

Appendix C

Table 1. Listed, Proposed Species, Natural Communities, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area of the Chuckwalla Valley Road Bridges (#56C0102, 56C0103, 56C0104, 56C0108)

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Plants					
Chaparral sand-verbena	<i>Abronia villosa</i> var. <i>aurita</i>	-/-1B.1	Annual herb found in sandy soils within chaparral, coastal scrub and desert dunes ranging in elevation from 245-5,250 feet. Known threats include non-native plants, alteration of fire regimes, flood control activities, ORV use and development Blooming period is from January – September.	HP	Suitable habitat is present within the BSA of the bridges. A focused survey was performed during optimal conditions for species detection and the species was absent.
Harwood's milk-vetch	<i>Astragalus insularis</i> var. <i>harwoodii</i>	-/-2B.2	Annual herb found in sandy or gravelly areas in desert dunes and Mojavean desert ranging in elevation from 0-2,329 feet. Blooming period from is January – May.	HP	Suitable habitat is present within the BSA of the bridges. A focused survey was performed during optimal conditions for species detection and the species was absent.
Providence Mountains milk-vetch	<i>Astragalus nutans</i>	-/-4.3	Annual herb found in sandy or gravelly soils in Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland, and Sonoran desert scrub ranging in elevation from 1,476-6,396 feet. Blooming	HA	The BSA of the bridges does not occur within suitable desert scrub or woodland habitat. The BSA occurs outside of the species elevation range. This species is not expected to occur.

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
			period is from March – October.		
Triple-ribbed milk-vetch	<i>Astragalus tricarinatus</i>	E/- /1B.2/CV MSHCP	Perennial herb found in Joshua tree woodland and Sonoran desert scrub with sandy or gravelly soils. Ranging in elevation from 1,476 – 3,904 feet. Blooming period is from February – May.	HA	The BSA of the bridges does not occur within suitable desert scrub or woodland habitat. The BSA occurs outside of the species elevation range. This species is not expected to occur.
Pink fairy-duster	<i>Calliandra eriophylla</i>	-/-/2B.3	Perennial deciduous herb found in sandy or rocky soils in Sonoran desert scrub; ranges in elevation from 393-4,921 feet. Blooming period is from January - March.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this perennial species can be identified year round but was not observed during focused studies. This species is not expected to occur.
Emory's crucifixion-thorn	<i>Castela emoryi</i>	-/-/2B.2	Deciduous shrub found in gravelly soil in Mojavean desert scrub, playas, and Sonoran desert scrub. Ranges in elevation from 295 – 2,198 feet. Blooming period is from April – October.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this perennial species can be identified year round but was not observed during focused studies. This species is not present.
Las Animas colubrina	<i>Colubrina californica</i>	-/-/2B.3	Deciduous shrub found in Mojavean desert scrub and Sonoran desert scrub. Ranges in elevation from 32-3,280 feet. Blooming period is from April – June.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this perennial species can be identified year round but was not observed during

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
					focused studies. This species is not present.
Spiny abrojo	<i>Condalia globosa</i> var. <i>pubescens</i>	-/-/4.2	Deciduous shrub found in Sonoran desert scrub. Occurs within elevation range from 279 – 3,280 feet. Blooming period is from March – November.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this shrub was not observed during focused studies. This species is not present.
Alverson's foxtail cactus	<i>Coryphantha alversonii</i>	-/-/4.3	Perennial stem succulent found in sandy or rocky soils which are typically granitic in Mojavean or Sonoran desert scrub. Ranges in elevation from 246 – 5,002 feet. Blooming period is from April – June.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this perennial species can be identified year round but was not observed during focused studies. This species is not present.
Glandular ditaxis	<i>Ditaxis claryana</i>	-/-/2B.2	Perennial herb found in sandy soils in Mojavean or Sonoran desert scrub. Elevation ranges from 0 – 1,525 feet. Blooming period is from October – March.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this shrub was not observed during focused studies. This species is not present.
California ditaxis	<i>Ditaxis serrata</i> var. <i>californica</i>	-/-/3.2	Perennial herb found mainly in Sonoran desert scrub habitat. Ranging in elevation from 98 – 3,280 feet. Blooming period is from March – December.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this species was not observed during focused studies. This species is not present.
Harwood's eriastrum	<i>Eriastrum harwoodii</i>	-/-/1B.2	Annual herb found in desert dunes ranging in elevation from 410-3,000 feet.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this species

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
			Blooming period is from March - June.		was not observed during focused studies. This species is not present.
Abram's spurge	<i>Euphorbia abramsiana</i>	-/-/2B.2	Annual herb found in sandy soils in Mojavean desert scrub and Sonoran desert scrub. Ranging in elevation from -16 – 3,002 feet. Blooming period is from August – November.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this species was not observed during focused studies. This species is not present.
Utah vine milkweed	<i>Funastrum utahense</i>	-/-/4.2	Perennial herb. Sandy or gravelly soils in Mojavean desert scrub and Sonoran desert scrub. Elevation ranges from 328-4,706 feet. Blooming period is from March – October.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this species was not observed during focused studies. This species is not present.
Ribbed cryptantha	<i>Johnstonella costata</i>	-/-/4.3	Annual herb found in desert dunes, Mojavean scrub and Sonoran desert scrub with sandy soils. Elevation ranges from 0 – 600 feet. Blooming period is from January – May.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this species was not observed during focused studies. This species is not present.
Torrey's box-thorn	<i>Lycium torreyi</i>	-/-/4.2	Perennial shrub found in Mojavean desert scrub and Sonoran desert scrub with sandy/rocky soils such as washes, streambanks and desert valleys. Elevation ranges from 0 -2,290 feet. Blooming period is from March to May.	HP	Suitable habitat is present within the BSA of the bridges within the wash areas. However, this species was not observed during focused studies. This species is not present.

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Spear-leaf matelea	<i>Matelea parvifolia</i>	-/-/2B.3	Perennial herb found in dry and rocky Mojavean desert scrub and Sonoran desert scrub. Elevation ranges from 2,296-3,280 feet. Blooming period is from March – May.	HA	Although desert scrub habitat is present, the BSA of the bridges occurs outside of the known elevation range of this species, therefore, habitat is absent. This species is not expected to occur.
Darlington's blazing star	<i>Mentzelia puberula</i>	-/-/2B.2	Perennial herb found in sandy to rocky soils in Mojavean and Sonoran desert scrub. Elevation ranges from 295 - 4198 feet. Blooming period is from March – May.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this species was not observed during focused studies. This species is not present.
Roughstalk witch grass	<i>Panicum hirticaule</i> ssp. <i>hirticaule</i>	-/-/2B.1	Annual herb found in sandy and silty soils and depressions in desert dunes, Joshua tree woodland, Mojavean and Sonoran desert scrub. Elevation range from 148 – 4,313 feet. Blooming period is from August – December.	HA	There are no depression features within the BSA of the bridges. This species is not expected to occur.
Desert beardtongue	<i>Penstemon pseudospecta -bilis</i> ssp. <i>pseudospecta -bilis</i>	-/-/2B.2	Perennial herb found in sandy or rocky washes within Mojavean or Sonoran desert scrub between 260-6,350 feet in elevation. Blooming period is from January - May.	HP	Suitable habitat is present within washes within the BSA of the bridges. A focused survey was performed during optimal conditions for species detection and the species was absent.

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Narrow-leaf sandpaper-plant	<i>Petalonyx linearis</i>	-/-2B.3	Perennial shrub found in Mojavean desert scrub or Sonoran desert scrub with sandy or rocky soils in canyons. Elevation ranges between -82 – 3,658 feet. Blooming period is from March – May.	HP	Suitable scrub habitat is present within the BSA of the bridges, however there are no canyons present. A focused survey was performed during optimal conditions for species detection and the species was absent.
Desert unicorn-plant	<i>Proboscidea althaeifolia</i>	-/-4.3	Perennial herb found in gently sloping sandy flats and washes in Sonoran desert scrub and sometimes along roadsides. Elevation ranges from 278-3,280 feet. Blooming period is from May – October.	HP	Suitable habitat is present within washes within the BSA of the bridges. A focused survey was performed during optimal conditions for species detection and the species was absent.
Orocopia sage	<i>Salvia greatae</i>	-/-1B.3	Evergreen perennial shrub found in Mojavean and Sonoran desert scrub. Elevation ranges from -131 - 2,706 feet. Blooming period: March – April.	HP	Suitable desert scrub habitat is present within the BSA of the bridges. A focused survey was performed during optimal conditions for species detection and the species was absent.
Desert spike-moss	<i>Selaginella eremophila</i>	-/-2B.2	Perennial rhizomatous herb found in chaparral and gravelly or rocky Sonoran desert scrub. Found within the elevation range from 655-2,950 feet. Known in California from fewer than	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this species was not observed during focused studies. This species is not present.

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			20 occurrences. Blooming period is from May - July.		
Cove's cassia	<i>Senna covesii</i>	-/-/2B.2	Perennial herb found in sandy Sonoran desert scrub. Found within the elevations ranging in elevation from 935-3,509 feet. Blooming period is from March - June.	HP	Habitat within the BSA of the bridges is marginally suitable for the species. In addition, this perennial species can be identified year round but was not observed during focused studies. This species is not present.
Chickweed oxytheca	<i>Sidotheca caryophylloides</i>	-/-/4.3	Annual herb found in sandy soil in lower montane coniferous forest. Ranging in elevation from 3,654 – 8,528 feet. Blooming period is from July – September.	HA	The BSA of the bridges occurs outside of the elevation range this species occurs and no suitable habitat is present. Species is not expected to occur.
Palmer's jackass clover	<i>Wislizenia refracta</i> ssp. <i>palmeri</i>	-/-/2B.2	Deciduous shrub found in chenopod scrub, desert dunes, Sonoran desert scrub, Sonoran thorn woodland. Elevation ranges from 0-984 feet. Blooming period is from January – December.	HP	Suitable desert scrub habitat is present. This shrub would have been identifiable during the rare plant focused survey, however it was not observed. This species is not present.
Jackass-clover	<i>Wislizenia refracta</i> ssp. <i>refracta</i>	-/-/2B.2	Annual herb found in desert dunes, playas, Mojavean and Sonoran desert scrub. Elevation ranges from 1,968 – 2,624 feet. Blooming period is from April – November.	HA	Although desert scrub habitat is present, the BSA of the bridges occurs outside of the known elevation range of this species, therefore, habitat is absent. This species is not expected to occur.
Invertebrates					

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Crotch bumble bee	<i>Bomus crotchii</i>	-/CE/-	Found within relatively warm and dry sites within cismontane within grasslands and scrub habitats in California and along the margins of the Mojave Desert.	HA	The project occurs within the Sonoran desert, and outside the known range of the species. This species is not expected.
Mammals					
Pallid bat	<i>Antrozous pallidus</i>	-/SSC/-	Found throughout Southern California from coast to mixed conifer forest; grasslands, shrublands, woodlands, & forest. Most common in open, dry habitats with rocky areas for roosting. Yearlong resident in most of range. Roosts in rock crevices, caves, mine shafts, under bridges, in buildings and tree hollows.	HP	Each bridge has crevices that could provide suitable roosting habitat for this species. This species was not documented during bat emergence and acoustic surveys.
Western mastiff bat	<i>Eumops perotis californicus</i>	-/SSC/-	Primarily a cliff-dwelling species for breeding. Found foraging in a variety of habitats, from dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadows, and agricultural areas.	HP	This species could potentially roost in bridge crevices. In addition, suitable foraging occurs within the BSA of the bridges. This species was not documented during bat emergence and acoustic surveys.

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Desert bighorn sheep	<i>Ovis canadensis nelsoni</i>	-/FP/-	Habitat for the species includes rocky terrain above the desert floor with a preference for visually open areas, with considerable movement between mountain ranges (Zeiner 1990). A critical component of desert bighorn sheep habitat is access to water and desert bighorn sheep require surface water, especially during the hot summer months. Found in wide range of habitats with principal requirements of sufficient food, friable soils, and relatively open, uncultivated ground. Grasslands, savannas, mountain meadows, and desert scrub.	HP	The BSA does not contain rocky slopes, canyons or cliffs, however desert bighorn sheep are known to move between the Chuckwalla Mountain and Palen Mountain ranges through the Chuckwalla Valley.
American badger	<i>Taxidea taxus</i>	-/SSC/-	Occurs in herbaceous, shrub, and open stages of a variety of habitats with dry, friable soils. Strongly reliant on burrows and dens.	HP	The BSA of the bridges provides suitable open areas for the species, so habitat is present, however there were no potential burrows large enough to be used for the species observed during the reconnaissance and focused studies It is not expected to occur.
Birds					

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Golden eagle	<i>Aquila chrysaetos</i>	-/FP/-	Nests on cliff ledges or trees on steep slopes. Forage in grasslands, sage scrub or broken chaparral.	Breeding: HA Foraging: HP	The BSA of the bridges lacks suitable breeding habitat, but does provide suitable foraging within open areas.
Burrowing owl	<i>Athene cunicularia</i>	-/SSC/-	Inhabits open, dry grasslands, prairie; desert floor, and open scrub. Commonly found in areas altered by man, including flood control channels and basins, abandoned or open fields, agricultural and livestock areas, and road cuts. In California, commonly uses ground squirrels burrows. Also known to utilize piles of broken concrete, old pipes, and other abandoned structures for burrows.	HP	The BSA of the bridges provides suitable habitat, including potential burrows and potential foraging areas for burrowing owl. A focused study was performed and the species was absent.
Loggerhead shrike	<i>Lanius ludovicianus</i>	-/SSC (nesting)/-	Loggerhead shrikes prefer open pastures and prairies with scattered bushes, hedgerows, mowed roadsides, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral, and beaches with scattered shrubs.	Breeding: HP Foraging: HP	This species was observed during the reconnaissance survey. Large shrubs in the BSA provide suitable breeding habitat.

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
			Breeding pairs may be found near isolated trees or large shrubs.		
Elf owl	<i>Micrathene whitneyi</i>	-/E/-	This owl is the size of a sparrow. Sometimes found in California deserts at the border with Arizona. Habitat types include deserts with large saguaro cactus or large mesquites, and in foothills or wooded canyons with large oaks or sycamores.	HA	The BSA of the bridges lacks suitable habitat and vegetation required by this species. It is not expected to occur.
Bendire's thrasher	<i>Toxostoma bendirei</i>	-/SSC/-	Found in open farmland, grassland and brushy desert. Breeds in desert areas containing cactus, Mojave yuccas and Joshua trees, especially where tall cholla and yucca provide nest sites.	HA	Bendire's thrasher requires tall cactus, Mojave yucca or Joshua trees for nesting sites, all of which are absent from the BSA. This species is not expected to occur.
Le Conte's thrasher (San Joaquin Population)	<i>Toxostoma lecontei</i>	-/SSC/-	Year round resident. Inhabits sparsely vegetated flats, dunes, washes, alluvial fans or gently rolling	Breeding: HA Foraging: HP	The CDFW status is specifically for the San Joaquin population which is distant from the BSAs of the bridges. However, the BSAs provide

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
			hills with a high cover of <i>Atriplex</i> or <i>Opuntia</i> .		marginal suitable habitat within the washes for this species.
Reptiles					
Desert tortoise	<i>Gopherus agassizii</i>	T/T/-	Inhabits burrows on sandy flats, rocky foothills, alluvial fans, canyons, washes and other open areas throughout the Mojave and Sonoran deserts in areas with friable soils below 3,500 feet in elevation. Species is most active from March through June and from September through October. Populations north and west of the Colorado River are listed as federally threatened. Known to be absent within the Coachella Valley west of the Salton Sea. Additionally, known to be present in the northern, eastern and western rims of the Coachella Valley within the foothills of the Little San Bernardino Mountains, the Painted and Whitewater Hills and the San Jacinto and northern Santa Rosa Mountains.	HP Critical Habitat: HP	Suitable habitat for this species was found in the BSA of all 4 four bridges. Focused surveys were performed in 2017 and 2019 and the species was absent. Potential burrows did not contain any sign of use by the species.

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Mojave fringe-toed lizard	<i>Uma scoparia</i>	-/SSC/-	Found in sparsely vegetated areas in arid deserts with wind-blown sand such as dunes and flats. Needs fine loose sand for burrowing.	HA	The BSA of the bridges lacks suitable wind-blown sand habitat. Loose sand does occur within the wash areas, but it is not suitable for this species.
Vegetation Communities					
Desert Fan Palm Oasis Woodland		CNDDDB	Community is dominated by trees but floristic species vary widely, with typical fan palm – sycamore association. Ranges in elevation from 0 – 900 feet, and are typically intermittently flooded.	HA	This natural community is not present in the BSA.
Acronyms					
^a Status Codes Federal E = Federally listed; Endangered T = Federally listed; Threatened D = Delisted State E = State listed; Endangered T = State listed; Threatened SSC = California Species of Special Concern FP = California Fully Protected Species WL = Watch List		CNPS Rare Plant Rank (CRPR) 1A = Plants presumed extinct in California 1B = Plants rare, threatened, or endangered in California and elsewhere 2 = Plants rare, threatened, or endangered in California, but more common elsewhere 3 = Plants about which we need more information 4 = Limited distribution (Watch List) CNPS CRPR Threat Codes 0.1 = Seriously endangered in California		^b Habitat Presence/Absence Codes P= The species is present and was observed during survey efforts. HP=Habitat is or may be present within the BSA. The species may potentially be present. Focused survey is warranted. HA= No habitat present and no further work needed.	

Common Name	Scientific Name	Status Fed/State /CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
			0.2 = Fairly endangered in California 0.3 = Not very endangered in California		

APPENDIX D: PLANT AND ANIMAL SPECIES OBSERVED/DETECTED

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Table D-1. Plant Species List

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>	Annual burrweed
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 tessellata</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

Table D-1. Plant Species List

Species	Common Name
Euphorbiaceae	
<i>Euphorbia micromera</i>	Sonoran sand mat
<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

Table D-1. Plant Species List

Species	Common Name
<i>Chorizanthe rigida</i>	Devil's spineflower
<i>Eriogonum reniforme</i>	Kidney leaf buckwheat
<i>Eriogonum thomasi</i>	Thomas eriogonum
Resedaceae	
<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 tridentata</i>	Creosote

*non-native species

Table D-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>Campylorhynchus brunneicapillus</i>	cactus wren
<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>Zenaidura 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

APPENDIX E: DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEETS

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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 F: JURISDICTIONAL DELINEATION REPORT

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JURISDICTIONAL DELINEATION REPORT

CHUCKWALLA VALLEY ROAD BRIDGE REPLACEMENT PROJECTS RIVERSIDE COUNTY, CALIFORNIA

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)), and

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

PREPARED FOR:

Riverside County Transportation Department
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PREPARED BY:

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August 2019

ICF. 2019. Jurisdictional Delineation Report for the Chuckwalla Valley Road Bridge Replacement Projects, Riverside County, California. August. Prepared for the Riverside County Transportation Department.

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Acronyms and Abbreviations

amsl	above mean sea level
ADT	average daily traffic
CDFW	California Department of Fish and Wildlife
Caltrans	California Department of Transportation
project	Chuckwalla Valley Road Bridges Project
CWA	Clean Water Act
CFR	Code of Federal Regulations
County	County of Riverside
EBL	Eligible Bridge List
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FEMA	Federal Emergency Management Agency
GPS	global positioning system
HBP	Highway Bridge Program
HU	hydrologic unit
I-10	Interstate 10
JD	Jurisdictional Determination
OBL	obligate
OHWM	Ordinary High Water Mark
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
RWQCB	Regional Water Quality Control Board
RGL	Regulatory Guidance Letter
RPWs	relatively permanent waters
SSURGO	Soil Survey Geographic
SWANCC	Solid Waste Agency of Northern Cook County
SWRCB	State Water Resources Control Board
SD	structurally deficient
SR	sufficiency rating
TNW	traditional navigable water
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UPL	upland
WoS	waters of the State
WoUS	waters of the United States

Chapter 1

Introduction

In February 2019, ICF conducted a delineation of jurisdictional waters and wetlands as part of the federal and state regulatory permitting processes for the Chuckwalla Valley Road Bridge Replacement Projects (projects) plus an additional 100-foot buffer (study area).

The purpose of this report and associated delineation is to identify the extent of potential federal and state jurisdiction within and adjacent to the project site for verification by the resource agencies to support the federal Clean Water Act (CWA) Sections 401 and 404 (33 U.S.C. Section 1251 et seq. [1972]), Section 13260 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and Section 1600 et seq. of the California Fish and Game Code. Section 404 of the CWA regulates the discharge of dredged or fill material to waters of the United States (WoUS), as well as federal wetlands, and is administered by the U.S. Army Corps of Engineers (USACE). Pursuant to Section 401 of the CWA, issuance/authorization of a 404 permit requires certification from the state in which the discharge originates. In this case, the Colorado River Regional Water Quality Control Board (RWQCB) issues the certification on behalf of the State Water Resources Control Board (SWRCB). The RWQCB/SWRCB may also regulate discharge of waste (i.e., clean fill material) to non-federal waters and wetlands (e.g., isolated features) under the Porter-Cologne Act. Section 1600 et seq. of the California Fish and Game Code is administered by the California Department of Fish and Wildlife (CDFW). In riparian areas, CDFW jurisdictional limits are usually delineated by the top of stream or lake banks or the outer edge of riparian vegetation, whichever is wider. If a proposed project would result in the discharge of fill to WoUS and/or waters of the State (WoS), or result in modification of streambed or bank, permits for the proposed activity must be sought from each applicable resource agency. Details regarding each of these resource agencies as well as their regulatory authority, jurisdiction, permits, and regulatory processes are provided in Chapter 2, *Regulatory Background*.

A request for a Preliminary Jurisdictional Determination will be submitted for all potentially jurisdictional features observed within the study area. Refer to *Chapter 4, Jurisdictional Delineation Results* for the potential jurisdictional waters in the study area.

The information and results presented herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional determinations should be considered preliminary until reviewed and approved by the regulatory agencies.

1.1 Project Description

The County of Riverside (County), in cooperation with California Department of Transportation (Caltrans), proposes to replace the following four (4) existing structurally deficient timber bridges along Chuckwalla Valley Road near Desert Center in Riverside County, California (Appendix A, Figure 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))

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. Classified as a Local Rural Road, it mostly serves vehicles accessing local utilities and off-road recreation. The average daily traffic (ADT) 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 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 feet to 60 feet in length and are approximately 24 feet and 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 (EBL) as "Structurally Deficient (SD)" with a low Sufficiency Rating (SR) between 39.3 and 49.2. A sufficiency rating is essentially an overall rating of a functional/geometric obsolescence, and its essentiality to the public. A low sufficiency rating may be due to structural defects, narrow lanes, low vertical clearance, or any of many possible issues. A bridge is healthy when its SR is more than 80.0. Bridges with 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 shall be considered for public safety.

