Appendix C

Biological Resources

Appendix C-1

Biological Resources Technical Report



Ironwood Transmission Line Project

Biological Resources Technical Report

prepared for

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Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
AGOL	ArcGIS Online
amsl	above mean sea level
APNP	Arizona Protected Native Plant
AZ	Arizona
Bargas	Bargas Environmental Consulting
BCC	Bird of Conservation Concern
BLM	Bureau of Land Management
BLM S	Bureau of Land Management Sensitive Species
Bmsl	below mean sea level
BRTR	Biological Resources Technical Report
CA	California
Cal-IPC	California Invasive Plant Council
CDCA	California Desert Conservation Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranks
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
DRECP	Desert Renewable Energy Conservation Plan
ESA	Endangered Species Act
°F	degrees Fahrenheit
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FLPMA	Federal Land Policy Management Act

FR	Federal Register
FT	Federally Threatened
G	Global
GIS	Geographic Information System
GNA SNA	No Global and State rankings
IC	Ivanpah-Coolwater
IPaC	Information for Planning and Consultation
kV	kilovolt
LUPA	Land Use Planning Amendment
MBTA	Migratory Bird Treaty Act
MVA	megavolt-ampere
MVAR	megavolt-ampere reactive
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate Wetland
OHWM	ordinary high water mark
OPGW	optical ground wire
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
S	State
SCE	Southern California Edison
SGCN	Species of Greatest Conservation Need (AZ)
SSC	Species of Special Concern
ST	State Threatened
SummitWest	SummitWest Environmental Inc.
SWRCB	State Water Resources Control Board
TLRR	Transmission Line Rating Remediation
TNW	traditional navigable water
UPL	Upland

U.S.	United States
U.S. 395	U.S. Route 395
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WBD	Watershed Boundary Dataset
WBWG	Western Bat Working Group
WDR	Waste Discharge Requirement
WL	Watch List Species
WRCC	Western Regional Climate Center

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Executive Summary

The Horizon West Transmission, LLC (HWT) Ironwood Transmission Project (Proposed Project) is an approximately 87-mile-long 500 kilovolt (kV) transmission line from Arizona Public Service Company's (APS) North Gila Substation to San Diego Gas & Electric Company's (SDG&E) Imperial Valley Substation. The Proposed Project is intended to mitigate resource deliverability constraints as identified in the California Independent System Operator's (CAISO) 2022-2023 Transmission Plan[1] to enable delivery of new generation in the resource portfolios approved by the CPUC. The Proposed Project is planned to be operational by 2030 and would include a new 500 kV transmission line, including a combination of approximately 308 single-circuit guyed and self-supporting steel tubular and lattice structures, approximately 87 linear miles of conductor, and approximately 87 linear miles of overhead ground wire (OHGW). The Proposed Project does not include system changes or upgrades within the existing North Gila Substation, which is owned by APS, nor within the existing Imperial Valley Substation, which is owned by SDG&E.

The Proposed Project is divided into three segments:

- **Segment 1: Easternmost Section**
  - Start: Near Yuma, Arizona
  - End: Near Coachella Canal Road, California
  - Alternative Routes: 1A, 1B, 1C, 1D, and 1-Alt.
  - Length: 36 miles to 46 miles
  - Proposed Project 1B
- **Segment 2: Middle Section**
  - Start: Western terminus of Segment 1
  - End: East of Highway 98, near All American Drain 2, Imperial County, California
  - Alternative Routes: 2, 2A
  - Length: Approximately 20 miles
  - Proposed Project: 2
- **Segment 3: Westernmost Section**
  - Start: Western Terminus of Segment 2
  - End: Approximately 1.3 miles west of Mandrapa Road, Imperial County, California
  - Alternative Routes: 3, 3A, 3B, 3C, and 3D
  - Length: Approximately 26 miles to 30 miles
  - Proposed Project: 3C

While this BRTR analyzes the collection of all route alternatives, the Proposed Project is approximately 87 miles long and consists of route alternatives 1B, 2, and 3C.[2]

[1] In various CAISO materials, the Ironwood Project is referred to as the North Gila-Imperial Valley #2 500 kV Transmission Line Project.
[2] Note that this collection of route alternatives is shown as "Proposed Project" on all figures included in this BRTR and the associated Appendices.

The Proposed Project is located in western Yuma County, Arizona and Imperial County, California, crossing predominantly unincorporated lands as well as federal, state, municipal, and private land. These lands include unincorporated areas of Imperial and Yuma counties, the city of Calexico, California, and public lands under the jurisdiction or management of the U.S. Bureau of Land Management (BLM), U.S. Bureau of Reclamation (USBR), and the California Department of Parks and Recreation (DPR).

This Biological Resources Technical Report (BRTR) documents vegetation communities, aquatic resources, special status species, habitat for special status species, and wildlife corridors that were analyzed and/or observed in the biological study area (study area) from January 2025 through June 2025. The study area includes all route segments and features, plus an approximately 350-foot buffer from the alignment or feature centerline to account for direct and indirect impacts to biological resources.[3] An assessment of the potential for special status species to occur in the study area is also provided. A reconnaissance field survey was performed within the study area, as feasible (survey area). Note that the survey area is equivalent to the study area, except for those analyses specific to vegetation communities/land cover that used a study area buffer of 1,000 feet.

To facilitate comparison of proposed and alternative routes, Segments 1, 2, 3 (including route segment alternatives 1A, 1B, 1C, 1D, 2, 2A, 3, 3A, 3B, 3C, 3D) are analyzed independently in summary tables (see Tables 5 through 9) included in the various resource-specific sections of this BRTR.

There were 41 land cover types documented in the study area: 13 natural vegetation communities, 15 semi-natural communities, and 13 other land cover types.[4] Within the survey area,[5] vegetation communities were categorized to the alliance level. There were 23 communities within the survey area: 16 natural vegetation communities, three semi-natural communities, and four other land cover types were identified in the survey area. As detailed in Table 1, eleven of the natural vegetation communities present in the survey area are considered sensitive by the California Department of Fish and Wildlife (CDFW).

[3] To align with Biological Resource Technical Report Standards (CPUC 2019), analyses specific to vegetation communities/land cover used a study area buffer of 1,000 feet based on desktop data (LandFire 2025). For project components outside of the 350-foot study area buffer (700-foot corridor), an additional 25-foot buffer from the edge of the component was applied.
[4] Because LandFire data is not described at the vegetation community alliance level, comparisons between vegetation communities identified within the survey area vs. the study area were not possible.
[5] Note that more natural vegetation communities were identified in the survey area due to the higher resolution vegetation community field data being collected.

Table 1 Natural Vegetation Communities in the Study Area

Natural Vegetation Community	Alliance
Common Three-square Marsh	*Schoenoplectus americanus* Herbaceous Alliance
Arrow Weed Thickets	*Pluchea sericea* Shrubland Alliance
Blue Palo Verde – ironwood woodland	*Parkinsonia florida – Olneya tesota* Woodland Alliance
Bush seepweed scrub	*Suaeda mouquinii* Shrubland Alliance
California joint fir – longleaf joint-fir scrub	*Ephedra californica – Ephedra trifurca* Shrubland Alliance
Fremont cottonwood forest and woodland	*Populus fremontii - Fraxinus velutina - Salix gooddingii* Forest and Woodland Alliance
Hardstem and California bulrush marshes	*Schoenoplecuts (acutus, californicus)* Herbaceous Alliance
Iodine bush scrub	*Allenrolfea occidentalis* Shrubland Alliance
Mesquite thickets	*Prosopis glandulosa – Prosopis velutina – Prosopis pubescens* Woodland Alliance
Mojave-Sonoran desert dunes	*Dicoria cansescens – Abronia villosa – Panicum urvilleanum* Sparsely Vegetated Alliance
Saguaro – foothill Palo Verde – velvet mesquite desert scrub	*Carnegiea gigantea – Parkinsonia microphylla – Prosopis velutina* Provisional Shrubland Alliance

As detailed in Table 2, eight special status plant species were determined to be present or likely to occur in the study area and twenty-seven special status wildlife species were determined to be present or likely to occur in the study area.

Table 2 Plant and Wildlife Species Present or Likely to Occur

Scientific Name Common Name	Occurrence Determination	Listing Status
Plants		
Harwood's milkvetch *Astragalus insularis var. harwoodii*	Likely	California Rare Plant Rank (CRPR) 2B.2
Peirson's milkvetch *Astragalus magdalenae var. peirsonii*	Likely	Federally Threatened (FT) State Endangered (SE) CRPR 1B.2
saguaro *Carnegiea gigantea*	Present	CRPR 2B.2 Arizona Protected Native Plant (APNP)
Wiggins' croton *Croton wigginsii*	Likely	CRPR 2B.2
Algodones Dunes sunflower *Helianthus niveus ssp. Tephrodes*	Likely	SE CRPR 1B.2
Parish's desert-thorn *Lycium parishii*	Likely	CRPR 2B.3
giant Spanish-needle *Palafoxia arida var. gigantea*	Likely	CRPR 1B.3
sand food *Pholisma sonorae*	Likely	CRPR 1B.2 APNP

Scientific Name Common Name	Occurrence Determination	Listing Status
Reptiles		
desert tortoise *Gopherus agassizii*	Present	FT State Threatened (ST) Species of Greatest Conservation Need (SGCN) Lower Colorado River Multi-Species Conservation Program (LCR MSCP) Covered Species (CS) Desert Renewable Energy Conservation Plan Focus Species (DRECP)
flat-tailed horned lizard *Phrynosoma mcallii*	Likely	CDFW Species of Special Concern (SSC) BLM Sensitive (S) SGCN LCR MSCP CS
Colorado Desert fringe-toed lizard *Uma notata*	Likely	CDFW SSC BLM S SGCN DRECP
Birds		
burrowing owl *Athene cunicularia*	Likely	State Candidate Endangered (SCE) CDFW SSC USFWS Birds of Conservation Concern (BCC) BLM S SGCN DRECP
ferruginous hawk *Buteo regalis*	Likely	CDFW Watch List (WL)
mountain plover *Charadrius montanus*	Likely	CDFW SSC USFWS BBC BLM S SGCN
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Likely	FT SE BLM S SGCN LCR MSCP CS
southwestern willow flycatcher *Empidonax traillii extimus*	Likely	Federally Endangered (FE) SE SGCN LCR MSCP CS
yellow-breasted chat *Icteria virens*	Present	CDFW SSC SGCN
least bittern *Ixobrychus exilis*	Likely	CDFW SSC SGCN LCR MSCP CS
loggerhead shrike *Lanius ludovicianus*	Present	CDFW SSC
California black rail *Laterallus jamaicensis coturniculus*	Likely	ST CDFW Fully Protected (FP) BLM S SGCN LCR MSCP CS

Scientific Name Common Name	Occurrence Determination	Listing Status
Gila woodpecker *Melanerpes uropygialis*	Present	SE USFWS BCC BLM S SGCN LCR MSCP CS
double-crested cormorant *Nannopterum auritum*	Present	CDFW WL
osprey *Pandion haliaetus*	Present	CDFW WL
black-tailed gnatcatcher *Polioptila melanura*	Present	CDFW WL SGCN
Yuma clapper rail *Rallus longirostris yumanensis*	Likely	FE ST LCR MSCP CS
Yuma Ridgway's rail *Rallus obsoletus yumanensis*	Likely	FE ST CDFW FP SGCN
yellow warbler *Setophaga petechia*	Present	CDFW SSC SGCN
Sonoran yellow warbler *Setophaga petechia sonorana*	Likely	CDFW SSC SGCN LCR MSCP CS
Arizona Bell's vireo *Vireo bellii arizonae*	Likely	SE BLM S SGCN LCR MSCP CS
Mammals		
western red bat *Lasiurus blossevilli*	Likely	CDFW SSC LCR MSCP CS
California leaf-nosed bat *Macrotus californicus*	Likely	CDFW SSC BLM S SGCN LCR MSCP ES
desert bighorn sheep *Ovis canadensis nelsoni*	Present	CDFW FP BLM S DRECP
Yuma hispid cotton rat *Sigmodon hispidus eremicus*	Likely	CDFW SSC SGCN LCR MSCP CS
American badger *Taxidea taxus*	Likely	CDFW SSC SGCN
desert kit fox *Vulpes macrotis arsipus*	Likely	DRECP

No federally designated critical habitat is present within the study area.

Aquatic resources potentially subject to United States Army Corps of Engineers (USACE), Colorado River Regional Water Quality Control Board (RWQCB), Arizona Department of Environmental Quality

(ADEQ), and CDFW jurisdictions (collectively referred to as potential jurisdictional areas) are present in the study area. Potential jurisdictional areas in the study area include perennial rivers, agricultural canals, lakes/ponds, and isolated intrastate waters including networks of braided channels, vegetated and unvegetated ditches, and culverts. Major named aquatic resources in the study area include the Coachella Canal, All American Canal, East Highline Canal, Ash Main Canal, Alamitos Canal, Briar Canal, Westside Main Canal, Whitcomb Canal, Holt Canal, Yuma Main Canal, Cocopah Canal, Gila Gravity Main Canal, Greeson Wash, Main Outlet Drain, Haughtelin Lake, Mittry Lake, Alamo River, New River, Gila River, and the Colorado River.

Wildlife corridors present within the study area include the Pacific Flyway, a major north-south corridor for migratory birds in North America, which runs along the Pacific Coast of North and South America, as well as the Mittry Lake Wildlife Area and Important Bird Area (IBA) which provides important aquatic and wetland habitats for migratory birds, especially during the winter months (AZGFD 2025a). Additionally, scrub vegetation communities in the study area provide connectivity to other larger stretches of similar habitat, creating corridors for birds, mammals, and reptiles.

The study area is located near several designated conservation areas. The Yuha Basin Area of Critical Environmental Concern (ACEC) overlaps a small portion of the study area's southwest corner. The Lake Cahuilla ACEC and the East Mesa ACEC intersect the central portion of the study area, while the Picacho ACEC overlaps with its northeastern section. These ACECs were established by the Bureau of Land Management (BLM) to support and protect wildlife linkages to adjacent conservation and wilderness areas (BLM et al. 2016). Additionally, the Flat-tailed Horned Lizard (FTHL) – Yuha Desert Management Area overlaps a small portion of the westernmost part of the study area, while the FTHL – East Mesa Management Area intersects the central portion of the study area. These areas were designated under the Flat-tailed Horned Lizard Rangewide Management Strategy to guide the conservation and management of sufficient habitat to support existing populations of the species (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003).

The study area is also located near several Conservation Opportunity Areas (COAs), as identified by the Arizona Game and Fish Department. The Colorado River and Associated Backwaters aquatic COA overlaps with a small portion of the study area's northwest corner. The Imperial-Cibola and Mittry Lake Wildlife Area terrestrial COAs also overlap with a small portion of the study area's northwest corner. The Desert Mountains Complex terrestrial COA overlaps the western portion of the study area. The Lower Gila River terrestrial COA overlaps with the southwestern portion of the study area. These COAs represent specific areas on the landscape where actions will most likely lead to substantial improvements for wildlife and their habitats. The Arizona Wildlife Conservation Strategy (AWCS) includes two broad categories of COAs: terrestrial and aquatic. Terrestrial COAs represent geographic areas with high conservation value and high potential for successful project outcomes. Aquatic COAs are focused strictly on aquatic resources, mostly native fish species (AZGFD 2025b).

Additionally, the study area overlaps with Conservation Areas as identified by the Bureau of Reclamation (BOR) in the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). These Conservation Areas include Laguna Division Conservation Area and Yuma East Wetlands Conservation Area. The Laguna Division Conservation Area is a large-scale restoration project that aims to restore, enhance, and protect native habitat for the benefit of the LCR MSCP covered species and other plants and wildlife. The Yuma East Wetlands Conservation Area is being restored to resolve various issues, beautify the riverfront, and provide habitat for wildlife species (LCR MSCP 2025).

Furthermore, a California Essential Habitat Connectivity (CEHC) Area extends into the middle of the study area, connecting the Sonoran Desert east of the Salton Sea with the Mojave Desert to the north. Landscape blocks, defined as large areas of intact, unfragmented lands and waters that provide habitat for wide-ranging species and support dynamic natural processes and resilient ecosystems, are also present within the middle of the study area.

1 Introduction

This Biological Resources Technical Report (BRTR) has been prepared for the Horizon West Transmission, LLC Ironwood Transmission Line Project (Proposed Project). The purpose of this BRTR is to summarize the methods and results of the desktop review and reconnaissance surveys conducted for the Proposed Project. The BRTR is intended to assist with project planning, Proponent's Environmental Assessment preparation, and to provide a framework for potential permitting, as needed.

1.1 Project Overview

The Proposed Project is an approximately 87-mile-long 500 kilovolt (kV) transmission line from Arizona Public Service Company's (APS) North Gila Substation to San Diego Gas & Electric Company's (SDG&E) Imperial Valley Substation. The Proposed Project is intended to mitigate resource deliverability constraints as identified in the California Independent System Operator's (CAISO) 2022-2023 Transmission Plan[6] to enable delivery of new generation in the resource portfolios approved by the CPUC. The Proposed Project is planned to be operational by 2030 and would include a new 500 kV transmission line, including a combination of approximately 308 single-circuit guyed and self-supporting steel tubular and lattice 500 kV structures, approximately 87 linear miles of conductor, and approximately 87 linear miles of overhead ground wire (OHGW). The Proposed Project does not include system changes or upgrades within the existing North Gila Substation, which is owned by APS, nor within the existing Imperial Valley Substation, which is owned by SDG&E.

The Proposed Project is divided into three segments:

- **Segment 1: Easternmost Section**
  - Start: Near Yuma, Arizona
  - End: Near Coachella Canal Road, California
  - Alternative Routes: 1A, 1B, 1C, 1D, and 1-Alt
  - Length: 36 miles to 46 miles
  - Proposed Project: 1B
- **Segment 2: Middle Section**
  - Start: Western terminus of Segment 1
  - End: East of Highway 98, near All American Drain 2, Imperial County, California
  - Alternative Routes: 2, 2A
  - Length: Approximately 20 miles
  - Proposed Project: 2

[6] In various CAISO materials, the Ironwood Project is referred to as the North Gila-Imperial Valley #2 500 kV Transmission Line Project.

- **Segment 3: Westernmost Section**
  - Start: Western Terminus of Segment 2
  - End: Approximately 1.3 miles west of Mandrapa Road, Imperial County, CA
  - Alternative Routes: 3, 3A, 3B, 3C, and 3D
  - Length: Approximately 26 miles to 30 miles
  - Proposed Project: 3C

The Proposed Project includes alternative route segments 1B, 2, and 3C.

1.2 Project Location

The Proposed Project is located in western Yuma County, Arizona and Imperial County, California, crossing predominantly unincorporated lands as well as federal, state, municipal, and private land (Figure 1). These lands include unincorporated areas of Imperial and Yuma counties, the city of Calexico, California, and public lands under the jurisdiction or management of the U.S. Bureau of Land Management (BLM), U.S. Bureau of Reclamation (USBR), and the California Department of Parks and Recreation (DPR). The Proposed Project would connect the North Gila Substation in Arizona and Imperial Valley Substation in California.

The locations of the start and end of the alternative route segments and Proposed Project are summarized in Table 3.

Table 3 Proposed Project Start and End Locations[1]

Alternative Route Segment	Approximate Start[2] Coordinates	Approximate End[3] Coordinates
1A	32.747591°, -114.489603°	32.725471°, -114.920233°
1B	32.747591°, -114.489603°	32.725471°, -114.920233°
1C	32.747591°, -114.489603°	32.725471°, -114.920233°
1D	32.747591°, -114.489603°	32.725471°, -114.920233°
1-Alt	32.756064°, -114.867085°	32.734347°, -114.902859°
2	32.725471°, -114.920233°	32.710047°, -115.261359°
2A	32.725471°, -114.920233°	32.710047°, -115.261359°
3	32.710047°, -115.261359°	32.715441°, -115.712432°
3A	32.712734°, -115.236935°	32.715441°, -115.712432°
3B	32.710047°, -115.261359°	32.715441°, -115.712432°
3C	32.710047°, -115.261359°	32.715441°, -115.712432°
3D	32.710047°, -115.261359°	32.715441°, -115.712432°

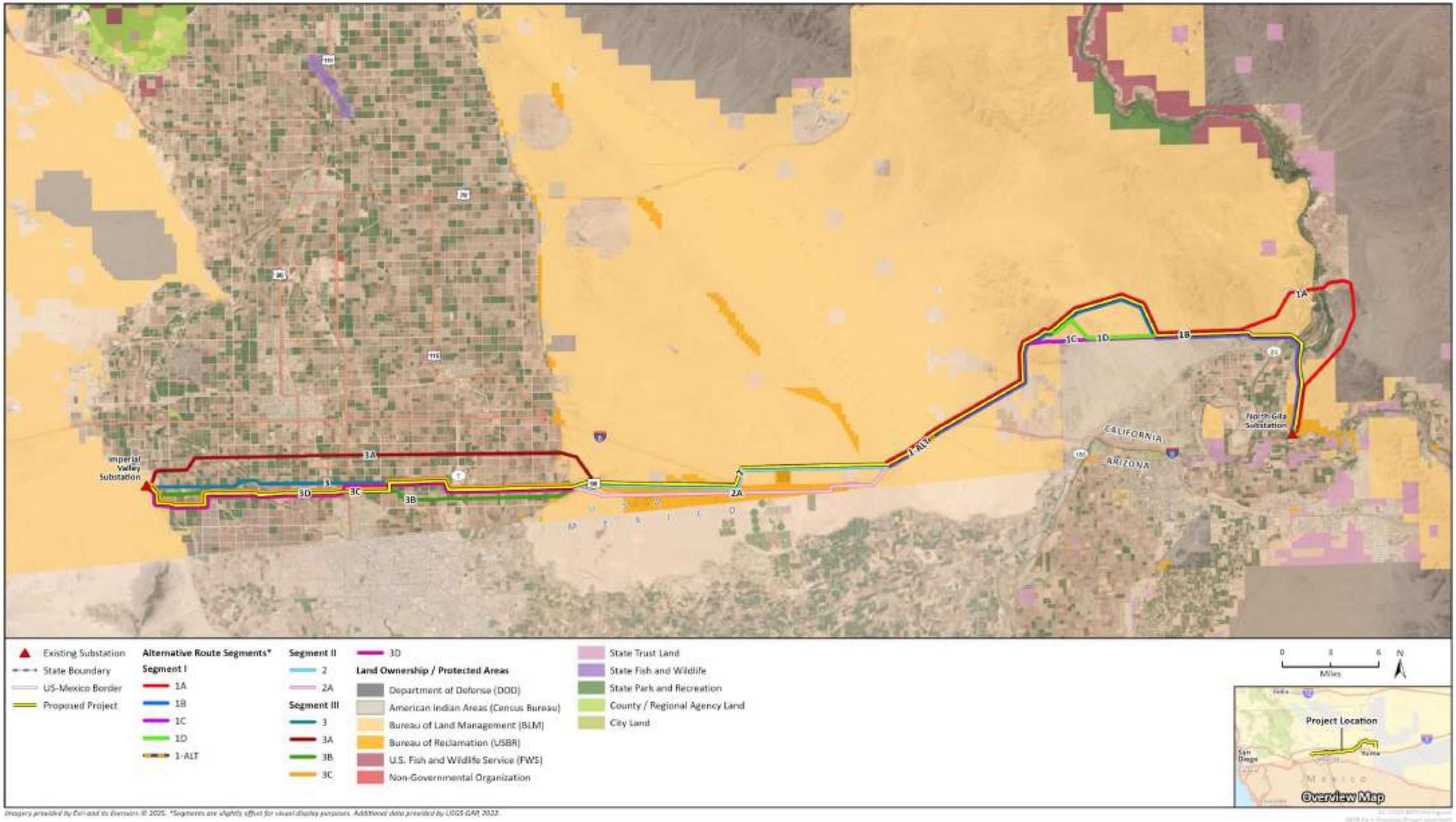
[1] Note the Proposed Project consists of the following alternative route segments: 1B, 2, 3C.

[2] Starting locations were noted as the easternmost point for a given route alternative.

[3] Ending locations were noted as the westernmost point for a given route alternative.

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Figure 1 Proposed Project Alignment and Alternative Route Segments



*Imagery provided by Esri and its licensors. © 2025. *Segments are slightly offset for visual display purposes. Additional data provided by USGS GAP, 2022.*

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Segment 1 occurs within the following United States Geological Survey (USGS) 7.5-minute topographic quadrangles: Araz, Bard, Cactus, Fortuna, Grays Well, Imperial Reservoir, Laguana Dam, and Ogilby (USGS 2025a). Segment 2 occurs within the following USGS 7.5-minute topographic quadrangles: Bonds Corner, Grays Well, Midway Well, and Midway Well NW (USGS 2025a). Segment 3 occurs within the following USGS 7.5-minute topographic quadrangles: Bonds Corner, Calexico, Heber, Midway Well NW, and Mount Signal (USGS 2025a). The townships and ranges of each quadrangle are summarized in Table 4.

Table 4 7.5-Minute Topographical Quadrangle Locations[1]

Alternative Route Segment[2]	USGS Quadrangle	Township and Range
1A	Araz, Bard, Cactus, Fortuna, Grays Well, Imperial Reservoir, Laguna Dam, Ogilby	T06S R21W S29-33, T06S R22W S36 T07S R21W S4-5, 8, 17-19, T07S R22W S24-26, 35 T08S R22W S2, 11 T15S R21E S12-15, 20-22, 29, 32, T15S R22E S7-10, 15, 22-24, T15S R23E S13, 19-24, T15S R24E S16-19 T16S R20E S12-15, 22, 27-28, 44-45, 49-50, T16S R21E S5-7
1B	Araz, Bard, Cactus, Grays Well, Fortuna, Laguna Dam, Ogilby	T07S R22W S13-14, 23, 26, 35 T08S R22W S2, 11 T15S R21E S12-15, 20-22, 29, 32, T15S R22E S7-10, 15, 22-24, T15S R23E S19-24, T15S R24E S30-32 T16S R20E S12-15, 22, 27-28, 44-45, 49-50, T16S R21E S5-7
1C	Araz, Bard, Cactus, Grays Well, Laguna Dam, Ogilby	T07S R22W S13-14, 23, 26, 35 T08S R22W S2, 11 T15S R21E S20-24, 29, 32, T15S R22E S19-24, T15S R23E S19-24, T15S R24E S30-32 T16S R20E S12-15, 22, 27-28, 44-45, 49-50, T16S R21E S5-7
1D	Araz, Bard, Cactus, Grays Well, Laguna Dam, Ogilby	T07S R22W S13-14, 23, 26, 35 T08S R22W S2, 11 T15S R21E S14, 20-24, 29, 32, T15S R22E S19-24, T15S R23E S19-24, T15S R24E S30-32 T16S R20E S12-15, 22, 27-28, 44-45, 49-50, T16S R21E S5-7
1-Alt	Ogilby, Gray Well	T16S R20E S27,44,45,49,50
2	Bonds Corner, Grays Well, Midway Well, Midway Well NW	T16S R17E S31-36, T16S R18E S25-26, 31-35, T16S R19E S25-30, T16S R20E S28-30 T17S R18E S2
2A	Bonds Corner, Grays Well, Midway Well, Midway Well NW	T16S R17E S31, T16S R20E S28-29, 31-32 T17S R17E S1-5, T17S R18E S1-6, T17S R19E S1-6, T17S R20E S5-6
3	Bonds Corner, Calexico, Heber, Mount Signal	T16.5S R12E S1-3 T16S R13E S31-36, T16S R14E S31-36, T16S R15E S31-36, T16S R16E S31-36, T16S R17E S31
3A	Bonds Corner, Calexico, Heber, Midway Well NW, Mount Signal	T16.5S R12E S2-3 T16S R12E S35-36, T16S R13E S19-24, 30, T16S R14E S19-24, T16S R15E S19-24, T16S R16E S19-24, T16S R17E S19, 29-30, 32

Alternative Route Segment[2]	USGS Quadrangle	Township and Range
3B	Bonds Corner, Calexico, Heber, Mount Signal	T16.5S R12E S2-3 T16S R13E S31-32, T16S R14E S34-36, T16S R15E S31, T16S R17E S31 T17S R12E S1, T17S R13E S1-6, T17S R14E S2-6, T17S R15E S1-5, T17S R16E S1-6, T17S R17E S6
3C	Bonds Corner, Calexico, Heber, Mount Signal	T16.5S R12E S2-3 T16S R14E S34-36, T16S R15E S31-36, T16S R16E S31-36, T16S R17E S31 T17S R12E S1, T17S R13E S1-6, T17S R14E S2-6
3D	Bonds Corner, Calexico, Heber, Mount Signal	T16.5S R12E S2-3 T16S R14E S34-36, T16S R15E S31-36, T16S R16E S31-36, T16S R17E S31 T17S R12E S1, T17S R13E S1-6, T17S R14E S2-6

[1] All USGS quadrangle locations within California are given in reference to the San Bernardino principal meridian. All USGS quadrangle locations within Arizona are given in reference to the Gila and Salt River principal meridian.

[2] Note the Proposed Project consists of the following alternative route segments: 1B, 2, 3C.

1.3 Regulatory Overview

Regulated or sensitive resources evaluated in this BRTR include special status plant and wildlife species, critical habitat, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement corridors, and locally protected resources. Regulatory authority over biological and aquatic resources is shared by Federal, State, and local agencies. A detailed regulatory background is in Appendix A – Regulatory Framework.

1.3.1 Sensitive Biological Resources

For this BRTR, vegetation communities and plant and wildlife taxa were considered sensitive or special status if they were classified as one or more of the following:

- Species listed as threatened, endangered, or candidates for listing under the Federal Endangered Species Act (ESA)
- Species listed as rare, threatened, endangered, or candidates for listing under the California Endangered Species Act (CESA)
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code [CFGC], Section 1900 et seq.)
- Species designated as Fully Protected, Species of Special Concern (SSC), or Watch List (WL) by CDFW
- Species designated as Sensitive by the BLM (BLM S)
- Birds designated as Birds of Conservation Concern (BCC) by the United States Fish and Wildlife Service (USFWS)
- Focus species in the Desert Renewable Energy Conservation Plan (DRECP) Land Use Planning Amendment (LUPA)
- Plants assigned a California Rare Plant Rank (CRPR) of 1 through 4 by the California Native Plant Society (CNPS 2025a)

- Species designated by the Arizona Native Plant Law as Highly Safeguarded, Salvage Restricted, Salvage Assessed, or Harvest Restricted (Ariz. Rev. Stat. § 3-903).
- Natural communities designated as sensitive by CDFW, based on NatureServe's (2012) methodologies to rank communities at both the Global (G) and State (S) levels, resulting in a rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure). Natural communities with ranks of S1-S3 are considered sensitive natural communities (CDFW 2025d).
- Species protected under the Federal Bald and Golden Eagle Protection Act
- Species protected from take per CFGC Chapter 5, section 460 (CFGC 2019)
- Species identified as Species of Greatest Conservation Need (SGCN) by the Arizona Game and Fish Department (AZGFD) with the Arizona Wildlife Conservation Strategy
- Bats considered by the Western Bat Working Group to be "high" or "medium" priority (WBWG 2017)
- Species designated as locally important by the Local Agency (Imperial County and Yuma County, and City of El Centro, and City of Calexico) and/or otherwise protected through ordinance or local policy.
- Species designated as "covered species" or "evaluation species" by the Lower Colorado River Multi-Species Conservation Program (LCR MSCP; LCR MSCP 2004)

1.3.2 Environmental Regulatory Framework

The following laws, regulations, and management policies provide the regulatory framework for assessing the potential impacts of the Proposed Project on biological resources (Appendix A):

- California Environmental Quality Act (CEQA)
- National Environmental Policy Act (NEPA)
- ESA
- CESA
- Clean Water Act (CWA)
- CFGC
- California Code of Regulations Title 14, section 460
- California Public Resources Code §§ 4292 and 4293
- California Public Utilities Commission, GO 95, Rule 35, Vegetation Management
- Arizona Native Plant Law
- Arizona Wildlife Conservation Strategy
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- California Desert Conservation Area (CDCA) Plan
- Porter-Cologne Water Quality Control Act (Porter-Cologne Act)
- Native Plant Protection Act
- California Desert Native Plant Act
- DRECP LUPA
- Imperial Sand Dunes Recreation Area Management Plan (Imperial Sand Dunes RAMP)
- Northern and Eastern Colorado Desert Coordinated Management Plan

- Yuma Field Office Resource Management Plan
- Imperial County General Plan
- Yuma County Comprehensive Plan
- City of Calexico General Plan
- City of El Centro General Plan

1.3.3 Preliminary Agency Consultation

To date, there has been no pre-survey coordination with regulatory agencies, no agency approvals have been required for biologist qualifications, and no agency-specific survey protocols have been applied. Additional surveys for specific special status species and protected resources, such as species-specific protocol surveys and jurisdictional delineations, will be conducted as required by further regulatory and permitting coordination occurring closer to project implementation.

2 Methodology

2.1 Biological Study Area

The biological study area (study area) for this BRTR includes all route segments and features, plus an approximately 350-foot buffer from the alignment or feature centerline to account for direct and indirect impacts to biological resources[7]. The biological study area is shown in Appendix B.

2.2 Database Queries and Literature Review

Database queries and a literature review were conducted to obtain baseline information and compile lists of special status plant and wildlife species and sensitive biological resources that occur or potentially occur in the study area.

The following databases and other resources were reviewed:

- **Aerial imagery of the study area.** (Google Earth Pro 2025)
- **Arizona Department of Agriculture (AZDA) List of Protected Native Plants.** (AZDA 2025)
- **AZGFD Environmental Review Tool.** (AZGFD 2025b)
- **CDFW California Natural Diversity Database (CNDDB) RareFind5.** Queries of the CNDDB included the study area plus a 5-mile buffer (CDFW 2025a).
- **CNPS Online Inventory of Rare and Endangered Plants of California.** Query of the study area quadrangles (CNPS 2025b).
- **USFWS Information for Planning and Consultation (IPaC).** An unofficial IPaC report was generated for the approximate study area to determine what federally listed species, critical habitat, migratory birds, or other federally regulated natural resources potentially occur (USFWS 2025a) (Appendix C).
- **CDFW Special Animals List.** Results of the database queries were cross-referenced with CDFW's Special Animals List to determine the current conservation status of each species identified (CDFW 2025b).
- **National Wetlands Inventory (NWI).** (USFWS 2025b)
- **National Hydrology Dataset (NHD).** (USGS 2025b)
- **Watershed Boundary (WBD) Dataset.** (USGS 2025b)
- **Natural Resources Conservation Service (NRCS) Web Soil Survey.** (United States Department of Agriculture [USDA], NRCS 2025a)
- **National List of Hydric Soils.** (USDA, NRCS 2025b)

[7] To align with Biological Resource Technical Report Standards (CPUC 2019), analyses specific to vegetation communities/land cover used a study area buffer of 1,000 feet based on desktop data (LandFire 2025). For project components outside of the 350-foot study area buffer (700-foot corridor), an additional 25-foot buffer from the edge of the component was applied.

2.3 Special Status Species Occurrence Evaluation

All special status species identified during the database queries and literature review were evaluated for their potential to occur within the study area and a table summarizing these findings is found in Appendix E. Potential occurrence was evaluated based on species' ranges, habitat preferences, occurrence records from the database queries, and the results of reconnaissance field surveys. The potential for each special status species to occur in the study area was evaluated according to the following criteria:

- **Present**. The species or positive sign was definitively determined to be present in the study area during a site visit or field survey.
- **Likely.** All study area features indicate this species is very likely present and should be expected according to the following criteria:
  - study area is within the species' geographic range/floristic province;
  - suitable habitat (e.g., soils, vegetation communities, elevation, roost sites, leaf litter/debris, water, host plants) is present; and
  - distance to the California Natural Diversity Database (CNDDB) or other records from the past 25 years is within one mile (fish), 2 miles (plants), or 5 miles (mammals/birds/herps).
- **Unlikely.** Study area is within the species' geographic range and suitable habitat is present, but the species would not be expected to occur or be encountered according to the following criteria:
  - CNDDB or other records within 5 miles of the study area are over 25 years old; or
  - distance to records from the past 25 years is greater than 1 mile (fish), 2 miles (plants), or 5 miles (mammals/birds/herps).
- **Does Not Occur.** Species would not occur (or are very unlikely to occur) because the study area is outside the known or current geographic/elevation range, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume absence. Other criteria include:
  - CNDDB or other records within 5 miles of the study area are from the past 75 years but the locations are noted as a "best guess" or are otherwise inaccurate.
  - No suitable habitat exists for this species.

2.4 Survey Methodology

Reconnaissance-level field surveys of vegetation communities, special status species' habitat, and aquatic resources were conducted to determine the occurrence or potential occurrence of special status and sensitive biological resources along all route segments and features, plus an approximately 350-foot buffer from the alignment or feature centerline (survey area).

The field survey methods were informed by the desktop analysis and preliminary list of species with potential to occur in the study area. The study area was surveyed by walking transects where safe and publicly accessible to attain 100 percent visual coverage of the study area, as feasible, as well as by windshield surveying. In areas where pedestrian access was restricted to public roads and approved access roads, the study area was viewed in the field with binoculars and/or assessed using desktop aerial imagery in Google Earth Pro (Google Earth Pro 2025). Data were collected using hand-held global positioning system units, photographs, and aerial field maps. No regulatory agency coordination or protocols were required for these surveys.

2.4.1 Vegetation Community Mapping

Rincon biologists conducted reconnaissance-level vegetation community mapping within the survey area between April 21 and April 29, 2025. As described in Section 2.1, the total study area for vegetation community mapping consisted of a 1,000-foot buffer from the centerline of all route alternatives and their currently estimated disturbance footprint. Because the field survey area—defined by a 350-foot buffer—was smaller than the full study area, desktop data was used to fill in gaps and ensure complete coverage. Since desktop data provides vegetation and land cover information at a broader scale than field surveys, the survey area was analyzed separately from the overall study area. Representative site photographs were taken throughout the survey area to support field observations (Appendix H).

Natural and semi-natural vegetation community classification was based on the systems provided in the online database of *A Manual of California Vegetation, Second Edition* (CNPS 2025c). Vegetation classifications were assigned, where applicable, at the alliance level. Classifications were modified as appropriate to reflect the existing site conditions (Sawyer et al. 2009, CNPS 2025a). *The Jepson Manual: Vascular Plants of California, Second Edition* and online Jepson eFlora were used for plant identification and nomenclature (Baldwin et al. 2012; Jepson Flora Project 2025).

Incidental observations of special status plant and wildlife species and other locally protected or sensitive resources were recorded, if observed, during the vegetation community mapping surveys.

2.4.2 Reconnaissance Field Surveys

Rincon biologists conducted reconnaissance field surveys within the survey area from April 21 through April 29, 2025. A desktop and literature review were also separately conducted for the survey areas as well as the entirety of the study area. In the field, biologists documented vegetation communities present within the survey area, as well as the location of special status species incidentally observed. Polygons representing various vegetation communities identified in the field were later digitized and quantified using geographic information systems (GIS) (Appendix G). Representative site photographs of various vegetation communities were taken throughout the survey area and are included in Appendix H (Attachment A).

Finally, the field surveys included a reconnaissance-level aquatic resources assessment component. This reconnaissance-level aquatic resources assessment was informed by the desktop review and is intended to support Proposed Project design and maximize avoidance and minimization of impacts to potentially jurisdictional waters, as the Proposed Project design is currently in development.

Non-Wetland Waters of the United States

The lateral limits of United States Army Corps of Engineers (USACE) jurisdiction (i.e., width) of non-wetland waters will be determined by the presence of physical characteristics indicative of the Ordinary High Water Mark (OHWM). The OHWM will be identified in accordance with the applicable Code of Federal Regulations (CFR) sections (33 CFR 328.3 and 33 CFR 328.4) and Regulatory Guidance Letter 05-05 (USACE 2005), and in reference to various relevant technical publications, including, but not limited to: *Review of Ordinary High Water Mark Indicators for Delineating Arid Streams in the Southwestern United States* (USACE 2004), *Distribution of OHWM Indicators and Their Reliability in Identifying the Limits of "Waters of the United States" in Arid Southwestern Channels* (USACE 2006), *A Field Guide to Identification of the OHWM in the Arid West Region of the United States* (USACE 2008b), and *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version* (USACE 2025). The regulations will also be reviewed in the

determination of non-jurisdictional features including ephemeral drainages, artificially irrigated areas, and roadway ditches excavated in uplands. A more detailed regulatory definition of USACE jurisdiction is provided in Appendix A.

Wetland Waters of the United States

Potential wetland features will be evaluated for presence of wetland indicators including hydrophytic vegetation, hydric soils, and wetland hydrology, according to routine delineation procedures in the Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). The USACE *Arid West 2018 Regional Wetland Plant List* will be used to determine the wetland status of the examined vegetation by the following indicator status categories: Upland (UPL), Facultative Upland (FACU), Facultative (FAC), Facultative Wetland (FACW), and Obligate Wetland (OBL) (Lichvar et al. 2018).

Waters of the State

The limits of "waters of the State," as defined under the Porter-Cologne Act, are any surface water or groundwater, including saline waters, within the boundaries of the state. In those areas where an OHWM is present, the OHWM will be used to represent the limits of non-wetland waters of the State. In those areas where an OHWM is not present, but a bed and bank are present and indicate the capacity to hold surface water (e.g., detention basins, agricultural ditches, and roadside ditches that are hydrologically connected to tributaries and TNWs) the limits of waters of the State will be determined to be coterminous with the top of slope or top of "bank." Roadside ditches that may periodically convey ephemeral surface waters but are hydrologically isolated from tributaries and/or TNWs may be determined to be non-jurisdictional if they do not exhibit an OHWM.

California

The State Water Resources Control Board's (SWRCB) *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2021) excludes certain activities from the procedures; however, the exclusion does not "affect the [SWRCB]'s authority to issue or waive waste discharge requirements or take other actions for the following activities or areas to the extent authorized by the Water Code." These exclusions do not relieve entities of "their responsibility to avoid and minimize adverse impacts to aquatic resources and beneficial uses from these activities."

Potential State wetland features will be evaluated pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. The SWRCB's definition relies on the same three parameters as the USACE definition (hydrophytic vegetation, wetland hydrology, and hydric soils) but allows for naturally unvegetated areas meeting the other two parameters to be considered wetlands. A more detailed regulatory definition of Regional Water Quality Control Board (RWQCB) jurisdiction is provided in Appendix A.

Arizona

The Arizona Department of Environmental Quality (ADEQ) is the state agency charged with protecting Arizona's water quality in accordance with state and federal laws. ADEQ administers the Clean Water Act (CWA) Section 401 Water Quality Certification program, which requires that any federally permitted project involving discharges into waters of the United States obtain state certification verifying compliance with Arizona's water quality standards. Potential ADEQ

jurisdictional features will be evaluated according to ADEQ Water Quality Division guidance (ADEQ 2025). A more detailed regulatory definition of ADEQ jurisdiction is provided in Appendix A.

CDFW Streambeds

The extent of potential streambeds, streambanks, lakes, and riparian habitat subject to CDFW jurisdiction under Sections 1600 et seq. of the CFGC will be assessed by reviewing the topography and morphology of potentially jurisdictional features to determine the outer limit of riparian vegetation, where present, or the tops of banks for stream features. A more detailed regulatory definition of CDFW jurisdiction is provided in Appendix A.

3 Existing Conditions

3.1 Physical Conditions

3.1.1 Topography and Soils

The study area is located in the Sonoran desert region north of the United States – Mexico border and spans across southern California into southern Arizona, in the Desert Province geographic subdivision, as described in *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012). The study area includes portions of the Fort Yuma Indian Reservation, the Colorado River, Calexico, and El Centro. Elevations within the study area range between approximately 35 feet (10.7 meters) below mean sea level northeast of Calexico and 1,800 feet (5,487 meters) above mean sea level (amsl) northeast of Yuma. Landscapes in the study area include flood plains, lakebeds, basin floors, terraces, dunes, dune fields, and mountains.

The study area is located within the Colorado Desert province, a low-lying barren desert basin, approximately 245 feet below mean sea level, in part, dominated by the Salton Sea. The province is a depressed block between active branches of the alluvium-covered San Andreas Fault with the southern extension of the Mojave Desert to the east (California Geologic Survey [CGS] 2002). There are bedrock-controlled channels in the mountains that carry seasonal flows through alluvial channels below to the Salton Sea, and a few rivers that evolved from irrigation drainage water flow to the Salton Sea from Imperial and Coachella Valleys (USFS 2025). The largest water feature in the Colorado Desert province is the Salton Sea, which measures approximately 40 miles in length by 16 miles in width (USFS 2025).

Soils in the study area include parent material derived from alluvium over ancient fluviomarine deposits, clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed, alluvium derived from igneous and sedimentary rock and/or eolian deposits derived from igneous and sedimentary rock, mixed stream alluvium derived from igneous, metamorphic and sedimentary rock, and alluvium and/or colluvium over residuum weathered from metamorphic rock. Some of the general soil types documented in the study area include silty clay loam, silty clay, sandy clay loam, silt loam, loamy very fine sand, loamy fine sand, fine sand, sand, stratified very fine sandy loam to silt loam, loamy sand, and extremely gravelly loam. These include nonsaline to very slightly saline, slightly saline to moderately saline soils, and have textures ranging from fine to coarse and from somewhat poorly drained to somewhat excessively drained (USDA, NRCS 2025a). There are hydric soils present in the study area (USDA, NRCS 2025b).

3.1.2 Climate

Conditions in the study area region are among the hottest found in the United States. The Colorado Desert's latitude, low elevation, and proximity to the sea creates a subtropical desert climate with infrequent freezing temperatures (Reynolds et al. 2008). Although a wide range occurs seasonally and diurnally, average annual temperatures range from 55.9 degrees Fahrenheit (°F) to 86.2°F in Calexico, and 59°F to 90.1°F north of Yuma (Western Regional Climate Center [WRCC] 2025a, 2025b). Summer temperatures can exceed 120°F. Precipitation is blocked by the Peninsular Range, and total annual rainfall averages less than 2.69 inches per year in Calexico and 2.67 inches per year north of Yuma (WRCC 2025a, 2025b). The majority of rainfall comes in winter, but a portion of

summer monsoonal rain from Arizona and Mexico spills into this region (Reynolds et al. 2008). Flash floods are commonly associated with the occurrence of irregular precipitation events (USDA Forest Service [USFS] 2025).

There are seven weather stations within the vicinity of study area: Imperial, California (Station ID: 044223), El Centro 2 SSW, California (Station ID: 042713), Calexico, California (Station ID: 041288), Gold Rock Ranch, California (Station ID: 043489), Yuma Valley, Arizona (Station ID: 029657), Yuma Quartermaster DT, Arizona (Station ID: 029656), and Yuma Proving Ground, Arizona (Station ID: 029654). Monthly precipitation data and monthly historical averages for the Imperial and Yuma Quartermaster stations are provided in Table 5 and Table 6, respectively (WRCC 2025c).

Table 5 Monthly Precipitation – Imperial, California (inches)

Season	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
2014	0.00	0.00	0.02	0.00	0.00	0.00	0.02	1.43	0.03	0.00	0.05	0.54	2.09
2015	0.14	0.00	0.47	0.00	0.68	0.10	0.25	0.00	0.00	0.03	0.03	0.04	1.74
2016	0.65	0.00	–	–	0.00	0.00	0.00	0.00	0.24	0.00	0.01	1.01	1.91
2017	0.96	0.65	0.00	0.00	0.07	0.00	0.21	0.13	0.08	2.10	0.00	0.00	4.20
2018	0.03	0.09	0.04	0.13	0.00	0.00	0.03	0.00	0.70	0.11	0.00	1.19	2.32
2019	0.57	0.16	0.13	0.04	0.00	0.00	0.00	0.00	0.56	0.00	1.28	0.70	3.44
2020	–	0.43	1.53	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.76
2021	1.22	0.03	0.02	0.00	0.00	0.00	0.00	0.25	0.26	0.04	0.00	0.19	2.01
2022	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.01	1.10	0.97	0.07	0.06	2.25
2023	0.58	0.02	0.18	0.00	0.00	0.00	0.00	1.19	0.50	0.00	0.29	0.00	2.76
2024	1.60	0.33	0.27	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	2.23
2025	0.00	0.03	0.21	–	–	–	–	–	–	–	–	–	–
Average[1]	**0.40**	**0.43**	**0.25**	**0.10**	**0.03**	**0.00**	**0.10**	**0.31**	**0.26**	**0.25**	**0.20**	**0.47**	**2.66**

[1] Monthly precipitation averages are calculated from 1901 through 2025 (WRCC 2025c).

Source: WRCC 2025c

Table 6 Monthly Precipitation – Yuma Quartermaster DT, Arizona (inches)

Season	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
2014	0.00	0.00	0.06	0.00	0.00	0.00	0.03	0.31	0.06	0.05	0.00	0.49	0.00
2015	0.40	0.00	0.36	0.00	0.20	0.27	0.11	0.00	0.66	0.07	0.18	0.10	0.00
2016	0.89	0.00	0.00	0.52	0.40	0.00	0.21	0.00	0.13	0.00	0.06	0.01	1.13
2017	0.23	1.28	0.11	0.00	0.20	0.00	0.00	0.00	0.74	0.00	0.04	0.00	0.00
2018	0.15	0.03	0.01	0.00	0.00	0.00	0.34	0.05	0.00	1.91	0.03	0.98	0.00
2019	0.45	0.25	0.34	0.10	0.00	0.00	0.00	0.00	0.20	0.00	1.05	0.28	0.00
2020	0.03	0.82	2.42	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2021	1.39	0.00	0.00	0.00	0.00	0.00	1.80	0.46	0.08	0.02	0.00	0.26	0.00
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.80	0.34	0.00	0.16	0.34
2023	0.28	0.18	0.35	0.00	0.00	0.00	0.00	0.12	1.01	0.00	0.60	1.08	2.33
2024	0.28	0.99	0.30	0.19	0.00	0.00	0.05	0.12	0.00	0.00	0.00	0.00	1.88
2025	0.00	0.00	0.05	–	–	–	–	–	–	–	–	–	0.05
Average[1]	**0.37**	**0.45**	**0.24**	**0.12**	**0.06**	**0.01**	**0.19**	**0.25**	**0.16**	**0.15**	**0.26**	**0.35**	**2.72**

[1] Monthly precipitation averages are calculated from 1993 through 2025 (WRCC 2025c).

Source: WRCC 2025c.

3.1.3 Hydrology

The study area is in the Salton Sea Subbasin watershed (Hydrologic Unit Code 8: 18100204) and the Lower Colorado Subbasin watershed (Hydrologic Unit Code 8: 15030107). The Salton Sea Subbasin watershed encompasses approximately 3,206,054 acres and the Lower Colorado Subbasin watershed encompasses approximately 986,633 acres. The Salton Sea Subbasin watershed receives surface water runoff from Coachella Canal, East Highline Canal, and other creeks adjacent to the area. The Lower Colorado Subbasin watershed receives surface water runoff from the Colorado River and other creeks adjacent to the area. Most of the surface water, from these watersheds, drain towards Mexico (USGS 2025b).

The study area is in the Colorado River hydrologic region and is subject to RWQCB Region 7 (Colorado River) jurisdiction in California, and the Arizona Department of Environmental Quality jurisdiction in Arizona.

3.2 Vegetation Communities and Land Cover Types

3.2.1 Survey Area

Vegetation mapping was performed in the field within the survey area. Sixteen natural vegetation communities, three semi-natural communities, and four other land cover types were identified in the survey area during the reconnaissance surveys.[8]

Within the survey area, desert scrub vegetation communities are the most abundant and include creosote bush (*Larrea tridentata*), brittlebush (*Encelia farinosa*), and white bursage scrub (*Ambrosia dumosa*) communities. In vegetation communities containing a more complex canopy, palo verde (*Parkinsonia florida*), ironwood (*Olneya tesota*), and Fremont cottonwood (*Populus fremontii*) were commonly seen in the tree layer, with other native shrubs such as honey mesquite (*Prosopis glandulosa*) and non-native *Tamarisk spp.* present as subdominant species within the shrub layer. Various other native and non-native herbs are present at relatively low cover.

Plant species observed during the reconnaissance survey are included in Appendix D. Vegetation communities identified in the survey area during vegetation community mapping surveys are provided in Appendix G. Descriptions of vegetation communities and other land cover types documented in surveys are provided below and shown in Table 7. Included in the description of each alliance is the Global and State conservation status ranking. Communities dominated by non-native species are considered semi-natural alliances and have no Global and State rankings (ranking denoted as GNA SNA).

[8] Note that the reconnaissance field survey included a buffer of 350 feet (survey area). Although the survey area was smaller than the study area, more natural vegetation communities were identified in the survey area as a result of the higher resolution vegetation community field data being collected.

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Table 7 Vegetation Communities and Land Cover Types within Survey Area

Vegetation Community or Land Cover Type	Global and State Rank	Total Acres Within Proposed Project[3]	Alternative Route Segments											
			1A[2]	1B[2,3]	1C[2]	1D[2]	1-Alt	2[2,3]	2A[2]	3[2]	3A[2]	3B[2]	3C[2,3]	3D[2]
Natural Communities [1]														
American Bulrush Marsh (Common Three-Square Marsh)	**G5S3**	**0.00**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**0.11**	**–**	**–**
Arrow Weed Thickets	**G4S3**	**90.11**	**11.22**	**3.78**	**3.78**	**3.78**	**–**	**40.35**	**73.96**	**–**	**12.37**	**60.26**	**45.98**	**45.98**
Blue Palo Verde – Ironwood Woodland	**G4S4**	**432.98**	**520.03**	**432.98**	**380.30**	**418.24**	**–**	**–**	**–**	**–**	**-**	**–**	**–**	**–**
Bush Seepweed Scrub	**G4S3**	**90.46**	**–**	**–**	**–**	**–**	**–**	**90.46**	**–**	**–**	**11.45**	**–**	**–**	**–**
California Joint Fir – Longleaf Joint-Fir Scrub	**G5S4**	**83.35**	**–**	**–**	**–**	**–**	**–**	**83.35**	**140.82**	**–**	**–**	**–**	**–**	**–**
Cattail Marshes	G5S5	1.03	–	0.59	0.59	0.59	–	–	1.41	0.44	–	0.78	0.44	0.44
Creosote Bush – Brittle Bush Scrub	G5S4	978.13	1,107.66	978.13	963.72	835.11	–	–	–	–	–	–	–	–
Creosote Bush – White Burr Sage Scrub	G5S5	724.82	638.22	498.62	390.88	565.50	–	226.19	216.56	–	74.51	–	–	–
Creosote Bush Scrub	G5S5	2,049.99	937.86	869.58	869.58	869.58	75.56	1,109.28	1,003.96	79.27	161.37	47.65	71.13	71.66
Fremont Cottonwood Forest and Woodland	**G4S3**	**9.85**	**20.90**	**9.85**	**9.85**	**9.85**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hardstem and California Bulrush Marshes	**GNR S3S4**	**10.64**	**16.82**	**10.64**	**10.64**	**10.64**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Iodine Bush Scrub	**G4S3**	**0.00**	**2.13**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Mesquite Thickets	**G5S3**	**153.09**	**72.00**	**0.38**	**0.38**	**0.38**	**–**	**117.84**	**152.63**	**15.48**	**81.93**	**52.95**	**34.86**	**34.86**
Mojave-Sonoran Desert Dunes	**G4S3**	**203.50**	**204.03**	**203.50**	**203.50**	**203.50**	**33.74**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Quailbush Scrub	G4S4	6.62	–	6.62	6.62	6.62	-	–	9.49	–	–	–	–	–
Saguaro – Foothill Palo Verde – Velvet Mesquite Desert Scrub	**G4S2**	**0.00**	**228.59**	**–**	**–**	**–**	**-**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Semi-natural Communities														
Common Reed Marshes (22)	GNR SNR	3.69	3.77	2.98	2.98	2.98	–	–	2.73	2.40	12.81	4.48	0.71	0.71
Eucalyptus – Tree of Heaven – Black Locust Groves	GNA SNA	51.29	–	–	–	–	–	–	–	50.51	–	3.13	51.29	53.65
Tamarisk Thickets	GNA SNA	239.32	71.30	70.08	70.08	70.08	–	57.29	121.05	52.55	60.82	65.04	111.94	111.89
Other Land Cover														
Agriculture	N/A	1,940.29	–	–	–	–	–	–	–	1,959.58	1,977.16	1,844.55	1,940.29	1,905.02
Developed	N/A	66.41	21.89	12.09	12.09	12.09	0.77	4.99	10.29	84.53	41.82	95.36	49.33	81.92
Disturbed	N/A	156.98	18.76	46.09	46.09	46.09	64.71	12.01	9.05	29.61	84.40	87.99	98.89	98.75
Open Water	N/A	52.92	19.24	22.71	22.71	22.71	49.82	0.77	18.40	7.57	5.51	30.49	29.44	29.13

[1] Vegetation community ranks are from (CDFW 2025d). CDFW sensitive natural communities are indicated in **bold**. Communities were categorized only to the alliance level when 1) all associations are CDFW sensitive natural communities, 2) the alliance contains no CDFW sensitive natural communities, or 3) all CDFW sensitive natural communities were determined to be absent.

GNA SNA – Not applicable; community is not a suitable target for conservation; GNR – Global Rank not assessed

N/A – Not a vegetation community

[2] Acreages are rounded from GIS calculations.

[3] Proposed Project includes Segments 1B, 2, and 3C.

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3.2.2 Study Area

Vegetation mapping was performed via desktop analysis within the entirety of the study area (1,000-foot buffer). There were 13 vegetation communities, 15 semi-natural communities, and 13 other land cover types identified during the desktop review of the study area.

Within the study area, vegetation is dominated by Sonora-Mojave creosote bush-White Bursage desert scrub, Sonoran Paloverde-mixed cacti desert scrub, Sonora-Mojave mixed salt desert scrub, interior west ruderal riparian scrub, and North American warm desert riparian woodland. Various other semi-natural communities such as Great Basin pinyon-juniper woodland and North American warm desert riparian shrubland are present at relatively low cover. Acreages for vegetation communities and other land cover types are shown in Table 8, below.

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Table 8 Vegetation Communities and Land Cover Types within Study Area

Vegetation Community/ Land Cover Type[1]	Total Acres within Proposed Project[2]	Alternative Routes											
		1A[2]	1B[2]	1C[2]	1D[2]	1-Alt	2[2]	2A[2]	3[2]	3A[2]	3B[2]	3C[2]	3D[2]
Natural Communities [1]													
Great Basin Pinyon-Juniper Woodland (6)[3]	15.18	12.65	5.42	3.89	5.68	–	1.19	2.37	6.18	2.22	3.18	8.57	8.57
Interior West Ruderal Riparian Forest (7)	56.24	58.40	22.38	22.38	22.38	–	9.77	33.42	23.01	7.63	16.15	24.08	24.08
Interior West Ruderal Riparian Scrub (8)	132.67	47.96	51.13	51.13	51.13	–	58.14	123.64	17.52	40.70	18.58	23.39	23.39
North American Warm Desert Riparian Herbaceous (14)	31.58	1.23	14.42	14.42	14.42	–	–	7.63	14.15	3.80	24.75	17.16	17.16
North American Warm Desert Riparian Mesquite Bosque Shrubland (15)	9.32	–	0.02	0.02	0.02	–	4.83	4.12	4.47	0.33	4.13	4.47	4.47
North American Warm Desert Riparian Shrubland (16)	23.93	7.13	9.88	9.88	9.88	–	6.58	10.77	5.01	6.21	4.13	7.47	7.47
North American Warm Desert Riparian Woodland (17)	27.84	28.16	12.40	12.40	12.40	–	3.62	10.26	20.11	3.80	20.30	11.82	11.82
North American Warm Desert Wash Shrubland (21)	13.39	2.16	13.39	13.39	13.39	–	–	–	0.22	0.22	–	–	–
Sonora-Mojave Creosotebush-White Bursage Desert Scrub (24)	1,712.17	2,018.48	1,402.15	1,369.80	1,359.22	74.99	115.81	363.59	101.85	189.32	153.00	194.22	195.42
Sonora-Mojave Mixed Salt Desert Scrub (25)	376.17	304.74	200.39	198.61	198.61	–	152.11	241.88	23.26	100.65	34.85	23.67	23.67
Sonora-Mojave Semi-Desert Chaparral (26)	–	–	–	–	–	–	–	25.84	–	–	–	–	–
Sonoran Granite Outcrop Desert Scrub (27)	0.45	0.55	0.45	0.45	0.45	–	–	–	–	–	–	–	–
Sonoran Paloverde-Mixed Cacti Desert Scrub (28)	543.04	578.76	525.82	185.35	207.22	2.00	–	1.33	17.21	1.11	6.17	17.21	17.21
Semi-natural Communities													
North American Warm Desert Bedrock Cliff and Outcrop (10)	783.46	1,061.12	783.02	902.39	838.35	0.73	–	4.73	0.44	–	–	0.44	0.44
North American Warm Desert Ruderal & Planted Grassland (18)	25.47	7.49	1.71	1.71	1.71	–	2.80	9.60	39.71	12.61	18.25	20.96	23.51
North American Warm Desert Ruderal & Planted Scrub (19)	225.82	33.04	13.53	22.42	22.42	–	36.37	28.45	106.77	88.16	103.43	175.92	143.90
Western Warm Temperate Close Grown Crop (29)	1,493.38	–	–	–	–	–	–	–	1,225.78	1,113.73	1,403.48	1,493.38	1,467.74
Western Warm Temperate Developed Herbaceous (30)	0.93	–	–	–	–	–	–	–	7.97	10.18	6.88	0.93	0.70
Western Warm Temperate Developed Shrubland (31)	3.41	3.33	–	–	–	0.44	–	–	6.70	5.81	5.37	3.41	4.22
Western Warm Temperate Fallow/Idle Cropland (32)	48.97	–	–	–	–	–	–	–	–	27.90	116.04	48.97	48.97
Western Warm Temperate Orchard (33)	0.98	4.70	0.98	0.98	0.98	–	–	–	–	–	–	–	–
Western Warm Temperate Pasture and Hayland (34)	866.00	9.79	13.96	13.96	13.96	–	–	–	831.13	472.10	616.25	852.05	828.06
Western Warm Temperate Row Crop (35)	1,159.09	0.67	0.97	0.97	0.97	–	1.84	1.84	1,316.34	1,828.44	1,320.78	1,156.29	1,195.50
Western Warm Temperate Urban Herbaceous (36)	2.77	–	–	–	–	–	–	–	29.97	3.75	5.84	2.77	4.32
Western Warm Temperate Urban Mixed Forest (37)	–	–	–	–	–	–	–	–	0.22	–	–	–	–
Western Warm Temperate Urban Shrubland (38)	21.07	0.22	–	–	–	0.22	–	0.22	42.35	4.14	21.52	21.07	20.86
Western Warm Temperate Wheat (39)	56.99	–	–	–	–	–	–	–	76.66	248.65	–	56.99	87.77
Other Land Cover													
Agriculture-Cultivated Crops and Irrigated Agriculture (1)	–	–	–	–	–	–	–	1.36	–	–	–	–	–
Developed-High Intensity (2)	2.07	0.83	0.22	0.22	0.22	–	0.22	0.22	1.33	1.06	4.43	1.84	1.84
Developed-Low Intensity (3)	8.63	9.33	2.00	2.00	2.00	1.82	0.22	0.80	17.35	9.66	11.73	6.41	6.61
Developed-Medium Intensity (4)	4.83	3.67	1.85	1.85	1.85	0.22	–	0.87	9.81	15.90	9.03	2.98	3.33
Developed-Roads (5)	262.00	121.80	50.52	50.52	50.52	69.98	55.27	108.00	158.18	144.57	158.54	156.21	160.98
North American Warm Desert Active and Stabilized Dune (9)	2,162.65	548.18	547.96	547.51	547.51	108.04	1,614.69	754.08	–	0.58	0.22	–	–
North American Warm Desert Cienega (11)	41.84	13.22	25.86	25.86	25.86	–	11.18	22.06	4.85	–	4.66	4.80	4.80

Vegetation Community/ Land Cover Type[1]	Total Acres within Proposed Project[2]	Alternative Routes											
		1A[2]	1B[2]	1C[2]	1D[2]	1-Alt	2[2]	2A[2]	3[2]	3A[2]	3B[2]	3C[2]	3D[2]
North American Warm Desert Pavement (12)	2,718.79	1,701.30	1,521.31	1,560.45	1,754.56	16.33	1,118.09	1,007.11	70.05	328.51	72.33	79.39	79.81
North American Warm Desert Playa (13)	70.75	70.12	70.53	0.40	1.74	–	–	297.76	–	0.26	0.71	0.22	0.22
North American Warm Desert Volcanic Rockland (20)	296.89	293.71	294.37	245.63	241.37	1.97	2.52	7.59	–	0.22	–	–	–
Open Water (22)	125.19	67.72	82.58	82.58	82.58	6.95	17.42	176.91	25.23	15.58	37.24	25.18	25.18
Quarries-Strip Mines-Gravel Pits-Well and Wind Pads (23)	6.61	–	–	–	–	–	–	–	5.06	–	6.61	6.61	6.61
Total	**21,137.60**	**7,236.75**	**5,897.76**	**5,569.91**	**5,710.01**	**283.71**	**3,218.29**	**3,175.62**	**4,208.91**	**4,687.50**	**4,208.18**	**4,448.54**	**4,448.75**

[1]Vegetation communities and land cover type are from the LandFire dataset (2025).

[2]Acreages are rounded from GIS calculations.

[3]Numerals indicate index value associated with Appendix G – Vegetation Communities.

Note: This table is inclusive of a 1,000-foot buffer around the study area.

3.2.3 Natural Vegetation Communities

Natural vegetation communities mapped within the survey area are described in more detail below.

American Bulrush Marsh (*Schoenoplectus americanus* Herbaceous Alliance)

This vegetation community most closely resembles Common Three-square Marsh (*Schoenoplectus americanus* Herbaceous Alliance) described by Sawyer et al. (2009). It is generally found along streams, around ponds and lakes, and in sloughs, swamps, fresh and brackish marshes, and roadside ditches, between 148 to 4,921 above mean sea level (amsl). Soils have a high organic content and are poorly aerated (Sawyer et al. 2009). This vegetation community is typically characterized by having common three-square marsh (*Schoenoplectus americanus*) as dominant in the herbaceous layer (>50 percent relative cover) and three-square bulrush (*Schoenoplectus pungens*) as the co-dominant layer (>30% relative cover with other herbs). This alliance is ranked G5S3 and is considered a CDFW sensitive community (CDFW 2025d).

Arrow Weed Thickets (*Pluchea sericea* Shrubland Alliance)

Arrow Weed Thickets (*Pluchea sericea* Shrubland Alliance) is typically found around springs, seeps, irrigation ditches, canyon bottoms, stream borders, seasonally flooded washes between -246 and 2,953 amsl. Soils are alluvial- or aeolian-derived sands or clay loams that are usually alkaline or saline (Sawyer et al. 2009). This vegetation community is typically characterized by having arrow weed as dominant in the shrub canopy layer (>50% relative cover). This alliance is ranked G4S3 and is considered a CDFW sensitive community (CDFW 2025d).

Blue Palo Verde – Ironwood Woodland (*Parkinsonia florida – Olneya tesota* Woodland Alliance)

Blue Palo Verde – ironwood woodland (*Parkinsonia florida – Olneya tesota* Woodland Alliance) is typically found in desert arroyo margins, seasonal watercourses and washes, bottomlands, middle and upper bajadas and alluvial fans, and lower slopes, between 32 to 1,640 amsl. Soils are sandy, well-drained, and derived from alluvium or colluvium (Sawyer et al. 2009). This vegetation community is typically characterized by having desert ironwood (*Olneya Tesota*) and blue Palo Verde (*Parkinsonia florida*) as co-dominant in the tree or tall shrub canopy (>3% absolute cover in the tall shrub or tree canopy). This alliance is ranked G4S4 and is considered a CDFW sensitive community (CDFW 2025d).

Bush Seepweed Scrub (*Suaeda moquinii* Shrubland)

Bush seepweed scrub (*Suaeda mouquinii* Shrubland Alliance) is typically found on flat to gently sloping valley bottoms, playas, toe slopes adjacent to alluvial fans, and bajadas with deep soils that are saline or alkaline, between 16 to 4,265 amsl (Sawyer et al. 2009). This vegetation community is generally characterized by having bush seepweed (*Suaeda moquinii*) as dominant in the shrub canopy (>50% relative cover) or co-dominant fourwing saltbush (*Atriplex canescens*) in the shrub canopy (>30% relative cover when co-dominant This association is ranked G4S3 and is considered a CDFW sensitive community (CDFW 2025d).

California Joint Fir – Longleaf Joint-Fir Scrub (*Ephedra californica – Ephedra trifurca* Shrubland Alliance)

California joint fir – longleaf joint-fir scrub (*Ephedra californica – Ephedra trifurca* Shrubland Alliance) is usually found in intermittently flooded arroyos, washes, and adjacent alluvial fans in transmontane settings; residual dunes and xeric fine-grained sedimentary substrates in cismontane settings, between 656 to 4,921 amsl. Soils are coarse to medium sands, loamy sands, and sandy clay loams (Sawyer et al. 2009). This vegetation community is generally characterized by having California joint fir (*Ephedra californica*) as dominant in the shrub overstory (>30% relative cover) or codominant in the shrub layer with longleaf joint fir (*Ephedra trifurca*) often on loose, sandy soils (>30% relative cover). This alliance is ranked G5S4 and is considered a CDFW sensitive community (CDFW 2025d).

Cattail Marshes (*Typha* Herbaceous Alliance)

Cattail marshes (*Typha* Herbaceous Alliance) is typically found along semi-permanently flooded freshwater or brackish marshes with soils that are clayey or silty, between 0 to 1,148 amsl (Sawyer et al. 2009). This vegetation community is typically characterized by having common cattail (*Typha latifolia*) as dominant in the herbaceous layer (>50% relative cover); lesser bulrush (*Typha angustifolia*) as dominant in the herbaceous layer (>50% relative cover); or common cattail, lesser bulrush, and/or southern cattail (*Typha domingensis*) as co-dominant in the herbaceous layer (>50% relative cover). This alliance is ranked G5S5 and is not considered a CDFW sensitive community (CDFW 2025d).

