>. Accessed: March 2019.
- U.S. Geological Survey (USGS) 1983. *Sidewinder Well and Aztec Mines 7.5-minute Topographic Quadrangle Map*.

Appendix A. Project Figures

This page intentionally left blank

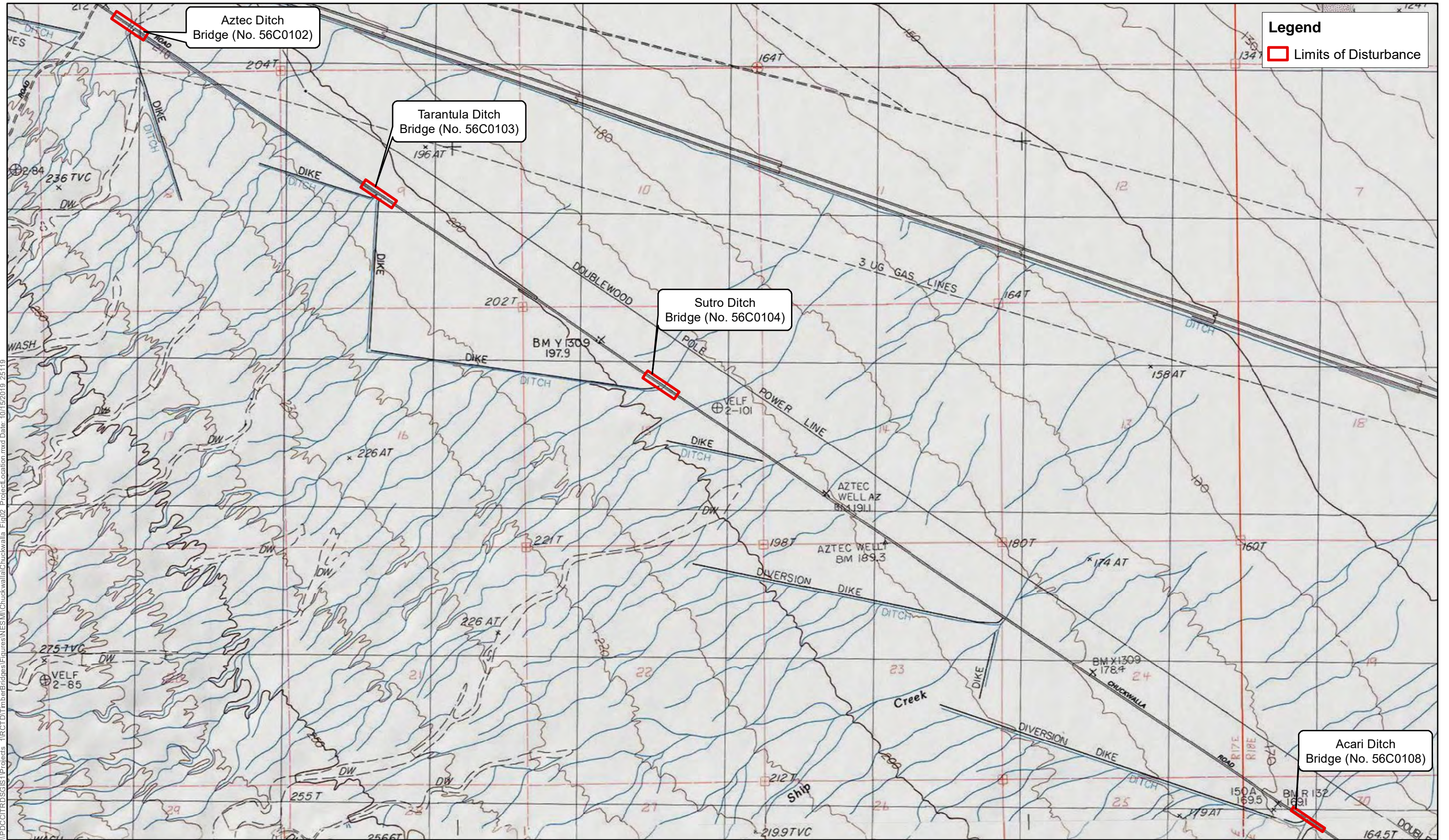


I:\PDC\ITRDS\GIS\1\Projects_1\RCTD\TimberBridges\Figures\NEM\Chuckwalla\Chuckwalla_Fig01_Regional_Vicinity.mxd Date: 10/15/2019 25119

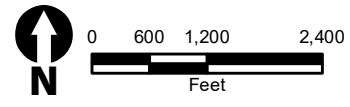


Source: ESRI StreetMap North America

Figure 1
Regional Vicinity Map
Chuckwalla Valley Road Bridge Replacement

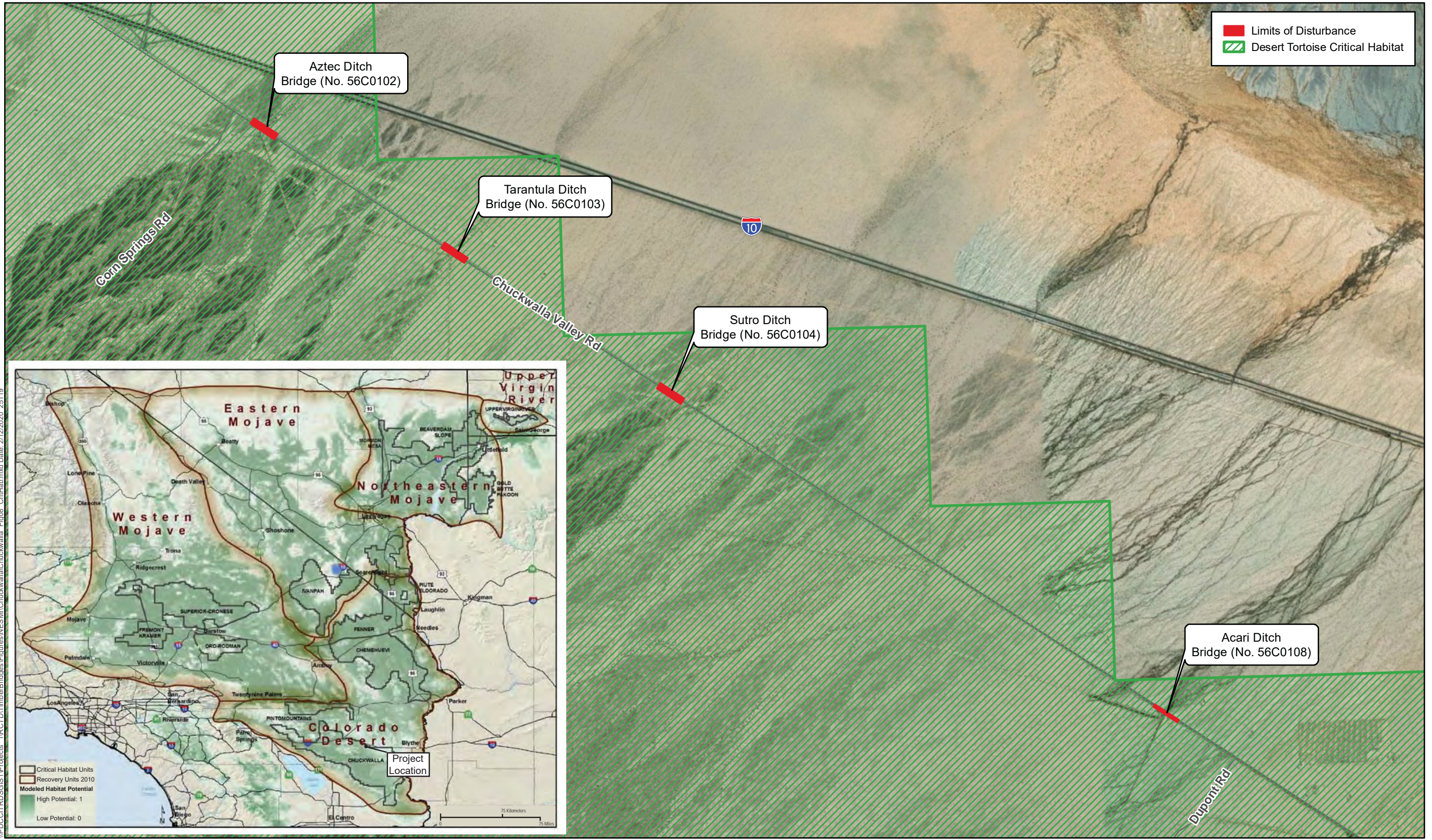


I:\PROJECTS\51\Projects - 11\RCTD\TimberBridges\Figures\NES\Chuckwalla\Chuckwalla Fig02 - Project Location.mxd Date: 10/15/2019 251119

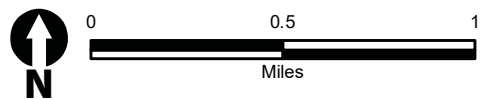


Source: USGS 7.5' Sidewinder Well & Aztec Mines

Figure 2
 Project Location/USGS Topographic Map
 Chuckwalla Valley Road Bridge Replacement

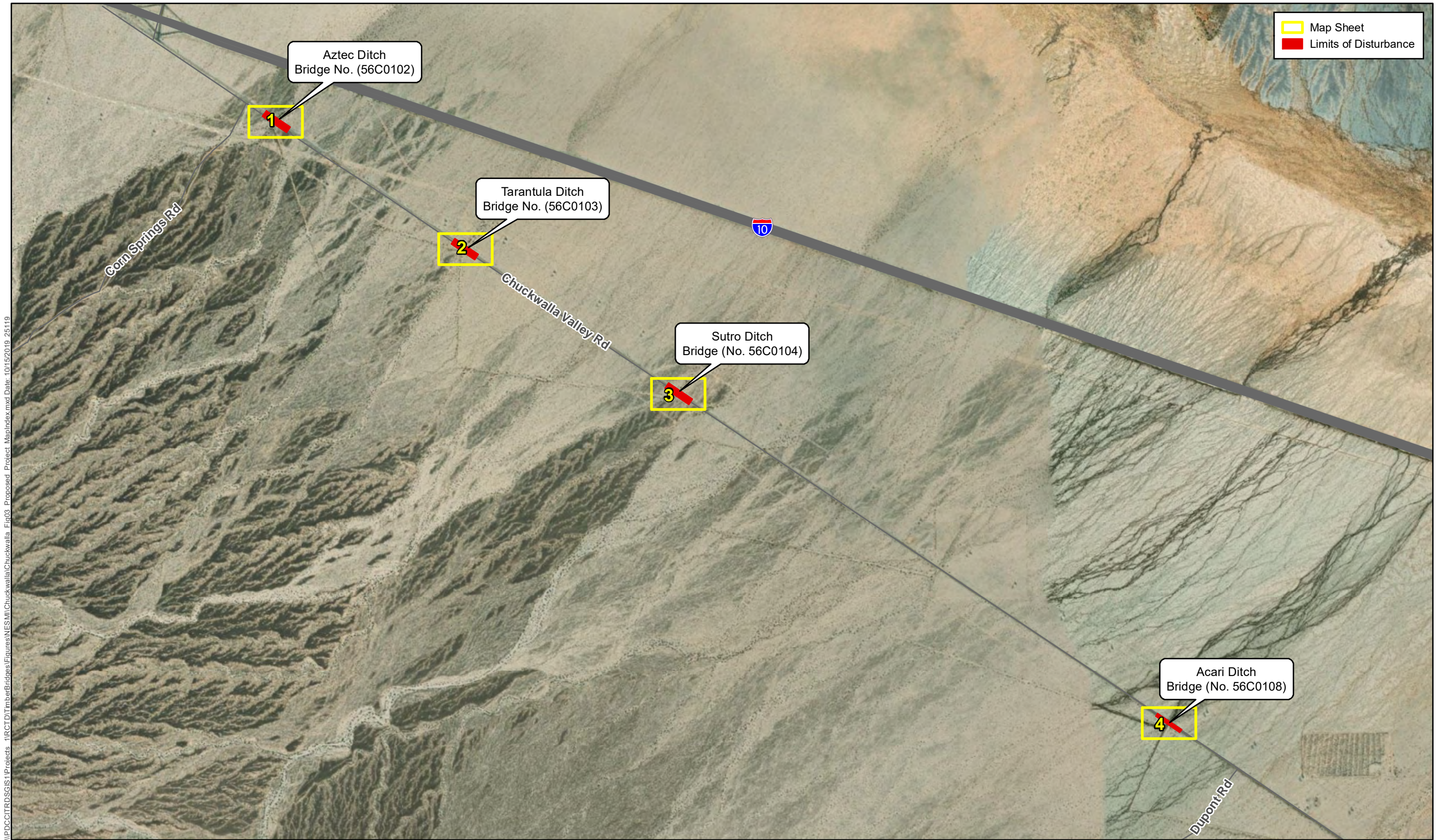


I:\PDC\ITRDS\GIS1\Projects\1\RCT\DT\Bridges\Figures\NES\M\Chuckwalla\Chuckwalla - Fig08 - CritHab.mxd Date: 2/12/2020 2:51:19

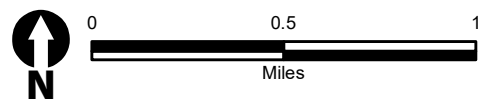


Source: ESRI (2016, 2018); USFWS (2011)