The proposed project will 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. 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 Caltrans 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 one 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.

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 project area and may be near bridge wing walls. 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 will be further determined during the project

development. It is envisioned that all four bridges will 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 (TMP) would be prepared to address closure of the road and access to local utilities and properties.

1.2 Project Location

The proposed projects are located within an unincorporated area of Riverside County (Figure 1). The projects occur within Sidewinder Well and Aztec Mines USGS 7.5-minute quadrangles (Figure 2 in Appendix A) (USGS 1950, 1972). In addition, the projects occur within:

- Chuckwalla Valley Road Bridge over Aztec Ditch (Bridge #56C0102) – Township 6S, Range 17E, Section 5;
- Chuckwalla Valley Road Bridge over Tarantula Ditch (Bridge #56C0103) – Township 6S, Range 17E, Section 9;
- Chuckwalla Valley Road Bridge over Sutro Ditch (Bridge #56C0104) – Township 6S, Range 17E, Section 15; and
- Chuckwalla Valley Road Bridge over Acari Ditch (Bridge #56C0108) – Township 6S, Range 18E, Section 30.

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This chapter summarizes the regulations imposed on each type of jurisdictional feature potentially present within the study area.

2.1 U.S. Army Corps of Engineers Regulated Activities

Pursuant to Section 404 of the CWA, USACE regulates the discharge (temporary or permanent) of dredged or fill material into WoUS, including wetlands. A discharge of fill material includes, but is not limited to, grading, placing riprap for erosion control, pouring concrete, and stockpiling excavated material into WoUS. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, performing certain drainage channel maintenance activities, constructing temporary mining and farm/forest roads, and excavating without stockpiling.

2.1.1 Waters of the United States

WoUS, as defined in Code of Federal Regulations (CFR) title 33, section 328.3, include the following.

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters including interstate wetlands;
- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters:
 - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (iii) Which are used or could be used for industrial purpose by industries in interstate commerce.
- (4) All impoundments of waters otherwise defined as WoUS under the definition;
- (5) Tributaries of waters identified in paragraphs (1) through (4) of this section;
- (6) The territorial seas;
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in items (1) through (6) of this section.
- (8) WoUS do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the CWA, the

final authority regarding CWA jurisdiction remains with the Environmental Protection Agency (EPA).

- (9) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not WoUS.

The limit of USACE jurisdiction, excluding wetlands and tidal waters, is delineated using the Ordinary High Water Mark (OHWM) and defined in CFR 328.3(e) as:

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

2.1.2 Wetlands

Normally, three criteria must be satisfied to classify an area as a federal jurisdictional wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology) (Environmental Laboratory 1987).

2.1.3 Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers

In 1986, in an attempt to clarify the reach of its jurisdiction, USACE stated that Section 404(a) extends to intrastate waters that:

...(a) are or would be used as habitat by birds protected by migratory bird treaties, or (b) are or would be used as habitat by other migratory birds which cross state lines, or (c) are or would be used as habitat for endangered species, or (d) used to irrigate crops sold in interstate commerce.” (51 Federal Register 41217).

As a result of the 2001 *Solid Waste Agency of Northern Cook County (SWANCC)* case, the U.S. Supreme Court held that USACE may not rely on the Migratory Bird Rule to establish a significant nexus to interstate or foreign commerce. Although no formal guidance was issued by USACE interpreting the extent to which the *SWANCC* decision would limit jurisdictional determinations, in practice, USACE considers intrastate waters as WoUS where there is an appropriate connection to a navigable water or other clear interstate commerce connection. Therefore, WoUS, including jurisdictional wetlands, must show connectivity with (i.e., be tributary to) a navigable WoUS to be subject to USACE under Section 404 of the CWA.

2.1.4 Rapanos v. United States and Carabell v. United States Army Corps of Engineers

In 2006, the U.S. Supreme Court issued an opinion regarding the extent of USACE jurisdiction over certain waters under Section 404 of the CWA. The *Rapanos-Carabell* consolidated decisions addressed the question of jurisdiction over attenuated tributaries to WoUS, as well as wetlands adjacent to those tributaries.

On June 5, 2007, USACE and EPA issued guidance related to the *Rapanos* decision, with clarifying guidance issued on December 2, 2008. The guidance identifies those waters over which the agencies (USACE and EPA) will assert jurisdiction categorically and on a case-by-case basis. To summarize, USACE will continue to assert jurisdiction over the following features:

- Traditional navigable waters (TNWs) and their adjacent wetlands.
- Non-navigable tributaries of TNWs that are relatively permanent waters (RPWs) (e.g., tributaries that typically flow year-round or have a continuous flow at least seasonally [i.e., typically 3 months]) and wetlands that directly abut such tributaries (i.e., not separated by uplands, berm, dike, or similar feature).

For non-RPWs, the agencies will determine whether a “significant nexus” exists with a TNW using the data found in an Approved Jurisdictional Determination (JD) Form. The purpose of the significant nexus evaluation is to determine whether the existing functions of a tributary affect the chemical, physical, and/or biological integrity of a downstream TNW. Tributary characteristics that are considered when evaluating whether a significant nexus exists include volume, duration, and frequency of flow; proximity to a TNW; and hydrologic and ecologic functions performed by the tributary and all of its adjacent wetlands. Based on that information, the agencies may assert jurisdiction over the following features:

- Non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally;
- Wetlands adjacent to such tributaries; and
- Wetlands adjacent to but not directly abutting a relatively permanent non-navigable tributary.

The agencies will typically not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies and small washes characterized by low volume and infrequent or short-duration flow); and
- Ditches (including roadside ditches) excavated wholly in uplands and draining only uplands that do not carry a relatively permanent flow of water.

2.1.4.1 Approved Jurisdictional Determinations

An Approved JD is an official USACE jurisdictional determination, is valid for 5 years, can be used and relied upon in a CWA citizen’s lawsuit if its legitimacy is challenged (except under extraordinary circumstances), and can be immediately appealed (33 CFR 331). Approved JDs are documented in accordance with Regulatory Guidance Letter (RGL) No. 16-01 and require the use of the Approved JD Form. Approved JDs are evaluated by USACE and EPA.

Under the *Rapanos* guidance, an Approved JD is required for determinations for all “isolated” waters or wetlands, and is subject to review by USACE and EPA.

2.1.4.2 Preliminary Jurisdictional Determinations

USACE issued RGL No. 16-01 in October 2016, allowing USACE to issue Preliminary JDs for a project. A Preliminary JD is a non-binding written indication that there may be WoUS, including wetlands, on a project site and identifies the approximate location of these features. Preliminary JDs are used when a landowner, permit applicant, or other affected party elects to voluntarily waive or set aside

questions regarding CWA jurisdiction over a particular site, usually in the interest of allowing the landowner to move ahead expeditiously to obtain Section 404 authorization where the party determines that it is in his or her best interest to do so. A Preliminary JD is not an official determination regarding the jurisdictional status of potentially jurisdictional features and has no bearing on Approved JDs. A Preliminary JD cannot be used to confirm the absence of jurisdictional waters or wetlands, is advisory in nature, and cannot be appealed. It is considered preliminary because a recipient can later request an Approved JD if one is necessary or appropriate.

A Preliminary JD is documented using the Preliminary JD Form. For purposes of impact calculations, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a Preliminary JD treats all waters and wetlands that would be affected in any way, except by the permitted activity, as if they are jurisdictional. Although a Preliminary JD may be chosen by the applicant, the district engineer reserves the right to use an Approved JD where warranted.

2.1.4.3 2011 Draft Clean Water Act Guidance

On April 27, 2011, USACE and EPA issued draft guidance for determining jurisdiction under the CWA (USACE/EPA 2011). The guidance supersedes the previous guidance from 2003 regarding *SWANCC* (68 Federal Register 1991–1995) and 2007–2008 *Rapanos* guidance. This document reiterated the guidance issued under the *Rapanos* decision, asserting that the following waters are protected by the CWA:

- TNWs;
- Interstate waters;
- Wetlands adjacent to either TNWs or interstate waters;
- Non-navigable tributaries to TNWs that are relatively permanent (meaning they contain water at least seasonally); and
- Wetlands that directly abut relatively permanent waters.

The guidance further clarifies the criteria for defining TNWs, primarily consistent with previous guidance. In addition, a significant nexus evaluation is required for the “other waters” category of the regulations (see item 3 in Section 2.1.1, *Waters of the United States*, above). The guidance divides these waters into two categories—those that are physically proximate to other jurisdictional waters and those that are not—and discusses how each category should be evaluated.

Finally, the guidance reiterated that certain aquatic areas are generally not considered WoUS:

- Wet areas that are not tributaries or open waters and do not meet the agencies’ regulatory definition of “wetlands”;
- Waters excluded from coverage under the CWA by existing regulations;
- Waters that lack a “significant nexus” where one is required for a water to be protected by the CWA;
- Artificially irrigated areas that would revert to upland should irrigation cease;
- Artificial lakes or ponds created by excavating and/or diking dry land and used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;

- Artificial reflecting pools or swimming pools created by excavating and/or diking dry land;
- Small ornamental waters created by excavating and/or diking dry land for primarily aesthetic reasons;
- Water-filled depressions created incidental to construction activity;
- Groundwater drained through subsurface drainage systems; and/or
- Erosional features (gullies and rills) and swales and ditches that are not tributaries or wetlands.

2.2 State Regulated Activities

2.2.1 Section 401 of the Clean Water Act

A federal permit or license cannot be issued that may result in a discharge to WoUS unless certification under Section 401 of the CWA is granted or waived by the EPA, state, or tribe where the discharge would originate (EPA 2010). Within the proposed project area, the ability to grant, grant with conditions, deny, or waive certification falls to three separate parties: RWQCB or SWRCB, and EPA.

Pursuant to Section 401 of the CWA:

...any applicant for a federal permit for activities that involve a discharge to WoUS will provide the federal permitting agency a certification from the state in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal CWA.

Therefore, before USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 water quality certification or waiver, as applicable. Under Section 401 of the CWA, all activities that are regulated at the federal level by USACE are also regulated at the state level. Therefore, state jurisdiction usually includes all waters or tributaries to waters that are determined to be WoUS and, similar to WoUS, are typically delineated at the OHWM.

However, if waters are determined not to be WoUS, they may still be subject to state jurisdiction based on the Porter-Cologne Act.

2.2.2 Porter-Cologne Water Quality Control Act

The state also regulates activities that would involve “discharging waste, or proposing to discharge waste, within any region that could affect waters of the state” (California Water Code 13260(a)), pursuant to provisions of the Porter-Cologne Act. WoS are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (California Water Code 13050(e)). Such waters may include waters not subject to regulation under Section 404 (i.e., isolated features). These waters may include isolated vernal pools, isolated wetlands, or other aquatic habitats not normally subject to federal regulation under Section 404 of the CWA.

2.2.3 State Water Resources Control Board/Regional Water Quality Control Boards

In California, SWRCB and nine RWQCBs regulate activities within state and federal waters under Section 401 of the CWA and the Porter-Cologne Act. SWRCB is responsible for setting statewide

policy, coordinating and supporting RWQCB efforts, and reviewing petitions that contest RWQCB actions. Each RWQCB is semi-autonomous and has the authority to set water quality standards, issue Section 401 certifications and waste discharge requirements, and take enforcement action for projects occurring within its boundary. However, when a project crosses multiple RWQCB jurisdictional boundaries, SWRCB becomes the regulating agency and issues project permits.

2.3 CDFW Regulated Activities

Pursuant to Sections 1600–1616 of the California Fish and Game Code, CDFW regulates any activity that will substantially divert or obstruct the natural flow—or substantially change or use any material from the bed, channel, or bank—of any river, stream, or lake. CDFW also regulates any activity that will deposit or dispose of debris, wastewater, or other material containing crumbled, flaked, or ground pavement that may pass into any river, stream, or lake. The applicant must notify CDFW prior to such activities and obtain a Lake or Streambed Alteration Agreement.

2.3.1 CDFW Jurisdiction Pursuant to Section 1602 of the California Fish and Game Code

CDFW has jurisdiction over WoS (California Fish and Game Code Section 1600 et seq.; California Code of Regulations, Title 14, Section 720). Section 1602 of the California Fish and Game Code applies to natural rivers, streams, and lakes:

An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

CDFW defines a stream as “a body of water that flows perennially or episodically and that is defined by the area in which water currently flows, or has flowed, over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators” (Brady and Vyverberg 2014). CDFW regulates wetland areas only to the extent that those wetlands are part of a stream, river, or lake as defined by the CDFW.

The California Fish and Game Code mandates that:

...it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the Department of such activity.

Historical court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear but re-emerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional.

Water features such as vernal pools and other seasonal swales—where the defined bed and bank are absent, and the feature is not contiguous or closely adjacent to other jurisdictional features—are generally not asserted to fall within state jurisdiction under Section 1602. CDFW generally does not assert jurisdiction over human-made water bodies unless they are located where such natural features were previously located or (importantly) where they are contiguous with existing or prior natural jurisdictional areas.

3.1 Project Research

Prior to conducting field visits, aerial photographs of the site in various scales were obtained and compared with U.S. Geological Survey (USGS) 7.5-minute Sidewinder Well topographic quadrangle and USGS 7.5-minute Aztec Mines topographic quadrangle to identify drainage features within the study area as indicated by vegetation types, topographic changes, or visible drainage patterns (USGS 1950, 1972). The *National Hydrography Dataset* data for the study area (USGS 2019) and the *National Wetlands Inventory* (USFWS 2019) were referenced to identify any mapped features such as streams and wetlands. Finally, the study area was carefully reviewed in *Google Earth* (Google Earth 2019) in various scales, and potentially jurisdictional features were reviewed.

In addition, the U.S. Department of Agriculture, Natural Resources Conservation Service's Soil Survey Geographic (SSURGO) Database (USDA/NRCS 2006) was reviewed to identify the soil series that occur in the study area.

3.2 Field Investigation

The field investigation was conducted by Paul Schwartz and Kristen Klinefelter on February 19 and 27, 2019, generally between the hours of 9 a.m. and 5 p.m. The study area was defined as the limits of disturbance within the project limits and an associated 100-foot buffer, resulting in a total of 9.35 acres for Aztec Ditch, 9.17 acres for Tarantula Ditch, 9.35 acres for Sutro Ditch, and 6.94 acres for Acari Ditch. The 100-foot buffer was selected as an appropriate buffer considering the project scope, adjacent land use, and potential jurisdictional resources that may be impacted by the project.

During the field efforts, the study area was surveyed on foot and jurisdictional limits were recorded using a global positioning system (GPS) unit with an external receiver that provided sub-meter accuracy. Common plant species observed were identified by visual characteristics and morphology in the field. Taxonomic nomenclature for plants follows the *Jepson Manual: Vascular Plants of California*, 2nd edition (Baldwin et al. 2012).

3.2.1 U.S. Army Corps of Engineers Jurisdiction

Potential WoUS and wetlands were delineated using methods established in the *Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), *A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States* (USACE 2008b), 2007/2008 *Rapanos* Guidance (USACE and EPA 2007, 2008), and *Draft Guidance on Identifying Waters Protected by the Clean Water Act* (USACE/EPA 2011). Non-wetland waters were delineated based on the presence of OHWM indicators. At each evaluation area, several parameters were considered to determine whether the sample point was within a wetland. Three criteria normally must be fulfilled in order to classify an area as a jurisdictional USACE wetland: (1) a predominance of hydrophytic vegetation;

(2) the presence of hydric soils; and (3) the presence of wetland hydrology. Details of the application of these criteria are provided below.

- **Hydrophytic Vegetation:** Hydrophytic vegetation is present when the plant community is dominated by species that can tolerate prolonged inundation or soil saturation during the growing season (USACE 2008a). The following definitions are used by USACE to define a plants likelihood of tolerating prolonged inundation or soil saturation during the growing season (Lichvar et al. 2012).
 - Obligate (OBL): Almost always occurs in wetlands.
 - Facultative Wetland (FACW): Usually occur in wetlands, but may occur in non-wetlands.
 - Facultative (FAC): Occur in wetlands and non-wetlands.
 - Facultative Upland (FACU): Usually occur in non-wetlands, but may occur in wetlands.
 - Upland (UPL): Almost never occur in wetlands.

The presence of hydrophytic vegetation is determined by either the dominance test or the prevalence test. The dominance test addresses dominant species in the community being sampled and is satisfied at a location if greater than 50 percent of all the dominant species present within the community have a wetland indicator status of OBL, FACW, or FAC (Environmental Laboratory 1987). The prevalence test addresses all species in the community being sampled and is a weighted average wetland indicator status of all species where each indicator status is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, UPL = 5); weighting is by absolute percent cover. A prevalence index of 3.0 or less indicates that hydrophytic vegetation is present. The wetland indicator status used for the field efforts follows the *Arid West 2016 Regional Wetland Plant List* (Lichvar et al. 2016).

- **Hydric Soils:** The definition of a hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA/NRCS 1994). This determination is made based on various field indicators detailed in the *Arid West Supplement* (USACE 2008a).
- **Wetland Hydrology:** Wetland hydrology is determined using indicators of inundation or saturation (flooding, ponding, or tidally influenced) detailed in the *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Arid West Supplement* (USACE 2008a).

Where appropriate, a soil pit was dug to examine soil color and texture. Paired soil pits were dug where the wetland boundary was not abrupt. Wetland data forms are attached as Appendix D and include areas where soil pit examinations were conducted and where soils were assumed hydric. No soils pits were dug in areas that lacked hydrophytic vegetation.

3.2.2 State Jurisdiction

Evaluation of state jurisdiction followed guidance from Section 401 of the CWA and typically follows the same jurisdictional areas as USACE. In addition, the study area was evaluated for resources potentially regulated under the Porter-Cologne Act (i.e., isolated features).

3.2.3 California Department of Fish and Wildlife Jurisdiction

CDFW jurisdiction typically includes water features with a defined bed and bank. Evaluation of potentially jurisdictional areas followed the guidance of relevant standard practices by CDFW personnel. CDFW jurisdiction was delineated by mapping the outer width and length boundaries of potentially jurisdictional areas, consisting of the greater of either the top of bank measurement or the extent of associated riparian or wetland vegetation.

For these four projects, palo verde (*Parkinsonia aculeata*, FAC), honey mesquite (*Prosopis glandulosa*, UPL), and tamarisk (*Tamarisk aphylla*, FAC) were treated as riparian vegetation due to their occurrence being confined to the large desert washes within each project's study area.

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Chapter 4

Environmental Setting

This chapter describes the vegetation, topography, land use, hydrology, and soils associated with the study area of each bridge.

4.1 Land Use

4.1.2 Land Use and Topography

The study areas for the bridges at Aztec Ditch, Tarantula Ditch, and Sutro Ditch are located within the Sidewinder Well USGS 7.5-Minute topographic quadrangle, and the bridge at Acari Ditch is located within the Sidewinder Well and Aztec Mines USGS 7.5-Minute topographic quadrangle (USGS 1950, 1972). Land use at all four projects consists of open space with the paved 2-lane Chuckwalla Valley Road running through the center of each of the four project's study areas.

The elevation of the four project sites decreases from west to east and ranges from 698 feet above mean sea level (amsl) at Aztec Ditch to 552 feet amsl at Acari Ditch. The elevation at each bridge study area is as follows:

- Aztec Ditch (Bridge #56C0102) – 687 to 698 feet amsl;
- Tarantula Ditch (Bridge #56C0103) – 665 to 677 feet amsl;
- Sutro Ditch (Bridge #56C0104) – 642 to 650 feet amsl; and
- Acari Ditch (Bridge #56C0108) – 552 to 559 feet amsl.

The landscape surrounding Chuckwalla Valley Road has been modified by the creation of human-made dikes to help funnel the majority of historic drainages and more recent flow pathways toward and under each of the bridges over Chuckwalla Valley Road. These dikes have effectively cut off flows of adjacent smaller drainages which end up flowing toward the road, running laterally, and ponding in areas along the roads and dikes. Chuckwalla Valley Road itself is above grade and is subject to routine maintenance that appears to involve pushing sand to either side of the road. This has created berms along the road resulting in the flow pathways through Aztec Ditch, Tarantula Ditch, Sutro Ditch, and Acari Ditch.

The topography within the four project study areas consists of gently sloping plains and an above grade paved 2-lane road, Chuckwalla Valley Road, running northwest to southeast through the center of each study area. Shallow channels run throughout each study area in the general southwest to northeast direction with a wider channel created by large human-made diversion dikes running through the center of each study area and under each Chuckwalla Valley Road bridge. The smaller side channels either terminate at low points along the south side of the road or originate from road run-off along the northern side of Chuckwalla Valley Road. All four project study areas are mapped by the Federal Emergency Management Agency (FEMA) as Zone D, areas in which flood hazards are undetermined (Figure 3 in Appendix A).

4.2 Hydrology

4.2.1 Precipitation

Precipitation in Blythe, California, located approximately 20 to 29 miles east of all four project sites, was below average in 2018, but is tracking to be above average in 2019. A closer weather station in Eagle Mountain, approximately 15 to 21 miles from all four project sites, was not used because rainfall data is missing for this location for the past two years. The jurisdictional delineation was conducted following sufficient seasonal rainfall that enabled low flow and OHWM identification. Table 4-1 summarizes the monthly precipitation in the project area from 1981–2010, 2018 and 2019 to date. Average yearly precipitation is 3.92 inches (National Weather Service 2019). As shown in Table 4-1, the JD was conducted following above average rainfall for the month of January.

Table 4-1. Rainfall Data Summary for Project Area (inches)

Blythe Airport, CA													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1981–2010	0.49	0.59	0.50	0.09	0.03	0.01	0.27	0.55	0.41	0.16	0.25	0.50	3.92
2018	0.14	Trace	0.03	0.00	0.00	0.00	0.10	0.70	0.02	0.85	Trace	0.49	2.33
2019	0.64	0.33	0.19	0.10	-	-	-	-	-	-	-	-	1.26

Source: National Weather Service, Blythe Airport Station 2019.

4.2.2 Hydrologic Unit

The National Hydrography Data Set, FEMA mapped 100-year floodplain, and the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory query results are depicted on the Water Resources Map (Figure 3 in Appendix A).