Creosote Bush – Brittle Bush Scrub (*Larrea tridentata – Encelia farinosa* Shrubland Alliance)

Creosote bush – brittle bush scrub (*Larrea tridentata – Encelia farinosa* Shrubland Alliance) is generally found in small washes, rills, alluvial fans, bajadas, colluvium on upland slopes, between 246 and 4,593 amsl. Soils are well drained, rocky, may have desert pavement surfaces, and are often derived from granitic or volcanic rock (Sawyer et al. 2009). This vegetation community is typically characterized by having both creosote (*Larrea tridentata*) and brittle bush (*Encelia farinosa*) as co-dominant and equally conspicuous in the shrub canopy (>1% absolute cover) with desert agave (*Agave deserti*), white bursage (*Ambrosia dumosa*), prickly pear (*Opuntia* spp.), and emergent ocotillo (*Fouquieria splendens*) potentially present in the shrub canopy (<5% absolute cover). This alliance is ranked G5S4 and is not considered a CDFW sensitive community (CDFW 2025d).

Creosote Bush – White Burr Sage Scrub (*Larrea tridentata – Ambrosia dumosa* Shrubland Alliance)

This vegetation community most closely resembles Creosote bush – white bursage scrub (*Larrea tridentata – Ambrosia dumosa* Shrubland Alliance) described by Sawyer et al. (2009) and is typically found in washes and rills, alluvial fans, bajadas, valleys, basins, upland slopes, mesas, and erosional highlands, between -246 and 5,249 amsl. Soils are well-drained, alluvial, colluvial, sandy, sometimes underlain by a hardpan that may be calcareous, igneous, and/or covered with desert pavement (Sawyer et al. 2009). This vegetation community is usually characterized by having both creosote and white bursage (*Ambrosia dumosa*) as co-dominant in the shrub canopy (>1% absolute cover). This alliance is ranked G5S5 and is not considered a CDFW sensitive community (CDFW 2025d).

Creosote Bush Scrub (*Larrea tridentata* Shrubland)

Creosote bush scrub (*Larrea tridentata* Shrubland Alliance) is typically found on alluvial fans, bajadas, upland slopes, and minor intermittent washes with well drained soils or desert pavement, between -246 to 4,265 feet amsl (Sawyer et al. 2009). This vegetation community is typically characterized by creosote as dominant in the shrub canopy. This alliance is ranked G5S5 and is not considered a CDFW sensitive community (CDFW 2025d).

Fremont Cottonwood Forest and Woodland (*Populus fremontii – Fraxinus velutina – Salix goodingii* Forest & Woodland Alliance)

Fremont cottonwood forest and woodland (*Populus fremontii – Fraxinus velutina – Salix gooddingii* Forest & Woodland Alliance) is generally found on floodplains, along low-gradient rivers, perennial or seasonally intermittent streams, springs, in lower canyons in desert mountains, in alluvial fans, and in valleys with a dependable subsurface water supply that varies considerably during the year, between 0 and 7,874 amsl (Sawyer et al. 2009). This vegetation community is typically characterized by having Fremont cottonwood (*Populus fremontii*) as dominant in the tree layer (>50% relative cover) or co-dominant in the tree canopy with boxelder maple (*Acer negundo*), Northern California walnut (*Juglans hindsii*), or willows (*Salix* spp.) (>30% relative cover). This alliance is ranked G4S3 and is considered a CDFW sensitive community (CDFW 2025d).

Hardstem and California Bulrush Marshes (*Schoenoplectus (acutus, californicus)* Herbaceous Alliance)

Hardstem and California bulrush marshes (*Schoenoplecuts (acutus, californicus)* Herbaceous Alliance) is typically found in brackish to freshwater marshes; along stream shores, bars, and channels of river mouth estuaries; around ponds and lakes; in sloughs, swamps, and roadside ditches between 0 and 8,202 amsl. Soils have a high organic content and are poorly aerated (Sawyer et al. 2009). This vegetation community is typically characterized by hardstem bulrush (*Schoenoplectus acutus*) as the dominant species in the herbaceous layer (>50% relative cover with >10% absolute cover), California bulrush as dominant in the herbaceous layer (>30% relative cover with >10% absolute cover), or hardstem bulrush and California bulrush as co-dominant in the herbaceous layer (>50% cover or >30% relative cover if codominant with cattail species). This alliance is ranked GNRS3S4 and is considered a CDFW sensitive community (CDFW 2025d).

Iodine Bush Scrub (*Allenrolfea occidentalis* Shrubland Alliance)

Iodine bush scrub (*Allenrolfea occidentalis* Shrubland Alliance) is generally found along dry lakebed margins, hummocks, playas perched above current drainages, and seeps between 262 and 5,905 amsl (Sawyer et al. 2009). This vegetation community is typically characterized by iodine bush (*Allenrolfea occidentalis*) as dominant in the shrub canopy with no other species with greater or equal cover (>2% absolute cover). This alliance is ranked G4S3 and is considered a CDFW sensitive community (CDFW 2025d).

Mesquite Thickets (*Prosopis glandulosa – Prosopis velutina – Prosopis pubescens* Woodland Alliance)

Mesquite thickets (*Prosopis glandulosa – Prosopis velutina – Prosopis pubescens* Woodland Alliance) is typically found on fringes of playa lakes, river terraces, stream banks, springs, gullies, floodplains, rarely flooded margins of arroyos and washes, sand dunes between -262 and 5,085 amsl. Soils are

slightly to moderately saline, with a wide range of soil textures (Sawyer et al. 2009). This vegetation community is typically characterized by having mesquite (*Prosopis* spp.) as the dominant species in the shrub and tree layers(>3% absolute cover), honey mesquite (*Prosopis glandulosa*) as the dominant species in the three or tall shrub canopy (>2% absolute cover and >50% relative cover), or screwbean mesquite (*Prosopis pubescens*) as the dominant species in the large shrub or small tree canopy (>2% cover). This alliance is ranked G5S3 and is considered a CDFW sensitive community (CDFW 2025d).

Mojave-Sonoran Desert Dunes (*Dicoria cansescens – Abronia villosa – Panicum urvilleanum* Sparsely Vegetated Alliance)

Mojave-Sonoran desert dunes (*Dicoria cansescens – Abronia villosa – Panicum urvilleanum* Sparsely Vegetated Alliance) is typically found on Active dunes, partially stabilized dunes, stabilized dunes, sand fields between 33 and 4,265 amsl. Soils are fine to moderately coarse sand. This vegetation community is typically characterized by herb and subshrub cover that is sparse to intermittent with seasonal annuals and scattered perennials. Spectacle fruit (*Wislizenia refracta*) makes up over 50% of the relative cover in the herbaceous layer with Thurber's sandpaper plant (*Petalonyx thurberi*) making up over 50% of the open shrub canopy and scattered plants with a combined absolute cover of between 2% and 10% including Indian ricegrass (A*chnatherum hymenoides*), white bursage (*Ambrosia Dumosa*), creosote bush, and big galleta (*Pleuraphis rigida*). This alliance is ranked G4S3 and is considered a CDFW sensitive community (CDFW 2025d).

Quailbush Scrub (*Atriplex lentiformis* Shrubland Alliance)

Quailbush scrub (*Atriplex lentiformis* Shrubland Alliance) is typically found on gentle to steep southeast- and southwest-facing slopes between 0 and 558 amsl. Soils are clays (Sawyer et al. 2009). This vegetation community is typically characterized by quailbush (*Atriplex lentiformis*) as dominant in the shrub canopy (>50% relative cover) or co-dominant in the shrub canopy with Torrey's quailbush (>50% relative cover. This alliance is ranked G4S4 and is not considered a CDFW sensitive community (CDFW 2025d).

Saguaro – Foothill Palo Verde – Velvet Mesquite Desert Scrub (*Carnegiea gigantea – Parkinsonia microphylla – Prosopis velutina* Provisional Shrubland Alliance)

Saguaro – foothill Palo Verde – velvet mesquite desert scrub (*Carnegiea gigantea – Parkinsonia microphylla – Prosopis velutina* Provisional Shrubland Alliance) is generally found on Metavolcanic and sedimentary outcrops, mesas, foothill slopes, and washes between 492 and 3,609 amsl. Soils are thin, often with a caliche layer (Sawyer et al. 2009). This vegetation community is typically characterized by a shrub or small tree canopy that is open to intermittent and an herbaceous layer that is usually sparse yet may have spectacular annual blooms. Little-leaved palo verde (*Parkinsonia microphylla*) is co-dominant in the shrub or small tree canopy with teddy-bear cholla, brittlebush, California fagonbush, creosote bush, and Hall's shrubby-spurge (*Tetracoccus hallii*). Emergent trees may be present at low cover, including Saguaro cactus (*Carnegiea gigantea*) or desert ironwood. This alliance is ranked G4S2 and is considered a CDFW sensitive community (CDFW 2025d).

3.2.4 Semi-natural Vegetation Communities

Semi-natural vegetation communities mapped within the survey area are described in more detail below.

Common Reed Marshes (*Phragmites australis – Arundo donax* Herbaceous Semi-Natural Alliance)

This vegetation community most closely resembles common and giant reed marshes (*Phragmites australis – Arundo donax* Herbaceous Semi-Natural Alliance) as described by Sawyer et al. (2009) and is typically found in riparian areas, along low-gradient streams, and ditches; semi-permanently flooded and slightly brackish marshes, and impoundments between 0 and 5,249 amsl (Sawyer et al. 2009). This vegetation community is typically characterized by having common reed as dominant in the herbaceous layer (>2% absolute cover and >50% relative cover) or giant cane (*Arundo donax*) dominant in the herbaceous and shrub layers (>60% relative cover). This vegetation alliance is ranked GNRSNR due to the predominance of non-native species and is not considered sensitive (CDFW 2025d).

Eucalyptus – Tree of Heaven – Black Locust Groves (*Eucalyptus* spp. – *Ailanthus altissima – Robinia pseudoacacia* Woodland Semi-Natural Alliance)

Eucalyptus – tree of heaven – black locust groves (*Eucalyptus* spp. – *Ailanthus altissima – Robinia pseudoacacia* Woodland Semi-Natural Alliance) is typically found planted as trees, groves, and windbreaks; naturalized on uplands or bottomlands and adjacent to stream courses, lakes, or levees between 0 and 6,234 amsl (Sawyer et al. 2009). This vegetation community is typically characterized by having eucalyptus (*Eucalyptus* spp.) as dominant in the tree layer (>80% relative cover), tree of heaven (*Ailanthus altissima*) as dominant in the tree layer (>80% relative cover), black locust (*Robinia pseudoacacia*) as dominant in the tree layer (>80% relative cover). This vegetation alliance is ranked GNASNA due to the predominance of non-native species and is not considered sensitive (CDFW 2025d).

Tamarisk Thickets (*Tamarix* spp. Shrubland Semi-Natural Alliance)

Tamarisk thickets (*Tamarix* spp. Shrubland Semi-Natural Alliance) is typically found along arroyo margins, lake margins, ditches, washes, rivers, and other watercourses between 245 to 2,625 feet amsl. Tamarisk (*Tamarix* spp.) contributes to at least 60 percent relative cover in the shrub layer. Emergent trees may be present at low cover, including Fremont's cottonwoods. This vegetation community is ranked GNASNA and is not considered sensitive (CDFW 2025d).

3.2.5 Other Land Cover

Other land cover types mapped within the survey area are described in more detail below.

Agriculture

Agricultural areas in the survey area consist of farmland with a range of different crops and associated infrastructure. This land cover type is present in the eastern and western parts of the survey area.

Developed

Developed areas in the survey area consist of paved and unpaved roadways, road shoulders with little to no vegetation, residential, commercial, and industrial buildings, and associated infrastructure. This land cover type is present throughout the survey area.

Disturbed

Disturbed land cover in the survey area has been temporarily impacted by human activities. This land cover type includes lands which have been impacted by human use but which do not fall into the previous categories.

Open Water

The open water land cover type consists of the Colorado River, All American Canal, and several human-made concrete-lined located in the agricultural areas within the survey area.

3.2.6 Invasive Plant Species

Natural portions of the survey area are dominated by widely spaced native shrubs surrounded by mostly barren ground and scattered herbaceous plants. Many non-native species in the survey area are characterized by an annual lifecycle with a spring growth and blooming period. The floral compendia included in Appendix D and Appendix F list all plant species observed during the 2025 reconnaissance survey.

Invasive plant species as defined by the California Invasive Plant Council (Cal-IPC) (Cal-IPC 2025) observed in the survey area include giant reed (*Arundo donax*; Cal-IPC High), Bermuda grass (*Cynodon dactylon*; Cal-IPC Moderate), Canary Island date palm (*Phoenix canariensis*; Cal-IPC Limited), rabbits foot grass (*Polypogon monspeliensis*; Cal-IPC Limited), Ravenna grass (*Saccharum ravennae*; Cal-IPC Moderate), Arabian schismus (*Schismus arabicus*; Cal-IPC Limited), Mediterranean grass (*Schismus barbatus*; Cal-IPC Limited), Athel tamarisk (*Tamarix aphylla*; Cal-IPC Limited), Tamarisk (*Tamarisk ramosissima*; Cal-IPC High), and Mexican fan palm (*Washington robusta*; Cal-IPC Moderate). A “High” ranking indicates a species has severe ecological impacts on physical processes, plant and animal communities, and vegetation structure, while a “Moderate” ranking indicates a species has substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. “Limited” ranking indicates an invasive species with minor ecological impacts on a statewide level, or there was not enough information to justify a higher score (Cal-IPC 2025).

3.3 General Wildlife Species

The survey area includes suitable habitats for desert wildlife species typical of the region, including reptiles such as zebra-tailed lizard (*Callisaurus draconoides*), desert iguana (*Dipsosaurus dorsalis*), long-tailed brush lizard (*Urosaurus graciosus*), and Great Basin whiptail (*Aspidoscelis tigris tigris*), birds such as common raven (*Corvus corax)*, Gamble’s quail (*Callipepla gambelii*), western kingird (*Tyrannus verticalis*), white-crowned sparrow (*Zonotrichia leucophrys*), cliff swallow (*Petrochelidon pyrrhonota*), and American coot (*Fulica americana*), and mammals such as coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), and burro (*Equus asinus*). A complete list of wildlife observed in the survey area during the April and May 2025 biological reconnaissance surveys is included in Appendix D.

4 Sensitive Biological Resources

Sensitive natural communities identified during the field surveys are described in Section 4.1. Based on the literature and database review and field survey results, special status plant and wildlife species were evaluated for potential to occur in the study area. Species that were determined to occur or to be likely to occur in the study area are described in Sections 4.2 and 4.3, below. Occurrence determinations, listing status, suitable habitats, and presence of suitable habitat in the study area are provided for all species evaluated in Appendix I.

4.1 Sensitive Natural Communities

Eleven sensitive natural communities occur in the survey area (American bulrush marsh, arrow weed thickets, blue palo verde – ironwood woodland, bush seepweed scrub, California joint fir – longleaf fir joint-fir scrub, Fremont cottonwood forest and woodland, hardstem and California bulrush marshes, iodine bush scrub, mesquite thickets, Mojave-Sonoran Desert dunes, and Saguaro – foothill palo verde – velvet mesquite desert scrub). American bulrush marsh is ranked G5S3, arrow weed thickets are ranked G4S3, blue palo verde – ironwood woodland is ranked G4S4, bush seepweed scrub is ranked G4S3, California joint fir – longleaf fir joint-fir scrub is ranked G5S4, Fremont cottonwood forest and woodland is ranked G4S3, hardstem and California bulrush marshes are ranked GNR S3S4, iodine bush scrub is ranked G4S3, mesquite thickets are ranked G5S3, Mojave-Sonoran Desert dunes are ranked G4S3, and saguaro – foothill palo verde – velvet mesquite desert scrub is ranked G4S2.

Sensitive natural communities, including those recorded during surveys referenced in Section 2.2, are mapped in Appendix G. Rarity rankings for the vegetation communities in the survey area are included in Table 7.

4.2 Special Status Plants

Of the 19 special-status plant species evaluated for potential to occur, the following eight species were determined to occur or to be likely to occur in the study area:

- Harwood's milkvetch (*Astragalus insularis* var. *harwood*ii),
- Peirson's milkvetch (*Astragalus magdalenae* var. *peirsonii*),
- Saguaro (*Carnegiea gigantea*),
- Wiggins' croton (*Croton wigginsii*),
- Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*),
- Parish's desert-thorn (*Lycium parishii*),
- giant spanish-needle (*Palafoxia arida* var. *gigantea*),
- sand food (*Pholisma sonorae*).

The remaining 11 special-status plants were determined to be unlikely to occur or does not occur.

One federally listed plant species was determined likely to occur in the study area: Peirson's milkvetch (Federally Threatened [FT]). Two State listed plant species were determined to be likely to occur in the study area: Peirson's milkvetch (State Endangered [SE]) and Algodones Dunes sunflower (SE).

Special status plant species that either occur in the study area or were determined to likely occur in the study area based on the results of the desktop and literature review are described below. For more information on these determinations, including segment- and route-specific determinations, please see Appendix E.

Harwood's Milkvetch

Harwood's milkvetch is a CRPR 2B.2 species. It is an annual herb that is native to California, Sonora, Mexico, and Arizona. It inhabits creosote bush scrub in desert dunes and Mojavean desert scrub. It produces purple flowers which bloom from January to May (Calflora 2025). This species sometimes prefers gravelly or sandy soils and can be found at elevations up to 2,330 feet (CDFW 2025a).

Harwood's milkvetch is likely to occur in suitable desert dune and Mojavean desert scrub habitat that is present in the study area (alternative route segments 1A, 1B, 1C, 1D, 1-Alt). This habitat is present mostly in the eastern portion of the study area that crosses the Algodones dunes. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area, dated from 2008.

Pierson's Milkvetch

Pierson's milkvetch is a federally threatened, CDFW endangered, and CRPR 1B.2 species. This species is a member of the legume family and is an erect to spreading, herbaceous, short-lived perennial plant. It is known to occur from the Algodones Dunes in Imperial County, California and the Gran Desierto of northwestern Sonora, Mexico. It is covered with fine, silky hairs and produces purple flowers, often with white tips, which generally appear from December through April. Within the United States, it grows in open sand of intact, active windblown sand dunes at Algodones Dunes.

Pierson's milkvetch is likely to occur within the study area due to its distribution in the Algodones Dunes in Imperial County (alternative route segments 1A, 1B, 1C, 1D, 1-Alt, 2, 2A). This species is endemic to the Algodones Dunes and should only be found in the portion of the study area that overlaps with the dunes (between Date and Yuma cities) (CDFW 2025a). There is a recent CNDDB documented occurrence of the species within 2 miles of the study area, dated from 2008.

Saguaro

The saguaro is a CRPR 2B.2 species and an APNP. It occurs in the northern reaches of the Sonoran Desert and provides homes and food for a variety of wildlife. It is present in Arizona, northern Mexico, and the southeastern corner of California along the Arizona/California border (CDFW 2019). This species is found on gravelly slopes, rocky ridges, and outwash fans (USDA 2025a). This species prefers elevations between 165 to 4,290 feet. It blooms between May and June (CDFW 2025a).

This species was observed in the study area during the 2025 biological reconnaissance surveys in alternative route segment 1A in Arizona.

Saguaros are likely to occur in Sonoran desert scrub habitat present on the eastern side of the study area (alternative route segment 1A). This species was observed in the study area during the 2025 biological reconnaissance surveys. Additionally, there is a recent CNDDB documented occurrence of the species within 2 miles of the study area, dated from 2013.

Wiggins' Croton

Wiggins' croton is a CDFW rare and CRPR 2B.2 species. This species is a small gray-green shrub that is native to the Sonoran Deserts of northern Mexico and Arizona, into the Colorado Desert in California where it inhabits sand dunes. It is a spreading shrub that approaches three feet in height with sparse foliage made up of long oval-shaped leaves covered in a coating of white hairs. It is dioecious with male plants bearing staminate flowers with thready stamens and female plants bearing pistillate flowers composed of the rounded immature fruits (CNPS 2025a). It flowers from February to May and produces white or cream colored "flowers" on a raceme. It occurs in sandy areas and sand dune communities and its range appears to be restricted to sand dunes in Imperial County, California and Yuma County, Arizona (SDF 2019).

Wiggins' croton is likely to occur within the study area due to its distribution in the Algodones Dunes and Sonoran desert scrub (alternative route segments 1A, 1B, 1C, 1D, 1-Alt, 2, 2A). In Segment 1, there are three CNDDB documented occurrences of the species within 2 miles of the study area from 2002 – 2019. In Segment 2, there is a recent CNDDB documented occurrence of the species within 2 miles of the study area, dated from 2019.

Algodones Dunes Sunflower

Algodones Dunes sunflower is a California endangered and CRPR 1B.2 species. It grows in the dune ecosystems of California. It is a perennial plant with leaves that are all opposite or nearly alternate, and spathulate with white or grayish sericeous hairs on the surfaces. The flower heads are solitary with corrollas from reddish purple to nearly yellow. This species is limited to the loose sand dunes of Baja, California which extend north into southern Arizona and northern California. Associated species include *Eriogonum deserticolo*, *Palofoxia arida*, and *Tiquilia plicata* (CFPC 2025a). The blooming period of this species is from September to May (Calflora 2025).

The Algodones Dunes sunflower is likely to occur within the study area because of its distribution in desert dunes. The eastern part of the study area crosses a large portion of the Algodones dunes (alternative route segments 1A, 1B, 1C, 1D, 1-Alt, 2, 2A). In Segment 1, there is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2018. In Segment 2, there is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2018.

Parish's Desert-thorn

The Parish's desert-thorn is a CRPR 2B.3 species. It is a shrub that is native to California, Sonora (Mexico), and Arizona. It inhabits coastal sage scrub and creosote bush scrub plant communities. It produces purple flowers that bloom in March and April (Calflora 2025). It can be found at elevations between 445 and 3,280 feet (CDFW 2025a).

Parish's desert-thorn is likely to occur in suitable Sonoran desert scrub habitat that is present in the western end of the study area (alternative route segments 3, 3A, 3B, 3C, 3D). There are two CNDDB documented occurrences of the species within 2 miles of the study area, dated from 2010.

Giant Spanish-needle

The giant Spanish-needle is a CRPR 1B.3 species. It is a shrub species that is found in Arizona, California, and Sonora and Baja California (Mexico). This species prefers sandy dune habitat with sandy soils and mesas. It produces pink flowers and blooms between February and March and fruits

through November (SDF 2020). This species is associated with *Ammobroma sonorae* and *Astragalus lentiginosus borreganus*. It grows at elevations between 50 and 330 feet (CDFW 2025a).

Giant Spanish-needle is likely to occur in suitable desert dune habitat that is present in the study area. These dunes are present in the eastern part of the study area which crosses the Algodones Dunes (alternative route segments 1A, 1B, 1C, 1D, 1-Alt, 2, 2A). In Segment 1, there is a recent CNDDB documented occurrence of the species within 2 miles of the study area, dated from 2013. In Segment 2, there is a recent CNDDB documented occurrence of the species within 2 miles of the study area, dated from 2013.

Sand Food

Sand food is a CRPR 1B.2 species and an APNP. It is an obscure, parasitic plant which appears to be perennial. It is found in the loose, shifting sand of the unstable dunes near Yuma, Arizona. It is associated with species such as *Tiquilia plicata*, *Eriogonum* sp., and *Ephedra* sp. The range of the species extends south into Mexico and west into the southwestern corner of California (CFPC 2025b). This species blooms between April and June (sometimes starting in March). It can be found at elevations up to 655 feet (CDFW 2025a).

Sand food is likely to occur in suitable desert dune and Sonoran desert scrub habitat present in the study area (alternative route segments 1A, 1B, 1C, 1D, 1-Alt, 2, 2A). In Segment 1, there is a recent CNDDB documented occurrence of the species within 2 miles of the study area, dated from 2018. In Segment 2, there is a recent CNDDB documented occurrence of the species within 2 miles of the study area, dated from 2018.

4.3 Special Status Wildlife

Based on the database queries and literature review, a total of 51 special status wildlife species were evaluated for their potential to occur near the study area. For more information on these determinations, including segment- and route-specific determinations, please see Appendix E.

Nine special status wildlife species were incidentally observed during the 2025 biological reconnaissance surveys and therefore occur: burrowing owl (*Athene cunicularia*), yellow-breasted chat (*Icteria virens*), loggerhead shrike (*Lanius ludovicianus*), Gila woodpecker (*Melanerpes uropygialis*), double-crested cormorant (*Nannopterum auritum*), osprey (*Pandion haliaetus*), black-tailed gnatcatcher (*Polioptila melanura*), yellow warbler (*Setophaga petechia*), and desert bighorn sheep (*Ovis canadensis nelsoni*).

Additionally, 18 special status wildlife species are likely to occur within the study area. All 27 special status species determined to occur or likely to occur are within the study area are detailed in Table 9, below.

Table 9 Wildlife Species that Occur or are Likely to Occur in the Study Area

Scientific Name Common Name	Occurrence Determination	Listing Status
Reptiles		
desert tortoise *Gopherus agassizii*	Likely	FT State Threatened (ST) Species of Greatest Conservation Need (SGCN) Lower Colorado River Multi-Species Conservation Program (LCR MSCP) Covered Species (CS) Desert Renewable Energy Conservation Plan Focus Species (DRECP)
flat-tailed horned lizard *Phrynosoma mcallii*	Likely	CDFW Species of Special Concern (SSC) BLM Sensitive (S) SGCN LCR MSCP CS
Colorado Desert fringe-toed lizard *Uma notata*	Likely	CDFW SSC BLM S SGCN DRECP
Birds		
burrowing owl *Athene cunicularia*	Occurs	State Candidate Endangered (SCE) CDFW SSC USFWS Birds of Conservation Concern (BCC) BLM S SGCN DRECP
ferruginous hawk *Buteo regalis*	Likely	CDFW Watch List (WL)
mountain plover *Charadrius montanus*	Likely	CDFW SSC USFWS BBC BLM S SGCN
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Likely	FT SE BLM S SGCN LCR MSCP CS
southwestern willow flycatcher *Empidonax traillii extimus*	Likely	Federally Endangered (FE) SE SGCN LCR MSCP CS
yellow-breasted chat *Icteria virens*	Occurs	CDFW SSC SGCN
least bittern *Ixobrychus exilis*	Likely	CDFW SSC SGCN LCR MSCP CS
loggerhead shrike *Lanius ludovicianus*	Occurs	CDFW SSC
California black rail *Laterallus jamaicensis coturniculus*	Likely	ST CDFW Fully Protected (FP) BLM S SGCN LCR MSCP CS

Scientific Name Common Name	Occurrence Determination	Listing Status
Gila woodpecker *Melanerpes uropygialis*	Occurs	SE USFWS BCC BLM S SGCN LCR MSCP CS
double-crested cormorant *Nannopterum auritum*	Occurs	CDFW WL
osprey *Pandion haliaetus*	Occurs	CDFW WL
black-tailed gnatcatcher *Polioptila melanura*	Occurs	CDFW WL SGCN
Yuma clapper rail *Rallus longirostris yumanensis*	Likely	FE ST LCR MSCP CS
Yuma Ridgway's rail *Rallus obsoletus yumanensis*	Likely	FE ST CDFW FP SGCN
yellow warbler *Setophaga petechia*	Occurs	CDFW SSC SGCN
Sonoran yellow warbler *Setophaga petechia sonorana*	Likely	CDFW SSC SGCN LCR MSCP CS
Arizona Bell's vireo *Vireo bellii arizonae*	Likely	SE BLM S SGCN LCR MSCP CS
Mammals		
western red bat *Lasiurus blossevilli*	Likely	CDFW SSC LCR MSCP CS
California leaf-nosed bat *Macrotus californicus*	Likely	CDFW SSC BLM S SGCN LCR MSCP ES
desert bighorn sheep *Ovis canadensis nelsoni*	Occurs	CDFW FP BLM S DRECP
Yuma hispid cotton rat *Sigmodon hispidus eremicus*	Likely	CDFW SSC SGCN LCR MSCP CS
American badger *Taxidea taxus*	Likely	CDFW SSC SGCN
desert kit fox *Vulpes macrotis arsipus*	Likely	DRECP

The remaining 25 special-status wildlife species were determined to be unlikely to occur or do not occur in the study area.

Of the 18 species that are likely to occur, eight species are listed federally as threatened (FT), endangered (FE), or a Bird of Conservation Concern (BCC): desert tortoise (FT), burrowing owl (BCC), mountain plover (BCC), western yellow-billed cuckoo (FT), southwestern willow flycatcher (FE), Gila woodpecker (BCC), Yuma clapper rail (FE), and Yuma Ridgway's rail (FE).

All nine species currently known to occur within the study area are state listed as threatened, endangered, Watch List, Species of Special Concern (SSC), or Lower Colorado River Multi-Species Conservation Program (LCR MSCP CS) include: burrowing owl (SE and SSC), yellow-breasted chat (SSC), loggerhead shrike (SSC), Gila woodpecker (SE, LCR MSCP CS), double-crested cormorant (WL), osprey (WL), black-tailed gnatcatcher (WL), yellow warbler (SSC), and desert bighorn sheep (FP).

All 27 wildlife species that occur or are likely to occur within the study area include: desert tortoise (State Threatened [ST], LCR MSCP CS), flat-tailed horned lizard (SSC, LCR MSCP CS), Colorado Desert fringe-toed lizard (SSC), ferruginous hawk (State Watch List [WL]), mountain plover (SSC), western yellow-billed cuckoo (State Endangered [SE], LCR MSCP CS), southwestern willow flycatcher (SE, LCR MSCP CS), least bittern (SSC, LCR MSCP CS), California black rail (ST and State Fully-Protected [FP], LCR MSCP CS), Yuma clapper rail (ST, LCR MSCP CS), Yuma Ridgway's rail (ST and FP), Sonoran yellow warbler (SSC, LCR MSCP CS), Arizona Bell's vireo (SE, LCR MSCP CS), western red bat (SSC, LCR MSCP CS), California leaf-nosed bat (SSC, LCR MSCP CS), Yuma hispid cotton rat (SSC, LCR MSCP CS), American badger (SSC), and desert kit fox (DRECP).

Potential suitable habitat for desert tortoise, flat-tailed horned lizard, Colorado Desert fringe-toed lizard, burrowing owl, ferruginous hawk, mountain plover, western yellow-billed cuckoo, southwestern willow flycatcher, least bittern, California black rail, Gila woodpecker, osprey, double-crested cormorant, black-tailed gnatcatcher, Yuma clapper rail, Yuma Ridgway's rail, yellow warbler, Sonoran yellow warbler, Arizona Bell's vireo, western red bat, California leaf-nosed bat, desert bighorn sheep, Yuma hispid cotton rat, American badger, and desert kit fox was identified via analysis of suitable vegetation types during desktop analysis and reconnaissance surveys (Table 10).

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Table 10 Potential Suitable Habitat for Special Status Plants and Wildlife in Survey Area

Species	Potential Suitable Habitat Acreage													
	Alternative Route Segment 1A	Alternative Route Segment 1B	Alternative Route Segment 1C	Alternative Route Segment 1D	Alternative Route Segment 1-Alt	Alternative Route Segment 2	Alternative Route Segment 2A	Alternative Route Segment 3	Alternative Route Segment 3A	Alternative Route Segment 3B	Alternative Route Segment 3C	Alternative Route Segment 3D	Arizona	California
Plants														
Algodones Dunes sunflower	204.03	203.50	203.50	203.50	33.74	–	–	–	–	–	–	–	–	211.55
Harwood's milkvetch	2,887.77	2,549.82	2,427.67	2,473.69	109.29	1,335.48	1,220.51	79.27	235.88	47.65	71.13	71.66	810.28	6,054.37
Parish's desert thorn	2,683.74	2,346.33	2,224.18	2,270.19	75.56	1,335.48	1,220.51	79.27	235.88	47.65	71.13	71.66	810.28	5,842.82
Pierson's milkvetch	204.03	203.50	203.50	203.50	33.74	–	–	–	–	–	–	–	–	211.55
Wiggins croton	2,887.77	2,549.82	2,427.67	2,473.69	109.29	1,335.48	1,220.51	79.27	235.88	47.65	71.13	71.66	810.28	6,054.37
giant spanish needle	204.03	203.50	203.50	203.50	33.74	–	–	–	–	–	–	–	–	211.55
Saguaro	2,912.33	2,346.33	2,224.18	2,270.19	75.56	1,335.48	1,220.51	79.27	235.88	47.65	71.13	71.66	1,038.86	5,842.82
sand food	2,887.77	2,549.82	2,427.67	2,473.69	109.29	1,335.48	1,220.51	79.27	235.88	47.65	71.13	71.66	810.28	6,054.37
Wildlife														
desert tortoise	2,683.74	2,346.33	2,224.18	2,270.19	75.56	1,335.48	1,220.51	79.27	235.88	47.65	71.13	71.66	810.28	5,842.82
flat-tailed horned lizard	3,118.49	2,556.44	2,434.29	2,480.31	109.29	1,335.48	1,230.00	79.27	235.88	47.65	71.13	71.66	1,047.61	6,063.86
Colorado Desert fringe-toed lizard	3,116.36	2,549.82	2,427.67	2,473.69	109.29	1,335.48	1,220.51	79.27	235.88	47.65	71.13	71.66	1,038.86	6,054.37
burrowing owl	2,889.90	2,556.44	2,434.29	2,480.31	109.29	1,335.48	1,230.00	2,038.85	2,213.03	1,892.20	2,011.42	1,976.68	819.02	12,208.39
ferruginous hawk	2,704.65	2,362.80	2,2240.65	2,286.66	75.56	1,335.48	1,230.00	79.27	235.88	47.65	71.13	71.66	828.80	5,871.16
mountain plover	–	–	–	–	-	90.46	–	1,959.58	1,988.61	1,844.55	1,940.29	1,905.02	-	6,237.29
western yellow-billed cuckoo	164.20	80.32	80.32	80.32	-	175.14	273.68	68.02	142.78	117.99	146.80	146.75	68.09	948.17
southwestern willow flycatcher	192.25	95.33	95.33	95.33	-	215.49	349.06	68.46	155.43	179.14	193.21	193.16	94.86	1,154.13
yellow-breasted chat	194.38	101.95	101.95	101.95	-	389.30	499.36	118.97	166.58	182.27	244.50	246.82	103.61	1,534.19
least bittern	139.50	117.65	117.65	117.65	49.82	98.41	214.82	60.55	78.71	156.68	187.79	187.43	101.66	833.98
loggerhead shrike	3,347.07	2,856.39	2,681.57	2,765.52	75.56	1,684.43	1,644.50	147.29	390.09	165.64	217.93	218.40	981.34	7,764.00
California black rail	28.05	15.01	15.01	15.01	-	40.35	75.37	0.44	12.37	61.15	46.42	46.42	26.78	205.96
Gila woodpecker	3,634.76	2,900.18	2,725.35	2,809.31	125.38	1,511.39	1,523.49	2,165.38	2,361.31	2,044.70	2,239.39	2,206.65	1,259.62	13,804.12
double-crested cormorant	56.97	43.79	43.79	43.79	49.82	0.77	19.81	8.00	5.51	31.38	29.88	29.57	47.57	158.85
Osprey	68.20	47.57	47.57	47.57	49.82	41.12	93.77	8.00	17.89	91.64	75.85	75.54	53.97	354.39
black-tailed gnatcatcher	3,298.10	2,865.86	2,691.04	2,774.99	75.56	1,476.12	1,491.87	131.81	296.70	112.69	183.07	183.54	986.87	7,240.38
Yuma clapper rail	101.48	85.09	85.09	85.09	-	97.64	196.43	52.99	73.20	126.19	158.35	158.30	76.60	685.55
Yuma Ridgway's rail	101.48	85.09	85.09	85.09	-	97.64	196.43	52.99	73.20	126.19	158.35	158.30	76.60	685.55
yellow warbler	103.43	83.72	83.72	83.72	-	97.64	195.01	52.55	73.20	125.30	157.91	157.86	66.00	693.99
Sonoran yellow warbler	20.90	9.85	9.85	9.85	-	–	–	–	–	–	–	–	11.90	18.85
Arizona Bell's vireo	139.50	117.65	117.65	117.65	49.82	98.41	214.82	60.55	78.71	156.68	187.79	187.43	101.66	833.98
western red bat	3,477.28	2,807.86	2,633.04	2,716.99	76.33	1,340.47	1,240.29	163.79	277.70	143.01	120.46	153.58	1,178.10	6,789.65
California leaf-nosed bat	3,248.69	2,807.86	2,633.04	2,716.99	76.33	1,340.47	1,240.29	163.79	277.70	143.01	120.46	153.58	949.51	6,789.65
desert bighorn sheep	3,432.36	2,779.30	2,604.48	2,688.43	75.56	1,335.48	1,220.51	79.27	235.88	47.65	71.13	71.66	1,147.12	6,508.28
Yuma hispid cotton rat	937.86	869.58	869.58	869.58	75.56	1,109.29	1,003.96	2,038.85	2,138.53	1,892.20	2,011.42	1,976.68	33.02	9,664.45
American badger	1,457.89	1,302.55	1,249.88	1,287.82	75.56	1,109.29	1,003.96	79.27	161.37	47.65	71.13	71.66	141.27	4,185.37
Desert kit fox	2,930.55	2,614.62	2,492.47	2,538.48	174.77	1,.526.29	1,390.15	2,152.99	2,350.70	2,075.55	2,159.64	2,157.35	867.91	13,086.18

*Note that the data presented in Table 7 identifies potential suitable habitat for the above species based on corresponding vegetation communities, land cover, and aquatic resources present in the study area.

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Special status wildlife species that either occur in the study area or were determined to likely occur in the study area based on the results of the literature review and surveys are described below. For more information on these determinations, including segment- and route-specific determinations, please see Appendix E.

4.3.1 Reptiles

Desert Tortoise (*Gopherus agassizii*)

The desert tortoise is a federally threatened, CDFW threatened, an LCR MSCP CS, and an Arizona SGCN species. The Mojave population of the species includes all tortoises north and west of the Colorado River in Arizona, Utah, Nevada, and California. Their typical habitat ranges from sandy flats to rocky foothills, including alluvial fans, washes and canyons. It hibernates in burrows for up to nine months each year and is most active from March to June and September to October. This species forages on various herbs, grasses, cacti, and wildflowers (CWHR 2000; USFWS 1994a, 1994b). It is most commonly found in desert scrub, desert wash, and Joshua tree habitats. This species requires friable soil for burrow and nest construction. It prefers creosote bush habitat with large annual wildflower blooms (CDFW 2025a).

No active burrows were found, however a potential inactive desert tortoise burrow was present in the study area and was observed during the 2025 biological reconnaissance surveys in route segments 1A and 1D. The deteriorated burrow was constructed in the side of a Pichaco Wash in blue palo verde-desert ironwood woodland/creosote scrub habitat and did not contain desert tortoise tracks or scat. The roughly crescent-shaped burrow measured approximately 10 inches tall and 15 inches wide at the entrance, was partially collapsed from felled vegetation, and contained evidence of a runway leading toward the burrow entrance.

Desert tortoises are likely to occur in suitable desert scrub habitat present in the study area (alternative route segments 1A, 1B, 1C, 1D). Suitable habitat within the study area includes habitat dominated by creosote bush scrub and desert scrub with high percent cover of native vegetation and sandy flats, alluvial fans, and washes with friable soils which are suitable for this species to burrow and nest in. Additionally, there are four CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2001 – 2008.

Flat-tailed Horned Lizard (*Phrynosoma mcallii*)

The flat-tailed horned lizard is a CDFW species of special concern, an LCR MSCP CS, and an Arizona SGCN species. This species is found in the Colorado Desert in California, Arizona, and Mexico. It is restricted to areas of fine sand and sparse vegetation in desert wash and desert flat habitats. It is found in creosote bush scrub, succulent shrub, and alkali shrub habitats. This species mostly feeds on ant species – harvester ants being the most common. It requires fine sand for cover which this species will burrow into to avoid extreme temperatures. This species also requires well-drained, sandy, or friable soil for nest construction (Marlow 2000).

Flat-tailed horned lizards are likely to occur in suitable desert wash and desert flat habitats present in the study area (alternative route segments 1A, 1B, 1C, 1D, 2, 2A, 3, 3A, 3B, 3C, 3D). In Segment 1, there are seven CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2002 – 2013. In Segment 2, there are twelve CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2001 – 2014. In Segment 3, there are twenty-six CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2001 – 2018.

Colorado Desert Fringe-Toed Lizard (*Uma notata*)

The Colorado Desert fringe-toed lizard is a CDFW SSC and an Arizona SGCN. This species can be found in the Colorado Desert region in habitats such as sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, or sparse desert scrub (CDFW 2025a). This species is diurnal and takes cover in the sand to avoid extreme temperatures. It eats primarily small invertebrates along with occasional blossoms, leaves, and seeds (Nafis 2025).

Colorado Desert fringe-toed lizards are likely to occur in suitable desert dune, riverbanks, desert washes, and desert scrub habitat present in the study area (alternative route segments 2, 3, 3A, 3B, 3C, 3D). In Segment 2, there is a recent CNDDB documented occurrence of the species within 5 miles of the study area, dated from 2003.

4.3.2 Birds

Burrowing Owl (*Athene cunicularia*)

The burrowing owl is a CDFW candidate species and an Arizona SGCN species. It is a small owl species that nests in underground burrows. They live in wide-open, sparsely vegetated areas like prairies, deserts, grasslands, and agricultural fields. This species is often associated with other burrowing species because they use those burrows as nests. This species has a wide range that extends to the tip of South America and up into Canada (USFWS 2025c). It is most notably dependent on the California ground squirrel to provide burrow habitat. It can be found in scrublands characterized by low-growing vegetation (CDFW 2025a).

Burrowing owls are present in the study area and were observed during the 2025 biological reconnaissance surveys in alternative route segments 3A, 3B, 3C, and 3D.

Burrowing owls are likely to occur in suitable agricultural, desert, and scrubland habitat in the study area (alternative route segments 1A, 1B, 1C, 1D, 2, 2A, 3, 3A, 3B, 3C, 3D). It will likely nest in burrows created by small mammals, such as the California ground squirrel. In Segment 1, there is a recent CNDDB documented occurrence of the species within 5 miles of the study area, dated from 2002. In Segment 2, there are three CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2006 – 2016. In Segment 3, there are thirty-one CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2003 – 2016.

Ferruginous Hawk (*Buteo regalis*)

The ferruginous hawk (*Buteo regalis*) is designated as WL by CDFW. This species inhabits open grasslands, sagebrush flats, desert scrub, low foothills, and fringes of pinyon and juniper habitats. It eats mostly lagomorphs, ground squirrels, and mice (CDFW 2025a).

Overwintering ferruginous hawks are likely to occur in suitable open grassland and desert scrub habitats that are present in the study area (alternative route segment 3A). Additionally, there is a recent CNDDB documented occurrence of the species within 5 miles of the study area, dated from 2003.

Mountain Plover (*Charadrius montanus*)

The mountain plover is a CDFW SSC and an Arizona SGCN species. This species is found in foothill valleys west of San Joaquin Valley, Imperial Valley, and along the central Colorado river valley. It avoids high and dense cover and tends to use open grasslands, plowed fields with little vegetation,

and open sagebrush areas. They often roost in depressions such as ungulate hoof prints and plow furrows (Harvey 2008).

Mountain plovers are likely to occur in suitable grassland habitat present in study area (alternative route segments 3, 3A, 3B, 3C, 3D). In addition, there are two CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2008 – 2010.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

The western yellow-billed cuckoo is a federally threatened, California endangered, SGCN, and LCR MSCP CS. This species uses wooded habitat with dense cover and water nearby, including woodlands with scrubby vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. Nests are often placed in willows along streams and rivers with nearby cottonwoods serving as foraging sites. They feed on insects, frogs, lizards, and small wild fruits (USFWS 2025c).

Western yellow-billed cuckoos are likely to occur in suitable riparian forest present in the study area (alternative route segments 1A, 1B, 1C, 1D). In addition, there is a recent CNDDB documented occurrence of the species within 5 miles of the study area, dated from 2010.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher is a federally endangered, California endangered species, Arizona SGCN, and LCR MSCP CS. This species is a summer breeder within its range in the United States and it leaves for wintering areas in Central America by the end of September. For nesting, this species requires dense riparian habitats with cottonwood/willow and tamarisk vegetation. Saturated soils, standing water or nearby streams, or pools are a component of their nesting habitat. It is typically found below 8,500 feet of elevation. This species primarily eats flying insects (USFWS 2025c).

Southwestern willow flycatchers are likely to occur in the suitable large river system habitat in the study area (alternative route segments 1A, 1B, 1C, 1D). Additionally, there is a recent CNDDB documented occurrence of the species within 5 miles of the study area, dated from 2010.

Yellow-breasted chat (*Icteria virens*)

The yellow-breasted chat (*Icteria virens*) is a large, colorful songbird known for its bright yellow breast and distinctive song. It is a CDFW SSC and Arizona SGCN and inhabits dense, shrubby habitats, particularly along riparian corridors (USFWS 2025s). Yellow-breasted chats have occurred locally throughout the Mojave and Colorado deserts and are considered to be one of the five most common breeding bird species along the lower Colorado River, particularly in areas with suitable nesting and foraging habitats (CDFW 2008).

Yellow-breasted chats are present in the study area and were observed during the 2025 biological reconnaissance surveys in alternative route segments 1B, 1C, and 1D.

Yellow-breasted chats are likely to occur in suitable habitat in the study area (alternative route segment 1A). In addition, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is dated from 1987.

Least Bittern (*Ixobrychus exilis*)

The least bittern is a CDFW SSC and LCR MSCP CS. This species is a colonial nester in marshlands and borders of ponds and reservoirs that provide ample cover (CDFW 2025a). Suitable breeding habitats for this species include freshwater and brackish marshes with tall, dense emergent vegetation and clumps of woody plants over deep water. They have been observed in all marsh types in the lower Colorado River valley (CDFW 2008).

Least bitterns are likely to occur in suitable habitat in the study area (alternative route segments 1A, 1B, 1C, 1D). Additionally, there are three CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2006 – 2009.

Loggerhead shrike (*Lanius ludovicianus*)

The loggerhead shrike is a CDFW species of special concern. This thick-bodied songbird is recognized by its gray head, black facial mask, and white throat. It inhabits open habitats such as grasslands, shrublands, and agricultural areas with scattered perches like fences or utility lines. In California, it is present year-round in most of its range, with some northern populations being migratory. Breeding occurs from January through July, with resident populations primarily in the southern part of the state. The species has experienced significant population declines, particularly in coastal southern California, due to habitat loss and degradation. Five subspecies occur in California, though this account focuses on mainland populations (CDFW 2008; USFWS 2025c).

Loggerhead shrike are present in the study area and were observed during the 2025 biological reconnaissance surveys in alternative route segment 2.

Loggerhead shrike is likely to be present in open habitats with scattered shrubs or perches habitat within study area (alternative route segments 1A, 1B, 1C, 1D, 2, 2A). In addition, this species was observed in the study area during the 2025 biological reconnaissance surveys.

California Black Rail (*Laterallus jamaicensis coturniculus*)

The California black rail is a California threatened species, an LCR MSCP CS, and an Arizona SGCN species. It is a yearlong resident of saline, brackish, and fresh emergent wetlands in the San Francisco Bay area, Sacramento-San Joaquin Delta, coastal southern California, the Salton Sea, and lower Colorado River area. This species feeds on insects and isopods from the surface of mud and vegetation. It most commonly occurs in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed. In freshwater, it is usually found in bulrushes, cattails, and saltgrass. Along the Colorado River, this species prefers dense bulrush stands, shallow water, and gently sloping shorelines. They nest in concealed, dense vegetation near the upper limits of tidal flooding (Harvey 1999).

The California black rail is likely to be present in suitable wet meadow habitat within study area (alternative route segments 1A, 1B, 1C, 1D, 2, 2A, 3, 3A, 3B, 3C, 3D). In Segment 1, there are seven CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2000 – 2009. In Segment 2, there is a recent CNDDB documented occurrence of the species within 5 miles of the study area, dated from 2008. In Segment 3, there is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2008.

Gila Woodpecker (*Melanerpes uropygialis*)

The Gila woodpecker is a California endangered species, an LCR MSCP CS, and an Arizona SGCN species. This species is a resident in southern California along the Colorado River. It occurs mostly in desert riparian and desert wash habitats, but can also be found in orchard-vineyard and urban habitats. This species feeds on insects, mistletoe berries, cactus fruits, corn, bird eggs, acorns, and cactus pulp. It uses cottonwoods and other desert riparian trees as cover. This species nests in cavities in riparian trees or saguaros (Green 1990).

Gila woodpeckers are present in the study area and were observed during the 2025 biological reconnaissance surveys in alternative route segments 1A, 1B, 1C, and 1D.

Gila woodpeckers are likely to be present in suitable freshwater marshland habitat within the study area (alternative route segments 1A, 1B, 1C, 1D). In addition, there are four CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2003 – 2011.

Double-Crested Cormorant (*Phalacrocorax auritus*)

The double-crested cormorant is designated as WL by CDFW. This species is a colonial nester and can be found on coastal cliffs, offshore islands, and along lake margins in the interior of the state. It nests along the coast on sequestered islets, usually on ground with sloping surfaces, or in tall trees along lake margins (CDFW 2025a).

Double-crested cormorants are present in the study area and were observed during the 2025 biological reconnaissance surveys in alternative route segments 3, 3A, 3B, 3C, and 3D.

Double-crested cormorants are likely to be present in suitable aquatic and riparian habitats within the study area (alternative route segments 3, 3A, 3B, 3C, and 3D). This species was observed in Segment 3 during the 2025 biological reconnaissance surveys. According to this species range map, Segment 3 is within the yearlong range of this species (CDFW 2025).

Osprey (*Pandion haliaetus*)

The osprey is designated as WL by CDFW. This species is generally found in ocean shore, bays, freshwater lakes, and larger stream habitats. It builds large nests in tree-tops within 15 miles of a good fish-producing body of water (CDFW 2025a).

Ospreys are present in the study area and were observed during the 2025 biological reconnaissance surveys in alternative route segments 1A, 1B, 1C, and 1D.

Ospreys are likely to be present in suitable aquatic and riparian habitats within the study area (alternative route segments 1A, 1B, 1C, and 1D). This species was observed in Segment 1 during the 2025 biological reconnaissance surveys. According to this species range map, Segment 1 is within the yearlong range of this species (CDFW 2025).

Black-Tailed Gnatcatcher (*Polioptila melanura*)

The black-tailed gnatcatcher is designated as watchlist (WL) by CDFW and is an Arizona SGCN. This species primarily inhabits wooded desert wash habitats. It also occurs in desert scrub habitat, particularly during the winter. This species nests in desert washes containing mesquite, palo verde, ironwood, and acacia. It is absent from areas where salt cedar has been introduced (CDFW 2025a).

Black-tailed gnatcatchers are present in the study area and were observed during the 2025 biological reconnaissance surveys in alternative route segments 1A and 1B.

Black-tailed gnatcatchers are likely to inhabit arid desert scrub and desert washes with native vegetation within study area (alternative route segments 1A, 1B, 1C, 1D). According to this species range map, Segment 1 is within the yearlong range of this species (CDFW 2025).

Yuma Clapper Rail (*Rallus longirostris yumanensis*)

The Yuma clapper rail is a federally endangered, California threatened, and an LCR MSCP CS. This species is found in a variety of marsh habitats that are dominated by emergent plants, including southern cattail, bullwhip bulrush, three-square bulrush, and sedges. The ideal habitat for this species isa mosaic of emergent plant stands of different ages, interspersed with shallow pools of open water (LCR MSCP 2022).

Yuma clapper rails are likely to occur in suitable cattail and three-square bulrush marsh habitat in the study area (alternative route segments 1A, 1B, 1C, 1D, 2, 2A, 3, 3A, 3B, 3C, 3D). In addition, there is a recent CNDDB documented occurrence of the species within 5 miles of the study area that was detected during a least bittern survey conducted in 2006.

Yuma Ridgway's Rail (*Rallus obsoletus yumanensis*)

The Yuma Ridgway's rail is a federally endangered, California threatened, and an Arizona SGCN species. This species is associated with dense, emergent riparian vegetation. It requires wet substrate with dense, herbaceous or woody vegetation for nesting and foraging. They prefer freshwater marsh habitat dominated by cattail or bulrush. Marshes with little residual vegetation may be preferred as well for foraging. The minimum size of suitable habitat is unknown but breeding pairs have been found in areas as small as 2 to 3 acres depending on habitat quality. This species primarily feeds on crayfish, small fish, frogs, and aquatic invertebrates (USFWS 2025c).

Yuma Ridgway's rails are likely to occur in suitable freshwater marsh habitat in the study area (alternative route segments 1A, 1B, 1C, 1D, 2, 2A, 3, 3A, 3B, 3C, 3D). In Segment 1, there are five CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2005 – 2009. In Segment 2, there is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2008. In Segment 3, there are three CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2000 – 2008.

Yellow Warbler (*Setophaga petechia*)

The yellow warbler is a CDFW SSC and an Arizona SGCN. This species has riparian plant associations in close proximity to water. It also nests in montane shrubbery in open conifer forests in the Cascades and Sierra Nevada Mountains. This species is frequently found nesting and foraging in willow shrubs and thickets as well as in other riparian plants including cottonwoods, sycamores, ash, and alders (CDFW 2025a).

Yellow warblers are present in the study area and were observed during the 2025 biological reconnaissance surveys in alternative route segments 1A, 1B, 1C, and 1D.

Yellow warblers are likely to occur in suitable riparian habitat in the study area (alternative route segments 1A, 1B, 1C, 1D). According to this species range map, Segment 1 is within the wintering range of the species.

Sonoran Yellow Warbler (*Setophaga petechia sonorana*)

The Sonoran yellow warbler is a CDFW SSC, Arizona SGCN, and LCR MSCP CS. This species is a summer Arizona SGCN. This species is a summer resident of Colorado River Valley, in riparian deciduous habitat. It can be found below 600 feet of elevation. This species inhabits cottonwoods and willows, particularly the crown foliage. It nests in the understory, usually 2-16 feet above the ground (CDFW 2025a).

Sonoran yellow warblers are likely to occur in suitable riparian habitat present in the study area (alternative route segments 1A, 1B, 1C, 1D). According to this species range map, Segment 1 is within the summer range of this species (CDFW 2025).

Arizona Bell's Vireo (*Vireo bellii arizonae*)

The Arizona Bell's vireo is a California endangered species, Arizona SGCN, and LCR MSCP CS. This species tends to stay hidden in dense vegetation as it forages, but often emerges at the edges of bushes. They select low, dense vegetation of many types for breeding, migrating, and wintering habitat (CornellLab 2025). It can be found in mesquites, desert willows, moist thickets, streamsides, and forest edges. Its diet consists of mainly insects and it typically forages in low brush within about 10 feet of the ground. They nest in trees, usually 2 to 5 feet off the ground (Arizona-Sonora Desert Museum 2025a). This species is a summer resident along the Colorado River and chiefly inhabits willow thickets with undergrowth of *Baccharis glutinosa* (CDFW 2025a).

Arizona Bell's vireo are likely to occur in the study area in suitable willow thicket habitat (alternative route segments 1A, 1B, 1C, 1D). There is a recent CNDDB documented occurrence of the species within 5 miles of the study area, dated from 2011.

Migratory Bird Treaty Act and California Fish and Game Code – Protected Birds

The federal Migratory Bird Treaty Act (MBTA) protects most native birds and their nests, including many species that are non-migratory in California. Under MBTA, it is illegal to take, possess, buy, sell, purchase, or barter any bird listed in 50 CFR Part 10. MBTA also restricts any disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds. California Fish and Game Code (CFGC) Section 3513 protects all migratory nongame birds covered by the MBTA at the state level (CFGC 2019). CFGC Section 3503 also protects most birds and their nests, and CFGC Section 3503.5 further protects birds of prey, including eagles, hawks, falcons, and owls. Suitable nesting habitat for birds protected under MBTA and/or CFGC, including trees, shrubs, man-made structures, and the ground surface, is present in the study area.

During reconnaissance surveys performed in June 2025, six nests were observed in the study area. These nests, located in trees or transmission towers, were determined to be active or potentially active corvid or raptor nests; genera protected under the MBTA. A list of bird species observed in the study area during surveys is included in Appendix F.

4.3.3 Mammals

Western Red Bat (*Lasiurus blossevilli*)

The western red bat is a CDFW SSC and an LCR MSCP CS. This species roosts primarily in trees two to 40 feet above the ground and can be found from sea level up through mixed conifer forests. It prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging (CDFW 2025a).

Western red bats are likely to occur in suitable riparian habitats present in the study area (alternative route segments 1A, 1B, 1C, 1D). According to this species range map, Segment 1 is within the expected range of the species (AZGFD 2025).

California Leaf-Nosed Bat (*Macrotus californicus*)

The California leaf-nosed bat is a CDFW species of special concern, an LCR MSCP ES, and an Arizona SGCN species. This species prefers caves, mines, and rock shelters as habitat and is mostly found in Sonoran desert scrub. Its roost sites are usually located near foraging areas. This species ranges from southern California, southern Nevada, across the southwestern half of Arizona, and throughout Sonora. Its diet consists of various insects such as crickets, beetles, and grasshoppers. It is also among the very few insect-eating bats that supplements its diet with cactus fruit (Arizona-Sonora Desert Museum 2025b). This species requires rocky, rugged terrain with abandoned mines or caves for roosting (CDFW 2025a).

California leaf-nosed bats are likely to occur in suitable desert riparian, desert wash, and desert scrub habitat present in the study area (alternative route segments 1A, 1B, 1C, 1D). There is a recent CNDDB documented occurrence of the species within 5 miles of the study area, dated from 2006.

Desert Bighorn Sheep (*Ovis canadensis nelsoni*)

The desert bighorn sheep is a CDFW Fully Protected (FP) species (CDFW 2025a). This species is a subspecies of bighorn sheep (*Ovis canadensis*) and is adapted to the desert regions of California, Nevada, Arizona, New Mexico, Utah, Colorado, Texas, and Baja California. California's desert bighorn range from the White Mountains in the north to the Mexican border in the south. Their diet includes cacti, grasses, herbaceous plants, shrubs, and a few trees (CDFW 2025e).

Desert bighorn sheep are present in the study area and were observed during the 2025 biological reconnaissance surveys in alternative route segment 1B, 1C, and 1D.

Desert bighorn sheep are likely to occur in suitable open, rocky, steep habitat with available water and herbaceous forage within the study area (alternative route segments 1B, 1C, 1D). This species was observed in the study area (alternative route segments 1A, 1B, 1C, 1D) during the 2025 biological reconnaissance surveys. According to this species range map, Segment 1 is within the expected range of the species (CDFW 2025).

Yuma Hispid Cotton Rat (*Sigmodon hispidus eremicus*)

The Yuma hispid cotton rat is a CDFW SSC, Arizona SGCN, and LCR MSCP CS species. There is an isolated population of this species in southeastern California in the Imperial Valley along the Colorado River. This species prefers dense, grassy areas and are most captured in grassy fields, brushy pastures, canal banks, roadsides, and edges of cultivated field overgrown with weeds and other brushy vegetation. This species has also been observed in areas of dense cacti, salt marshes,

and grasslands bordering brackish waters (Meikle and Powers 2011). Along the Colorado River, this species can be found in grass and agricultural areas near irrigation waters. It nests on the surface and in burrows (CDFW 2025a).

Yuma hispid cotton rats are likely to occur in suitable wetland and upland habitat in the study area (alternative route segments 1A, 1B, 1C, 1D, 2, 2A, 3, 3A, 3B, 3C, 3D). In Segment 1, there are two CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2008. In Segment 2, there are two CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2007. In Segment 3, there are four CNDDB documented occurrences of the species within 5 miles of the study area, dated from 2007 – 2009.

American Badger (*Taxidea taxus*)

The American badger is a CDFW SSC and an Arizona SGCN. This species is most abundant in drier open stages of most shrub, forest, and herbaceous habitats. It requires habitats that have friable soils, sufficient food, and open, uncultivated ground. This species preys on burrowing rodents (CDFW 2025a). It is primarily nocturnal and is adapted to life underground (NPS 2025).

American badgers are likely to occur in suitable shrub forest habitat with friable soil present in the study area (alternative route segments 1A, 1B, 1C, 1D). Suitable prey habitat is also present in the study area. According to this species range map, Segment 1 is within the yearlong range of this species. Additionally, there are three CNDDB documented occurrences of the species within 5 miles of the study area with unknown dates.

Desert Kit Fox (*Vulpes macrotis arsipus*)

The desert kit fox is a California threatened and a DRECP Focus Species. This species is most abundant in open desert, on creosote flats, and amongst the sand dunes. It requires habitats that have friable soils and sufficient food for prey. This species preys on nocturnal rodents, birds, reptiles, and insects. It is primarily nocturnal and avoids heat stress during the day by remaining inactive in underground dens.

Desert kit fox are likely to occur in suitable desert habitat with friable soil present in the study area (alternative route segments 1A, 1B, 1C, 1D, 2, 2A). Suitable prey habitat is also present in the study area. According to this species range map, Segments 1 and 2 are within the expected range of this species (CDFW 2025).

4.4 Wildlife Movement

Native wildlife corridors that provide habitat connectivity across a broader geographic area are critical to the survival and reproduction of many plant and wildlife species. Similar terrain, vegetation types, water courses, mountain tops and ridgelines, and other natural features provide suitable contiguous habitats for passage from one area to another for food, water, and reproduction.

Scrub vegetation communities in the study area provide connectivity to other larger stretches of similar habitat. These provide potential local migration corridors for birds, mammals, and reptiles. The Pacific Flyway, a major north-south corridor for migratory birds, intersects the study area and habitat in the study area may provide foraging and/or shelter habitats for migrating birds that move through the California desert ecosystem in spring and fall. The Mittry Lake Wildlife Area, a

conservation area jointly managed by the U.S. Bureau of Reclamation and the Arizona Game and Fish Department, and the Mittry Lake Important Bird Area, stewarded by the Yuma Audubon Society, also intersect the study area and provides important aquatic and wetland habitats for migratory birds, especially during the winter months (AZGFD 2025a).

Two networks of wildlife connectivity linkages identified in the Desert Renewable Energy Conservation Plan (DRECP) Land Use Plan Amendment (LUPA) are located north of the study area. In addition, the study area is located near several designated conservation areas. The Yuha Basin Area of Critical Environmental Concern (ACEC), which overlaps a small portion of the southwest corner of the study area, the Lake Cahuilla ACEC and the East Mesa ACEC, which overlap with the center of the study area, and the Picacho ACEC, which overlaps with the northeastern portions of the study area. These ACECs were established by the Bureau of Land Management (BLM) to support and protect wildlife linkages to adjacent conservation and wilderness areas (BLM et al. 2016) Additionally, the Flat-tailed Horned Lizard (FTHL) – Yuha Desert Management Area overlaps a small portion of the westernmost part of the study area, while the FTHL – East Mesa Management Area intersects the central portion. These areas were designated under the Flat-tailed Horned Lizard Rangewide Management Strategy to guide the conservation and management of sufficient habitat to support existing populations of the species (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003).

The study area is also located near several Conservation Opportunity Areas (COAs), as identified by the Arizona Game and Fish Department. The Colorado River and Associated Backwaters aquatic COA overlaps with a small portion of the study area's northwest corner. The Imperial-Cibola and Mittry Lake Wildlife Area terrestrial COAs also overlap with a small portion of the study area's northwest corner. The Desert Mountains Complex terrestrial COA overlaps the western portion of the study area. The Lower Gila River terrestrial COA overlaps with the southwestern portion of the study area. These COAs represent specific areas on the landscape where actions will most likely lead to substantial improvements for wildlife and their habitats. The Arizona Wildlife Conservation Strategy (AWCS) includes two broad categories of COAs: terrestrial and aquatic. Terrestrial COAs represent geographic areas with high conservation value and high potential for successful project outcomes. Aquatic COAs are focused strictly on aquatic resources, mostly native fish species (AZGFD 2025a).

Additionally, the study area overlaps with Conservation Areas as identified by the Bureau of Reclamation (BOR) in the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) (Figure 2). These Conservation Areas include Laguna Division Conservation Area and Yuma East Wetlands Conservation Area. The Laguna Division Conservation Area is a large-scale restoration project that aims to restore, enhance, and protect native habitat for the benefit of the LCR MSCP covered species and other plants and wildlife. The Yuma East Wetlands Conservation Area is being restored to resolve various issues, beautify the riverfront, and provide habitat for wildlife species (LCR MSCP 2025). The LCR MSCP includes a designated list of covered applicants, such as AGFD or hydroelectric power contract holders (i.e. Parker Dam), and covered activities such as water diversions, conveyance facilities, and electrical generation and transmission facilities. Because HWT is not a covered applicant, and the Proposed Project transmission facilities do not connect with hydropower along the LCR, the LCR MSCP would not apply to the Proposed Project.

Furthermore, a California Essential Habitat Connectivity (CEHC) Area extends into the middle of the study area, connecting the Sonoran Desert east of the Salton Sea with the Mojave Desert to the north. Landscape blocks, defined as large areas of intact, unfragmented lands and waters that provide habitat for wide-ranging species and support dynamic natural processes and resilient

ecosystems, are also present within the middle of the study area. For additional details, see Appendix K – Wildlife Corridors.

No regional or local native wildlife nursery sites are known to exist within 5 miles of the study area.

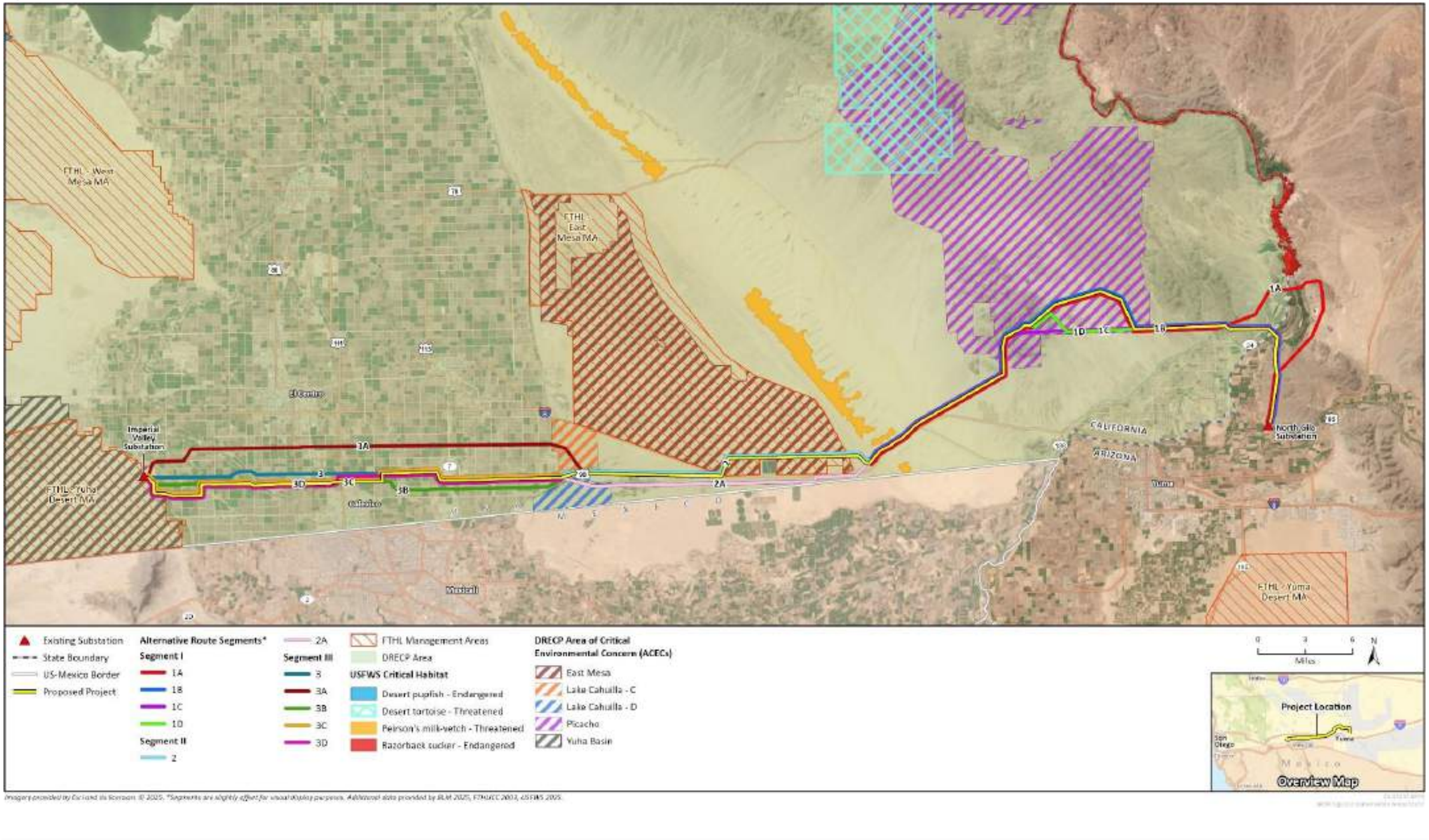
4.5 USFWS Designated Critical Habitat

Critical habitat is defined as "the specific areas within the geographic area occupied by a species on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection" as defined in section 3(5)(A) of the ESA. The physical or biological features for critical habitat include: space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing (or development) of offspring; and habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

As shown in Figure 2, two areas of USFWS-designated critical habitat (Peirson's milkvetch and Razorback sucker) are located within 5 miles of the study area, however, none occurs within the study area.

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Figure 2 Conservation Areas



*Imagery provided by ESRI and its licensors © 2025. *Segments are slightly offset for visual display purposes. Additional data provided by BLM 2025, FTHLCC 2003, USFWS 2005.*

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4.6 Aquatic Resources

Based upon the findings of the site reconnaissance survey and literature/desktop review, aquatic resources potentially subject to United States Army Corps of Engineers (USACE), Colorado River Regional Water Quality Control Board (RWQCB), Arizona Department of Environmental Quality (ADEQ), and CDFW jurisdictions (collectively referred to as potential jurisdictional areas) are present in the study area. Potential jurisdictional areas in the study area include freshwater emergent wetlands, freshwater forested/shrub wetlands, freshwater ponds, lakes, canals and culverts, and riverine resources. Major named aquatic resources in the study area include the Coachella Canal, All American Canal, East Highline Canal, Ash Main Canal, Alamitos Canal, Briar Canal, Westside Main Canal, Whitcomb Canal, Holt Canal, Yuma Main Canal, Cocopah Canal, Gila Gravity Main Canal, Greeson Wash, Main Outlet Drain, Haughtelin Lake, Mittry Lake, Alamo River, New River, Gila River, and the Colorado River.

Table 11 provides an overview of aquatic resources in the study area, and these areas are identified in Appendix J. Non-jurisdictional features are not included and are discussed in Section 4.6.2. Representative photographs of the features observed are included in Appendix H.