Figure 3
USFWS Critical Habitat
Chuckwalla Valley Road Bridge Replacement

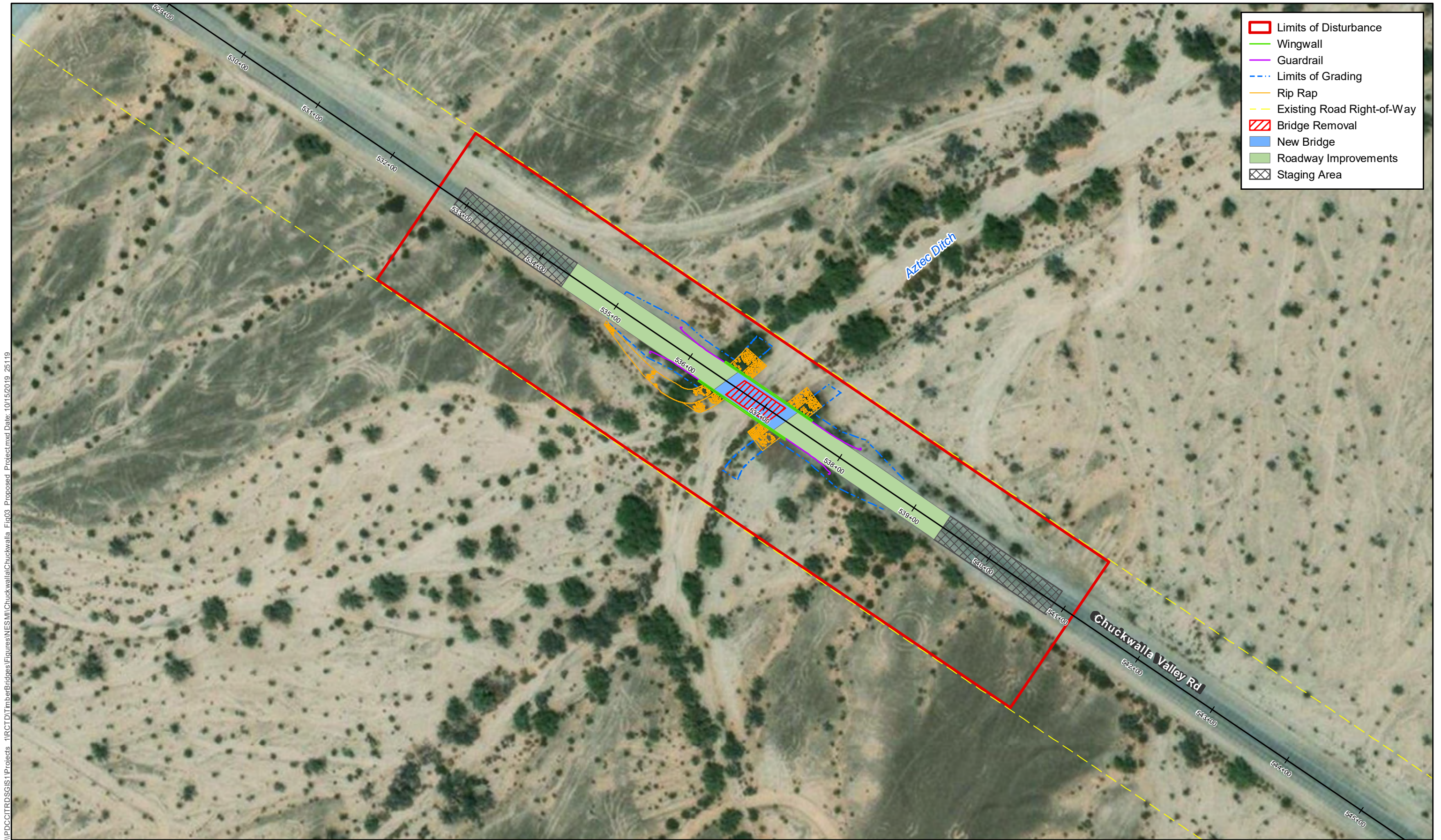


\\PDC\ITRDS\GIS\Projects\1\RCT\DT\TimberBridges\Figures\NES\MI\Chuckwalla\Chuckwalla_Fig03_Proposed_Project_MapIndex.mxd Date: 10/15/2019 25119



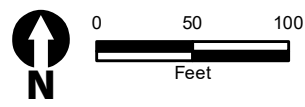
Source: ESRI (2016, 2018)

Figure 4 - Map Index
Proposed Project Design
Chuckwalla Valley Road Bridge Replacement



- Limits of Disturbance
- Wingwall
- Guardrail
- Limits of Grading
- Rip Rap
- Existing Road Right-of-Way
- Bridge Removal
- New Bridge
- Roadway Improvements
- Staging Area

I:\PROJECTS\TRD\S\IS1\Projects_1\TRCTD\TimberBridges\Figures\NES\M\Chuckwalla\Chuckwalla_Fig03_Proposed_Project.mxd Date: 10/15/2019 2:51:19



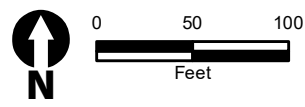
Source: ESRI (2016, 2018)

Figure 4 - Sheet 1
Proposed Project Design - Aztec Ditch Bridge (No. 56C0102)
Chuckwalla Valley Road Bridge Replacement



- Limits of Disturbance
- Wingwall
- Guardrail
- Limits of Grading
- Rip Rap
- Existing Road Right-of-Way
- Bridge Removal
- New Bridge
- Roadway Improvements
- Staging Area

I:\PROJECTS\RD\GIS\1\Projects_1\RDCT\TimberBridges\Figures\NES\MI\Chuckwalla\Chuckwalla_Fig03_Proposed_Project.mxd Date: 10/15/2019 25:119



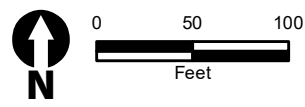
Source: ESRI (2016, 2018)

Figure 4 - Sheet 2
Proposed Project Design- Tarantula Ditch Bridge (No. 56C0103)
Chuckwalla Valley Road Bridge Replacement



- Limits of Disturbance
- Wingwall
- Guardrail
- Limits of Grading
- Existing Road Right-of-Way
- Bridge Removal
- New Bridge
- Roadway Improvements
- Staging Area

I:\PROJECTS\TRDS\GIS\Projects\1\RCTD\TimberBridges\Figures\NES\M\Chuckwalla\Chuckwalla Fig03_Proposed Project.mxd Date: 10/15/2019 25119

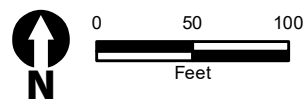


Source: ESRI (2016, 2018)

Figure 4 - Sheet 3
Proposed Project Design - Sutro Ditch Bridge (No. 56C0104)
Chuckwalla Valley Road Bridge Replacement

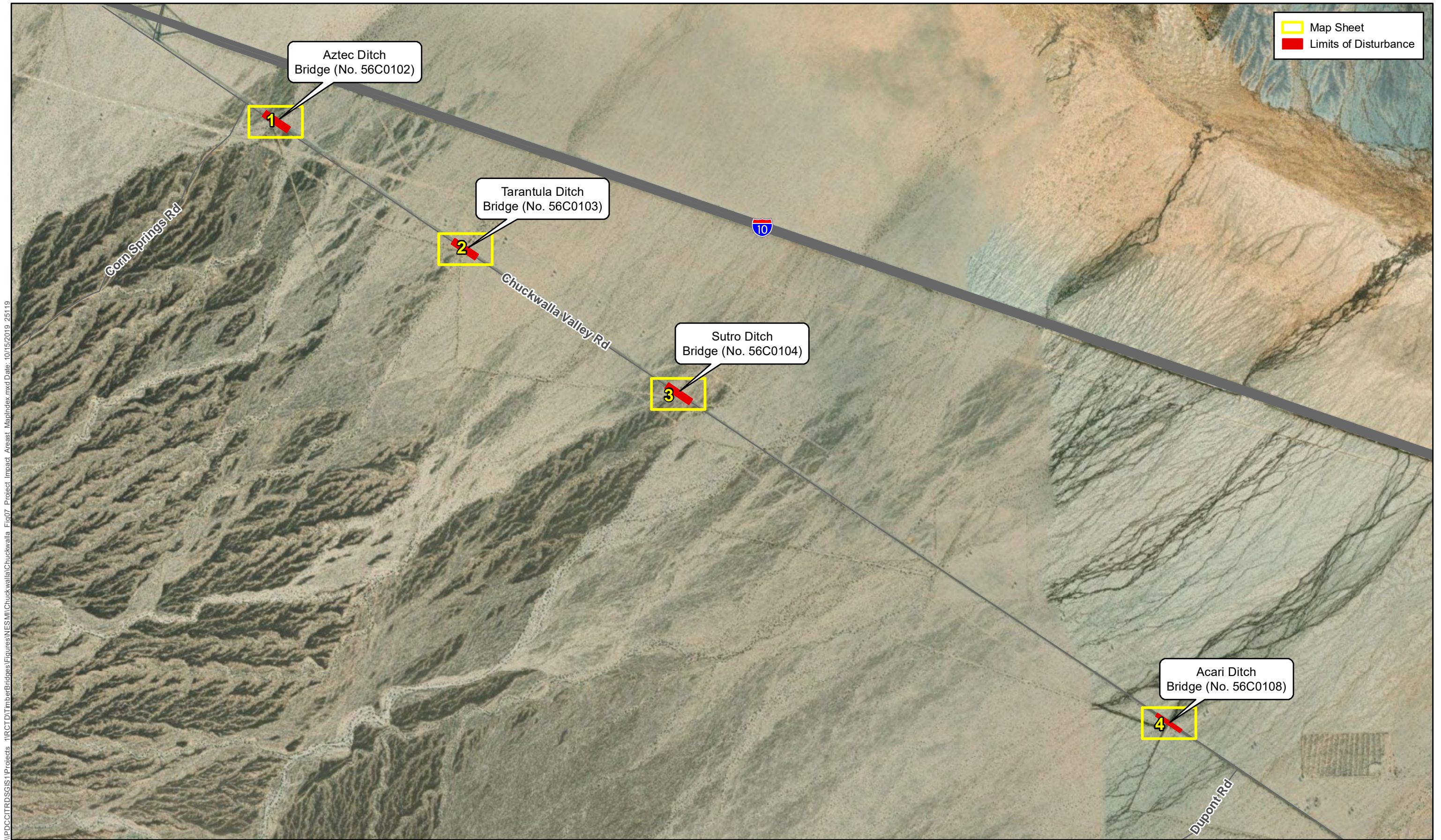


I:\PDC\ITR\SDS\GIS\Projects\1\RCTD\TimberBridges\Figures\NES\M\Chuckwalla\Chuckwalla Fig03_Proposed Project.mxd Date: 10/15/2019 25119



Source: ESRI (2016, 2018)

Figure 4 - Sheet 4
Proposed Project Design - Acari Ditch Bridge (No. 56C0108)
Chuckwalla Valley Road Bridge Replacement



I:\PROJECTS\Bridges\Chuckwalla\Chuckwalla\MapIndex.mxd Date: 10/15/2019 25119

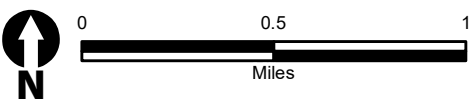
Map Sheet
1 Limits of Disturbance

Aztec Ditch Bridge (No. 56C0102)

Tarantula Ditch Bridge (No. 56C0103)

Sutro Ditch Bridge (No. 56C0104)

Acari Ditch Bridge (No. 56C0108)

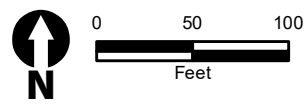


Source: ESRI (2016, 2018)

Figure 5 - Map Index
Project Impact Areas
Chuckwalla Valley Road Bridge Replacement



I:\PDC\ITR\SDS\GIS\1\Projects\1\RCT\DT\ImberBridges\Figures\NES\MI\Chuckwalla\Chuckwalla Fig07 - Protect Impact Areas.mxd Date: 10/15/2019 25119

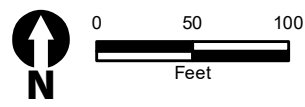


Source: ESRI (2016, 2018)

Figure 5 - Sheet 1
Project Impact Areas - Aztec Ditch Bridge (No. 56C0102)
Chuckwalla Valley Road Bridge Replacement



I:\PROJECTS\1\Projects\1\RCTDT\TimberBridges\Figures\N56\Chuckwalla\Chuckwalla Fig07 - Project Impact Areas.mxd Date: 10/15/2019 25119



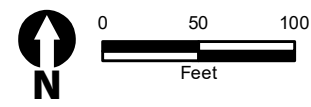
Source: ESRI (2016, 2018)

Figure 5 - Sheet 2
Project Impact Areas - Tarantula Ditch Bridge (No. 56C0103)
Chuckwalla Valley Road Bridge Replacement



	Limits of Disturbance
	Permanent Impact Area
	Temporary Impact Area

I:\PDC\ITR\SDS\GIS1\Projects_1\RCT\DT\TimberBridges\Figures\NES\MI\Chuckwalla\Chuckwalla Fig07 - Project Impact Areas.mxd Date: 10/15/2019 25119

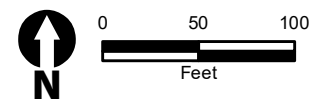


Source: ESRI (2016, 2018)

Figure 5 - Sheet 3
Project Impact Areas - Sutro Ditch Bridge (No. 56C0104)
Chuckwalla Valley Road Bridge Replacement