The project study areas are located in the southern half of the Southern Mojave watershed 8-digit hydrologic unit code (HUC) (USGS HUC 8: 18100100) within the Colorado River Basin RWQCB (Figure 4 in Appendix A). The bridges over Aztec Ditch and Tarantula Ditch occur within the 10-digit HUC: Palen Lake watershed (USGS HUC 10: 1810010050). The bridges over Sutro Ditch and Acari Ditch occur within the 10-digit HUC: Ship Creek-Ford Dry Lake watershed (USGS HUC 10: 1810010054) (Figure 4 in Appendix A).

4.3 Soils

The soils within all four project study areas have not yet been recorded and therefore no soils data is available (Appendix A, Figure 5). Associated point data indicates that soils types Carrizo and Coarse-silty, mixed superactive, hypothermic typic haplogy, exist within the map unit containing the study areas (USDA/NRCS 2019). Generally, soils consisted of sand, sandy loam, and silty loam within the study areas.

4.4 Vegetation

Vegetation communities in the study area were mapped using the *California Manual of Vegetation* (Sawyer, Keeler-Wolfe, and Evans 2009). There are three vegetation communities/land use types in the study area: creosote bush scrub, desert wash, and developed/disturbed areas. Figure 6 (Sheet 1 through 4) in Appendix A illustrates the location of each vegetation community within the study area. Table 4-2 provides the acreage of each vegetation community and land use type within the study areas. A full description of each vegetation community and land use types follows.

Table 4-2. Vegetation Communities Within the Study Areas

Vegetation Community	Aztec Ditch Bridge (#56C0102)	Tarantula Ditch Bridge (#56C0103)	Sutro Ditch Bridge (#56C0104)	Acari Ditch Bridge (#56C0108)
Creosote Bush	6.83	6.79	7.06	5.36
Desert Wash	1.44	1.35	1.35	0.787
Developed/Disturbed	1.08	1.03	0.94	0.789
Total Within Study Area	9.35	9.17	9.35	6.94

* The developed/disturbed area of the existing bridges overlaps with the desert wash. To avoid double counting the total habitat in the study area, only the natural vegetation community (desert wash) is included in the totals.

4.4.1 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 burweed (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), shadscale (*Atriplex confertifolia*), brickellbush (*Brickellia incana*), and brittlebush (*Encelia farinosa*). The community may also include a low cover of emergent trees such as honey mesquite (*Prosopis glandulosa*), catclaw acacia (*Senegalia greggii*), palo verde (*Parkinsonia aculeata*), and seasonal annuals or perennial grasses.

4.4.2 Desert Wash

The desert wash vegetation community occurs within each study area. The bottom of the wash channel is composed of coarse sandy soil splays from past rain events that cause flow through the wash channel. Desert wash has no vegetation or is sparsely vegetated with desert willow (*Chilopsis linearis*), athel tamarisk (*Tamarix aphylla*), and other species that occur in the scrub vegetation communities described above.

4.4.3 Developed/Disturbed

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

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Chapter 5

Jurisdictional Delineation Results

This chapter describes the delineated features and expected jurisdictional status within the study area and documents existing conditions. An impact analysis is not included as a part of this report; impacts on potential jurisdictional aquatic features are included in the project's *Natural Environment Study (Minimal Impacts)*.

The information and results included herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional determinations should be considered preliminary until reviewed and approved by the regulatory agencies.

Figures 7 (Sheets 1 through 4) and 8 (Sheets 1 through 4) in Appendix A depict the results of the federal and state jurisdictional delineations, respectively. Site photographs are provided in Appendix B, OHWM data forms are provided in Appendix C, wetland determination data forms are provided in Appendix D, a list of all plants observed in the study area is included in Appendix E, and the Preliminary Jurisdictional Determination Form is provided in Appendix F.

5.1 Delineated Features

Flows within the four study areas originate in the Chuckwalla Mountains southwest of the projects and flow in a southwest to northeast direction. 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 concentrate or funnel flows of the various small ephemeral desert drainages toward single concentrated flow paths under Chuckwalla Valley Road within each study area. Based on historical topography maps, these berms were put in place before the I-10 was built when Chuckwalla Valley Road was the main roadway in the area (Historic Aerials 1953).

A total of 34 features were delineated within the bridge study areas. 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. All 34 features are depicted on Figure 7 (Sheets 1 through 4) and Figure 8 (Sheets 1 through 4) in Appendix A. Each of the features within each site are summarized in Table 5-1 and described individually in the subsections below.

Table 5-1. Summary of Potential USACE, RWQCB, and CDFW Jurisdiction

Bridges	USACE/RWQCB Non-Wetland WoUS/WoS (acres/linear feet)	USACE/RWQCB Wetland WoUS/WoS (acres/linear feet)	CDFW Unvegetated Streambed (acres/linear feet)	CDFW Riparian (acres)
Aztec Ditch (Bridge #56C0102)	1.859/1,255	–	2.076/1,276	0.382
Tarantula Ditch (Bridge #56C0103)	2.006/1,411	–	2.269/1,407	0.511
Sutro Ditch (Bridge #56C0104)	1.026/2,136	–	1.339/2,130	0.332
Acari Ditch (Bridge #56C0108)	1.331/1,923	–	1.559/1,915	0.108

5.1.1 Aztec Ditch Bridge (#56C0102)

A total of six features were delineated within the Aztec Ditch Bridge (#56C0102) study area. In the vicinity of the study area, there are two human-made earthen diversion dikes on either side of Aztec Ditch (Feature 1-2) that redirect flows from the various desert channels south of Chuckwalla Valley Road toward the bridge.

All features are sandy channels typical of arid fluvial systems. These features, along with the associated USACE, RWQCB, and CDFW jurisdiction, are summarized in Table 5-2, below, and described in detail in the subsections to follow. All six features are depicted on Figure 7-Sheet 1 and Figure 8-Sheet 1 n Appendix A.

Table 5-2. Summary of Potential USACE, RWQCB, and CDFW Jurisdiction at Aztec Ditch Bridge (#56C0102)

Feature Type	Feature Description	USACE/RWQCB Non-Wetland WoUS/WoS (acres/linear feet)	USACE/RWQCB Wetland WoUS/WoS (acres/linear feet)	CDFW Streambed (acres/linear feet)	CDFW Riparian (acres)
Feature 1-1	Small ephemeral sandy channel that is sparsely vegetated with creosote bush scrub; OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover	0.022/196	-	0.032/197	-
Feature 1-2	Aztec Ditch is a large ephemeral wash that flows under Chuckwalla which receives flow from runoff and Feature 1-3 and 1-5 with sparse vegetation. SP 5 was taken within this feature; break in slope, sediment deposition, change in sediment size, change in vegetation cover, and debris rack	1.260/414	-	1.211/414	0.354
Feature 1-3	Small and relatively shallow ephemeral wash that been altered by diversion structures to form two small channels that converge within the study area; sparsely vegetated with creosote bush, combseed, and honey mesquite; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.451/223	-	0.664/223	0.015
Feature 1-4	Small shallow ephemeral sandy channel originating from a swale inside of the study area; sparsely vegetated with creosote bush, cheesebush, and combseed; OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover	0.007/103	-	0.012/104	-
Feature 1-5	Small ephemeral sandy channel that originates from road runoff within study area; sparsely vegetated with creosote bush, cheesebush, and combseed; OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover	0.061/166	-	0.088/184	0.014
Feature 1-6	Shallow and sandy ephemeral channel that originates from road runoff within study area; sparsely vegetated with creosote bush, cheesebush, and combseed; OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover	0.058/154	-	0.071/155	-
Total		1.859/1,255	-	2.076/1,276	0.382

5.1.1.1 Feature 1-1

Feature 1-1 is a small shallow ephemeral sandy channel that originates outside of the study area and flows in the general southwest to northeast direction. Within the study area, the feature terminates on the south side of Chuckwalla Valley Road, and there was no visible evidence that flows had recently crossed Chuckwalla Valley Road. Rather, it appears that flows are conveyed southeast along the south side of the road toward Feature 1-5 and subsequently to Aztec Ditch (Feature 1-2).

Feature 1-1 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), wild heliotrope (*Phacelia distans*, UPL), and combseed (*Pectocarya* sp., UPL). Due to lack of hydrophytic vegetation, no wetland sample points were conducted.

The OHWM associated with Feature 1-1 is approximately 5 feet in width. The OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover (i.e., lack of vegetation in the channel). CDFW jurisdiction is approximately 7 feet in width and was measured as the top of the bank.

Within the study area, Feature 1-1 has approximately 196 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.022 acre. No USACE wetlands are associated with Feature 1-1. Feature 1-1 also contains 197 linear feet of channel that comprise 0.032 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 1-1.

5.1.1.2 Feature 1-2

Feature 1-2 is the main channel in the Aztec Ditch study area and flows under Chuckwalla Valley Road Bridge (#56C0102). It is a large ephemeral sandy wash that originates outside of the study area and flows generally in the southwest to northeast direction. Within the upstream portion (south of Chuckwalla Valley Road) of the study area, Aztec Ditch contains two channel systems within a wide active floodplain that sharply coalesces into a single low-flow and confined channel where it passes under Chuckwalla Valley Road. Aztec Ditch also receives road runoff and inputs via Features 1-3 and 1-5 before it conveys flows under the bridge. Downstream of Chuckwalla Valley Road the feature widens again and maintains a single channel to the downstream extent of the study area.

Feature 1-2 is sparsely vegetated with creosote bush scrub and desert wash. The feature has primarily unvegetated low-flow channels with sporadic herb cover that includes Emory's rockdaisy (*Perityle emoryi*, UPL), combseed (UPL), and wild heliotrope (UPL). The banks and terraces within the channel's active floodplain are dominated by creosote bush (UPL), palo verde (FAC), and cheesebush (FACU). Sample point (SP) 5 was taken at Feature 1-2 near a large palo verde tree and was determined not to contain a wetland due to lack of sufficient hydrophytic vegetation and lack of hydric soils.

The OHWM associated with Feature 1-2 ranges from 55 to 428 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, change in vegetation cover, and debris rack. CDFW jurisdiction ranges from 55 to 456 feet in width and was measured as the top of the bank, where diversion dikes are located, and to the extent of riparian vegetation, which includes athel tamarisk, palo verde, and honey mesquite.

Within the study area, Feature 1-2 has approximately 414 linear feet of USACE/RWQCB non-wetland WoUS/WoS, comprising 1.260 acre. No USACE wetlands are associated with Feature 1-2.

Feature 1-2 also contains 414 linear feet of channel that comprise 1.211 acre of CDFW streambed. Approximately 0.354 acre of CDFW riparian vegetation is associated with Feature 1-2.

5.1.1.3 Feature 1-3

Feature 1-3 is a small relatively shallow ephemeral sandy channel that originates outside of the study area and flows in a general southwest to northeast direction. The hydrology of Feature 1-3 has been altered due to the presence of the diversion structures. Feature 1-3 consists of two channels that are separate and distinct upstream of the study area but confluence within the study area forming one larger shallow channel that terminates on the south side of Chuckwalla Valley Road at a low point adjacent to the outside berm of the diversion structure. There was no visible evidence that flows within Feature 1-3 had recently crossed Chuckwalla Valley Road.

Feature 1-3 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), combseed (UPL), and honey mesquite (UPL). Due to lack of sufficient hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 1-3 ranges from 6 to 130 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction ranges from 12 to 129 feet in width and was measured as the top of bank, where the diversion dikes are located, as well as the extent of riparian vegetation.

Within the study area, Feature 1-3 has approximately 223 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.451 acre. No USACE wetlands are associated with Feature 1-3. Feature 1-3 also contains 223 linear feet of channel that comprise 0.664 acre of CDFW streambed. Approximately 0.015 acre of CDFW riparian vegetation is associated with Feature 1-3.

5.1.1.4 Feature 1-4

Feature 1-4 is a small shallow ephemeral sandy channel that originates from a swale inside of the study area and flows in the general southwest to northeast direction. The feature conveys flows from the north side of the diversion structure toward Chuckwalla Valley Road, where it confluences with Feature 1-3 and terminates at a low point on the south side of Chuckwalla Valley Road. There was no visible evidence that flows within Feature 1-4 had recently crossed Chuckwalla Valley Road.

Feature 1-4 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), cheesebush (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 1-4 is approximately 3 feet in width. The OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 5 feet in width and was measured as the top of bank.

Within the study area, Feature 1-4 has approximately 103 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.0071 acre and 104 linear feet of channel that comprise 0.012 acre of CDFW streambed. No USACE wetlands or CDFW riparian vegetation is associated with Feature 1-4.

5.1.1.5 Feature 1-5

Feature 1-5 is a small ephemeral sandy channel that originates from road runoff within study area and flows in the general northwest to southeast direction. The feature is human-made and appears to be maintained to capture flows off of Chuckwalla Valley Road and direct them toward Aztec Ditch (Feature 1-2). There was no visible evidence that flows within Feature 1-4 originated from features on the south side of the road (i.e., Feature 1-1).

Feature 1-5 is sparsely vegetated with creosote bush scrub and is dominated by honey mesquite (UPL), cheesebush (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 1-5 is approximately 20 feet in width. The OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 24 feet in width and was measured as the top of bank as well as the extent of riparian vegetation.

Within the study area, Feature 1-5 has approximately 166 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.061 acre. No USACE wetlands are associated with Feature 1-5. Feature 1-5 also contains 184 linear feet of channel consisting of 0.088 acre of CDFW streambed and 0.014 acre of CDFW riparian vegetation.

5.1.1.6 Feature 1-6

Feature 1-6 is a small shallow ephemeral sandy channel that originates from road runoff on the north side of Chuckwalla Valley Road and flows in the general south to north direction away from the road.

Feature 1-6 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), cheesebush (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 1-6 is approximately 8 feet in width near its origin along the roadside and widens to approximately 20 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction ranges from approximately 10 to 24 feet in width and was measured as the top of bank.

Within the study area, Feature 1-6 has approximately 154 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.058 acre. No USACE wetlands are associated with Feature 1-6. Feature 1-6 also contains 155 linear feet of CDFW streambed consisting of 0.071 acre of unvegetated streambed. No CDFW riparian vegetation is associated with Feature 1-6.

5.1.2 Tarantula Ditch Bridge (#56C0103)

A total of seven features were delineated within the Tarantula Ditch Bridge (#56C0103) study area. In the vicinity of the study area, there are two human-made earthen diversion dikes on either side of Tarantula Ditch (Feature 2-3) that redirect flows from the various desert channels south of Chuckwalla Valley Road toward the bridge.

All of the features within the study area are sandy channels typical of arid fluvial systems. These features along with the associated USACE, RWQCB, and CDFW jurisdiction are summarized in Table 5-3 and described in detail in the subsections below. All seven features are depicted on Figure 7-Sheet 2 and Figure 8-Sheet 2 in Appendix A.

Table 5-3. Summary of Potential USACE, RWQCB, and CDFW Jurisdiction at Tarantula Ditch Bridge (#56C0103)

Feature Type	Feature Description	USACE/RWQCB Non-Wetland WoUS/WoS (acres/linear feet)	USACE/RWQCB Wetland WoUS/WoS (acres/linear feet)	CDFW Streambed (acres/ linear feet)	CDFW Riparian (acres)
Feature 2-1	Small shallow ephemeral sandy channel; sparsely vegetated with creosote bush, cheesebush, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.231/210	-	0.231/210	-
Feature 2-2	A system of ephemeral shallow sandy channels that converge and end at Feature 2-1; sparsely vegetated with creosote bush, cheesebush, and honey mesquite; OHWM is defined by a break in slope, sediment deposition, change in sediment size, debris rack, and change in vegetation cover	0.732/192	-	0.821/203	0.031
Feature 2-3	Tarantula Ditch is a large ephemeral sandy wash that contains several channel systems within a wide active floodplain that sharply coalesce into a single low-flow where it passes under Chuckwalla Valley Road; primarily unvegetated species present include Emory’s rockdaisy (<i>Perityle emoryi</i>), combseed, and wild heliotrope, creosote bush, palo verde, and athel tamarisk; SP 6 was taken within was determined not to contain a wetland	0.922/400	-	0.984/400	0.418
Feature 2-4	Small shallow ephemeral sandy channel originating from a swale inside of the study area, and confluences at Feature 2-7; sparsely vegetated with creosote bush, cheesebush, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.004/85	-	0.005/84	0.007
Feature 2-5	Small shallow ephemeral sandy channel originating from a swale inside of the study area, and confluences at Feature 2-7; sparsely vegetated with creosote bush, cheesebush, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.004/80	-	0.005/76	-

Feature Type	Feature Description	USACE/RWQCB Non-Wetland WoUS/WoS (acres/linear feet)	USACE/RWQCB Wetland WoUS/WoS (acres/linear feet)	CDFW Streambed (acres/ linear feet)	CDFW Riparian (acres)
Feature 2-6	Small shallow ephemeral sandy channel originating from a swale inside of the study area, and confluences at Feature 2-7; sparsely vegetated with creosote bush, cheesebush, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.004/84	-	0.005/71	-
Feature 2-7	Small ephemeral sandy channel that collects flows from road runoff and Features 2-4, 2-5, and 2-6; appears manmade and maintained; is sparsely vegetated with honey mesquite, white bursage, and athel tamarisk; OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover	0.110/361	-	0.219/363	0.055
Total		2.006/1,411	-	2.269/1,407	0.511

5.1.2.1 Feature 2-1

Feature 2-1 is a small shallow ephemeral sandy channel that originates outside of the study area and flows in the general southwest to northeast direction. The feature conveys flows from the north side of the diversion structure toward Chuckwalla Valley Road, where it confluences with Feature 2-2 and terminates on the south side of Chuckwalla Valley Road. There was no visible evidence that flows within Feature 2-1 had recently crossed Chuckwalla Valley Road.

Feature 2-1 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), cheesebush (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 2-1 ranges from approximately 14 to 120 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction ranges from approximately 14 to 120 feet in width and was measured as the top of bank.

Within the study area, Feature 2-1 has approximately 210 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.231 acre. No USACE wetlands are associated with Feature 2-1. Feature 2-1 also contains 210 linear feet of channel that comprise 0.231 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 2-1.

5.1.2.2 Feature 2-2

Feature 2-2 is a system of ephemeral shallow sandy channels that originates outside of the study area and flows in the general southwest to northeast direction. Feature 2-2 runs parallel to Feature 2-1 and conveys flows via multiple low flow channels from the north side of the diversion structure to Chuckwalla Valley Road. Feature 2-2 terminates along the south side of Chuckwalla Valley Road where it confluences with Feature 2-1. There was no visible evidence that flows within Feature 2-2 had recently crossed Chuckwalla Valley Road.

Feature 2-2 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), cheesebush (UPL), and honey mesquite (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 2-2 ranges from 20 to 154 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, debris rack, and change in vegetation cover. CDFW jurisdiction ranges from 26 to 168 feet in width and was measured as the top of bank where the diversion dikes are located, as well as the extent of riparian vegetation.

Within the study area, Feature 2-2 has approximately 192 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.732 acre. No USACE wetlands are associated with Feature 2-2. Feature 2-2 also contains 203 linear feet of channel that comprise 0.821 acre of CDFW streambed, and 0.031 acre of CDFW riparian vegetation is associated with Feature 2-2.

5.1.2.3 Feature 2-3

Feature 2-3 (Tarantula Ditch) is the main channel in the Tarantula Ditch study area and flows under Chuckwalla Valley Road Bridge (#56C0103). It is a large ephemeral sandy wash that originates outside of the study area and flows generally in a southwest to northeast direction. Within the

upstream portion (south of Chuckwalla Valley Road) of the study area Tarantula Ditch contains several channel systems within a wide active floodplain that sharply coalesce into a single low-flow and confined channel where it passes under Chuckwalla Valley Road. Tarantula Ditch also receives road runoff and inputs via Feature 2-7 before it conveys flows under the bridge. Downstream of Chuckwalla Valley Road, the feature widens again and maintains a single channel to the downstream extent of the study area.

Feature 2-3 is sparsely vegetated with creosote bush scrub and desert wash. The feature has primarily unvegetated low-flow channels with sporadic herb cover that includes Emory's rockdaisy (*Perityle emoryi*, UPL), combseed (UPL), and wild heliotrope (UPL). The banks and terraces within the channel's active floodplain are dominated by creosote bush (UPL), palo verde (FAC), and athel tamarisk (FAC). SP 6 was taken at Feature 2-3 near a large palo verde tree and was determined not to contain a wetland due to lack of sufficient hydrophytic vegetation and lack of hydric soils.

The OHWM associated with Feature 2-3 ranges from 34 to 241 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, change in vegetation cover, and debris rack. CDFW jurisdiction ranges from 34 to 380 feet in width and was measured as the top of bank, where the diversion dikes are located, and the extent of riparian vegetation, which includes athel tamarisk, palo verde, and honey mesquite.

Within the study area, Feature 2-3 has approximately 400 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.922 acre. No USACE wetlands are associated with Feature 2-3. Feature 2-3 also contains 400 linear feet of channel that comprise 0.984 acre of CDFW streambed and 0.418 acre of CDFW riparian vegetation.

5.1.2.4 Features 2-4, 2-5, and 2-6

Features 2-4, 2-5, and 2-6 are small shallow ephemeral sandy channels, each of which originate from swales inside of the study area and flows in the general southwest to northeast direction. Each of the three features are similar in width and each confluences with Feature 2-7, located along the south side of Chuckwalla Valley Road. As such, the three features are described together.

The three features are sparsely vegetated with creosote bush scrub and are dominated by creosote bush (UPL), white bursage (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with each of the three features is approximately 2 feet in width. The OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover. CDFW jurisdiction for each feature is approximately 3 feet in width and was measured as the top of bank as well as the extent of riparian vegetation.

Within the study area, Feature 2-4 has approximately 85 linear feet of USACE non-wetland WoUS/WoS comprising 0.004 acre. No USACE wetlands are associated with Feature 2-4. Feature 2-4 also contains 84 linear feet of channel that comprise 0.004 acre of CDFW streambed and 0.007 acre of CDFW riparian vegetation.

Within the study area, Feature 2-5 has approximately 80 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.004 acre. No USACE wetlands are associated with Feature 2-5. Feature 2-5 also contains 76 linear feet of channel that comprise 0.005 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 2-5.

Within the study area, Feature 2-6 has approximately 84 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.004 acre. No USACE wetlands are associated with Feature 2-6. Feature 2-6 also contains 71 linear feet of channel that comprise 0.0051 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 2-6.

5.1.2.5 Feature 2-7

Feature 2-7 is a small ephemeral sandy channel that collects flows from road runoff and Features 2-4, 2-5, and 2-6. Feature 2-7 appears manmade and maintained to capture flows off of the south side of Chuckwalla Valley Road and direct them toward Tarantula Ditch (Feature 2-3).