Table 11 Potentially Jurisdictional Aquatic Resources within the Study Area[1]

Alternative Route Segments	NWI Type	State	Acres
1A Study Area (Segment 1)	Freshwater Emergent Wetland	AZ	53.0
		CA	30.6
	Freshwater Forested/Shrub Wetland	AZ	54.8
		CA	181.7
	Freshwater Pond	AZ	3.6
		CA	9.1
	Lake	AZ	–
	Riverine	AZ	111.3
		CA	474.8
1B Study Area (Segment 1)	Freshwater Emergent Wetland	AZ	57.9
		CA	2.0
	Freshwater Forested/Shrub Wetland	AZ	96.7
		CA	99.2
	Freshwater Pond	AZ	–
		CA	3.8
	Lake	AZ	27.5
	Riverine	AZ	72.7
		CA	436.2
1C Study Area (Segment 1)	Freshwater Emergent Wetland	AZ	57.9
		CA	2.0
	Freshwater Forested/Shrub Wetland	AZ	96.7
		CA	99.2
	Freshwater Pond	AZ	–
		CA	2.1

Alternative Route Segments	NWI Type	State	Acres
	Lake	AZ	27.5
	Riverine	AZ	72.7
		CA	366.7
1D Study Area (Segment 1)	Freshwater Emergent Wetland	AZ	57.9
		CA	2.0
	Freshwater Forested/Shrub Wetland	AZ	96.7
		CA	99.2
	Freshwater Pond	AZ	–
		CA	2.1
	Lake	AZ	27.5
	Riverine	AZ	72.7
		CA	389.1
1-Alt Study Area (Segment 1)	Freshwater Emergent Wetland	AZ	-
		CA	-
	Freshwater Forested/Shrub Wetland	AZ	-
		CA	-
	Freshwater Pond	AZ	-
		CA	-
	Riverine	AZ	-
		CA	45.3
2 Study Area (Segment 2)	Freshwater Emergent Wetland	AZ	0.0
		CA	11.4
	Freshwater Forested/Shrub Wetland	AZ	0.0
		CA	328.8
	Freshwater Pond	AZ	0.0
		CA	0.0
	Lake	AZ	0.0
	Riverine	AZ	0.0
		CA	27.9
2A Study Area (Segment 2)	Freshwater Emergent Wetland	AZ	–
		CA	69.4
	Freshwater Forested/Shrub Wetland	AZ	–
		CA	289.4
	Freshwater Pond	AZ	–
		CA	–
	Lake	AZ	–
	Riverine	AZ	–
		CA	237.8
3 Study Area (Segment 3)	Freshwater Emergent Wetland	AZ	–
		CA	11.5

Alternative Route Segments	NWI Type	State	Acres
	Freshwater Forested/Shrub Wetland	AZ	–
		CA	83.4
	Freshwater Pond	AZ	–
		CA	–
	Lake	AZ	–
	Riverine	AZ	–
		CA	86.2
3A Study Area (Segment 3)	Freshwater Emergent Wetland	AZ	–
		CA	13.5
	Freshwater Forested/Shrub Wetland	AZ	–
		CA	233.0
	Freshwater Pond	AZ	
		CA	18.0
	Lake	AZ	–
	Riverine	AZ	–
		CA	77.5
3B Study Area (Segment 3)	Freshwater Emergent Wetland	AZ	–
		CA	6.3
	Freshwater Forested/Shrub Wetland	AZ	–
		CA	69.5
	Freshwater Pond	AZ	1.0
		CA	
	Lake	AZ	–
	Riverine	AZ	–
		CA	146.4
3C Study Area (Segment 3)	Freshwater Emergent Wetland	AZ	–
		CA	5.6
	Freshwater Forested/Shrub Wetland	AZ	–
		CA	71.2
	Freshwater Pond	AZ	–
		CA	0.8
	Lake	AZ	–
	Riverine	AZ	–
		CA	112.1
3D Study Area (Segment 3)	Freshwater Emergent Wetland	AZ	–
		CA	5.6
	Freshwater Forested/Shrub Wetland	AZ	–
		CA	71.2
	Freshwater Pond	AZ	–
		CA	0.8

Alternative Route Segments	NWI Type	State	Acres
	Lake	AZ	–
	Riverine	AZ	–
		CA	112.8

[1] Data taken from the USFWS National Wetlands Inventory (NWI) (USFWS 2025b).

4.6.1 Potentially Jurisdictional Features

As described in Section 4.6, above, potential jurisdictional areas are present in the study area. The jurisdictions of these features were not determined during the reconnaissance field survey.

4.6.2 Non-Jurisdictional Features

Non-jurisdictional features in the study area did not contain a OHWM or natural streambed characteristics, were not perennial or intermittent tributaries that contribute surface flow to TNWs or were roadside ditches that were hydrologically isolated from tributaries and/or TNWs. Non-jurisdictional features are not included in Appendix J.

Types of non-jurisdictional features mapped in the study area include erosional features, culverts with no associated jurisdictional feature, manmade roadside ditches, depressions, and roadside swales.

5 Limitations, Assumptions, and Use Reliance

The surveys described in this BRTR have been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. The biological surveys are limited by the environmental conditions present at the time of the surveys. In addition, negative results of general biological surveys do not guarantee that any given taxa are not present and will not be discovered in the study area in the future. Mobile wildlife species could occupy the study area on a transient basis or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided.

The findings and opinions conveyed in this report are based on findings derived from site reconnaissance field surveys and review of specified historical database and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys.

Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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Appendix A

Regulatory Framework

Regulatory Framework

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of federal and State statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility for protection of biological resources within the Project include:

- U.S. Army Corps of Engineers (wetlands and other waters of the United States);
- U.S. Fish and Wildlife Service (federally listed species and migratory birds);
- Bureau of Land Management (BLM-managed public lands, species designated as BLM sensitive);
- Colorado River Regional Water Quality Control Board (waters of the State (CA));
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes, State-listed species, nesting birds, marine resources);
- Arizona Department of Agriculture (protected native plants);
- Arizona Department of Environmental Quality (waters of the State [Arizona]); and
- Arizona Game and Fish Department (species of greatest conservation need).

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is responsible for administering several federal programs related to ensuring the quality and navigability of the nation's waters.

Clean Water Act Section 404

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the law was significantly reorganized and expanded in 1972. "Clean Water Act" became the law's common name with amendments in 1972.

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Section 404 of the CWA authorizes the Secretary of the Army, acting through the USACE, to issue permits regulating the discharge of dredged or fill materials into the "navigable waters at specified disposal sites." Section 404 requires that a permit be issued before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from regulation under Section 404 (e.g., certain farming and forestry activities).

Waters of the U.S.

The USACE and US Environmental Protection Agency (USEPA) have undertaken several efforts to modernize their regulations defining "waters of the United States" (e.g., the 2015 Clean Water Rule and 2020 Navigable Waters Protection Rule), but these efforts have been frustrated by legal challenges which have invalidated the updated regulations. As a result of the Supreme Court ruling in *Sackett v. Environmental Protection Agency*, EPA and USACE issued a final rule that amends the

"Revised Definition of 'Waters of the United States'" to conform key aspects of the regulatory text to the U.S. Supreme Court's decision (88 Federal Register 61964–61969, September 8, 2023).

Under the "Revised Definition of 'Waters of the United States'; Conforming" rule, the term "waters of the United States" is defined as follows (33 CFR 328.3[a]):

(1) Waters which are:
   (i) 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;
   (ii) The territorial seas; or
   (iii) Interstate waters;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

(4) Wetlands adjacent to the following waters:
   (i) Waters identified in paragraph (a)(1) of this section; or
   (ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

(5) Intrastate lakes and ponds not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

In addition, the amended regulations include eight types of excluded waters (33 CFR 328.3[b]) which are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(2) through (5) of this section:

(1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act;

(2) Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA;

(3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;

(4) Artificially irrigated areas that would revert to dry land if the irrigation ceased;

(5) Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;

(6) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;

(7) Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and

(8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.

The lateral limits of USACE jurisdiction in non-tidal waters is defined by the "ordinary high-water mark" (OHWM) unless adjacent wetlands are present. The OHWM is a line on the shore or edge of a channel established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed upon the bank, shelving, changes in the character of soil, destruction of vegetation, or the presence of debris (33 CFR 328.3(e)). As such, waters are recognized in the field by the presence of a defined watercourse with appropriate physical and topographic features. If wetlands occur within, or adjacent to, waters of the United States, the lateral limits of USACE jurisdiction extend beyond the OHWM to the outer edge of the wetlands (33 CFR 328.4 (c)). The upstream limit of jurisdiction in the absence of adjacent wetlands is the point beyond which the OHWM is no longer perceptible (33 CFR 328.4; see also 51 FR 41217).

Wetlands

The USACE defines wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by site investigation, must be present at a site for USACE to classify the site as a wetland (Environmental Laboratory 1987).

Limitations on Jurisdiction based on Sackett v. USEPA Supreme Court Decision

On May 25, 2023, the Supreme Court issued its decision on the petition from the Sacketts, a family in Idaho that was subject to a compliance order from the USEPA for backfilling their lot near Priest Lake, which the USEPA claimed contained federally regulated wetlands. The wetlands in question were adjacent to a ditch that fed a creek that ultimately drained into Priest Lake, a navigable water body. The USEPA asserted that the Sacketts had violated the law by filling the wetlands on their property without a permit. The Court’s decision addressed controversy over whether, and under what conditions, the CWA reaches navigable waters’ tributaries or adjacent wetlands. The Supreme Court’s decision in Sackett provides definitive guidance to the agencies in determining the limits of their Clean Water Act authority. Major tenets of the decision have been incorporated into the agencies’ current regulations through the September 2023 Conforming Rule.

The Court decided:

- “Adjacent wetlands” are WOTUS only if there is a continuous surface connection between the wetland and a navigable or relatively permanent water body, such that it is difficult to determine the boundary between the wetland and the water body. The opinion notes that “temporary interruptions to surface connection may sometimes occur because of phenomena like low tides or dry spells.” The agencies addressed this element by defining the term “adjacent” to mean “having a continuous surface connection” in the Conforming Rule.

- The Significant Nexus Standard, introduced by the Court in prior decisions, is not mentioned in the Clean Water Act and should not be used. The Court determined that the standard applies ecological factors whose use in determining jurisdiction is not supported by the statute. The Conforming Rule removed significant nexus considerations from the definition.
- Although jurisdiction over tributaries was not addressed by the Court, the decision stated that "…the [Clean Water Act's] use of "waters" encompasses only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes." The Conforming Rule makes clear that only relatively permanent tributaries qualify as "waters of the United States."

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) implements several laws protecting the Nation's fish and wildlife resources, including the Endangered Species Act (ESA; 16 United States Code [USC] Sections 153 et seq.), the Migratory Bird Treaty Act (MBTA; 16 USC Sections 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668).

Endangered Species Act

The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. Generally, the USFWS implements the ESA for terrestrial and freshwater species, while the NMFS implements the ESA for marine and anadromous species. Projects that would result in "take" of any threatened or endangered wildlife species, or a threatened or endangered plant species if occurring on federal land, are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of the ESA, depending on the involvement by the federal government in funding, authorizing, or carrying out the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. "Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of the ESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

Migratory Bird Treaty Act

The MBTA of 1918 implements four international conservation treaties that the U.S. entered into with Canada in 1916, Mexico in 1936, Japan in 1972, and Russia in 1976. It is intended to ensure the sustainability of populations of all protected migratory bird species. The law has been amended with the signing of each treaty, as well as when any of the treaties were amended, such as with Mexico in 1976 and Canada in 1995. The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS. The list of migratory bird species protected by the law, in regulations at 50 CFR Part 10.13, is primarily based on bird families and species included in the four international treaties.

A migratory bird species is included on the list if it meets one or more of the following criteria: it occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family protected by one of the four international treaties or their amendments, revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States

or U.S. territories as the result of natural biological or ecological processes, new evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

In 2004, the Migratory Bird Treaty Reform Act limited the scope of the MBTA by stating the MBTA applies only to migratory bird species that are native to the United States or U.S. territories, and that a native migratory bird species is one that is present as a result of natural biological or ecological processes. The MBTA requires the USFWS to publish a list of all nonnative, human-introduced bird species to which the MBTA does not apply, and an updated list was published in 2020. The 2020 update identifies species belonging to biological families referred to in treaties the MBTA implements but are not protected because their presence in the United States or U.S. territories is solely the result of intentional or unintentional human-assisted introductions.

Finally, an M-Opinion issued by the U.S. Department of the Interior on April 11, 2025, rescinded the Biden-era M-Opinion M-37065 which had interpreted the MBTA to prohibit both intentional and incidental take of migratory birds. Instead, the 2025 M-Opinion states that incidental take of migratory birds is not prohibited under federal law, thereby reestablishing a literal reading of the MBTA that confines its prohibitions to intentional acts.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the USFWS, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

"Disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

Bureau of Land Management

The Bureau of Land Management (BLM) manages approximately 245 million acres of public lands across the United States, including extensive areas in California's desert region. The BLM implements several key statutes that guide the conservation and multiple-use management of these lands, including the Federal Land Policy and Management Act (FLPMA; 43 United States Code [USC] Sections 1701 et seq.), which directs the agency to manage public lands for multiple uses while ensuring the protection of natural resources. In the California Desert District, BLM land management is guided by the California Desert Conservation Area (CDCA) Plan, as amended by the Desert Renewable Energy Conservation Plan (DRECP), which integrates renewable energy

development with the long-term conservation of biological resources. Additionally, the BLM identifies and manages BLM sensitive species consistent with agency policies and resource management plans.

Federal Land Policy Management Act of 1976

In 1976, Congress passed the Federal Land Policy Management Act (FLPMA), which governs the manner by which public lands administered by the BLM are managed. The FLPMA requires BLM to develop land use plans, also known as Resource Management Plans, to guide BLM's management of public land.

BLM Sensitive Species

The Bureau of Land Management (BLM) maintains a Sensitive Species Program to proactively identify and manage species that are considered vulnerable or at risk but are not currently listed as threatened or endangered under the ESA. These BLM sensitive species include wildlife and plants that require special management attention to prevent population declines that could lead to federal listing.

California Desert Conservation Area Plan

The California Desert Conservation Area (CDCA) Plan is a comprehensive, long-range plan for the management, use, development, and protection of lands within the CDCA, and it is required as part of the Federal Land Policy and Management Act of 1976 (FLPMA) and implemented by the BLM. The CDCA Plan defines rare, threatened, and endangered plants as those listed as endangered by the ESA; endangered or rare by CESA; or candidates for endangered or threatened listing by the USFWS. Rare, threatened, and endangered species are managed in accordance with applicable laws and regulations. These plants are also protected through consideration in all BLM site-specific environmental impact analysis to ensure that any action authorized by the BLM does not jeopardize listed plants or habitats supporting listed plants.

The CDCA Plan stabilizes and improves populations of listed plants through management and recovery plans developed and implemented cooperatively with the USFWS and CDFW. The CDCA Plan also prohibits the harvesting of plants that are listed as rare, threatened, or endangered. As part of Phase I of the DRECP, the BLM adopted an amendment to the CDCA Plan in September 2016—the LUPA to the CDCA Plan and Bishop Resource Management Plan, which is discussed further below.

Desert Renewable Energy Conservation Plan

The DRECP is a collaborative effort between the California Energy Commission (CEC), CDFW, BLM, and USFWS to advance federal and state natural resource conservation goals and other federal land management goals; meet the requirements of the ESA, CESA, Natural Community Conservation Planning Act, and FLPMA; and facilitate the timely and streamlined permitting of renewable energy projects in the Mojave and Colorado/Sonoran desert regions of Southern California. The DRECP covers approximately 22.5 million acres in the desert regions of Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego Counties. The DRECP is being prepared in two phases. Phase I consisted of the LUPA to the CDCA Plan and Bishop Resource Management Plan. Phase II is ongoing and will consist of adopting a General Conservation Plan for approximately 5.5 million acres of non-federal land and a Conceptual Plan-Wide Natural Community Conservation Plan (NCCP) that encompasses the entire DRECP plan area.

The LUPA establishes management direction for the permitting of renewable energy and transmission development on approximately 10 million acres of BLM-managed lands in the DRECP area. The LUPA amends the CDCA Plan and the Bishop Resource Management Plans. The purpose of the LUPA is to conserve biological, environmental, cultural, recreation, scenic, and visual resources; respond to federal renewable energy goals and policies, including state-level renewable energy targets; and comply with the FLPMA. The LUPA prescribes conservation management actions (CMAs).

Other BLM Resource Management Plans

The entirety of the study area in California is located within CDCA and is covered by the California Desert Conservation Area Plan, DRECP, Imperial Sand Dunes Recreation Area Management Plan (Imperial Sand Dunes RAMP), and Northern and Eastern Colorado Desert Coordinated Management Plan. A portion of the study area within Arizona is managed under the Yuma Field Office Resource Management Plan. The Imperial Sand Dunes RAMP and Northern and Eastern Colorado Desert Coordinated Management Plan include goals, objectives, and management actions related to biological resources.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) derives its authority from the Fish and Game Code of California and administers several State laws protecting fish and wildlife resources and the habitats upon which they depend.

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code Section 2050 et. seq.) prohibits take of State listed threatened or endangered. Take under CESA is defined as “Hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” (Fish and Game Code sec. 86). This definition does not prohibit indirect harm by way of habitat modification, except where such harm is the proximate cause of death of a listed species. Where incidental take would occur during construction or other lawful activities, CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated. Unlike the federal ESA, CESA’s protections extend to candidate species during the period (typically one year) while the California Fish and Game Commission decides whether the species warrants CESA listing.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (Fish and Game Code Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare, and prohibits the take of listed plant species. Eligible species include those identified with California Rare Plant Rank (CRPR) of 1A, 1B, and 2, which meet the definitions of sections 1901, Chapter 10 (NPPA) or sections 2062 and 2067 (CESA) of the CFGC. Effective in 2015, CDFW promulgated regulations (14 CCR 786.9) under the authority of the NPPA, establishing that the CESA’s permitting procedures would be applied to plants listed under the NPPA as “Rare.” With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA.

Fully Protected Species Laws

The CDFW enforces Sections 3511, 4700, 5050, and 5515 of the Fish and Game Code, which prohibit take of species designated as Fully Protected. The CDFW is not allowed to issue an Incidental Take Permit for Fully Protected species; therefore, impacts to these species must be avoided. The exception is situations where a Natural Community Conservation Plan (NCCP) is in place that authorizes take of the fully protected species.

Avian Protection Laws

California Fish and Game Code sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs. Section 3513 makes it a State-level offense to take any bird in violation of the federal Migratory Bird Treaty Act.

Protection of Lakes and Streambeds

California Fish and Game Code section 1602 states that it is unlawful for any person to "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" without first notifying the California Department of Fish and Wildlife (CDFW) of that activity. Thereafter, if CDFW determines and informs the entity that the activity will not substantially adversely affect any existing fish or wildlife resources, the entity may commence the activity. If, however, CDFG determines that the activity may substantially adversely affect an existing fish or wildlife resource, the entity may be required to obtain from CDFW a Streambed Alteration Agreement (SAA), which will include reasonable measures necessary to protect the affected resource(s), before the entity may conduct the activity described in the notification. Upon receiving a complete Notification of Lake/Streambed Alteration, CDFW has 60 days to present the entity with a Draft SAA. Upon review of the Draft SAA by the applicant, any problematic terms are negotiated with CDFW and a final SAA is executed.

The CDFW has not defined the term "stream" for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. However, four relevant sources of information offer insight as to the appropriate limits of CDFW jurisdiction as discussed below.

The plain language of Section 1602 of CFGC establishes the following general concepts:

- References "river," "stream," and "lake"
- References "natural flow"
- References "bed," "bank," and "channel"

- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602's use of "stream" to be as defined in common law. The Court indicated that a "stream" is commonly understood to:
  - Have a source and a terminus
  - Have banks and a channel
  - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry

  - Represent the depression between the banks worn by the regular and usual flow of the water
  - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
  - Include the land that is covered by the water in its ordinary low stage
  - Include lands below the OHWM

- **CDFW regulations** defining "stream" for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
  - Flows at least periodically or intermittently
  - Flows through a bed or channel having banks
  - Supports fish or aquatic life
  - Can be dry for a period of time
  - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation

- **Guidance documents**, including *A Field Guide to Lake and Streambed Alteration Agreements* (CDFG 1994) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2013), which suggest the following:
  - A stream may flow perennially or episodically
  - A stream is defined by the course in which water currently flows, or has flowed during the historical hydrologic course regime (approximately the last 200 years)
  - Width of a stream course can reasonably be identified by physical or biological indicators
  - A stream may have one or more channels (single thread vs. compound form)
  - Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
  - Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
  - Biologic components of a stream may include aquatic and riparian vegetation, all aquatic wildlife including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
  - The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied to establish the boundaries of streambeds in various environments. Importance of each factor may be weighted based on site-specific considerations and the applicability of the indicators to the streambed at hand.

Colorado River Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) have jurisdiction over "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code sec. 13050(e)). These agencies also have responsibilities for administering portions of the CWA.

Clean Water Act Section 401

Section 401 of the CWA requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide State certification that the proposed activity will not violate State and federal water quality standards. In California, CWA Section 401 Water Quality Certification (Section 401 Certification) is issued by the RWQCBs and by the SWRCB for multi-region projects.

The process begins when an applicant submits an application to the RWQCB and informs the USACE (or the applicable agency from which a license or permit was requested) that an application has been submitted. The USACE will then determine a "reasonable period of time" for the RWQCB to act on the application; this is typically 60 days for routine projects and longer for complex projects but may not exceed one year. When the period has elapsed, if the RWQCB has not either issued or denied the application for Section 401 Certification, the USACE may determine that Certification has been waived and issue the requested permit. If a Section 401 Certification is issued it may include binding conditions, imposed either through the Certification itself or through the requested federal license or permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows: The quality of all the waters of the State shall be protected. All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason. The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation.

The Porter-Cologne Act established nine RWQCBs (based on watershed boundaries) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

Section 13260 of the Porter-Cologne Act requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB. The RWQCB may then authorize the discharge, subject to conditions, by issuing Waste Discharge Requirements (WDRs). While this requirement was historically applied primarily to outfalls and similar point source discharges, the SWRCB's *State Wetland Definition and*

Procedures for Discharges of Dredged or Fill Material to Waters of the State, effective May 2020, make it clear that the agency will apply the Porter-Cologne Act's requirements to discharges of dredge and fill material as well. The *Procedures* state that they are to be used in issuing CWA Section 401 Certifications and WDRs, and largely mirror the existing review requirements for CWA Section 404 Permits and Section 401 Certifications, incorporating most elements of the USEPA's *Section 404(b)(1) Guidelines*. Following issuance of the *Procedures*, the SWRCB produced a consolidated application form for dredge/fill discharges that can be used to obtain a CWA Section 401 Water Quality Certification, WDRs, or both.

Non-Wetland Waters of the State

The SWRCB and RWQCBs have not established regulations for field determinations of waters of the State except for wetlands currently. In many cases the RWQCBs interpret the limits of waters of the State to be bounded by the OHWM unless isolated conditions or ephemeral waters are present. However, in the absence of statewide guidance each RWQCB may interpret jurisdictional boundaries within their region and the SWRCB has encouraged applicants to confirm jurisdictional limits with their RWQCB before submitting applications. As determined by the RWQCB, waters of the State may include riparian areas or other locations outside the OHWM, leading to a larger jurisdictional area over a given water body compared to the USACE.

Wetland Waters of the State

Procedures for defining wetland waters of the State pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB defines an area as a wetland if, under normal circumstances, the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The SWRCB's Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State (2021), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

Arizona Department of Agriculture

The Arizona Department of Agriculture (AZDA) is responsible for administering the Arizona Native Plant Law (A.R.S. §§ 3-901 to 3-933), which regulates the harvesting, sale, and transport of native plants to ensure their conservation and sustainable use.

Arizona Native Plant Law

The Arizona Native Plant Law (Arizona Revised Statutes Title 3, Chapter 7) was enacted to protect rare plant species from being over harvested. There are four Protected Native Plant Categories, including Highly Safeguarded, Salvage Restricted, Salvage Assessed, and Harvest Restricted. Removal of species protected under the Arizona Native Plant Law may require pursuing appropriate permits through the Arizona Department of Agriculture.

Arizona Department of Environmental Quality

The Arizona Department of Environmental Quality (ADEQ) is the state agency charged with protecting Arizona's water quality in accordance with state and federal laws. ADEQ administers the Clean Water Act (CWA) Section 401 Water Quality Certification program, which requires that any federally permitted project involving discharges into waters of the United States obtain state certification verifying compliance with Arizona's water quality standards. This certification process ensures that activities such as construction, development, or industrial operations do not degrade surface waters or impair beneficial uses. ADEQ also monitors and regulates surface water quality through the Arizona Pollutant Discharge Elimination System (AZPDES) program.

Arizona Game and Fish Department

The Arizona Game and Fish Department (AZGFD) is the primary state agency responsible for managing and conserving Arizona's wildlife and their habitats. AZGFD administers the state's Wildlife Code and manages programs aimed at protecting game and nongame species throughout the state. The department identifies and prioritizes Species of Greatest Conservation Need (SGCN) as part of the Arizona Wildlife Conservation Strategy, guiding targeted conservation actions to address threats and improve the status of vulnerable species.

Arizona Wildlife Conservation Strategy

The Arizona Wildlife Conservation Strategy is a ten-year plan that seeks to identify species requiring conservation efforts to prevent their listing under the ESA. These species, as designated by the Arizona Game and Fish Department (AZGFD), are classified as Species of Greatest Conservation Need (SGCN) (AZGFD 2025c).

Species designated as SGCN may be specifically covered under a signed conservation agreement or strategic plan, or may be considered a closed season species (as identified in Arizona Game and Fish Commission Orders 40, 41, 42 or 43).

Imperial County General Plan

The Conservation and Open Space Element of the Imperial County General Plan provides detailed plans and measures for the preservation and management of biological and cultural resources, soils, minerals, energy, regional aesthetics, air quality, and open space (County of Imperial 2016). The purpose of this element is to recognize that natural resources must be maintained for their ecological value for the direct benefit to the public and to protect open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and for public health and safety. In addition, the purpose of this element is to promote the protection, maintenance, and use of the County's natural resources with particular emphasis on scarce resources, and to prevent wasteful exploitation, destruction, and neglect of the state's natural resources. The goals and objectives have been developed to reflect the County's values, aims, and aspirations while the policies and programs implement the goals and objectives and set specific performance objectives. Below are the relevant goals, objectives, and policies contained in the Imperial County General Plan associated with biological resources:

Conservation of Environmental Resources for Future Generations

- Goal 1: Environmental resources shall be conserved for the future generations by minimizing environmental impacts in all land use decisions and educating the public on their value.
  - Objective 1.6: Promote the conservation of ecological sites and preservation of cultural resource sites through scientific investigation and public education.

Conservation of Biological Resources

- Goal 2: The County will integrate programmatic strategies for the conservation of critical habitats to manage their integrity, function, productivity, and long-term viability.
  - Objective 2.1: Designate critical habitats for Federally and State-listed species.
  - Objective 2.2: Develop management programs, including preservation of habitat for flattailed horned lizard, desert pupfish, and burrowing owl.
  - Objective 2.3: Support investigation of long-term climate change effects on biological resources.
  - Objective 2.4: Use the CEQA and NEPA process to identify, conserve and restore sensitive vegetation and wildlife resources.

Open Space and Recreation Conservation

- Policy No. 2: The County shall participate in conducting detailed investigations into the significance, location, extent, and condition of natural resources in the County.

Imperial County Municipal Code

The following Imperial County Ordinances pertain to the protection of biological resources:

- Chapter 12.48: Wild Flowers and Trees
  - § 12.48.010 *Picking or destroying of certain trees and flowers*: Requires permits for picking blossoms, branches, leaves, and berries or removing: mountain dogwood, snow play, tiger lily, western azalea, California holly toyon berry, maiden-hair fern, sword fern family, giant canyon fern.
  - § 12.48.030 *Yucca plant*: Restricts digging up, removing or destroying, and picking blooms or blossoms from any Yucca Plant without a permit.
  - § 12.48.040 *Yucca trees*: Restricts digging up, removing or destroying any of the following species without a permit:
    - Quixote plant, Joshua tree, Spanish dagger, desert lily, fan palm, desert holly, desert verbena, desert evening primrose, smoke tree, lupine, ocotillo, desert willow, sand food, scarlet bugler, and indigo bush.
  - § 12.48.050 *Cactus*: Restricts digging up, picking, removing or destroying any of the following species without a permit:
    - Cholla, barrel cactus, giant cactus, strawberry or fish hook cactus, bird nest cactus, acanthus, hedgehog cactus, torch cactus, beavertail cactus, clavate cactus, grizzly bear cactus, optunia cactus, marguey or agaves.
  - § 12.48.070 *Shrubs*: Restricts digging up, removing or destroying crucifixion thorn shrubs without a permit.

- 93102.00 *Prohibited Discharges:* Except as provided in Section 93102.01, no person shall discharge, facilitate, cause, permit, or allow to be discharged to the stormwater conveyance system, either directly or indirectly, any of the following:
  A. Any non-stormwater, except in compliance with the requirements of this division;
  B. Any stormwater that may cause or threaten to cause a condition of pollution or nuisance, as defined in California Water Code section 13050;
  C. Any stormwater that may cause, threaten to cause, or contributes to an exceedance of any water quality standard in a Statewide Water Quality Control Plan, the California Toxics Rule, or the Basin Plan;
  D. Stormwater containing hazardous substances;
  E. Runoff in excess of incidental runoff as defined by the state of California Department of Water Resources Phase II Small MS4s General Permit (Order No. 2013-0001-DWQ); and
  F. Any other stormwater identified by the enforcement agency to be a significant source of pollutants.

Yuma County Comprehensive Plan

The Environmental Element of the Yuma County Comprehensive Plan includes analysis, policies, and strategies to address any anticipated effects of the plan's elements and new development called for by the plan on air and water quality and natural resources (Yuma County 2023). The purpose of this Element is to assess and outline strategies to avoid, minimize and mitigate anticipated effects on environmental resources. Specific functions include:

- Ensure compliance with existing State and Federal laws
- Recognize the value and condition of existing natural resources in the county and their ecological value.
- Determine the extent to which development activities are required to comply with the goals, objectives and policies contained within the Plan.
- Promote the use of natural resources in the county in a manner that provides for continued economic viability.
- Foster a sense of environmental stewardship between governmental agencies and private entities.

Below are the specific policies contained in the Yuma County Comprehensive Plan Environmental Element associated with biological resources:

- EPP.3: Encourage the protection and preservation of existing habitat areas for threatened or endangered plant and wildlife species.
- EPP.4: Encourage consideration of the natural environment during the review of new development projects including options for the preservation of the native vegetation, wildlife and washes.
- EPP.8: Encourage development to retain washes in their natural state.

Yuma County Municipal Code

The following Yuma County ordinances pertain to the protection of biological resources:

- § 17.06.609 *Environmental Performance Standards*: Requires applications for new construction or reconstruction for non-single-family residential purposes to provide a proposal which addresses:
  A. Drainage and stormwater runoff
  B. Natural hazards where affecting the site
  C. Erosion controls during and after construction
  D. Reclamation and/or revegetation and landscaping
  E. Preservation of unique natural features

City of Calexico General Plan

The Conservation/Open Space Element of the City of Calexico General Plan addresses the identification, conservation, development, and use of natural resources. These include, but are not limited to, development of farmland, flood control, water pollution, erosion, and endangered species (City of Calexico 2015). Below are the specific policies contained in the City of Calexico General Plan associated with biological resources (Section 5.4.1.3):

- Policy No. 3
  a. Support regional and sub-regional efforts to conserve ecological and biological resources in the City and surrounding areas.
  b. Support efforts to integrate natural wetlands treatment systems as part of the New River Improvement Project described in Section 5.2.5.
  c. Projects of one acre or more involving alteration or development of undisturbed land shall be required to submit a biological survey conducted by a qualified biologist to the City of Calexico. A focused biological study may be required if habitat that could potentially support a listed or threatened species exists on the site.

City of Calexico Municipal Code

The following City of Calexico ordinances pertain to the protection of biological resources:

- § 17.09.530 *Property Development Standards – OS Zone*
  A. *General Requirements:* Requires consideration of development standards for topography, water/drainage, significant ridgeline, oak tree preservation, significant ecological areas, and any environmental factors.
  B. *Performance Standards:* Requires development in open space areas to:
     1. Minimize alteration to the natural landform.
     2. Protect areas capable of replenishing ground water supplies.
     3. Protect the natural drainage of the area.
     4. Protect waterways from indiscriminate erosion and pollution.
     5. Protect lands having biological significance.
     6. Protect areas with significant native vegetation and habitat value.

7. Protect natural areas for ecologic, educational, and other scientific study purposes.

- Chapter 13.50 *Urban Storm Water Quality Management and Discharge Control*
  - Codifies the requirements of Section 402(p)(3) of the Clean Water Act, 33 U.S.C. Section 1342, and the Porter-Cologne Water Quality Control Act, Water Code Section 13000 et seq., as embodied in the city's current National Pollutant Discharge Elimination System (NPDES) permit, and protects water resources from illicit discharge and pollution.

- § 13.50.030 *Discharge prohibitions:* Prohibits any person to:
  1. Cause, allow or facilitate any non-storm water discharge except in compliance with the requirements of this chapter and in compliance with any separate individual or general NPDES permit;
  2. Cause, allow or facilitate any illicit discharge;
  3. Discharge any material into the MS4, or any watercourse within the city's jurisdiction that may cause, or threaten to cause a condition of pollution, contamination, or nuisance within the meaning of California Water Code Section 13050 or that may cause or contribute to a violation of the city's NPDES permit, the Clean Water Act or the Porter-Cologne Water Quality Control Act;
  4. Discharge to areas of special biological significance except in compliance with all applicable NPDES permits, waivers, orders and other regulatory controls; or
  5. Discharge any water from a premises that is not storm water and that is not incidental runoff.

- § 13.50.070 *Best management practices required:* Requires responsible party for any premises, site, activity, operation, or facility that may discharge any pollutant to the MS4 to implement those BMPs approved by the Director in accordance with this chapter, or with any local, state, or federal law, rule, regulation, or permit
- § 13.50.080 *Watercourse Protection*
  - B. The person responsible for any premises through which a watercourse passes must maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse. Maintenance must be conducted in a manner that does not adversely impact waterway species.

City of El Centro General Plan

The Conservation/Open Space Element of the City of El Centro General Plan contains goals and policies to protect and maintain natural resources such as water, soils, wildlife, and minerals, and prevent wasteful resource exploitation, degradation, and destruction (City of El Centro 2004). Below are the specific policies contained in the City of El Centro General Plan associated with biological resources:

- Conservation/Open Space Goal 3: Direct future urban growth and expansion of the City to promote the conservation of important natural habitats, ecosystems, and open space areas of unique natural quality and community significance.
- Policy 3.1: Protect unique or high-quality natural habitats through open space designation or parkland dedication.
- Policy 3.2: Utilize the environmental review process to evaluate and mitigate impacts to natural resources and plant and animal habitats that may be affected by proposed development.

City of El Centro Municipal Code

The following City of El Centro ordinances pertain to the protection of biological resources:

- Section 26-27 *For destroying, defacing or mutilating trees or shrubs*: It shall be unlawful and an infraction for any person to destroy, deface or mutilate any tree or shrub in and along any public street without having first obtained a written permit therefor from the department of public works.
- Section 22-703 *Illicit discharges:*
    a. Discharges of waste from the MS4 that are prohibited by statewide water quality control plans or applicable regional water quality control plans (basin plans) are prohibited.
    b. Discharges of storm water from the MS4 to waters of the U.S. in a manner causing or threatening to cause a condition of pollution or nuisance as defined in Water Code § 13050 are prohibited.
    c. Discharges through the MS4 of material other than storm water to waters of the U.S. shall be effectively prohibited, except as allowed under section 22-704 or as otherwise authorized by a separate NPDES permit.
- Section 22-707 *Reduction of pollutants in storm water:* requires those discharging to the MS4 to implement BMPs and pollution control requirements, develop a stormwater pollution prevention plan, develop and implement a hazardous materials release response plan, and to comply with any NPDES permit requirements.

Habitat Conservation Plan

The study area traverses portions of the 2004 Lower Colorado River Multi-Species Conservation Program Habitat Conservation Plan (herein referred to as "LCR MSCP") area near Mittry Lake (Appendix K). The goals of the LCR MSCP include (LCR MSCP 2004):

- Conservation of habitat and work toward the recovery of threatened and endangered species, and reduce the likelihood of additional species being listed;
- Accommodating present water diversions and power production and optimize opportunities for future water and power development, to the extent consistent with the law; and
- Providing the basis for incidental take authorizations.

The LCR MSCP planning area is divided into seven "reaches." Portions of the study area coincide with Reach 6, which extends from Imperial Dam (north of Mittry Lake) to the United States – Mexico border. The LCR MSCP includes 27 covered species and five "evaluation species."[9] These species include:

Covered Species

- Yuma clapper rail (*Rallus longirostris yumanensis*)
- Southwestern willow flycatcher (*Empidonax trailii extimus*)

[9] "Evaluation species" are species that could become listed in future years and that could be added to the covered species list during LCR MSCP implementation, but for which sufficient information was not available at the time to determine their status in the LCR MSCP planning area, to assess the potential effects of covered activities, or to develop specific conservation measures (LCR MSCP 2004).

- Desert tortoise (*Gopherus agassizii*, Mojave population)
- Bonytail (*Gila elegans*)
- Humpback chub (*Gila cypha*)
- Razorback sucker (*Xyrauchen texanus*)
- Western red bat (*Lasiurus blossevillii*)
- Western yellow bat (*Lasiurus xanthinus)*
- Desert pocket mouse (*Chaetodipus penicillatus sobrinus*)
- Colorado River cotton rat (*Sigmodon arizonae plenus*)
- Yuma hispid cotton rat (*Sigmodon hispidus eremicus*)
- Western least bittern (*Ixobrychus exilis hesperis*)
- California back rail (*Laterallus jamaicensis coturniculus*)
- Yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
- Elf owl (*Micrathene whitneyi*)
- Gilded flicker (*Colaptes chrysoides*)
- Gila woodpecker (*Melanerpes uropygialis*)
- Vermilion flycatcher (*Pyrocephalus rubinus*)
- Arizona Bell's vireo (*Vireo bellii arizonae*)
- Sonoran yellow warbler (*Dendroica petechia sonorana*)
- Summer tanager (*Piranga rubra*)
- Flat-tailed horned lizard (*Phrynosoma mcalli*)
- Relict leopard frog (*Rana onca*)
- Flannelmouth sucker (*Catostomus latipinnis*)
- MacNeill's sootywing skipper (*Pholisora gracielae*)
- Sticky buckwheat (*Eriogonum viscidulum*)
- Threecorner milkvetch (*Astragalus geyeri var. triquetrus*)

Evaluation Species

- California leaf-nosed bat (*Macrotus californicus*)
- Pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)
- Colorado River toad (*Bufo alvarius*)
- Lowland leopard frog (*Rana yavapaiensis*)
- Desert pocket mouse (*Chaetodipus penicillatus sobrinus*).

The LCR MSCP includes a designated list of covered applicants, such as AGFD or hydroelectric power contract holders (i.e., Parker Dam), and covered activities such as water diversions, conveyance facilities, and electrical generation and transmission facilities. Because HWT is not a covered applicant, and the Proposed Project transmission facilities do not connect with hydropower along the LCR, the LCR MSCP would not apply to the Proposed Project.

Appendix B

Study Area



Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
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1C
1D
1-ALT

Segment II
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2A

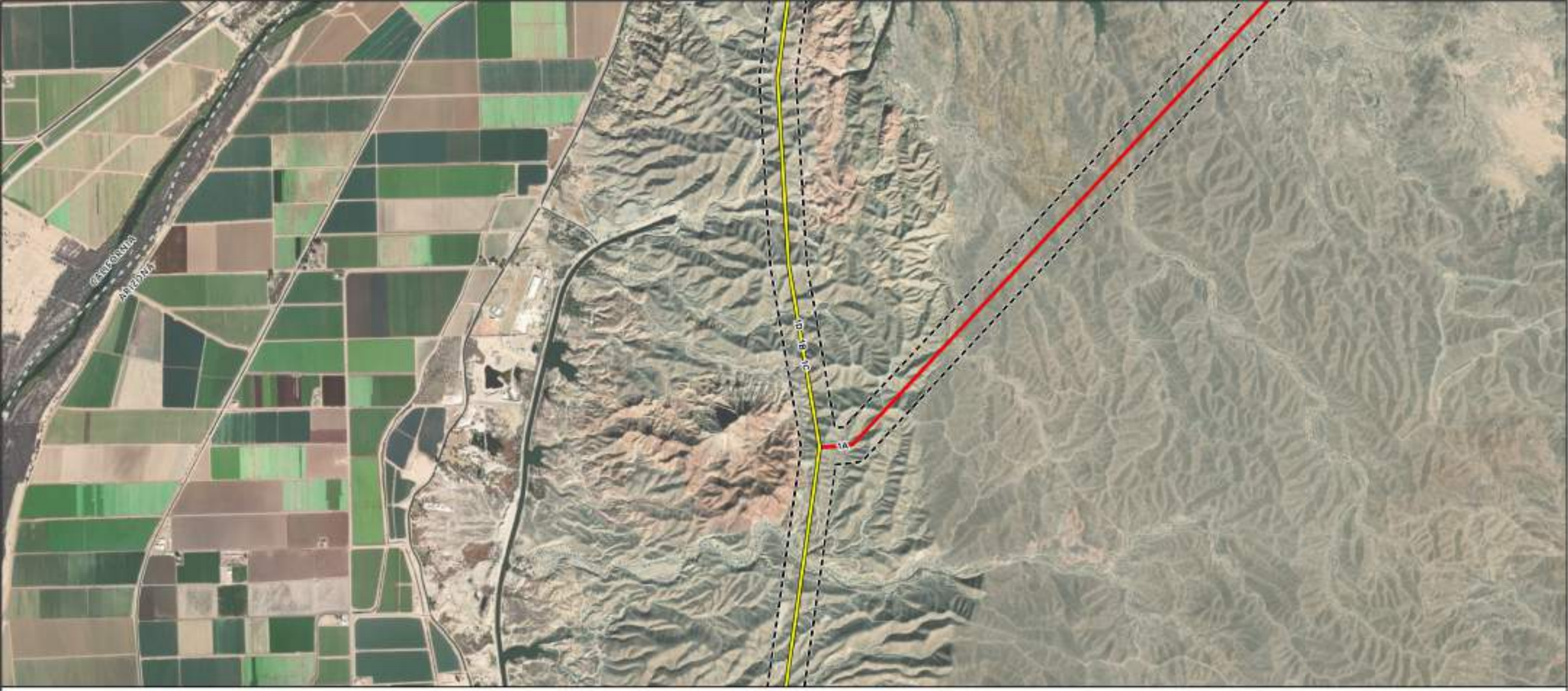
Segment III
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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
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1C
1D
1-ALT

Segment II
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Segment III
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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
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1C
1D
1-ALT

Segment II
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2A

Segment III
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3C

3D

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CALIFORNIA
ARIZONA

Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
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Segment II
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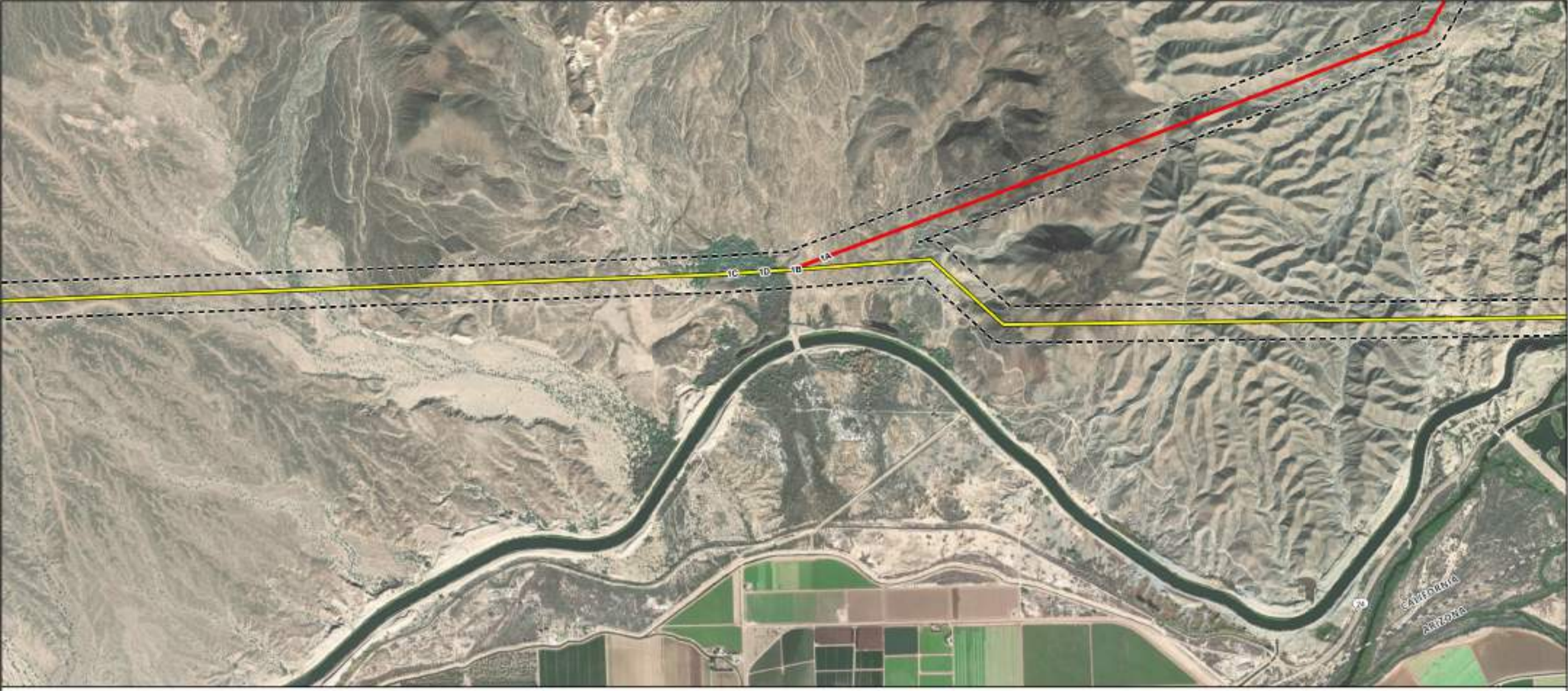
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Map Extent

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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
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Segment II
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Segment III
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Existing Substation
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Existing Substation
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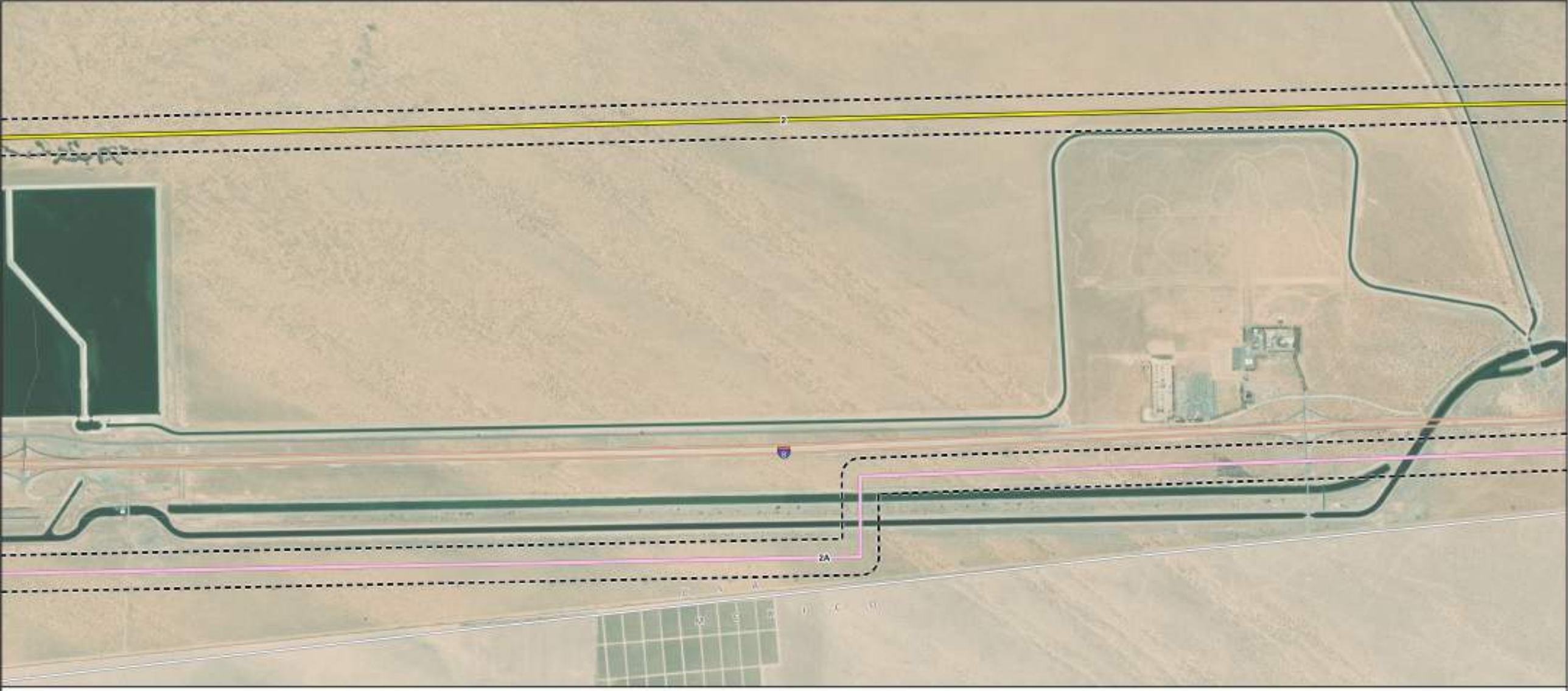
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Existing Substation
Study Area
State Boundary
US-Mexico Border
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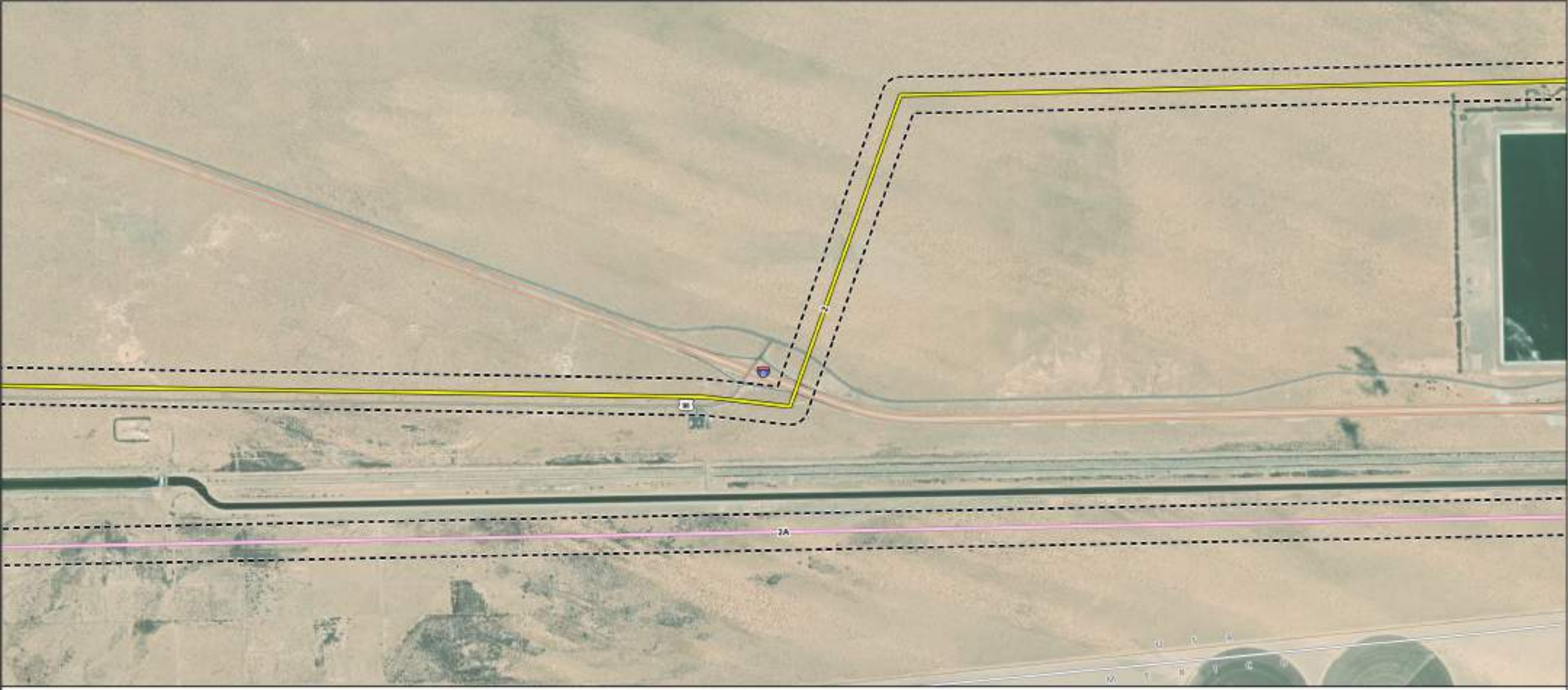
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- Existing Substation
- Study Area
- State Boundary
- US-Mexico Border
- Proposed Project

Alternative Route Segments*

Segment I
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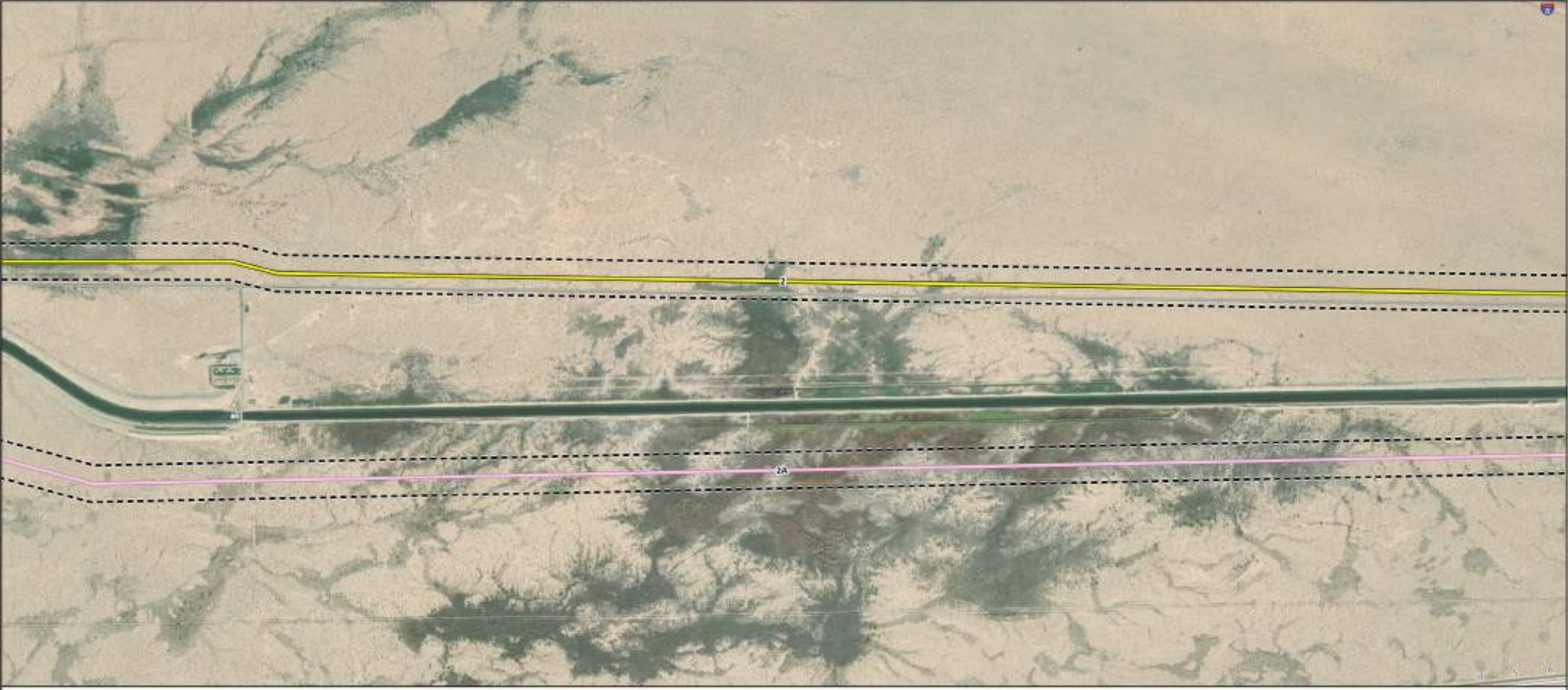
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Existing Substation
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US-Mexico Border
Proposed Project

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Existing Substation
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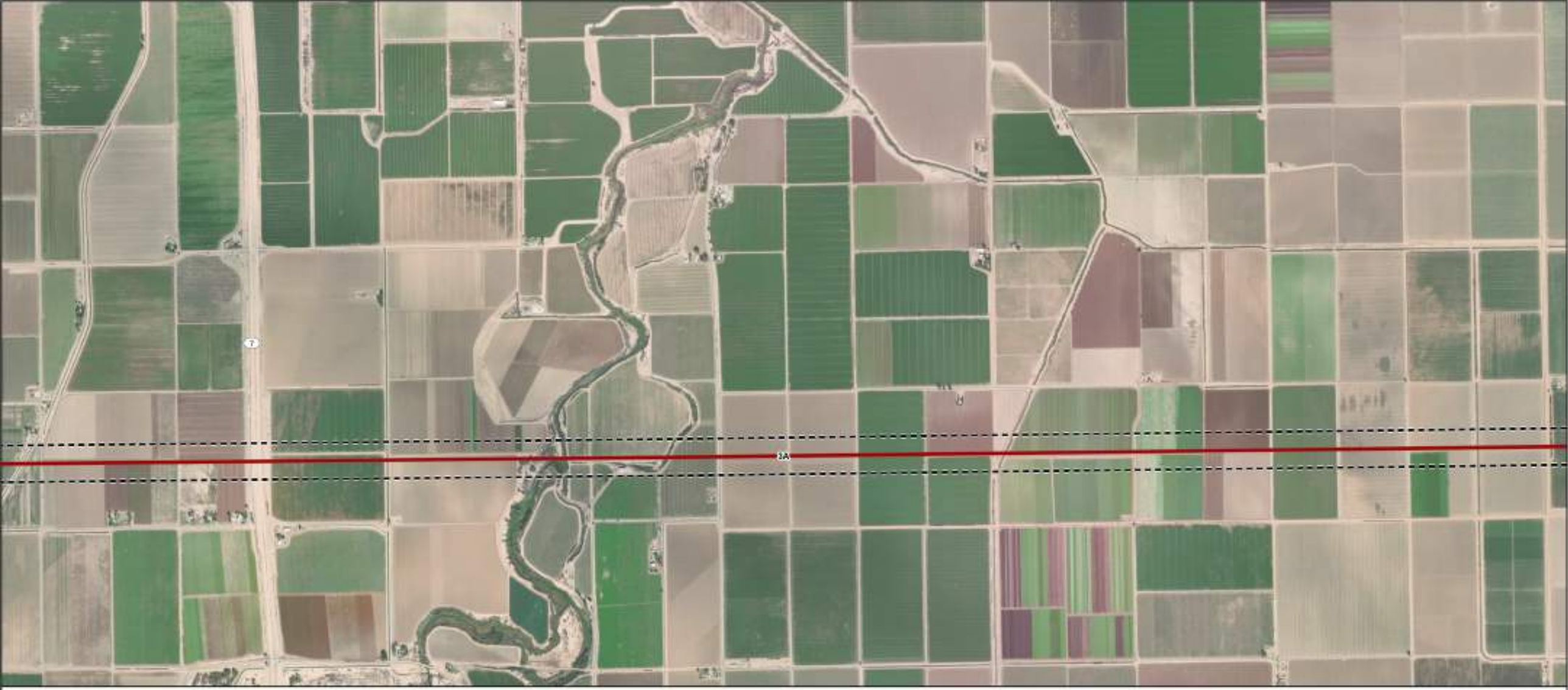
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Map Extent

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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

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Existing Substation
Study Area
State Boundary
US-Mexico Border
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Existing Substation
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US-Mexico Border
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0 1,000 2,000 Feet

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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

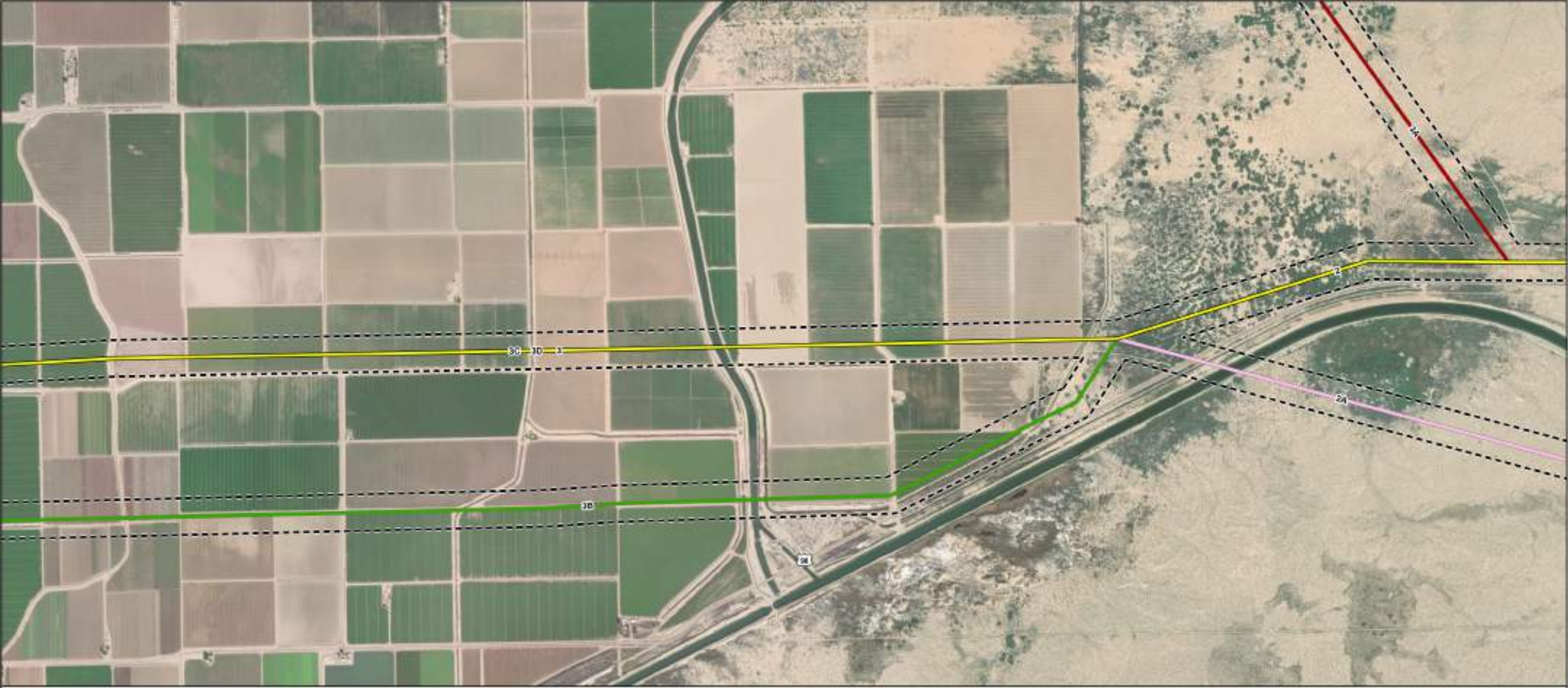
Segment II
2
2A

Segment III
3
3A
3B
3C
3D

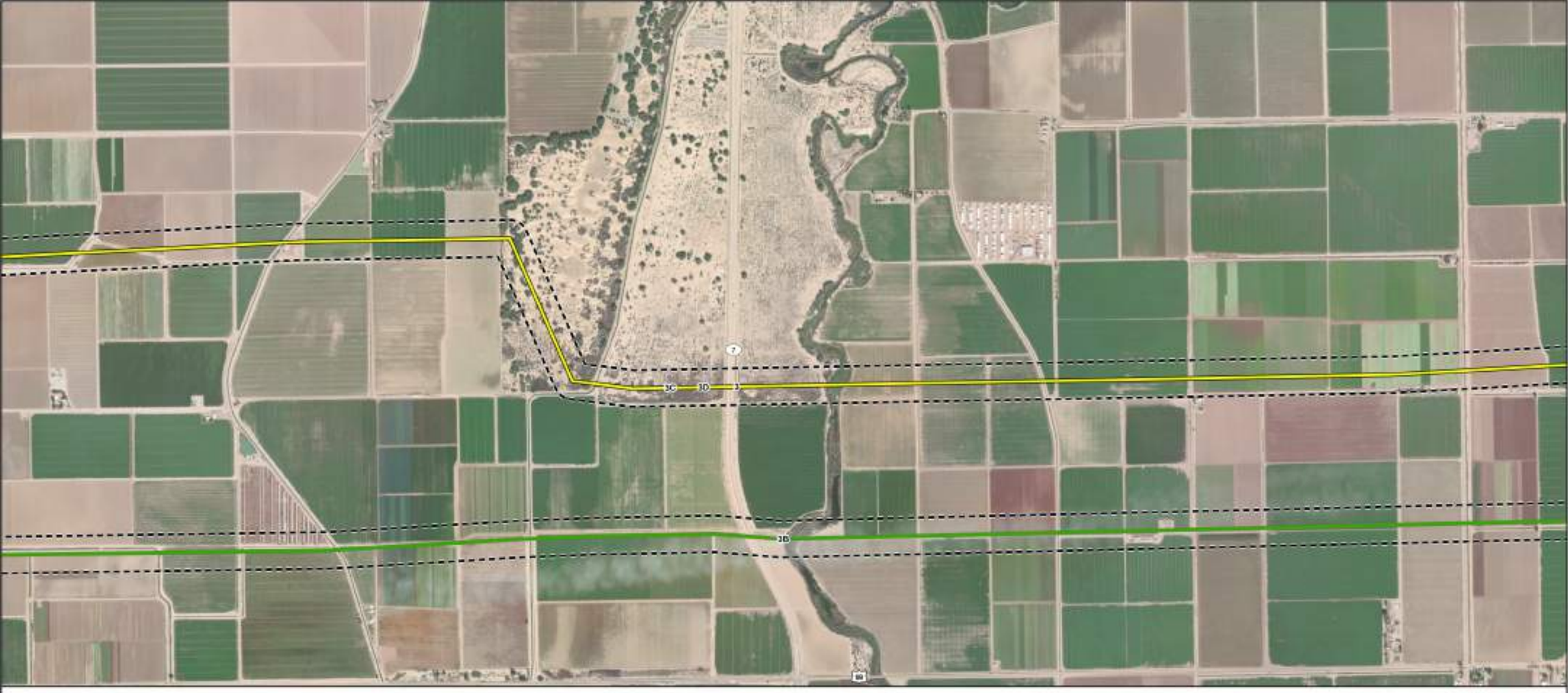
0 1,000 2,000 N
Feet



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*Imagery provided by Esri, and their licensors © 2025. *Route segments slightly offset for visual display purposes.*



Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2
2A

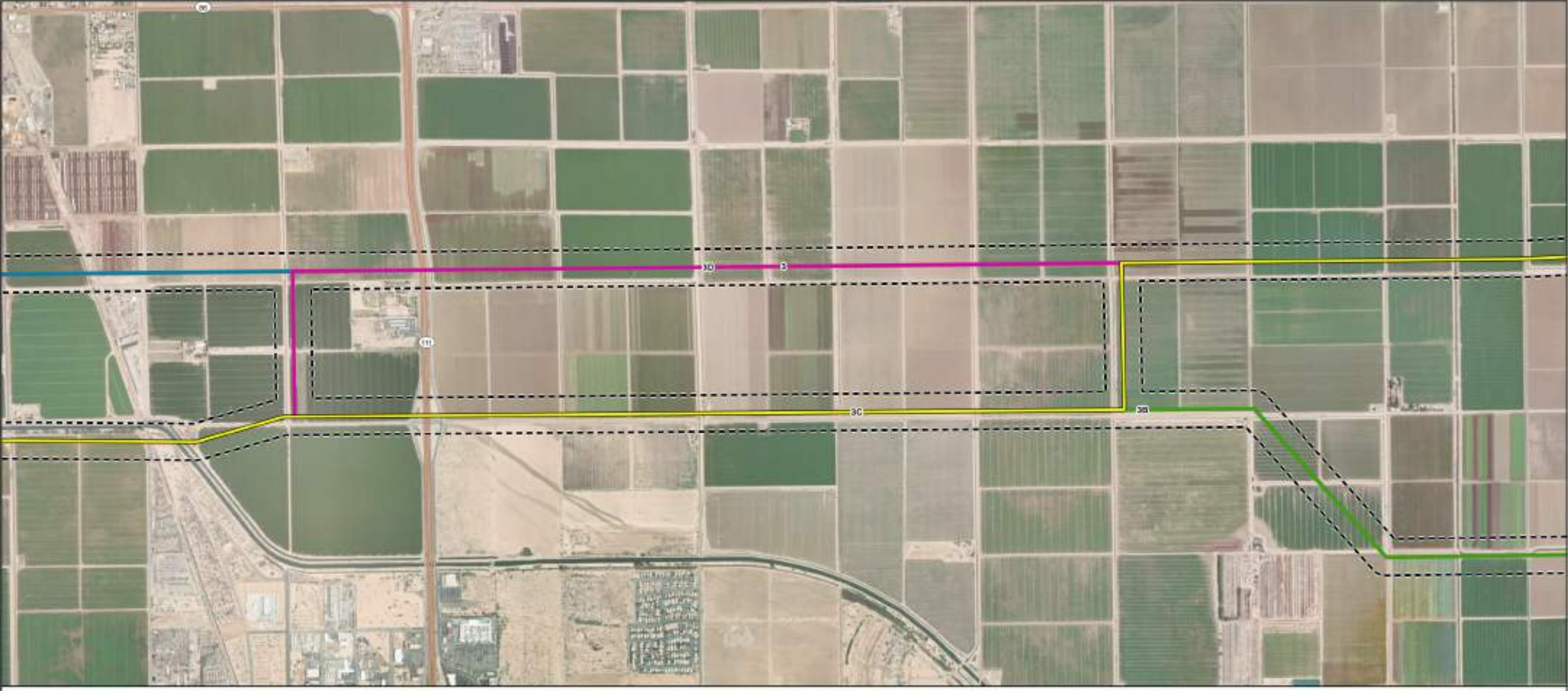
Segment III
3
3A
3B
3C
3D

0 1,000 2,000 Feet

N



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*Imagery provided by Esri, and their licensors © 2025. *Route segments slightly offset for visual display purposes.*



Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

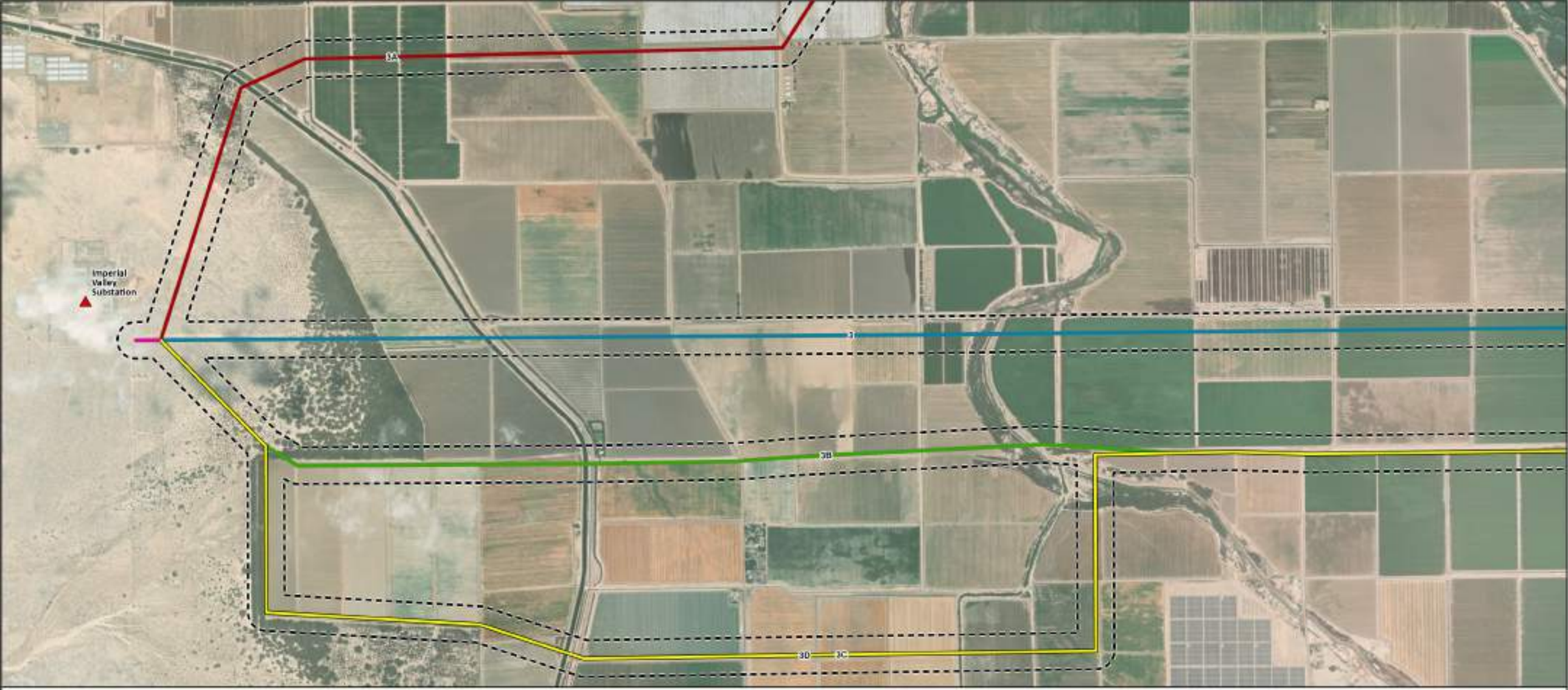
Segment II
2
2A

Segment III
3
3A
3B
3C
3D

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

0 1,000 2,000 Feet

N



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Appendix C

IPaC Resource List

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Arizona and California



Local offices

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

Arizona Ecological Services Field Office

(602) 242-0210
(602) 242-2513

9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NOT FOR CONSULTATION

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Sonoran Pronghorn Antilocapra americana sonoriensis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4750	Endangered
Sonoran Pronghorn Antilocapra americana sonoriensis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4750	EXPN

Birds

NAME	STATUS
Southwestern Willow Flycatcher Empidonax traillii extimus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened
Yuma Ridgway's Rail Rallus obsoletus yumanensis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3505	Endangered

Reptiles

NAME	STATUS
Desert Tortoise Gopherus agassizii There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4481	Threatened

Fishes

NAME	STATUS

NOT FOR CONSULTATION

NAME	STATUS
Bonytail Gila elegans Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1377	Endangered
Razorback Sucker Xyrauchen texanus Wherever found There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/530	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Flowering Plants

NAME	STATUS
Peirson's Milk-vetch Astragalus magdalenae var. peirsonii Wherever found There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/4933	Threatened

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Peirson's Milk-vetch Astragalus magdalenae var. peirsonii https://ecos.fws.gov/ecp/species/4933#crithab	Final

Razorback Sucker	Xyrauchen texanus	Final

https://ecos.fws.gov/ecp/species/530#crithab

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

NOT FOR CONSULTATION

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

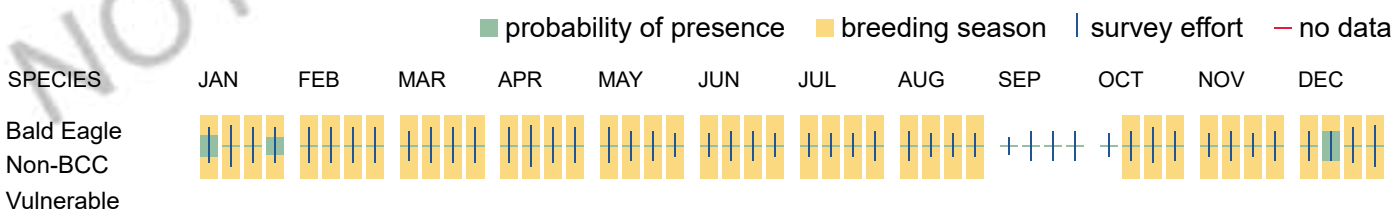
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION

Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

NOT FOR CONSULTATION

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NOT FOR CONSULTATION

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
American Avocet Recurvirostra americana This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 21 to Aug 10
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black Skimmer Rynchops niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15
Black-chinned Sparrow Spizella atrogularis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Costa's Hummingbird Calypte costae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Gila Woodpecker Melanerpes uropygialis This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5960	Breeds Apr 1 to Aug 31
Lawrence's Goldfinch Spinus lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20

NOT FOR CONSULTATION

Leconte"s Thrasher Toxostoma lecontei — Breeds Feb 15 to Jun 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8969

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Mountain Plover Charadrius montanus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3638

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

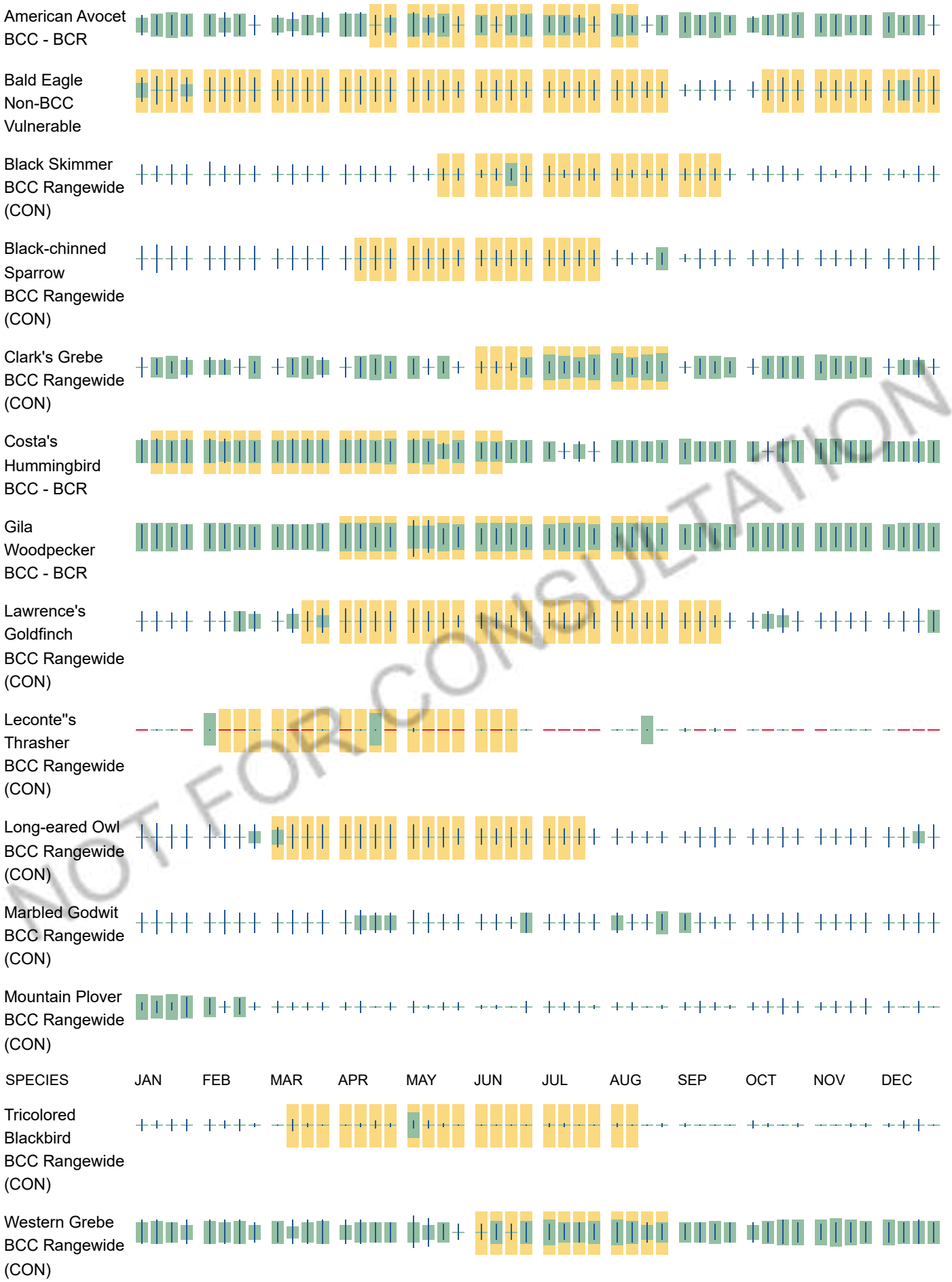
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

NOT FOR CONSULTATION

probability of presence breeding season survey effort no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC



NOT FOR CONSULTATION

Willet
BCC Rangewide
(CON)



Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

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Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then

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the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

Wildlife refuges and fish hatcheries

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Refuge and fish hatchery information is not available at this time

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

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Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Appendix D

Floral and Faunal Compendium

Plants Species Observed in the Study Area

Scientific Name	Common Name	Status	Native or Introduced	Alternative Route Segment(s) Observed[1]
Herbs				
Amaranthus albus	Tumbleweed	–	Non-native	1A, 1B, 1C, 1D, 2, 2A
Arundo donax	giant reed	Cal-IPC High	Introduced	1A, 1B, 1C, 1D, 2, 2A
Asclepias subulata	rush milkweed	–	Native	1A, 1B, 1C, 1D, 2, 2A
Chorizanthe rigida	devil's spineflower	–	Native	1A, 1B, 1C, 1D
Cynodon dactylon	Bermuda grass	Cal-IPC Moderate	Introduced	1A, 1B, 1C, 1D, 2, 2A
Disthiclis spicata	salt grass	–	Native	1A, 1B, 1C, 1D, 2, 2A
Heliotropium curassivicum	salt heliotrope	–	Native	1A, 3C, 3D
Oenothera deltoides	birdcage evening primrose	–	Native	1A, 1B, 1C, 1D
Phacelia sp.	Phacelia	–	Native	1A, 1B, 1C, 1D
Phragmites australis	common reed	–	Native	1A, 1B, 1C, 1D, 2, 2A
Plantago ovata	desert plantain	–	Native	2, 2A
Polypogon monspeliensis	rabbits foot grass	Cal-IPC Limited	Introduced	1A, 1B, 1C, 1D
Saccharum ravennae	ravenna grass	Cal-IPC Moderate	Introduced	2, 2A
Schismus arabicus	Arabian schismus	Cal-IPC Limited	Introduced	1A, 1B, 1C, 1D, 2, 2A
Schismus barbatus	Mediterranean grass	Cal-IPC Limited	Introduced	1A, 1B, 1C, 1D, 2, 2A
Schoenoplectus americanus	chairmaker's bulrush	–	Native	2, 2A, 3, 3A, 3B, 3C, 3D
Schoenoplectus californicus	bulrush	–	Native	1A, 1B, 1C, 1D
Sphaeralcea ambigua	apricot mallow	–	Native	1A, 1B, 1C, 1D
Tidestromia suffruticosa	honey sweet	–	Native	1A, 1B, 1C, 1D
Tiquilia plicata	fanleaf crinklemat	–	Native	1A, 1B, 1C, 1D, 2, 2A
Typha latifolia	common cattail	–	Native	1A, 1B, 1C, 1D
Johnstonella angustifolia	narrow-leaved johnstonella	–	Native	1A, 1B, 1C, 1D
Shrubs				
Ambrosia dumosa	white bursage	–	Native	1A, 1B, 1C, 1D, 2, 2A
Ambrosia salsola	cheese bush	–	Native	1A, 1B, 1C, 1D, 2, 2A
Atriplex canescens	fourwing saltbush	–	Native	1A, 1B, 1C, 1D, 2, 2A
Atriplex hymenelytra	desert holly	–	Native	1A, 1B, 1C, 1D, 2, 2A
Atriplex lentiformis	big saltbush	–	Native	1A, 1B, 1C, 1D, 2, 2A
Atriplex polycarpa	cattle saltbush	–	Native	1A, 1B, 1C, 1D, 2, 2A
Baccharis salicina	willow baccharis	–	Native	1A, 1B, 1C, 1D
Carnegiea gigantea	Saguaro	2B.2	Native	1A
Chilopsis linearis	desert willow	–	Native	1A, 1B, 1C, 1D, 2, 2A
Chloracantha spinosa	spiny chloracantha	–	Native	1A, 1B, 1C, 1D, 2, 2A
Cylindropuntia bigelovii	teddy bear cholla	–	Native	1A, 1B, 1C, 1D
Cylindropuntia echinocarpa	silver cholla	–	Native	1A, 1B, 1C, 1D

Scientific Name	Common Name	Status	Native or Introduced	Alternative Route Segment(s) Observed[1]
Cylindropuntia ramosissima	pencil cholla	–	Native	1A, 1B, 1C, 1D
Echinocactus polycephalus	cottontop cactus	–	Native	1A, 1B, 1C, 1D
Encelia farinosa	brittlebush	–	Native	1A, 1B, 1C, 1D, 2, 2A
Encelia frutescens	button brittlebush	–	Native	2, 2A, 3A
Ephedra trifurca	longleaf jointfir	–	Native	2, 2A
Eriogonum deserticola	Colorado Desert buckwheat	–	Native	1A, 1B, 1C, 1D
Eriogonum inflatum	desert trumpet	–	Native	1A, 1B, 1C, 1D, 2, 2A
Ferocactus cylindraceus	California barrel cactus	–	Native	1A, 1B, 1C, 1D
Fouquieria splendens	Ocotillo	–	Native	1A, 1B, 1C, 1D
Isocoma acradenia	alkalai goldenbush	–	Native	2, 2A
Larrea tridentata	creosote bush	–	Native	1A, 1B, 1C, 1D, 2, 2A
Lycium andersonii	Anderson's boxthorn	–	Native	1A, 1B, 1C, 1D
Opuntia basilaris var. basilaris	beavertail cactus	–	Native	1A, 1B, 1C, 1D
Pluchea sericea	arrow weed	–	Native	1A, 1B, 1C, 1D, 2, 2A
Psorothamnus arborescens var. arborescens	Mojave indigo bush	–	Native	2, 2A
Psorothamnus spinosus	smoke tree	–	Native	2, 2A
Senegalia greggii	catclaw acacia	–	Native	All
Horsfordia alata	pink velvet mallow	CRPR 4.3	Native	1A, 1B, 1C, 1D
Phoradendron californicum	desert mistletoe	–	Native	1A, 1B, 1C, 1D
Trees				
Neltuma odorata	honey mesquite	–	Native	1A, 1B, 1C, 1D, 2, 2A
Olneya tesota	desert ironwood	–	Native	1A, 1B, 1C, 1D, 2, 2A
Parkinsonia aculeata	Mexican paloverde	–	Introduced	1A, 3B
Parkinsonia florida	blue paloverde	–	Native	1A, 1B, 1C, 1D, 2, 2A
Parkinsonia microphylla	foothill paloverde	–	Native	1A
Pheonix dactylifera	date palm	–	Introduced	1A, 1B, 1C, 1D, 2, 2A
Phoenix canariensis	Canary Island date palm	Cal-IPC Limited	Introduced	1A, 1B, 1C, 1D, 2, 2A
Populus fremontii	Fremont cottonwood	–	Native	1A, 1B, 1C, 1D, 2
Salix exigua	sandbar willow	–	Native	1B, 1C, 1D
Salix gooddingii	Goodding's willow	–	Native	1A, 1B, 1C, 1D
Tamarix aphylla	athel tamarisk	Cal-IPC Limited	Introduced	1A, 1B, 1C, 1D
Tamarix ramosissima	Tamarisk	Cal-IPC High	Introduced	All
Washingtonia filifera	California fan palm	–	Native	1A, 1B, 1C, 1D
Washingtonia robusta	Mexican fan palm	Cal-IPC Moderate	Introduced	1A, 1B, 1C, 1D
Acacia melanoxylon	black acacia	Cal-IPC Limited	Introduced	1A, 1B, 1C, 1D

Wildlife Species Observed in the Study Area

Scientific Name	Common Name	Status	Alternative Route Segment(s) Observed
Birds			
Agelaius phoeniceus	red-winged blackbird	–	1A, 1B, 1C, 1D, 2
Ardea alba	great egret	–	1A, 1B, 1C, 1D
Ardea herodias	great blue heron	–	1A, 1B, 1C, 1D
Ardea ibis	western cattle egret	–	1A, 1B, 1C, 1D
Athene cunicularia	burrowing owl	SSC	3, 3A, 3B, 3C, 3D
Auriparus flaviceps	Verdin	–	1A, 1B, 1C, 1D
Bubulcus ibis	cattle egret	–	3, 3A, 3B, 3C, 3D
Buteo jamaicensis	red-tailed hawk	–	All
Callipepla gambelii	Gamble's quail	–	All
Cathartes aura	turkey vulture	–	All
Columba livia	rock dove	–	1A, 1B, 1C, 1D, 3, 3A, 3B, 3C, 3D
Corvus corax	common raven	–	All
Empidonax difficilis	western flycatcher	–	1A, 1B, 1C, 1D, 2, 3, 3A, 3B, 3C, 3D
Falco sparverius	American kestrel	–	1A, 1B, 1C, 1D
Fulica americana	American coot	–	1A, 1B, 1C, 1D
Geococcyx californianus	greater roadrunner	–	1A, 1B, 1C, 1D
Geothlypis trichas	common yellowthroat	–	1A, 1B, 1C, 1D, 2, 3, 3A, 3B, 3C, 3D
Haemorhous mexicanus	house finch	–	All
Icteria virens	yellow-breasted chat	SSC	1B, 1C, 1D
Lanius ludovicianus	loggerhead shrike	SSC	2
Leiothlypis celata	orange-crowned warbler	–	2
Melanerpes uropygialis	Gila woodpecker	SE	1A, 1B, 1C, 1D
Melozone aberti	Abert's towhee	–	1A, 1B, 1C, 1D
Molothrus ater	brown-headed cowbird	–	1A, 1B, 1C, 1D
Nannopterum auritum	double-crested Cormorant	WL	3, 3A, 3B, 3C, 3D
Pandion haliaetus	osprey	WL	1A, 1B, 1C, 1D
Passer domesticus	house sparrow	–	1A, 1B, 1C, 1D
Passerina amoena	lazuli bunting	–	2
Petrochelidon pyrrhonota	cliff swallow	–	1A, 1B, 1C, 1D
Piranga ludoviciana	western tanager	–	1A, 1B, 1C, 1D
Polioptila melanura	black-tailed gnatcatcher	WL	1A, 1B
Quiscalus mexicanus	great-tailed grackle	–	2
Sayornis nigricans	black phoebe	–	1A, 1B, 1C, 1D
Setophaga petechia	yellow warbler	SSC	1A, 1B, 1C, 1D
Streptopelia decaocto	Eurasian collared-dove	–	1A, 1B, 1C, 1D, 3, 3A, 3B, 3C, 3D
Sturnella neglecta	western meadowlark	–	3, 3A, 3B, 3C, 3D
Sturnus vulgaris	European starling	–	3, 3A, 3B, 3C, 3D
Tyrannus verticalis	western kingbird	–	All

Scientific Name	Common Name	Status	Alternative Route Segment(s) Observed
Zenaida asiatica	white-winged dove	–	3, 3A, 3B, 3C, 3D
Zenaida macroura	mourning dove	–	All
Zonotrichia leucophrys	white-crowned sparrow	–	All
Invertebrates			
Pepsis thisbe	tarantula hawk	–	1B
Mammals			
Ammospermophilus leucurus	white-tailed antelope ground squirrel	–	1A, 1B, 1C, 1D
Canis latrans	coyote	–	1A, 1B, 1C, 1D
Dipodomys spp.	kangaroo rat	–	1B, 1C
Equus asinus	burro	–	1A, 1B, 1C, 1D
Ovis canadensis nelsoni	desert bighorn sheep	FE, ST/FP	1B, 1C, 1D
Sylvilagus audubonii	desert cottontail	–	All
Reptiles			
Aspidoscelis inornatus arizonae	Arizona striped whiptail	–	1A, 1B, 1C, 1D, 2, 2A
Aspidoscelis tigris tigris	Great Basin whiptail	–	1A, 1B, 1C, 1D, 2, 2A
Callisaurus draconoides	zebra-tailed lizard	–	2, 2A
Crotalus atrox	western diamondback rattlesnake	–	1B
Dipsosaurus dorsalis	desert iguana	–	All
Urosaurus graciosus	long-tailed brush lizard	–	1A, 1B, 1C, 1D, 2, 2A

[1] 1-Alt was not surveyed during the 2025 biological reconnaissance surveys

Appendix E

Special Status Species Evaluation Tables

Special Status Plant Species in the Regional Vicinity of Segment 1

Scientific Name Common Name	Status	Habitat Requirements	Alternative Route Segments	Potential to Occur
Abronia villosa var. *aurita* chaparral sand-verbena	None/None G5T2/S2 1B.1	Annual herb. Chaparral, coastal scrub, desert dunes. Sandy. Elevations: 245-5250ft. (75-1600m.) Blooms (Jan)Mar-Sep.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable chaparral and desert dune habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Astragalus insularis var. *harwoodii* Harwood's milkvetch	None/None G5T4/S2 2B.2	Annual herb. Desert dunes, mojavean desert scrub. Gravelly (sometimes), sandy (sometimes). Elevations: 0-2330ft. (0-710m.) Blooms Jan-May.	1A, 1B, 1C, 1D, 1-Alt	**Likely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2008.
Astragalus magdalenae var. *peirsonii* Peirson's milkvetch	FT/SE G3G4T1/S1 1B.2	Perennial herb. Desert dunes. Slopes and hollows in mobile dunes, usually to the lee of the prevailing winds. Elevations: 195-740ft. (60-225m.) Blooms Dec-Apr.	1A, 1B, 1C, 1D, 1-Alt	**Likely.** Suitable desert dune habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2018.
Astragalus sabulonum gravel milkvetch	None/None G4G5/S2 2B.2	Annual/perennial herb. Desert dunes, mojavean desert scrub, sonoran desert scrub. Flats, gravelly (sometimes), roadsides, sandy (usually), washes. Elevations: -195-3050ft. (-60-930m.) Blooms Feb-Jun.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Calliandra eriophylla pink fairy-duster	None/None G5/S3 2B.3	Perennial deciduous shrub. Sonoran desert scrub. Sandy or rocky sites in the desert. Elevations: 395-4920ft. (120-1500m.) Blooms Jan-Mar.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1990.
Carnegiea gigantea saguaro	None/None G5/S1 2B.2 APNP	Perennial stem. Sonoran desert scrub. Rocky sites. Elevations: 165-4920ft. (50-1500m.) Blooms May-Jun.	1A	**Present.** This species was observed in the study area during the 2025 biological reconnaissance surveys. Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2013.
			1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Croton wigginsii Wiggins' croton	None/None G2G3/S2 2B.2	Perennial shrub. Desert dunes, Sonoran desert scrub. On sand dunes and in sandy arroyos. Elevations: 165-330ft. (50-100m.) Blooms Mar-May.	1A, 1B, 1C, 1D, 1-Alt	**Likely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There are three CNDDB documented occurrences of the species within 2 miles of the study area from 2002 – 2019.
Ditaxis claryana glandular ditaxis	None/None G3G4/S2 2B.2	Perennial herb. Mojavean desert scrub, Sonoran desert scrub. In dry washes and on rocky hillsides. Sandy soils. Elevations: 0-1525ft. (0-465m.) Blooms Oct-Mar.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1978.
Euphorbia abramsiana Abrams' spurge	None/None G4/S2 2B.2	Annual herb. Mojavean desert scrub, sonoran desert scrub. Sandy sites. Elevations: -15-4300ft. (-5-1310m.) Blooms (Aug)Sep-Nov.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Helianthus niveus ssp. *tephrodes* Algodones Dunes sunflower	None/SE G4T2/S1 1B.2	Perennial herb. Desert dunes. On partially stabilized desert dunes. Elevations: 165-330ft. (50-100m.) Blooms Sep-May.	1A, 1B, 1C, 1D, 1-Alt	**Likely.** Suitable desert dune habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2018.
Imperata brevifolia California satintail	None/None G3/S3 2B.1	Perennial rhizomatous herb. Chaparral, coastal scrub, meadows and seeps, mojavean desert scrub, riparian scrub. Mesic sites, alkali seeps, riparian areas. 3-. Elevations: 0-3985ft. (0-1215m.) Blooms Sep-May.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable chaparral, desert scrub, and riparian scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Lycium parishii Parish's desert-thorn	None/None G4/S1 2B.3	Perennial shrub. Coastal scrub, sonoran desert scrub. Elevations: 445-3280ft. (135-1000m.) Blooms Mar-Apr.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Malperia tenuis brown turbans	None/None G4/S2 2B.3	Annual herb. Sonoran desert scrub. Sandy places and rocky slopes. Elevations: 50-1100ft. (15-335m.) Blooms (Feb)Mar-Apr.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Mentzelia hirsutissima hairy stickleaf	None/None G4/S3 2B.3	Annual herb. Sonoran desert scrub. Washes, fans, slopes, coarse rubble and talus slopes, rocky sites. Elevations: 0-2295ft. (0-700m.) Blooms Mar-May.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Alternative Route Segments	Potential to Occur
Nama stenocarpa mud nama	None/None G4G5/S1S2 2B.2	Annual/perennial herb. Marshes and swamps. Lake shores, river banks, intermittently wet areas. Elevations: 15-1640ft. (5-500m.) Blooms Jan-Jul.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable marsh and swamp habitat are present in the study area. The elevation range of the study area is within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1930.
Palafoxia arida var. *gigantea* giant spanish-needle	None/None G5T2/S1 1B.3	Annual/perennial herb. Desert dunes. Active and stable dune areas; associated with *Ammobroma sonorae*, *Astragalus lentiginosus borreganus*, etc. Elevations: 50-330ft. (15-100m.) Blooms Feb-May.	1A, 1B, 1C, 1D, 1-Alt	**Likely.** Suitable desert dune habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2013.
Petalonyx linearis narrow-leaf sandpaper-plant	None/None G4/S3 2B.3	Perennial shrub. Mojavean desert scrub, sonoran desert scrub. Sandy or rocky canyons. Elevations: -80-3660ft. (-25-1115m.) Blooms (Jan-Feb)Mar-May(Jun-Dec).	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1935.
Pholisma sonorae sand food	None/None G2/S2 1B.2 APNP	Perennial herb (parasitic). Desert dunes, sonoran desert scrub. Loose, deep sand dunes, usually on the more stable, windward face. Elevations: 0-655ft. (0-200m.) Blooms (Mar)Apr-Jun.	1A, 1B, 1C, 1D, 1-Alt	**Likely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2018.
Tidestromia eliassoniana Eliasson's woolly tidestromia	None/None G5/S2 2B.2	Annual herb. Mojavean desert scrub. Clay, flats, gravelly, rocky, volcanic. Elevations: 2150-6905ft. (655-2105m.) Blooms Jul-Oct.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1955.

Regional Vicinity refers to within a five-mile search radius of the study area.

CRPR (CNPS California Rare Plant Rank)
1B = Rare, Threatened, or Endangered in California and elsewhere
2B= Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (Review List)
4 = Limited Distribution (Watch List)

CRPR Threat Code Extension
.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% of occurrences threatened/ moderate degree and immediacy of threat)
.3 = Not very endangered in California (<20% of occurrences threatened/ low degree and immediacy of threat)

Status (Federal/State)
SE = State Endangered
FT = Federally Threatened

Other Statuses
G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant

Status (Regional)
APNP = Arizona Protected Native Plant

[1] **Definitions Regarding Potential for Occurrence**
Occurs = The species and/or positive sign was observed on-site during site visit or field survey.
Likely = All site features indicate this species is very likely present and should be expected. Criteria include:
- Project site within geographic range;
- Suitable habitat present (e.g., soils, vegetation communities, elevation, roost sites, leaf litter/debris, water, host plants, etc.); and
- Distance to historical record(s) less than 25 years old is/are less than 500 feet (plants/fish), 1,000 feet (riparian wildlife), 1 mile (birds/bats), 2 miles (large mammals), or 3 miles (small mammals/herps).

Unlikely = The species could occur given presence of marginal habitat, but records of the species are not locally known or are greater than 25 years old.
Does Not Occur = The species would not occur because the project site is outside known or current geographic/elevation range, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume absence based on historical records.
[1]Source: CNPS 2025b; CDFW 2025a

Special Status Plant Species in the Regional Vicinity of Segment 2

Scientific Name Common Name	Status	Habitat Requirements	Alternative Route Segments	Potential to Occur
Abronia villosa var. *aurita* chaparral sand-verbena	None/None G5T2/S2 1B.1	Annual herb. Chaparral, coastal scrub, desert dunes. Sandy. Elevations: 245-5250ft. (75-1600m.) Blooms (Jan)Mar-Sep.	2, 2A	**Unlikely.** Suitable chaparral and desert dune habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Astragalus insularis var. *harwoodii* Harwood's milkvetch	None/None G5T4/S2 2B.2	Annual herb. Desert dunes, mojavean desert scrub. Gravelly (sometimes), sandy (sometimes). Elevations: 0-2330ft. (0-710m.) Blooms Jan-May.	2, 2A	**Unlikely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Astragalus magdalenae var. *peirsonii* Peirson's milkvetch	FT/SE G3G4T1/S1 1B.2	Perennial herb. Desert dunes. Slopes and hollows in mobile dunes, usually to the lee of the prevailing winds. Elevations: 195-740ft. (60-225m.) Blooms Dec-Apr.	2, 2A	**Likely.** Suitable desert dune habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2018.
Astragalus sabulonum gravel milkvetch	None/None G4G5/S2 2B.2	Annual/perennial herb. Desert dunes, mojavean desert scrub, sonoran desert scrub. Flats, gravelly (sometimes), roadsides, sandy (usually), washes. Elevations: -195-3050ft. (-60-930m.) Blooms Feb-Jun.	2, 2A	**Unlikely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Calliandra eriophylla pink fairy-duster	None/None G5/S3 2B.3	Perennial deciduous shrub. Sonoran desert scrub. Sandy or rocky sites in the desert. Elevations: 395-4920ft. (120-1500m.) Blooms Jan-Mar.	2, 2A	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Carnegiea gigantea saguaro	None/None G5/S1 2B.2 APNP	Perennial stem. Sonoran desert scrub. Rocky sites. Elevations: 165-4920ft. (50-1500m.) Blooms May-Jun.	2, 2A	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Croton wigginsii Wiggins' croton	None/None G2G3/S2 2B.2	Perennial shrub. Desert dunes, sonoran desert scrub. On sand dunes and in sandy arroyos. Elevations: 165-330ft. (50-100m.) Blooms Mar-May.	2, 2A	**Likely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2019.
Ditaxis claryana glandular ditaxis	None/None G3G4/S2 2B.2	Perennial herb. Mojavean desert scrub, sonoran desert scrub. In dry washes and on rocky hillsides. Sandy soils. Elevations: 0-1525ft. (0-465m.) Blooms Oct-Mar.	2, 2A	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Euphorbia abramsiana Abrams' spurge	None/None G4/S2 2B.2	Annual herb. Mojavean desert scrub, sonoran desert scrub. Sandy sites. Elevations: -15-4300ft. (-5-1310m.) Blooms (Aug)Sep-Nov.	2, 2A	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Helianthus niveus ssp. *tephrodes* Algodones Dunes sunflower	None/SE G4T2/S1 1B.2	Perennial herb. Desert dunes. On partially stabilized desert dunes. Elevations: 165-330ft. (50-100m.) Blooms Sep-May.	2, 2A	**Likely.** Suitable desert dune habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2018.
Imperata brevifolia California satintail	None/None G3/S3 2B.1	Perennial rhizomatous herb. Chaparral, coastal scrub, meadows and seeps, mojavean desert scrub, riparian scrub. Mesic sites, alkali seeps, riparian areas. 3-. Elevations: 0-3985ft. (0-1215m.) Blooms Sep-May.	2, 2A	**Unlikely.** Suitable chaparral, desert scrub, and riparian scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Lycium parishii Parish's desert-thorn	None/None G4/S1 2B.3	Perennial shrub. Coastal scrub, sonoran desert scrub. Elevations: 445-3280ft. (135-1000m.) Blooms Mar-Apr.	2, 2A	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Malperia tenuis brown turbans	None/None G4/S2 2B.3	Annual herb. Sonoran desert scrub. Sandy places and rocky slopes. Elevations: 50-1100ft. (15-335m.) Blooms (Feb)Mar-Apr.	2, 2A	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Mentzelia hirsutissima hairy stickleaf	None/None G4/S3 2B.3	Annual herb. Sonoran desert scrub. Washes, fans, slopes, coarse rubble and talus slopes, rocky sites. Elevations: 0-2295ft. (0-700m.) Blooms Mar-May.	2, 2A	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Nama stenocarpa mud nama	None/None G4G5/S1S2 2B.2	Annual/perennial herb. Marshes and swamps. Lake shores, river banks, intermittently wet areas. Elevations: 15-1640ft. (5-500m.) Blooms Jan-Jul.	2, 2A	**Unlikely.** Suitable marsh and swamp habitat are present in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Alternative Route Segments	Potential to Occur
Palafoxia arida var. *gigantea* giant spanish-needle	None/None G5T2/S1 1B.3	Annual/perennial herb. Desert dunes. Active and stable dune areas; associated with *Ammobroma sonorae*, *Astragalus lentiginosus borreganus*, etc. Elevations: 50-330ft. (15-100m.) Blooms Feb-May.	2, 2A	**Likely.** Suitable desert dune habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2013.
Petalonyx linearis narrow-leaf sandpaper-plant	None/None G4/S3 2B.3	Perennial shrub. Mojavean desert scrub, sonoran desert scrub. Sandy or rocky canyons. Elevations: -80-3660ft. (-25-1115m.) Blooms (Jan-Feb)Mar-May(Jun-Dec).	2, 2A	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Pholisma sonorae sand food	None/None G2/S2 1B.2 APNP	Perennial herb (parasitic). Desert dunes, sonoran desert scrub. Loose, deep sand dunes, usually on the more stable, windward face. Elevations: 0-655ft. (0-200m.) Blooms (Mar)Apr-Jun.	2, 2A	**Likely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There is a recent CNDDB documented occurrence of the species within 2 miles of the study area from 2018.
Tidestromia eliassoniana Eliasson's woolly tidestromia	None/None G5/S2 2B.2	Annual herb. Mojavean desert scrub. Clay, flats, gravelly, rocky, volcanic. Elevations: 2150-6905ft. (655-2105m.) Blooms Jul-Oct.	2, 2A	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.

Regional Vicinity refers to within a five-mile search radius of the study area.

CRPR (CNPS California Rare Plant Rank)
1A = Presumed extirpated in California, and rare or extinct elsewhere
1B = Rare, Threatened, or Endangered in California and elsewhere
2A = Presumed extirpated in California, but common elsewhere
2B= Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (Review List)
4 = Limited Distribution (Watch List)

CRPR Threat Code Extension
.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% of occurrences threatened/ moderate degree and immediacy of threat)
.3 = Not very endangered in California (<20% of occurrences threatened/ low degree and immediacy of threat)

Status (Federal/State)
SE = State Endangered
FT = Federally Threatened

Other Statuses
G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant

Status (Regional)
APNP = Arizona Protected Native Plant

[1] **Definitions Regarding Potential for Occurrence**
Occurs = The species and/or positive sign was observed on-site during site visit or field survey.
Likely = All site features indicate this species is very likely present and should be expected. Criteria include:
- Project site within geographic range;
- Suitable habitat present (e.g., soils, vegetation communities, elevation, roost sites, leaf litter/debris, water, host plants, etc.); and
- Distance to historical record(s) less than 25 years old is/are less than 500 feet (plants/fish), 1,000 feet (riparian wildlife), 1 mile (birds/bats), 2 miles (large mammals), or 3 miles (small mammals/herps).

Unlikely = The species could occur given presence of marginal habitat, but records of the species are not locally known or are greater than 25 years old.
Does Not Occur = The species would not occur because the project site is outside known or current geographic/elevation range, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume absence based on historical records.
[1] Source: CNPS 2025b; CDFW 2025a

Special Status Plant Species in the Regional Vicinity of Segment 3

Scientific Name Common Name	Status	Habitat Requirements	Alternative Route Segments	Potential to Occur
Abronia villosa var. *aurita* chaparral sand-verbena	None/None G5T2/S2 1B.1	Annual herb. Chaparral, coastal scrub, desert dunes. Sandy. Elevations: 245-5250ft. (75-1600m.) Blooms (Jan)Mar-Sep.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable chaparral and desert dune habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1912.
Astragalus insularis var. *harwoodii* Harwood's milkvetch	None/None G5T4/S2 2B.2	Annual herb. Desert dunes, mojavean desert scrub. Gravelly (sometimes), sandy (sometimes). Elevations: 0-2330ft. (0-710m.) Blooms Jan-May.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Astragalus magdalenae var. *peirsonii* Peirson's milkvetch	FT/SE G3G4T1/S1 1B.2	Perennial herb. Desert dunes. Slopes and hollows in mobile dunes, usually to the lee of the prevailing winds. Elevations: 195-740ft. (60-225m.) Blooms Dec-Apr.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert dune habitat occurs in the study area. However, the elevation range of the study area is not within the expected range of the species and there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Astragalus sabulonum gravel milkvetch	None/None G4G5/S2 2B.2	Annual/perennial herb. Desert dunes, mojavean desert scrub, sonoran desert scrub. Flats, gravelly (sometimes), roadsides, sandy (usually), washes. Elevations: -195-3050ft. (-60-930m.) Blooms Feb-Jun.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert dune and desert scrub habitat occurs in the study area. However, the elevation range of the study area is not within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1961.
Calliandra eriophylla pink fairy-duster	None/None G5/S3 2B.3	Perennial deciduous shrub. Sonoran desert scrub. Sandy or rocky sites in the desert. Elevations: 395-4920ft. (120-1500m.) Blooms Jan-Mar.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable deciduous shrub and desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1970.
Carnegiea gigantea saguaro	None/None G5/S1 2B.2 APNP	Perennial stem. Sonoran desert scrub. Rocky sites. Elevations: 165-4920ft. (50-1500m.) Blooms May-Jun.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub habitat occurs in the study area. However, the elevation range of the study area is not within the expected range of the species and there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Croton wigginsii Wiggins' croton	None/None G2G3/S2 2B.2	Perennial shrub. Desert dunes, sonoran desert scrub. On sand dunes and in sandy arroyos. Elevations: 165-330ft. (50-100m.) Blooms Mar-May.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert dune and desert scrub habitat occurs in the study area. However, the elevation range of the study area is not within the expected range of the species, and there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Ditaxis claryana glandular ditaxis	None/None G3G4/S2 2B.2	Perennial herb. Mojavean desert scrub, sonoran desert scrub. In dry washes and on rocky hillsides. Sandy soils. Elevations: 0-1525ft. (0-465m.) Blooms Oct-Mar.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Euphorbia abramsiana Abrams' spurge	None/None G4/S2 2B.2	Annual herb. Mojavean desert scrub, sonoran desert scrub. Sandy sites. Elevations: -15-4300ft. (-5-1310m.) Blooms (Aug)Sep-Nov.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1912.
Helianthus niveus ssp. *tephrodes* Algodones Dunes sunflower	None/SE G4T2/S1 1B.2	Perennial herb. Desert dunes. On partially stabilized desert dunes. Elevations: 165-330ft. (50-100m.) Blooms Sep-May.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert dune habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Imperata brevifolia California satintail	None/None G3/S3 2B.1	Perennial rhizomatous herb. Chaparral, coastal scrub, meadows and seeps, mojavean desert scrub, riparian scrub. Mesic sites, alkali seeps, riparian areas. 3-. Elevations: 0-3985ft. (0-1215m.) Blooms Sep-May.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable chaparral, desert scrub, and riparian scrub habitat occurs in the study area. However, the elevation range of the study area is not within the expected range of the species and the most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1963.
Lycium parishii Parish's desert-thorn	None/None G4/S1 2B.3	Perennial shrub. Coastal scrub, sonoran desert scrub. Elevations: 445-3280ft. (135-1000m.) Blooms Mar-Apr.	3, 3A, 3B, 3C, 3D	**Likely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is within the expected range of the species. There are two CNDDB documented occurrences of the species within 2 miles of the study area from 2010.
Malperia tenuis brown turbans	None/None G4/S2 2B.3	Annual herb. Sonoran desert scrub. Sandy places and rocky slopes. Elevations: 50-1100ft. (15-335m.) Blooms (Feb)Mar-Apr.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1992.
Mentzelia hirsutissima hairy stickleaf	None/None G4/S3 2B.3	Annual herb. Sonoran desert scrub. Washes, fans, slopes, coarse rubble and talus slopes, rocky sites. Elevations: 0-2295ft. (0-700m.) Blooms Mar-May.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1961.

Scientific Name Common Name	Status	Habitat Requirements	Alternative Route Segments	Potential to Occur
Nama stenocarpa mud nama	None/None G4G5/S1S2 2B.2	Annual/perennial herb. Marshes and swamps. Lake shores, river banks, intermittently wet areas. Elevations: 15-1640ft. (5-500m.) Blooms Jan-Jul.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable marsh and swamp habitat are present in the study area. The elevation range of the study area is within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Palafoxia arida var. *gigantea* giant spanish-needle	None/None G5T2/S1 1B.3	Annual/perennial herb. Desert dunes. Active and stable dune areas; associated with Ammobroma sonorae, Astragalus lentiginosus borreganus, etc. Elevations: 50-330ft. (15-100m.) Blooms Feb-May.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert dune habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Petalonyx linearis narrow-leaf sandpaper-plant	None/None G4/S3 2B.3	Perennial shrub. Mojavean desert scrub, sonoran desert scrub. Sandy or rocky canyons. Elevations: -80-3660ft. (-25-1115m.) Blooms (Jan-Feb)Mar-May(Jun-Dec).	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.
Pholisma sonorae sand food	None/None G2/S2 1B.2 APNP	Perennial herb (parasitic). Desert dunes, sonoran desert scrub. Loose, deep sand dunes, usually on the more stable, windward face. Elevations: 0-655ft. (0-200m.) Blooms (Mar)Apr-Jun.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert dune and desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. The most recent CNDDB documented occurrence of the species within 2 miles of the study area is from 1937.
Tidestromia eliassoniana Eliasson's woolly tidestromia	None/None G5/S2 2B.2	Annual herb. Mojavean desert scrub. Clay, flats, gravelly, rocky, volcanic. Elevations: 2150-6905ft. (655-2105m.) Blooms Jul-Oct.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub habitat occurs in the study area. The elevation range of the study area is not within the expected range of the species. However, there are no CNDDB documented occurrences of the species within 2 miles of the study area.

Regional Vicinity refers to within a five-mile search radius of the study area.

CRPR (CNPS California Rare Plant Rank)
1A = Presumed extirpated in California, and rare or extinct elsewhere
1B = Rare, Threatened, or Endangered in California and elsewhere
2A = Presumed extirpated in California, but common elsewhere
2B= Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (Review List)
4 = Limited Distribution (Watch List)

CRPR Threat Code Extension
.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% of occurrences threatened/ moderate degree and immediacy of threat)
.3 = Not very endangered in California (<20% of occurrences threatened/ low degree and immediacy of threat)

Status (Federal/State)
SE = State Endangered
FT = Federally Threatened

Other Statuses
G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant

Status (Regional)
APNP = Arizona Protected Native Plant

[1] **Definitions Regarding Potential for Occurrence**
Occurs = The species and/or positive sign was observed on-site during site visit or field survey.
Likely = All site features indicate this species is very likely present and should be expected. Criteria include:
- Project site within geographic range;
- Suitable habitat present (e.g., soils, vegetation communities, elevation, roost sites, leaf litter/debris, water, host plants, etc.); and
- Distance to historical record(s) less than 25 years old is/are less than 500 feet (plants/fish), 1,000 feet (riparian wildlife), 1 mile (birds/bats), 2 miles (large mammals), or 3 miles (small mammals/herps).

Unlikely = The species could occur given presence of marginal habitat, but records of the species are not locally known or are greater than 25 years old.
Does Not Occur = The species would not occur because the project site is outside known or current geographic/elevation range, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume absence based on historical records.

[1] Source: CNPS 2025b; CDFW 2025a

Special Status Wildlife Species in the Regional Vicinity of Segment 1

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Invertebrates				
Danaus Plexippus pop.1 Monarch Butterfly	FC/None G4T2T3/S2S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable roosting habitat may be present in the study area. However, there are no occurrences of milkweed species within 5 miles of the study area and there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Fish				
Gila elegans bonytail	FE/SE G1/S1 LCR MSCP CS	Found in the Colorado River bordering California. Adapted for swimming in swift water, but both adults and young need backwaters and eddies. Needs gravel riffles for spawning.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable stream habitat is present within the study area. However, there are no CNDDB documented occurrences of the species within 1 mile of the study area.
Ptychocheilus lucius Colorado pikeminnow	FE/SE G1/SX CDFW FP SGCN	Native to the Colorado River bordering California.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable stream habitat is present within the study area. However, the most recent CNDDB documented occurrence of the species within 1 mile of the study area is from 1942.
Xyrauchen texanus razorback sucker	FE/SE G1/S2 CDFW FP SGCN LCR MSCP CS	Found in the Colorado River bordering California.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable stream habitat is present within the study area. However, the most recent CNDDB documented occurrence of the species within 1 mile of the study area is from 1981.
Amphibians				
Incilius alvarius Sonoran Desert toad	None/None G5/SH CDFW SSC SGCN	Breeds in temporary pools and irrigation ditches along the Colorado River and southern Imperial Valley.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable stream habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1950.
Lithobates pipiens northern leopard frog	None/None G5/S2 CDFW SSC SGCN	Native range is east of Sierra Nevada-Cascade Crest. Near permanent or semi-permanent water in a variety of habitats.	1A, 1B, 1C, 1D, 1-Alt	**Does Not Occur.** Suitable habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Lithobates yavapaiensis lowland leopard frog	None/None G4/SX CDFW SSC SGCN LCR MSCP ES	Found along the Colorado River and in streams near the Salton Sea.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable stream habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1949.
Reptiles				
Gopherus agassizii desert tortoise	FT/ST G3/S2S3 DRECP SGCN LCR MSCP CS	Widely distributed in the Mojave, Sonoran, and Colorado Deserts from below sea level to 2,200 meters (7,220 feet). Most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except those on the most precipitous slopes.	1B, 1C	**Likely.** Suitable desert habitat is present in the study area. There are four CNDDB documented occurrences of the species within 5 miles of the study area from 2001 – 2008.
			1A, 1D	**Present.** An inactive burrow for this species was observed during biological reconnaissance survey conducted in 2025.
			1-Alt	**Unlikely.** Suitable desert habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Heloderma suspectum cinctum banded Gila monster	None/None G4T3/S1 CDFW SSC SGCN	Inhabits the lower slopes of rocky canyons and arroyos, but is also found on desert flats among scrub and succulents.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1964.
Kinosternon sonoriense Sonoran mud turtle	None/None G3/SH CDFW SSC SGCN	The lower Colorado River system in southeastern California.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable river habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1976.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Phrynosoma mcallii flat-tailed horned lizard	None/None G3/S3 CDFW SSC BLM S DRECP SGCN LCR MSCP CS	Restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties.	1A, 1B, 1C, 1D, 1-Alt	**Likely.** Suitable desert habitat is present in the study area. There are seven CNDDB documented occurrences of the species within 5 miles of the study area from 2002 – 2013.
Uma notata Colorado Desert fringe-toed lizard	None/None G3/S2 CDFW SSC BLM S SGCN	Colorado Desert region; in sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, or sparse desert scrub.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert dune, riverbanks, desert washes, and desert scrub habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Birds				
Accipiter cooperii Cooper's hawk	None/None G5/S4 CDFW WL SGCN	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable interrupted and marginal woodland habitat are present in the study area. Suitable nesting habitat is also present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1949.
Athene cunicularia burrowing owl	None/SCE G4/S2 CDFW SSC USFWS BCC BLM S DRECP SGCN	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	1A, 1B, 1C, 1D	**Likely.** Suitable grassland, desert, and scrubland habitats are present in the study area. Suitable burrowing habitat is likely present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2002.
			1-Alt	**Unlikely.** Suitable desert habitat is present in the study area. Suitable burrowing habitat is likely present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Buteo regalis ferruginous hawk	None/None G4/S3/S4 CDFW WL	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable open grassland and desert scrub habitat are present in the study area. Suitable foraging habitat is also present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Charadrius montanus mountain plover	None/None G3/S2 CDFW SSC USFWS BBC BLM S SGCN	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable grassland, plowed field, and grain field habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE G5T2T3/S1 BLM S SGCN LCR MSCP CS	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	1A, 1B, 1C, 1D	**Likely.** Suitable riparian habitat is present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2010.
			1-Alt	**Unlikely.** Suitable riparian habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Colaptes chrysoides gilded flicker	None/SE G4/S2 USFWS BCC SGCN LCR MSCP CS	Sonoran desert habitat and riparian woodlands along the Colorado River.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert and riparian habitat are present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1931.
Empidonax traillii extimus southwestern willow flycatcher	FE/SE G5T2/S3 SGCN LCR MSCP CS	For nesting, the southwestern willow flycatcher requires dense riparian habitats with cottonwood/willow and tamarisk vegetation and microclimatic conditions that are dictated by the local surroundings. Saturated soils, standing water or nearby streams, pools, or cienegas are a component of nesting habitat that also influences the microclimate and density vegetation component. The southwestern willow flycatcher primarily eats flying insects.	1A, 1B, 1C, 1D	**Likely.** Suitable dense riparian habitat is present in the study area. Suitable nesting habitat is also present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2010.
			1-Alt	**Unlikely.** Suitable dense riparian habitat is not present in the study area. Suitable nesting habitat is also not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Falco peregrinus anatum American peregrine falcon	FD/SD G4T4/S3S4 CDFW WL	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable water and bank habitat are present in the study area. Suitable human-made structures are also present in the study area. Suitable nesting habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1977.
Icteria virens yellow-breasted chat	None/None G5/S4 CDFW SSC SGCN	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	1A	**Likely.** Suitable riparian habitat is present in the study area. Suitable nesting habitat is also present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1987.
			1B, 1C, 1D	**Present.** This species was observed in the study area during the 2025 biological reconnaissance surveys. This species favors dense, shrubby vegetation along riparian corridors and early successional habitats. Suitable riparian habitat is present in the study area. Suitable nesting habitat is also present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1987.
			1-Alt	**Unlikely.** Suitable riparian habitat is not present in the study area. Suitable nesting habitat is also not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Ixobrychus exilis least bittern	None/None G4/S2 CDFW SSC SGCN LCR MSCP CS	Colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover.	1A, 1B, 1C, 1D	**Likely.** Suitable pond and reservoir habitat are present in the study area. There are three CNDDB documented occurrences of the species within 5 miles of the study area from 2006 – 2009.
			1-Alt	**Unlikely.** Suitable pond and reservoir habitats are not present in the study area. There are no CNDDB occurrences of the species within 5 miles of the study area.
Lanius ludovicianus loggerhead shrike	None/None G4/S4 CDFW SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** This species prefers open habitats with scattered shrubs or perches such as fences and utility lines. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Laterallus jamaicensis coturniculus California black rail	None/ST G3T1/S2 CDFW FP BLM S SGCN LCR MSCP CS	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	1A, 1B, 1C, 1D	**Likely.** Suitable freshwater marshland habitat is present in the study area. There are seven CNDDB documented occurrences of the species within 5 miles of the study area from 2000 – 2009.
			1-Alt	**Unlikely.** Suitable freshwater marshland habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Melanerpes uropygialis Gila woodpecker	None/SE G5/S2 USFWS BCC BLM S SGCN LCR MSCP CS	Colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover.	1A, 1B, 1C, 1D	**Present.** This species was observed in the study area during the 2025 biological reconnaissance surveys. Suitable freshwater marshland habitat is present in the study area. There are four CNDDB documented occurrences of the species within 5 miles of the study area from 2003 – 2011.
			1-Alt	**Unlikely.** Suitable marshland habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Micrathene whitneyi elf owl	None/SE G4/S1 SGCN LCR MSCP CS	In California, nesting area limited to cottonwood-willow and mesquite riparian zone along the Colorado River.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable riparian habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1998.
Myiarchus tyrannulus brown-crested flycatcher	None/None G5/S3 CDFW WL SGCN	Inhabits desert riparian areas along the Colorado River, as well as other desert oases and riparian areas NW to Victorville.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable riparian habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1986.
Nannopterum auritum double-crested Cormorant	None/None G5/S4 CDFW WL	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable aquatic and riparian habitat is present. Open water, common reed marshes, and Fremont cottonwood forest and woodland near water bodies provide potential foraging and nesting habitat. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Pandion haliaetus osprey	None/None G5/S4 CDFW WL	Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	1A, 1B, 1C, 1D	**Present.** This species was observed in the study area during the 2025 biological reconnaissance surveys. Suitable aquatic and riparian habitat is present. Open water, cattail and common reed marshes, and Fremont cottonwood forest and woodland offer appropriate nesting and foraging habitat near fish-bearing water bodies. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
			1-Alt	**Unlikely.** Suitable aquatic habitat is not present in the study area. There are no CNDDB occurrences of the species within 5 miles of the study area.
Piranga rubra summer tanager	None/None G5/S1 CDFW SSC SGCN LCR MSCP CS	Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable riparian habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1983.
Polioptila melanura black-tailed gnatcatcher	None/None G5/S3S4 CDFW WL SGCN	Primarily inhabits wooded desert wash habitats; also occurs in desert scrub habitat, especially in winter.	1A, 1B	**Present.** This species was observed in the study area during the 2025 biological reconnaissance surveys. This species inhabits arid desert scrub and desert washes with native vegetation. Suitable desert wash and desert scrub habitat are present in the study area.
			1C, 1D	**Likely.** Suitable desert wash and desert scrub habitat are present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1977.
			1-Alt	**Unlikely.** Suitable desert scrub habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Pyrocephalus rubinus vermilion flycatcher	None/None G5/S2/S3 CDFW SSC SGCN LCR MSCP CS	During nesting, inhabits desert riparian adjacent to irrigated fields, irrigation ditches, pastures, and other open, mesic areas.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert riparian, irrigated field, irrigation ditch, and pasture habitat are present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1964.
Rallus longirostris yumanensis Yuma clapper rail	FE/ST LCR MSCP CS	Nests in freshwater marshes along the Colorado River and along the south end of the Salton Sea.	1A, 1B, 1C, 1D	**Likely.** Suitable freshwater marsh habitat is present in the study area. There is a CNDDB documented occurrence of this species within 5 miles of the study area that was detected during a least bittern survey conducted in 2006.
			1-Alt	**Unlikely.** Suitable freshwater marsh habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Rallus obsoletus yumanensis Yuma Ridgway's rail	FE/ST G3T1/S1 CDFW FP SGCN	Nests in freshwater marshes along the Colorado River and along the south and east ends of the Salton Sea.	1A, 1B, 1C, 1D	**Likely.** Suitable freshwater marsh habitat is present in the study area. There are five CNDDB documented occurrences of the species within 5 miles of the study area from 2005 – 2009.
			1-Alt	**Unlikely.** Suitable freshwater marsh habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Setophagia petechia yellow warbler	None/None G5/S3 CDFW SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	1A, 1B, 1C, 1D	**Present.** This species was observed in the study area during the 2025 biological reconnaissance surveys. Suitable riparian habitat is present in the study area. There are no CNDDB documented occurrences of this species within 5 miles of the study area.
			1-Alt	**Unlikely.** Suitable riparian habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Setophaga petechia sonorana Sonoran yellow warbler	None/None G5T2T3/S2 CDFW SSC SGCN LCR MSCP CS	Summer resident of Colorado River Valley, in riparian deciduous habitat. Below 600 ft elevation.	1B	**Likely.** Suitable riparian habitat is present in the study area. The study area is within the summer range of this species.
			1A, 1C, 1D, 1-Alt	**Unlikely**. Suitable riparian habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1916.
Toxostoma crissale Crissal thrasher	None/None G5/S2 CDFW SSC SGCN	Resident of southeastern deserts in desert riparian and desert wash habitats. Nests in dense vegetation along streams/washes. Preferred nesting substrate includes mesquite, screwbean mesquite, ironwood, catclaw, acacia, arrow weed, and willow.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert riparian and desert wash habitat are present in the study area. Suitable nesting habitat is also present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1986.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Toxostoma lecontei Le Conte's thrasher	None/None G4/S3 CDFW SSC SGCN	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert wash and desert scrub habitat are present in the study area. Suitable nesting habitat is also present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1896.
Vireo bellii arizonae Arizona Bell's vireo	None/SE G5T4/S3 BLM S SGCN LCR MSCP CS	Summer resident along Colorado River. Chiefly inhabits willow thickets with undergrowth of *Baccharis glutinosa*.	1A, 1B, 1C, 1D	**Likely.** Suitable stream habitat is present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2011.
			1-Alt	**Unlikely.** Suitable stream habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Mammals				
Antilocapra americana sonoriensis Sonoran pronghorn	FE/None G5T1/SH	Desert washes, arroyos, grassland steppe and creosote scrub bajadas. Subspecies formerly found in the Colorado Desert of southeastern California. Subspecies extirpated from California in the 1940s but may be reintroduced back into its former range.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub and open desert habitat is present. Vegetation such as creosote bush scrub, creosote bush–brittle bush scrub, creosote bush–white bursage scrub, quailbush scrub, and Mojave-Sonoran desert dunes provide appropriate foraging and movement habitat. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Antrozous pallidus pallid bat	None/None G4/S3 CDFW SSC SGCN	Found in a variety of habitats including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert, grassland, shrubland, and forest habitat are present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1998.
Corynorhinus townsendii Townsend's big-eared bat	None/None G4/S2 CDFW SSC SGCN LCR MSCP ES	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1991.
Eumops perotis californicus western mastiff bat	None/None G4G5T4/S3S4 CDFW SSC SGCN	Occurs in open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces and caves, and buildings. Roosts typically occur high above ground.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable grassland and chaparral habitat are present in the study area. Suitable roosting habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1993.
Lasiurus blossevillii western red bat	None/SCE LCR MSCP CS	Throughout California in riparian woodland habitats	1A, 1B, 1C, 1D	**Likely.** Suitable riparian woodland habitat is present in the study area.
			1-Alt	**Unlikely.** Suitable riparian woodland habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Lasiurus xanthinus western yellow bat	None/None G4G5/S3 CDFW SSC SGCN LCR MSCP CS	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert riparian and desert wash habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Macrotus californicus California leaf-nosed bat	None/None G3G4/S3 CDFW SSC BLM S SGCN LCR MSCP ES	Desert riparian, desert wash, desert scrub, desert succulent scrub, alkali scrub and palm oasis habitats.	1A, 1B, 1C, 1D	**Likely.** Suitable desert riparian, desert wash, and desert scrub habitat are present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2006.
			1-Alt	**Unlikely.** Suitable desert riparian, desert wash, and desert scrub habitats are not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Myotis occultus Arizona Myotis	None/None G4G5/S1 CDFW SSC SGCN	Lowlands of the Colorado River and adjacent desert mountain ranges.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable habitat is present in the study area. However, the most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1910.
Nyctinomops femorosaccus pocketed free-tailed bat	None/None G5/S3 CDFW SSC SGCN	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable desert scrub, desert wash, and desert riparian habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Nyctinomops macrotis big free-tailed bat	None/None G5/S3 CDFW SSC SGCN	Low-lying arid areas in Southern California.	1A, 1B, 1C, 1D, 1-Alt	**Unlikely.** Suitable habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Ovis canadensis nelsoni desert bighorn sheep	None/None CDFW FP BLM S DRECP	Widely distributed from the White Mtns in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	1A	**Likely.** Suitable open, rocky, steep habitat with available water and herbaceous forage is present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
			1B, 1C, 1D	**Present.** This species was observed during biological reconnaissance surveys conducted in 2025.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Sigmodon hispidus eremicus Yuma hispid cotton rat	None/None G5T2T3/S2 CDFW SSC BLM S SGCN LCR MSCP CS	Along the Colorado River and in grass and agricultural areas near irrigation waters.	1A, 1B, 1C, 1D	**Likely.** Suitable stream, grassland, and agricultural habitat are present in the study area. There are two CNDDB documented occurrences of the species within 5 miles of the study area from 2008.
			1-Alt	**Unlikely.** Suitable grassland and agricultural habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Taxidea taxus American badger	None/None G5/S3 CDFW SSC BLM S SGCN	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	1A, 1B, 1C, 1D	**Likely.** Suitable shrub forest habitat with friable soil is present in the study area. Suitable prey habitat is present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1931. There are three additional CNDDB documented occurrences of the species within 5 miles of the study area from unknown dates.
			1-Alt	**Unlikely.** Suitable herbaceous habitat is not present in the study area. Suitable prey habitat is not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Vulpes macrotis mutica desert kit fox	None/ST DRECP	Open desert, on creosote bush flats, and amongst the sand dunes.	1A, 1B, 1C, 1D	**Likely.** Suitable habitat with friable soil is present in the study area. Suitable prey habitat is present in the study area.
			1-Alt	**Unlikely.** Suitable habitat is not present in the study area. Suitable prey habitat is also not present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.

Regional Vicinity refers to within a 5-mile search radius of site.

Status (Federal/State)

FE = Federal Endangered
FT = Federal Threatened
FC = Federal Candidate
FD = Federal Delisted
SE = State Endangered
ST = State Threatened
SD = State Delisted
SCE = State Candidate Endangered
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List
BCC = Birds of Conservation Concern

Status (Regional)

BLM S = Bureau of Land Management Sensitive Species
SGCN = Species of Greatest Conservation Need (AZ)
DRECP = Desert Renewable Energy Conservation Plan Focus Species

Other Statuses

G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Sub nationally (state)
G4/5 or S4/5 Apparently secure, common and abundant

[1] **Definitions Regarding Potential for Occurrence**

Occurs = The species and/or positive sign was observed on-site during site visit or field survey.
Likely = All site features indicate this species is very likely present and should be expected. Criteria include:

- Project site within geographic range;
- Suitable habitat present (e.g., soils, vegetation communities, elevation, roost sites, leaf litter/debris, water, host plants, etc.); and
- Distance to historical record(s) less than 25 years old is/are less than 500 feet (plants/fish), 1,000 feet (riparian wildlife), 1 mile (birds/bats), 2 miles (large mammals), or 3 miles (small mammals/herps).

Unlikely = The species could occur given presence of marginal habitat, but records of the species are not locally known or are greater than 25 years old.
Does Not Occur = The species would not occur because the project site is outside known or current geographic/elevation range, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume absence based on historical records.

[1] Source: CNDDB 2025; IPaC 2025, LandFire 2025, field-collected data 2025.