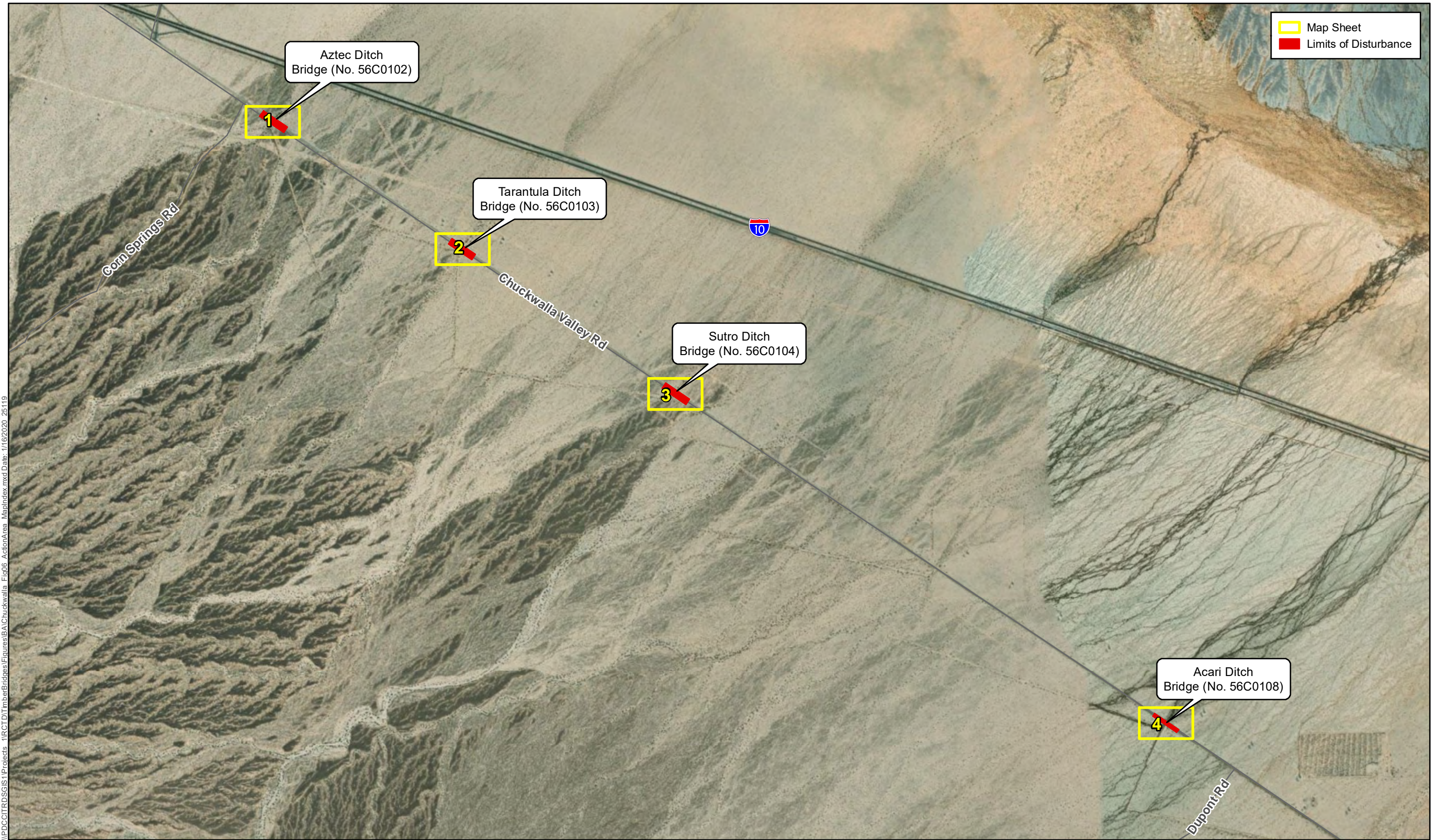


I:\PROJECTS\TRDS\GIS\Projects\1\RCTD\TimberBridges\Figures\NES\MI\Chuckwalla\Chuckwalla Fig07 Project Impact Areas.mxd Date: 10/15/2019 25119



Source: ESRI (2016, 2018)

Figure 5 - Sheet 4
Project Impact Areas - Acari Ditch Bridge (No. 56C0108)
Chuckwalla Valley Road Bridge Replacement



Aztec Ditch
Bridge (No. 56C0102)

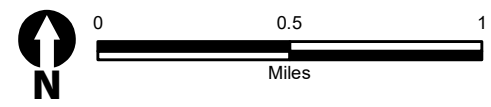
Tarantula Ditch
Bridge (No. 56C0103)

Sutro Ditch
Bridge (No. 56C0104)

Acari Ditch
Bridge (No. 56C0108)

Map Sheet
Limits of Disturbance

I:\PROJECTS\Bridges\Chuckwalla\Fig06 - ActionArea_MapIndex.mxd Date: 1/16/2020 25:19



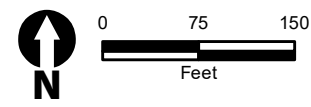
Source: ESRI (2016, 2018)

Figure 6 - Map Index
Map of the Action Area
Chuckwalla Valley Road Bridge Replacement



▭ Action Area (300-ft Buffer)
▭ Limits of Disturbance

\\PDC\ITRDS\GIS\Projects\1\RCT\DT\ImberBridges\Figures\BA\Chuckwalla_Fig06_ActionArea.mxd Date: 1/16/2020 25119



Source: ESRI (2016, 2018)

Figure 6 - Sheet 1
Map of the Action Area - Aztec Ditch Bridge (No. 56C0102)
Chuckwalla Valley Road Bridge Replacement

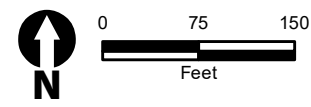


▭ Action Area (300-ft Buffer)
▭ Limits of Disturbance

Chuckwalla Valley Rd

Tarantula Ditch

\\PDC\ITR\SDS\GIS\Projects\1\RCT\DT\TimberBridges\Figures\BA\Chuckwalla_Fig06_ActionArea.mxd Date: 1/16/2020 25119



Source: ESRI (2016, 2018)

Figure 6 - Sheet 2
Map of the Action Area - Tarantula Ditch Bridge (No. 56C0103)
Chuckwalla Valley Road Bridge Replacement

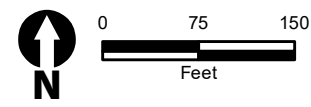


▭ Action Area (300-ft Buffer)
▭ Limits of Disturbance

Chuckwalla Valley Rd

Sutro Ditch

\\PDC\ITRDS\GIS\Projects\1\RCT\DT\TimberBridges\Figures\BA\Chuckwalla\Fig06 - ActionArea.mxd Date: 1/16/2020 25119

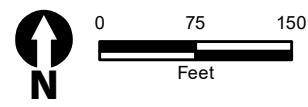


Source: ESRI (2016, 2018)

Figure 6 - Sheet 3
Map of the Action Area - Sutro Ditch Bridge (No. 56C0104)
Chuckwalla Valley Road Bridge Replacement

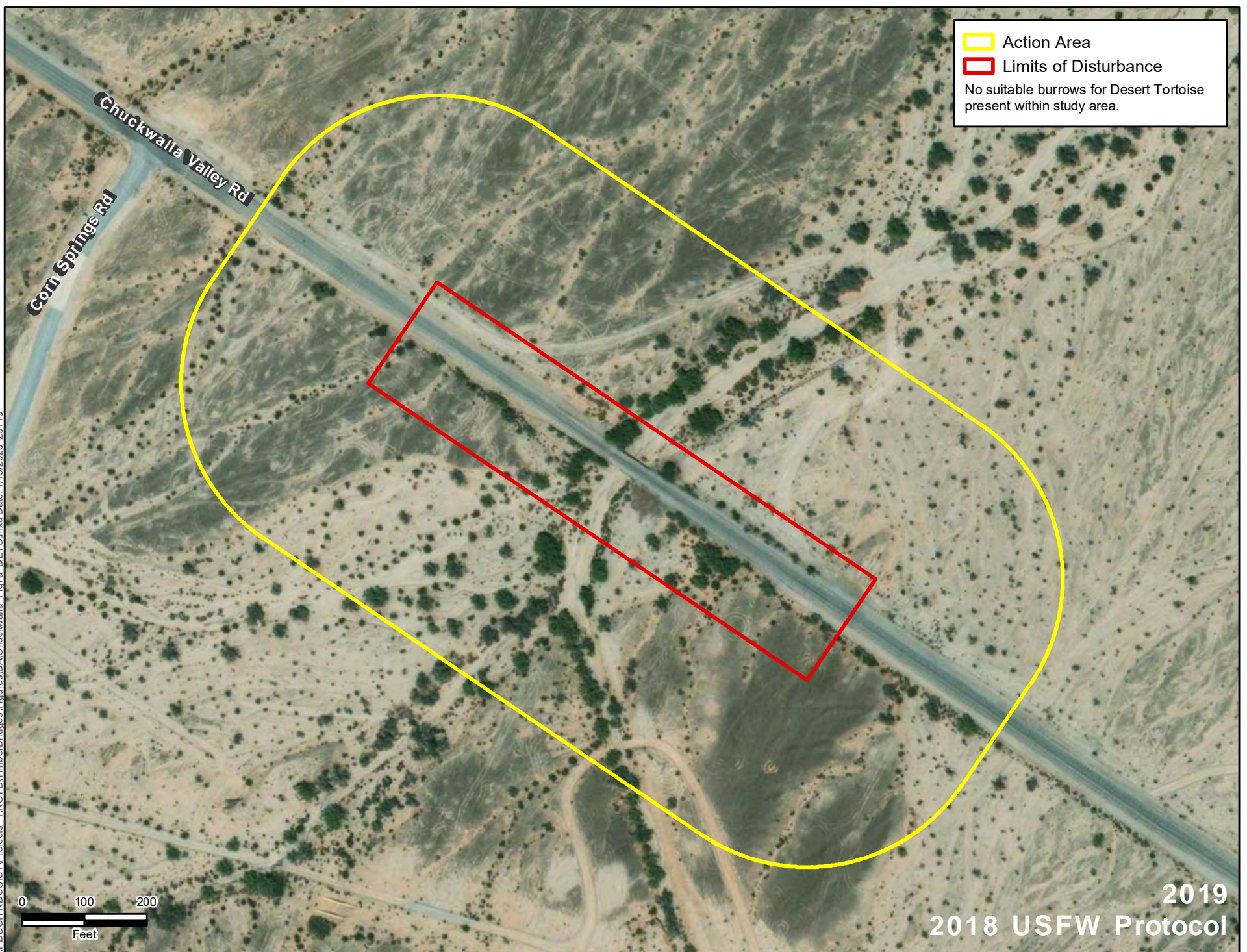
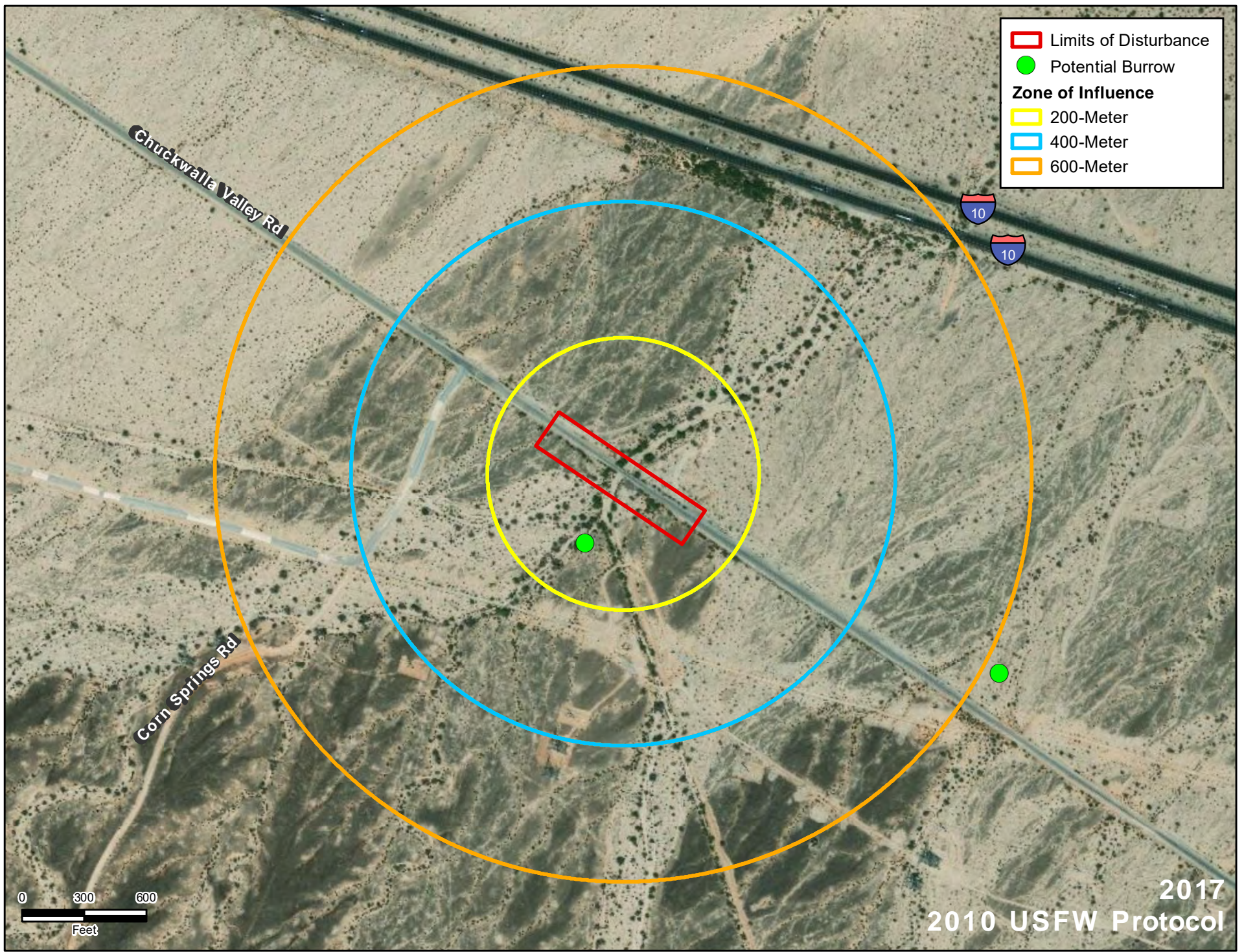