Feature 2-7 is sparsely vegetated with creosote bush scrub and is dominated by honey mesquite (UPL), white bursage (UPL), and athel tamarisk (FAC). Due to lack of sufficient hydrophytic vegetation no sample points were taken for wetlands.

The OHWM associated with Feature 2-7 is approximately 20 feet in width. The OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 37 feet in width and was measured as the top of bank as well as the extent of riparian vegetation.

Within the study area, Feature 2-7 has approximately 361 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.110 acre. No USACE wetlands are associated with Feature 2-7. Feature 2-7 also contains 363 linear feet of channel that comprise 0.219 acre of CDFW streambed and 0.055 acre of CDFW riparian vegetation.

5.1.3 Sutro Ditch Bridge (#56C0104)

A total of 10 features were delineated within the study area for the Sutro Ditch Bridge (#56C0104). In the vicinity of the study area, there is one human-made earthen diversion dike of channel (Feature 3-8) that redirects flows from the various desert channels southwest of Chuckwalla Valley Road toward the bridge.

All of the features are sandy drainages typical of arid fluvial systems. These features along with the associated USACE, RWQCB, and CDFW agency jurisdiction are summarized in Table 5-4 and described in detail in the subsections below. All 10 features are depicted on Figure 7-Sheet 3 and Figure 8-Sheet 3 in Appendix A.

Table 5-4. Summary of Potential USACE, RWQCB, and CDFW Jurisdiction at Sutro Ditch Bridge (#56C0104)

Feature Type	Feature Description	USACE/RWQCB Non-Wetland WoUS/WoS (acres/ linear feet)	USACE/RWQCB Wetland WoUS/WoS (acres/ linear feet)	CDFW Streambed (acres/ linear feet)	CDFW Riparian (acres)
Feature 3-1	Small shallow ephemeral sandy channel; sparsely vegetated with creosote bush, honey mesquite, and white bursage; OHWMs are defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.006/140	-	0.010/140	0.001
Feature 3-2	Small shallow ephemeral sandy channel; sparsely vegetated with creosote bush, honey mesquite, and white bursage; OHWMs are defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.014/202	-	0.022/202	0.007
Feature 3-3	Small shallow ephemeral sandy channel that originates from a swale; sparsely vegetated with creosote bush, white bursage, and combseed; OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover	0.002/81	-	0.004/82	-
Feature 3-4	Small shallow ephemeral sandy channel that originates outside of the study area; sparsely vegetated with creosote bush, white bursage, and combseed; OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover	0.007/80	-	0.009/68	-
Feature 3-5	wide shallow ephemeral sandy channel originating from outside the study area; sparsely vegetated with creosote bush, palo verde, and cheesebush; The OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover; SP 1 was taken at the low point near Chuckwalla Valley Road, where small soil cracks and palo verde trees were present;	0.186/202	-	0.226/204	0.060

Feature Type	Feature Description	USACE/RWQCB Non-Wetland WoUS/WoS (acres/ linear feet)	USACE/RWQCB Wetland WoUS/WoS (acres/ linear feet)	CDFW Streambed (acres/ linear feet)	CDFW Riparian (acres)
Feature 3-6	Small ephemeral sandy channel that originates from a swale inside of the study area; sparsely vegetated with creosote bush, white bursage, and combseed; OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover	0.011/158	-	0.013/159	0.033
Feature 3-7	Small ephemeral sandy channel that originates from road runoff within study area; sparsely vegetated with creosote bush, honey mesquite, and cheesebush; OHWMs are defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.074/407	-	0.167/407	0.014
Feature 3-8	Tarantula Ditch is a large ephemeral sandy wash that contains several channel systems within a wide active floodplain that sharply coalesce into a single low-flow where it passes under Chuckwalla Valley Road; sparsely vegetated with creosote bush scrub and desert wash, terraces within the channel’s active floodplain contain creosote bush, palo verde, and cheesebush; OHWM is defined by a break in slope, sediment deposition, change in sediment size, change in vegetation cover, and debris rack; SP 2 was taken at an adjacent to a large palo verde tree	0.696/423	-	0.848/423	0.213
Feature 3-9	Small shallow ephemeral sandy channel that originates from road runoff within the study area; sparsely vegetated with creosote bush, white bursage, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.018/263	-	0.023/264	0.005
Feature 3-10	Small shallow ephemeral sandy channel that originates from road runoff within the study area; sparsely vegetated with creosote bush, white bursage, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover	0.012/180	-	0.016/180	-
Total		1.026/2,136	-	1.339/2,130	0.332

5.1.3.1 Features 3-1 and 3-2

Features 3-1 and 3-2 are small shallow ephemeral sandy channels that originates outside of the study area and flow in the general southwest to northeast direction. Feature 3-1 and 3-2 convey flows originating south of the study area to Chuckwalla Valley Road, where the confluence and flows dissipate into a swale. There was no visible evidence that flows within the features had recently crossed Chuckwalla Valley Road.

Both features are sparsely vegetated with creosote bush scrub and dominated by creosote bush (UPL), honey mesquite (UPL), and white bursage (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 3-1 is approximately 2 feet in width. The OHWM associated with Feature 3-2 is approximately 3 feet in width. The OHWMs are defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction associated with Feature 3-1 is approximately 3 feet in width and was measured at the top of bank and as the of riparian vegetation. CDFW jurisdiction associated with Feature 3-2 is approximately 5 feet in width was measured as the top of bank and the of riparian vegetation.

Within the study area, Feature 3-1 has approximately 140 linear feet of USACE non-wetland WoUS/WoS comprising 0.006 acre. No USACE wetlands are associated with Feature 3-1. Feature 3-1 also contains 140 linear feet of streambed, consisting of 0.010 acre of CDFW streambed and 0.001 acre of CDFW riparian vegetation.

Within the study area, Feature 3-2 has approximately 202 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.014 acre. No USACE wetlands are associated with Feature 3-2. Feature 3-2 also contains 202 linear feet of streambed, consisting of 0.022 acre of CDFW streambed and 0.007 acre of CDFW riparian vegetation.

5.1.3.2 Feature 3-3

Feature 3-3 is a small shallow ephemeral sandy channel that originates from a swale inside of the study area and flows in the general south to north direction and terminates at a low point along Chuckwalla Valley Road, where it where flow dissipates into a swale. There was no visible evidence that flows within Feature 3-3 had recently crossed Chuckwalla Valley Road.

Feature 3-3 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), white bursage (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 3-3 is approximately 1 foot in width. The OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 2 feet in width and was measured as the top of bank.

Within the study area, Feature 3-3 has approximately 81 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.002 acre. No USACE wetlands are associated with Feature 3-3. Feature 3-3 also contains 82 linear feet of channel that comprise 0.004 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 3-3.

5.1.3.3 Feature 3-4

Feature 3-4 is a small shallow ephemeral sandy channel that originates outside of the study area and flows in the general south to north direction before it confluences with Feature 3-5.

Feature 3-4 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), white bursage (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 3-4 is approximately 4 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 6 feet in width was measured as the top of bank.

Within the study area, Feature 3-4 has approximately 80 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.007 acre. No USACE wetlands are associated with Feature 3-4. Feature 3-4 also contains 68 linear feet of streambed consisting of 0.009 acre of unvegetated streambed. No CDFW riparian vegetation is associated with Feature 3-4.

5.1.3.4 Feature 3-5

Feature 3-5 is a wide shallow ephemeral sandy channel that originates outside of the study area and flows in the general southwest to northeast direction where it terminates and spreads laterally on the south side of Chuckwalla Valley Road. There was no visible evidence that flows within Feature 3-5 had recently crossed Chuckwalla Valley Road.

Feature 3-5 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), palo verde (FAC), and cheesebush (UPL). SP 1 was taken at the low point near Chuckwalla Valley Road, where the presence of small soil cracks and palo verde trees warranted inspection. The sample point showed that wetland conditions were not present, due to lack of sufficient hydrophytic vegetation and a lack of hydric soils.

The OHWM associated with Feature 3-5 ranges from 3 to 45 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, soil cracks, and change in vegetation cover. CDFW jurisdiction ranges from 6 to 78 feet in width and was measured as the top of bank and at the extent of riparian vegetation.

Within the study area, Feature 3-5 has approximately 202 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.186 acre. No USACE wetlands are associated with Feature 3-5. Feature 3-5 also contains 204 linear feet of channel that comprise 0.223 acre of CDFW streambed and 0.060 acre of CDFW riparian vegetation.

5.1.3.5 Feature 3-6

Feature 3-6 is a small ephemeral sandy channel that originates from a swale inside of the study area and flows in the general southwest to northeast direction where the feature terminates at a low point along with Feature 3-5 on the south side of Chuckwalla Valley Road.

Feature 3-6 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), white bursage (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 3-6 is approximately 3 feet in width. The OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 5 feet in width and was measured as the top of bank as well as the extent of riparian vegetation.

Within the study area, Feature 3-6 has approximately 158 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.011 acre. No USACE wetlands are associated with Feature 3-6. Feature 3-6 also contains 159 linear feet of channel that comprise 0.013 acre of CDFW streambed and 0.33 CDFW riparian vegetation.

5.1.3.6 Feature 3-7

Feature 3-7 is a small ephemeral sandy channel that originates from road runoff within study area and flows in the general northwest to southeast direction toward Sutro Ditch (Feature 3-8). The upstream portion (western end) of the feature appears to be maintained to direct flows away from Chuckwalla valley road and toward Sutro Ditch.

Feature 3-7 is vegetated with creosote bush scrub and is dominated by creosote bush (UPL), honey mesquite (UPL), and cheesebush (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 3-7 is approximately 10 feet in width. The OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover. CDFW jurisdiction ranges from 16 to 40 feet in width and was measured as the top of bank as well as the extent of riparian vegetation.

Within the study area, Feature 3-7 has approximately 407 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.074 acre. No USACE wetlands are associated with Feature 3-7. Feature 3-7 also contains 407 linear feet of channel that comprise 0.167 acre of CDFW streambed and 0.014 acre of CDFW riparian vegetation.

5.1.3.7 Feature 3-8

Feature 3-8 (Sutro Ditch) is the main channel in the study area that flows under Chuckwalla Valley Road Bridge. It is a large ephemeral sandy wash that originates outside of the study area and flows generally in the southwest to northeast direction. Within the upstream portion (south of Chuckwalla Valley Road) of the study area Sutro Ditch contains multiple low-flow channels within a relatively wide active floodplain that coalesce into a single low-flow and confined channel where it passes under Chuckwalla Valley Road. Sutro Ditch also receives road runoff inputs via Feature 3-7 before it conveys flows under the bridge. Downstream of Chuckwalla Valley Road the feature widens again and maintains a single channel to the downstream extent of the study area. Human-made diversion dikes on either side of the channel confine flows in the bridge area.

Feature 3-8 is sparsely vegetated with creosote bush scrub and desert wash. The feature has relatively unvegetated low-flow channels with banks and terraces within the channel's active floodplain dominated by creosote bush (UPL), palo verde (FAC), and cheesebush (UPL). SP 2 was taken at Feature 3-8 adjacent to a large palo verde tree and was determined not to contain a wetland due to lack of sufficient hydrophytic vegetation and lack of hydric soils.

The OHWM associated with Feature 3-8 ranges from 56 to 96 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, change in vegetation cover, and

debris rack. CDFW jurisdiction ranges from 56 to 175 feet in width and was measured as the top of bank where the diversion dikes are located and the extent of riparian vegetation which includes athel tamarisk, palo verde, and honey mesquite.

Within the study area, Feature 3-8 has approximately 423 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.696acre. No USACE wetlands are associated with Feature 3-8. Feature 3-8 also contains 423 linear feet of channel that comprise 0.848 acre of CDFW streambed and 0.213 acre of CDFW riparian vegetation.

5.1.3.8 Feature 3-9

Feature 3-9 is a small shallow ephemeral sandy channel that originates from road runoff within the study area and flows in the general southwest to northeast direction. The feature conveys flows from road runoff along the north side of Chuckwalla Valley Road west of the bridge.

Feature 3-9 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), white bursage (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 3-9 is approximately 3 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 4 feet in width and was measured as the top of bank, as well as the extent of riparian vegetation.

Within the study area, Feature 3-9 has approximately 0.018 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 263 acre. No USACE wetlands are associated with Feature 3-9. Feature 3-9 also contains 264 linear feet of channel that comprise 0.023 acre of CDFW streambed and 0.005 acre of CDFW riparian vegetation.

5.1.3.9 Feature 3-10

Feature 3-10 is a small shallow ephemeral sandy channel that originates from road runoff within the study area and flows in the general south to north direction. The feature conveys flows from road runoff along the north side of Chuckwalla Valley Road east of the bridge.

Feature 3-10 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), white bursage (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 3-10 is approximately 3 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 4 feet in width and was measured as the top of bank.

Within the study area, Feature 3-10 has approximately 180 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.012 acre. No USACE wetlands are associated with Feature 3-10. Feature 3-10 also contains 180 linear feet of channel comprising 0.016 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 3-10.

5.1.4 Acari Ditch Bridge (#56C0108)

A total of 11 features were delineated within the study area for the Acari Ditch Bridge (#56C0108). All of the features are sandy drainages typical of arid fluvial systems. In the vicinity of the study area, two large earthen diversion dikes (Feature 3-8) redirect flows from the various desert channels southwest of Chuckwalla Valley Road toward the bridge.

These features, along with the associated USACE, RWQCB, and CDFW agency jurisdiction, are summarized in Table 5-5 and described in detail in the subsections below. All 11 features are depicted on Figure 7-Sheet 4 and Figure 8-Sheet-4 in Appendix A.

Table 5-5. Summary of Potential USACE, RWQCB, and CDFW Jurisdiction at Acari Ditch Bridge (#56C0108)

Feature Type	Feature Description	USACE/RWQCB Non-Wetland WoUS/WoS (acres/linear feet)	USACE/RWQCB Wetland WoUS/WoS (acres/ linear feet)	CDFW Streambed (acres/linear feet)	CDFW Riparian (acres)
Feature 4-1	Small shallow ephemeral sandy channel that originates outside of the study area; sparsely vegetated with creosote bush scrub and desert pavement and is dominated by creosote bush, honey mesquite, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover.	0.018/254	-	0.029/254	-
Feature 4-2	Small ephemeral sandy channel that originates outside the study area; sparsely vegetated with creosote bush, white bursage, and combseed; OHWM is defined by a break in slope, change in sediment size, and change in vegetation cover.	0.021/197	-	0.026/196	-
Feature 4-3	Small ephemeral sandy channel that originates outside of the study area; sparsely vegetated with creosote bush scrub and is dominated by creosote bush, palo verde, and cheesebush; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover.	0.165/164	-	0.175/165	0.006
Feature 4-4	Acari Ditch, a larger sandy ephemeral drainage contains multiple channels within a relatively wide active floodplain that coalesce into a single low-flow and confined channel where it passes under Chuckwalla Valley Road. Downstream of Chuckwalla Valley Road, the feature widens again and maintains a single channel to the downstream extent of the study area; primarily unvegetated low-flow channels with banks and terraces within the channel’s active floodplain dominated by creosote bush, palo verde, and cheesebush; OHWM is defined by a break in slope, sediment deposition, change in sediment size, change in vegetation cover, and debris rack). SP 4 was taken near the base of a large palo verde tree.	0.587/303	-	0.751/303	0.099

Feature Type	Feature Description	USACE/RWQCB Non-Wetland WoUS/WoS (acres/linear feet)	USACE/RWQCB Wetland WoUS/WoS (acres/ linear feet)	CDFW Streambed (acres/linear feet)	CDFW Riparian (acres)
Feature 4-5	Small shallow ephemeral sandy channel that originates outside the study area; sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), desert dandelion (<i>Malacothrix glabrata</i> , UPL), and combseed; OHWM is defined by a break in slope, change in sediment size, debris rack, and change in vegetation cover; SP 3 was taken at a low point in the area containing shallow cracked soils and a higher cover of vegetation consisting of honey mesquite, cheesebush, and combseed.	0.011/162	-	0.015/162	-
Feature 4-6	Small shallow ephemeral sandy channels that originate from road runoff within the study area; sparsely vegetated with creosote bush scrub and vegetated by creosote bush, desert dandelion, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover.	0.001/46	-	0.002/41	-
Feature 4-7	Small shallow ephemeral sandy channels that originate from road runoff within the study area; sparsely vegetated with creosote bush scrub and vegetated by creosote bush, desert dandelion, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover.	0.007/97	-	0.011/97	-
Feature 4-8	Small shallow ephemeral sandy channel that originates from a swale along the north side of Chuckwalla Valley Road within the study area; sparsely vegetated with creosote bush, white bursage, and combseed; OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover.	0.003/68	-	0.006/70	-
Feature 4-9	Ephemeral shallow sandy channel that originates from road runoff within the study area and confluences with Feature 4-4; vegetated with creosote bush scrub cheesebush, and desert dandelion; OHWM is defined by a break in slope, change in sediment size, sediment deposition, and change in vegetation cover.	0.445/449	-	0.465/449	0.004

Feature Type	Feature Description	USACE/RWQCB Non-Wetland WoUS/WoS (acres/linear feet)	USACE/RWQCB Wetland WoUS/WoS (acres/ linear feet)	CDFW Streambed (acres/linear feet)	CDFW Riparian (acres)
Feature 4-10	Shallow ephemeral sandy channel that originate from Feature 4-9 within the study area; vegetated with creosote bush scrub and are dominated by creosote bush, cheesebush, and desert dandelion; OHWM is defined by a break in slope, change in sediment size, sediment deposition, and change in vegetation cover.	0.033/82	-	0.036/79	-
Feature 4-11	Shallow ephemeral sandy channel that originate from Feature 4-9 within the study area; vegetated with creosote bush scrub and are dominated by creosote bush, cheesebush, and desert dandelion; OHWM is defined by a break in slope, change in sediment size, sediment deposition, and change in vegetation cover.	0.040/101	-	0.042/99	-
Total		1.331/1,923	-	1.559/1,915	0.108

5.1.4.1 Feature 4-1

Feature 4-1 is a small shallow ephemeral sandy channel that originates outside of the study area and flows in the general southwest to northeast direction until it reaches the low point along Chuckwalla Valley Road, where it then flows southeast and out of the study area.

Feature 4-1 is sparsely vegetated with creosote bush scrub and desert pavement and is dominated by creosote bush (UPL), honey mesquite (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 4-1 is approximately 3 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 5 feet in width and was measured as the top of bank.

Within the study area, Feature 4-1 has approximately 254 linear feet of USACE/RQWCB non-wetland WoUS/WoS comprising 0.018 acre. No USACE wetlands are associated with Feature 4-1. Feature 4-1 also contains 254 linear feet of channel comprising 0.029 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 4-1.

5.1.4.2 Feature 4-2

Feature 4-2 is a small ephemeral sandy channel that originates outside the study area and flows in a general southeast to northwest direction before turning northwest and merging with Feature 4-3.

Feature 4-2 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), white bursage (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 4-2 is approximately 15 feet in width as it enters the study area and narrows to approximately 3 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction ranges from approximately 4 to 16 feet in width and was measured as the top of bank.

Within the study area, Feature 4-2 has approximately 197 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.021 acre. No USACE wetlands are associated with Feature 4-2. Feature 4-2 also contains 196 linear feet of channel that comprise 0.026 acre of unvegetated streambed. No CDFW riparian vegetation is associated with Feature 4-2.

5.1.4.3 Feature 4-3

Feature 4-3 is a small ephemeral sandy channel that originates outside of the study area and flows in the general southwest to northeast direction. The feature contains several low flow channels that terminate on the north side of Chuckwalla Valley Road at a low point created by the diversion dike along Feature 4-4 (Acari Ditch) and the above grade road. Feature 4-2 conveys flows to Feature 4-3.

Feature 4-3 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), palo verde (FAC), and cheesebush (UPL). Due to lack of sufficient hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 4-3 ranges from 33 to 87 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover.

CDFW jurisdiction ranges from 38 to 92 feet in width and was measured at the top of bank, as well as the extent of riparian vegetation.

Within the study area, Feature 4-3 has approximately 164 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.165 acre. No USACE wetlands are associated with Feature 4-3. Feature 4-3 also contains 165 linear feet of channel that comprise 0.175 acre of CDFW streambed and 0.006 acre of CDFW riparian vegetation.

5.1.4.4 Feature 4-4

Feature 4-4 (Acari Ditch) is the main channel in the study area that flows under Chuckwalla Valley Road Bridge. It is a large ephemeral sandy wash that originates outside of the study area and flows generally in the southwest to northeast direction. Within the upstream portion (south of Chuckwalla Valley Road) of the study area, Acari Ditch contains multiple channels within a relatively wide active floodplain that coalesce into a single low-flow and confined channel where it passes under Chuckwalla Valley Road. Downstream of Chuckwalla Valley Road, the feature widens again and maintains a single channel to the downstream extent of the study area. Human-made diversion dikes on either side of the channel confine flows in the bridge area.

Feature 4-4 is sparsely vegetated with creosote bush scrub and desert wash. The feature has primarily unvegetated low-flow channels with banks and terraces within the channel's active floodplain dominated by creosote bush (UPL), palo verde (FAC), and cheesebush (UPL). SP 4 was taken at Feature 4-4 near the base of a large palo verde tree and was determined not to contain a wetland due to lack of hydric soils.

The OHWM associated with Feature 4-4 ranges from 49 to 136 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, change in vegetation cover, and debris rack. CDFW jurisdiction ranges from 49 to 178 feet in width was measured at the top of bank, where the diversion dikes are located, and the extent of riparian vegetation, which includes athel tamarisk, palo verde, and honey mesquite.

Within the study area, Feature 4-4 has approximately 303 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.587 acre. No USACE wetlands are associated with Feature 4-4. Feature 4-4 also contains 303 linear feet of channel that comprise 0.751 acre of CDFW streambed and 0.099 acre of CDFW riparian vegetation.

5.1.4.5 Feature 4-5

Feature 4-5 is a small shallow ephemeral sandy channel that originates outside the study area and flows in the general northwest to southeast direction before it terminates at a low point on the southwest side of the study area. The low point contains small shallow soil cracks (< 0.5 inch deep) and had a higher cover of shrubs including honey mesquite (UPL) and herbaceous plants.

Feature 4-5 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), desert dandelion (*Malacothrix glabrata*, UPL), and combseed (UPL). SP 3 was taken at a low point in the area containing shallow cracked soils and a higher cover of vegetation consisting of honey mesquite (UPL), cheesebush (UPL), and combseed (UPL). SP 3 was determined not to contain a wetland due to lack of hydrophytic vegetation and lack of hydric soils.