Special Status Wildlife Species in the Regional Vicinity of Segment 2

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Invertebrates				
Danaus Plexippus pop.1 Monarch Butterfly	FC/None G4T2T3/S2S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	2, 2A	**Unlikely.** Suitable roosting habitat may be present in the study area. However, there are no occurrences of milkweed species within 5 miles of the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Fish				
Gila elegans bonytail	FE/SE G1/S1 LCR MSCP CS	Found in the Colorado River bordering California. Adapted for swimming in swift water, but both adults and young need backwaters and eddies. Needs gravel riffles for spawning.	2, 2A	**Does Not Occur.** Suitable stream habitat is not present within the study area. However, there are no CNDDB documented occurrences of the species within 1 mile of the study area.
Ptychocheilus lucius Colorado pikeminnow	FE/SE G1/SX CDFW FP SGCN	Native to the Colorado River bordering California.	2, 2A	**Does Not Occur.** Suitable stream habitat is not present within the study area. There are no CNDDB documented occurrences of the species within 1 mile of the study area.
Xyrauchen texanus razorback sucker	FE/SE G1/S2 CDFW FP SGCN LCR MSCP CS	Found in the Colorado River bordering California.	2, 2A	**Does Not Occur.** Suitable stream habitat is not present within the study area. There are no CNDDB documented occurrences of the species within 1 mile of the study area.
Amphibians				
Incilius alvarius Sonoran Desert toad	None/None G5/SH CDFW SSC SGCN	Breeds in temporary pools and irrigation ditches along the Colorado River and southern Imperial Valley.	2, 2A	**Unlikely.** Suitable stream habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Lithobates pipiens northern leopard frog	None/None G5/S2 CDFW SSC SGCN	Native range is east of Sierra Nevada-Cascade Crest. Near permanent or semi-permanent water in a variety of habitats.	2, 2A	**Unlikely.** Suitable stream habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Lithobates yavapaiensis lowland leopard frog	None/None G4/SX CDFW SSC SGCN LCR MSCP ES	Found along the Colorado River and in streams near the Salton Sea.	2, 2A	**Unlikely.** Suitable stream habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Reptiles				
Gopherus agassizii desert tortoise	FT/ST G3/S2S3 DRECP SGCN LCR MSCP CS	Widely distributed in the Mojave, Sonoran, and Colorado Deserts from below sea level to 2,200 meters (7,220 feet). Most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except those on the most precipitous slopes.	2, 2A	**Unlikely.** Suitable desert habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Heloderma suspectum cinctum banded Gila monster	None/None G4T3/S1 CDFW SSC SGCN	Inhabits the lower slopes of rocky canyons and arroyos, but is also found on desert flats among scrub and succulents.	2, 2A	**Unlikely.** Suitable desert scrub is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Kinosternon sonoriense Sonoran mud turtle	None/None G3/SH CDFW SSC SGCN	The lower Colorado River system in southeastern California.	2, 2A	**Unlikely.** Suitable stream habitat is not present within the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1941.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Phrynosoma mcallii flat-tailed horned lizard	None/None G3/S3 CDFW SSC BLM S DRECP SGCN LCR MSCP CS	Restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties.	2, 2A	**Likely.** Suitable desert habitat is present in the study area. There are twelve CNDDB documented occurrences of the species within 5 miles of the study area from 2001 – 2014.
Uma notata Colorado Desert fringe-toed lizard	None/None G3/S2 CDFW SSC BLM S SGCN	Colorado Desert region; in sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, or sparse desert scrub.	2	**Likely.** Suitable desert dune, riverbanks, desert washes, and desert scrub habitat are present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2003.
			2A	**Unlikely.** Suitable desert dune, riverbanks, desert washes, and desert scrub habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Birds				
Accipiter cooperii Cooper's hawk	None/None G5/S4 CDFW WL SGCN	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	2, 2A	**Unlikely.** Suitable interrupted and marginal woodland habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Athene cunicularia burrowing owl	None/SCE G4/S2 CDFW SSC USFWS BCC BLM S DRECP SGCN	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	2, 2A	**Likely.** Suitable grassland, desert, and scrubland habitats are present in the study area. There are three CNDDB documented occurrences of the species within 5 miles of the study area from 2006 – 2016.
Buteo regalis ferruginous hawk	None/None G4/S3/S4 CDFW WL	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	2, 2A	**Unlikely.** Suitable open grassland and desert scrub habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Charadrius montanus mountain plover	None/None G3/S2 CDFW SSC USFWS BBC BLM S SGCN	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	2, 2A	**Unlikely.** Suitable grassland, plowed field, and grain field habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE G5T2T3/S1 BLM S SGCN LCR MSCP CS	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	2, 2A	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Colaptes chrysoides gilded flicker	None/SE G4/S2 USFWS BCC SGCN LCR MSCP CS	Sonoran desert habitat and riparian woodlands along the Colorado River.	2, 2A	**Unlikely.** Suitable desert and riparian habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Empidonax traillii extimus southwestern willow flycatcher	FE/SE G5T2/S3 SGCN LCR MSCP CS	For nesting, the southwestern willow flycatcher requires dense riparian habitats with cottonwood/willow and tamarisk vegetation and microclimatic conditions that are dictated by the local surroundings. Saturated soils, standing water or nearby streams, pools, or cienegas are a component of nesting habitat that also influences the microclimate and density vegetation component. The southwestern willow flycatcher primarily eats flying insects.	2, 2A	**Unlikely.** Suitable dense riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Falco peregrinus anatum American peregrine falcon	FD/SD G4T4/S3S4 CDFW WL	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	2, 2A	**Unlikely.** Suitable water and bank habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Icteria virens yellow-breasted chat	None/None G5/S4 CDFW SSC SGCN	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	2, 2A	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Ixobrychus exilis least bittern	None/None G4/S2 CDFW SSC SGCN LCR MSCP CS	Colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover.	2, 2A	**Unlikely.** Suitable pond and reservoir habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Lanius ludovicianus loggerhead shrike	None/None G4/S4 CDFW SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	2	**Present.** This species was observed in the study area during the 2025 biological reconnaissance surveys. Suitable open shrubland and desert scrub habitat is present. This includes creosote bush scrub, creosote bush–brittle bush scrub, creosote bush–white bursage scrub, quailbush scrub, and disturbed areas, which support the species' preference for open areas with scattered perches. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
			2A	**Likely.** This species was observed in the study area (alternative route 2) during the 2025 biological reconnaissance surveys. Suitable open shrubland and desert scrub habitat is present. This includes creosote bush scrub, creosote bush–brittle bush scrub, creosote bush–white bursage scrub, quailbush scrub, and disturbed areas, which support the species' preference for open areas with scattered perches. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Laterallus jamaicensis coturniculus California black rail	None/ST G3T1/S2 CDFW FP BLM S SGCN LCR MSCP CS	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	2, 2A	**Likely.** Suitable freshwater marshland habitat is present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2008.
Melanerpes uropygialis Gila woodpecker	None/SE G5/S2 USFWS BCC BLM S SGCN LCR MSCP CS	In California, inhabits cottonwoods and other desert riparian trees, shade trees, and date palms.	2, 2A	**Unlikely.** Suitable freshwater marshland habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Micrathene whitneyi elf owl	None/SE G4/S1 SGCN LCR MSCP CS	In California, nesting area limited to cottonwood-willow and mesquite riparian zone along the Colorado River.	2, 2A	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Myiarchus tyrannulus brown-crested flycatcher	None/None G5/S3 CDFW WL SGCN	Inhabits desert riparian areas along the Colorado River, as well as other desert oases and riparian areas NW to Victorville.	2, 2A	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Nannopterum auritum double-crested Cormorant	None/None G5/S4 CDFW WL	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	2, 2A	**Unlikely.** Suitable aquatic and riparian habitat is present. Open water, common reed marshes, and Fremont cottonwood forest and woodland offer appropriate conditions for nesting and foraging. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Pandion haliaetus osprey	None/None G5/S4 CDFW WL	Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	2, 2A	**Unlikely.** Suitable aquatic and riparian habitat is present. Open water, cattail and common reed marshes, and Fremont cottonwood forest and woodland provide suitable conditions for nesting and foraging. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Piranga rubra summer tanager	None/None G5/S1 CDFW SSC SGCN LCR MSCP CS	Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts.	2, 2A	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Polioptila melanura black-tailed gnatcatcher	None/None G5/S3S4 CDFW WL SGCN	Primarily inhabits wooded desert wash habitats; also occurs in desert scrub habitat, especially in winter.	2, 2A	**Unlikely.** Suitable desert wash and desert scrub habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Pyrocephalus rubinus vermilion flycatcher	None/None G5/S2/S3 CDFW SSC SGCN LCR MSCP CS	During nesting, inhabits desert riparian adjacent to irrigated fields, irrigation ditches, pastures, and other open, mesic areas.	2, 2A	**Unlikely.** Suitable desert riparian, irrigated field, irrigation ditch, and pasture habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Rallus longirostris yumanensis Yuma clapper rail	FE/ST LCR MSCP CS	Nests in freshwater marshes along the Colorado River and along the south end of the Salton Sea.	2, 2A	**Unlikely.** Suitable freshwater marsh habitat is present in the study area. However, there are no CNDDB documented occurrences of this species within 5 miles of the study area.
Rallus obsoletus yumanensis Yuma Ridgway's rail	FE/ST G3T1/S1 CDFW FP SGCN	Nests in freshwater marshes along the Colorado River and along the south and east ends of the Salton Sea.	2, 2A	**Likely.** Suitable freshwater marsh habitat is present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2008.
Setophagia petechia yellow warbler	None/None G5/S3 CDFW SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	2, 2A	**Unlikely.** Suitable riparian habitat is present in the study area. There are no CNDDB documented occurrences of this species within 5 miles of the study area.
Setophaga petechia sonorana Sonoran yellow warbler	None/None G5T2T3/S2 CDFW SSC SGCN LCR MSCP CS	Summer resident of Colorado River Valley, in riparian deciduous habitat. Below 600 ft elevation.	2, 2A	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Toxostoma crissale Crissal thrasher	None/None G5/S2 CDFW SSC SGCN	Resident of southeastern deserts in desert riparian and desert wash habitats. Nests in dense vegetation along streams/washes. Preferred nesting substrate includes mesquite, screwbean mesquite, ironwood, catclaw, acacia, arrow weed, and willow.	2, 2A	**Unlikely.** Suitable desert riparian and desert wash habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Toxostoma lecontei Le Conte's thrasher	None/None G4/S3 CDFW SSC SGCN	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	2, 2A	**Unlikely.** Suitable desert wash and desert scrub habitat are present in the study area. Suitable nesting habitat is also present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Vireo bellii arizonae Arizona Bell's vireo	None/SE G5T4/S3 BLM S SGCN LCR MSCP CS	Summer resident along Colorado River. Chiefly inhabits willow thickets with undergrowth of *Baccharis glutinosa*.	2, 2A	**Does Not Occur.** Suitable stream habitat is not present within the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Mammals				
Antilocapra americana sonoriensis Sonoran pronghorn	FE/None G5T1/SH	Desert washes, arroyos, grassland steppe and creosote scrub bajadas. Subspecies formerly found in the Colorado Desert of southeastern California. Subspecies extirpated from California in the 1940s but may be reintroduced back into its former range.	2, 2A	**Unlikely.** Suitable desert scrub and open desert habitat is present. This includes creosote bush scrub, creosote bush–brittle bush scrub, creosote bush–white bursage scrub, quailbush scrub, and Mojave-Sonoran desert dunes, which support the species' preference for open, arid environments. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Antrozous pallidus pallid bat	None/None G4/S3 CDFW SSC SGCN	Found in a variety of habitats including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	2, 2A	**Unlikely.** Suitable desert, grassland, shrubland, and forest habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Corynorhinus townsendii Townsend's big-eared bat	None/None G4/S2 CDFW SSC SGCN LCR MSCP ES	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	2, 2A	**Unlikely.** Suitable habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Eumops perotis californicus western mastiff bat	None/None G4G5T4/S3S4 CDFW SSC SGCN	Occurs in open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces and caves, and buildings. Roosts typically occur high above ground.	2, 2A	**Unlikely.** Suitable grassland and chaparral habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Lasiurus blossevillii western red bat	None/SCE LCR MSCP CS	Throughout California in riparian woodland habitats.	2, 2A	**Likely.** Suitable riparian woodland habitat is present in the study area.
Lasiurus xanthinus western yellow bat	None/None G4G5/S3 CDFW SSC SGCN LCR MSCP CS	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats.	2, 2A	**Unlikely.** Suitable desert riparian and desert wash habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Macrotus californicus California leaf-nosed bat	None/None G3G4/S3 CDFW SSC BLM S SGCN LCR MSCP ES	Desert riparian, desert wash, desert scrub, desert succulent scrub, alkali scrub and palm oasis habitats.	2, 2A	**Unlikely.** Suitable desert riparian, desert wash, and desert scrub habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Myotis occultus Arizona Myotis	None/None G4G5/S1 CDFW SSC SGCN	Lowlands of the Colorado River and adjacent desert mountain ranges.	2, 2A	**Unlikely.** Suitable habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Nyctinomops femorosaccus pocketed free-tailed bat	None/None G5/S3 CDFW SSC SGCN	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	2, 2A	**Unlikely.** Suitable desert scrub, desert wash, and desert riparian habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Nyctinomops macrotis big free-tailed bat	None/None G5/S3 CDFW SSC SGCN	Low-lying arid areas in Southern California.	2, 2A	**Unlikely.** Suitable habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Ovis canadensis nelsoni desert bighorn sheep	None/None BLM S CDFW FP BLM S DRECP	Widely distributed from the White Mtns in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	2, 2A	**Unlikely.** Suitable open, rocky, steep habitat with available water and herbaceous forage is present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Sigmodon hispidus eremicus Yuma hispid cotton rat	None/None G5T2T3/S2 CDFW SSC SGCN LCR MSCP CS	Along the Colorado River and in grass and agricultural areas near irrigation waters.	2, 2A	**Likely.** Suitable stream, grassland, and agricultural habitat are present in the study area. There are two CNDDB documented occurrences of the species within 5 miles of the study area from 2007.
Taxidea taxus American badger	None/None G5/S3 CDFW SSC SGCN	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	2, 2A	**Unlikely.** Suitable shrub forest habitat with friable soil is present in the study area. Suitable prey habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Vulpes macrotis mutica desert kit fox	None/ST DRECP	Open desert, on creosote bush flats, and amongst the sand dunes.	2, 2A	**Likely.** Suitable habitat with friable soil is present in the study area. Suitable prey habitat is present in the study area.

Regional Vicinity refers to within a 5-mile search radius of site.

Status (Federal/State)
FE = Federal Endangered
FT = Federal Threatened
FC = Federal Candidate
FD = Federal Delisted
SE = State Endangered
ST = State Threatened
SD = State Delisted
SCE = State Candidate Endangered
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List
BCC = Birds of Conservation Concern

Status (Regional)
BLM S = Bureau of Land Management Sensitive Species
SGCN = Species of Greatest Conservation Need (AZ)
DRECP = Desert Renewable Energy Conservation Plan Focus Species

Other Statuses
G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Sub nationally (state)
G4/5 or
S4/5 Apparently secure, common and abundant

[1] **Definitions Regarding Potential for Occurrence**
Occurs = The species and/or positive sign was observed on-site during site visit or field survey.
Likely = All site features indicate this species is very likely present and should be expected. Criteria include:
- Project site within geographic range;
- Suitable habitat present (e.g., soils, vegetation communities, elevation, roost sites, leaf litter/debris, water, host plants, etc.); and
- Distance to historical record(s) less than 25 years old is/are less than 500 feet (plants/fish), 1,000 feet (riparian wildlife), 1 mile (birds/bats), 2 miles (large mammals), or 3 miles (small mammals/herps).

Unlikely = The species could occur given presence of marginal habitat, but records of the species are not locally known or are greater than 25 years old.
Does Not Occur = The species would not occur because the project site is outside known or current geographic/elevation range, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume absence based on historical records.

[1] Source: CNDDB 2025; IPaC 2025, LandFire 2025, field-collected data 2025.

Special Status Wildlife Species in the Regional Vicinity of Segment 3

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Invertebrates				
Danaus Plexippus pop.1 Monarch Butterfly	FC/None G4T2T3/S2S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable roosting habitat may be present in the study area. However, there are no occurrences of milkweed species within 5 miles of the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Fish				
Gila elegans bonytail	FE/SE G1/S1 LCR MSCP CS	Found in the Colorado River bordering California. Adapted for swimming in swift water, but both adults and young need backwaters and eddies. Needs gravel riffles for spawning.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable stream habitat is present within the study area. However, there are no CNDDB documented occurrences of the species within 1 mile of the study area.
Ptychocheilus lucius Colorado pikeminnow	FE/SE G1/SX CDFW FP SGCN	Native to the Colorado River bordering California.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable stream habitat is present within the study area. However, there are no CNDDB documented occurrences of the species within 1 mile of the study area.
Xyrauchen texanus razorback sucker	FE/SE G1/S2 CDFW FP SGCN LCR MSCP CS	Found in the Colorado River bordering California.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable stream habitat is present within the study area. However, there are no CNDDB documented occurrences of the species within 1 mile of the study area.
Amphibians				
Incilius alvarius Sonoran Desert toad	None/None G5/SH CDFW SSC SGCN	Breeds in temporary pools and irrigation ditches along the Colorado River and southern Imperial Valley.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable stream habitat is present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1912.
Lithobates pipiens northern leopard frog	None/None G5/S2 CDFW SSC SGCN	Native range is east of Sierra Nevada-Cascade Crest. Near permanent or semi-permanent water in a variety of habitats.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable stream habitat is present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1929.
Lithobates yavapaiensis lowland leopard frog	None/None G4/SX CDFW SSC SGCN LCR MSCP ES	Found along the Colorado River and in streams near the Salton Sea.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable stream habitat is present within the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Reptiles				
Gopherus agassizii desert tortoise	FT/ST G3/S2S3 DRECP SGCN LCR MSCP CS	Widely distributed in the Mojave, Sonoran, and Colorado Deserts from below sea level to 2,200 meters (7,220 feet). Most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except those on the most precipitous slopes.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Heloderma suspectum cinctum banded Gila monster	None/None G4T3/S1 CDFW SSC SGCN	Inhabits the lower slopes of rocky canyons and arroyos, but is also found on desert flats among scrub and succulents.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Kinosternon sonoriense Sonoran mud turtle	None/None G3/SH CDFW SSC SGCN	The lower Colorado River system in southeastern California.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable stream habitat is present within the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1941.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Phrynosoma mcallii flat-tailed horned lizard	None/None G3/S3 CDFW SSC BLM S DRECP SGCN LCR MSCP CS	Restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties.	3, 3A, 3B, 3C, 3D	**Likely.** Suitable desert habitat is present in the study area. There are twenty-six CNDDB documented occurrences of the species within 5 miles of the study area from 2001 – 2018.
Uma notata Colorado Desert fringe-toed lizard	None/None G3/S2 CDFW SSC BLM S SGCN	Colorado Desert region; in sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, or sparse desert scrub.	3, 3A, 3B, 3C, 3D	**Likely.** Suitable desert dune, riverbanks, desert washes, and desert scrub habitat are present in the study area. There are two CNDDB documented occurrences of the species within 5 miles of the study area from 2004 and 2018.
Birds				
Accipiter cooperii Cooper's hawk	None/None G5/S4 CDFW WL SGCN	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable interrupted and marginal woodland habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Athene cunicularia burrowing owl	None/SCE G4/S2 CDFW SSC USFWS BCC BLM S DRECP SGCN	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	3, 3A, 3B, 3C, 3D	**Present.** This species was observed in the study area during the 2025 biological reconnaissance surveys. Suitable grassland, desert, and scrubland habitats are present in the study area. There are thirty-one CNDDB documented occurrences of the species within 2 miles of the study area from 2003 – 2016.
Buteo regalis ferruginous hawk	None/None G4/S3/S4 CDFW WL	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	3A	**Likely.** Suitable open grassland and desert scrub habitat are present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2003.
			3, 3B, 3C, 3D	**Unlikely.** Suitable open grassland and desert scrub habitat are present. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Charadrius montanus mountain plover	None/None G3/S2 CDFW SSC USFWS BBC BLM S SGCN	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	3, 3A, 3B, 3C, 3D	**Likely.** Suitable grassland, plowed field, and grain field habitat are present in the study area. There are two CNDDB documented occurrences of the species within 5 miles of the study area from 2008 – 2010.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE G5T2T3/S1 BLM S SGCN LCR MSCP CS	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Colaptes chrysoides gilded flicker	None/SE G4/S2 USFWS BCC SGCN LCR MSCP CS	Sonoran desert habitat and riparian woodlands along the Colorado River.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert and riparian habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Empidonax traillii extimus southwestern willow flycatcher	FE/SE G5T2/S3 SGCN LCR MSCP CS	For nesting, the southwestern willow flycatcher requires dense riparian habitats with cottonwood/willow and tamarisk vegetation and microclimatic conditions that are dictated by the local surroundings. Saturated soils, standing water or nearby streams, pools, or cienegas are a component of nesting habitat that also influences the microclimate and density vegetation component. The southwestern willow flycatcher primarily eats flying insects.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable dense riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Falco peregrinus anatum American peregrine falcon	FD/SD G4T4/S3S4 CDFW WL	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable water and bank habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Icteria virens yellow-breasted chat	None/None G5/S4 CDFW SSC SGCN	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Ixobrychus exilis least bittern	None/None G4/S2 CDFW SSC SGCN LCR MSCP CS	Colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable pond and reservoir habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Lanius ludovicianus loggerhead shrike	None/None G4/S4 CDFW SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable open shrubland and desert scrub habitat is present. Vegetation such as creosote bush scrub, creosote bush–brittle bush scrub, creosote bush–white bursage scrub, quailbush scrub, and disturbed areas provide suitable conditions for foraging and nesting. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Laterallus jamaicensis coturniculus California black rail	None/ST G3T1/S2 CDFW FP BLM S SGCN LCR MSCP CS	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	3, 3A, 3B, 3C, 3D	**Likely.** Suitable freshwater marshland habitat is present in the study area. There is a recent CNDDB documented occurrence of the species within 5 miles of the study area from 2008.
Melanerpes uropygialis Gila woodpecker	None/SE G5/S2 USFWS BCC BLM S SGCN LCR MSCP CS	In California, inhabits cottonwoods and other desert riparian trees, shade trees, and date palms.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable freshwater marshland habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Micrathene whitneyi elf owl	None/SE G4/S1 SGCN LCR MSCP CS	In California, nesting area limited to cottonwood-willow and mesquite riparian zone along the Colorado River.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Myiarchus tyrannulus brown-crested flycatcher	None/None G5/S3 CDFW WL SGCN	Inhabits desert riparian areas along the Colorado River, as well as other desert oases and riparian areas NW to Victorville.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Nannopterum auritum double-crested Cormorant	None/None G5/S4 CDFW WL	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	3, 3A, 3B, 3C, 3D	**Present.** This species was observed in the study area during the 2025 biological reconnaissance surveys. Suitable aquatic and riparian habitat is present. Open water, common reed marshes, and Fremont cottonwood forest and woodland provide suitable habitat for this colonial nester. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Pandion haliaetus osprey	None/None G5/S4 CDFW WL	Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable aquatic and riparian habitat is present. Open water, cattail and common reed marshes, and Fremont cottonwood forest and woodland support the species' nesting and foraging requirements. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Piranga rubra summer tanager	None/None G5/S1 CDFW SSC SGCN LCR MSCP CS	Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable riparian habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Polioptila melanura black-tailed gnatcatcher	None/None G5/S3S4 CDFW WL SGCN	Primarily inhabits wooded desert wash habitats; also occurs in desert scrub habitat, especially in winter.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert wash and desert scrub habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Pyrocephalus rubinus vermilion flycatcher	None/None G5/S2/S3 CDFW SSC SGCN LCR MSCP CS	During nesting, inhabits desert riparian adjacent to irrigated fields, irrigation ditches, pastures, and other open, mesic areas.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert riparian, irrigated field, irrigation ditch, and pasture habitat are present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1909.
Rallus longirostris yumanensis Yuma clapper rail	FE/ST LCR MSCP CS	Nests in freshwater marshes along the Colorado River and along the south end of the Salton Sea.	3, 3A, 3B, 3C, 3D	**Likely.** Suitable freshwater marsh habitat is present in the study area.
Rallus obsoletus yumanensis Yuma Ridgway's rail	FE/ST G3T1/S1 CDFW FP SGCN	Nests in freshwater marshes along the Colorado River and along the south and east ends of the Salton Sea.	3, 3A, 3B, 3C, 3D	**Likely.** Suitable freshwater marsh habitat is present in the study area. There are three CNDDB documented occurrences of the species within 5 miles of the study area from 2000 – 2008.
Setophagia petechia yellow warbler	None/None G5/S3 CDFW SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable riparian habitat is present in the study area. There are no CNDDB documented occurrences of this species within 5 miles of the study area.
Setophaga petechia sonorana Sonoran yellow warbler	None/None G5T2T3/S2 CDFW SSC SGCN LCR MSCP CS	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable riparian habitat is present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1921.
Toxostoma crissale Crissal thrasher	None/None G5/S2 CDFW SSC SGCN	Resident of southeastern deserts in desert riparian and desert wash habitats. Nests in dense vegetation along streams/washes. Preferred nesting substrate includes mesquite, screwbean mesquite, ironwood, catclaw, acacia, arrow weed, and willow.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert riparian and desert wash habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Toxostoma lecontei Le Conte's thrasher	None/None G4/S3 CDFW SSC SGCN	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert wash and desert scrub habitat are present in the study area. Suitable nesting habitat is also present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Vireo bellii arizonae Arizona Bell's vireo	None/SE G5T4/S3 BLM S SGCN LCR MSCP CS	Summer resident along Colorado River. Chiefly inhabits willow thickets with undergrowth of *Baccharis glutinosa*.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable stream habitat is present within the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Mammals				
Antilocapra americana sonoriensis Sonoran pronghorn	FE/None G5T1/SH	Desert washes, arroyos, grassland steppe and creosote scrub bajadas. Subspecies formerly found in the Colorado Desert of southeastern California. Subspecies extirpated from California in the 1940s but may be reintroduced back into its former range.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub and open desert habitat is present. Vegetation such as creosote bush scrub, creosote bush–brittle bush scrub, creosote bush–white bursage scrub, quailbush scrub, and Mojave-Sonoran desert dunes offer appropriate conditions for the species movement and foraging needs. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Antrozous pallidus pallid bat	None/None G4/S3 CDFW SSC SGCN	Found in a variety of habitats including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert, grassland, shrubland, and forest habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Corynorhinus townsendii Townsend's big-eared bat	None/None G4/S2 CDFW SSC SGCN LCR MSCP ES	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Eumops perotis californicus western mastiff bat	None/None G4G5T4/S3S4 SGCN CDFW SSC	Occurs in open, semi-arid to arid habitats, including coniferiferous and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces and caves, and buildings. Roosts typically occur high above ground.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable grassland and chaparral habitat are present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1996.
Lasiurus blossevillii western red bat	None/SCE LCR MSCP CS	Throughout California in riparian woodland habitats.	3, 3A, 3B, 3C, 3D	**Likely.** Suitable riparian woodland habitat is present in the study area.
Lasiurus xanthinus western yellow bat	None/None G4G5/S3 CDFW SSC SGCN LCR MSCP CS	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert riparian and desert wash habitat are present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1999.
Macrotus californicus California leaf-nosed bat	None/None G3G4/S3 CDFW SSC BLM S SGCN LCR MSCP ES	Desert riparian, desert wash, desert scrub, desert succulent scrub, alkali scrub and palm oasis habitats.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert riparian, desert wash, and desert scrub habitat are present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Myotis occultus Arizona Myotis	None/None G4G5/S1 CDFW SSC SGCN	Lowlands of the Colorado River and adjacent desert mountain ranges.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable habitat is present in the study area. However, there are no CNDDB documented occurrences of the species within 5 miles of the study area.
Nyctinomops femorosaccus pocketed free-tailed bat	None/None G5/S3 CDFW SSC SGCN	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable desert scrub, desert wash, and desert riparian habitat are present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1995.
Nyctinomops macrotis big free-tailed bat	None/None G5/S3 CDFW SSC SGCN	Low-lying arid areas in Southern California.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable habitat is present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1987.
Ovis canadensis nelsoni desert bighorn sheep	None/None BLM S CDFW FP BLM S DRECP	Widely distributed from the White Mtns in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable open, rocky, steep habitat with available water and herbaceous forage is present in the study area. There are no CNDDB documented occurrences of the species within 5 miles of the study area.
Sigmodon hispidus eremicus Yuma hispid cotton rat	None/None G5T2T3/S2 CDFW SSC SGCN LCR MSCP CS	Along the Colorado River and in grass and agricultural areas near irrigation waters.	3, 3A, 3B, 3C, 3D	**Likely.** Suitable stream, grassland, and agricultural habitat are present in the study area. There are four CNDDB documented occurrences of the species within 5 miles of the study area from 2007 – 2009.
Taxidea taxus American badger	None/None G5/S3 CDFW SSC SGCN	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	3, 3A, 3B, 3C, 3D	**Unlikely.** Suitable shrub forest habitat with friable soil is present in the study area. Suitable prey habitat is present in the study area. The most recent CNDDB documented occurrence of the species within 5 miles of the study area is from 1922.

Scientific Name Common Name	Status	Habitat Requirements	Route(s)	Potential to Occur[1]
Vulpes macrotis mutica desert kit fox	None/ST DRECP	Open desert, on creosote bush flats, and amongst the sand dunes.	2, 2A	**Unlikely.** Suitable habitat with friable soil is present in the study area. Suitable prey habitat is present in the study area.

Regional Vicinity refers to within a 5-mile search radius of site.

Status (Federal/State)
FE = Federal Endangered
FT = Federal Threatened
FC = Federal Candidate
FD = Federal Delisted
SE = State Endangered
ST = State Threatened
SD = State Delisted
SCE = State Candidate Endangered
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List
BCC = Birds of Conservation Concern

Status (Regional)
BLM S = Bureau of Land Management Sensitive Species
SGCN = Species of Greatest Conservation Need (AZ)
DRECP = Desert Renewable Energy Conservation Plan Focus Species

Other Statuses
G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Sub nationally (state)
G4/5 or S4/5 Apparently secure, common and abundant

[1] **Definitions Regarding Potential for Occurrence**

Occurs = The species and/or positive sign was observed on-site during site visit or field survey.

Likely = All site features indicate this species is very likely present and should be expected. Criteria include:
- Project site within geographic range;
- Suitable habitat present (e.g., soils, vegetation communities, elevation, roost sites, leaf litter/debris, water, host plants, etc.); and
- Distance to historical record(s) less than 25 years old is/are less than 500 feet (plants/fish), 1,000 feet (riparian wildlife), 1 mile (birds/bats), 2 miles (large mammals), or 3 miles (small mammals/herps).

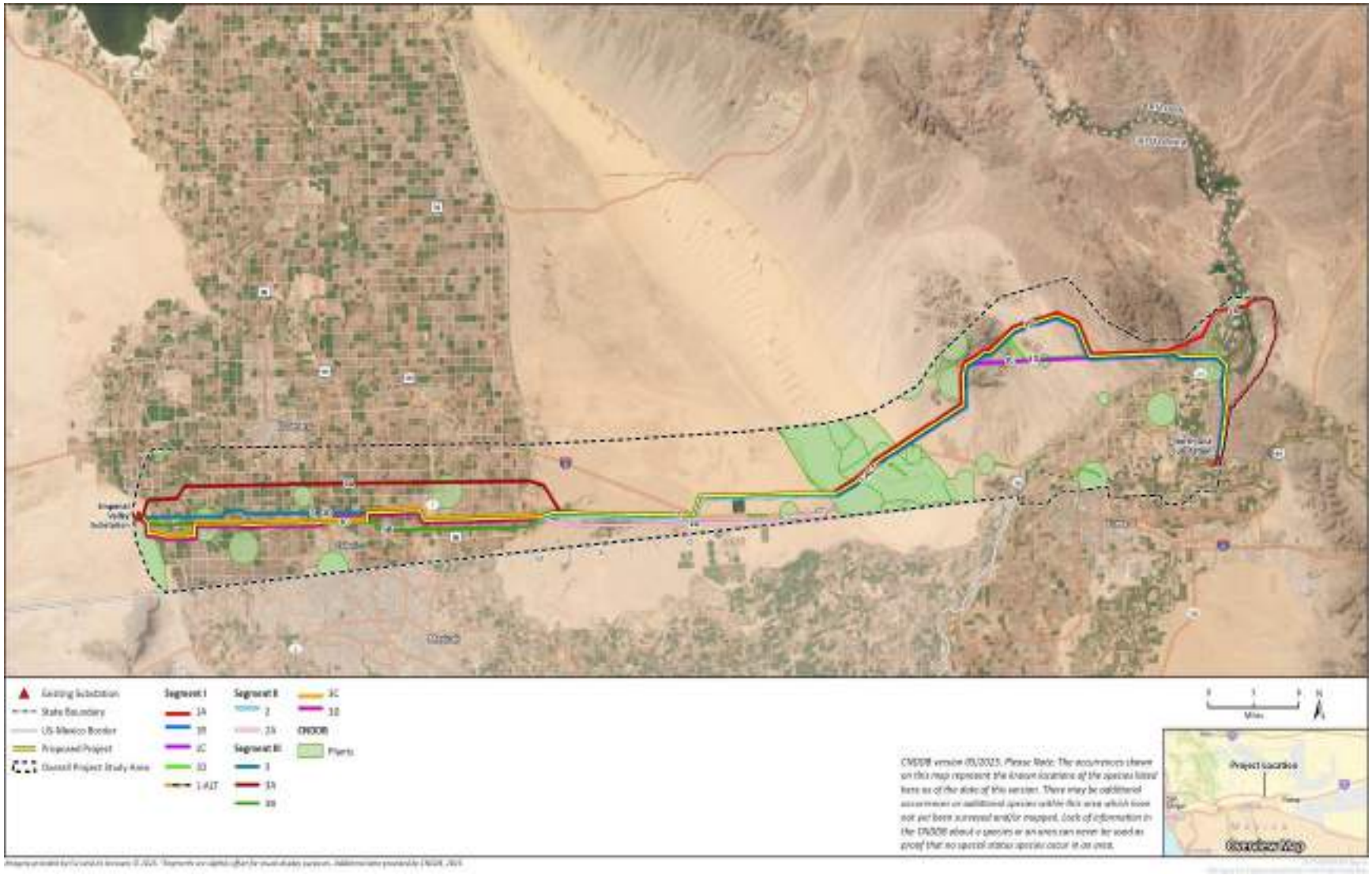
Unlikely = The species could occur given presence of marginal habitat, but records of the species are not locally known or are greater than 25 years old.

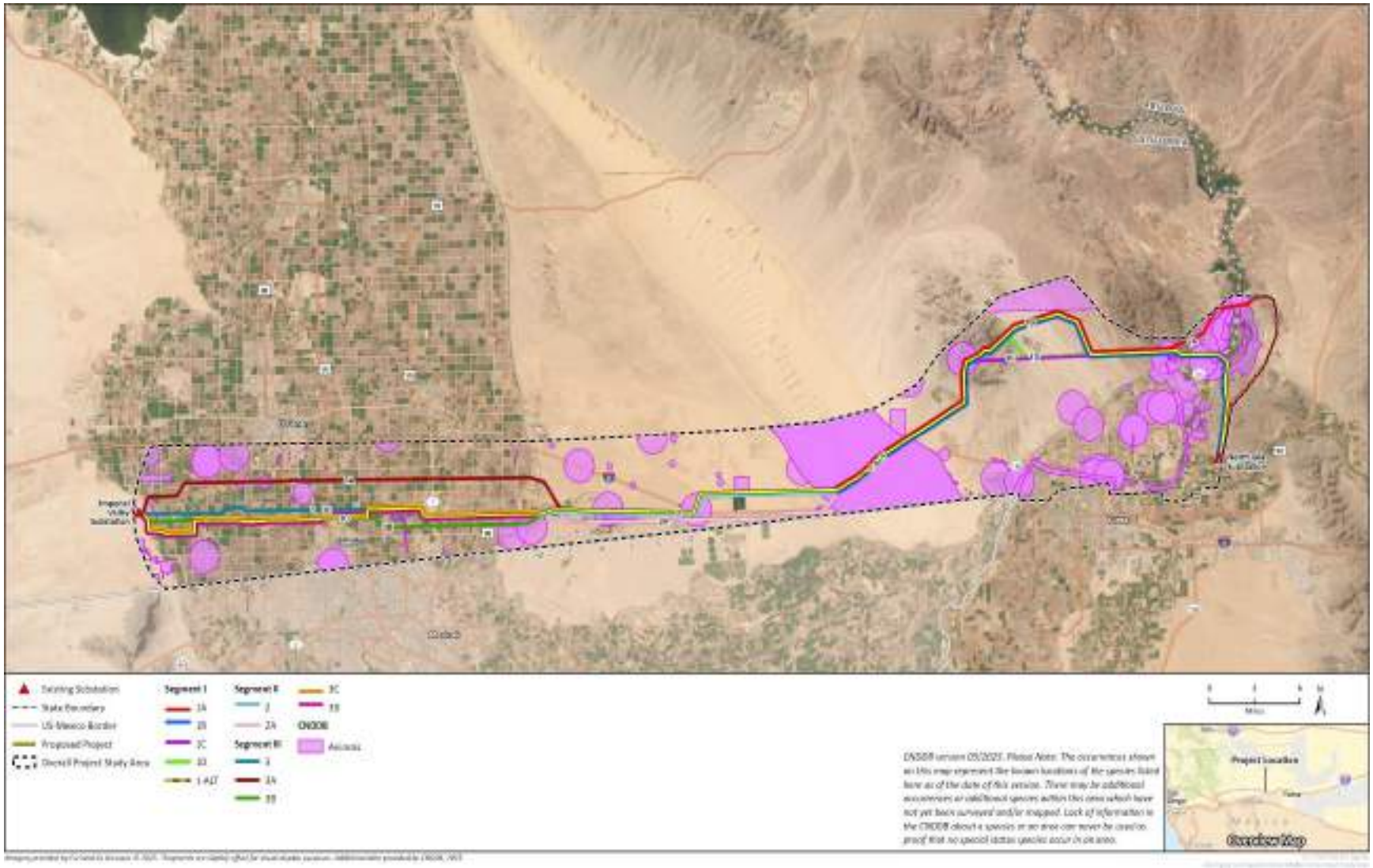
Does Not Occur = The species would not occur because the project site is outside known or current geographic/elevation range, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume absence based on historical records.

[1] Source: CNDDB 2025; IPaC 2025, LandFire 2025, field-collected data 2025.

Appendix F

Special Status Species Habitat and Observations


Existing Substation
State Boundary
US-Mexico Border
Proposed Project
Overall Project Study Area
Segment I
1A
1B
1C
1D
1 ALT
Segment II
2
2A
Segment III
3
3A
3B
3C
3D
CNDDB
Plants
Miles
Project Location
Imperial Valley Substation


Existing Substation
State Boundary
US-Mexico Border
Proposed Project
Overall Project Study Area
Segment I
1A
1B
1C
1 ALT
Segment II
2
2A
Segment III
3
3A
3B
3C
3B
CNDDB
Animals
Project Location
Overview Map

Appendix G

Vegetation Communities



Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D

Segment II
- 2
- 2A

Segment III
- 3
- 3A
- 3B
- 3C
- 3D

Vegetation Communities
- Blue palo verde - ironwood woodland
- Common reed marshes
- Creosote bush - brittle bush scrub
- Creosote bush scrub

Land Cover Types
- Developed
- Disturbed
- Open Water

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush - white burr sage scrub

0 1,000 2,000 N
Feet



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- Existing Substation
- Study Area
- State Boundary
- US-Mexico Border
- Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D

Segment II
- 2
- 2A

Segment III
- 3
- 3A
- 3B
- 3C
- 3D

Vegetation Communities
- Arrow weed thickets
- Blue palo verde - ironwood woodland
- Cattail marshes
- Common reed marshes
- Creosote bush - brittle bush scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Fremont cottonwood forest and woodland
- Hardstem and California bulrush marshes
- Mesquite thickets
- Quailbush scrub
- Saguaro - foothill palo verde - velvet mesquite desert scrub
- Tamarisk thickets

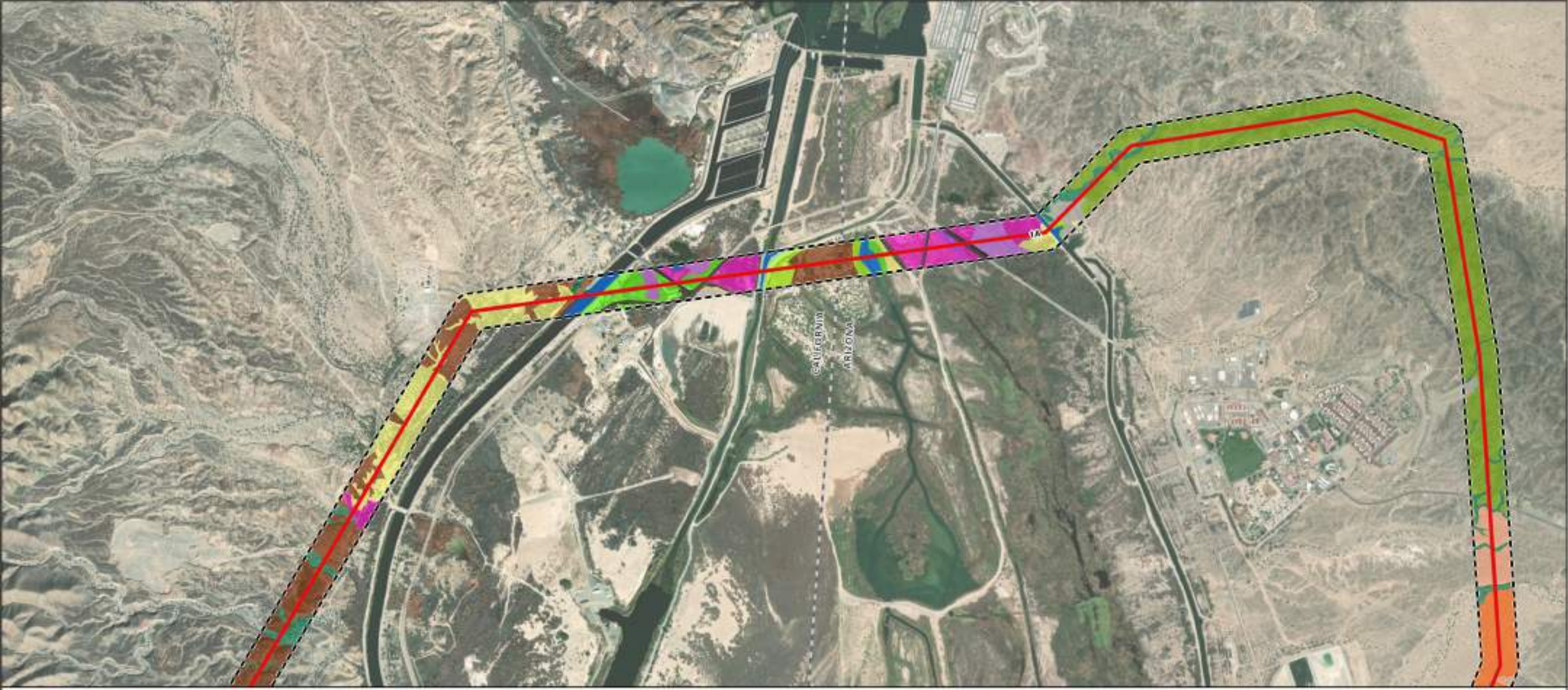
Land Cover Types
- Developed
- Disturbed
- Open Water

0 1,000 2,000 Feet

N



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

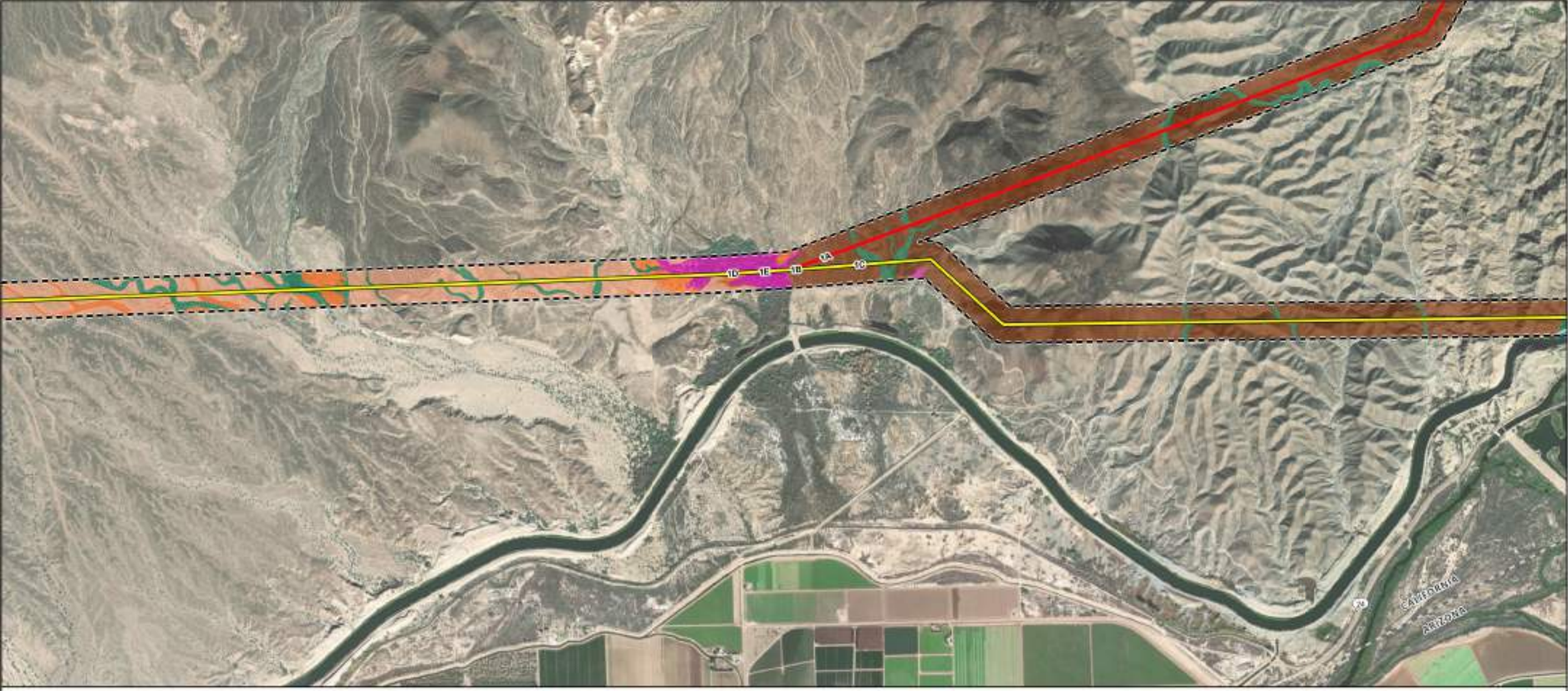
Vegetation Communities
Arrow weed thickets
Blue palo verde - ironwood woodland
Common reed marshes
Creosote bush - brittle bush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
Fremont cottonwood forest and woodland
Hardstem and California bulrush marshes
Iodine bush scrub
Mesquite thickets
Saguaro - foothill palo verde - velvet mesquite desert scrub
Tamarisk thickets

Land Cover Types
Developed
Disturbed
Mojave-Sonoran desert dunes
Open Water

0 1,000 2,000 N
Feet



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- Existing Substation
- Study Area
- State Boundary
- US-Mexico Border
- Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D

Segment II
- 2
- 2A

Segment III
- 3
- 3A
- 3B
- 3C
- 3D

Vegetation Communities
- Blue palo verde - ironwood woodland
- Common reed marshes
- Creosote bush - brittle bush scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Tamarisk thickets

Land Cover Types
- Open Water

0 1,000 2,000 Feet

N



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush - white burr sage scrub

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

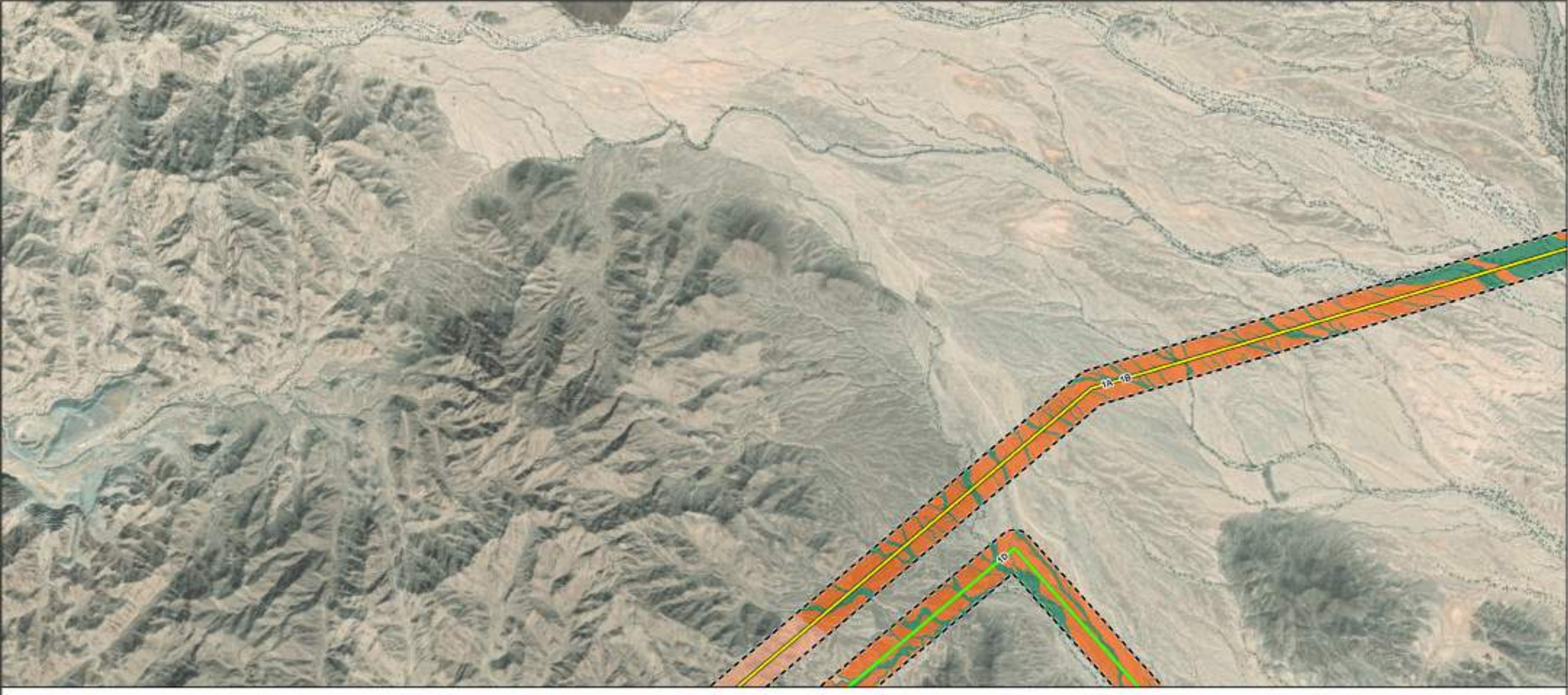
Segment III
3
3A
3B
3C
3D

Vegetation Communities
Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush - white burr sage scrub

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D

Segment II
- 2
- 2A

Segment III
- 3
- 3A
- 3B
- 3C
- 3D

Vegetation Communities
- Blue palo verde - ironwood woodland
- Creosote bush - brittle bush scrub
- Creosote bush - white burr sage scrub

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D

Segment II
- 2
- 2A

Segment III
- 3
- 3A
- 3B
- 3C
- 3D

Vegetation Communities
- Blue palo verde - ironwood woodland
- Creosote bush - brittle bush scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D

Segment II
- 2
- 2A

Segment III
- 3
- 3A
- 3B
- 3C
- 3D

Vegetation Communities
- Blue palo verde - ironwood woodland
- Creosote bush - brittle bush scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub

Land Cover Types
- Developed

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush scrub

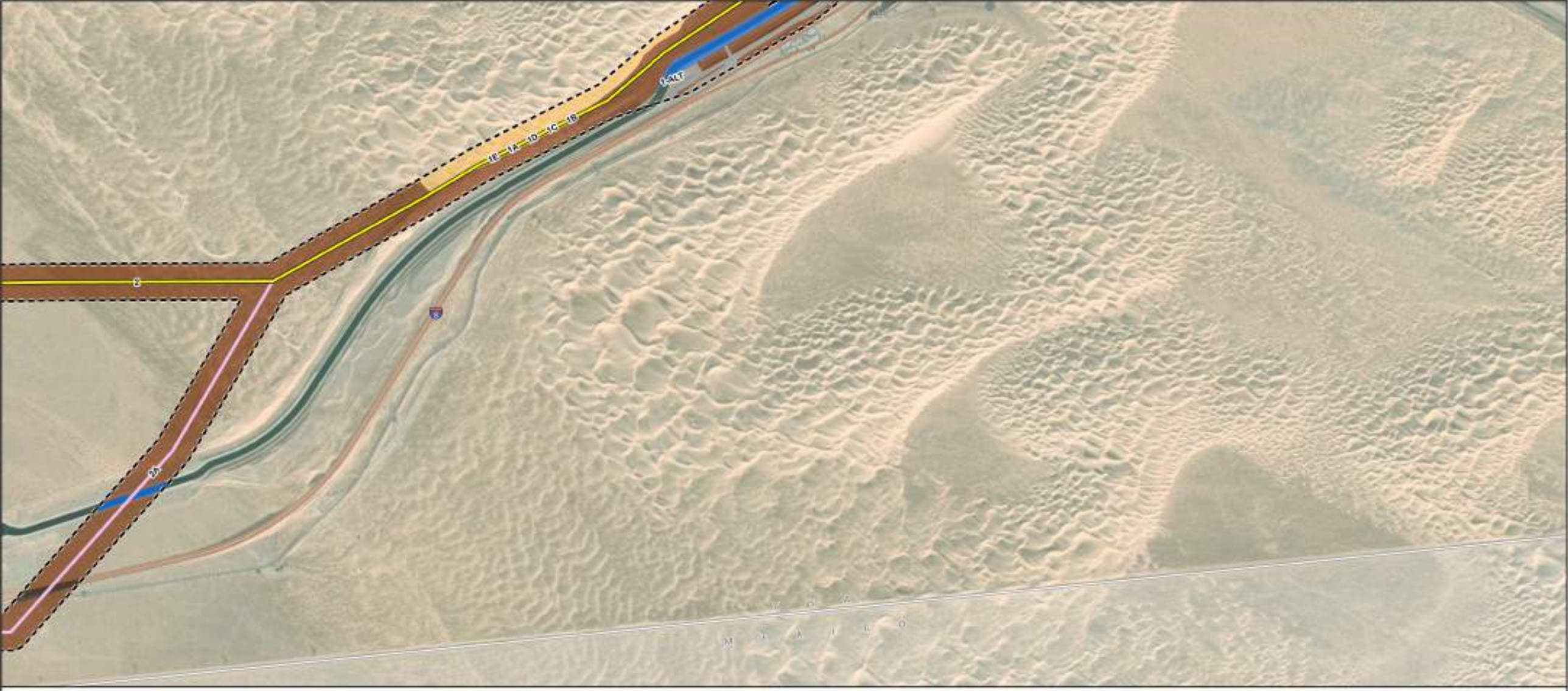
Land Cover Types
Developed
Disturbed
Mojave-Sonoran desert dunes
Open Water

0 1,000 2,000 Feet

N



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

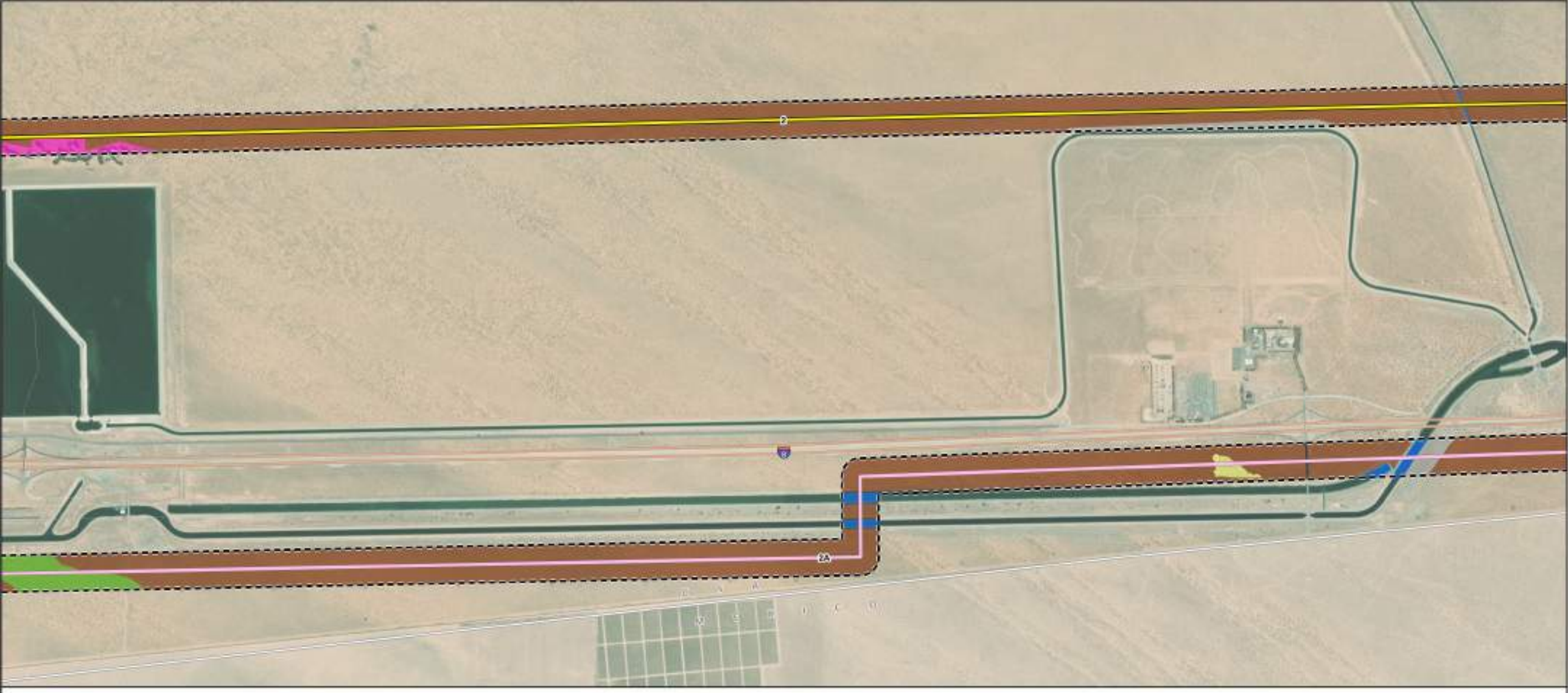
Vegetation Communities
Creosote bush scrub

Land Cover Types
Developed
Disturbed
Mojave-Sonoran desert dunes
Open Water

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
California joint fir - longleaf joint-fir scrub
Creosote bush scrub
Mesquite thickets
Tamarisk thickets

Land Cover Types
Developed
Disturbed
Open Water

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

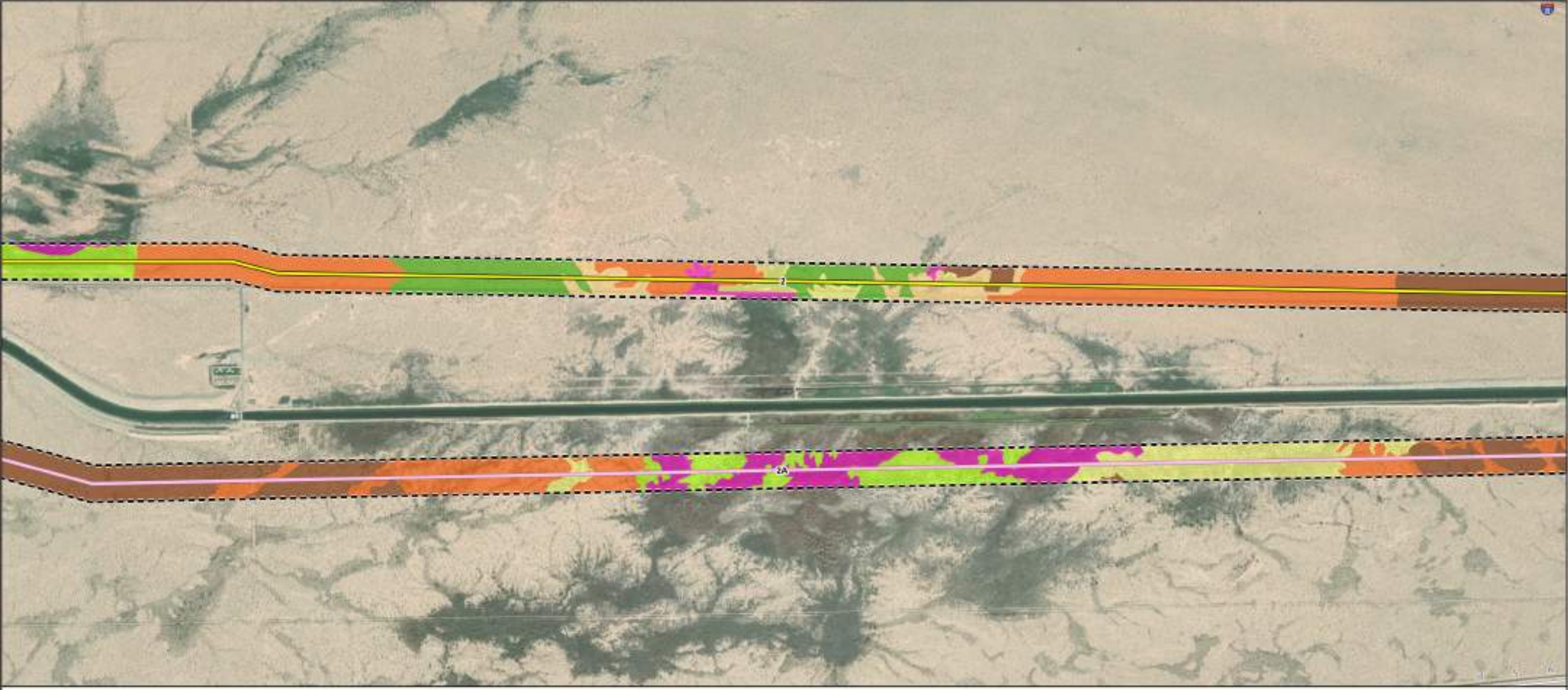
Vegetation Communities
Arrow weed thickets
Bush seepweed scrub
California joint fir - longleaf joint-fir scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
Quailbush scrub
Tamarisk thickets

Land Cover Types
Developed

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Arrow weed thickets
Bush seepweed scrub
California joint fir - longleaf joint-fir scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
Mesquite thickets
Tamarisk thickets

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Arrow weed thickets
Common reed marshes
Creosote bush - white burr sage scrub
Creosote bush scrub
Mesquite thickets
Tamarisk thickets

Land Cover Types
Agriculture
Developed
Disturbed
Open Water

0 1,000 2,000 Feet

N



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Arrow weed thickets
Tamarisk thickets

Land Cover Types
Agriculture
Developed
Disturbed
Open Water

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Common reed marshes

Land Cover Types
Agriculture
Open Water

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Creosote bush - white burr sage scrub
Tamarisk thickets

Land Cover Types
Agriculture
Developed
Disturbed

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Common reed marshes
Tamarisk thickets

Land Cover Types
Agriculture
Developed
Disturbed
Open Water

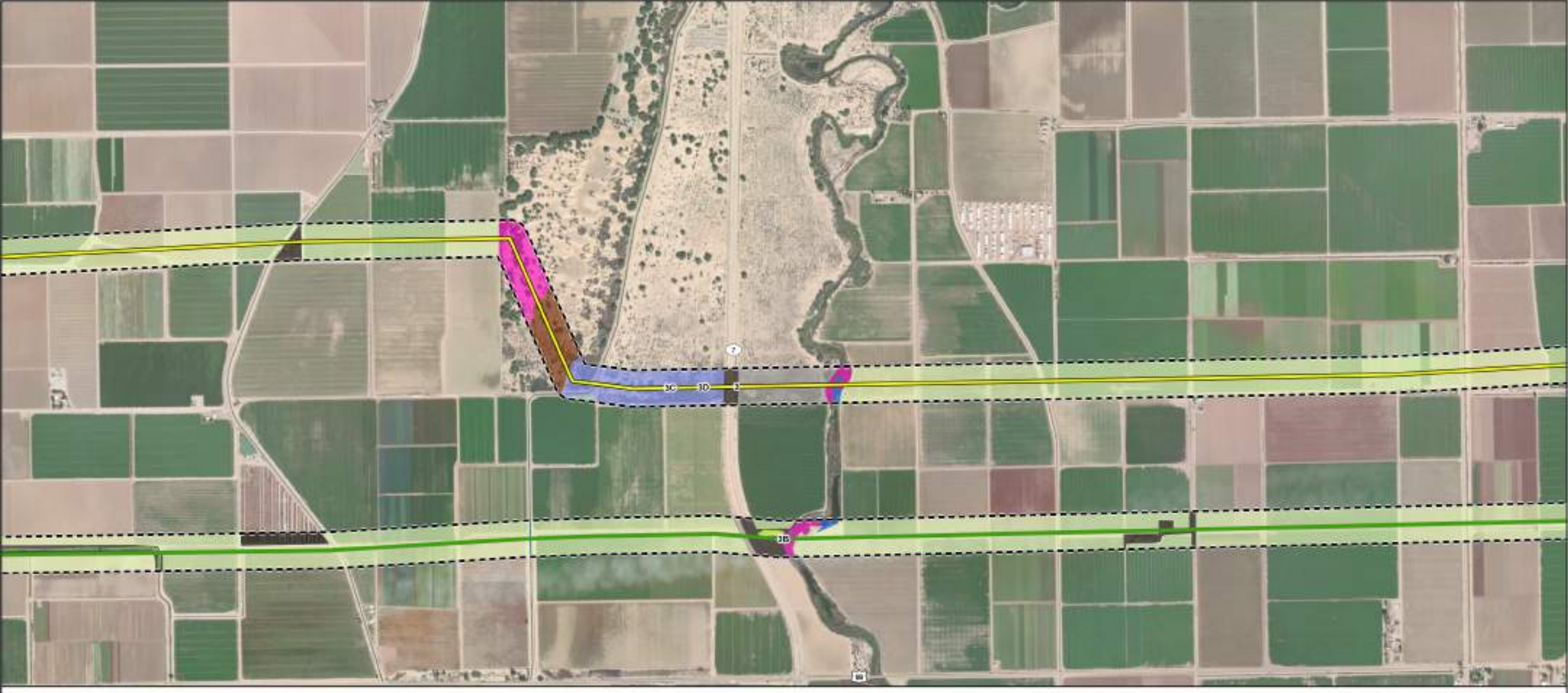
0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D

Segment II
- 2
- 2A

Segment III
- 3
- 3A
- 3B
- 3C
- 3D

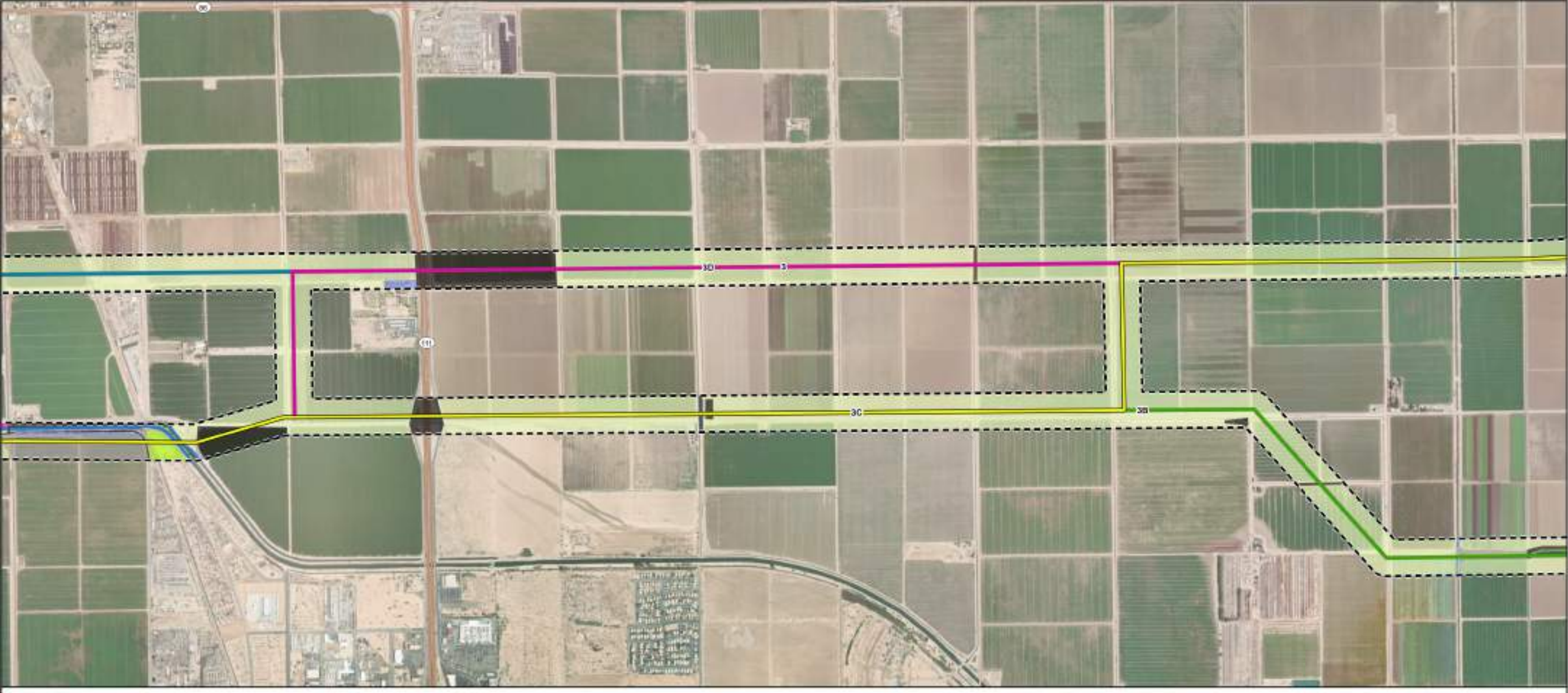
Vegetation Communities
- Arrow weed thickets
- Creosote bush scrub
- Eucalyptus - tree of heaven - black locust groves
- Tamarisk thickets

Land Cover Types
- Agriculture
- Developed
- Disturbed
- Open Water

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Arrow weed thickets
Common reed marshes
Creosote bush scrub
Eucalyptus - tree of heaven - black locust groves
Tamarisk thickets

Land Cover Types
Agriculture
Developed
Disturbed
Open Water

0 1,000 2,000 Feet

N

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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

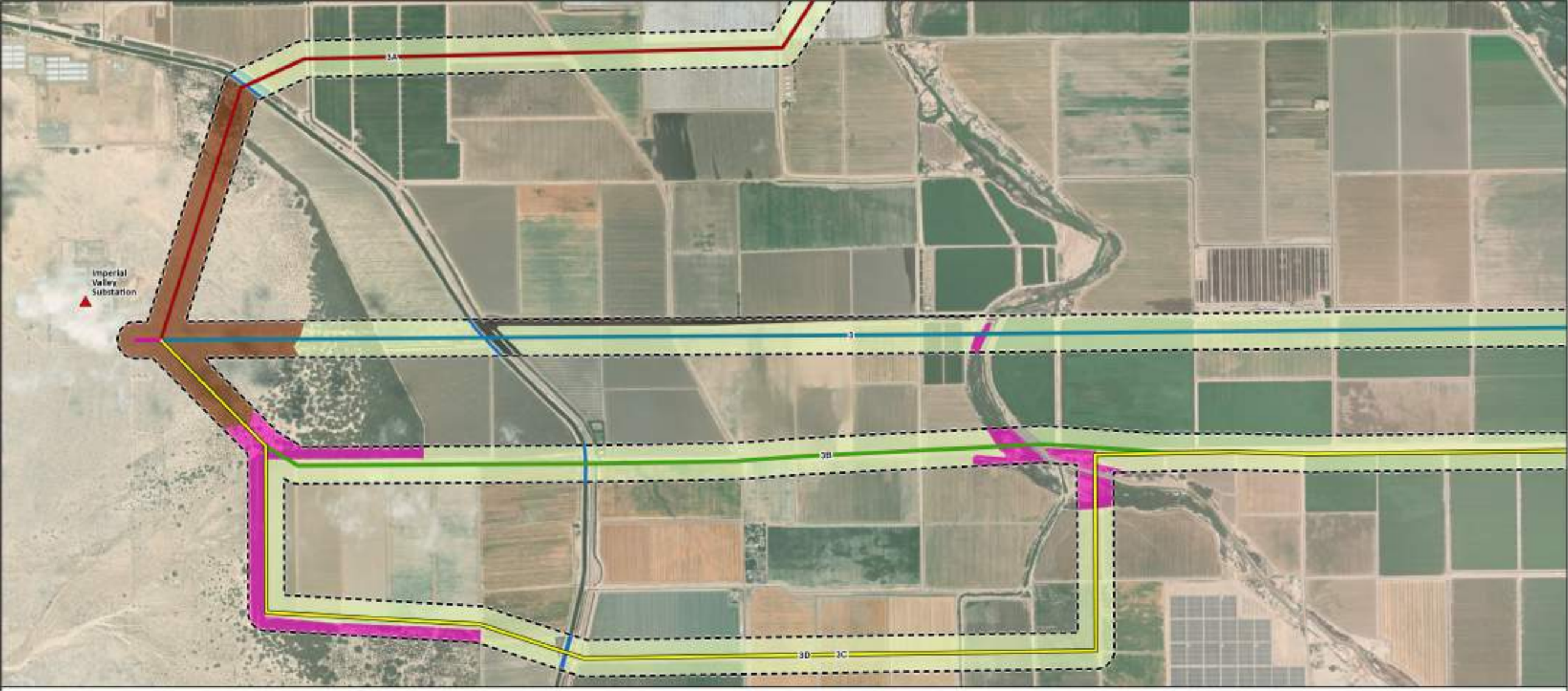
Vegetation Communities
Arrow weed thickets
Creosote bush scrub
Mesquite thickets
Tamarisk thickets

Land Cover Types
Agriculture
Developed
Disturbed
Open Water

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Vegetation Communities
Common reed marshes
Creosote bush scrub
Tamarisk thickets

Land Cover Types
Agriculture
Developed
Disturbed
Open Water

0 1,000 2,000 N
Feet



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Appendix H

Reconnaissance Survey Report and Photo Deck

Rincon Consultants, Inc.
2215 Faraday Avenue, Suite A
Carlsbad, California 92008
760-918-9444

August 4, 2025
Rincon Project No: 25-17237

Ally Little
Senior Environmental Specialist
Western Transmission Area
NextEra Energy Transmission/Horizon West Transmission
Via email: Allyson.little@nexteraenergy.com

Subject: Biological Reconnaissance Survey Report Memo for the Ironwood Transmission Project

Dear Ms. Little:

Rincon Consultants (Rincon) is pleased to present this letter report documenting the results of the biological reconnaissance survey for the Horizon West Transmission, LLC Ironwood Transmission Project (Proposed Project) in Imperial County, California and Yuma County, Arizona. The survey was conducted to assess vegetation communities and general biological resources within publicly accessible areas in the approximately 87-mile Proposed Project alignment (see Appendix B of the Biological Resources Technical Report [Rincon 2025]).

Proposed Project Description

The Proposed Project is an approximately 87-mile-long, 500-kilovolt (kV) transmission line from Arizona Public Service Company's North Gila Substation to San Diego Gas & Electric Company's (SDG&E) Imperial Valley Substation.

The Proposed Project is divided into three segments:

- **Segment 1: Easternmost Section**
  Start: Near Yuma, Arizona
  End: Near Coachella Canal Road, California
  Alternative Routes: 1A, 1B, 1C, 1D, and 1-Alt
  Length: 36 miles to 46 miles
  Proposed Project: 1B

- **Segment 2: Middle Section**
  Start: Western terminus of Segment 1
  End: East of Highway 98, near All American Drain 2, Imperial County, California
  Alternative Routes: 2, 2A
  Length: Approximately 20 miles
  Proposed Project: 2

- **Segment 3: Westernmost Section**
  Start: Western Terminus of Segment 2
  End: Approximately 1.3 miles west of Mandrapa Road, Imperial County, California
  Alternative Routes: 3, 3A, 3B, 3C, and 3D
  Length: Approximately 26 miles to 30 miles
  Proposed Project: 3C

The Proposed Project includes route alternative segments 1B, 2, and 3C.