\\PDC\ITRDS\GIS\Projects\1\RCT\DT\TimberBridges\Figures\BA\Chuckwalla_Fig06_ActionArea.mxd Date: 1/16/2020 25119



Source: ESRI (2016, 2018)

Figure 6 - Sheet 4
Map of the Action Area - Acari Ditch Bridge (No. 56C0108)
Chuckwalla Valley Road Bridge Replacement

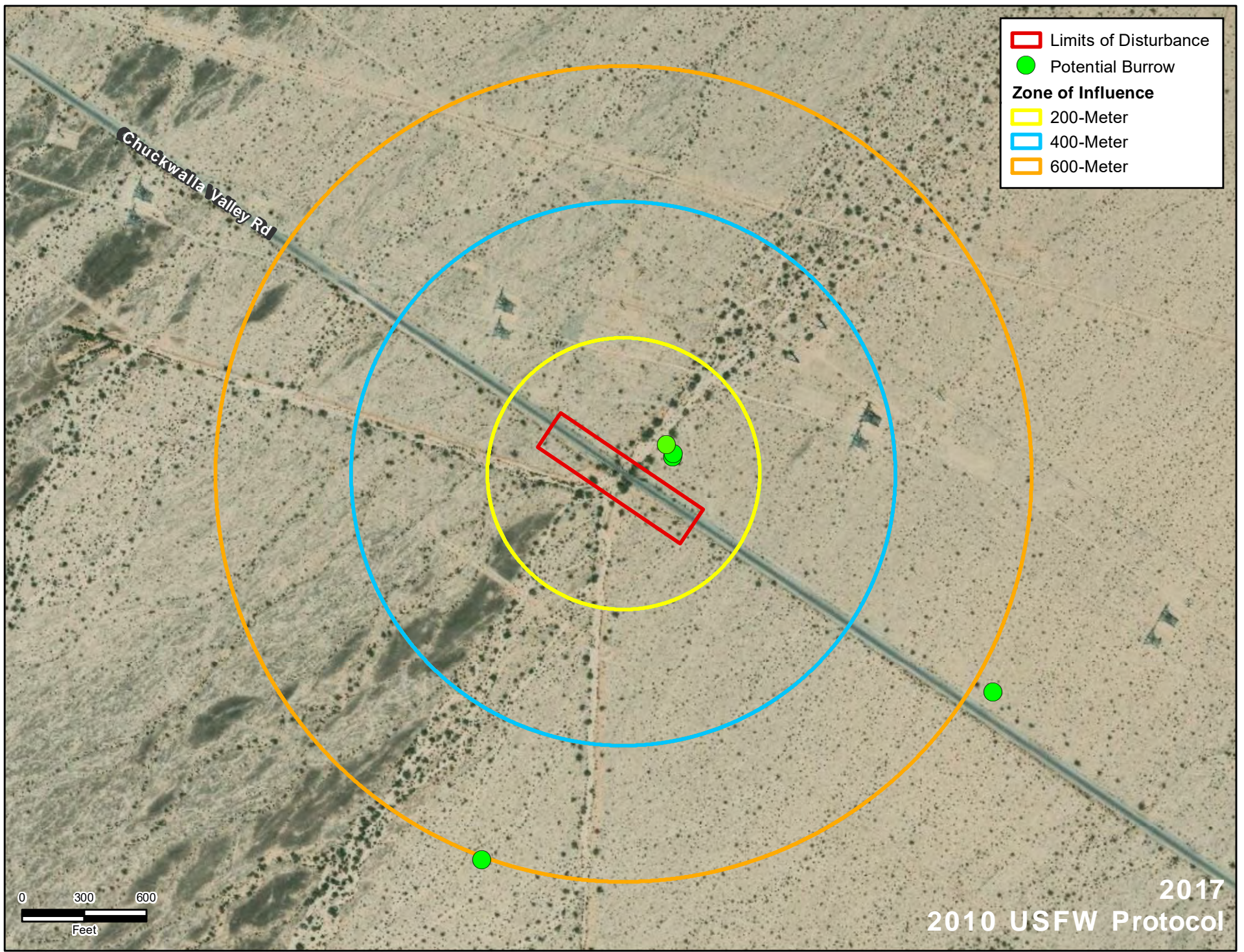


\\POC\ITRDS\GIS\Projects\1\RCT\DT\TimberBridges\Figures\BA\Chuckwalla\Fig7a_DETO.mxd Date: 1/15/2020 2:51:19



Source: ESRI (2016); CVAG

Figure 7a
2017/2019 Desert Tortoise Survey Results
Aztec Ditch Bridge (No. 56C0102)
Chuckwalla Valley Road Bridge Replacement

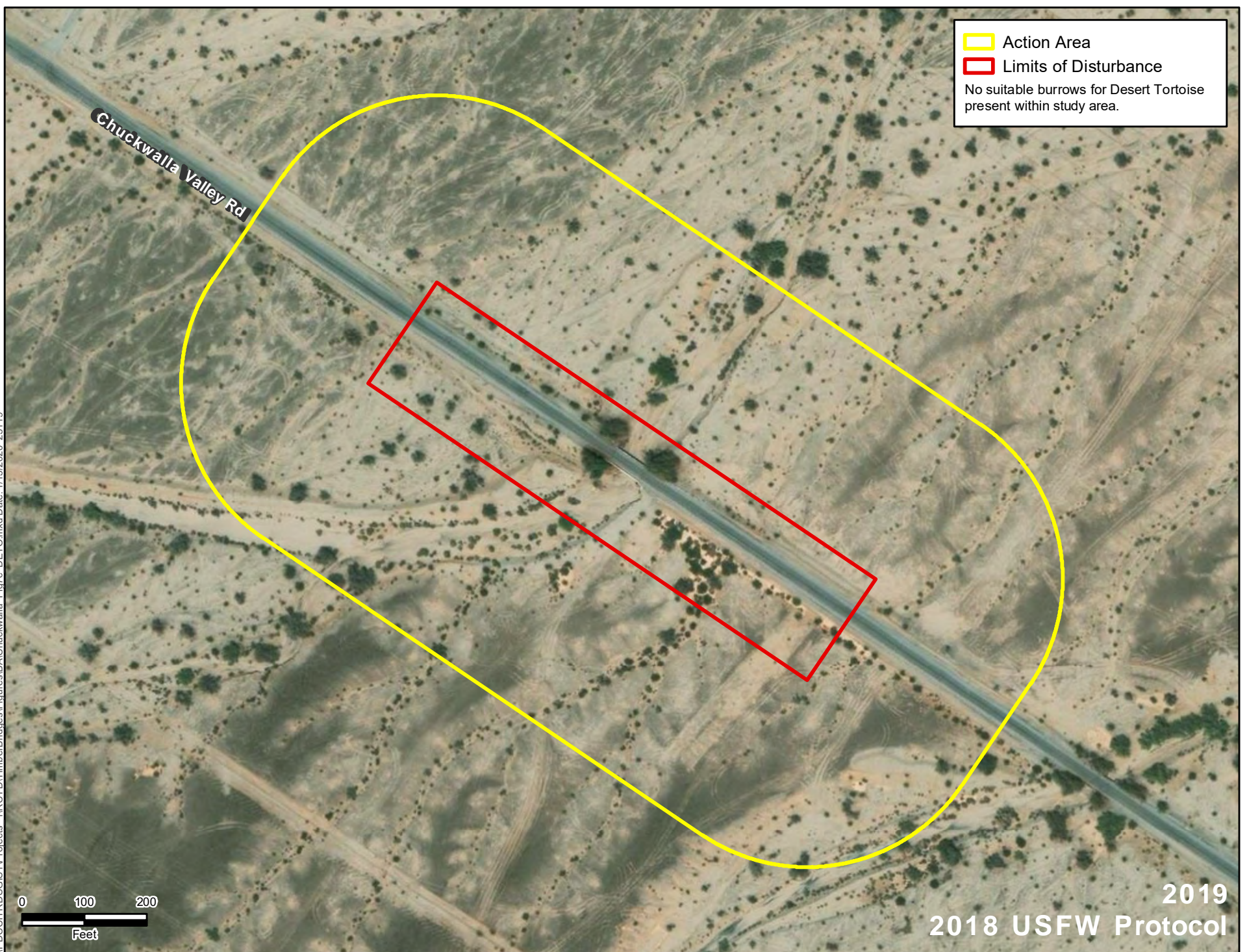
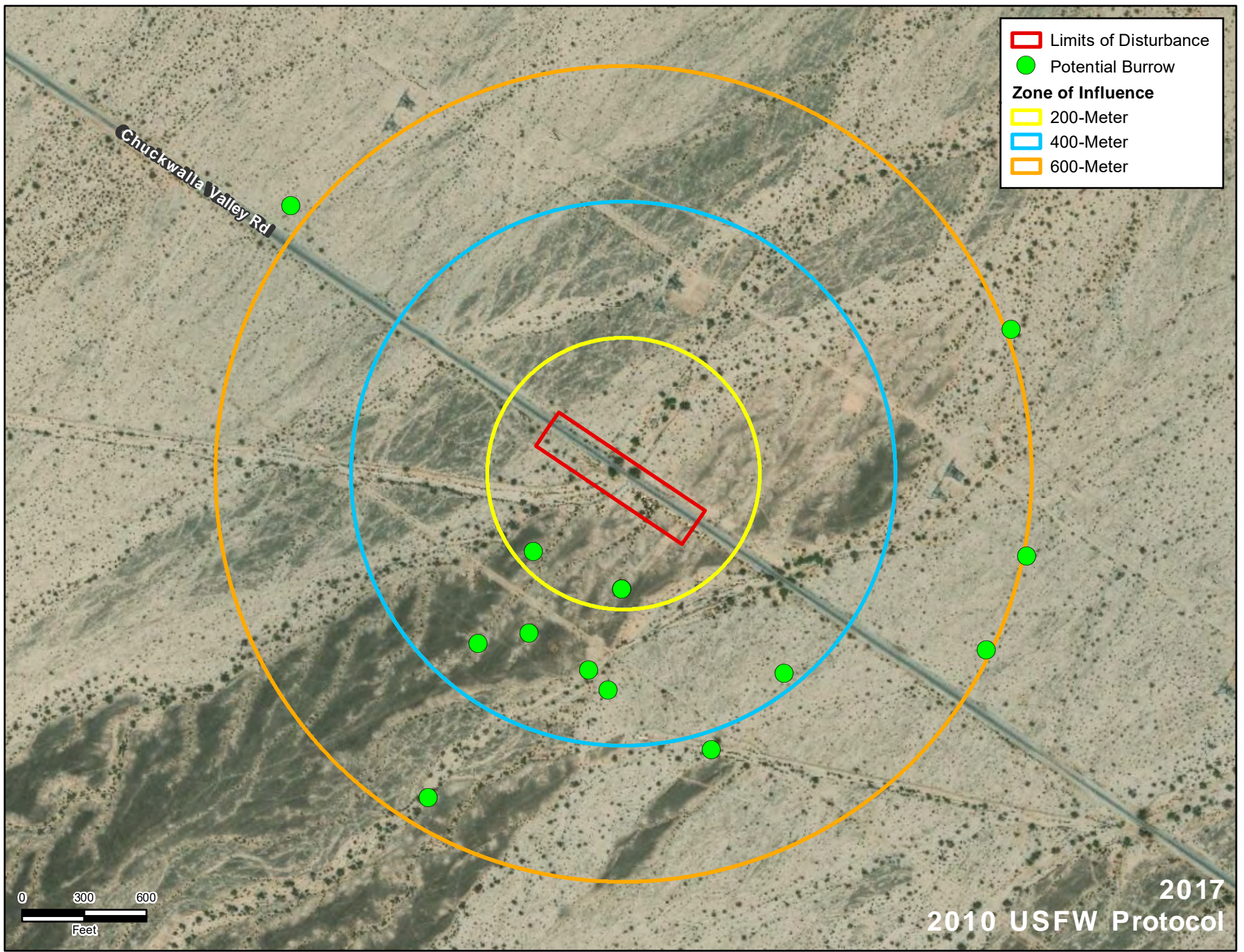


\\PDC\ITRDS\GIS\Projects\1\RCTD\TimberBridges\Figures\BA\Chuckwalla\Fig07b_DETO.mxd Date: 1/15/2020 25:11:19



Source: ESRI (2016); CVAG

Figure 7b
 2017/2019 Desert Tortoise Survey Results
 Tarantula Ditch Bridge (No. 56C0103)
 Chuckwalla Valley Road Bridge Replacement