The OHWM associated with Feature 4-5 is approximately 3 feet in width. The OHWM is defined by a break in slope, change in sediment size, debris rack, and change in vegetation cover. CDFW jurisdiction is approximately 4 feet in width and was measured as the top of the bank.

Within the study area, Feature 4-5 has approximately 162 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.011 acre. No USACE wetlands are associated with Feature 4-5. Feature 4-5 also contains 162 linear feet of channel that comprise 0.015 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 4-5.

5.1.4.6 Features 4-6 and 4-7

Features 4-6 and 4-7 are small shallow ephemeral sandy channels that originate from road runoff within the study area and flow in the general southwest to northeast direction. Feature 4-6 conveys flows from road runoff along the north side of Chuckwalla Valley Road until it converges with Feature 4-7.

Feature 4-6 and 4-7 are sparsely vegetated with creosote bush scrub and vegetated by creosote bush (UPL), desert dandelion (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 4-6 is approximately 1 foot in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 2 feet in width and was measured as the top of the bank.

The OHWM associated with Feature 4-7 is approximately 5 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction and is approximately 5 feet in width and was measured as the top of the bank.

Within the study area, Feature 4-6 has approximately 46 linear feet of USACE non-wetland WoUS/WoS comprising 0.001 acre. No USACE wetlands are associated with Feature 4-6. Feature 4-6 also contains 41 linear feet of channel that comprise 0.002 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 4-6.

Within the study area, Feature 4-7 has approximately 97 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.007 acre. No USACE wetlands are associated with Feature 4-7. Feature 4-7 also contains 97 linear feet of channel that comprise 0.006 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 4-7.

5.1.4.7 Feature 4-8

Feature 4-8 is a small shallow ephemeral sandy channel that originates from a swale along the north side of Chuckwalla Valley Road within the study area and flows in the general southwest to northeast direction.

Feature 4-8 is sparsely vegetated with creosote bush scrub and is dominated by creosote bush (UPL), white bursage (UPL), and combseed (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 4-8 is approximately 2 feet in width. The OHWM is defined by a break in slope, sediment deposition, change in sediment size, and change in vegetation cover. CDFW jurisdiction is approximately 4 feet in width and was measured as the top of bank.

Within the study area, Feature 4-8 has approximately 68 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.003 acre. No USACE wetlands are associated with Feature 4-8. Feature 4-8 also contains 70 linear feet of channel that comprise 0.006 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 4-8.

5.1.4.8 Feature 4-9

Feature 4-9 is an ephemeral shallow sandy channel that originates from road runoff within the study area and flows in the general northwest to southeast direction. The feature conveys flows from the north side of Chuckwalla Valley Road toward Feature 4-4 (Acari Ditch). Features 4-10 and 4-11 split from Feature 4-9 and convey flows northeast and parallel with Acari Ditch before exiting the study area.

Feature 4-9 is vegetated with creosote bush scrub and is dominated by creosote bush (UPL), cheesebush (UPL), and desert dandelion (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 4-9 ranges from 22 to 66 feet in width. The OHWM is defined by a break in slope, change in sediment size, sediment deposition, and change in vegetation cover. CDFW jurisdiction ranges from 32 to 81 feet in width and was measured as the top of bank as well as the extent of riparian vegetation.

Within the study area, Feature 4-9 has approximately 449 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.445 acre. No USACE wetlands are associated with Feature 4-9. Feature 4-9 also contains 449 linear feet of channel that comprise 0.465 acre of CDFW streambed and 0.004 acre of CDFW riparian vegetation.

5.1.4.9 Feature 4-10 and 4-11

Features 4-10 and 4-11 are shallow ephemeral sandy channels that originate from Feature 4-9 within the study area and flows in the general southwest to northeast direction.

Features 4-10 and 4-11 are vegetated with creosote bush scrub and are dominated by creosote bush (UPL), cheesebush (UPL), and desert dandelion (UPL). Due to lack of hydrophytic vegetation, no sample points were taken for wetlands.

The OHWM associated with Feature 4-10 and 4-11 ranges from 8 to 20 feet in width. The OHWM is defined by a break in slope, change in sediment size, sediment deposition, and change in vegetation cover. CDFW jurisdiction for both Features 4-10 and 4-11 ranges from 10 to 22 feet in width and was measured as the top of bank.

Within the study area, Feature 4-10 has approximately 82 linear feet of USACE non-wetland WoUS/WoS comprising 0.033 acre. No USACE wetlands are associated with Feature 4-10. Feature 4-10 also contains 79 linear feet of channel that comprise 0.036 acre of CDFW streambed. No CDFW riparian vegetation is associated with Feature 4-10.

Within the study area, Feature 4-11 has approximately 101 linear feet of USACE/RWQCB non-wetland WoUS/WoS comprising 0.040 acre. No USACE wetlands are associated with Feature 4-11. Feature 4-11 also contains 99 linear feet of channel that comprise 0.042 acre of CDFW unvegetated streambed. No CDFW riparian vegetation is associated with Feature 4-11.

5.2 Jurisdictional Determination Summary

All features observed within the study areas were delineated with the understanding that a request for a Preliminary JD would be submitted for the project. As such, all features exhibiting indicators of an OHWM were assumed to be jurisdictional WoUS/WoS, which are subject to regulation by the USACE under Section 404 of the CWA and the RWQCB under Section 401 of the CWA. All features observed within the study area would also be considered jurisdictional unvegetated streambeds and riparian-associated vegetation subject to regulation by CDFW under Section 1600 of the California Fish and Game Code.

5.3 List of Report Preparers/Reviewer

Marisa Flores, Senior Biologist—Report Reviewer; 14 years of experience

Paul Schwartz, Senior Biologist—Delineator and Report Reviewer; 13.5 years of experience

Marissa Maggio, Biologist—Report Author; 6 years of experience

Kristen Klinefelter, Biologist—Delineator and Report Author; 4.5 years of experience

Soraya Swiontek, GIS Analyst—GIS Analysis and Figures; 13 years of experience

Johnnie Garcia, GIS Analyst—GIS Analysis and Figures; 12.5 years of experience

Brittany Buscombe GIS Analyst—GIS, Analysis and Figures; 15 years of experience

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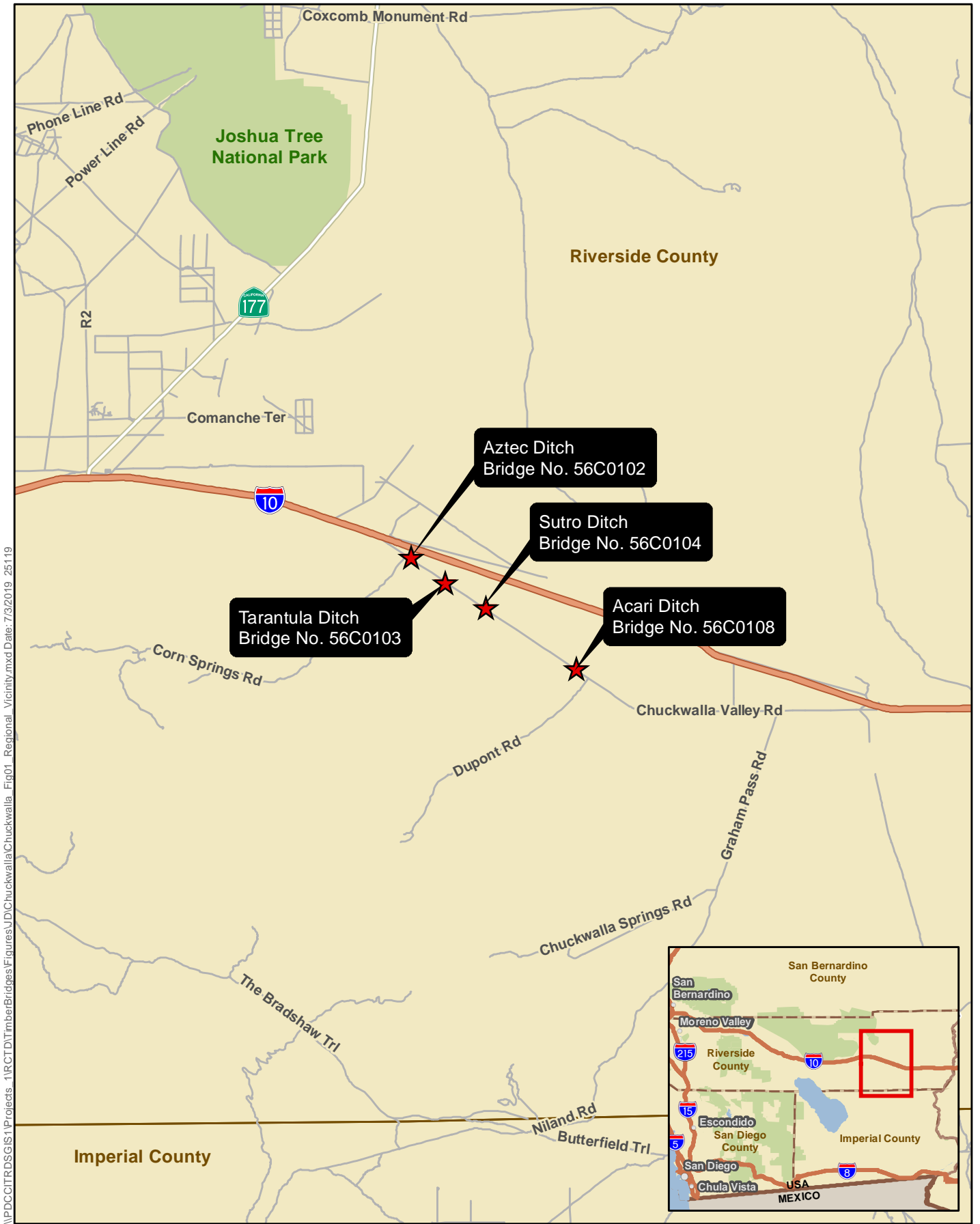
Appendix A

Jurisdictional Delineation Maps

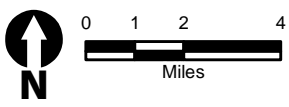
Appendix A Map List

- 1 Project Vicinity Map
- 2 Project Location Map
- 3 Water Resources Map
- 4 Watersheds Map
- 5 NRCS Soils Map
- 6 Vegetation
- 7 USACE/RWQCB Results Map
- 8 CDFW Results Map

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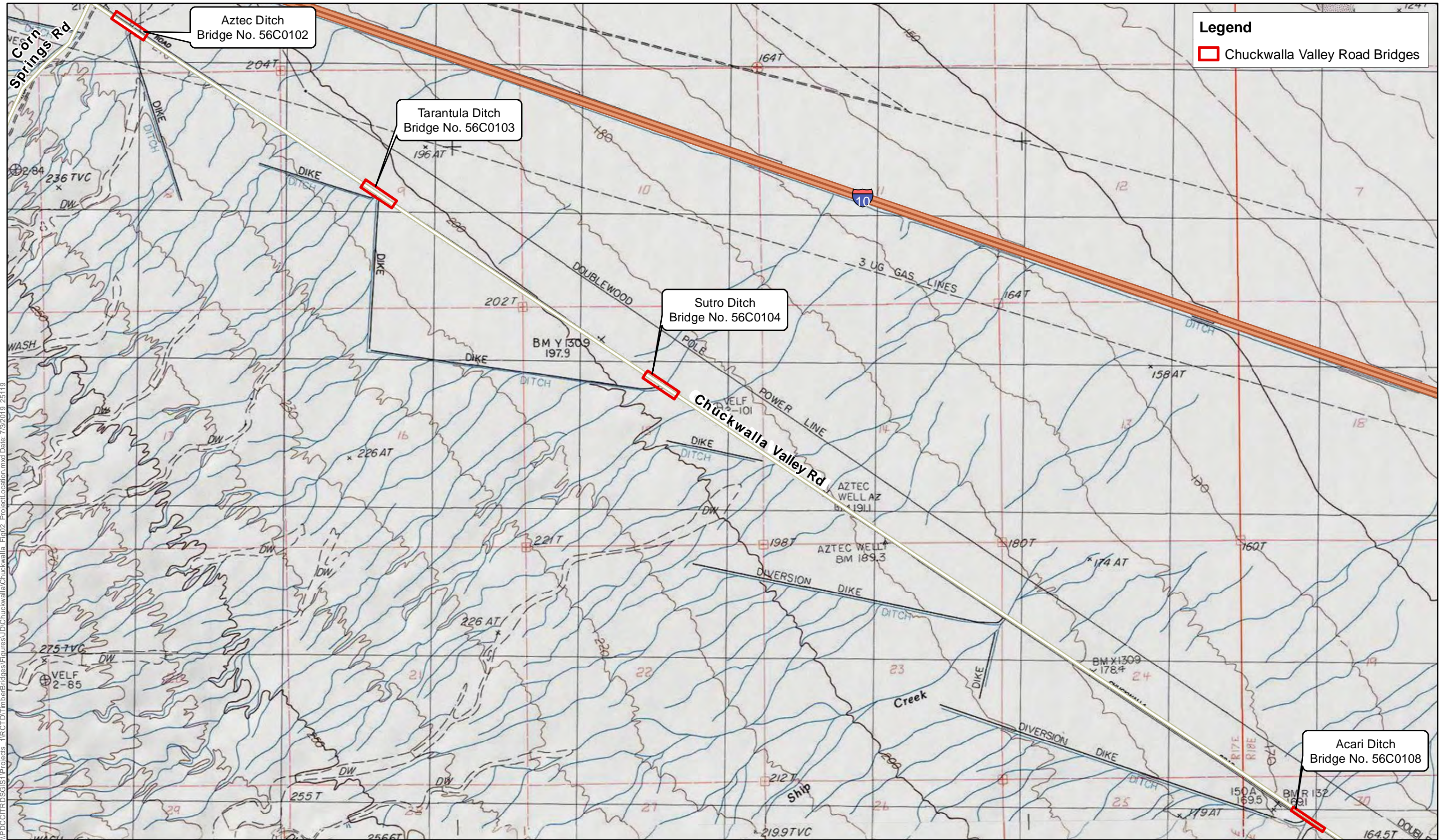


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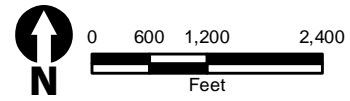


Source: ESRI StreetMap North America (2010)

Figure 1
Regional Vicinity Map
Chuckwalla Valley Road Bridge Replacement Project

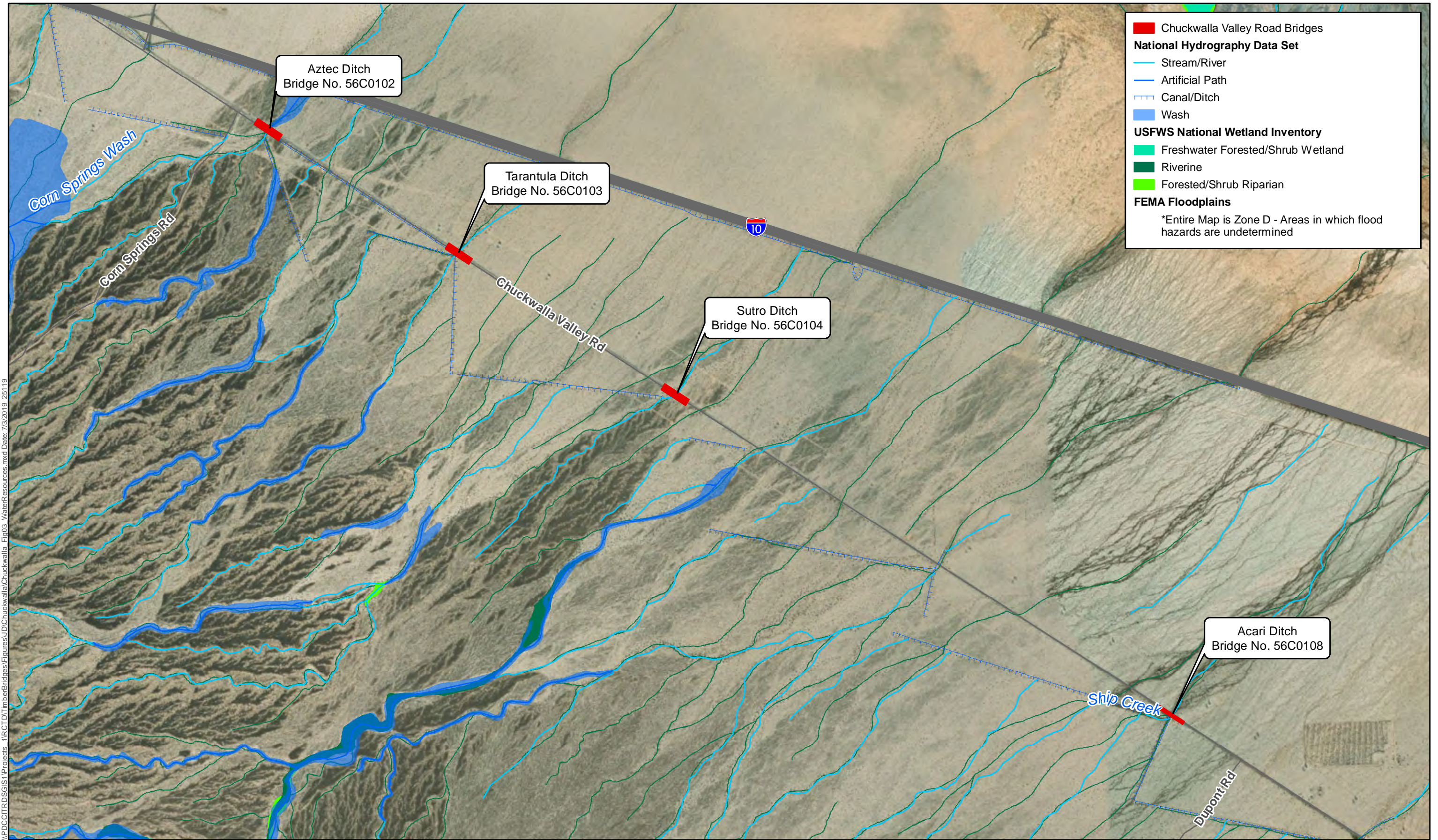


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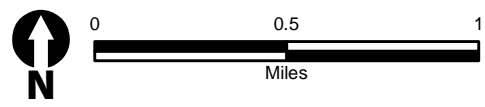


Source: USGS 7.5'
 Sidewinder Well & Aztec Mines

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

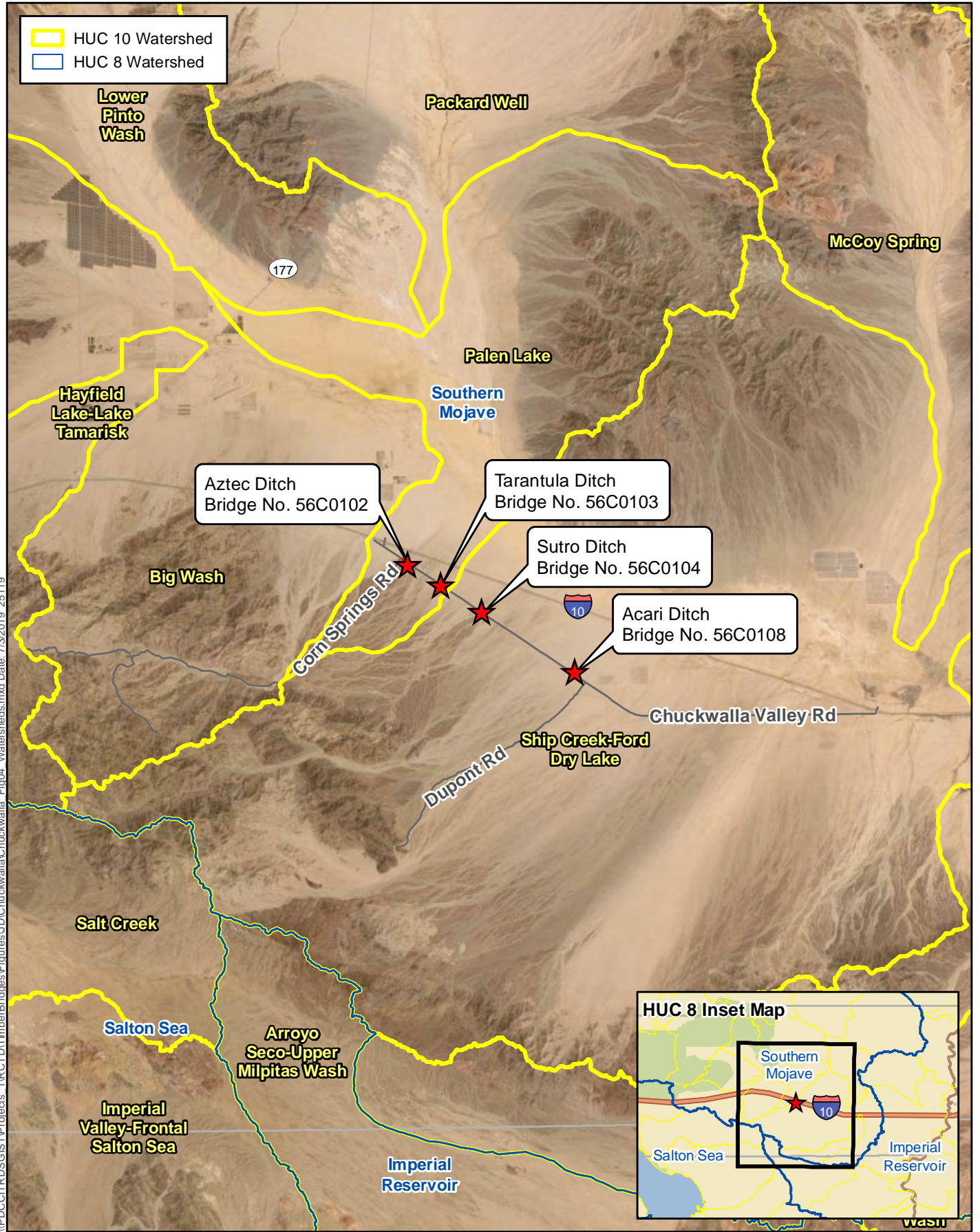


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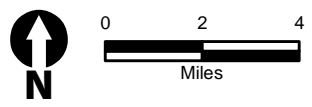


Source: ESRI Imagery (2016); FEMA Floodplains (2017); USFWS NWI Wetlands (2017); NHD (2018)