The Proposed Project is planned to be operational by 2030 and would include a new 500-kV transmission line, including a combination of approximately 300 single-circuit guyed and self-supporting steel tubular and lattice 500-kV structures, approximately 87 miles of conductor, and approximately 87 miles of overhead ground wire. The Proposed Project does not include system changes or upgrades within the existing North Gila Substation, which is owned by the Arizona Public Service Company, nor within the existing Imperial Valley Substation, which is owned by SDG&E.

The Proposed Project is located in western Yuma County, Arizona and Imperial County, California, crossing predominantly unincorporated lands, as well as federal, state, municipal, and private land. These lands include unincorporated areas of Imperial and Yuma counties, the city of Calexico, California, and public lands under the jurisdiction or management of the U.S. Bureau of Land Management, U.S. Bureau of Reclamation, and the California Department of Parks and Recreation.

Methodology

At the request of Horizon West Transmission, LLC, Rincon biologists Megan Knight, Casey Clark, Kevin Gugerty, Alicia McCracken, Rob Weber, Jared Reed, Nick Julier, Ben Chubak, and Genelle Watkins conducted biological reconnaissance surveys of the Proposed Project alignment. The survey area included publicly accessible areas of the Proposed Project alignment, alternative routes, and access roads, plus an approximately 700-foot buffer (350 feet from center line or feature boundary).

Surveys were performed from April 21 to April 29, 2025, with mostly sunny skies, 0 to 30 mile per hour winds, and temperatures ranging from 58 to 92 degrees Fahrenheit. The biologists surveyed the area on foot, by vehicle, and/or with binoculars to achieve maximum visual coverage of the survey areas. Where access was not possible due to terrain or private property, the biologists used binoculars from elevated vantage points and desktop review to confirm vegetation communities.

The Proposed Project area was generally surveyed for vegetation communities, suitable habitat, and nesting birds and nesting bird activity. The field survey methods were informed by desktop analysis and preliminary list of species with potential to occur in the survey area. The survey area was surveyed by walking transects where safe and accessible to attain 100 percent visual coverage of the survey area, as feasible, as well as windshield surveying. In areas where pedestrian access was restricted to public roads and approved access roads, the survey area was viewed in the field with binoculars and/or assessed using desktop aerial imagery in Google Earth Pro (Google Earth Pro 2025). Data were collected using hand-held global positioning system units, photographs, and aerial field maps. Proposed Project survey areas were photographed for reference. Table 1 summarizes the conditions in which the survey was conducted below.

Table 1 Reconnaissance Surveys

Survey Date	Biologists	Start-Stop Time (hours)	Temperature (Fahrenheit)	Wind (mph)	Visibility	Precipitation (inches)	% Cloud Cover
04/21/2025	Megan Knight Casey Clark Alicia McCracken Kevin Gugerty	0730–1530	59–92	0–14	Good	0	0–30
04/22/20205	Megan Knight Casey Clark Alicia McCracken Kevin Gugerty	0730–1600	60–91	0–12	Good	0	0–15
04/23/2025	Megan Knight Casey Clark Alicia McCracken Rob Weber	0730–1600	62–91	0–17	Good	0	0–15
04/24/20205	Megan Knight Casey Clark Alicia McCracken Rob Weber	0730–1500	63–90	5–20	Good	0	0–30
04/25/20205	Megan Knight Casey Clark Alicia McCracken Rob Weber	0730–1430	62–87	5–30	Good	0	10–50
04/28/2025	Kevin Gugerty Jared Reed Molly Morrissey Nick Julier	0730–1530	62–81	0–5	Good	0	0
04/29/2025	Kevin Gugerty Jared Reed Molly Morrissey Nick Julier	0730–1530	58–90	5–10	Good	0	0–30

No regulatory agency coordination or protocols were required for these surveys.

Results

Vegetation Communities

Sixteen natural vegetation communities, three semi-natural communities, and four other land cover types were identified in the survey area during the reconnaissance surveys.

Within the survey area, desert scrub vegetation communities are the most abundant and include creosote bush (*Larrea tridentata*), brittlebush (*Encelia farinosa*), and white bursage scrub (*Ambrosia dumosa*) communities. In vegetation communities containing a more complex canopy, palo verde (*Parkinsonia florida*), ironwood (*Olneya tesota*), and Fremont cottonwood (*Populus fremontii*) were commonly seen in the tree layer, with other native shrubs such as honey mesquite (*Prosopis glandulosa*) and non-native *Tamarisk* spp. present as subdominant species within the shrub layer. Various other native and non-native herbs are present at relatively low cover across areas of desert pavement and sand dune habitats.

Descriptions of vegetation communities and other land cover types documented in surveys are provided below and shown in Table 2. Included in the description of each alliance is the Global and State conservation status ranking. Communities dominated by non-native species are considered semi-natural alliances and have no Global and State rankings (ranking denoted as GNA SNA).

Table 2 Vegetation Communities and Land Cover Types Acreage within Survey Area

Vegetation Community or Land Cover Type	Global and State Rank	Total Acres Within Proposed Project[3]	Alternative Rouge Segments											
			1A[2]	1B[2,3]	1C[2]	1D[2]	1-Alt	2[2,3]	2A[2]	3[2]	3A[2]	3B[2]	3C[2,3]	3D[2]
Natural Communities [1]														
American Bulrush Marsh (Common Three-Square Marsh)	**G5S3**	**0.00**	–	–	–	–	–	–	–	–	–	**0.11**	–	–
Arrow Weed Thickets	**G4S3**	**90.1**	**11.2**	**3.8**	**3.8**	**3.8**	–	**40.45**	**74.96**	–	**12.37**	**60.26**	**45.98**	**45.98**
Blue Palo Verde – Ironwood Woodland	**G4S4**	**432.98**	**520.03**	**432.98**	**380.30**	**418.24**	–	–	–	–	-	–	–	–
Bush Seepweed Scrub	**G4S3**	**90.46**	–	–	–	–	–	**90.46**	–	–	**11.45**	–	–	–
California Joint Fir – Longleaf Joint-Fir Scrub	**G5S4**	**83.35**	–	–	–	–	–	**83.35**	**140.82**	–	–	–	–	–
Cattail Marshes	G5S5	1.03	–	0.59	0.59	0.59	–	–	1.41	0.44	–	0.78	0.44	0.44
Creosote Bush – Brittle Bush Scrub	G5S4	978.13	1,107.66	978.13	963.72	835.11	–	–	–	–	–	–	–	–
Creosote Bush – White Burr Sage Scrub	G5S5	724.82	638.22	498.62	390.88	565.50	–	226.19	216.56	–	74.51	–	–	–
Creosote Bush Scrub	G5S5	2,049.99	937.86	869.58	869.58	869.58	75.56	1,109.28	1,003.96	79.27	161.37	47.65	71.13	71.66
Fremont Cottonwood Forest and Woodland	**G4S3**	**9.85**	**20.90**	**9.85**	**9.85**	**9.85**	–	–	–	–	–	–	–	–
Hardstem and California Bulrush Marshes	**GNR S3S4**	**10.64**	**16.82**	**10.64**	**10.64**	**10.64**	–	–	–	–	–	–	–	–
Iodine Bush Scrub	**G4S3**	**0.00**	**2.13**	–	–	–	–	–	–	–	–	–	–	–
Mesquite Thickets	**G5S3**	**153.09**	**72.00**	**0.38**	**0.38**	**0.38**	–	**117.84**	**152.63**	**15.48**	**81.93**	**52.95**	**34.86**	**34.86**
Mojave-Sonoran Desert Dunes	**G4S3**	**203.50**	**204.03**	**203.50**	**203.50**	**203.50**	**33.74**	–	–	–	–	–	–	–
Quailbush Scrub	G4S4	6.62	–	6.62	6.62	6.62	-	–	9.49	–	–	–	–	–
Saguaro – Foothill Palo Verde – Velvet Mesquite Desert Scrub	**G4S2**	**0.00**	**228.59**	–	–	–	-	–	–	–	–	–	–	–
Semi-natural Communities														
Common Reed Marshes	GNR SNR	3.69	3.77	2.98	2.98	2.98	–	–	2.73	2.40	12.81	4.48	0.71	0.71
Eucalyptus – Tree of Heaven – Black Locust Groves	GNA SNA	51.29	–	–	–	–	–	–	–	50.51	–	3.13	51.29	53.65
Tamarisk Thickets	GNA SNA	239.32	71.30	70.08	70.08	70.08	–	57.29	121.05	52.55	60.82	65.04	111.94	111.89
Other Land Cover														
Agriculture	N/A	1,940.29	–	–	–	–	–	–	–	1,959.58	1,977.16	1,844.55	1,940.29	1,905.02
Developed	N/A	66.41	21.89	12.09	12.09	12.09	0.77	4.99	10.29	84.53	41.82	95.36	49.33	81.92
Disturbed	N/A	156.98	18.76	46.09	46.09	46.09	64.71	12.01	9.05	29.61	84.40	87.99	98.89	98.75
Open Water	N/A	52.92	19.24	22.71	22.71	22.71	49.82	0.77	18.40	7.57	5.51	30.49	29.44	29.13

[1] Vegetation community ranks are from (CDFW 2025d). CDFW sensitive natural communities are indicated in bold. Communities were categorized only to the alliance level when 1) all associations are CDFW sensitive natural communities, 2) the alliance contains no CDFW sensitive natural communities, or 3) all CDFW sensitive natural communities were determined to be absent.

GNA SNA – Not applicable; community is not a suitable target for conservation
GNR – Global Rank not assessed

N/A – Not a vegetation community

[2] Acreages are rounded from GIS calculations.

[3] Proposed Project includes Segments 1B, 2, and 3C.

Sensitive Natural Communities

There are 11 sensitive natural communities occur in the study area. These include:

- American bulrush marsh (G5S3)
- Arrow weed thickets (G4S3)
- Blue palo verde – ironwood woodland (G4S4)
- Bush seepweed scrub (G4S3)
- California joint fir – longleaf joint-fir scrub (G5S4)
- Fremont cottonwood forest and woodland (G4S3)
- Hardstem and California bulrush marshes (GNR S3S4)
- Iodine bush scrub (G4S3)
- Mesquite thickets (G5S3)
- Mojave-Sonoran Desert dunes (G4S3)
- Saguaro – foothill palo verde – velvet mesquite desert scrub (G4S2)

Special-Status Plant Species

Eight special-status plant species were determined to be likely to occur within the study area:

- Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)
- Peirson's milk-vetch (A*stragalus magdalenae* var. *peirsonii*)
- Saguaro (Carnegiea gigantea)
- Wiggins' croton (*Croton wigginsii*)
- Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*)
- Parish's desert-thorn (*Lycium parishii*)
- Giant Spanish-needle (*Palafoxia arida* var. *gigantea*)
- Sand food (*Pholisma sonorae*)

Of these, only the saguaro was observed during reconnaissance-level surveys.

Special-Status Wildlife Species

Suitable habitat potentially occurring within the Proposed Project may include habitat for the following wildlife species.

Reptiles and Amphibians

- Desert tortoise (*Gopherus agassizii*)
- Flat-tailed horned lizard (*Phrynosoma mcallii*)
- Colorado Desert fringe-toed lizard (*Uma notata*)

Birds

- Burrowing owl (*Athene cunicularia*)
- Ferruginous hawk (*Buteo regalis*)
- Mountain plover (*Charadrius montanus*)
- Western yellow-billed cuckoo (Coccyzus americanus occidentalis)
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Yellow-breasted chat (*Icteria virens*)
- Least bittern (Ixobrychus exilis)
- Loggerhead shrike (*Lanius ludovicianus*)
- California black rail (Laterallus jamaicensis coturniculus)
- Gila woodpecker (Melanerpes uropygialis)
- Double-crested cormorant (*Nannopterum auritum*)
- Osprey (*Pandion haliaetus*)
- Black-tailed gnatcatcher (*Polioptila melanura*)
- Yuma Ridgway's rail (*Rallus obsoletus yumanensis*)
- Sonoran yellow warbler (Setophaga petechia sonorana)
- Arizona Bell's vireo (*Vireo bellii arizonae*)

Mammals

- California leaf-nosed bat (*Macrotus californicus*)
- Desert bighorn sheep (*Ovis canadensis nelsoni*)
- Yuma hispid cotton rat (*Sigmodon hispidus eremicus*)
- American badger (*Taxidea taxus*)
- Desert kit fox (*Vulpes macrotis*)

These species may use various habitat types present in the study area, and their potential presence should be considered in Proposed Project planning and mitigation efforts.

Reptiles

While no live desert tortoise were observed during reconnaissance surveys, a potential inactive burrow was observed in blue palo verde-desert ironwood woodland/creosote scrub habitat near Picacho Wash and Barney Oldfield Road. Suitable habitat for desert tortoise is present throughout the Proposed Project area.

Birds

Numerous burrowing owl were observed during reconnaissance surveys on agricultural lands within the Proposed Project area between Drew Road (to the west) and Bonsesteele Road (to the east). Of the 11 burrowing owl observations, 17 individual burrowing owls were seen.

Various avian nests were observed during the field survey efforts. A common raven (*Corvus corax*) was observed actively tending to a nest on an existing transmission structure approximately 1 mile north of the All American Canal near the community of Bard, approximately 100 feet off the ground. An American crow (*Corvus brachyrhynchos*) was observed flying to and from a nest on an existing

transmission structure approximately 0.4 mile southeast of Barney Oldfield Road and Picacho Road, approximately 100 feet off the ground. Unidentified raptor/raven nests were observed on transmission towers approximately 0.3 and 0.6 mile east of the crow nest. Another unidentified raptor nest was observed approximately 100 feet off the ground on an existing transmission structure located along State Route 98, approximately 4 miles east of the East Highline Canal. An additional unidentified passerine nest was observed approximately 10 feet off the ground on the branch of a desert ironwood tree, located 0.6 mile northeast of the North Gila Substation.

Nesting habitat is present throughout the survey area. As described above, land cover consists of variable native and mixed vegetation communities, including native scrub, thickets, and woodlands intermixed with dune habitat and agricultural development, with disturbed utility access areas.

Mammals

Desert bighorn sheep (*Ovis canadensis nelsoni*), which are designated FE, ST/FP, were observed during reconnaissance surveys and moderate to highly suitable habitat for desert bighorn sheep is present within the eastern extents of the Proposed Project area. One individual was observed within a blue palo verde-desert ironwood woodland wash habitat located approximately 0.6 mile northeast of the North Gila Substation. Three individuals were observed in a group within creosote bush scrub habitat located approximately 800 feet north of the North Gila Substation.

While no bats were observed during reconnaissance surveys, suitable habitat (e.g., rock shelters and bridges) was observed throughout the Proposed Project area.

Additional Special-Status Species

Additional special-status wildlife species observed during reconnaissance surveys include yellow-breasted chat (*Icteria virens*) observed in alternative route segments 1B, 1C, 1D; loggerhead shrike (*Lanius ludovicianus*) observed in alternative route segment 2; Gila woodpecker (*Melanerpes uropygialis)* observed in alternative route segments 1A, 1B, 1C, 1D; double-crested Cormorant (*Nannopterum auritum*) observed in alternative route segments 3, 3A, 3B, 3C, and 3D; osprey (*Pandion haliaetus)* observed in alternative route segments 1A, 1B, 1C, 1D; black-tailed gnatcatcher (*Polioptila melanura*) observed in alternative route segments 1A, 1B; and yellow warbler (*Setophaga petechia*) observed in alternative route segments 1A, 1B, 1C, 1D.

Photographs of the Proposed Project area are provided in Attachment 1. A list of wildlife species observed during the reconnaissance survey is described in Table 3 below.

Table 3 Wildlife Species Detected during Reconnaissance Surveys

Scientific Name	Common Name
Birds	
Agelaius phoeniceus	red-winged blackbird
Ardea alba	great egret
Ardea herodias	great blue heron
Ardea ibis	western cattle egret
Athene cunicularia	burrowing owl
Auriparus flaviceps	Verdin
Bubulcus ibis	cattle egret
Buteo jamaicensis	red-tailed hawk
Callipepla gambelii	Gamble's quail
Cathartes aura	turkey vulture

Scientific Name	Common Name
Columba livia	rock dove
Corvus corax	common raven
Empidonax difficilis	western flycatcher
Falco sparverius	American kestrel
Fulica americana	American coot
Geococcyx californianus	greater roadrunner
Geothlypis trichas	common yellowthroat
Haemorhous mexicanus	house finch
Icteria virens	yellow-breasted chat
Lanius ludovicianus	loggerhead shrike
Leiothlypis celata	orange-crowned warbler
Melanerpes uropygialis	Gila woodpecker
Melozone aberti	Abert's towhee
Molothrus ater	brown-headed cowbird
Nannopterum auritum	double-crested Cormorant
Pandion haliaetus	osprey
Passer domesticus	house sparrow
Passerina amoena	lazuli bunting
Petrochelidon pyrrhonota	cliff swallow
Piranga ludoviciana	western tanager
Polioptila melanura	black-tailed gnatcatcher
Quiscalus mexicanus	great-tailed grackle
Sayornis nigricans	black phoebe
Setophaga petechia	yellow warbler
Streptopelia decaocto	Eurasian collared-dove
Sturnella neglecta	western meadowlark
Sturnus vulgaris	European starling
Tyrannus verticalis	western kingbird
Zenaida asiatica	white-winged dove
Zenaida macroura	mourning dove
Zonotrichia leucophrys	white-crowned sparrow
Mammals	
Ammospermophilus leucurus	White-tailed antelope ground squirrel
Canis latrans	coyote
Dipodomys spp.	kangaroo rat
Equus asinus	burro
*Ovis canadensis nelsoni**	desert bighorn sheep
Sylvilagus audubonii	desert cottontail

Scientific Name	Common Name
Reptiles	
Aspidoscelis inornatus arizonae	Arizona striped whiptail
Aspidoscelis tigris tigris	Great Basin whiptail
Callisaurus draconoides	zebra-tailed lizard
Crotalus atrox	western diamondback rattlesnake
Dipsosaurus dorsalis	desert iguana
Sceloporus occidentalis	western fence lizard
Urosaurus graciosus	long-tailed brush lizard

* Indicates special-status species

Aquatic Resources

Although the site reconnaissance survey did not constitute a formal jurisdictional delineation, aquatic resources were recorded as observed in the field. Potential jurisdictional areas in the survey area include freshwater emergent wetlands, freshwater forested/shrub wetlands, freshwaters ponds, and riverine features potentially subject to the United States Army Corps of Engineers, Regional Water Quality Control Board, Arizona Department of Environmental Quality, and/or California Department of Fish and Wildlife jurisdiction.

Non-jurisdictional features in the survey area did not contain an OHWM or natural streambed characteristics, were not perennial or intermittent tributaries that contribute surface flow to traditionally navigable waterways, or were roadside ditches that were hydrologically isolated from tributaries and/or traditionally navigable waterways. Types of non-jurisdictional features mapped in the survey area include erosional features, culverts with no associated jurisdictional feature, manmade roadside ditches, depressions, and roadside swales.

Conclusions

The Proposed Project survey area contains potential suitable habitat for desert tortoise, flat-tailed horned lizard, Colorado Desert fringe-toed lizard, burrowing owl, ferruginous hawk, mountain plover, western yellow-billed cuckoo, southwestern willow flycatcher, yellow-breasted chat, least bittern, loggerhead shrike, California black rail, Gila woodpecker, osprey, double-crested cormorant, black-tailed gnatcatcher, Yuma Ridgway's rail, Sonoran yellow warbler, Arizona Bell's vireo, California leaf-nosed bat, desert bighorn sheep, Yuma hispid cotton rat, desert kit fox, and American badger. Of these species, desert tortoise (burrow), burrowing owl, yellow-breasted chat, loggerhead shrike, Gila woodpecker, osprey, double-crested cormorant, black-tailed gnatcatcher, Sonoran yellow warbler, and desert bighorn sheep were observed during reconnaissance surveys.

While there is no USFWS-designated critical habitat within the survey area, suitable habitat is present within the survey area for a variety of special-status wildlife and plant species. Additionally, suitable nesting bird habitat is present throughout the survey area. Active nests for common raven, American crow, and other unidentified passerine and raptor/avian species were observed on transmission towers and in woodland habitats throughout the Proposed Project area. Focused nesting bird surveys would likely be conducted closer to construction initiation.

Sincerely,
Rincon Consultants, Inc.



Megan Knight
Biologist/Environmental Planner



Andrew Sandahl, MS, MLS
Senior Biologist/Legal Regulatory Specialist

Attachments

Attachment 1 Reconnaissance Survey Photographs

Attachment 1

Reconnaissance Survey Photographs



Photograph 1. Representative photograph of arrow weed thickets.



Photograph 2. Representative photograph of blue palo verde – ironwood woodland.



Photograph 3. Representative photograph of bush seepweed scrub.



Photograph 4. Representative photograph of California joint fir – longleaf joint-fir scrub.



Photograph 5. Representative photograph of cattail marsh, hardstem and California bulrush marsh, and common reed marsh with Fremont cottonwood forest, containing suitable bird and nesting habitat.



Photograph 6. Representative photo of common reed marsh.



Photograph 7. Representative photograph of creosote bush – brittle bush scrub.



Photograph 8. Representative photograph of low cover creosote bush – white burr sage scrub and blue palo verde – ironwood woodland wash with desert pavement.



Photograph 9. Representative photograph of creosote bush scrub.



Photograph 10. Representative photograph Fremont cottonwood forest and woodland containing suitable nesting bird habitat.



Photograph 11. Representative photograph of hardstem and California bulrush marshes.



Photograph 12. Representative photograph of cattail marsh and hardstem and California bulrush marsh with open water.



Photograph 13. Representative photo of mesquite thickets.



Photograph 14. Representative photograph of Mojave-Sonoran Desert dunes.



Photograph 15. Representative photograph of saguaro – foothill palo verde – velvet mesquite desert scrub.



Photograph 16. Representative photo of tamarisk thickets and Mojave-Sonoran Desert dunes.



Photograph 17. Representative photograph of open water land cover.



Photograph 18. Representative photograph of agricultural land cover containing burrowing owl suitable habitat, including burrowing owl observation with burrow in side of roadway cut.



Photograph 19. Representative photograph of developed land cover.



Photograph 20. Representative photograph of disturbed land cover with arrow weed and tamarisk thickets.



Photograph 21. Representative photograph of the manmade, concrete-lined All American Canal.



Photograph 22. Desert bighorn sheep observation, located within suitable habitat of creosote bush scrub with desert pavement and proximate to blue palo verde – desert ironwood woodland washes.



Photograph 23. Active small mammal burrows with nesting material built into side of wash in blue palo verde – desert ironwood woodland, representative of suitable small mammal habitat.



Photograph 24. Tamarisk thickets representative of nesting bird habitat at location of loggerhead shrike observation.



Photograph 25. Representative photograph of bird nests located on transmission infrastructure.



Photograph 26. Representative photograph of active lizard and small-mammal burrows with tail drag sign and scat within creosote scrub habitat.



Photograph 27. Potential inactive desert tortoise burrow, partially collapsed by downed vegetation, located in side wash of blue palo verde – desert ironwood woodland.



Photograph 28. Representative photograph of suitable habitat for desert tortoise located near burrow observation (above), dry washes with blue palo verde – desert ironwood woodland and creosote scrub.

Appendix I

Areas of Critical Environmental Concern

Appendix J

Aquatic Resources



Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

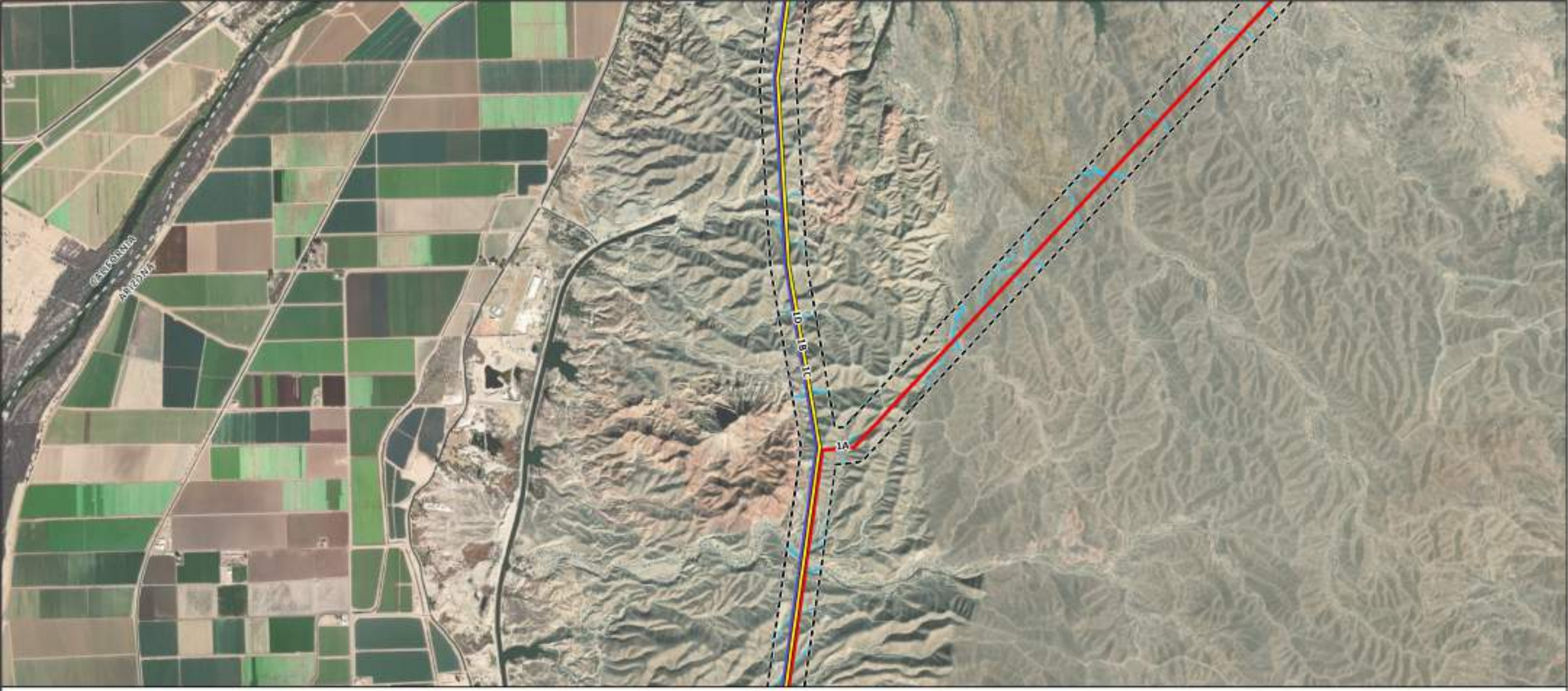
National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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- Existing Substation
- Study Area
- State Boundary
- US-Mexico Border
- Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D
- 1-ALT

Segment II
- 2

Segment III
- 3
- 3A
- 3B
- 3C
- 3D

- Surveyed Aquatic Resources

National Hydrology Dataset
- Canal/Ditch
- Stream/River

National Wetland Inventory
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

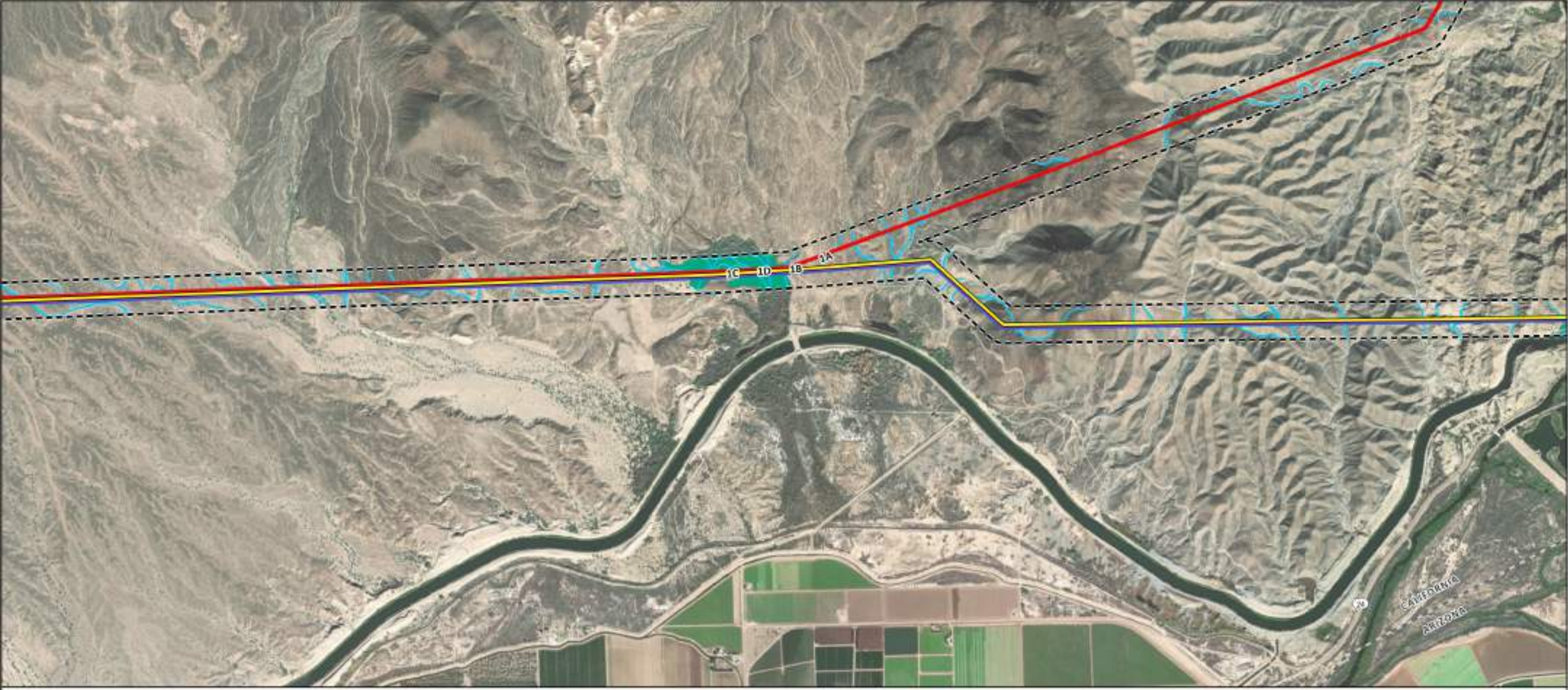
National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000
Feet

N



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000
Feet

N



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
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2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
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0 1,000 2,000
Feet

N



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

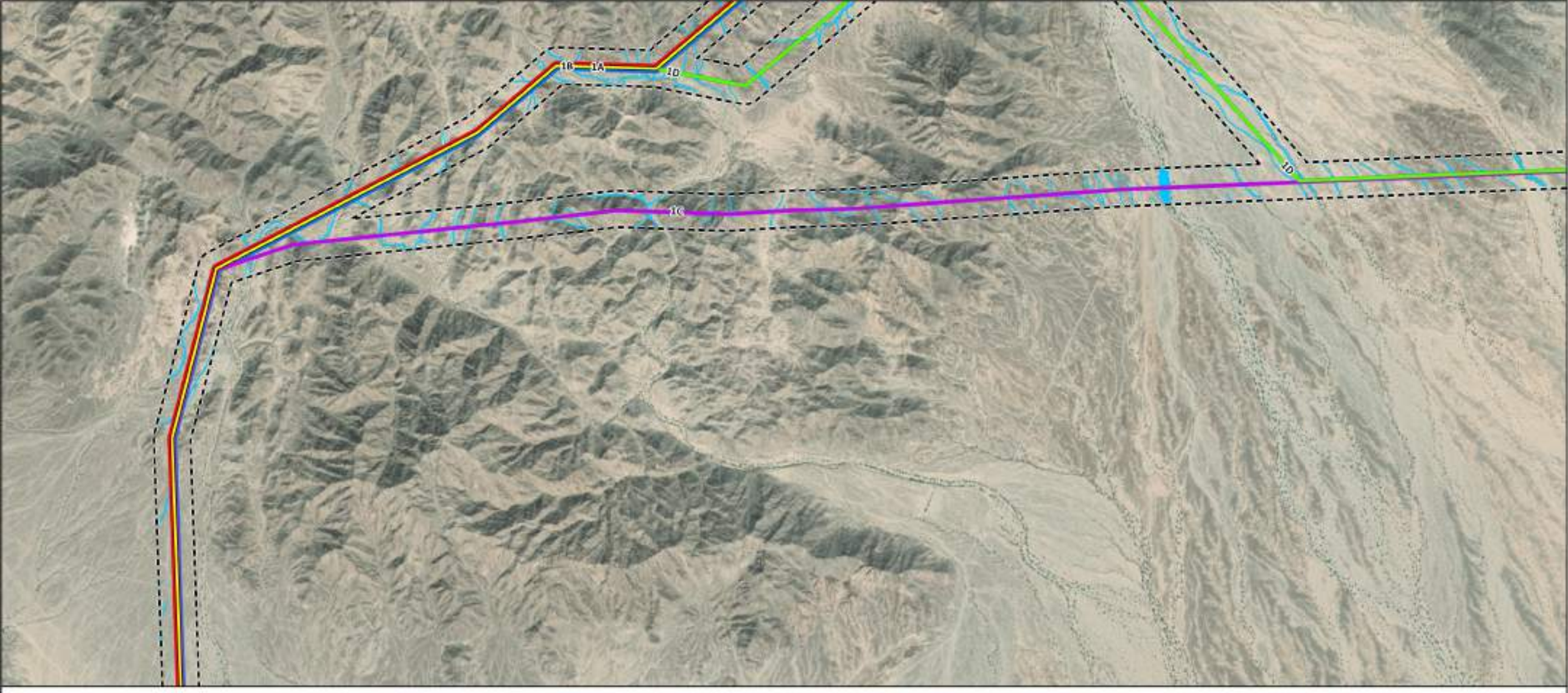
National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
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Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
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Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
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2A

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Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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- Existing Substation
- Study Area
- State Boundary
- US-Mexico Border
- Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D
- 1-ALT

Segment II
- 2

- 2A

Segment III
- 3
- 3A
- 3B
- 3C
- 3D

- Surveyed Aquatic Resources

National Hydrology Dataset
- Canal/Ditch
- Stream/River

National Wetland Inventory
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
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2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

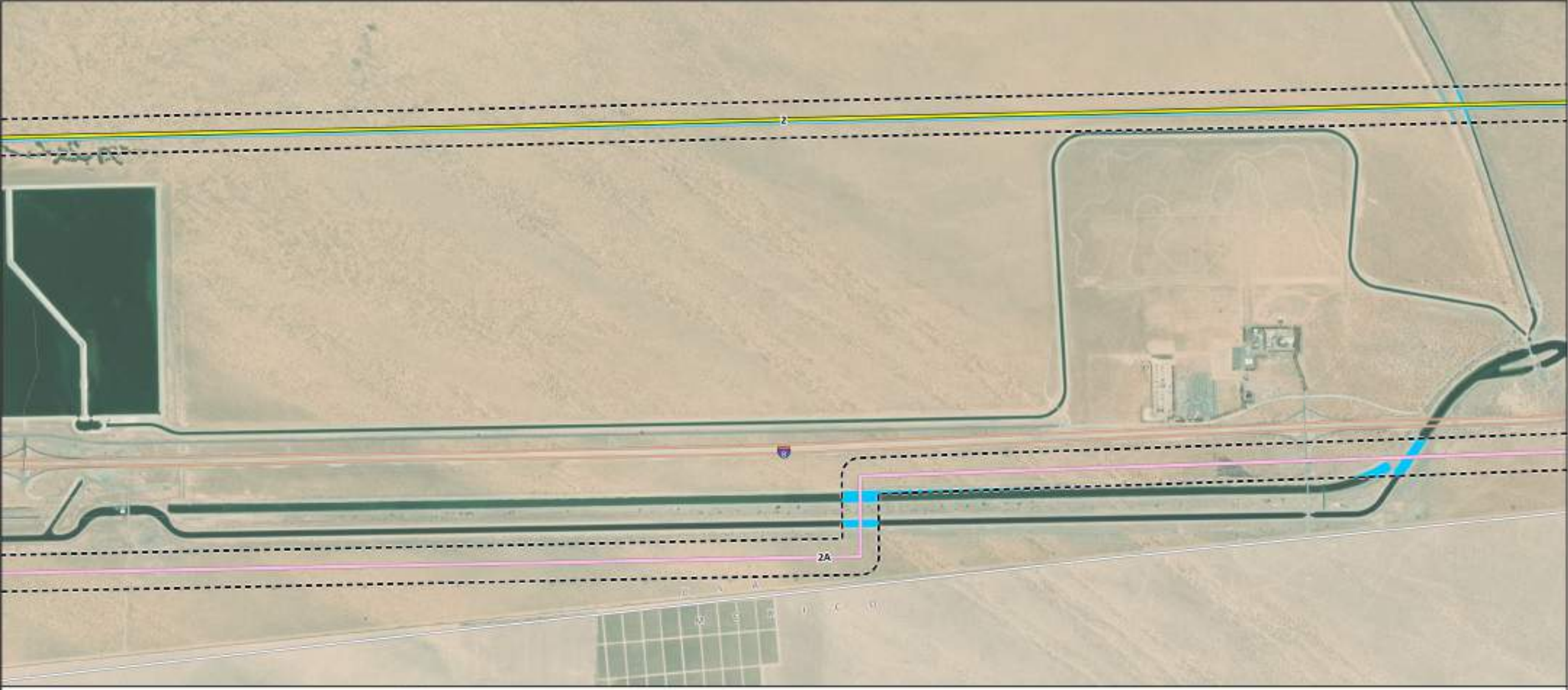
National Wetland Inventory
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Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000
Feet

N



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

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Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
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Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
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Segment II
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2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

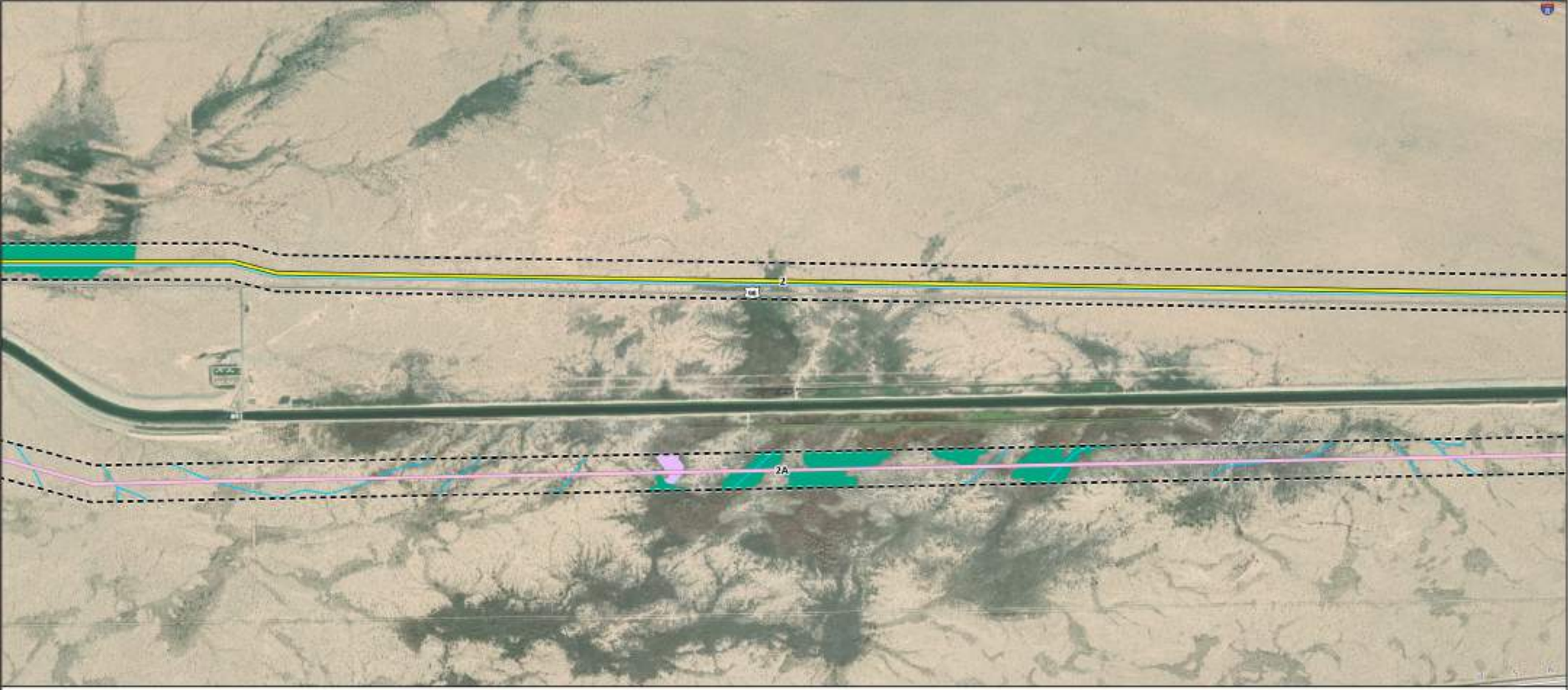
National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
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Segment III
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3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
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1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

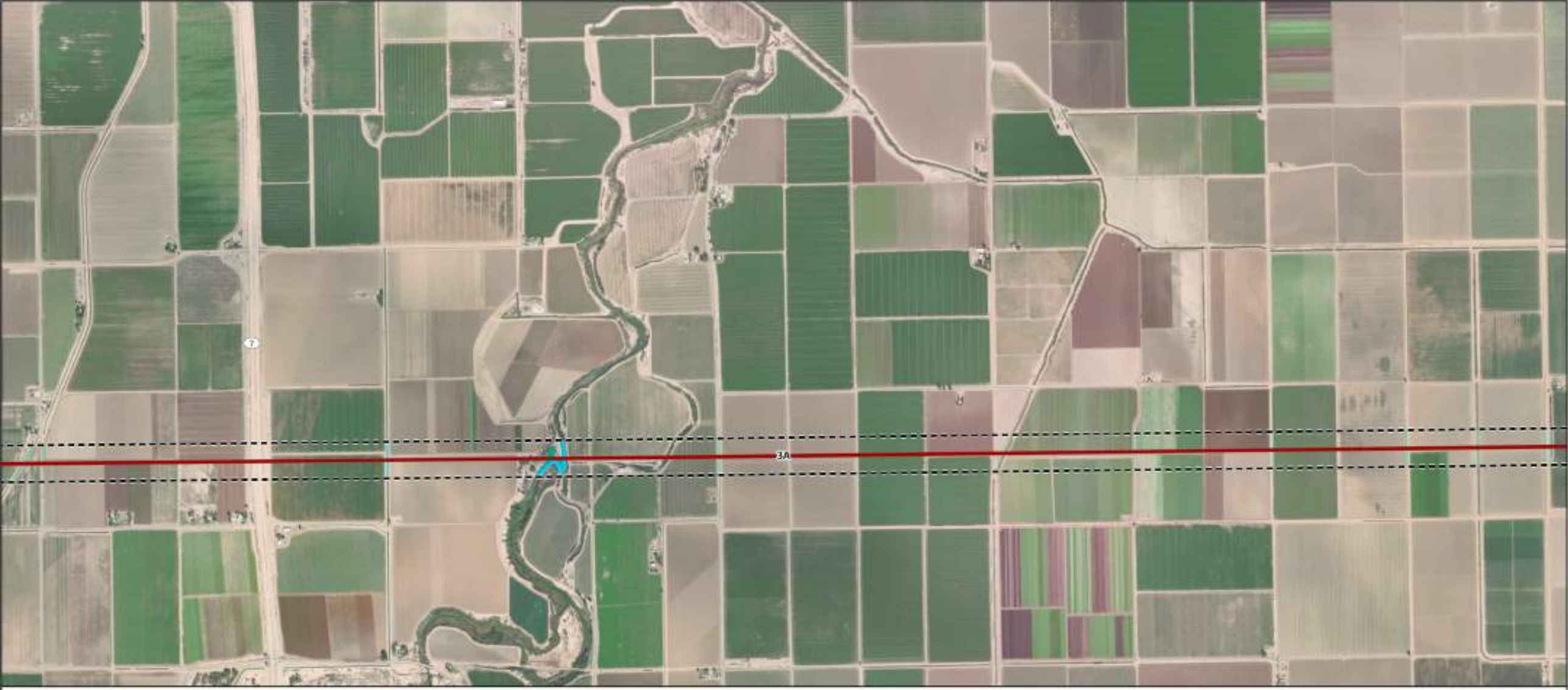
National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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3A

Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet

18
Map Extent

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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000
Feet

N



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- Existing Substation
- Study Area
- State Boundary
- US-Mexico Border
- Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D
- 1-ALT

Segment II
- 2

Segment III
- 2A
- 3
- 3A
- 3B
- 3C
- 3D

- Surveyed Aquatic Resources

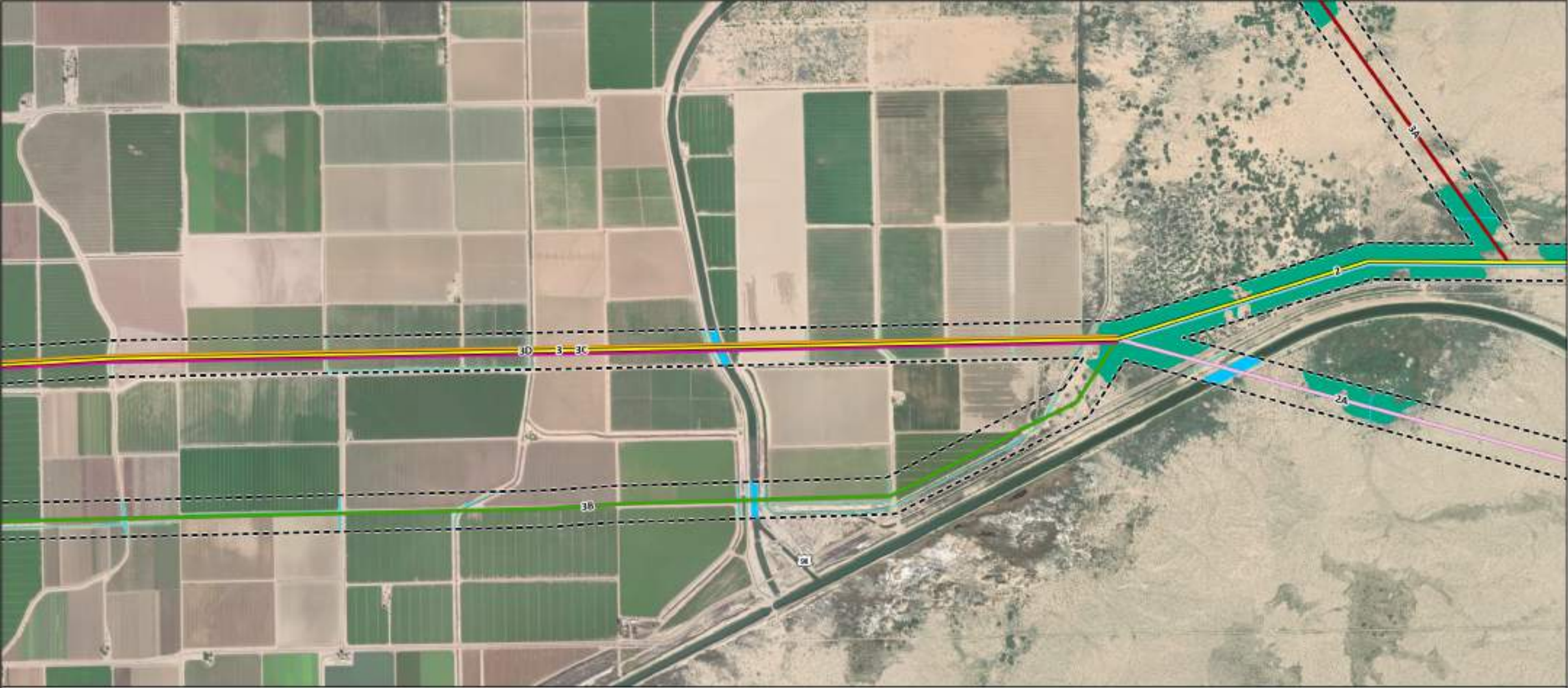
National Hydrology Dataset
- Canal/Ditch
- Stream/River

National Wetland Inventory
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

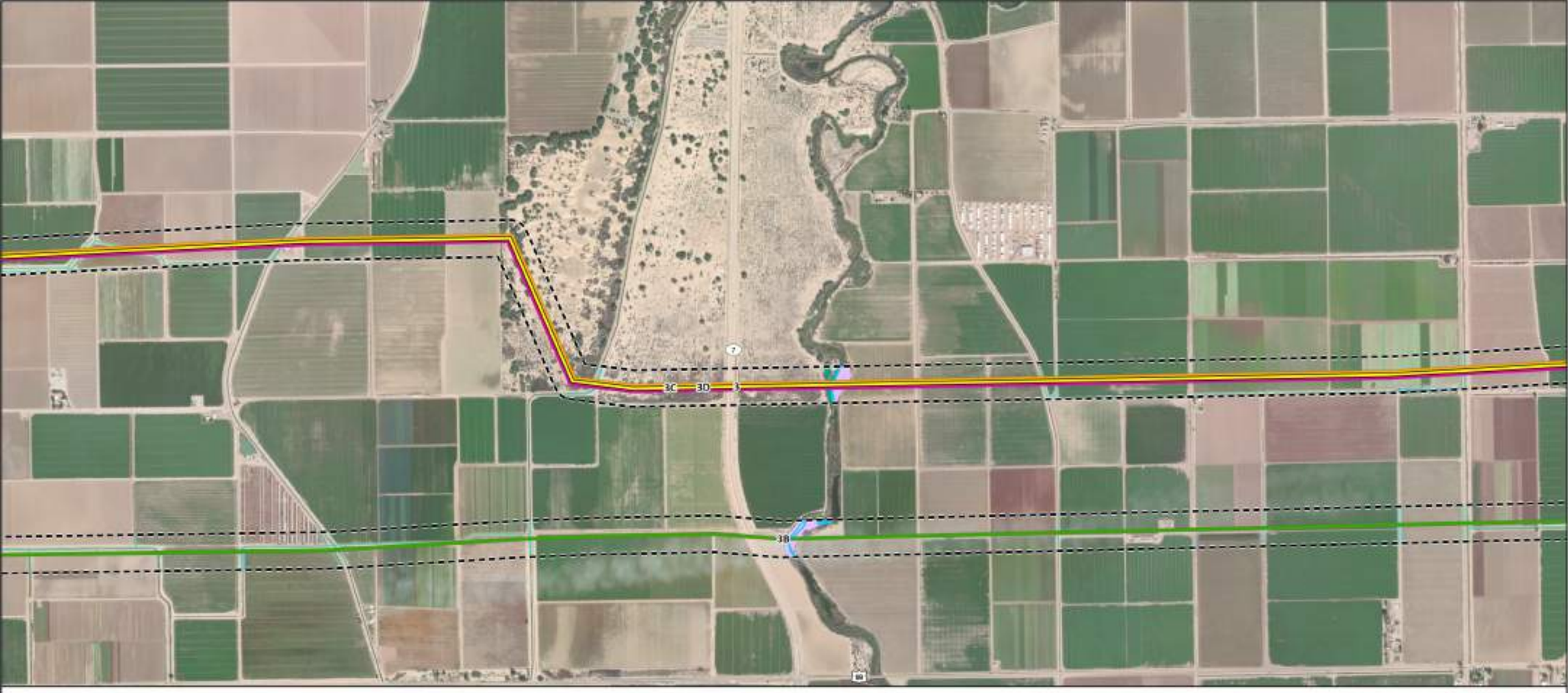
0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

Segment III
2A
3
3A
3B
3C
3D

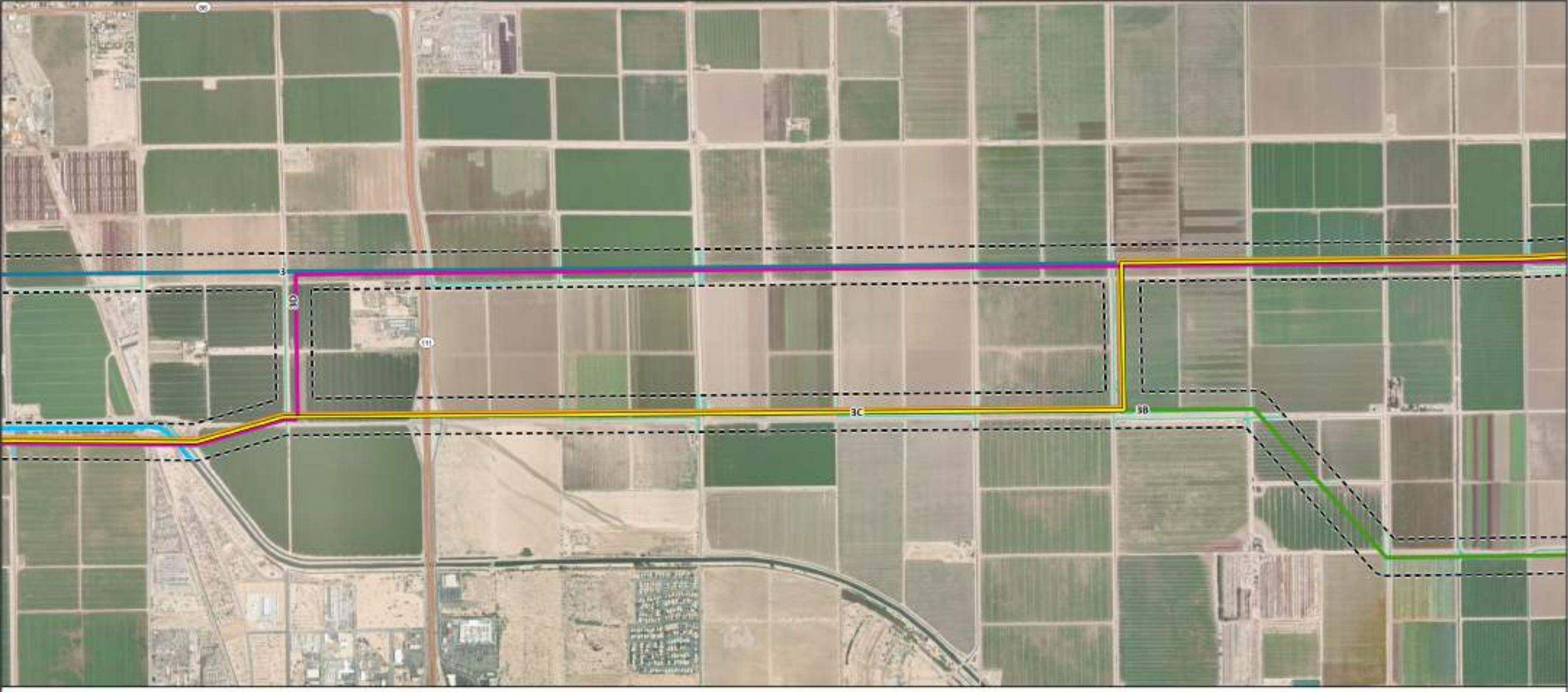
Surveyed Aquatic Resources

National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet

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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

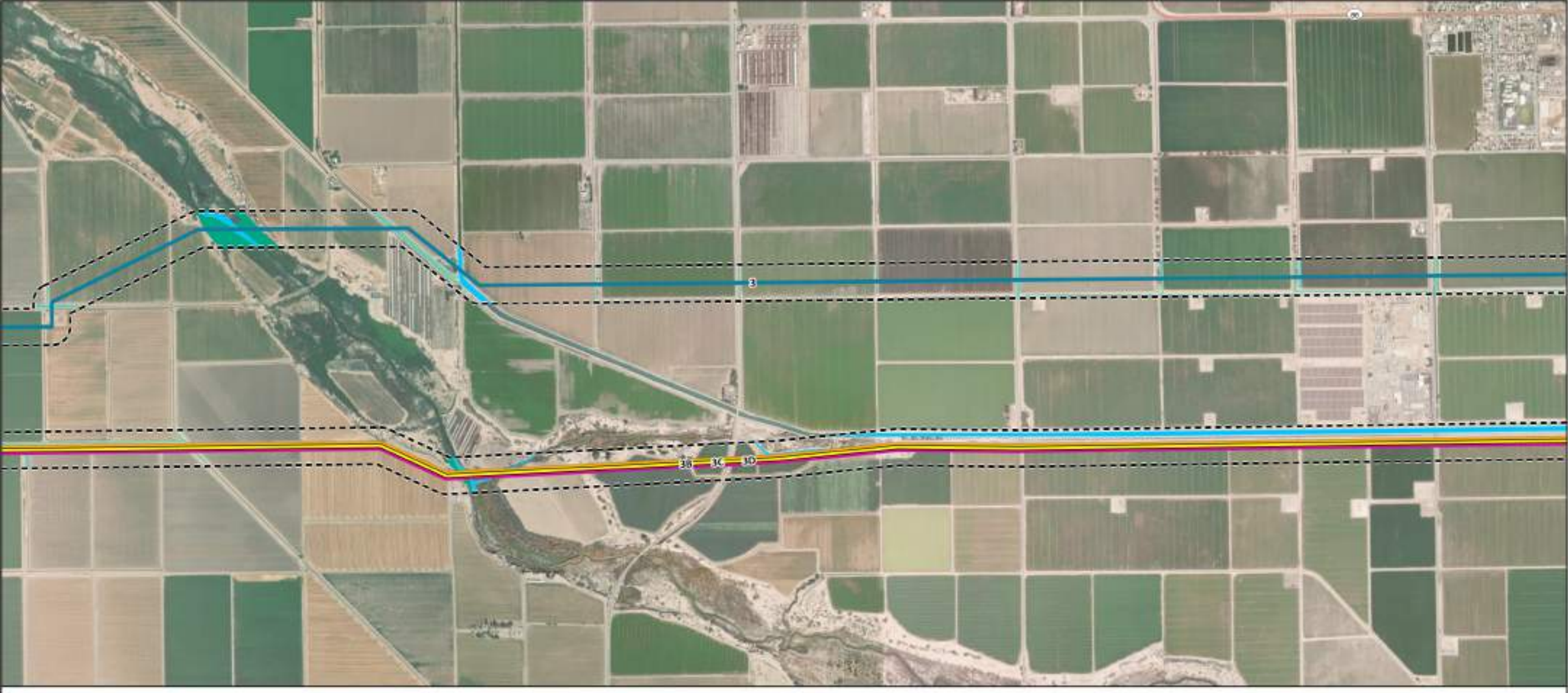
National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2
2A

Segment III
3
3A
3B
3C
3D

Surveyed Aquatic Resources

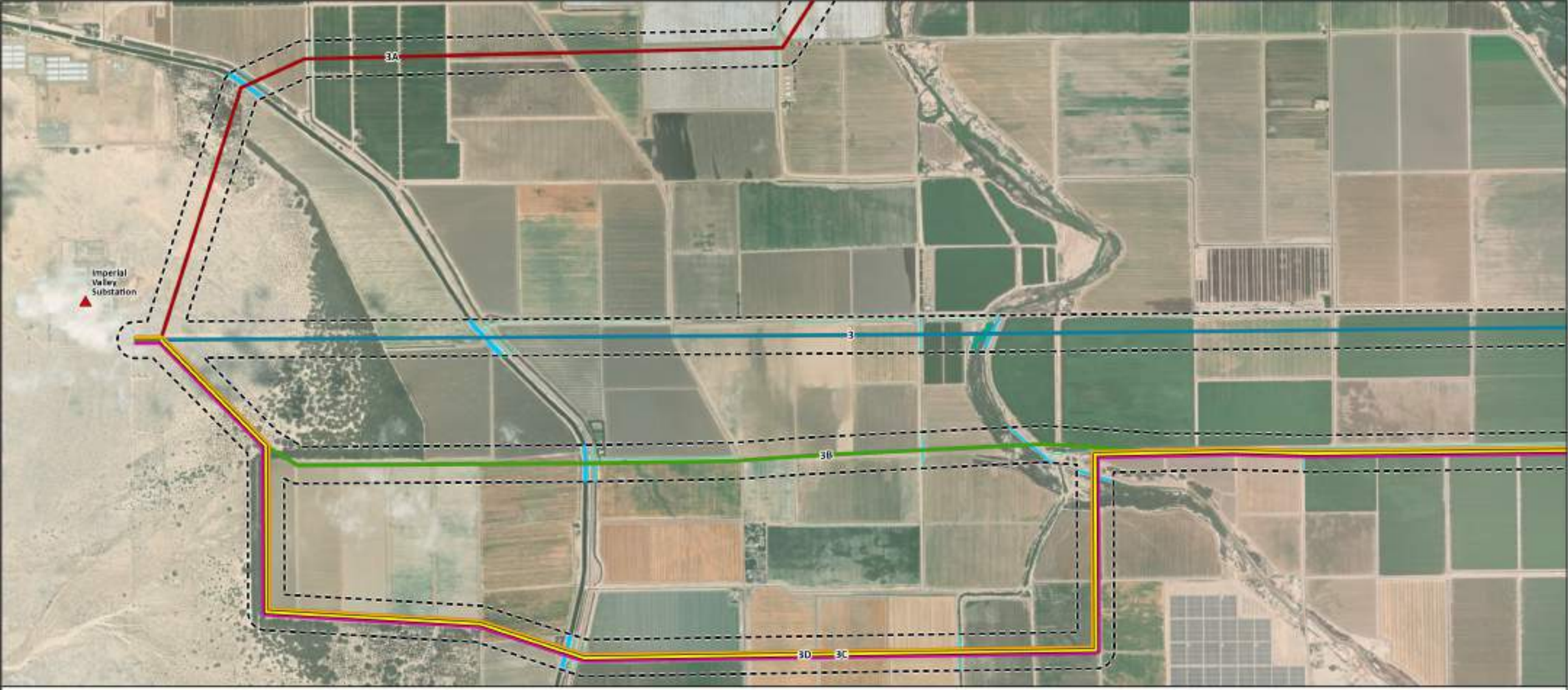
National Hydrology Dataset
Canal/Ditch
Stream/River

National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

0 1,000 2,000 N
Feet



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- Existing Substation
- Study Area
- State Boundary
- US-Mexico Border
- Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D
- 1-ALT

Segment II
- 2

Segment III
- 2A
- 3
- 3A
- 3B
- 3C
- 3D

- Surveyed Aquatic Resources

National Hydrology Dataset
- Canal/Ditch
- Stream/River

National Wetland Inventory
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

0 1,000 2,000 Feet

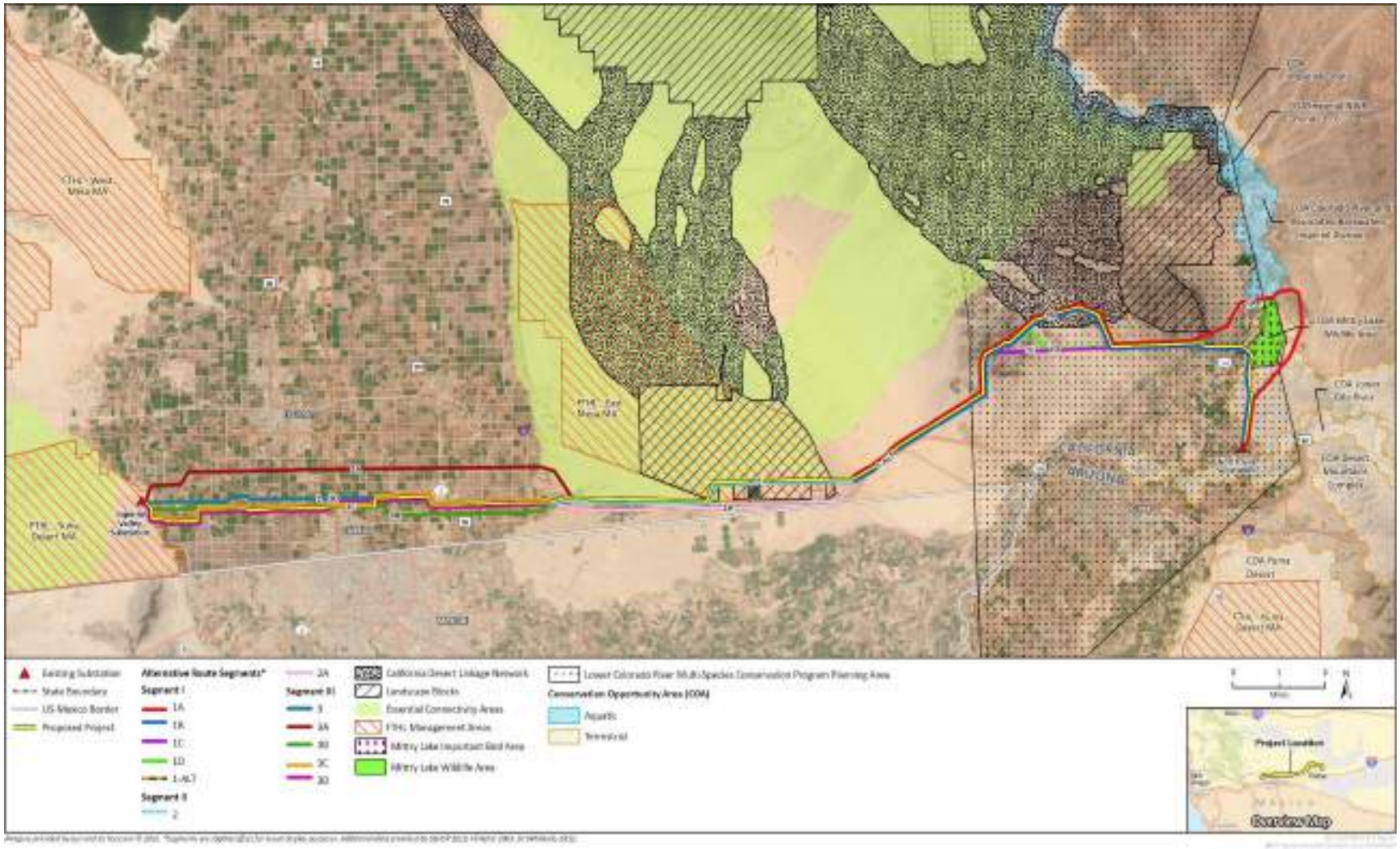
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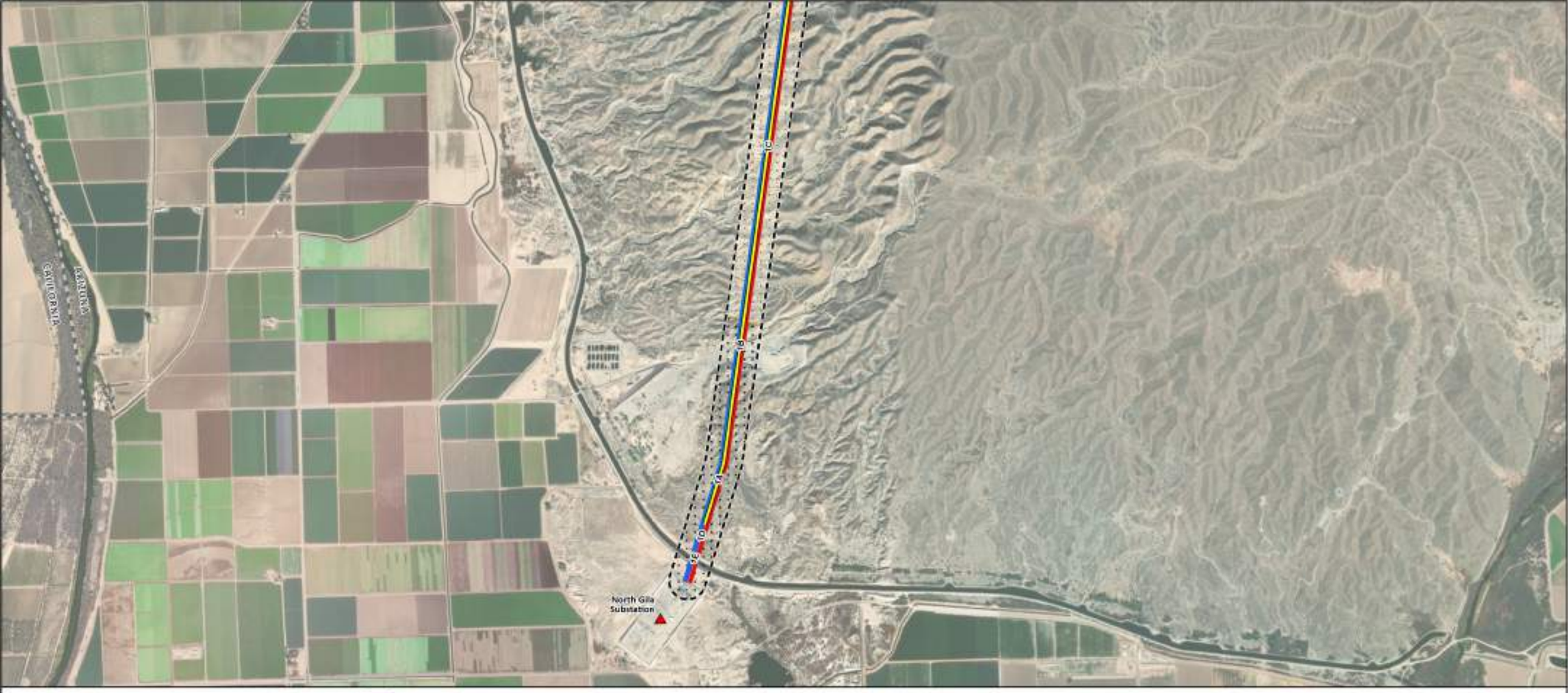


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Appendix K

Wildlife Corridors


Existing Substation
State Boundary
US-Mexico Border
Proposed Project
Alternative Route Segments*
Segment I
1A
1B
1C
1D
1-ALT
Segment II
2
2A
Segment III
3
3A
3B
3C
3D
California Desert Linkage Network
Landscape Blocks
Essential Connectivity Areas
FTHL Management Areas
Mittry Lake Important Bird Area
Mittry Lake Wildlife Area
Lower Colorado River Multi-Species Conservation Program Planning Area
Conservation Opportunity Area (COA)
Aquatic
Terrestrial
Project Location
Overview Map



Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

California Desert Linkage Network
Landscape Blocks
Essential Connectivity Areas
FTHL Management Areas
Mittry Lake Wildlife Area
Mittry Lake Important Bird Area