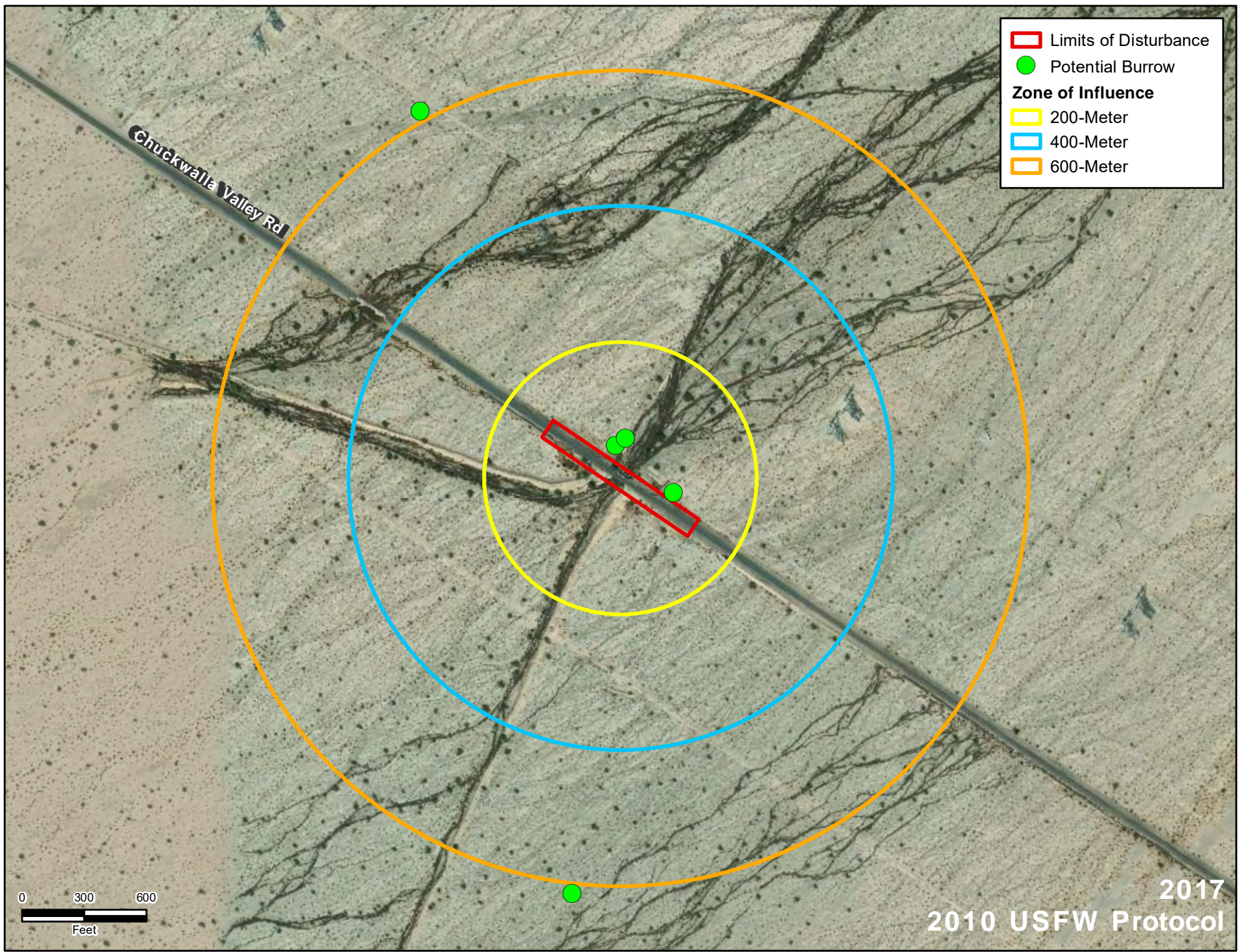


I:\PCC\TRD\S\1\Projects_1\RCTD\TimberBridges\Figures\BA\Chuckwalla_Fig7c_DETO.mxd Date: 1/15/2020 25119



Source: ESRI (2016); CVAG

Figure 7c
2017/2019 Desert Tortoise Survey Results
Sutro Ditch Bridge (No. 56C0104)
Chuckwalla Valley Road Bridge Replacement

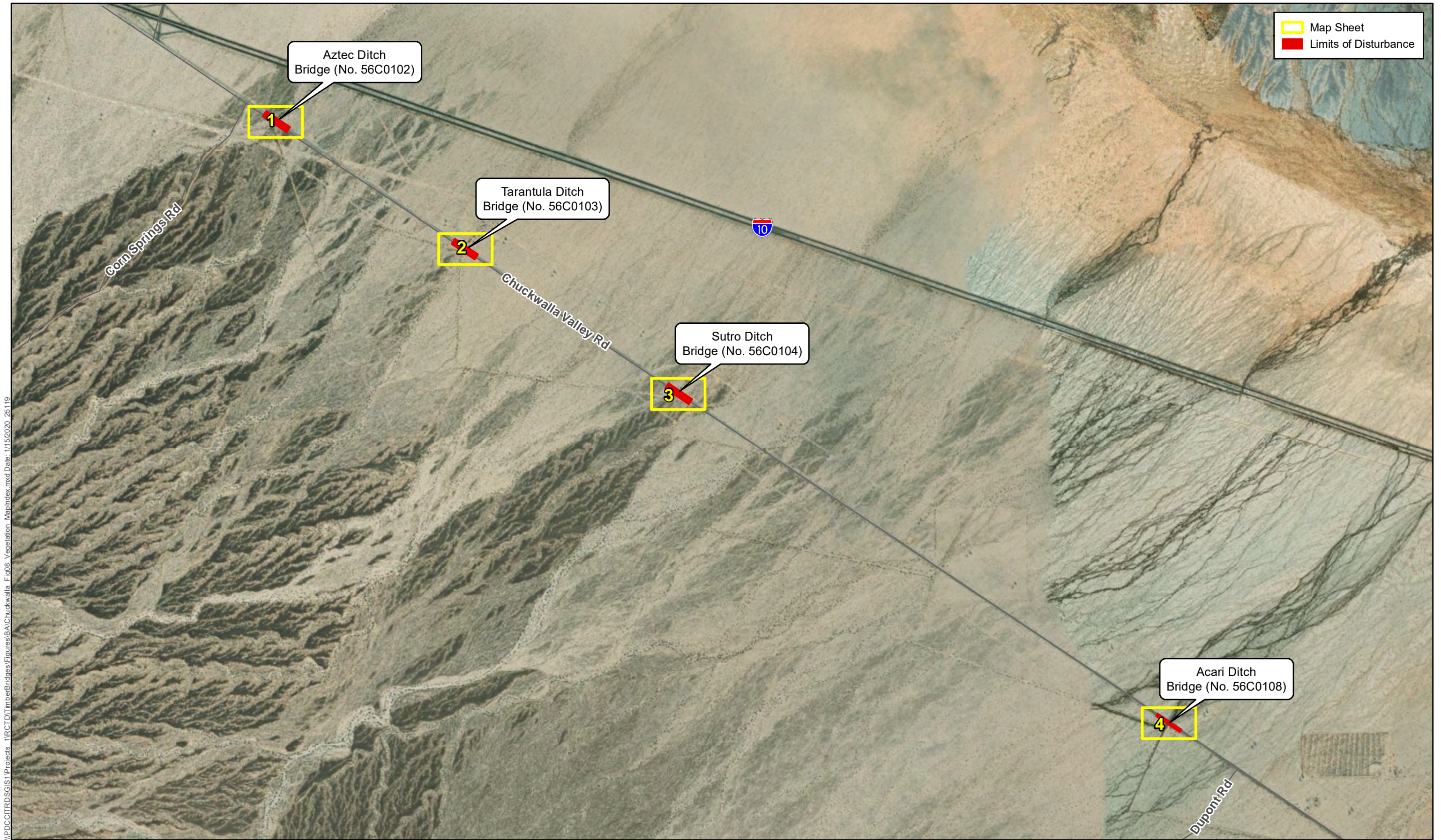


\\POCC\TRD\S\GIS\Projects\1\RCTD\TimberBridges\Figures\BA\Chuckwalla_Fig07d_DETO.mxd Date: 1/15/2020 25:119

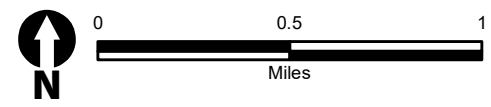


Source: ESRI (2018); CVAG

Figure 7d
 2017/2019 Desert Tortoise Survey Results
 Acari Ditch Bridge (No. 56C0108)
 Chuckwalla Valley Road Bridge Replacement

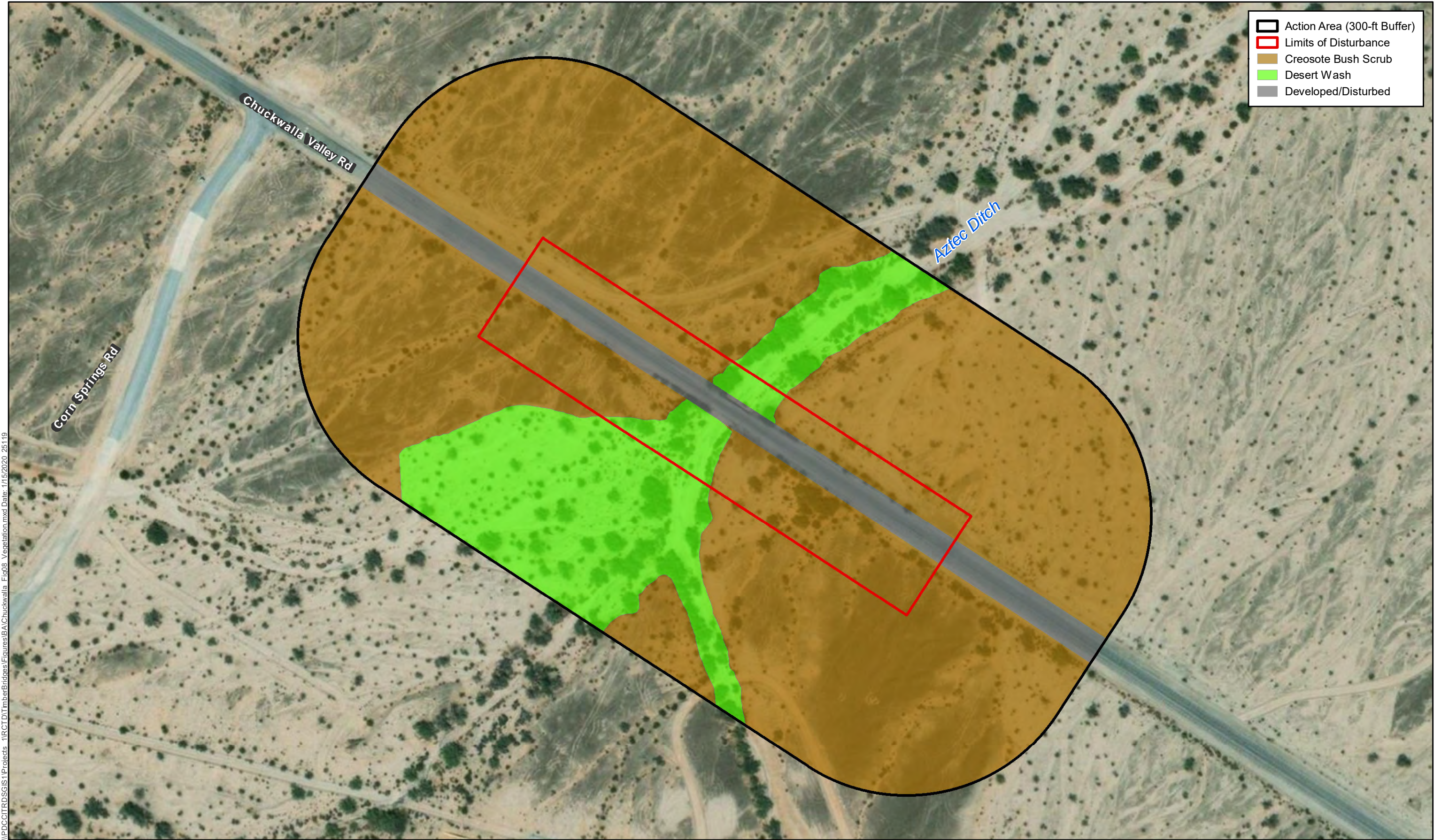


I:\PROJECTS\TRD\S\1\Projects_1\RCT\DT\TimberBridges\Figures\BA\Chuckwalla_Fig08_Vegetation_MapIndex.mxd Date: 1/15/2020 25:19

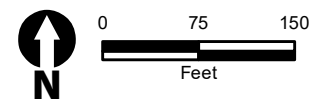


Source: ESRI (2016, 2018)

Figure 8 - Map Index
Vegetation Communities/Land Use Types
Chuckwalla Valley Road Bridge Replacement