Figure 3
Water Resources Map
Chuckwalla Valley Road Bridge Replacement Project

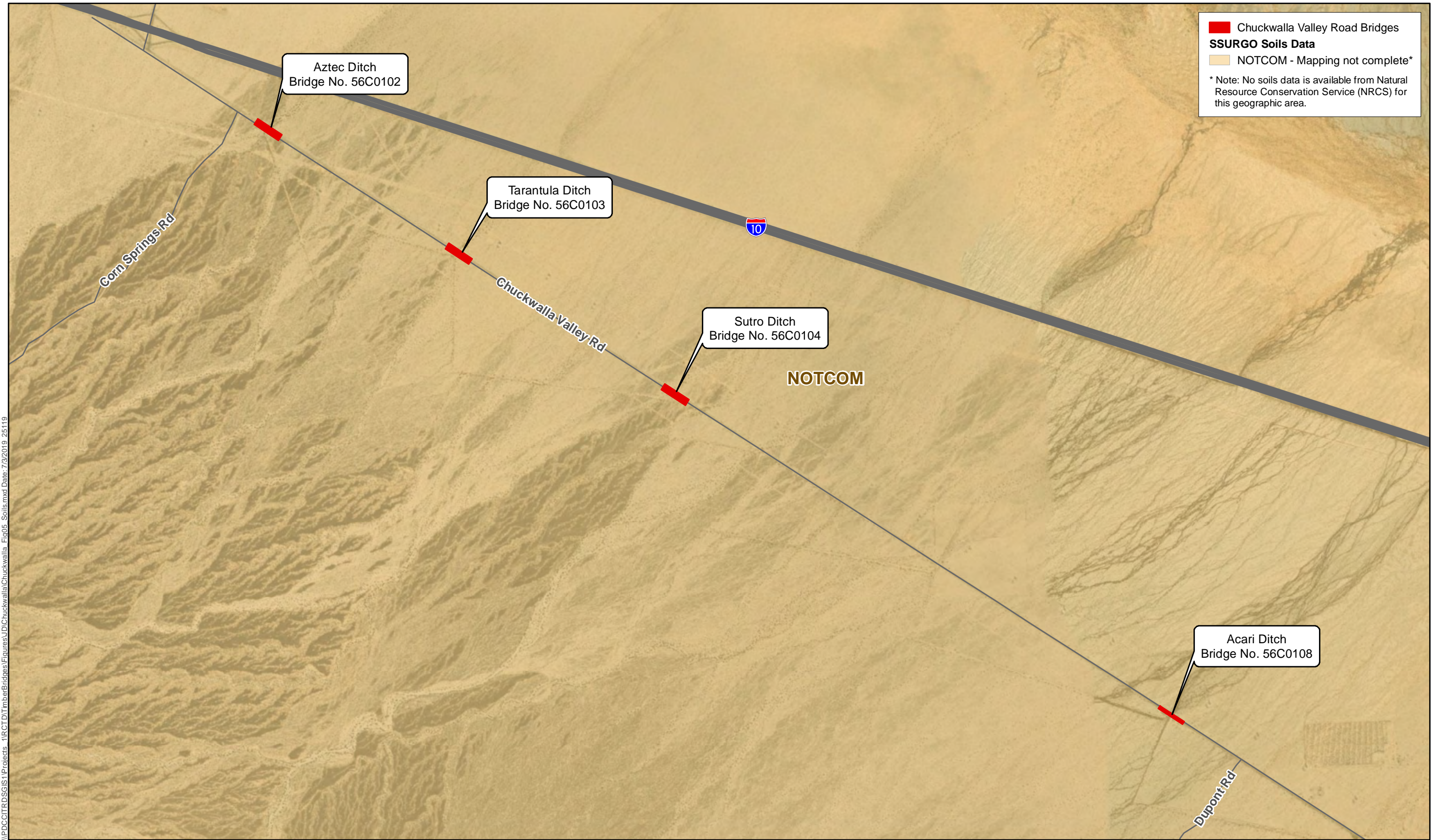


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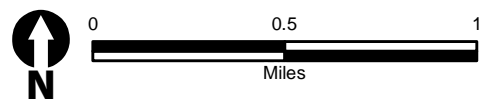


Source: ESRI Imagery (2016);
NHD (2018)

Figure 4
Watersheds
Chuckwalla Valley Road Bridge Replacement Project

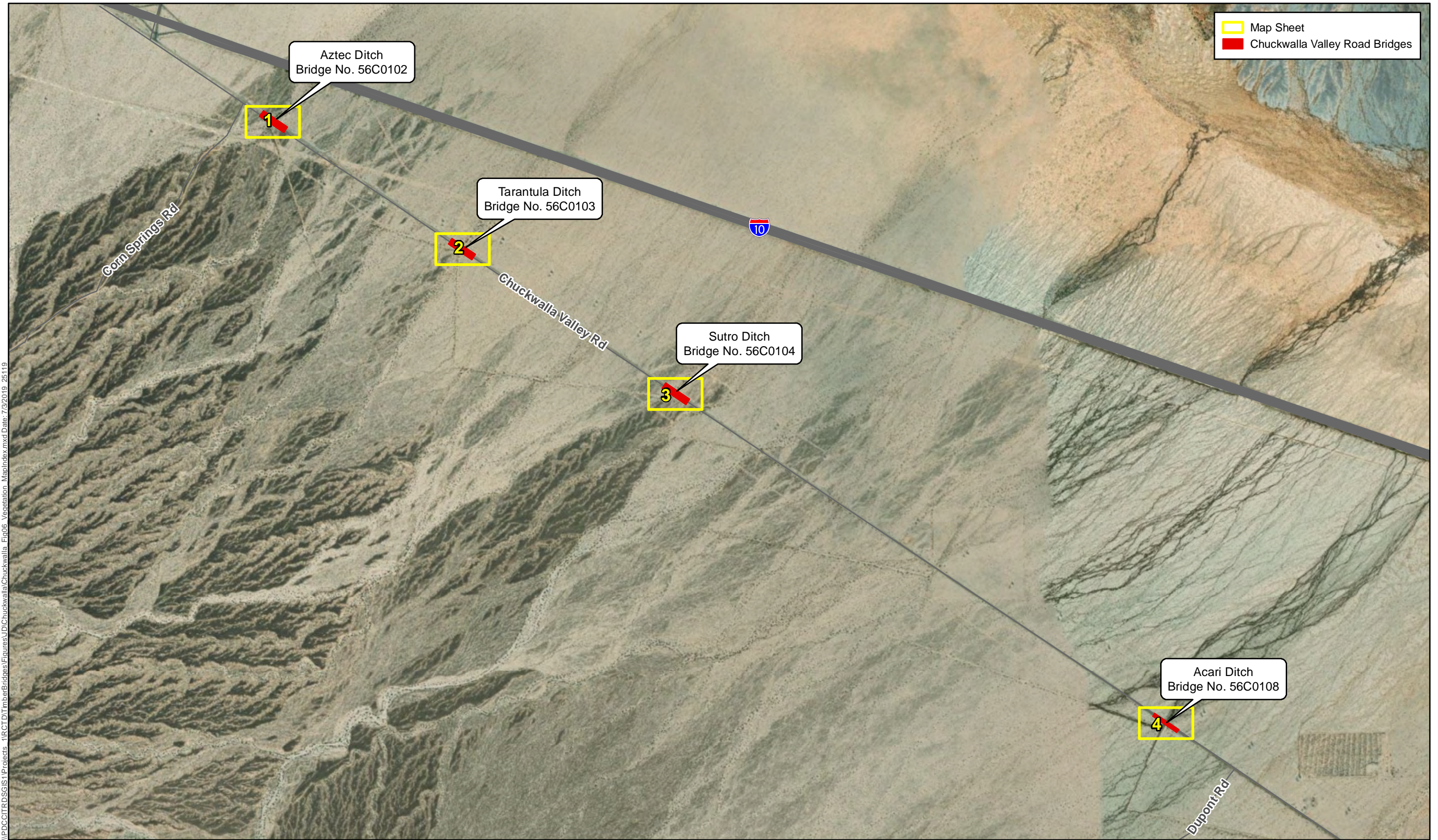


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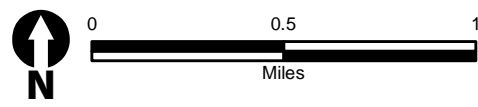


Source: ESRI Imagery (2016); SSURGO Soils

Figure 5
Soils Map
Chuckwalla Valley Road Bridge Replacement Project

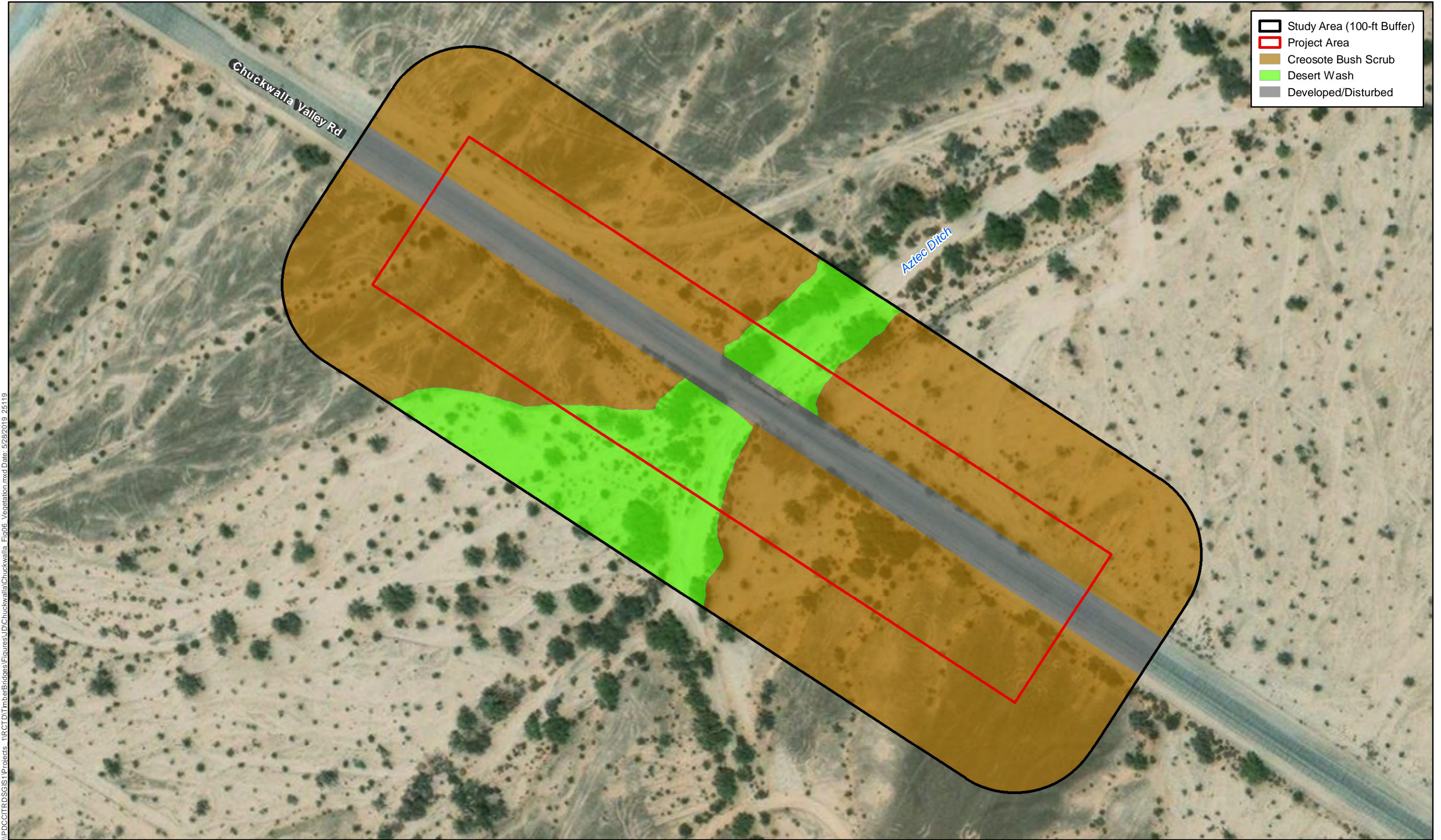


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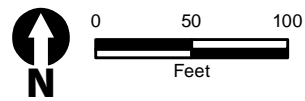


Source: ESRI Imagery (2016)

Figure 6 - Map Index
Vegetation Communities/Land Use Types
Chuckwalla Valley Road Bridge Replacement Project

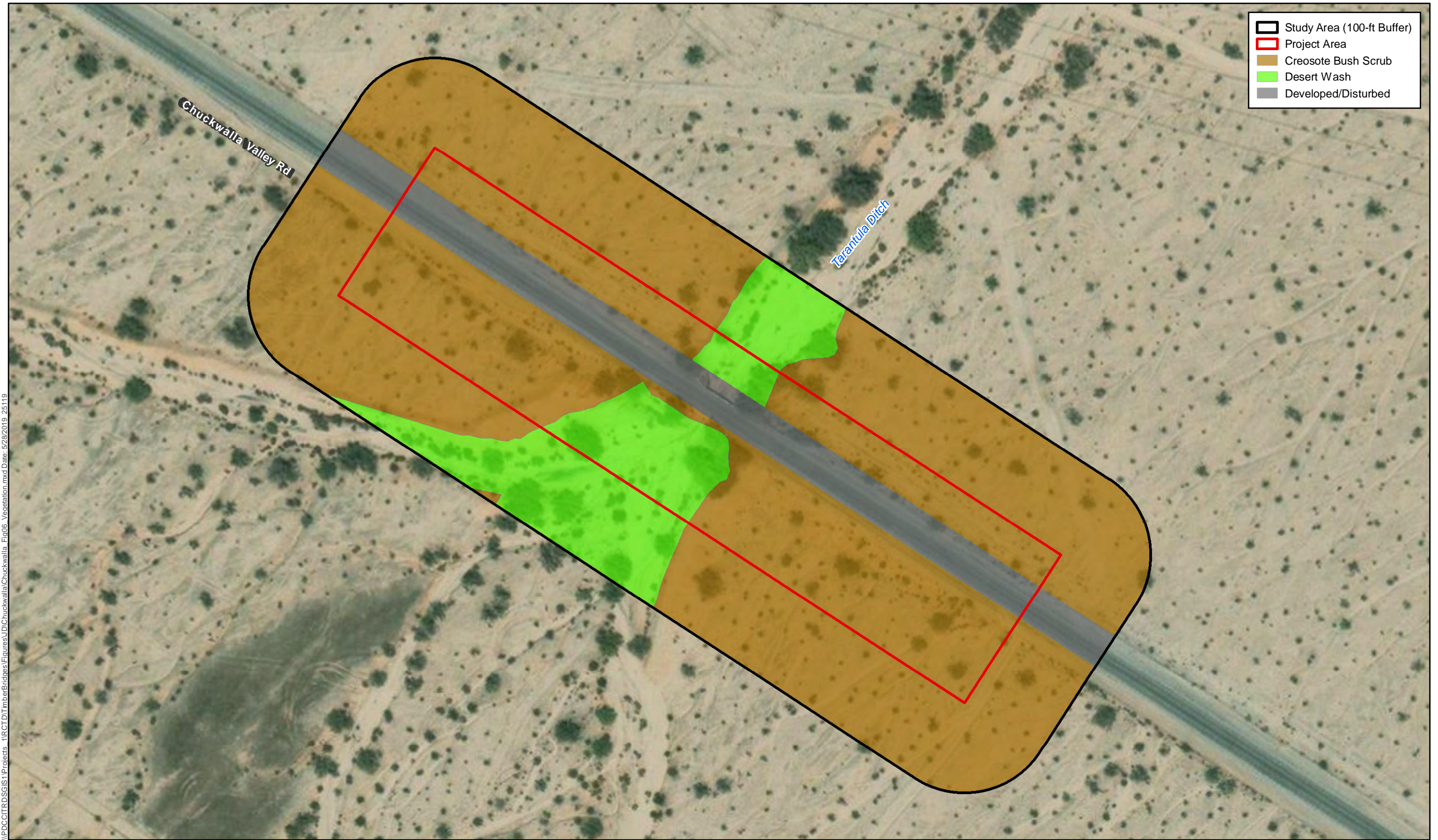


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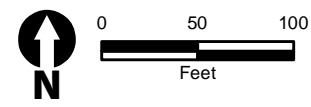
Source: ESRI Imagery (2016)

Figure 6 - Sheet 1
Vegetation Communities/Land Use Types - Bridge No. 56C0102 over Aztec Ditch
Chuckwalla Valley Road Bridge Replacement Project



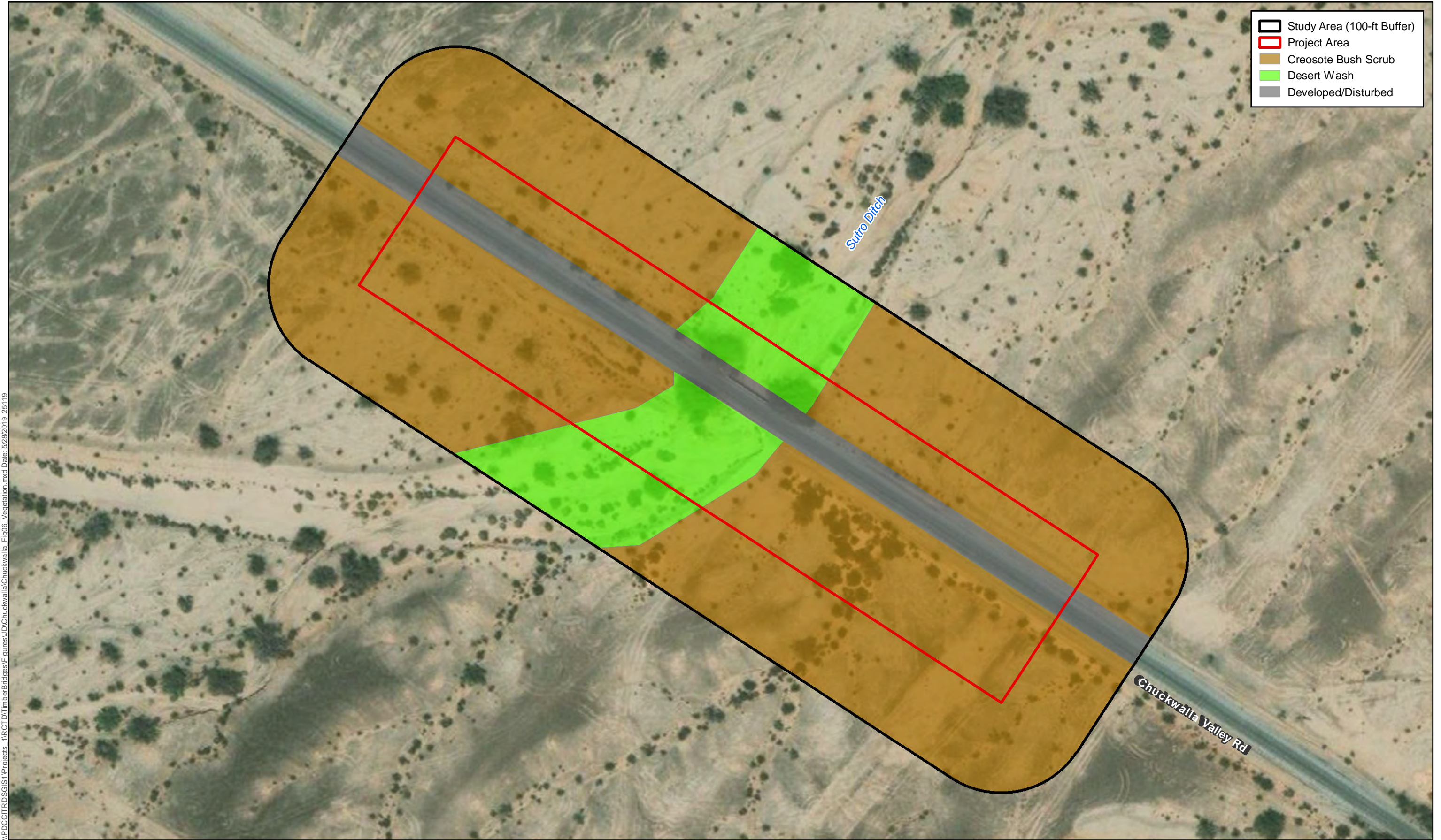
- Study Area (100-ft Buffer)
- Project Area
- Creosote Bush Scrub
- Desert Wash
- Developed/Disturbed

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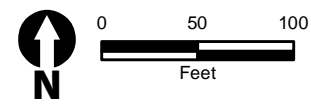
Source: ESRI Imagery (2016)

Figure 6 - Sheet 2
Vegetation Communities/Land UseTypes - Bridge No. 56C0103 over Tarantula Ditch
Chuckwalla Valley Road Bridge Replacement Project