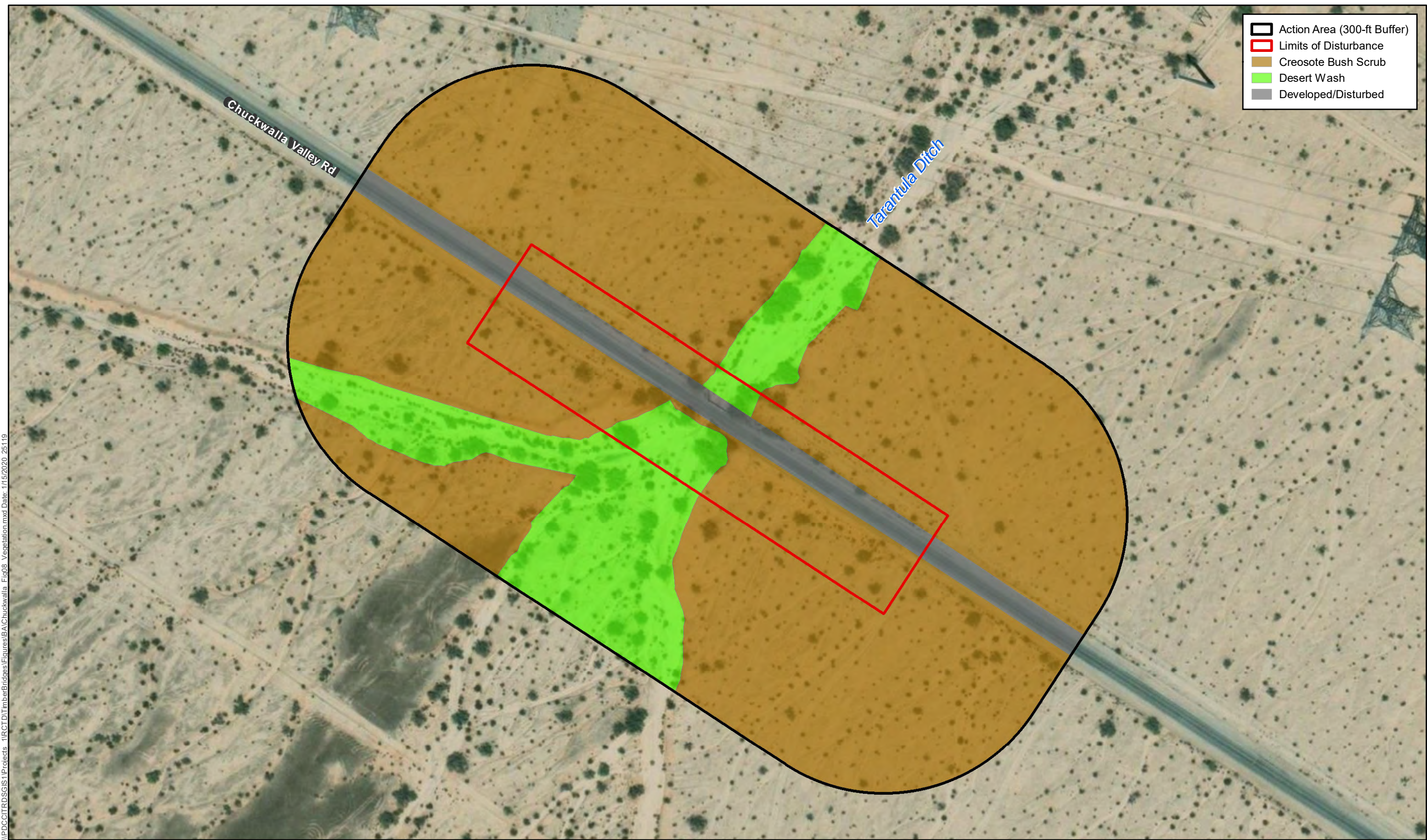


I:\PROJECTS\GIS\Projects\1\RCT\DT\ImberBridges\Figures\BA\Chuckwalla_Fig08_Vegetation.mxd Date: 1/15/2020 25:119



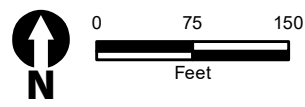
Source: ESRI (2016, 2018)

Figure 8 - Sheet 1
Vegetation Communities/Land Use Types - Aztec Ditch Bridge (No. 56C0102)
Chuckwalla Valley Road Bridge Replacement



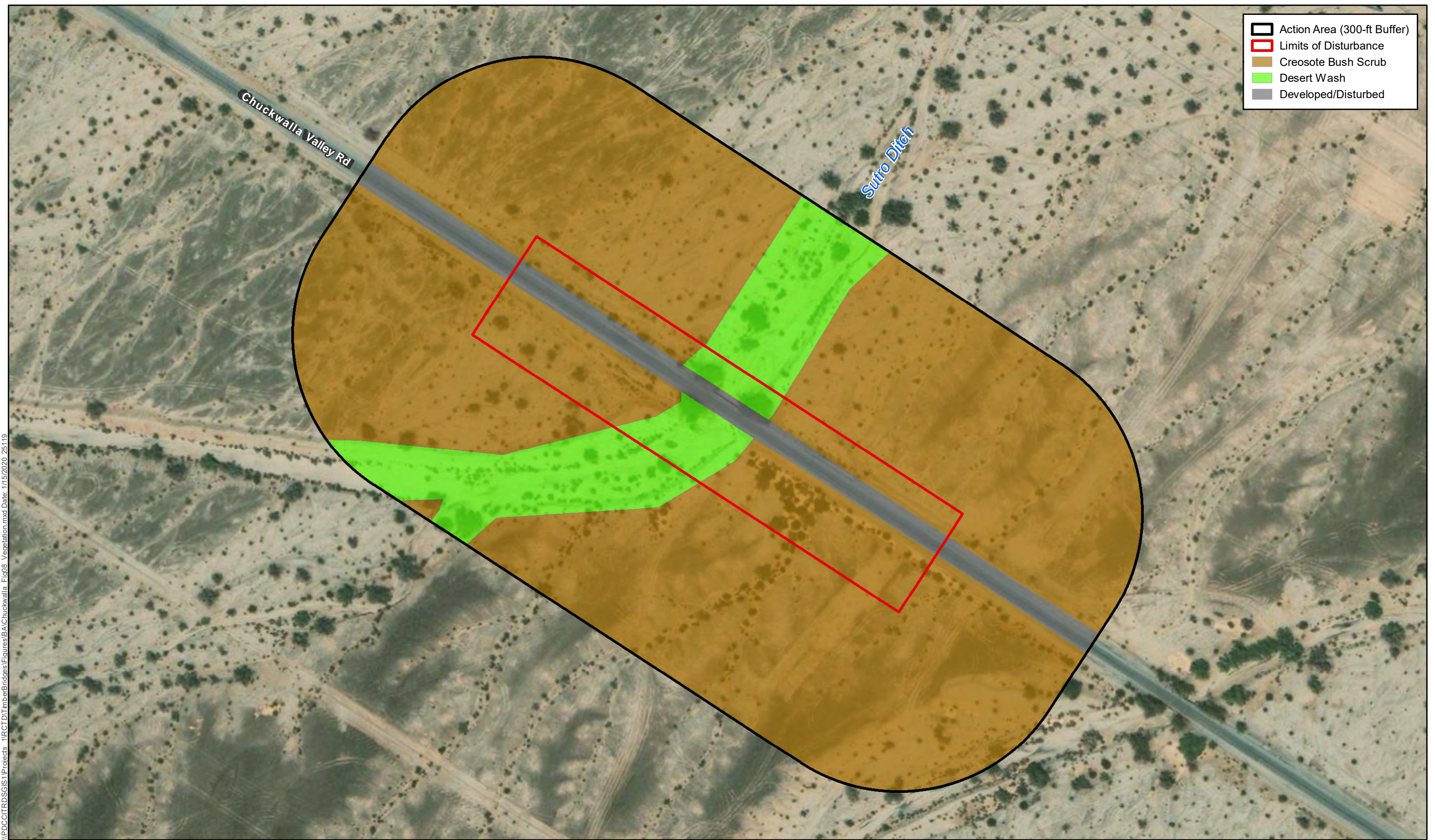
- Action Area (300-ft Buffer)
- Limits of Disturbance
- Creosote Bush Scrub
- Desert Wash
- Developed/Disturbed

I:\PROJECTS\GIS\Projects\1\RCCT\TimberBridges\Figures\BA\Chuckwalla_Fig08_Vegetation.mxd Date: 1/15/2020 25119



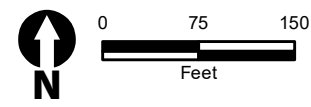
Source: ESRI (2016, 2018)

Figure 8 - Sheet 2
Vegetation Communities/Land Use Types - Tarantula Ditch Bridge (No. 56C0103)
Chuckwalla Valley Road Bridge Replacement



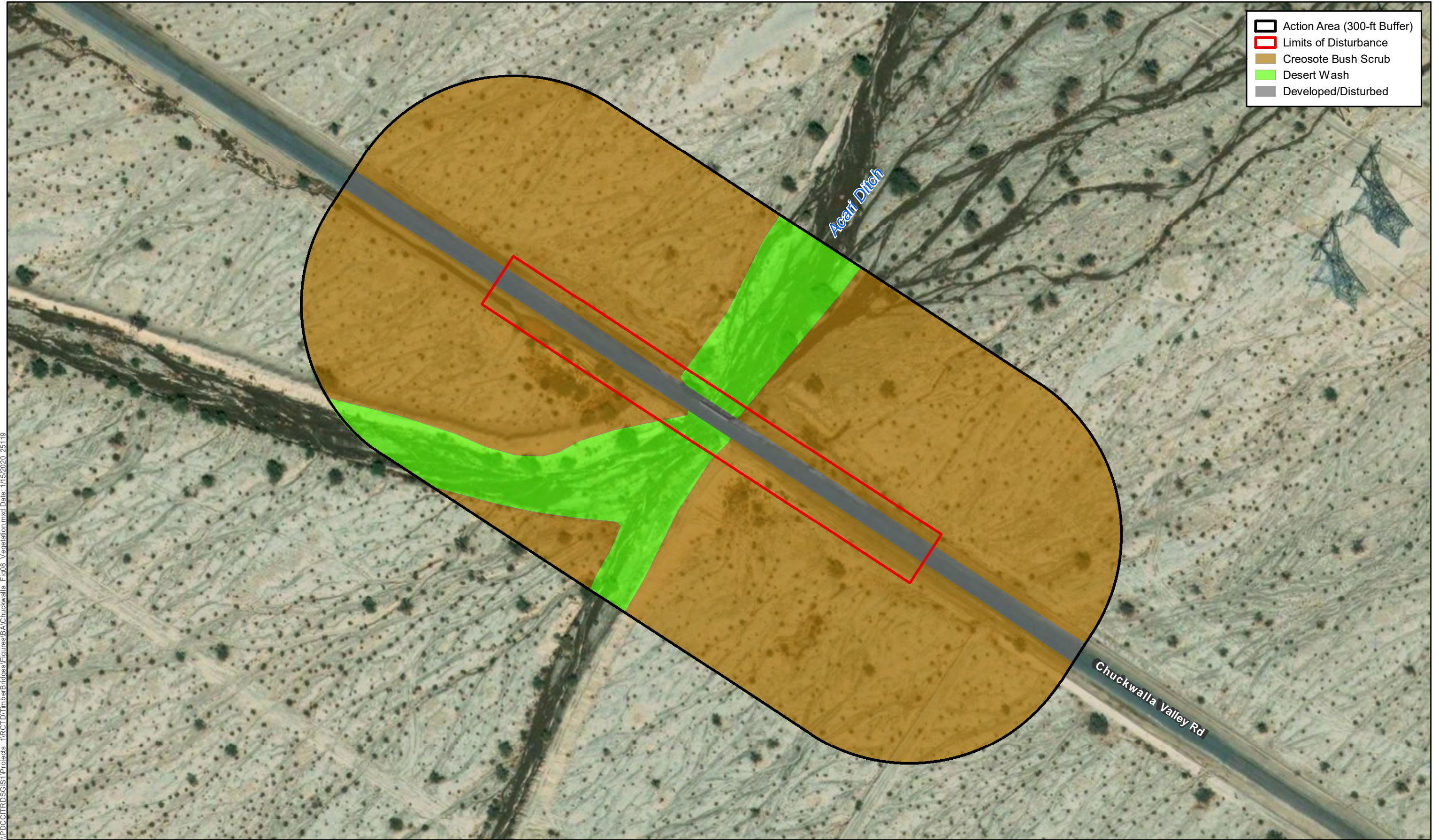
- Action Area (300-ft Buffer)
- Limits of Disturbance
- Creosote Bush Scrub
- Desert Wash
- Developed/Disturbed

\\P0001TRD\S01\Projects\1\RCTD\TimberBridges\Figures\BA\Chuckwalla\Fig08_Vegetation.mxd Date: 1/15/2020 25119



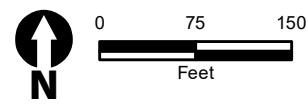
Source: ESRI (2016, 2018)

Figure 8 - Sheet 3
Vegetation Communities/Land Use Types - Sutro Ditch Bridge (No. 56C0104)
Chuckwalla Valley Road Bridge Replacement



- Action Area (300-ft Buffer)
- Limits of Disturbance
- Creosote Bush Scrub
- Desert Wash
- Developed/Disturbed

I:\PDC\ITR\SDS\GIS\Projects\1\RCT\DT\TimberBridges\Figures\BA\Chuckwalla_Fig08_Vegetation.mxd Date: 1/15/2020 25:119



Source: ESRI (2016, 2018)

Figure 8 - Sheet 4
Vegetation Communities/Land Use Types - Acari Ditch Bridge (No. 56C0108)
Chuckwalla Valley Road Bridge Replacement

Appendix B. USFWS Official Species List

This page intentionally left blank



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
<http://www.fws.gov/carlsbad/>

In Reply Refer To:

January 16, 2020

Consultation Code: 08ECAR00-2020-SLI-0123

Event Code: 08ECAR00-2020-E-01102

Project Name: Chuckwalla Valley Road Bridge Replacement Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2020-SLI-0123

Event Code: 08ECAR00-2020-E-01102

Project Name: Chuckwalla Valley Road Bridge Replacement Project

Project Type: TRANSPORTATION

Project Description: Chuckwalla Valley Road Bridge Replacement project (at Aztec Ditch, Tarantula Ditch, Sutro Ditch, and Acari Ditch).

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/33.644705081495886N115.18148712249969W>



Counties: Riverside, CA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Reptiles

NAME	STATUS
Desert Tortoise <i>Gopherus agassizii</i> Population: Wherever found, except AZ south and east of Colorado R., and Mexico There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4481	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Desert Tortoise <i>Gopherus agassizii</i> https://ecos.fws.gov/ecp/species/4481#crithab	Final

This page intentionally left blank

Appendix C. Site Photos

This page intentionally left blank



Photo 1. View southwest of timber Aztec Ditch Bridge (#56C0102) and the desert wash.



Photo 2. View of the timber bridge at Aztec Ditch (#56C0102).



Photo 3. View of Chuckwalla Valley Road adjacent to Aztec Ditch Bridge (#56C0102).



Photo 4. View north from Aztec Ditch Bridge (#56C0102) and the desert wash.



Photo 5. View southwest of Tarantula Ditch Bridge (#56C0103) and the desert wash under the existing timber bridge.



Photo 6. View of existing bridge footings at Tarantula Ditch Bridge (#56C0103).



Photo 7. View of Sutro Ditch Bridge (#56C0104).



Photo 8. View of Chuckwalla Valley Road adjacent to Sutro Ditch Bridge (#56C0104).



Photo 9. View downstream of the Acari Ditch Bridge (#56C0108).



Photo 10. View of creosote bush scrub habitat, Acari Ditch Bridge (#56C0108) facing northeast.



Photo 11. View of vegetated portions of the desert wash from Acari Ditch Bridge (#56C0108). Diversion dikes are present in and along the banks of the wash. Facing west.



Photo 12. View north from Sutro Ditch Bridge (#56C0104) of the creosote bush scrub habitat.

Appendix D. Desert Tortoise Survey Data Sheets

This page intentionally left blank

Desert Tortoise Survey Data Sheets 2017

Biologist(s)		Date		Start				End			
Shelly Dayman		8-May-17		Time	Temp	Wind	% CC	Time	Temp	Wind	% CC
Danny Cuellar				9:23	70	1 to 2	5	12:56	80	4 to 6	30
Camilla Estes		Location	Bridge 102	Footprint + ZOI							
Burrow Point ID & Type (see DT Point ID Types)	Easting [WGS 84]	Northing	Species	Class	Width (mm)	Height (mm)	Depth (mm)	Orientation	End Visible?	Whitewash or pellets?	Notes
some data recorded on iPad (caliche burrow, burrow)											
BDBSD001	663807	3727335	unknown	4	140	160	unknown		no	no	caliche burrow, narrow, no sign
BABCE001	664044	3727768	mammal	4	250	200	unknown	NE	no	no	claw marks (possible badger) on sides of burrow, but not as round as a typical badger den, under palo verde, possible use by DT, AB, DKF
BDPCE001	664008	3727017	DT	4	270	200	300	N	yes	no	classic DT pallet shape, no sign
Live DT Point ID	Easting	Northing	Sex	MCL (mm)	Healthy	URDS?	Cracked shell?	Scutes Peeling?	Ticks?	Notes	
None											
Bio Species Point ID (i.e. sensitive species)	Easting	Northing	Species	Type of Occurrence***	Notes						
None											
DT Point ID (burrow, Live, drinking depression +)	Easting	Northing	Type Carcass Scat Egg Shell	Class	Notes						
None											
Bird Nest ID	Easting	Northing	Species	Nest*	Nest Activity**	Notes					
Nest 1	663813	3727361	Verdin?	inactive	none	possible verdin nest in palo verde					
Nest 2	663975	3727811	Verdin	active	adult @ nest						
* active, inactive, inactive vacant, raptor nest, unknown, TBD											
** Nest building, incubation, feeding chicks, fledglings close to nest, fledged, no activity observed,											
*** (Live, Remains, Tracks, Scat, Active Habitat, Potential Habitat, Suitable, Other, TBD)											
Notes											
jackrabbit, leopard lizard, Merriam's kangaroo rat, western whiptail, desert roadrunner, zebra-tailed lizard, LOSH, verdin, black-tailed gnatcatcher, desert kit fox (sign), CORA, deer (tracks and scat)											
desert wood rat (<i>Neotoma lepida</i>), coyote (sign)											
Habitat - creosote bush scrub in areas adjacent to drainage, including desert pavement; drainage is palo verde/ironwood woodland with tamarisk (generally planted at bridge)											
Plants observed - palo verde (<i>Parkinsonia florida</i>), creosote bush, tamarisk, chia, phacelia, cholla (<i>Cylindropuntia acanthocarpa</i>), pencil cholla (<i>Opuntia ramosissima</i>)											
sweetbush (<i>Bebbia juncea</i>), pale face (<i>Hibiscus denudatus</i>), Sahara mustard, burrobrush (<i>Ambrosia salsola</i>), fish-hook cactus (<i>Mammillaria tetrancistra</i>) [in buffer]											
ironwood (<i>Olneya tesota</i>), dead ocotillo (<i>Fouquieria splendens</i> ssp. <i>splendens</i>), schismus, red-leaved filaree, jojoba (<i>Simmondsia chinensis</i>)											
spiny herb (<i>Chorizanthe rigida</i>)											

Biologist(s)		Date		Start				End			
Shelly Dayman		8-May-17		Time	Temp	Wind	% CC	Time	Temp	Wind	% CC
Danny Cuellar				1:05 PM	80	4 to 6	30	4:00 PM	88	1 to 2	45
Camilla Estes		Location	Bridge 103	Footprint + ZOI							
Burrow Point ID & Type (see DT Point ID Types)	Easting	Northing	Species	Class	Width (mm)	Height (mm)	Depth (mm)	Orientation	End Visible?	Whitewash or pellets?	Notes
Points also collected on Collector											
CMASD001	665432	3725920	Mammal	4							
CKBCE001	665716	3726107	kit fox	4	various	various	unknown	various	no	no	desert kit fox complex, four burrows potentially active with one collapsed, likely active DKF complex
Live DT Point ID	Easting	Northing	Sex	MCL (mm)	Healthy	URDS?	Cracked shell?	Scutes Peeling?	Ticks?	Notes	
None											
Bio Species Point ID (i.e. sensitive species)	Easting	Northing	Species	Type of Occurrence***	Notes						
None											
DT Point ID (burrow, Live, drinking depression +)	Easting	Northing	Type Carcass Scat Egg Shell	Class	Notes						
None											
Bird Nest ID	Easting	Northing	Species	Nest*	Nest Activity	Notes					
Nest 003	665769	3726694	verdin	inactive	no activity	verdin nest, appears inactive, in palo verde, on 400 meter zone of influence transect					
* active, inactive, inactive vacant, raptor nest, unknown, TBD											
** Nest building, incubation, feeding chicks, fledglings close to nest, fledged, no activity observed,											
*** (Live, Remains, Tracks, Scat, Active Habitat, Potential Habitat, Suitable, Other, TBD)											
Notes											
jackrabbit, leopard lizard, Merriam's kangaroo rat, western whiptail, desert roadrunner, zebra-tailed lizard, LOSH, verdin, black-tailed gnatcatcher, desert kit fox (sign), CORA, deer (tracks and scat), desert wood rat (<i>Neotoma lepida</i>), coyote (sign)											
Habitat - creosote bush scrub in areas adjacent to drainage, including desert pavement; drainage is palo verde/ironwood woodland with tamarisk (generally planted at bridge)											
Plants observed - palo verde (<i>Parkinsonia florida</i>), creosote bush, tamarisk, chia, phacelia, cholla (<i>Cylindropuntia acanthocarpa</i>), pencil cholla (<i>Opuntia ramosissima</i>), sweetbush (<i>Bebbia juncea</i>), pale face (<i>Hibiscus denudatus</i>), Sahara mustard, burrobrush (<i>Ambrosia salsola</i>), fish-hook cactus (<i>Mammillaria tetrancistra</i>) [in buffer]											
ironwood (<i>Olneya tesota</i>), schismus, red-leaved filaree, jojoba (<i>Simmondsia chinensis</i>)											
spiny herb (<i>Chorizanthe rigida</i>)											

Biologist(s)		Date		Start				End			
Shelly Dayman		8-May-17		Time	Temp	Wind	% CC	Time	Temp	Wind	% CC
Danny Cuellar				4:05 PM	88	1 to 2	45	4:55 AM	83	1 to 2	40
Camilla Estes		Location	Bridge 104	Footprint only							
Burrow Point ID & Type (see DT Point ID Types)	Easting	Northing	Species	Class	Width (mm)	Height (mm)	Depth (mm)	Orientation	End Visible?	Whitewash or pellets?	Notes
Points also collected on Collector on May 9, 2017											
None											
Live DT Point ID	Easting	Northing	Sex	MCL (mm)	Healthy	URDS?	Cracked shell?	Scutes Peeling?	Ticks?	Notes	
None											
Bio Species Point ID (i.e. sensitive species)	Easting	Northing	Species	Type of Occurrence***	Notes						
None											
DT Point ID (burrow, Live, drinking depression +)	Easting	Northing	Type Carcass Scat Egg Shell	Class	Notes						
None											
Bird Nest ID	Easting	Northing	Species	Nest*	Nest Activity	Notes					
None											
* active, inactive, inactive vacant, raptor nest, unknown, TBD											
** Nest building, incubation, feeding chicks, fledglings close to nest, fledged, no activity observed,											
*** (Live, Remains, Tracks, Scat, Active Habitat, Potential Habitat, Suitable, Other, TBD)											
Notes											
jackrabbit, leopard lizard, Merriam's kangaroo rat, western whiptail, desert roadrunner, zebra-tailed lizard, LOSH, verdin, black-tailed gnatcatcher, desert kit fox (sign), CORA, deer (tracks and sca											
desert wood rat (<i>Neotoma lepida</i>), coyote (sign)											
Habitat - creosote bush scrub in areas adjacent to drainage, including desert pavement; drainage is palo verde/ironwood woodland with tamarisk (generally planted at bridge)											
Plants observed - palo verde (<i>Parkinsonia florida</i>), creosote bush, tamarisk, chia, phacelia, cholla (<i>Cylindropuntia acanthocarpa</i>), pencil cholla (<i>Opuntia ramosissima</i>)											
sweetbush (<i>Bebbia juncea</i>), pale face (<i>Hibiscus denudatus</i>), Sahara mustard, burrobrush (<i>Ambrosia salsola</i>), fish-hook cactus (<i>Mammillaria tetrancistra</i>) [in buffer]											
ironwood (<i>Olneya tesota</i>), schismus, red-leaved filaree, jojoba (<i>Simmondsia chinensis</i>)											
spiny herb (<i>Chorizanthe rigida</i>)											
<i>Crotalus atrox</i>											

Biologist(s)		Date		Start				End			
Ryan Layden		3-May-17		Time	Temp	Wind	% CC	Time	Temp	Wind	% CC
Camilla Estes				8:00 AM	79	5 to 1-	0	3:10PM	86	10 to 15	0
		Location	Bridge 108	Footprint and 200m, 400m, and 600m ZOI							
Type (see DT Point ID Types)	Easting	Northing	Species	Class	Width (mm)	Height (mm)	Depth (mm)	Orientation	End Visible?	Whitewash or pellets?	Notes
4 burrows were documented and entered into Collector											
None											
Live DT Point ID	Easting	Northing	Sex	MCL (mm)	Healthy	URDS?	Cracked shell?	Scutes Peeling?	Ticks?	Notes	
None											
Bio Species Point ID (i.e. sensitive species)	Easting	Northing	Species	Type of Occurrence***	Notes						
None											
DT Point ID (burrow, Live, drinking depression +)	Easting	Northing	Type Carcass Scat Egg Shell	Class	Notes						
None											
Bird Nest ID	Easting	Northing	Species	Nest*	Nest Activity	Notes					
None											
* active, inactive, inactive vacant, raptor nest, unknown, TBD											
** Nest building, incubation, feeding chicks, fledglings close to nest, fledged, no activity observed,											
*** (Live, Remains, Tracks, Scat, Active Habitat, Potential Habitat, Suitable, Other, TBD)											
Notes											
western whiptail, side-blotched lizard, CORA, MODO, VERD, SAPH, LOSH,											

Desert Tortoise Survey Datasheets 2019

Biologist(s)		Date		Start				End			
James Hickman		16-Apr-19		Time	Temp	Wind	% CC	Time	Temp	Wind	% CC
Frances Lin				8:15	68	0-3	90	13:45:00 AM	75	0-3	90
		Location	Bridge 102 Limits of Disturbance plus a 300-ft buffer study area.								
Burrow Point ID & Type (see DT Point ID Types)	Easting [WGS 84]	Northing	Species	Class	Width (mm)	Height (mm)	Depth (mm)	Orientation	End Visible?	Whitewash or pellets?	Notes
	None- No Burrows found										
Live DT Point ID	Easting	Northing	Sex	MCL (mm)	Healthy	URDS?	Cracked shell?	Scutes Peeling?	Ticks?	Notes	
None											
Bio Species Point ID (i.e. sensitive species)	Easting	Northing	Species	Type of Occurrence	Notes						
None											
DT Point ID (burrow, Live, drinking depression +)	Easting	Northing	Type Carcass Scat Egg Shell	Class	Notes						
None											
Bird Nest ID	Easting	Northing	Species	Nest*	Nest Activity**	Notes					
* active, inactive, inactive vacant, raptor nest, unknown, TBD											
** Nest building, incubation, feeding chicks, fledglings close to nest, fledged, no activity observed,											
*** (Live, Remains, Tracks, Scat, Active Habitat, Potential Habitat, Suitable, Other, TBD)											
Notes											
Species detected included: Ash-throated Flycatcher, Black-tailed Gnatcatcher, California Quail, House Finch, Lark Sparrow, Mourning Dove, Northern Mockingbird, Red-tailed Hawk, Say's Phoebe, Wilson's Warbler, Yellow-rumped Warbler, sheep tracks scat (potentially bighorn), desert iguana, great basin whiptail lizard, side-blotched lizard, zebra tailed lizard											
(Species list is from all 4 bridges surveyed on the same day)											