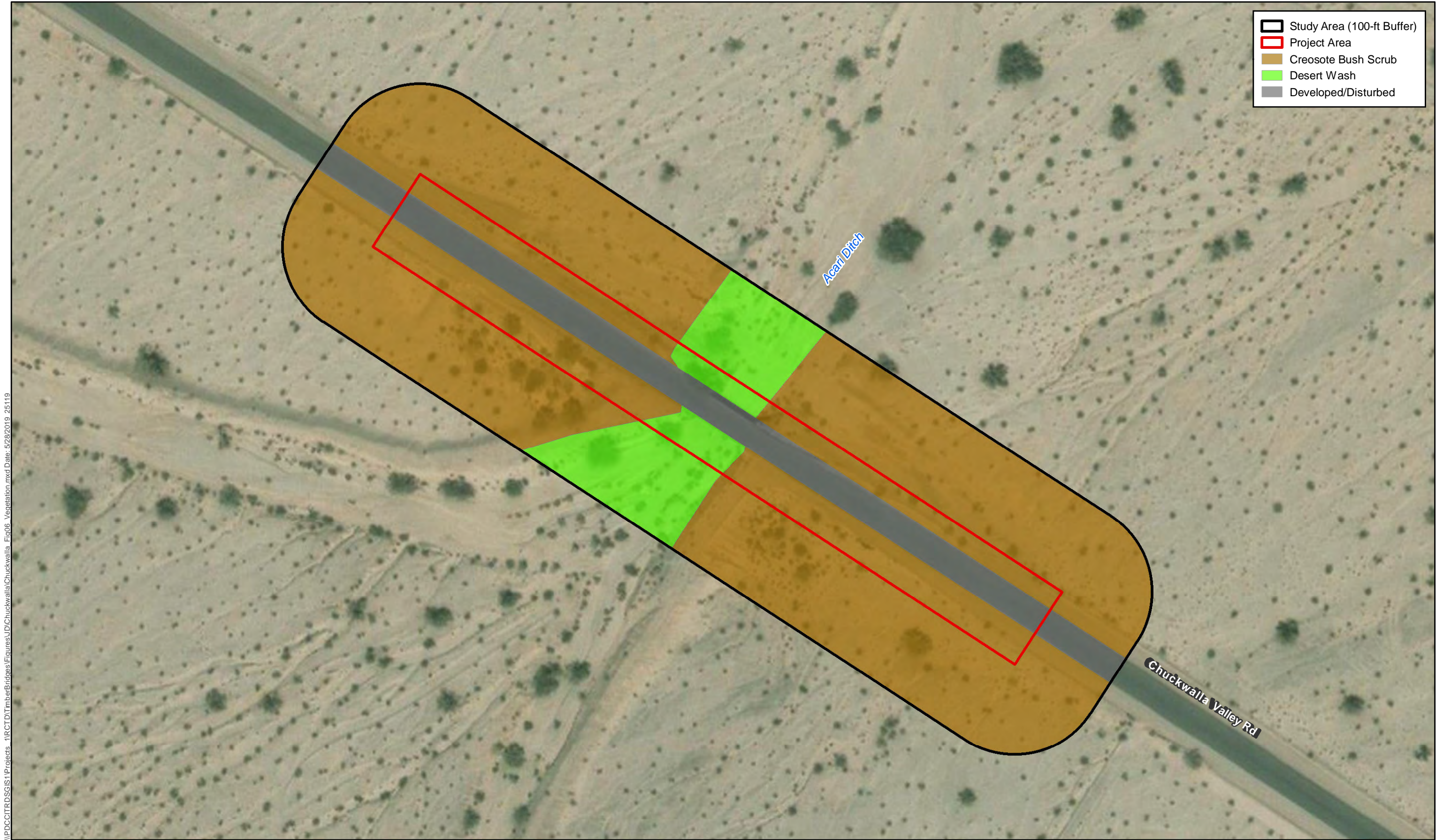
- Study Area (100-ft Buffer)
- Project Area
- Creosote Bush Scrub
- Desert Wash
- Developed/Disturbed

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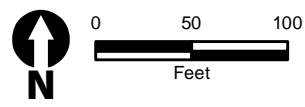


Source: ESRI Imagery (2016)

Figure 6 - Sheet 3
Vegetation Communities/Land Use Types - Bridge No. 56C0104 over Sutro Ditch
Chuckwalla Valley Road Bridge Replacement Project



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Source: ESRI Imagery (2016)

Figure 6 - Sheet 4
Vegetation Communities/Land UseTypes - Bridge No. 56C0108 over Acari Ditch
Chuckwalla Valley Road Bridge Replacement Project

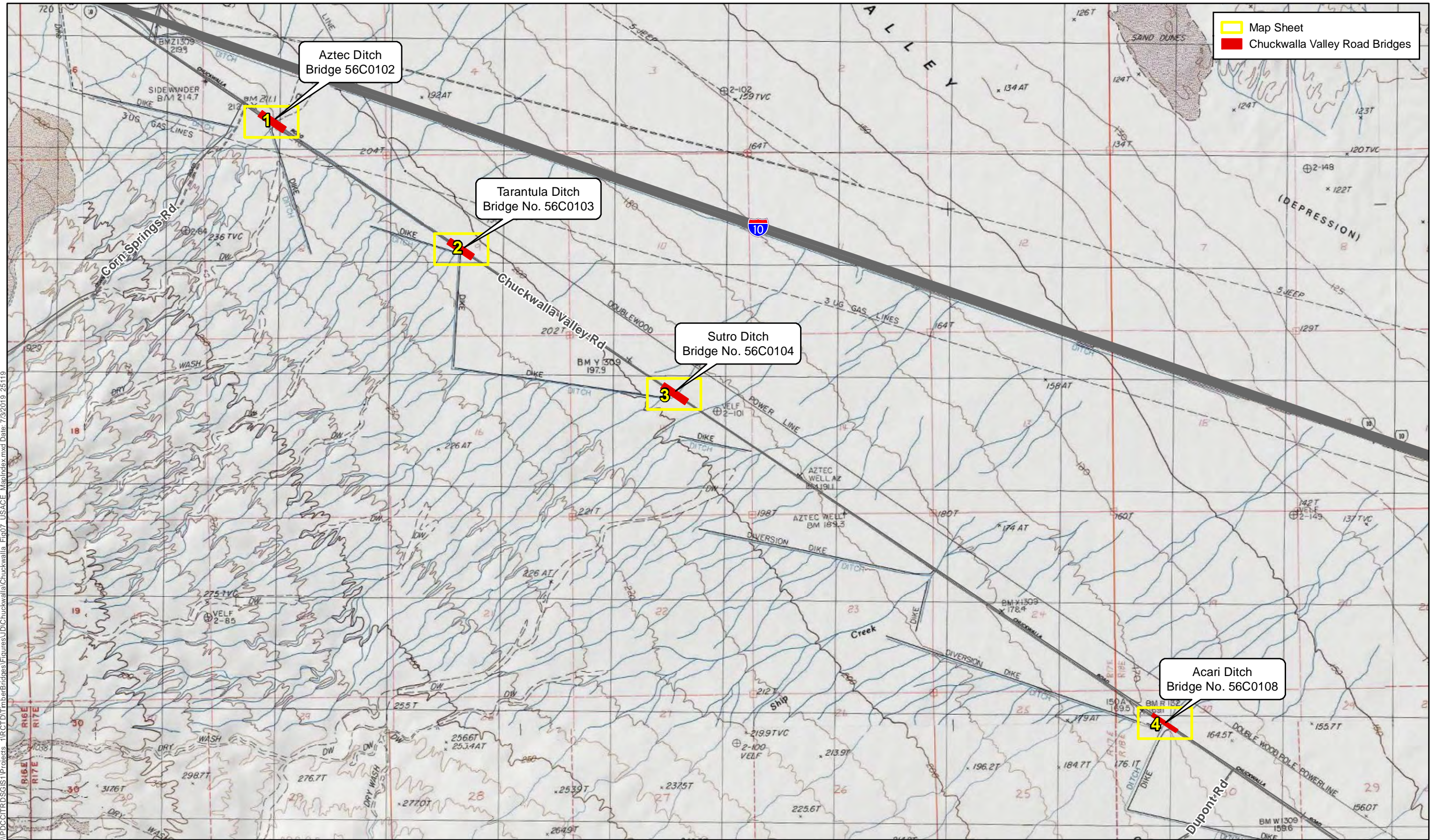
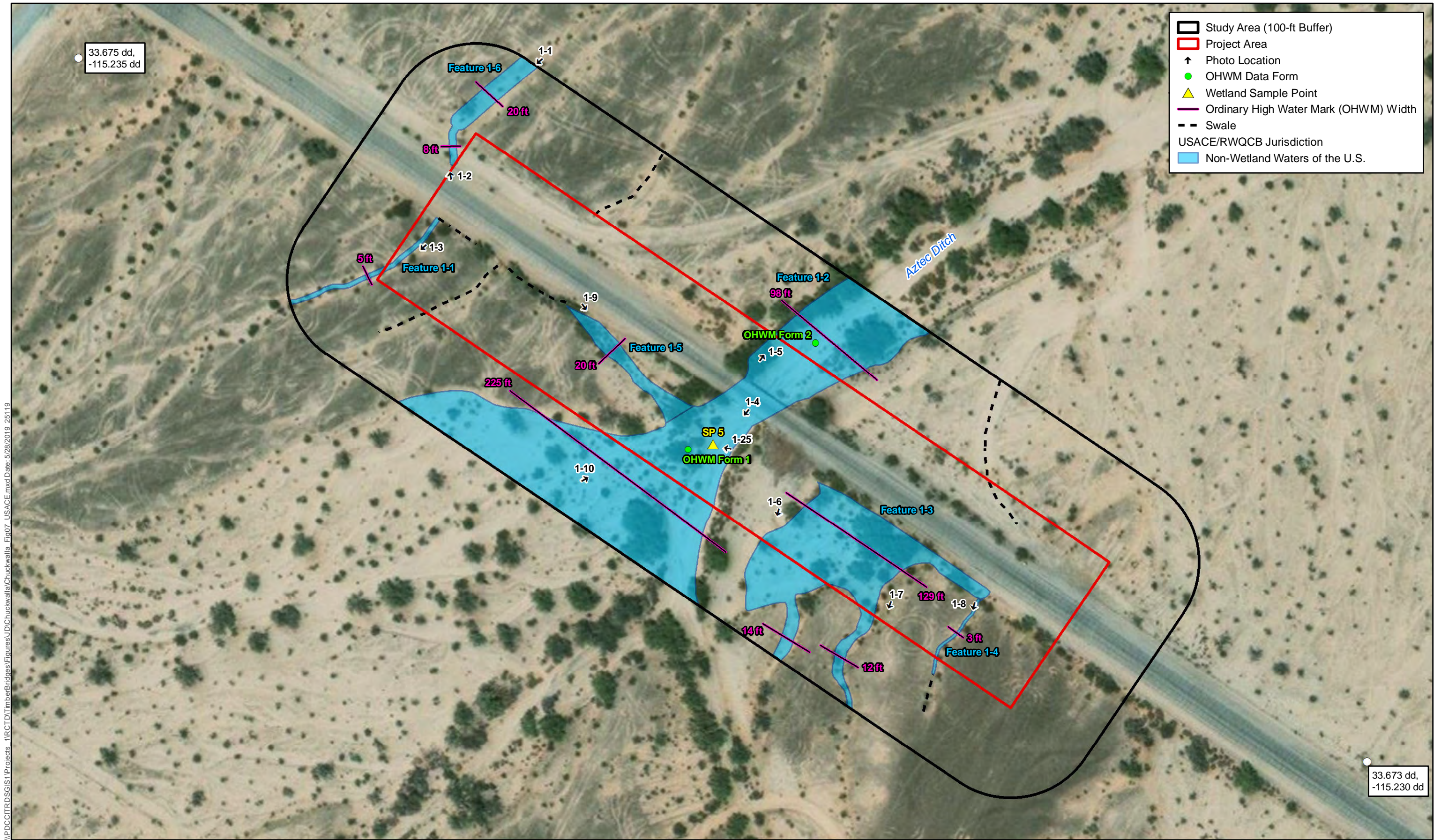
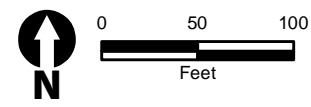


Figure 7 - Map Index
USACE/RWQCB Jurisdictional Results
Chuckwalla Valley Road Bridge Replacement Project



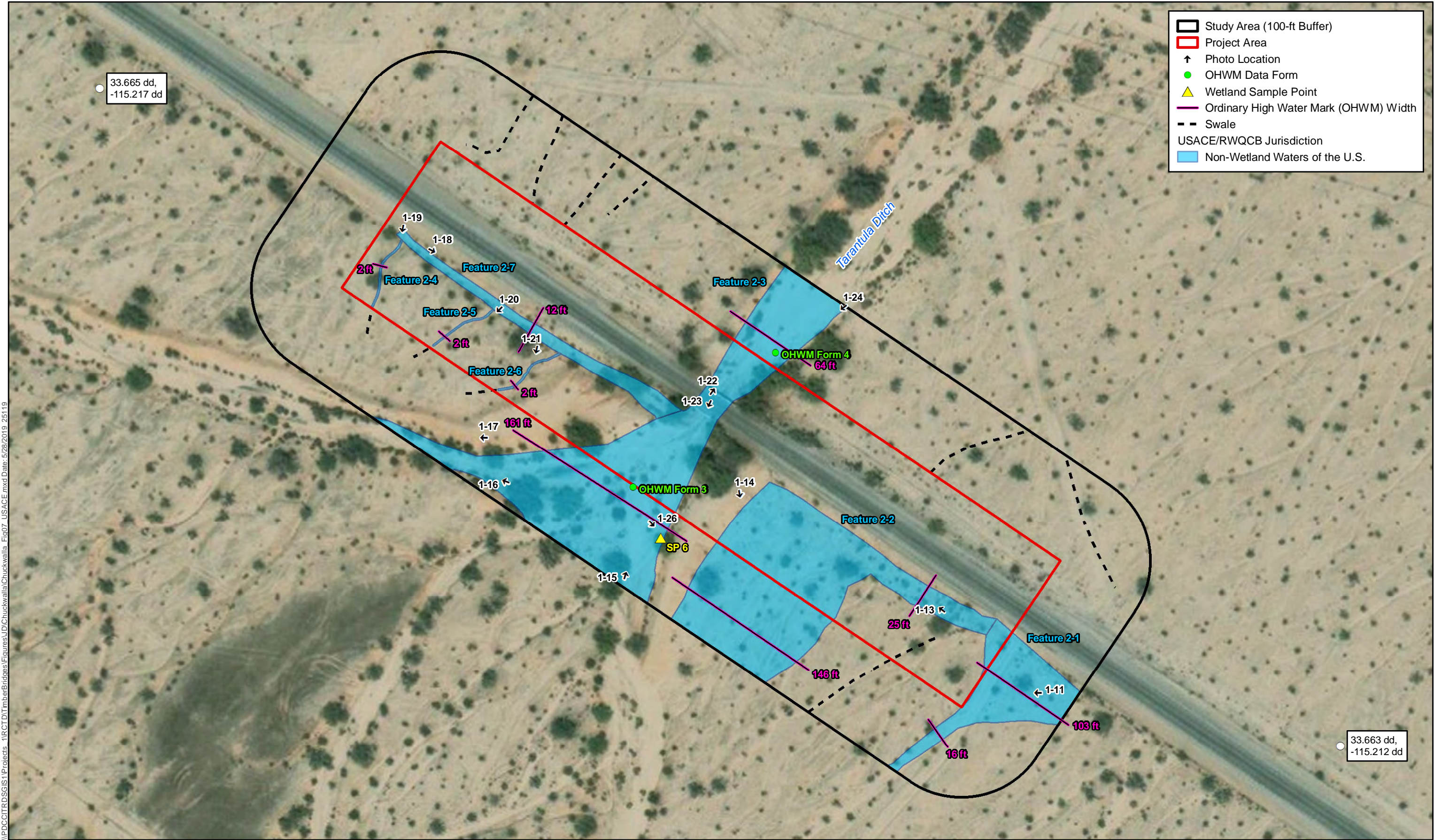
- Study Area (100-ft Buffer)
- Project Area
- Photo Location
- OHWM Data Form
- ▲ Wetland Sample Point
- Ordinary High Water Mark (OHWM) Width
- Swale
- USACE/RWQCB Jurisdiction
- Non-Wetland Waters of the U.S.

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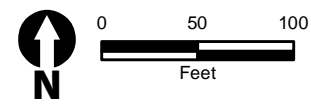
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Figure 7 - Sheet 1
USACE/RWQCB Jurisdictional Results - Bridge No. 56C0102 over Aztec Ditch
Chuckwalla Valley Road Bridge Replacement Project



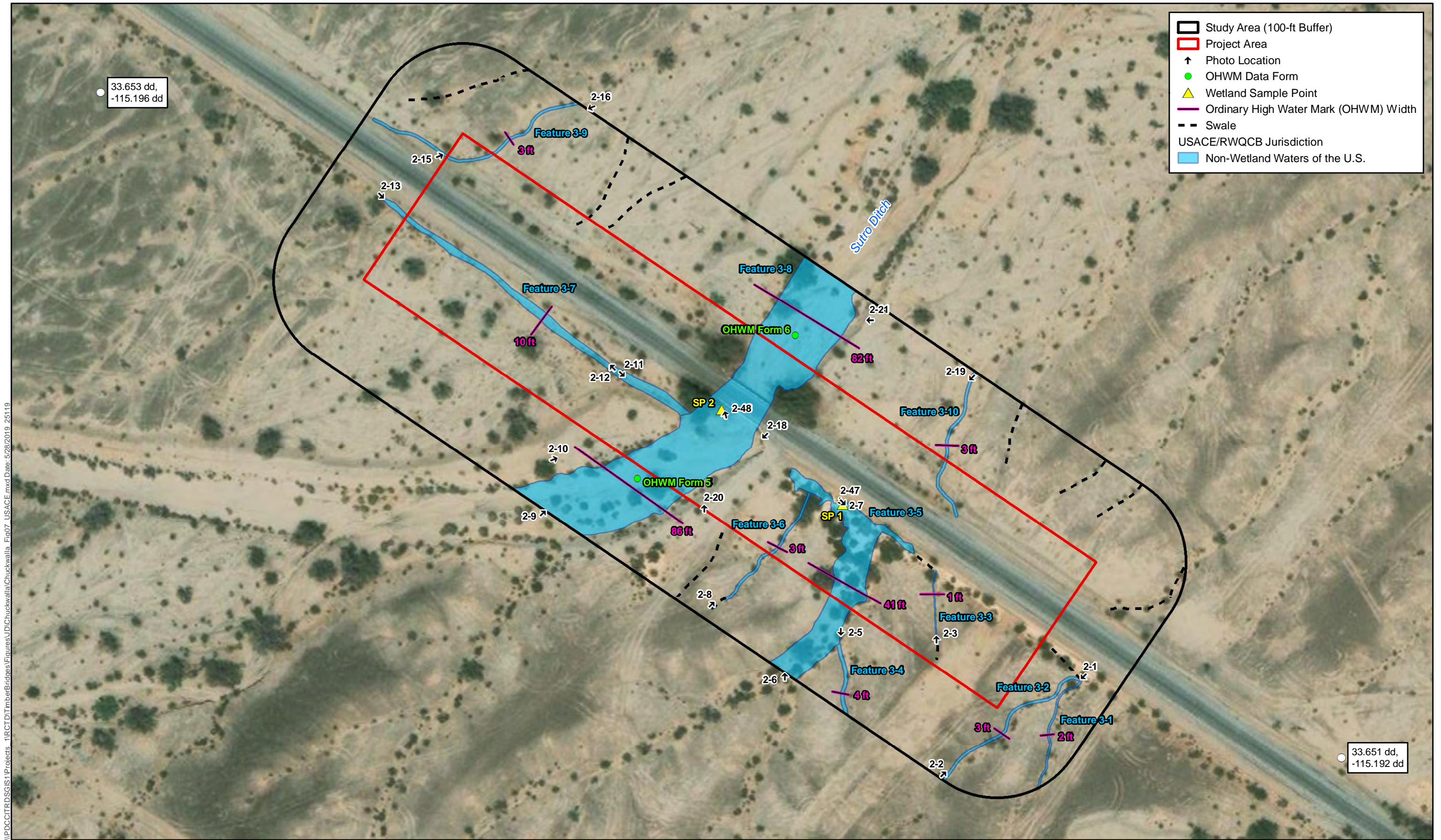
- Study Area (100-ft Buffer)
- Project Area
- Photo Location
- OHWM Data Form
- ▲ Wetland Sample Point
- Ordinary High Water Mark (OHWM) Width
- Swale
- USACE/RWQCB Jurisdiction
- Non-Wetland Waters of the U.S.

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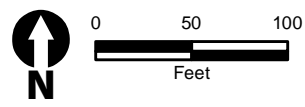
Source: ESRI Imagery (2016)

Figure 7 - Sheet 2
USACE/RWQCB Jurisdictional Results - Bridge No. 56C0103 over Tarantula Ditch
Chuckwalla Valley Road Bridge Replacement Project



- Study Area (100-ft Buffer)
- Project Area
- Photo Location
- OHWM Data Form
- ▲ Wetland Sample Point
- Ordinary High Water Mark (OHWM) Width
- Swale
- USACE/RWQCB Jurisdiction
- Non-Wetland Waters of the U.S.

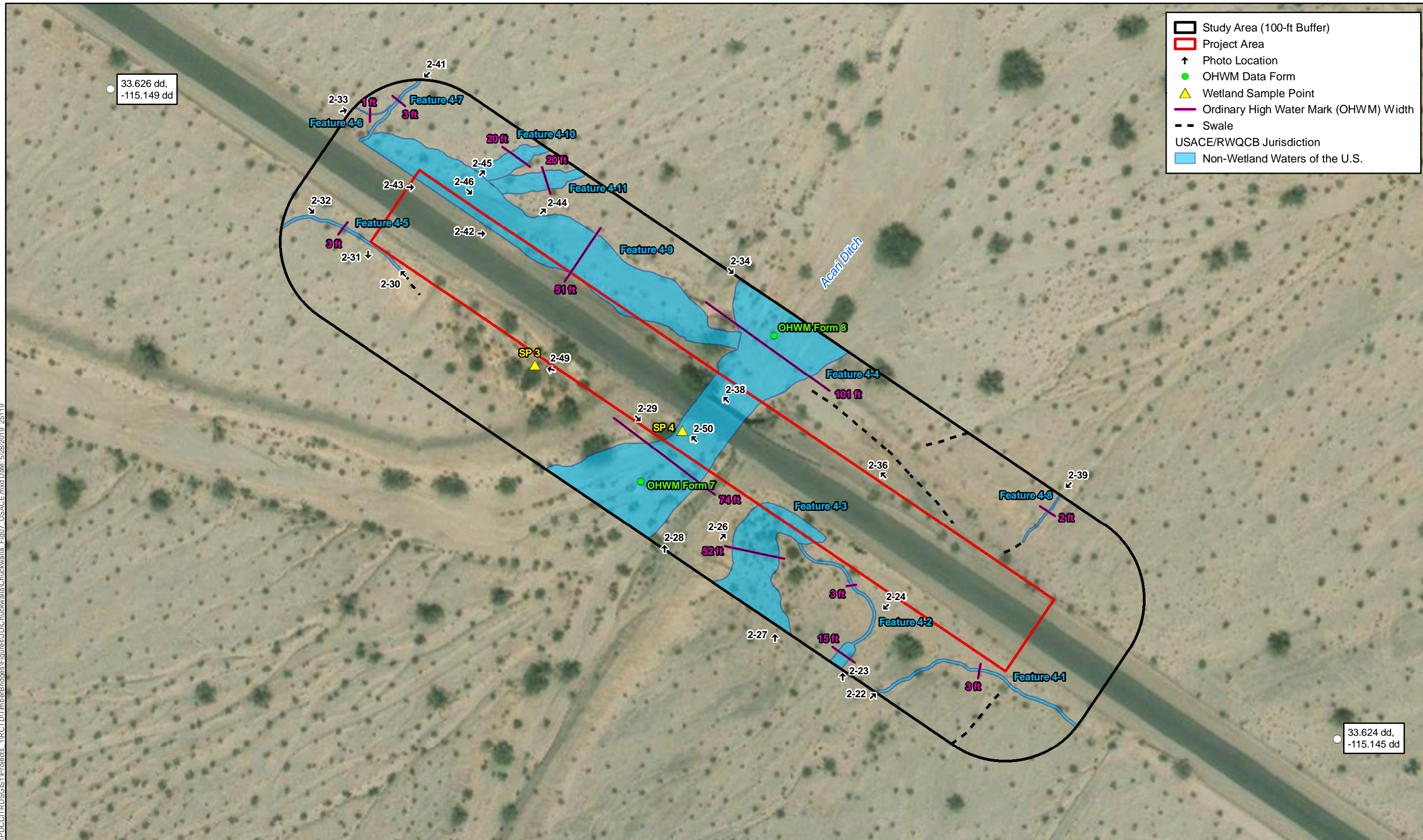
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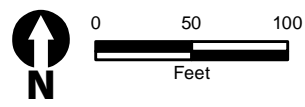
Source: ESRI Imagery (2016)

Figure 7 - Sheet 3
USACE/RWQCB Jurisdictional Results - Bridge No. 56C0104 over Sutro Ditch
Chuckwalla Valley Road Bridge Replacement Project

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- Study Area (100-ft Buffer)
- Project Area
- Photo Location
- OHWM Data Form
- ▲ Wetland Sample Point
- Ordinary High Water Mark (OHWM) Width
- Swale
- USACE/RWQCB Jurisdiction
- Non-Wetland Waters of the U.S.