Biologist(s)		Date		Start				End			
James Hickman		16-Apr-19		Time	Temp	Wind	% CC	Time	Temp	Wind	% CC
Frances Lin				8:15	68	0-3	90	13:45:00 AM	75	0-3	90
		Location	Bridge 103	Limits of Disturbance 10 meter transects plus a 300-ft buffer study area.							
Burrow Point ID & Type (see DT Point ID Types)	Easting [WGS 84]	Northing	Species	Class	Width (mm)	Height (mm)	Depth (mm)	Orientation	End Visible?	Whitewash or pellets?	Notes
None- No Burrows found											
Live DT Point ID	Easting	Northing	Sex	MCL (mm)	Healthy	URDS?	Cracked shell?	Scutes Peeling?	Ticks?	Notes	
None											
Bio Species Point ID (i.e. sensitive species)	Easting	Northing	Species	Type of Occurrence	Notes						
None											
DT Point ID (burrow, Live, drinking depression +)	Easting	Northing	Type Carcass Scat Egg Shell	Class	Notes						
None											
Bird Nest ID	Easting	Northing	Species	Nest*	Nest Activity**	Notes					
* active, inactive, inactive vacant, raptor nest, unknown, TBD											
** Nest building, incubation, feeding chicks, fledglings close to nest, fledged, no activity observed,											
*** (Live, Remains, Tracks, Scat, Active Habitat, Potential Habitat, Suitable, Other, TBD)											
Notes											
Species detected included: Ash-throated Flycatcher, Black-tailed Gnatcatcher, California Quail, House Finch, Lark Sparrow, Mourning Dove, Northern Mockingbird, Red-tailed Hawk, Say's Phoebe, Wilson's Warbler, Yellow-rumped Warbler, sheep tracks scat (potentially bighorn), desert iguana, great basin whiptail lizard, side-blotched lizard, zebra tailed lizard											
(Species list is from all 4 bridges surveyed on the same day)											

Biologist(s)		Date		Start				End			
James Hickman		16-Apr-19		Time	Temp	Wind	% CC	Time	Temp	Wind	% CC
Frances Lin				8:15	68	0-3	90	13:45:00 AM	75	0-3	90
		Location	Bridge 104	Limits of Disturbance 10 meter transects plus a 300-ft buffer study area.							
Burrow Point ID & Type (see DT Point ID Types)	Easting [WGS 84]	Northing	Species	Class	Width (mm)	Height (mm)	Depth (mm)	Orientation	End Visible?	Whitewash or pellets?	Notes
None- No Burrows found											
Live DT Point ID	Easting	Northing	Sex	MCL (mm)	Healthy	URDS?	Cracked shell?	Scutes Peeling?	Ticks?	Notes	
None											
Bio Species Point ID (i.e. sensitive species)	Easting	Northing	Species	Type of Occurrence	Notes						
None											
DT Point ID (burrow, Live, drinking depression +)	Easting	Northing	Type Carcass Scat Egg Shell	Class	Notes						
None											
Bird Nest ID	Easting	Northing	Species	Nest*	Nest Activity**	Notes					
* active, inactive, inactive vacant, raptor nest, unknown, TBD											
** Nest building, incubation, feeding chicks, fledglings close to nest, fledged, no activity observed,											
*** (Live, Remains, Tracks, Scat, Active Habitat, Potential Habitat, Suitable, Other, TBD)											
Notes											
Species detected included: Ash-throated Flycatcher, Black-tailed Gnatcatcher, California Quail, House Finch, Lark Sparrow, Mourning Dove, Northern Mockingbird, Red-tailed Hawk, Say's Phoebe, Wilson's Warbler, Yellow-rumped Warbler, sheep tracks scat (potentially bighorn), desert iguana, great basin whiptail lizard, side-blotched lizard, zebra tailed lizard											
(Species list is from all 4 bridges surveyed on the same day)											

Biologist(s)		Date		Start				End			
James Hickman		16-Apr-19		Time	Temp	Wind	% CC	Time	Temp	Wind	% CC
Frances Lin				8:15	68	0-3	90	13:45:00 AM	75	0-3	90
		Location	Bridge 108	Limits of Disturbance 10 meter transects plus a 300-ft buffer study area.							
Burrow Point ID & Type (see DT Point ID Types)	Easting [WGS 84]	Northing	Species	Class	Width (mm)	Height (mm)	Depth (mm)	Orientation	End Visible?	Whitewash or pellets?	Notes
	None- No Burrows found										
Live DT Point ID	Easting	Northing	Sex	MCL (mm)	Healthy	URDS?	Cracked shell?	Scutes Peeling?	Ticks?	Notes	
None											
Bio Species Point ID (i.e. sensitive species)	Easting	Northing	Species	Type of Occurrence	Notes						
None											
DT Point ID (burrow, Live, drinking depression +)	Easting	Northing	Type Carcass Scat Egg Shell	Class	Notes						
None											
Bird Nest ID	Easting	Northing	Species	Nest*	Nest Activity**	Notes					
* active, inactive, inactive vacant, raptor nest, unknown, TBD											
** Nest building, incubation, feeding chicks, fledglings close to nest, fledged, no activity observed,											
*** (Live, Remains, Tracks, Scat, Active Habitat, Potential Habitat, Suitable, Other, TBD)											
Notes											
Species detected included: Ash-throated Flycatcher, Black-tailed Gnatcatcher, California Quail, House Finch, Lark Sparrow, Mourning Dove, Northern Mockingbird, Red-tailed Hawk, Say's Phoebe, Wilson's Warbler, Yellow-rumped Warbler, sheep tracks scat (potentially bighorn), desert iguana, great basin whiptail lizard, side-blotched lizard, zebra tailed lizard (Species list is from all 4 bridges surveyed on the same day)											

Appendix E. Plant and Wildlife Species Observed

This page intentionally left blank

Appendix E-1. Plant Species Observed

Species	Common Name
Agavaceae	
<i>Hesperocallis undulata</i>	Desert lily
Aizoaceae	
<i>Sesuvium verrucosum</i>	Verrucose seapurslane
Apocynaceae	
<i>Asclepias albicans</i>	White stemmed milkweed
<i>Funastrum hirtellum</i>	Hairy milkweed
Asteraceae	
<i>Ambrosia acanthicarpa</i>	Annual burrweed
<i>Ambrosia dumosa</i>	White bursage
<i>Ambrosia salsola</i>	Burrobrush
<i>Atrichoseris platyphylla</i>	Gravel ghost
<i>Chaenactis carphoclinia</i> var. <i>carphoclinia</i>	Pebble pincushion
<i>Erigeron canadensis</i>	Horseweed
<i>Geraea canescens</i>	Desert sunflower
<i>Malacothrix glabrata</i>	Desert dandelion
<i>Palafoxia arida</i> var. <i>arida</i>	Desert needle
<i>Pectis papposa</i>	Many bristle pinchweed
<i>Perityle emoryi</i>	Emory's rock daisy
Boraginaceae	
<i>Amsinckia tessellate</i>	Bristly fiddleneck
<i>Cryptantha angustifolia</i>	Narrow leaved cryptantha
<i>Cryptantha intermedia</i>	Common cryptantha
<i>Pectocarya</i> sp.	Combseed
<i>Phacelia crenulata</i> var. <i>minutiflora</i>	Little flowered heliotrope phacelia
Brassicaceae	
<i>Brassica tournefortii</i>	Saharan mustard*
<i>Hirschfeldia incana</i>	Mediterranean hoary mustard*
<i>Lepidium lasiocarpum</i>	Shaggyfruit pepperweed
<i>Sisymbrium altissimum</i>	Tumble mustard*
<i>Sisymbrium irio</i>	London rocket*
Caryophyllaceae	
<i>Achyronychia cooperi</i>	Frost mat
<i>Loeflingia squarrosa</i>	Spreading loeflingia
Chenopodiaceae	
<i>Atriplex canescens</i>	Fourwing saltbush
<i>Chenopodium album</i>	Lamb's quarters*
<i>Salsola tragus</i>	Russian thistle*
Cucurbitaceae	
<i>Brandegea bigelovii</i>	Desert star vine
Euphorbiaceae	
<i>Euphorbia micromera</i>	Sonoran sand mat

Species	Common Name
<i>Euphorbia polycarpa</i>	Smallseed sandmat
<i>Euphorbia serpillifolia</i> ssp. <i>hirtula</i>	Thyme-leaved spurge
<i>Stillingia linearifolia</i>	Linear leaved stillingia
<i>Stillingia spinulosa</i>	Annual stillingia
<i>Ditaxis neomexicana</i>	Common ditaxis
Fabaceae	
<i>Dalea mollis</i>	Hairy prairie clover
<i>Marina parryi</i>	Parry delea
<i>Olneya tesota</i>	Desert ironwood
<i>Parkinsonia florida</i>	Blue palo verde
<i>Psoralea argophylla</i>	Smoke tree
Lamiaceae	
<i>Condea emoryi</i>	Desert lavender
<i>Salvia columbariae</i>	Chia
Loasaceae	
<i>Mentzelia affinis</i>	Yellow blazing star
<i>Mentzelia involucrata</i>	Bracted blazing star
Malvaceae	
<i>Eremalche rotundifolia</i>	Desert five spot
Nyctaginaceae	
<i>Abronia villosa</i>	Desert sand verbena
<i>Allionia incarnata</i>	Trailing allionia
<i>Mirabilis laevis</i>	Desert wishbone bush
Onagraceae	
<i>Eremothera boothii</i>	Booth's sun cup
<i>Eremothera refracta</i>	Narrow leaved primrose
<i>Eulobus californicus</i>	California primrose
Papaveraceae	
<i>Eschscholzia minutiflora</i>	Pygmy poppy
Plantaginaceae	
<i>Plantago ovata</i>	Desert indianwheat
Poaceae	
<i>Bouteloua aristidoides</i> var. <i>aristidoides</i>	Needle gama
<i>Hilaria rigida</i>	Big galleta
<i>Schismus barbatus</i>	Common Mediterranean grass*
Polemoniaceae	
<i>Aliciella latifolia</i>	Broad leaf gilia
<i>Loeseliastrum schottii</i>	Schott's calico
Polygonaceae	
<i>Chorizanthe brevicornu</i>	Brittle spineflower
<i>Chorizanthe rigida</i>	Devil's spineflower
<i>Eriogonum reniforme</i>	Kidney leaf buckwheat
<i>Eriogonum thomasii</i>	Thomas eriogonum
Resedaceae	

Species	Common Name
<i>Oligomeris linifolia</i>	Leaved cambess
Simmondsiaceae	
<i>Simmondsia chinensis</i>	Jojoba
Solanaceae	
<i>Nicotiana obtusifolia</i>	Desert tobacco
Tamaricaceae	
<i>Tamarix aphylla</i>	Athel tree*
<i>Tamarix ramosissima</i>	Saltcedar*
Zygophyllaceae	
<i>Fagonia pachyacantha</i>	Sticky fagonia
<i>Larrea tridentate</i>	Creosote

* non-native species

Appendix E-2. Wildlife Species Observed

Mammals	
<i>Canis latrans</i>	Coyote (sign)
<i>Dipodomys merriami</i>	Merriam's kangaroo rat
<i>Lepus californicus</i>	Black-tailed jackrabbit
<i>Neotoma lepida</i>	Woodrat (sign)
<i>Odocoileus hemionus</i>	Deer (tracks and scat)
<i>Ovis Canadensis</i>	Bighorn sheep (scat, tracks)
<i>Vulpes macrotis</i>	Desert kit fox (sign)
Birds	
<i>Auriparus flaviceps</i>	Verdin
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Callipepla californica</i>	California quail
<i>Campylorhynchus brunneicapillus</i>	Cactus wren
<i>Cardellina pusilla</i>	Wilson's warbler
<i>Chondestes grammacus</i>	Lark sparrow
<i>Columba livia</i>	Rock pigeon
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	Common raven
<i>Geococcyx californianus</i>	Desert roadrunner
<i>Haemorhous mexicanus</i>	House finch
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Mimus polyglottos</i>	Northern mockingbird
<i>Myiarchus cinerascens</i>	Ash-throated flycatcher
<i>Petrochelidon pyrrhonota</i>	Cliff swallow
<i>Phainopepla nitens</i>	Phainopepla
<i>Polioptila melanura</i>	Black-tailed gnatcatcher
<i>Quiscalus quiscula</i>	Common grackle
<i>Sayornis saya</i>	Say's phoebe
<i>Setophaga coronata</i>	Yellow-rumped warbler
<i>Stelgidopteryx serripennis</i>	Northern rough-winged swallow
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird
<i>Zenaida macroura</i>	Mourning dove
Reptiles	
<i>Aspidoscelis tigris</i>	Great Basin whiptail lizard
<i>Callisaurus draconoides</i>	Zebra-tailed lizard
<i>Cnemidophorus tigris</i>	Western whiptail
<i>Dipsosaurus dorsalis</i>	Desert iguana
<i>Gambelia wislizenii</i>	Leopard lizard
<i>Uta stansburiana</i>	Side blotched lizard