Source: ESRI Imagery (2016)

Figure 7 - Sheet 4
USACE/RWQCB Jurisdictional Results - Bridge No. 56C0108 over Acari Ditch
Chuckwalla Valley Road Bridge Replacement Project

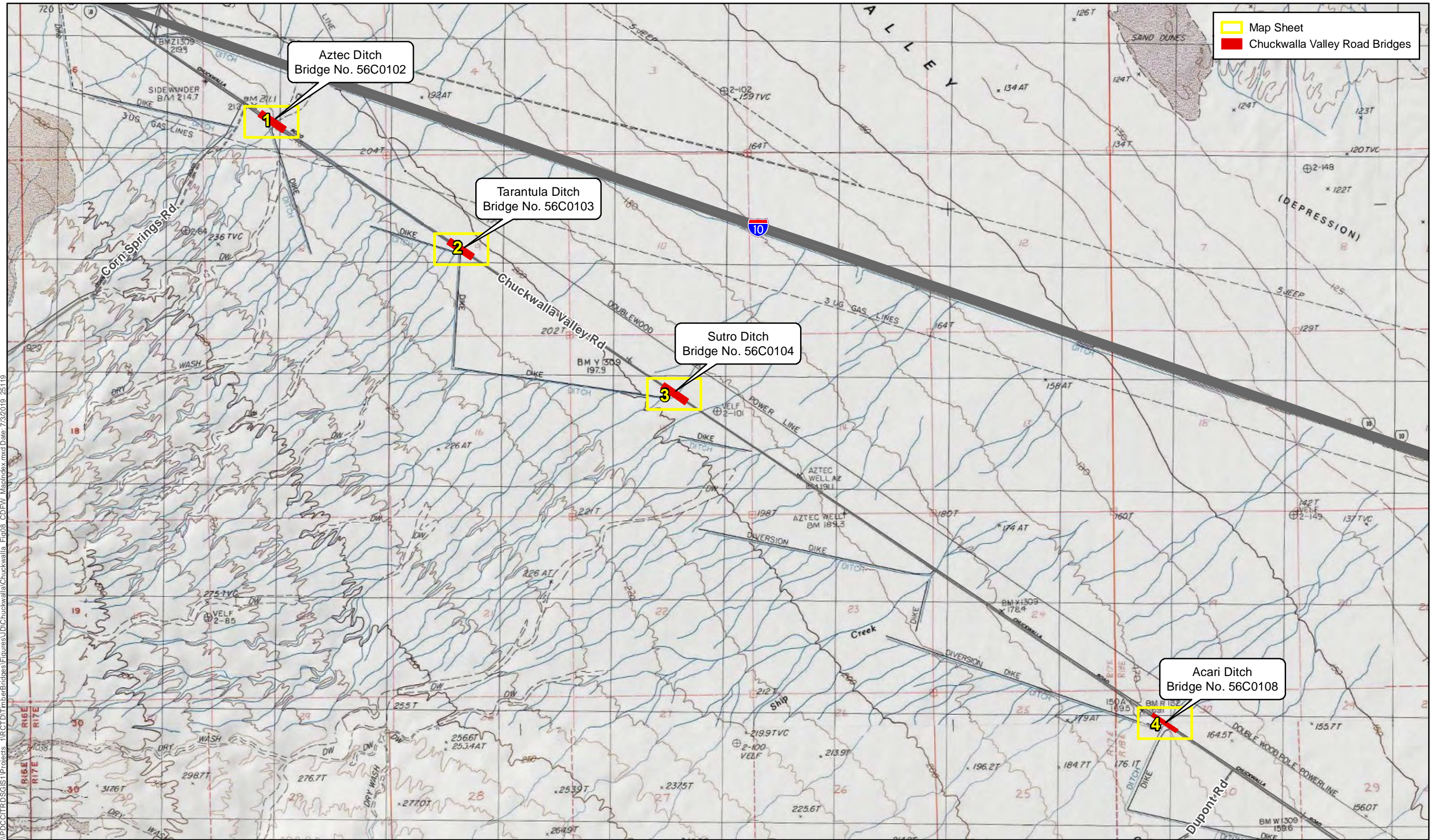
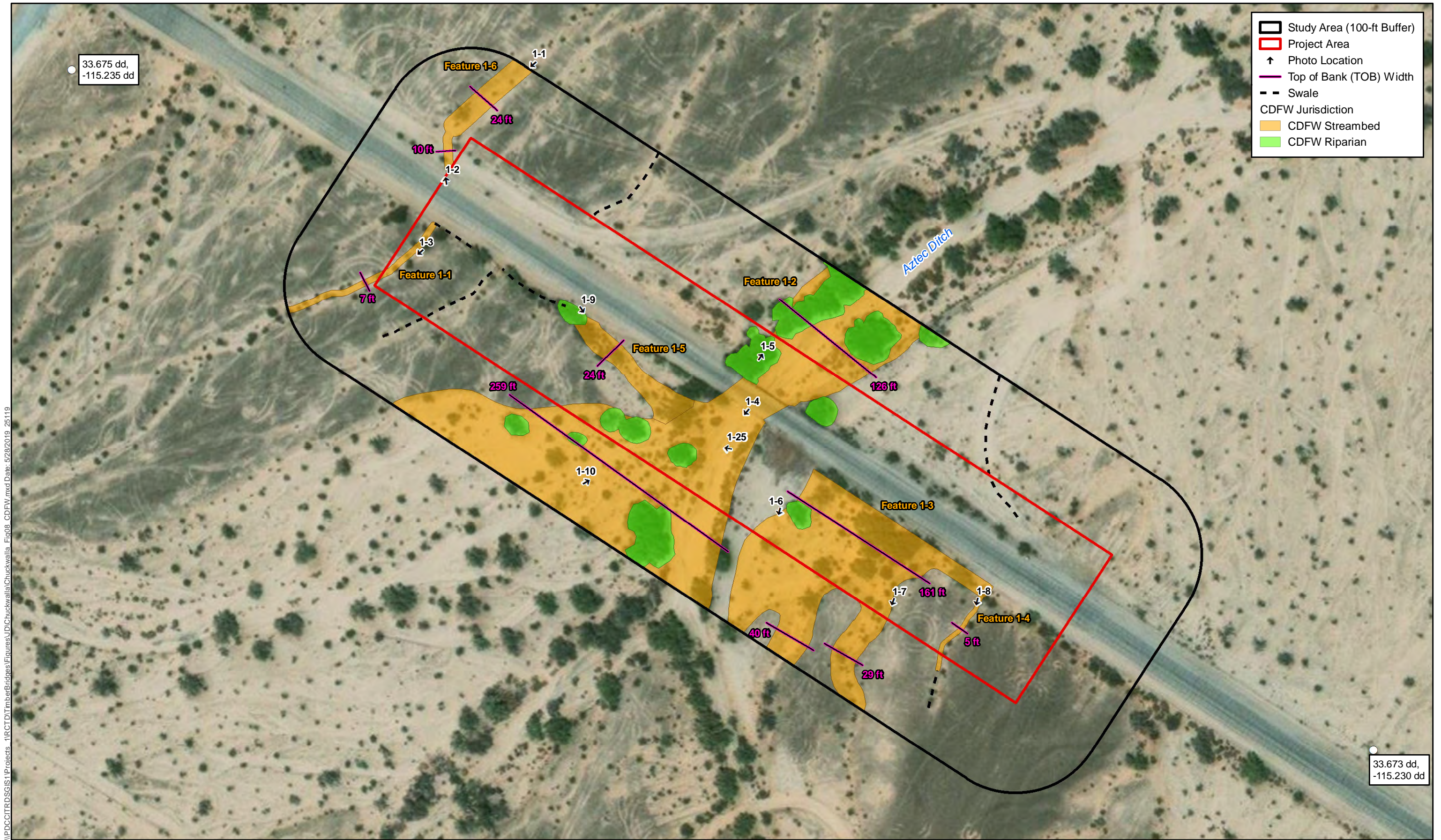
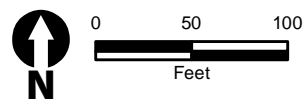


Figure 8 - Map Index
CDFW Jurisdictional Results
Chuckwalla Valley Road Bridge Replacement Project

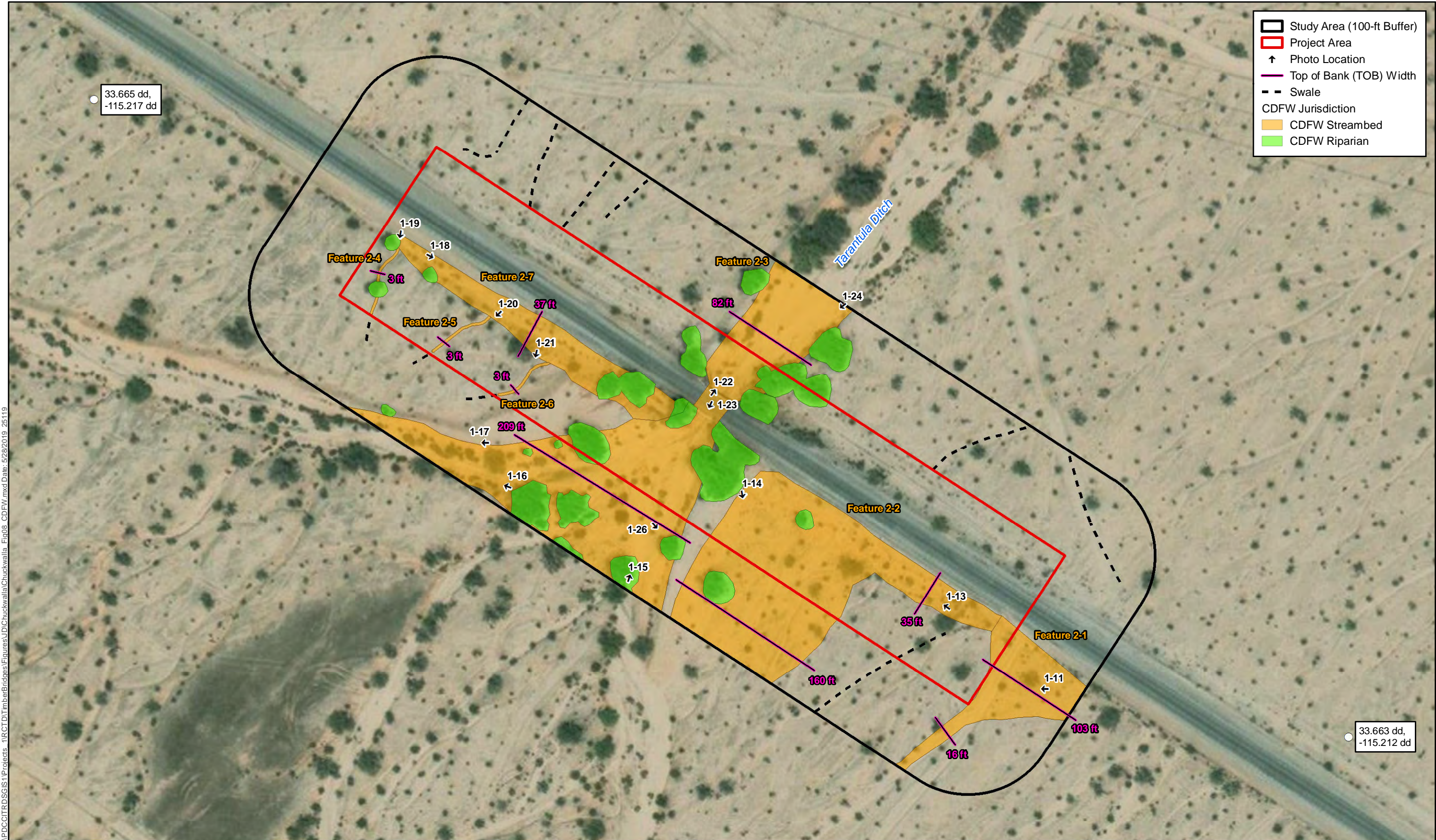


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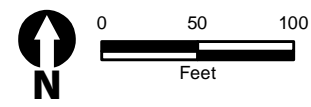
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Figure 8 - Sheet 1
CDFW Jurisdictional Results - Bridge No. 56C0102 over Aztec Ditch
Chuckwalla Valley Road Bridge Replacement Project



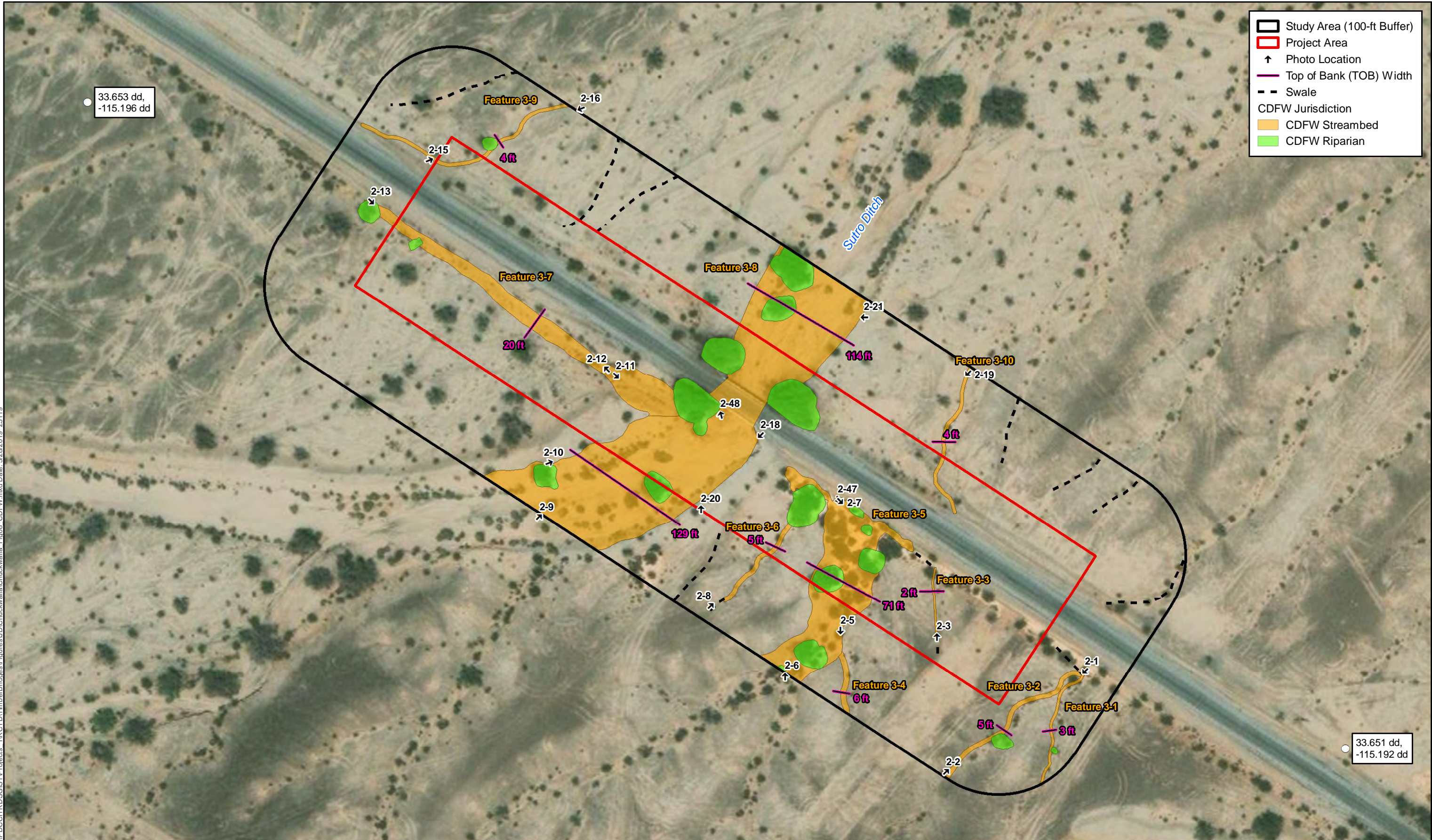
- Study Area (100-ft Buffer)
- Project Area
- Photo Location
- Top of Bank (TOB) Width
- Swale
- CDFW Jurisdiction
- CDFW Streambed
- CDFW Riparian

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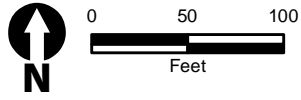
Source: ESRI Imagery (2016)

Figure 8 - Sheet 2
CDFW Jurisdictional Results - Bridge No. 56C0103 over Tarantula Ditch
Chuckwalla Valley Road Bridge Replacement Project



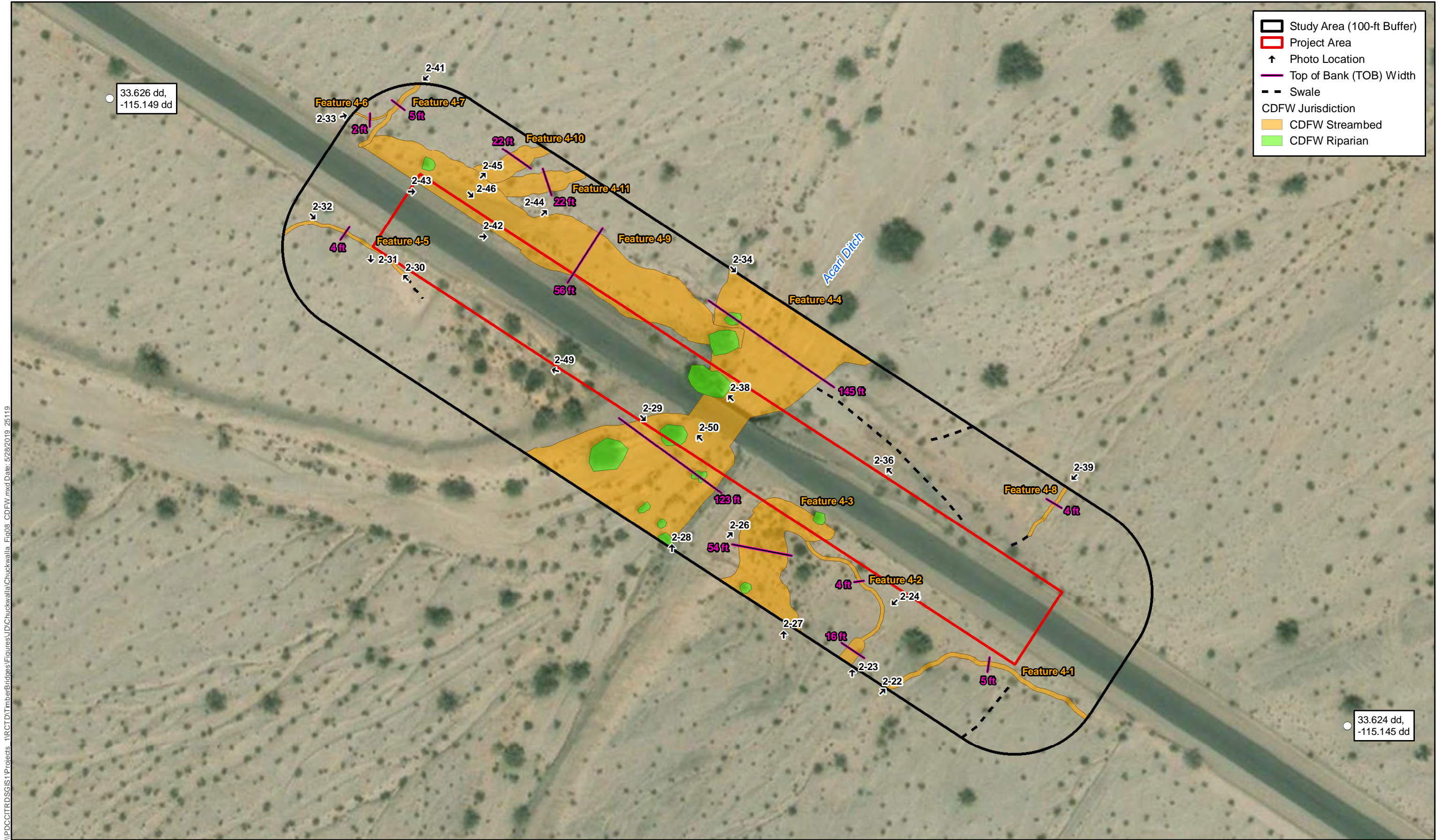
- Study Area (100-ft Buffer)
- Project Area
- Photo Location
- Top of Bank (TOB) Width
- Swale
- CDFW Jurisdiction
- CDFW Streambed
- CDFW Riparian

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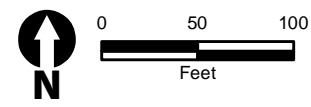
Source: ESRI Imagery (2016)

Figure 8 - Sheet 3
CDFW Jurisdictional Results - Bridge No. 56C0104 over Sutro Ditch
Chuckwalla Valley Road Bridge Replacement Project



- Study Area (100-ft Buffer)
- Project Area
- Photo Location
- Top of Bank (TOB) Width
- Swale
- CDFW Jurisdiction
- CDFW Streambed
- CDFW Riparian

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Source: ESRI Imagery (2016)

Figure 8 - Sheet 4
CDFW Jurisdictional Results - Bridge No. 56C0108 over Acari Ditch
Chuckwalla Valley Road Bridge Replacement Project

Appendix B
Site Photographs

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