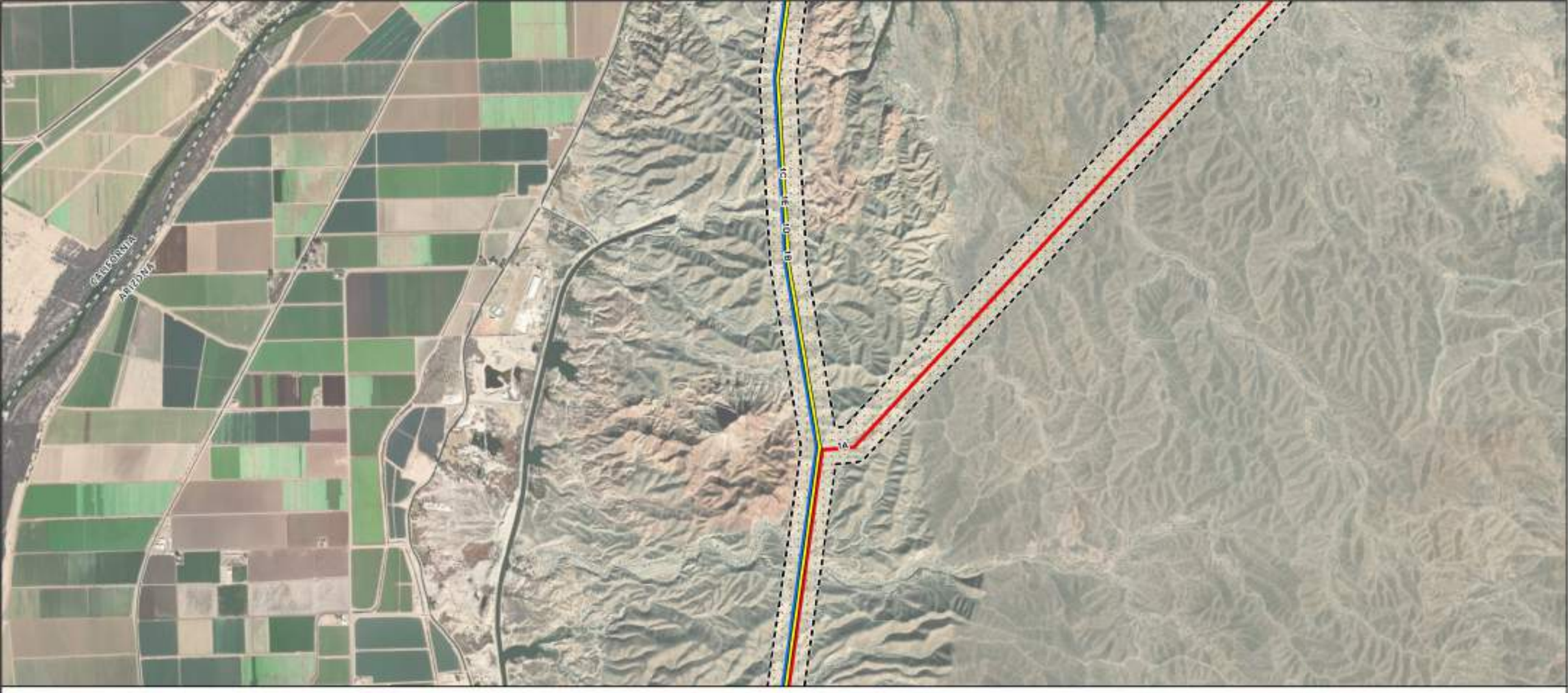
Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
Aquatic
Terrestrial

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

California Desert Linkage Network
Landscape Blocks
Essential Connectivity Areas
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Mittry Lake Wildlife Area
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Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
Aquatic
Terrestrial

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

California Desert Linkage Network
Landscape Blocks
Essential Connectivity Areas
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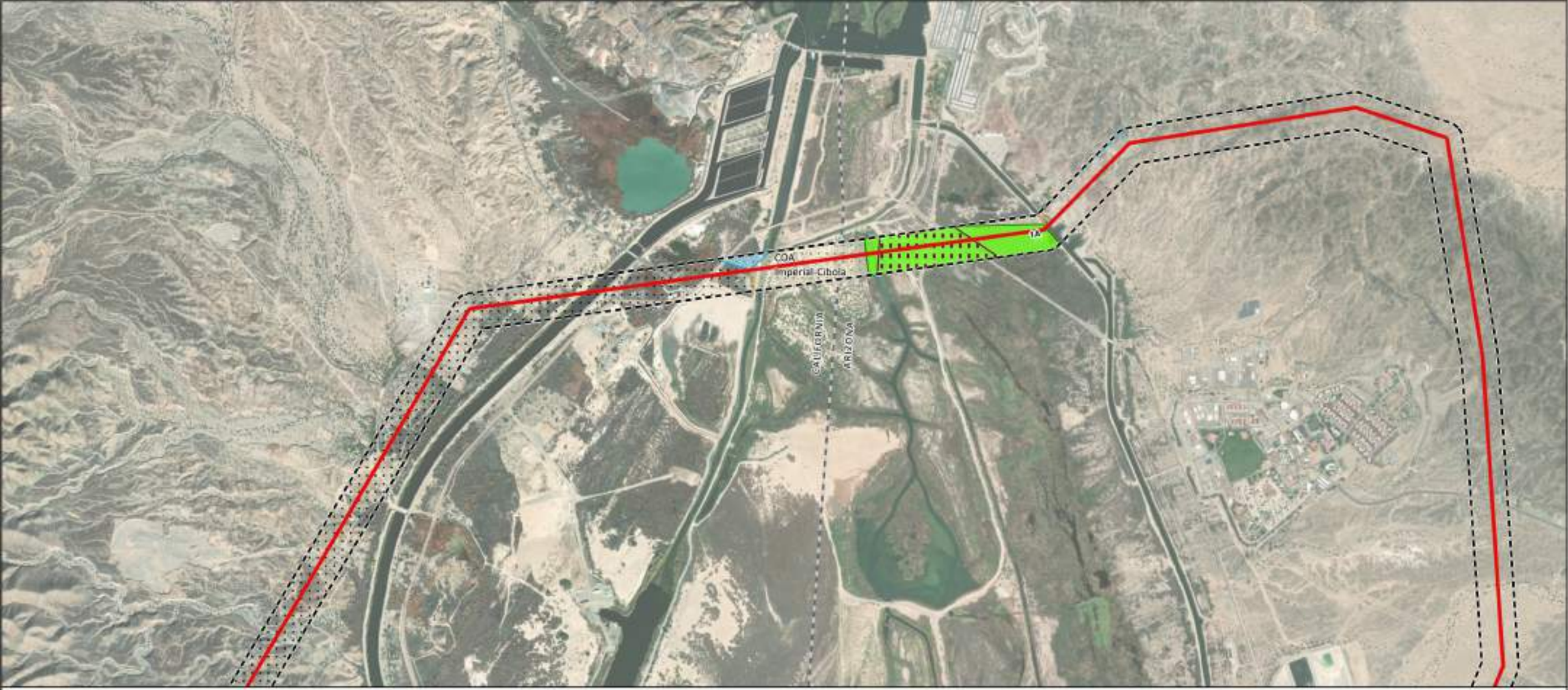
Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
Aquatic
Terrestrial

0 1,000 2,000 N
Feet



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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

California Desert Linkage Network
Landscape Blocks
Essential Connectivity Areas
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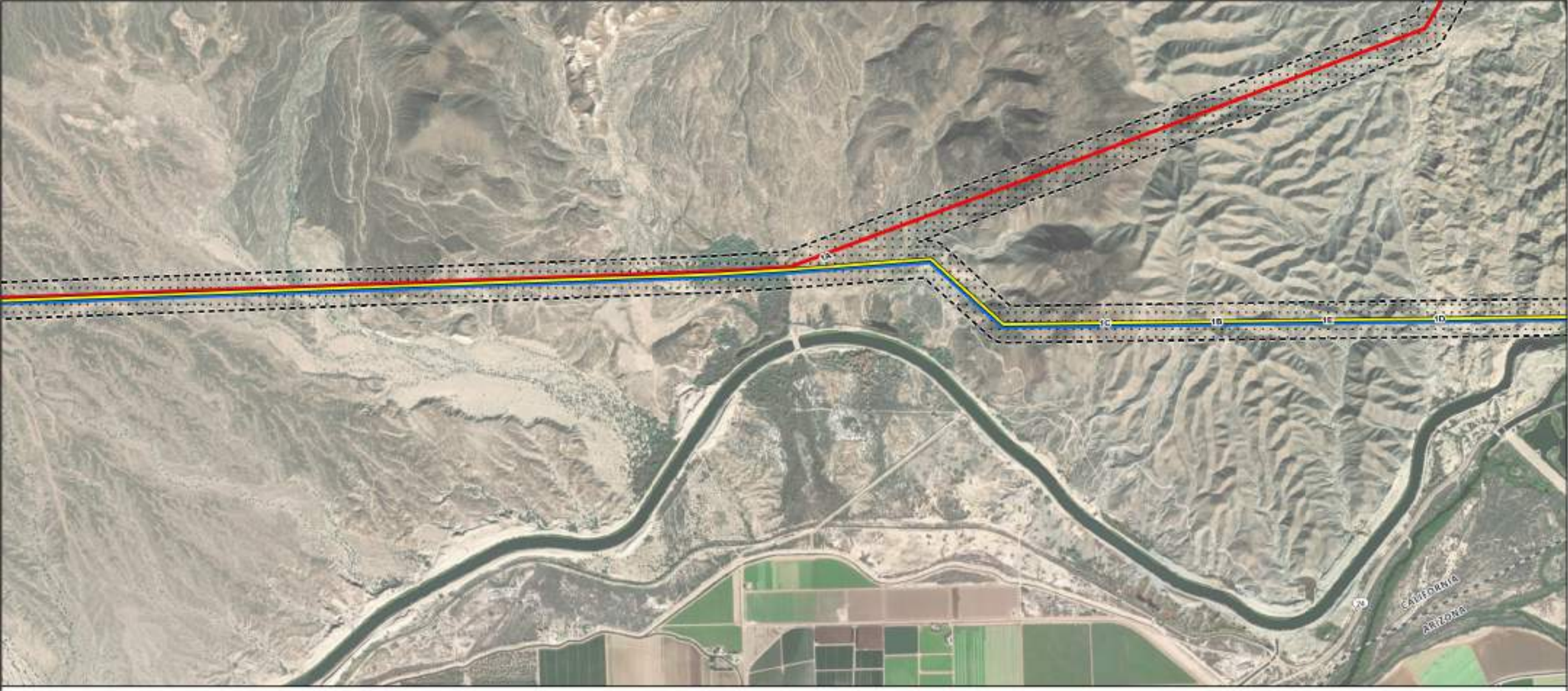
Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
Aquatic
Terrestrial

0 1,000 2,000 N
Feet



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- Existing Substation
- Study Area
- State Boundary
- US-Mexico Border
- Proposed Project

Alternative Route Segments*

Segment I
- 1A
- 1B
- 1C
- 1D
- 1-ALT

Segment II
- 2

Segment III
- 2A
- 3
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- 3B
- 3C
- 3D

- California Desert Linkage Network
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- Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
- Aquatic
- Terrestrial

0 1,000 2,000 N
Feet

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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

Alternative Route Segments*

Segment I
1A
1B
1C
1D
1-ALT

Segment II
2

2A

Segment III
3
3A
3B
3C
3D

California Desert Linkage Network
Landscape Blocks
Essential Connectivity Areas
FTHL Management Areas
Mittry Lake Wildlife Area
Mittry Lake Important Bird Area

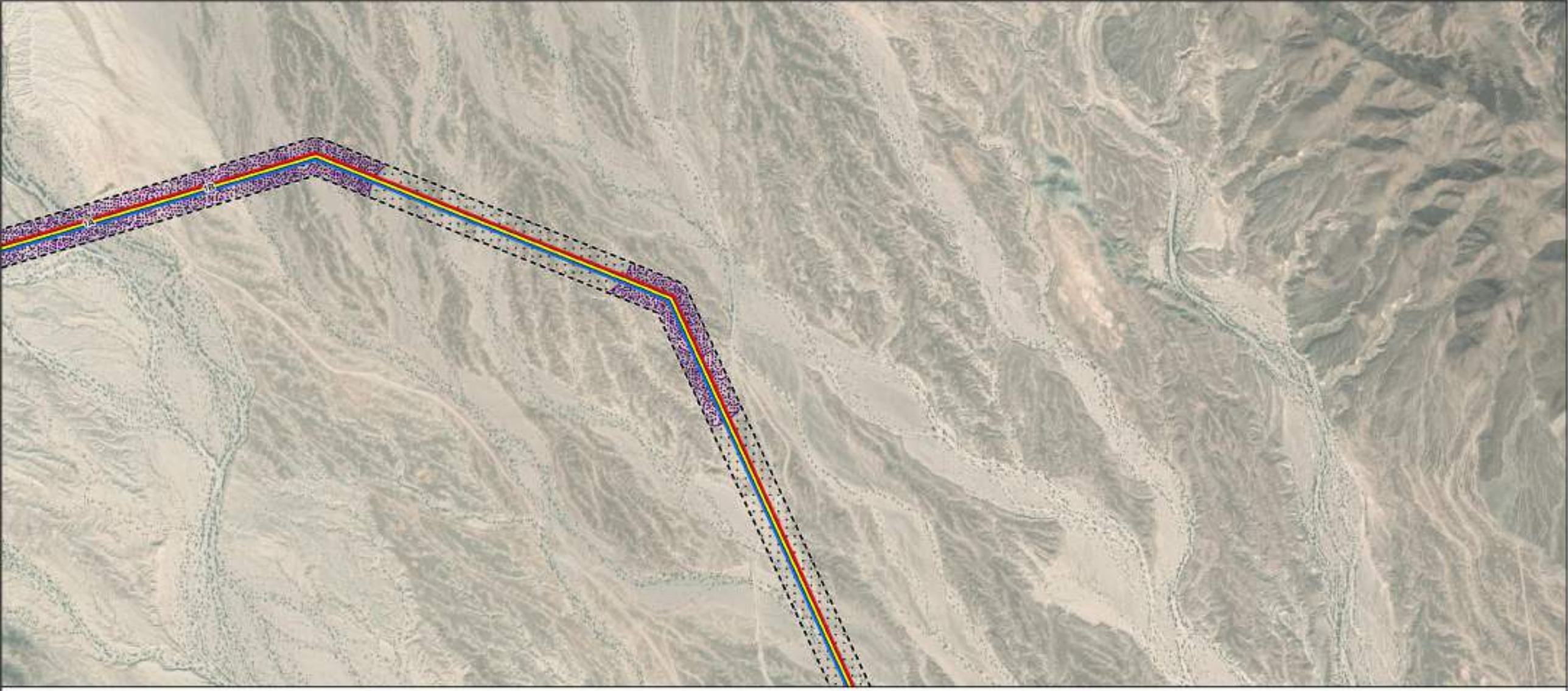
Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
Aquatic
Terrestrial

0 1,000 2,000 N
Feet



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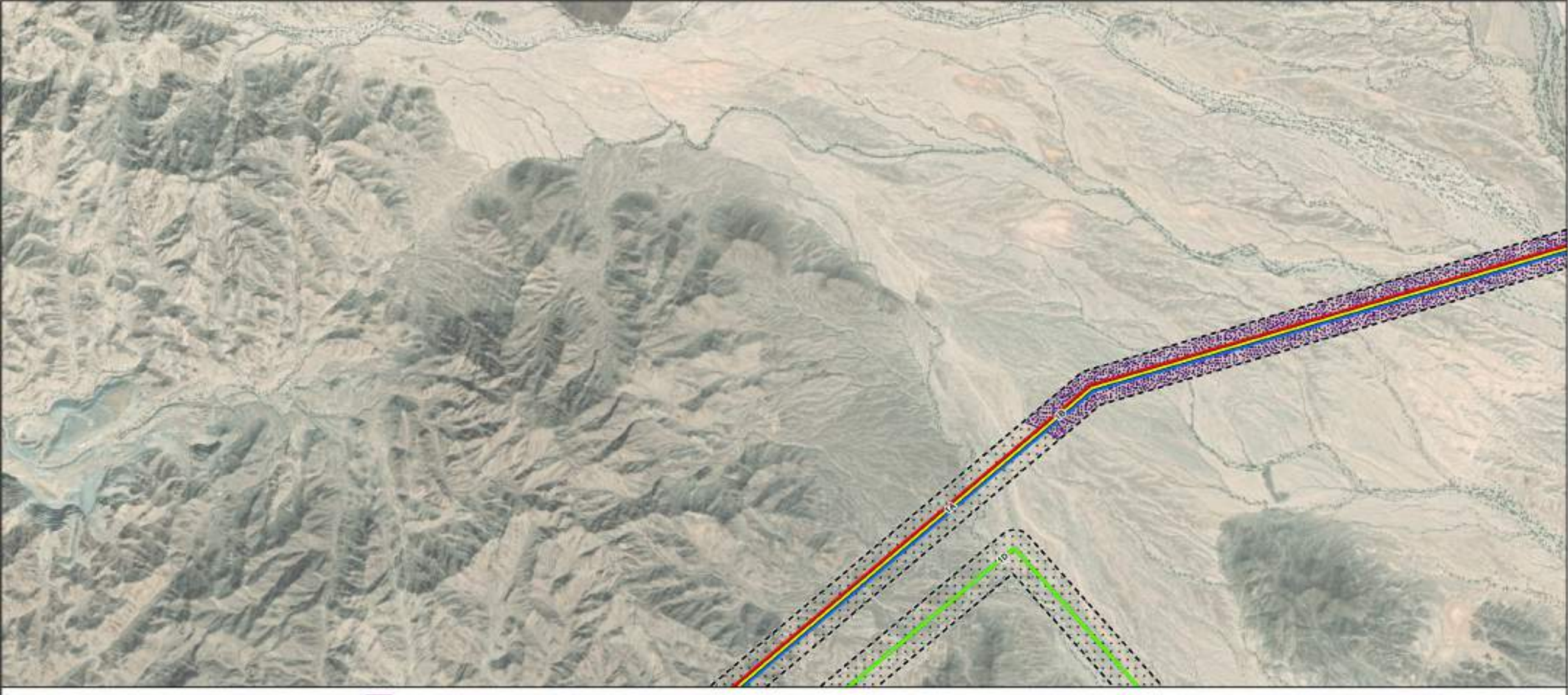
Lower Colorado River Multi-Species Conservation Program Planning Area

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Terrestrial

0 1,000 2,000 N
Feet

Map Extent

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Existing Substation
Study Area
State Boundary
US-Mexico Border
Proposed Project

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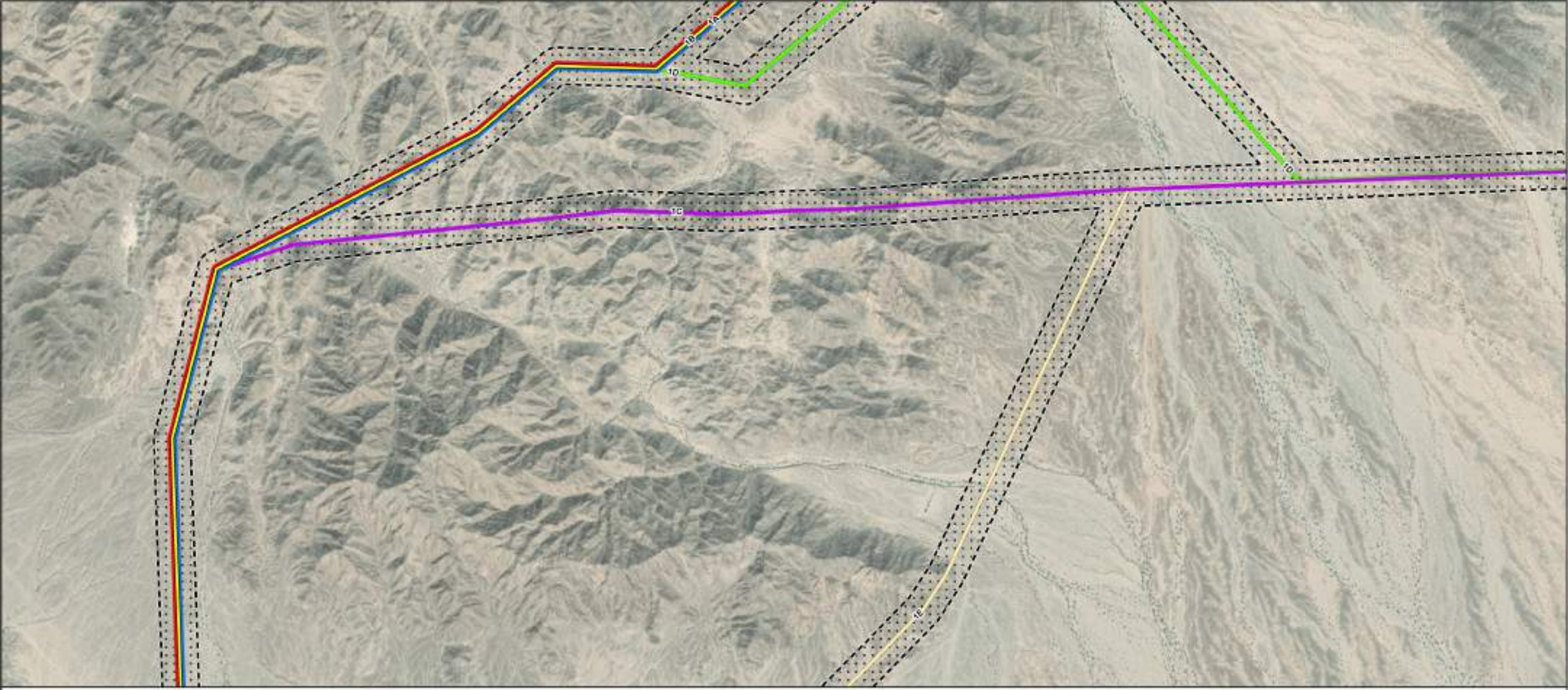
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Conservation Opportunity Area (COA)
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Terrestrial

0 1,000 2,000 N
Feet



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Terrestrial

0 1,000 2,000 N
Feet



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Existing Substation
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State Boundary
US-Mexico Border
Proposed Project

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Feet



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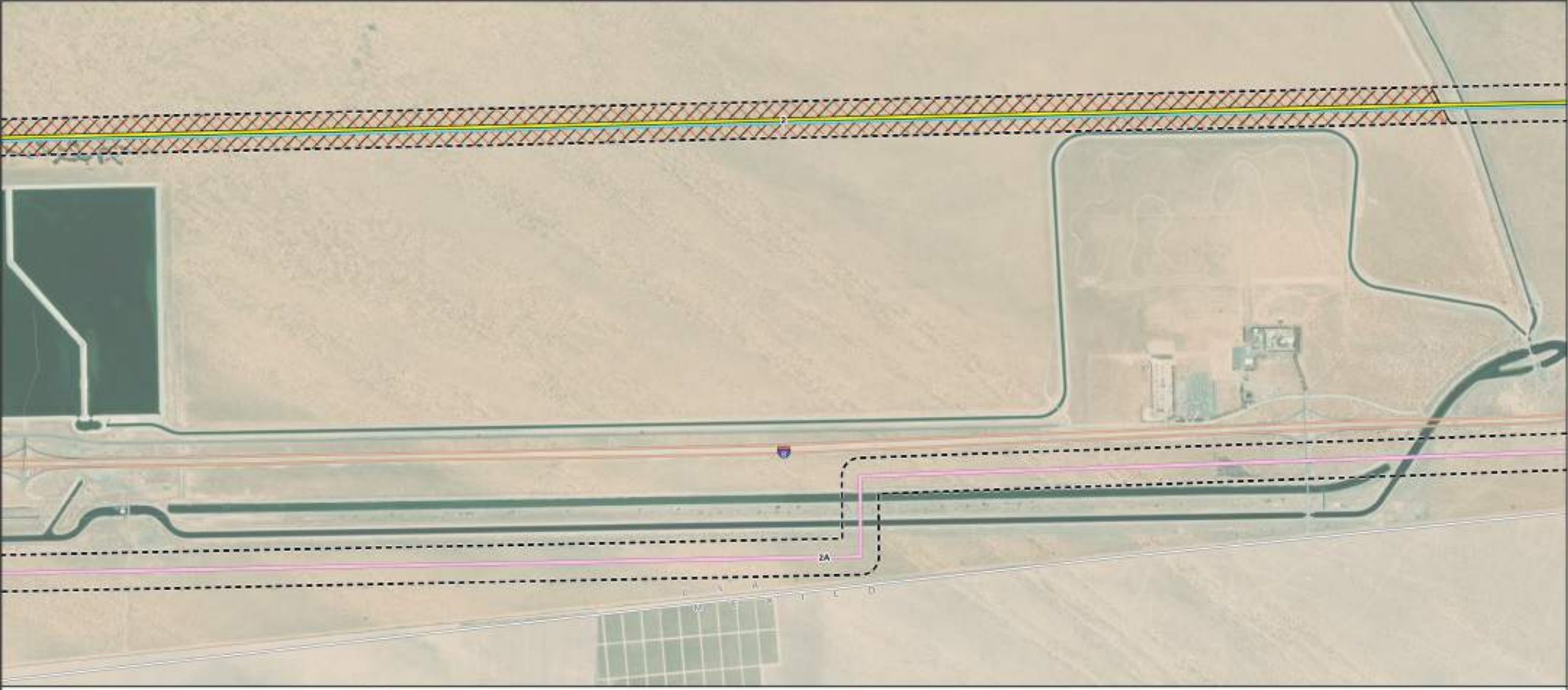
Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
Aquatic
Terrestrial

0 1,000 2,000 N
Feet



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Existing Substation
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State Boundary
US-Mexico Border
Proposed Project

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Terrestrial

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Feet



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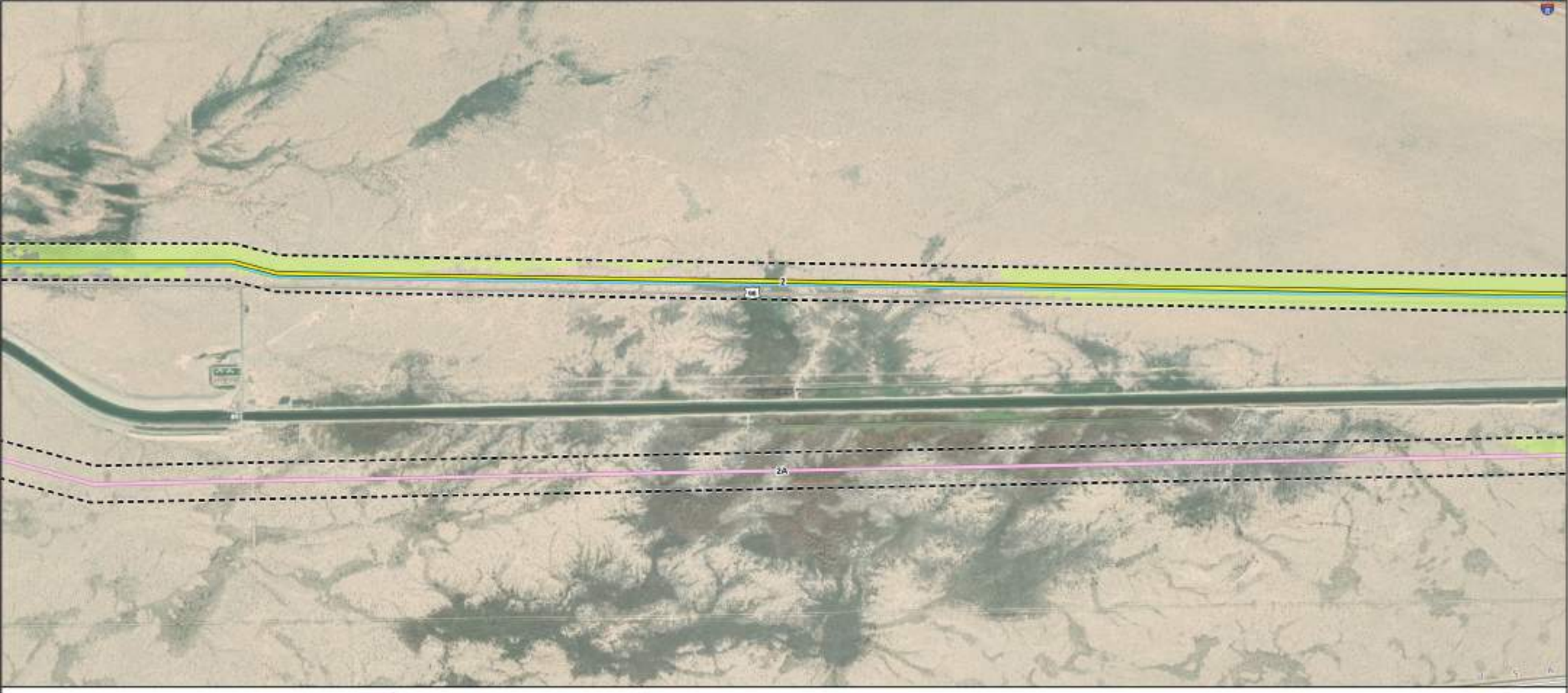
- Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
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Feet



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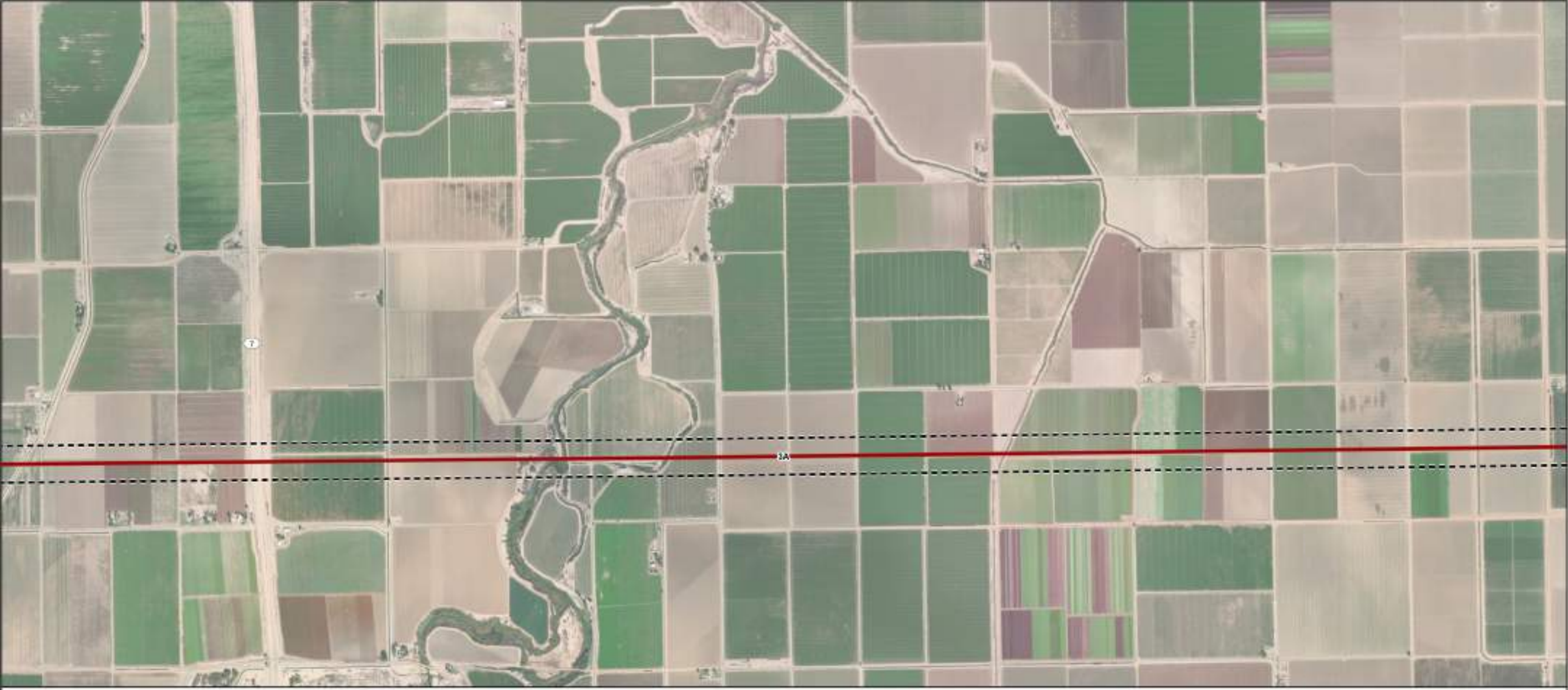
0 1,000 2,000 N
Feet



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Study Area
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Proposed Project

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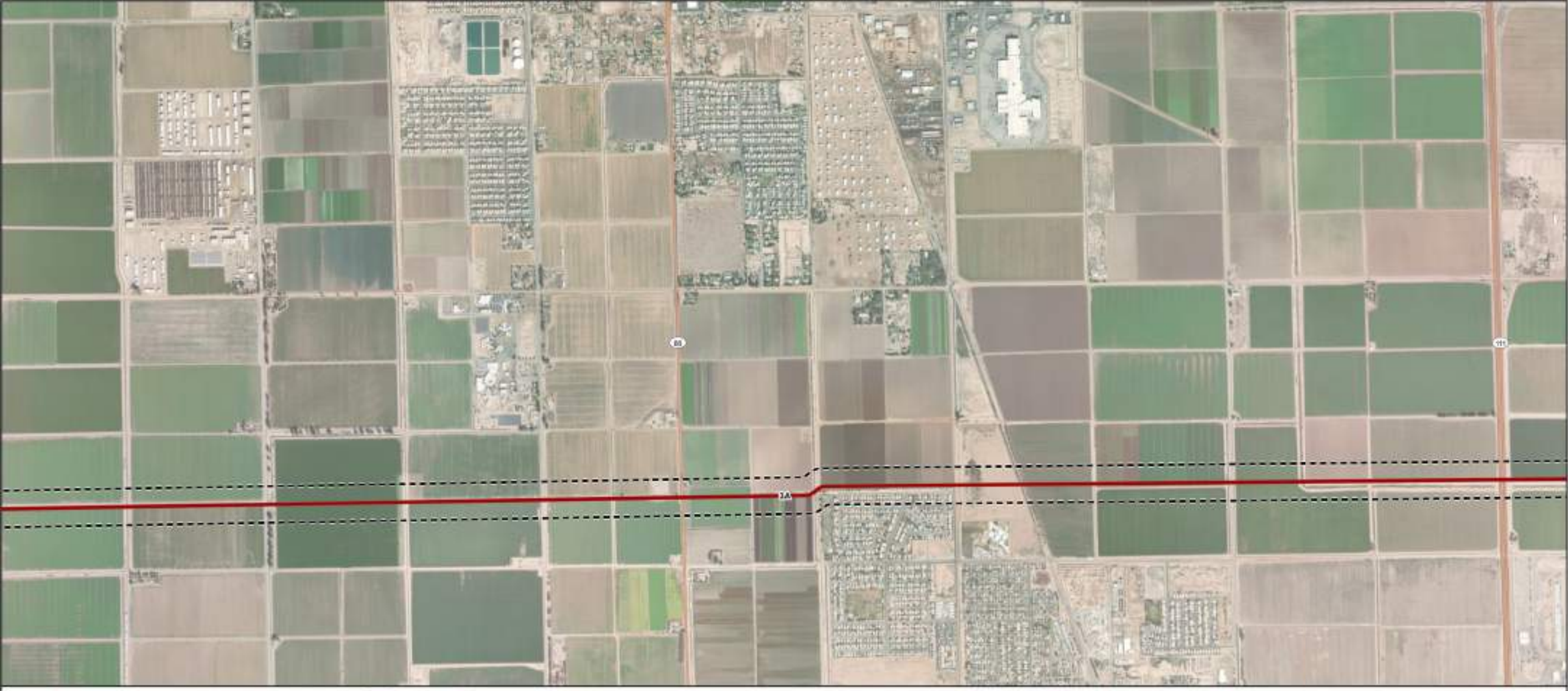
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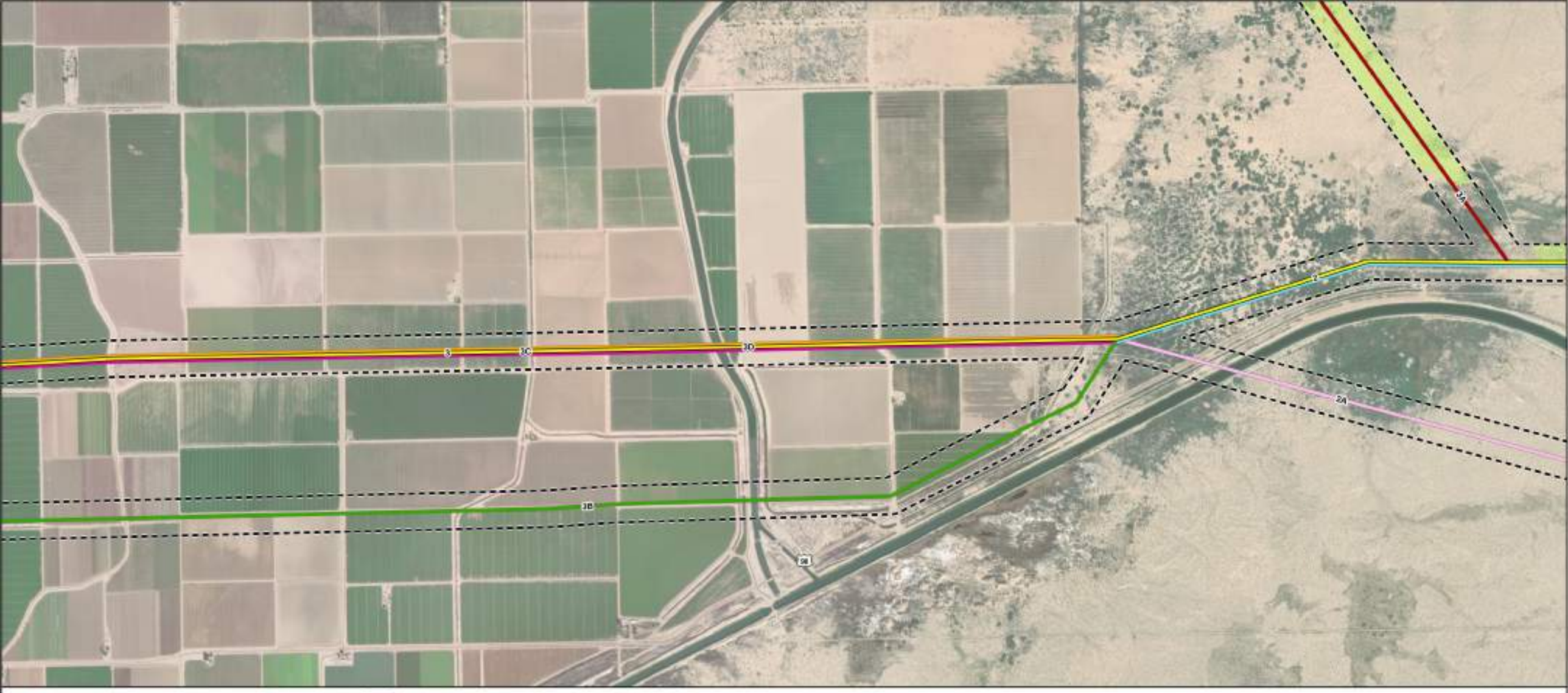
Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
Aquatic
Terrestrial

0 1,000 2,000 N
Feet



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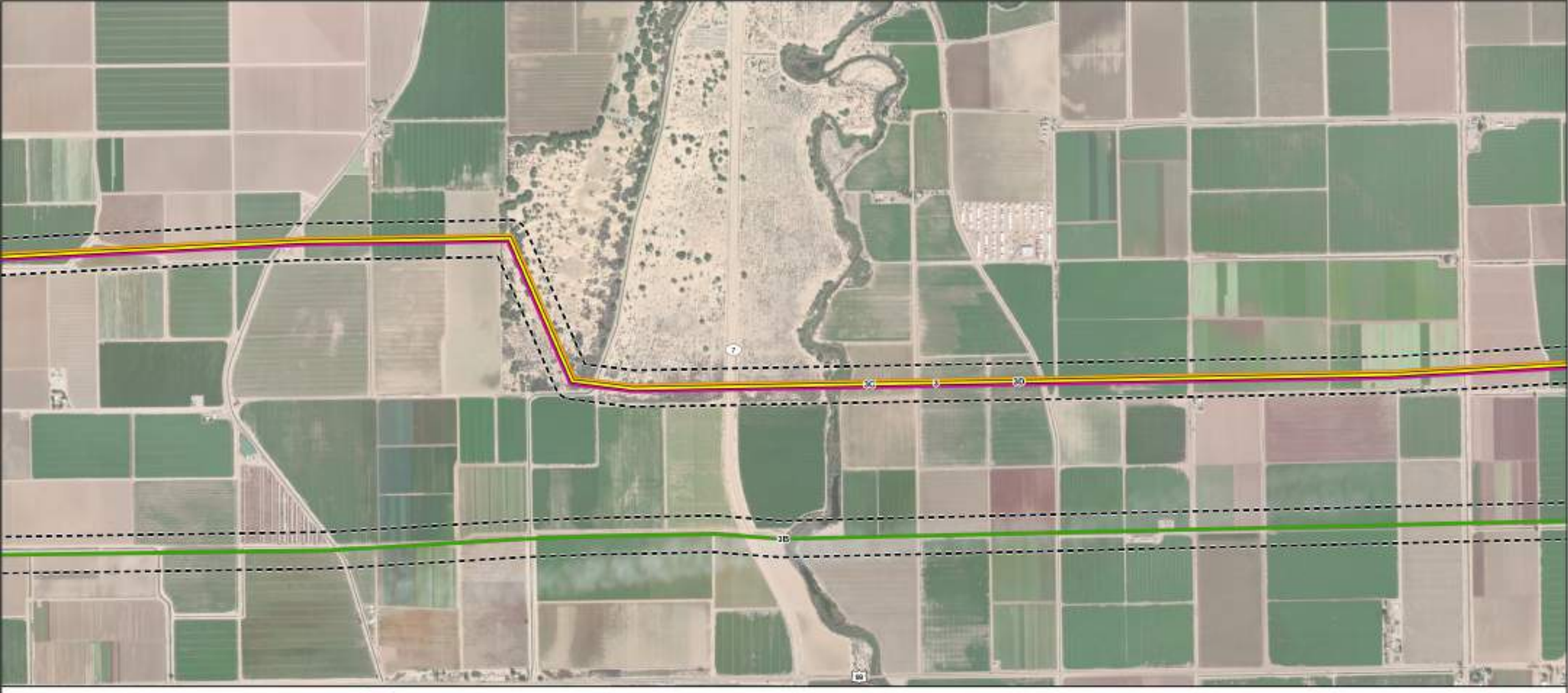
Lower Colorado River Multi-Species Conservation Program Planning Area

Conservation Opportunity Area (COA)
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0 1,000 2,000 N
Feet



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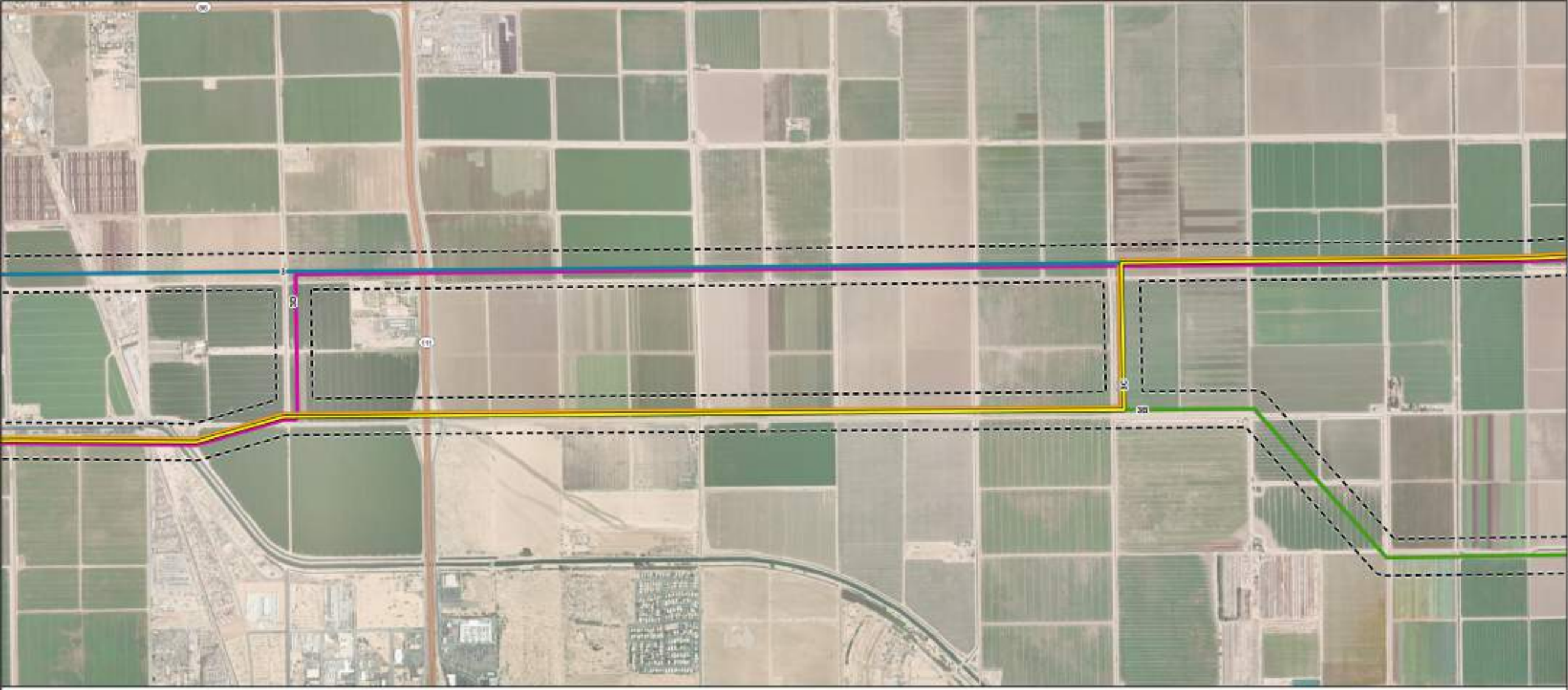
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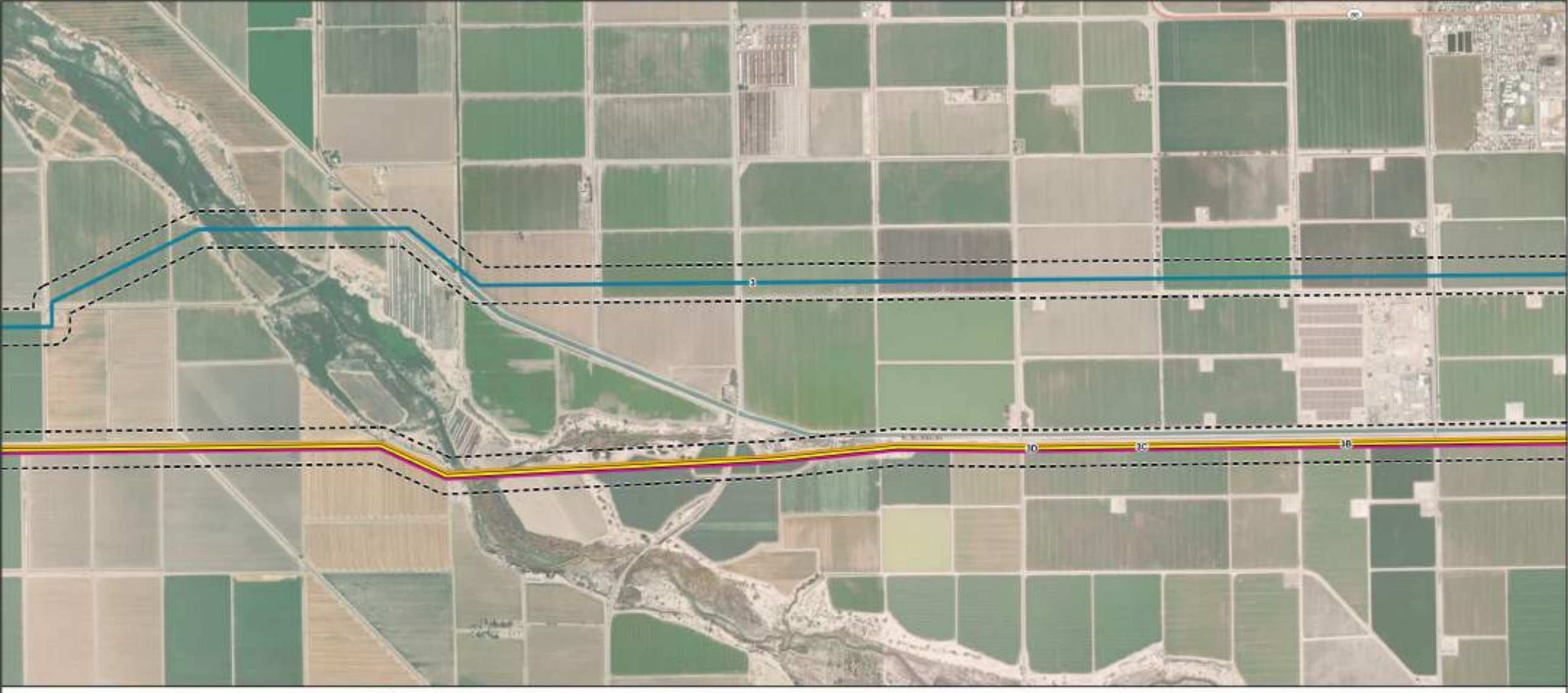
0 1,000 2,000 N
Feet

Map Extent

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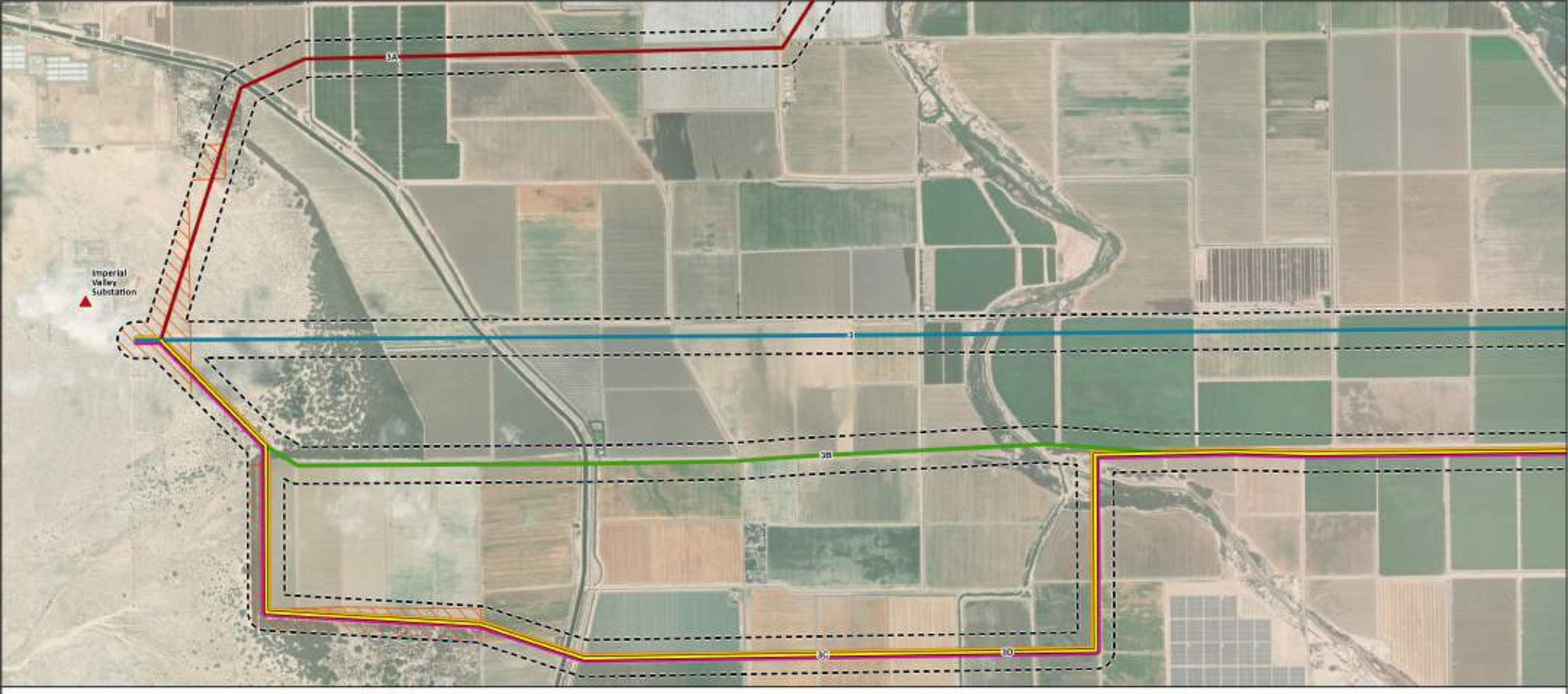
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Conservation Opportunity Area (COA)
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0 1,000 2,000 N
Feet



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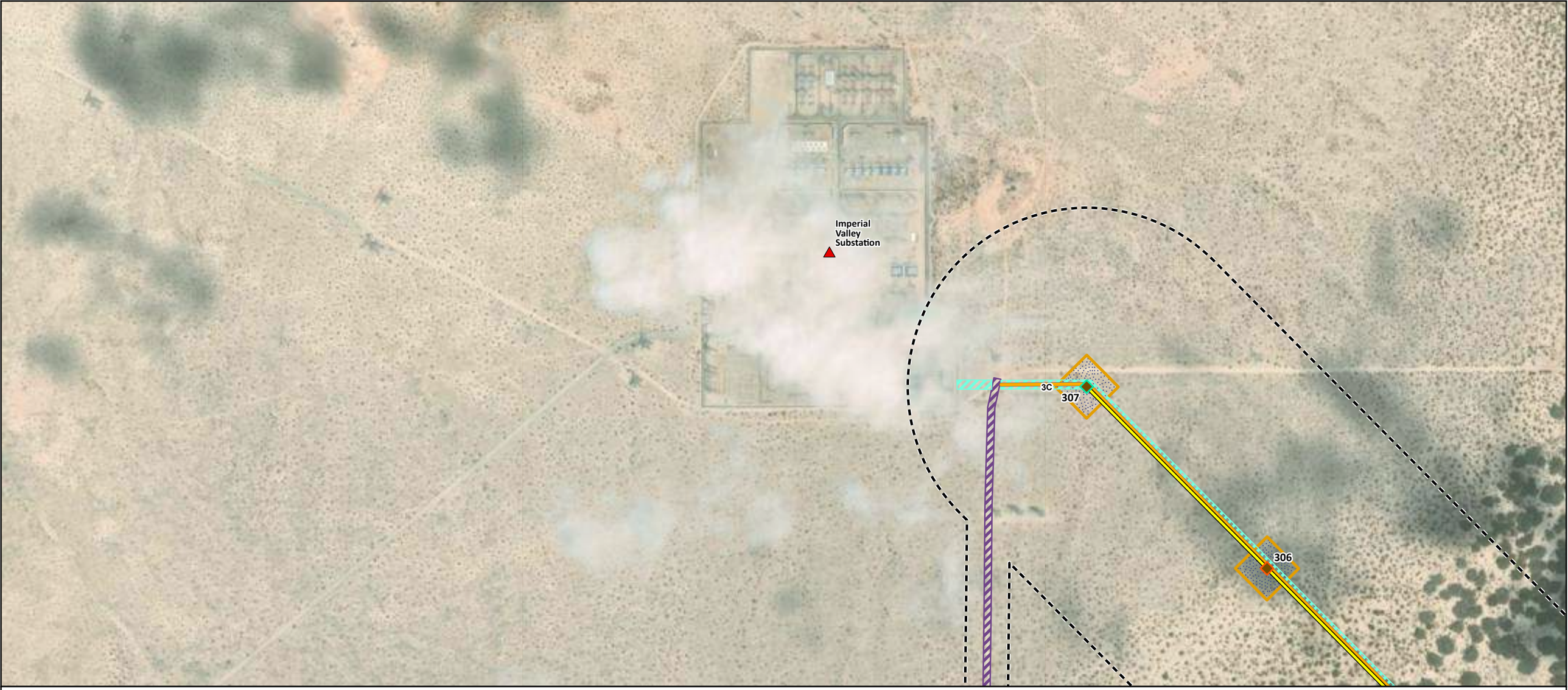
0 1,000 2,000 N
Feet



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Appendix C-2

Jurisdictional Waters Disturbance and Vegetation Communities Disturbance



Existing Substation
Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Heavy

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

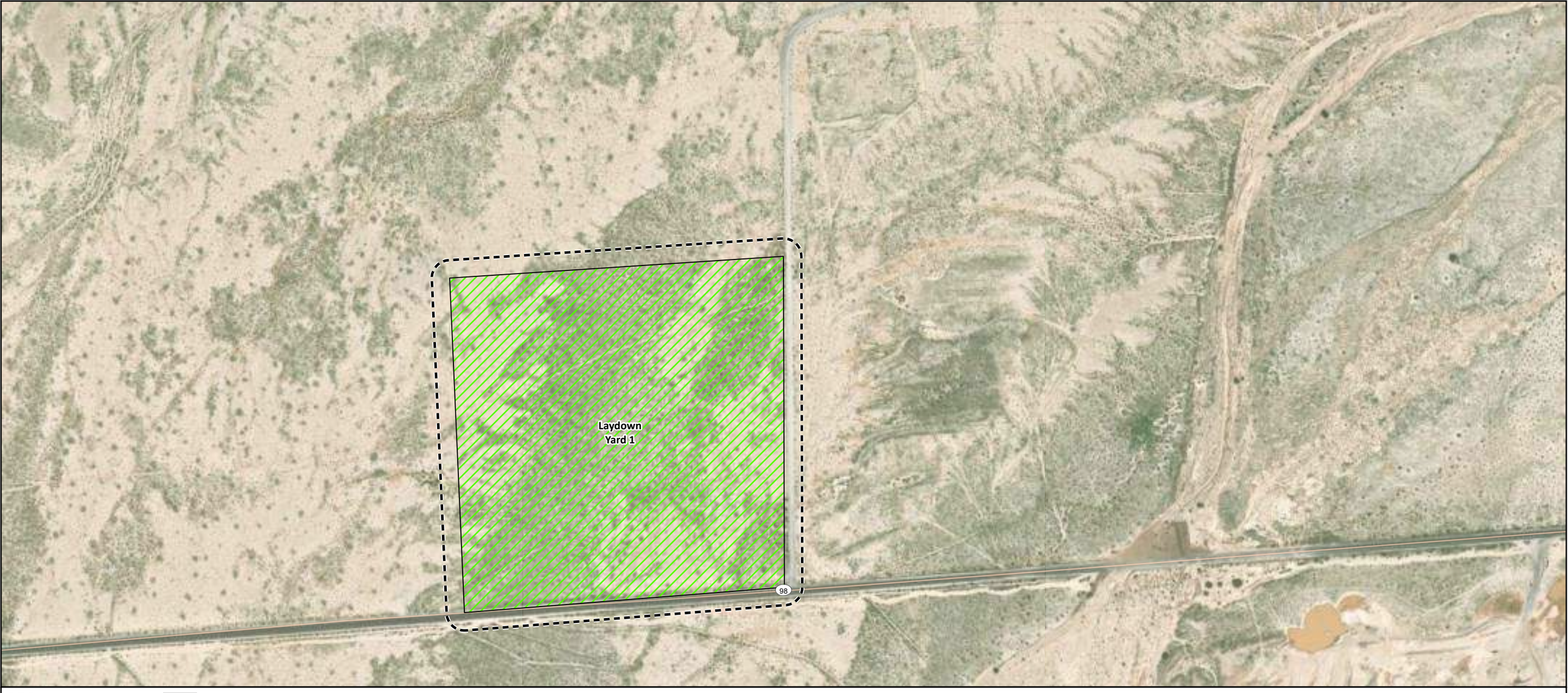
Construction Work Pad

0 250 500
Feet

N



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Biological Study Area

Laydown Yard

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 4 Temporary Road

Construction Work Pad

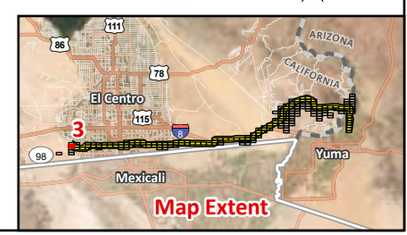
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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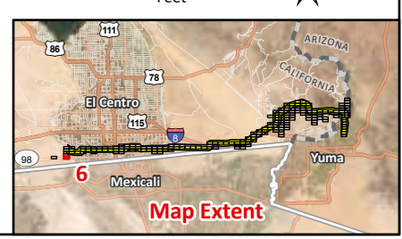
Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

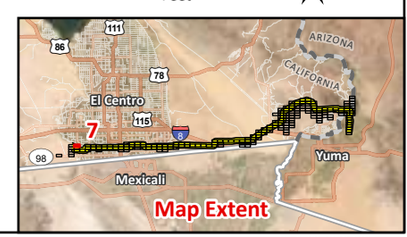
Access Roads

Type 3 New Road - Flat

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 3 New Road - Flat

Type 4 Temporary Road

Construction Work Pad

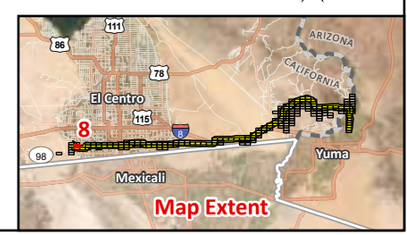
Potential Jurisdictional Waters

Riverine

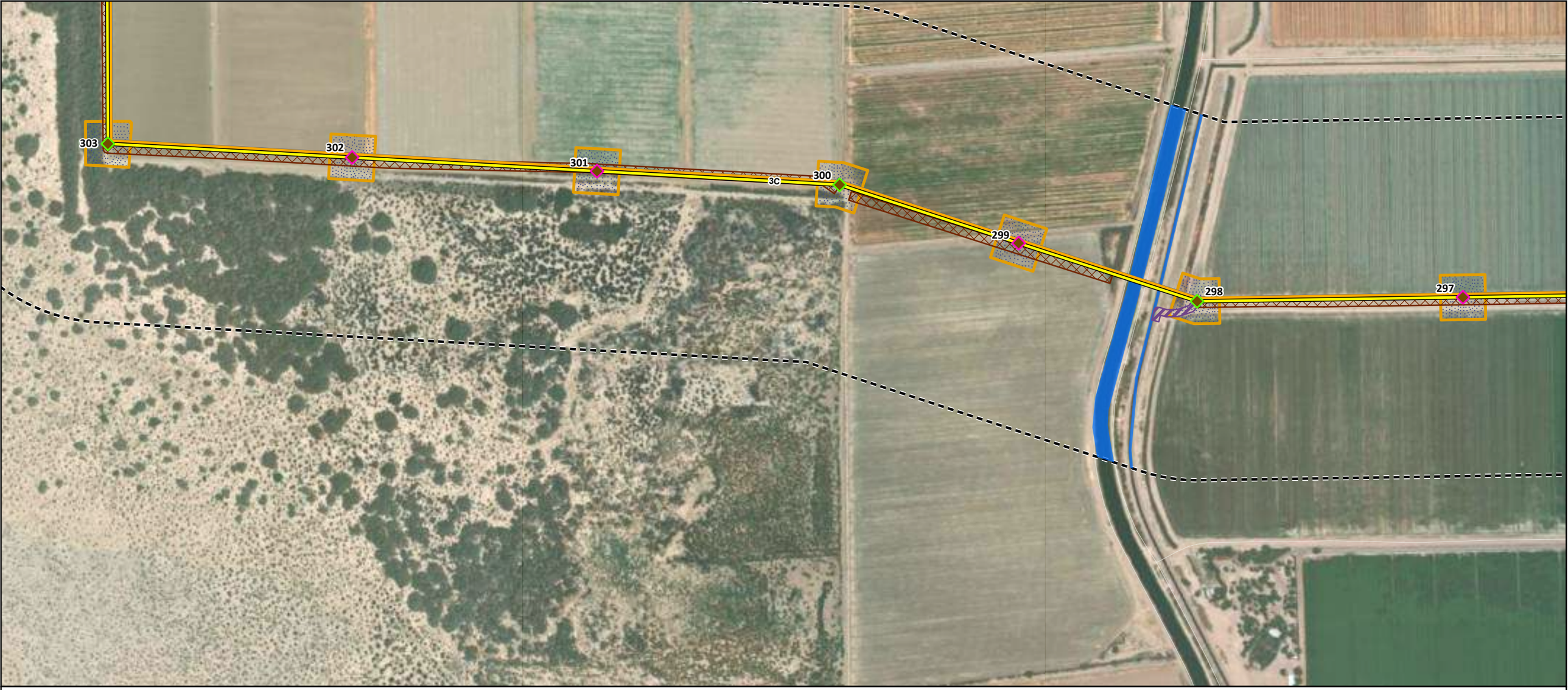
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



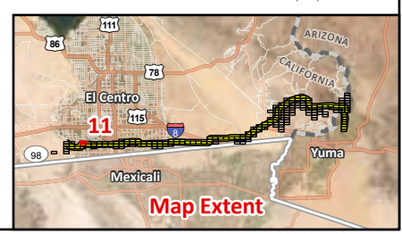
*Imagery provided by Esri and its licensors © 2025. Additional data provided by NWI, 2025. *Segments are slightly offset for visual display purposes. Additional data provided by CEHCP 2010, FTHLICC 2003, SC Wildlands 2012.*



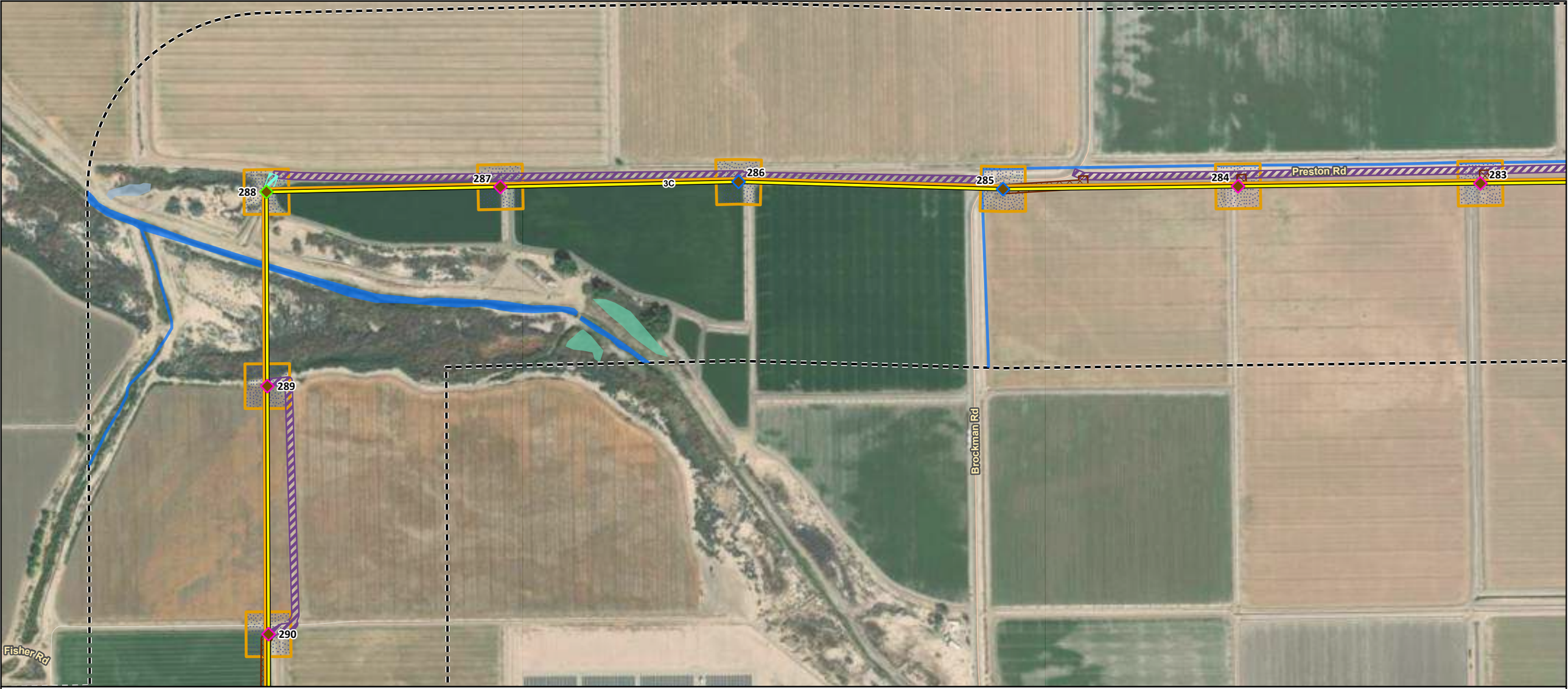
Biological Study Area

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)
Tubular Monopole Angle (TMA)
Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 4 Temporary Road
Construction Work Pad

Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland
Freshwater Pond
Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

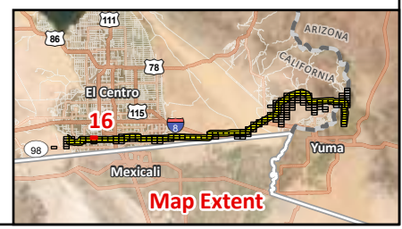
Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland

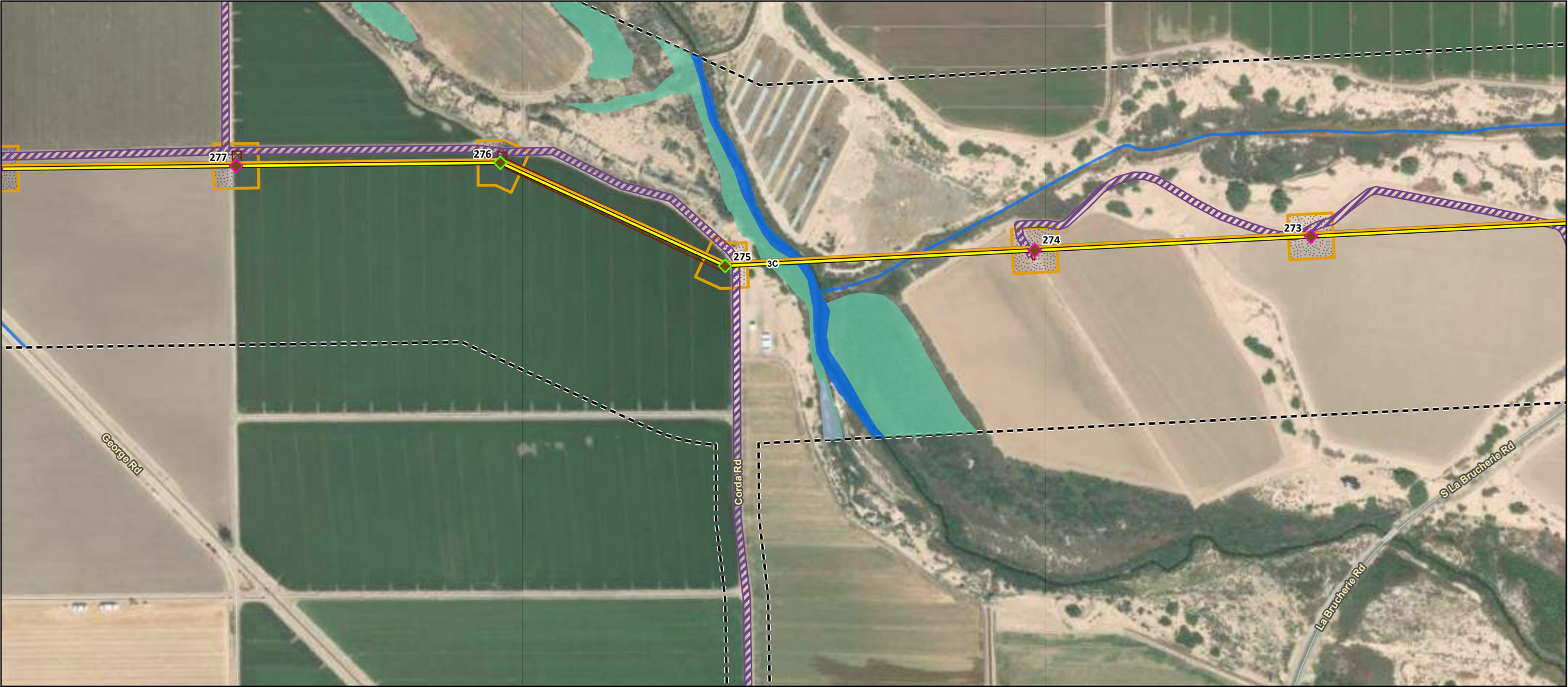
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

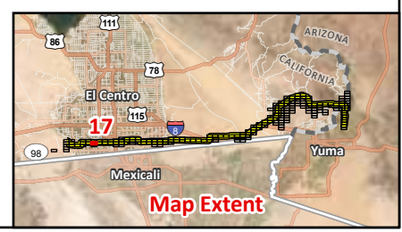
Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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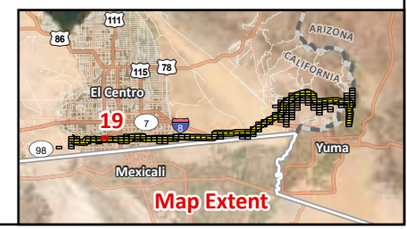
Biological Study Area

Potential Jurisdictional Waters

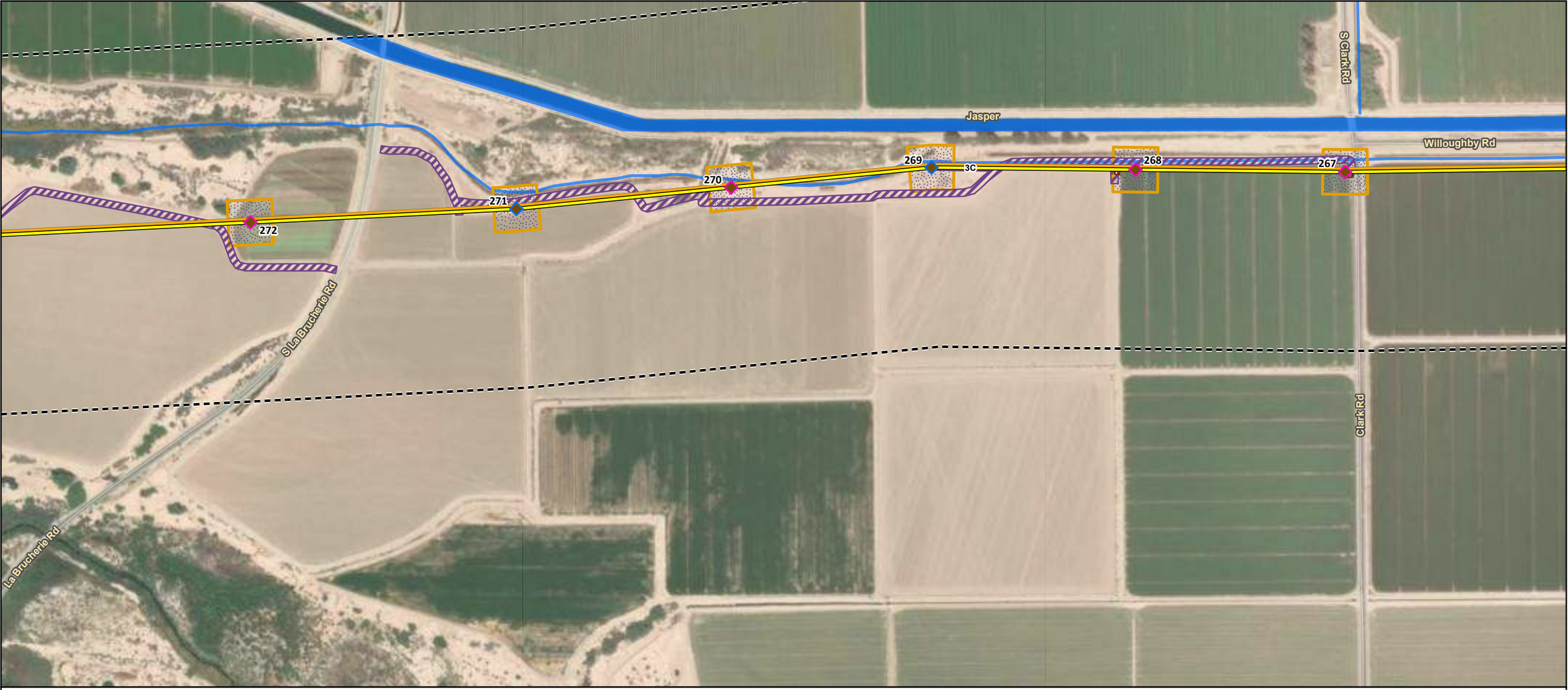
Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

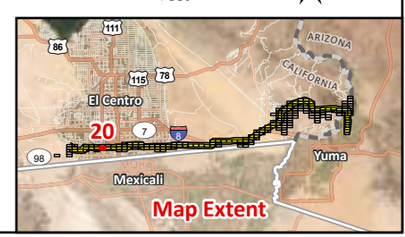
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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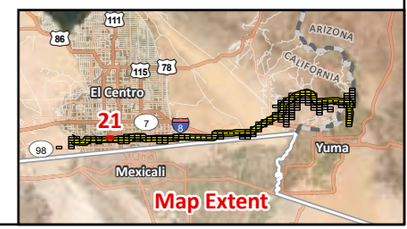
Biological Study Area

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

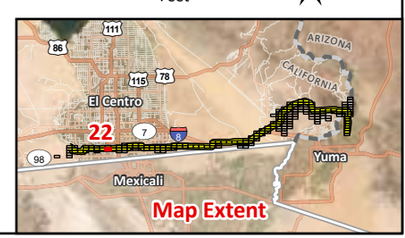
Potential Jurisdictional Waters

Riverine

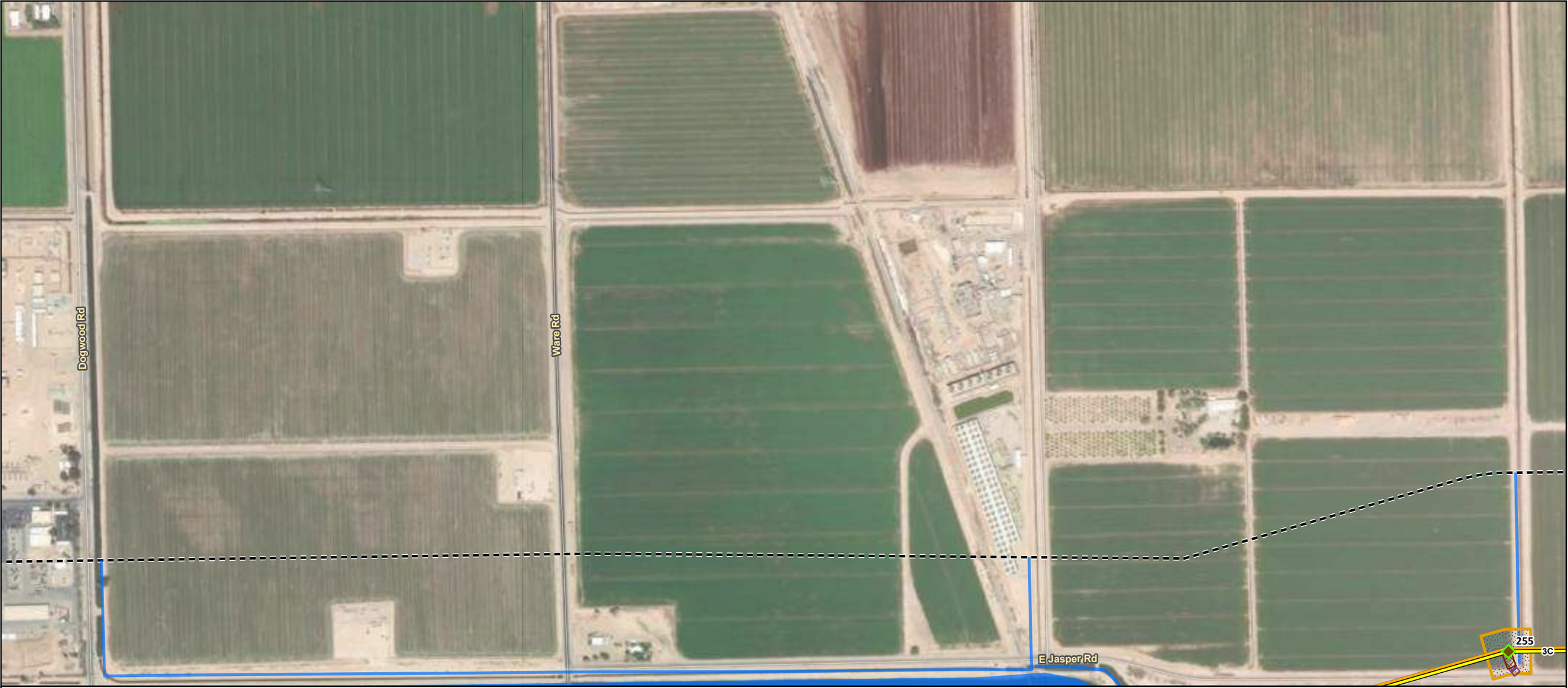
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

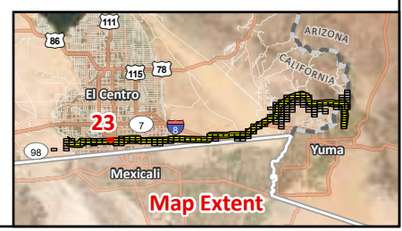
Construction Work Pad

Potential Jurisdictional Waters

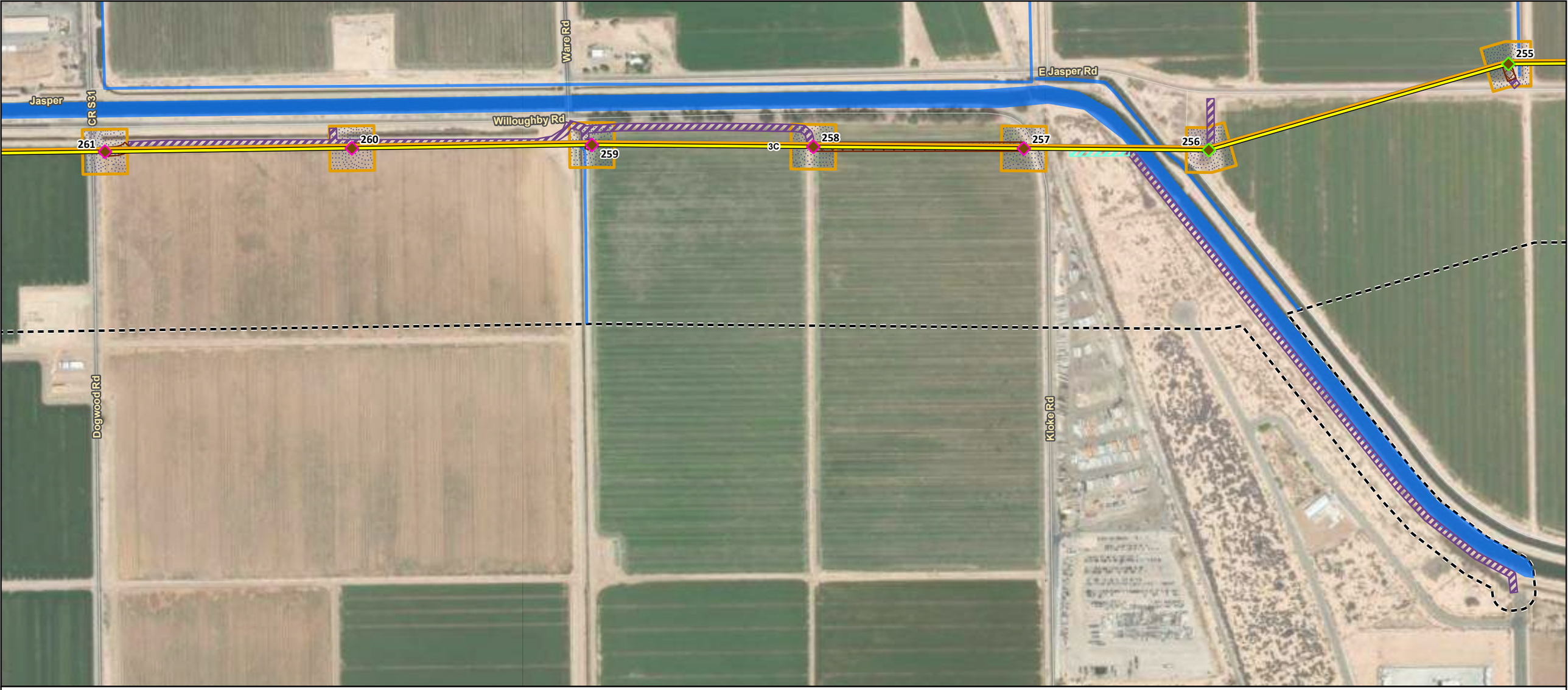
Riverine

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 4 Temporary Road

Construction Work Pad

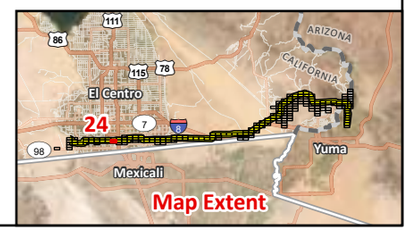
Potential Jurisdictional Waters

Riverine

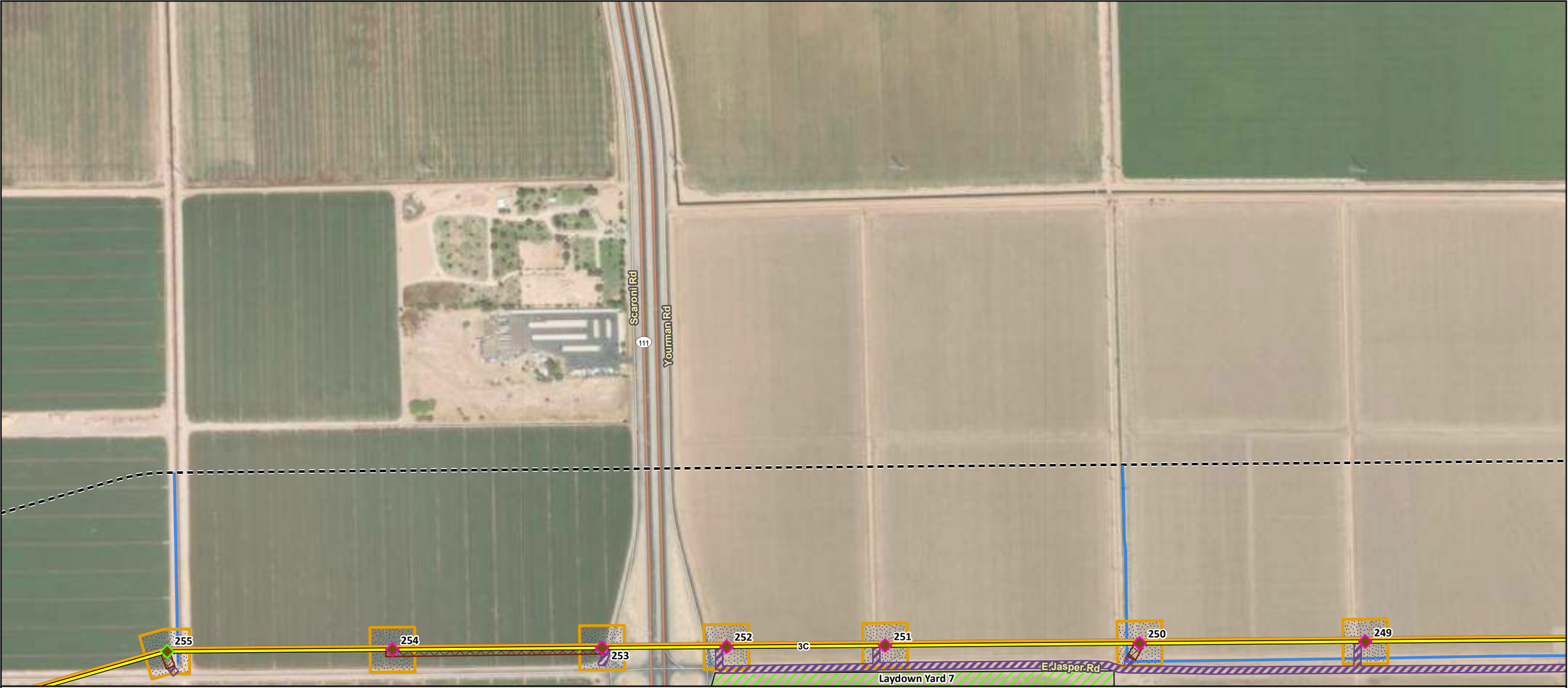
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Laydown Yard

Potential Jurisdictional Waters

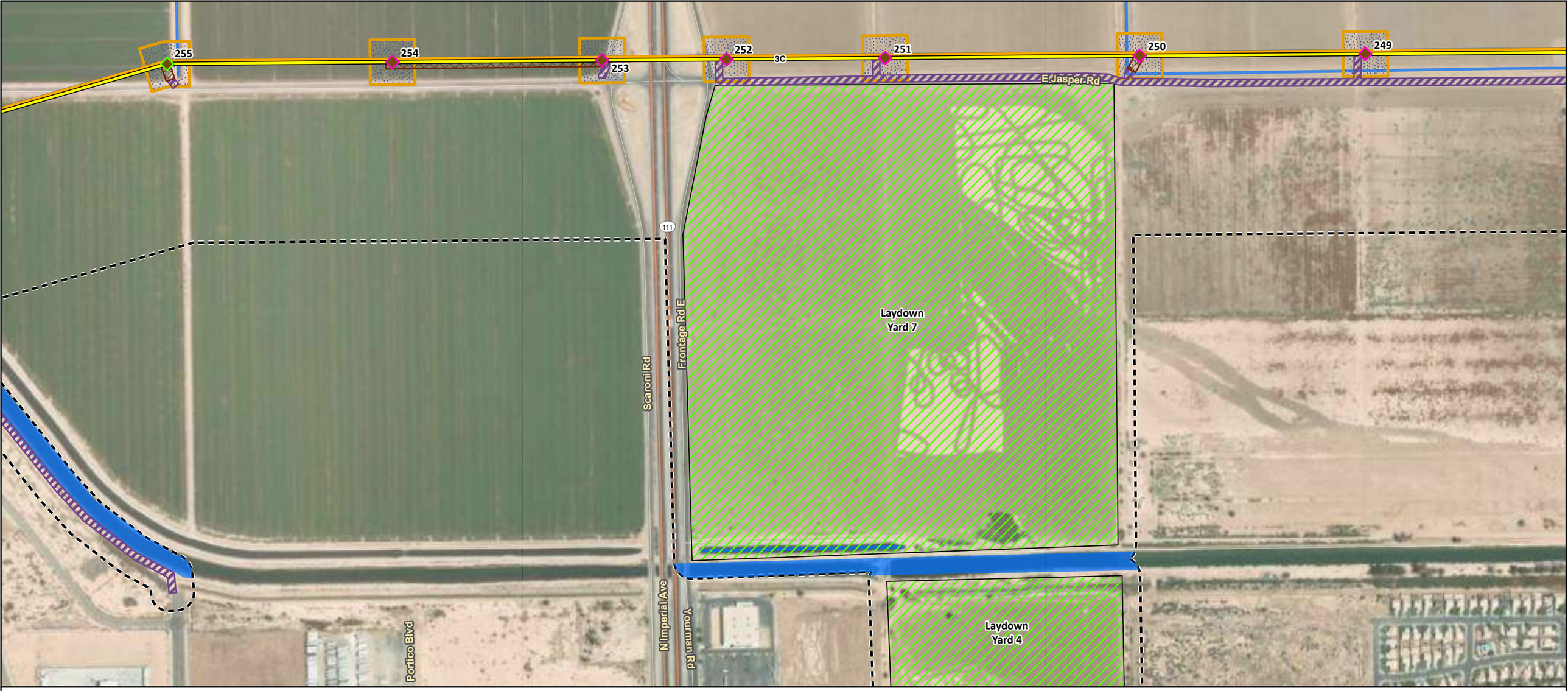
Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Laydown Yard

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

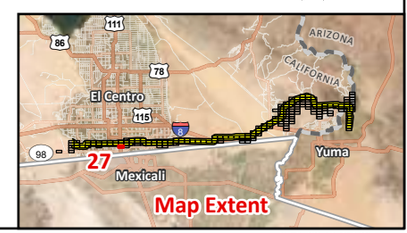
Laydown Yard

Potential Jurisdictional Waters

Riverine

0 250 500 Feet

N



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Biological Study Area

Access Roads

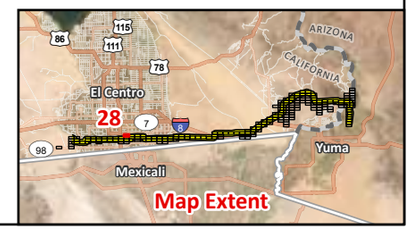
Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

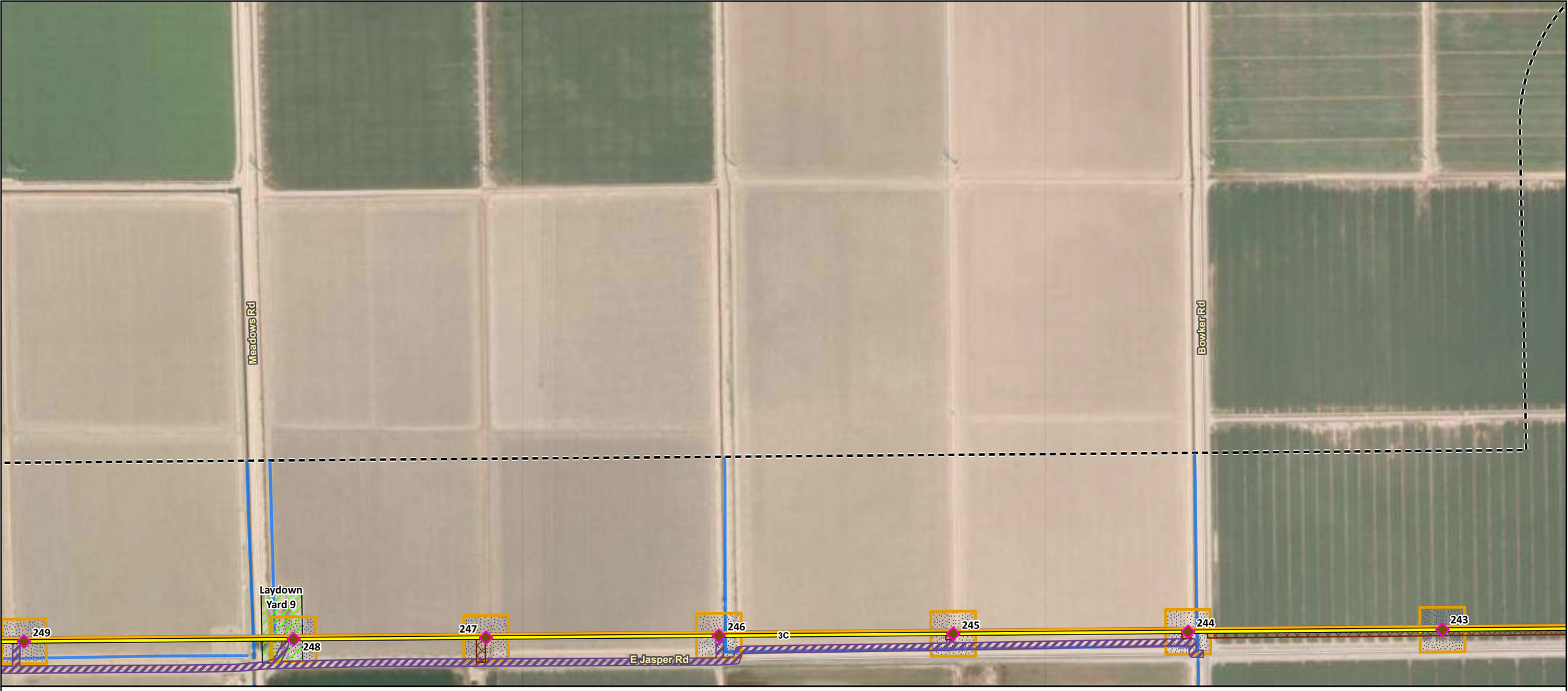
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Laydown Yard

Potential Jurisdictional Waters

Riverine

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Laydown Yard

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

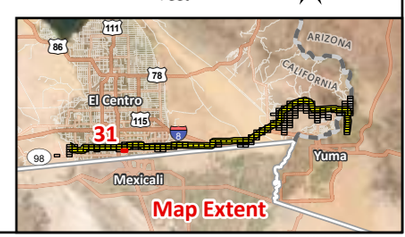
Laydown Yard

Potential Jurisdictional Waters

Riverine

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Construction Work Pad

Potential Jurisdictional Waters

Riverine

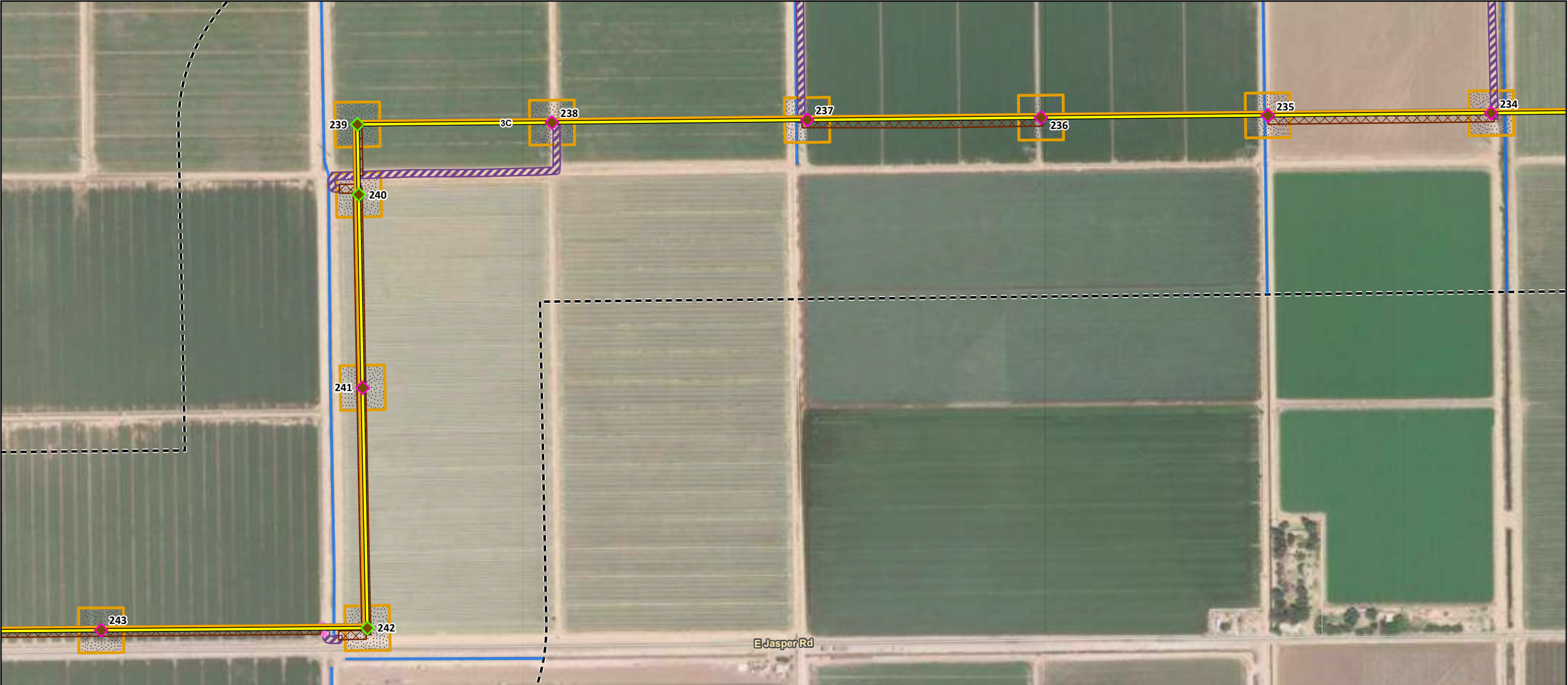
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 4 Temporary Road

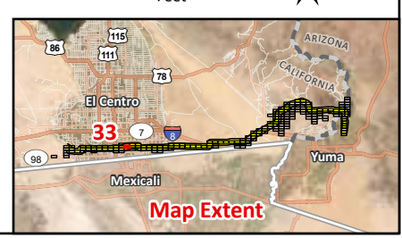
Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

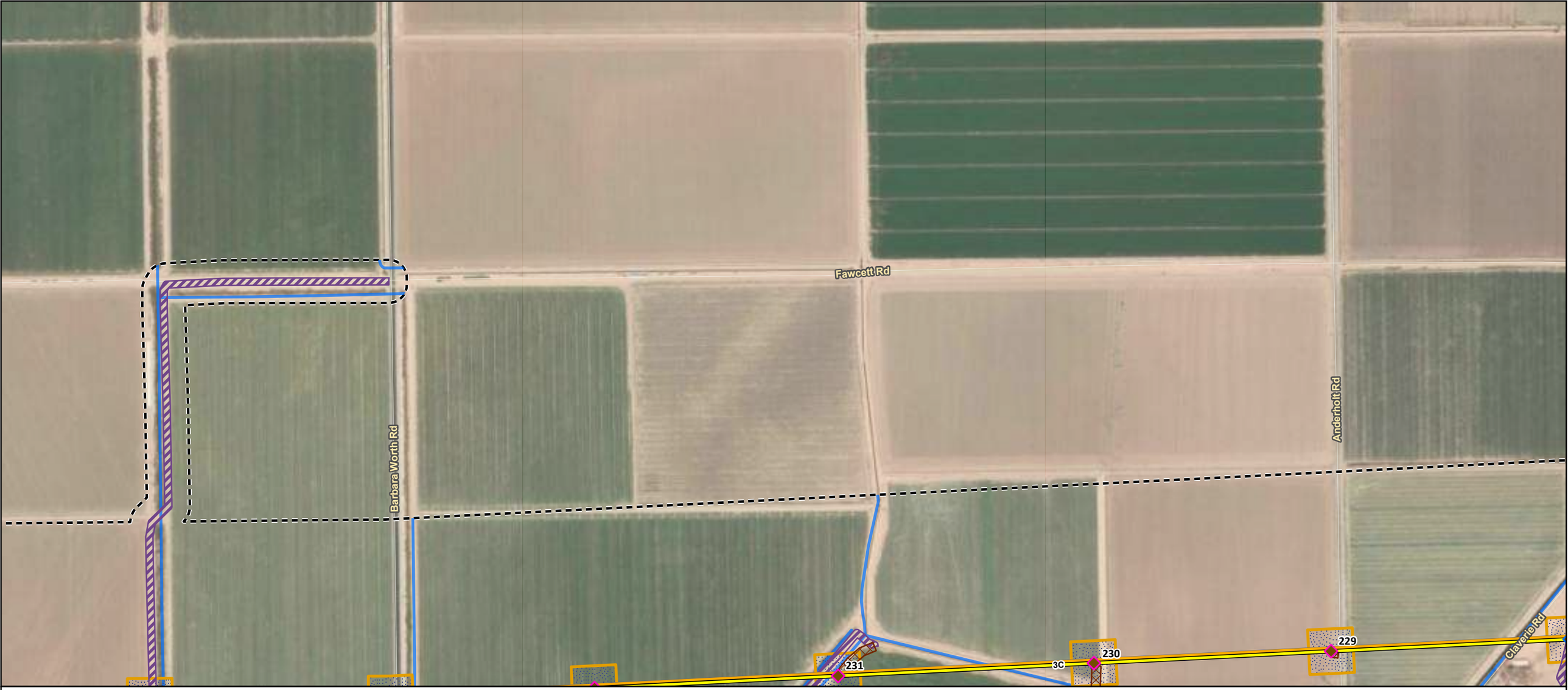
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

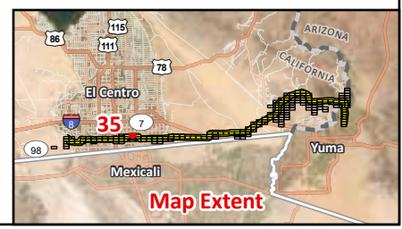
Construction Work Pad

Potential Jurisdictional Waters

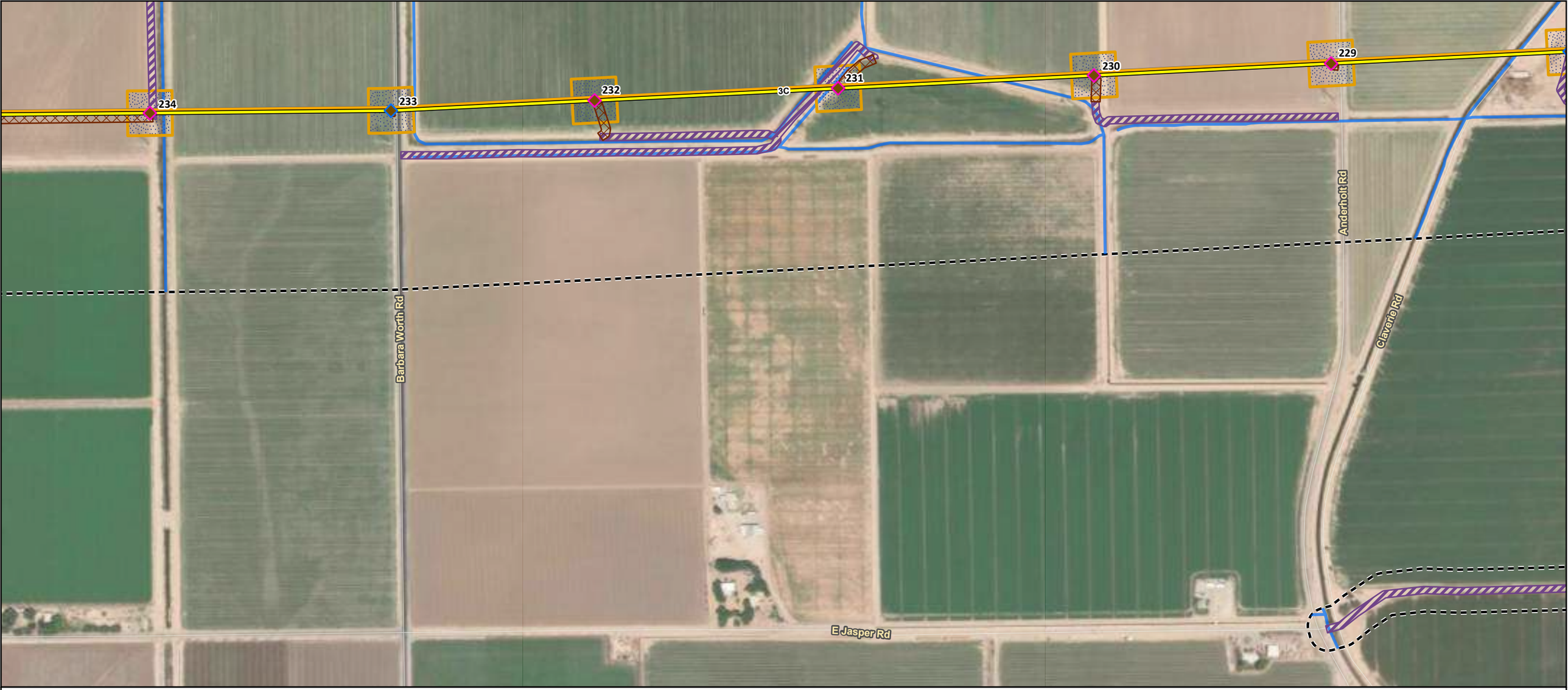
Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

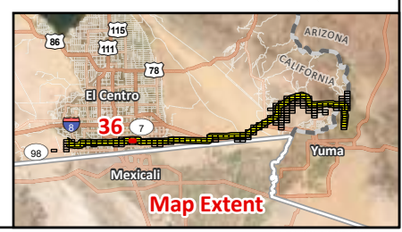
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Heavy
Tubular Monopole Angle (TMA)
Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Moderate

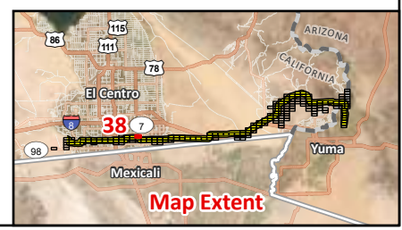
Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Heavy
Lattice Tower Tangent (LTT)
Tubular Monopole Angle (TMA)
Tubular Monopole Tangent (TMT)

Access Roads

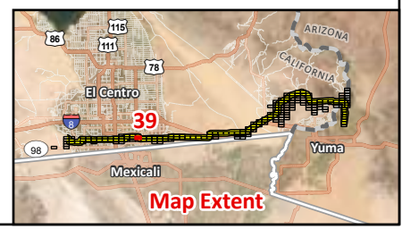
Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Moderate
Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

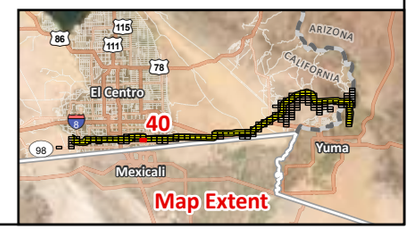
Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

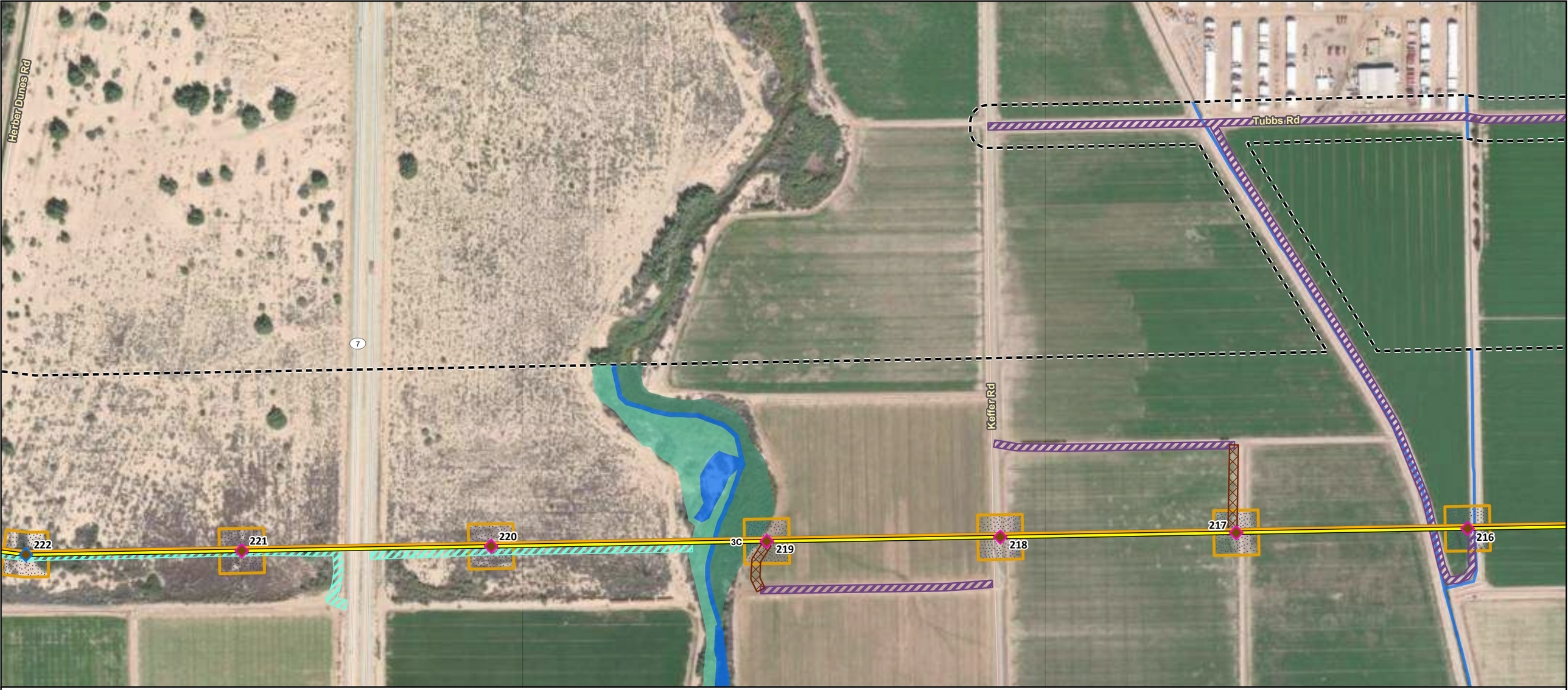
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

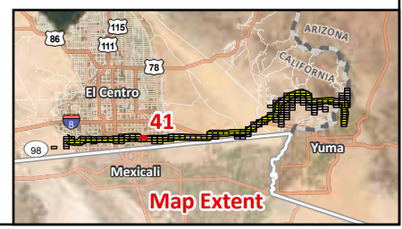
Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

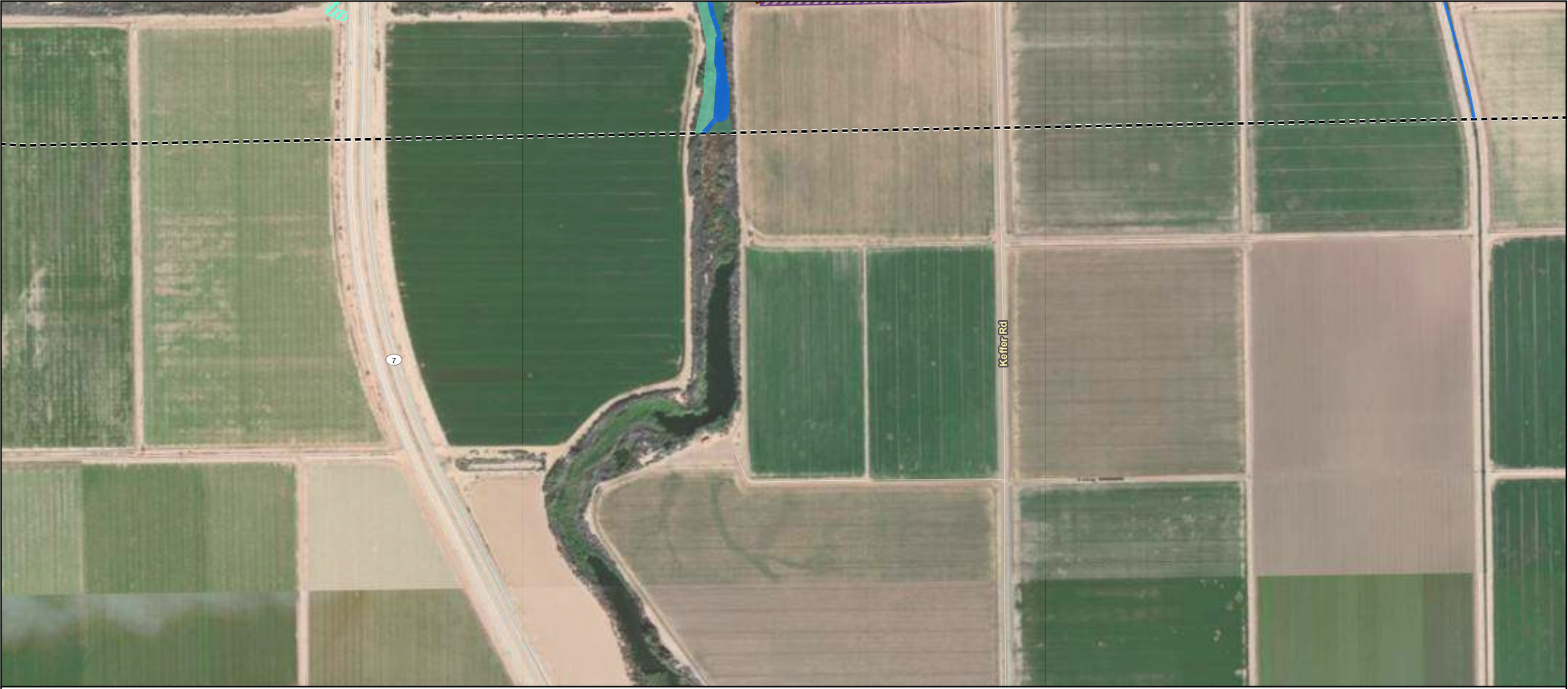
Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

- Type 2 Existing Road - Needs Improvement
- Type 3 New Road - Flat
- Type 4 Temporary Road

Potential Jurisdictional Waters

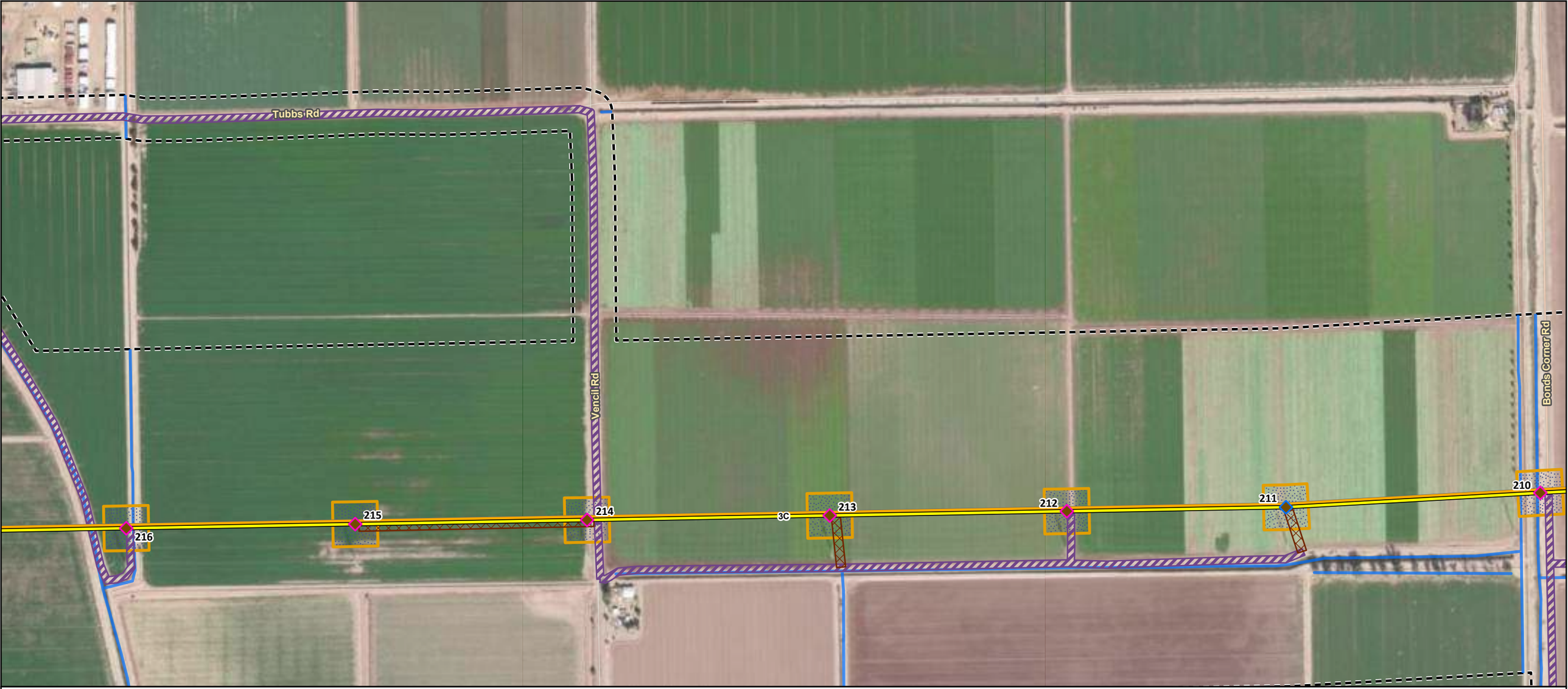
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

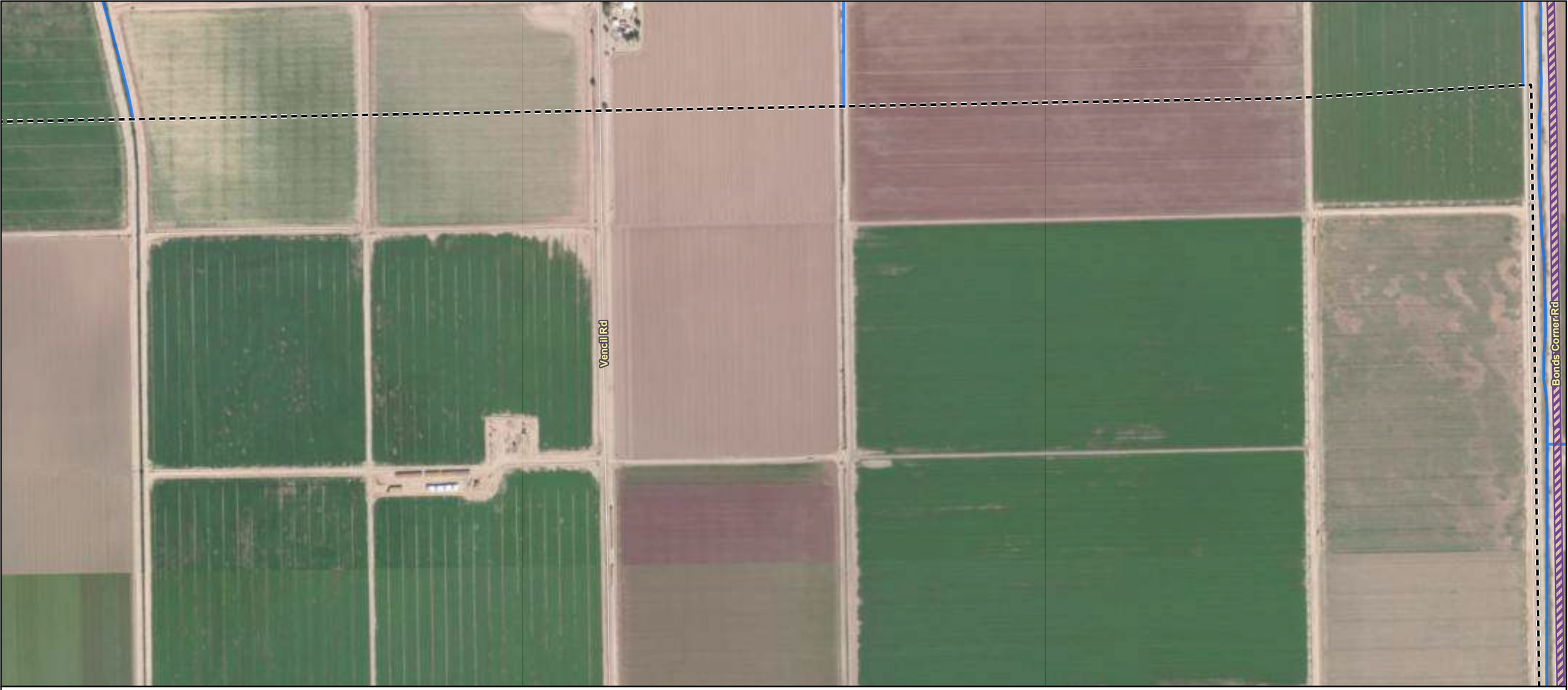
Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

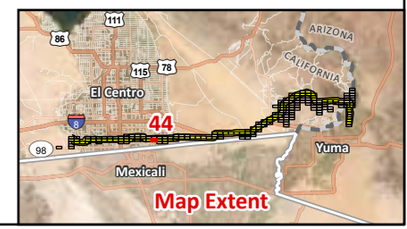
Potential Jurisdictional Waters

Riverine

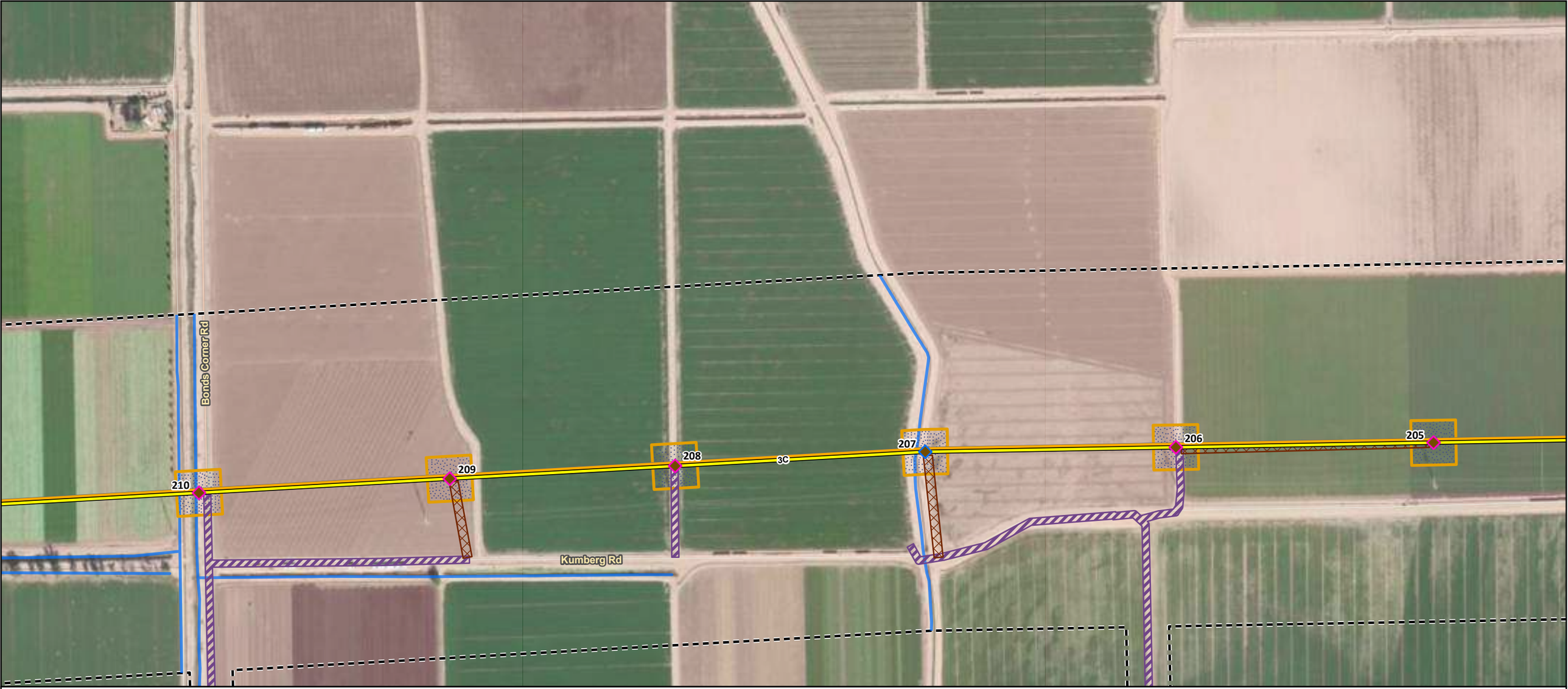
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

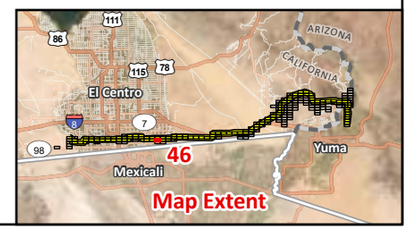
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

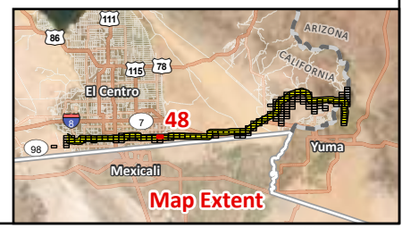
Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500 Feet

N



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Biological Study Area

Access Roads

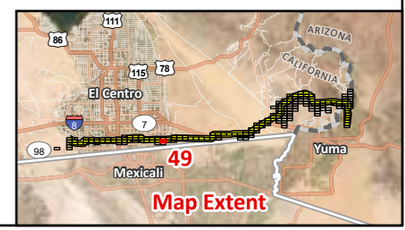
Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

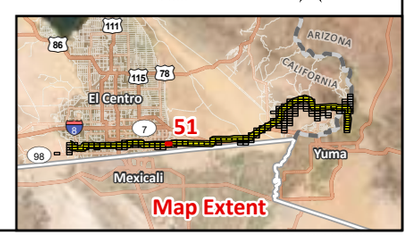
Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500 Feet

N



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Biological Study Area

Access Roads

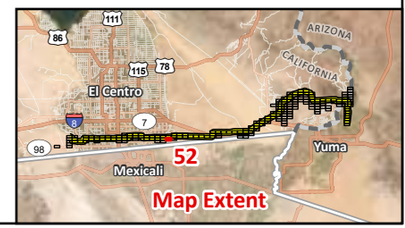
Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Construction Work Pad

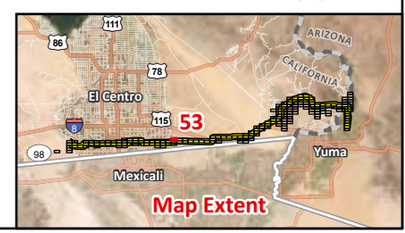
Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Segment III

3C

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 4 Temporary Road

Construction Work Pad

Potential Jurisdictional Waters

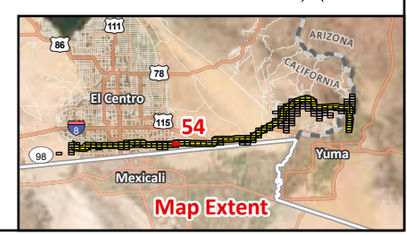
Freshwater Forested/Shrub Wetland

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

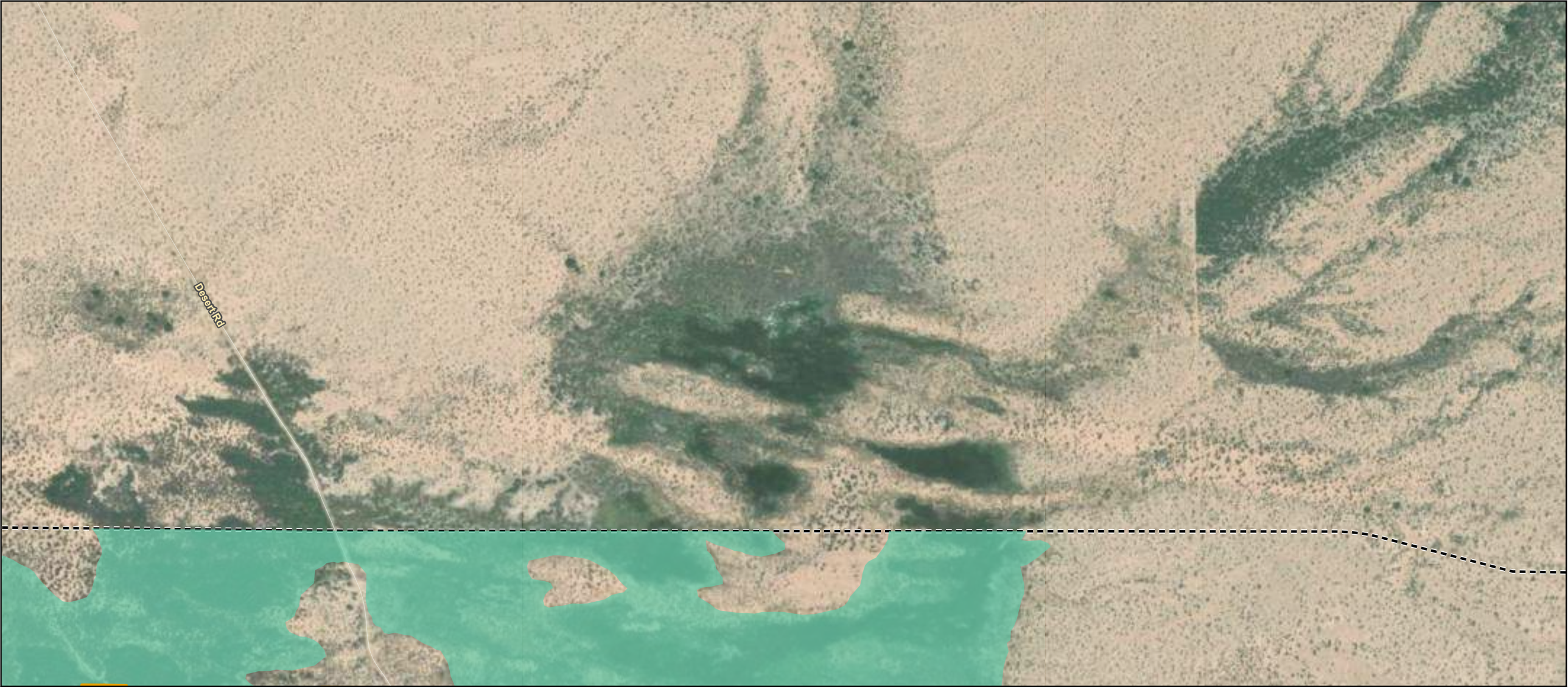
0 250 500

Feet

N



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Biological Study Area

Construction Work Pad

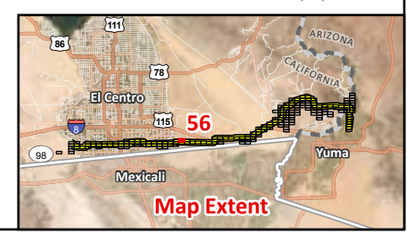
Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland

Riverine

0 250 500

Feet

N



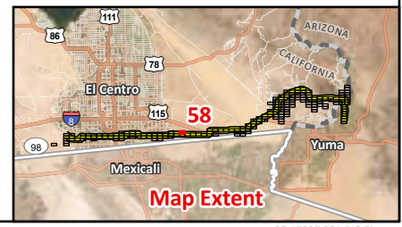
*Imagery provided by Esri and its licensors © 2025. Additional data provided by NWI, 2025. *Segments are slightly offset for visual display purposes. Additional data provided by CEHCP 2010, FTHLICC 2003, SC Wildlands 2012.*



Biological Study Area

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Light

Access Roads

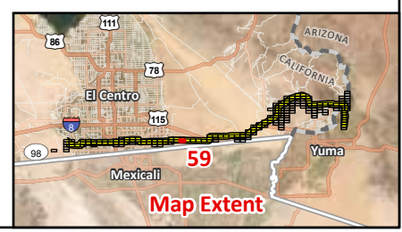
Type 3 New Road - Flat

Construction Work Pad

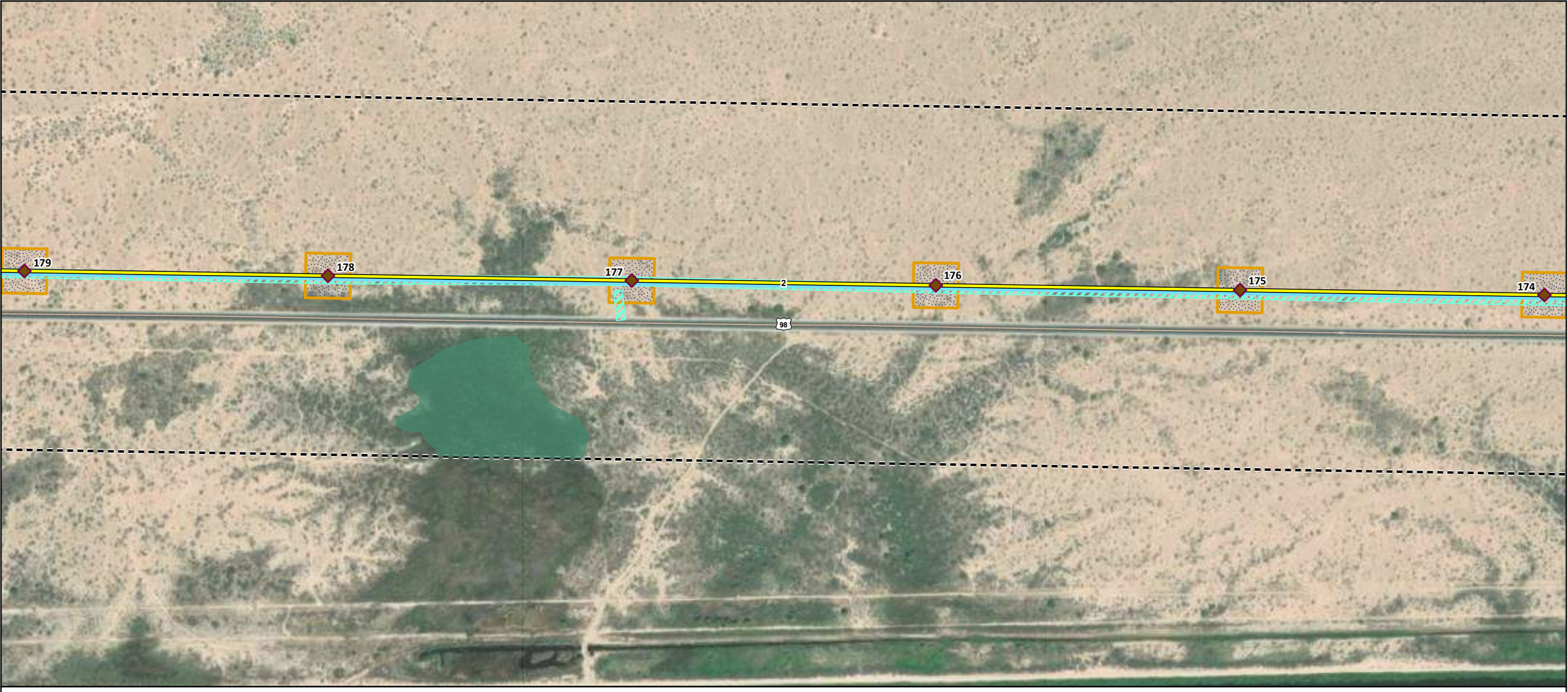
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Potential Jurisdictional Waters

Freshwater Emergent Wetland

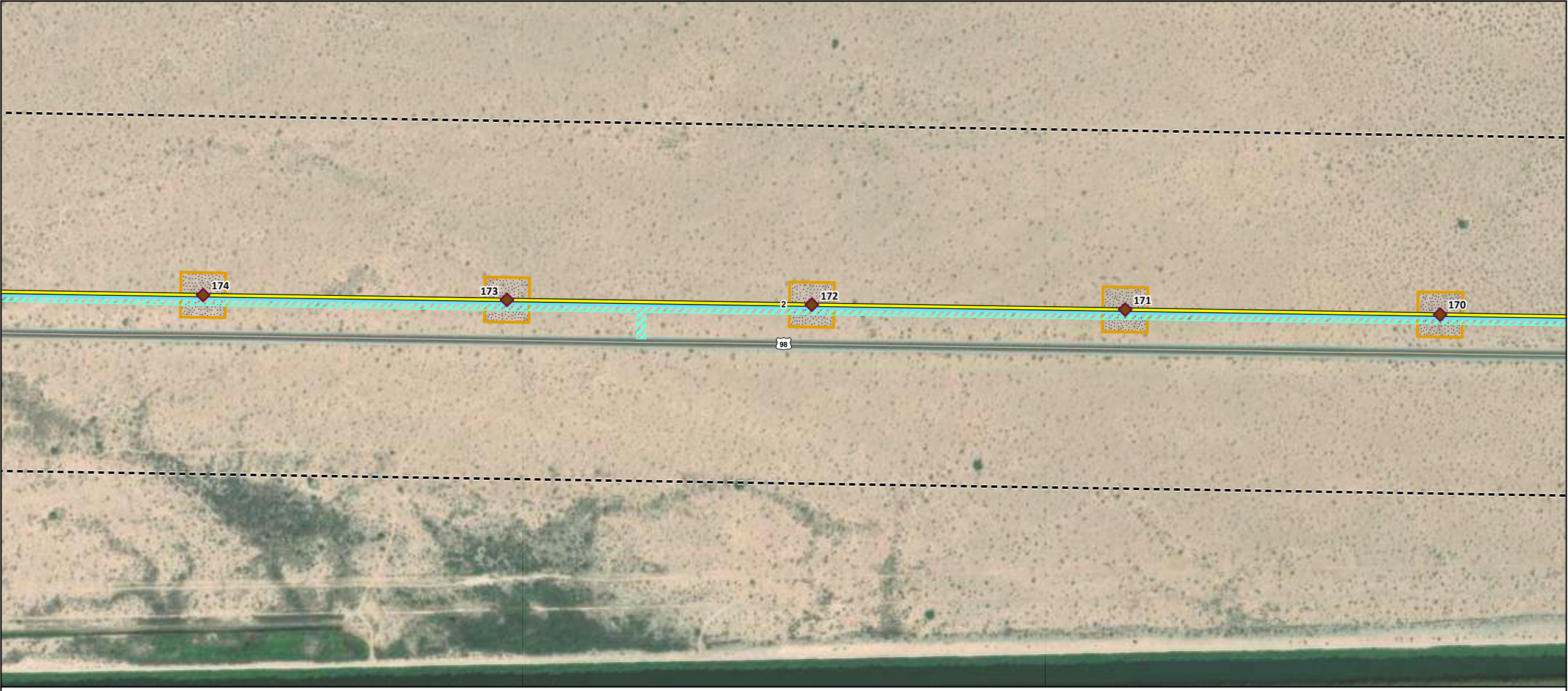
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

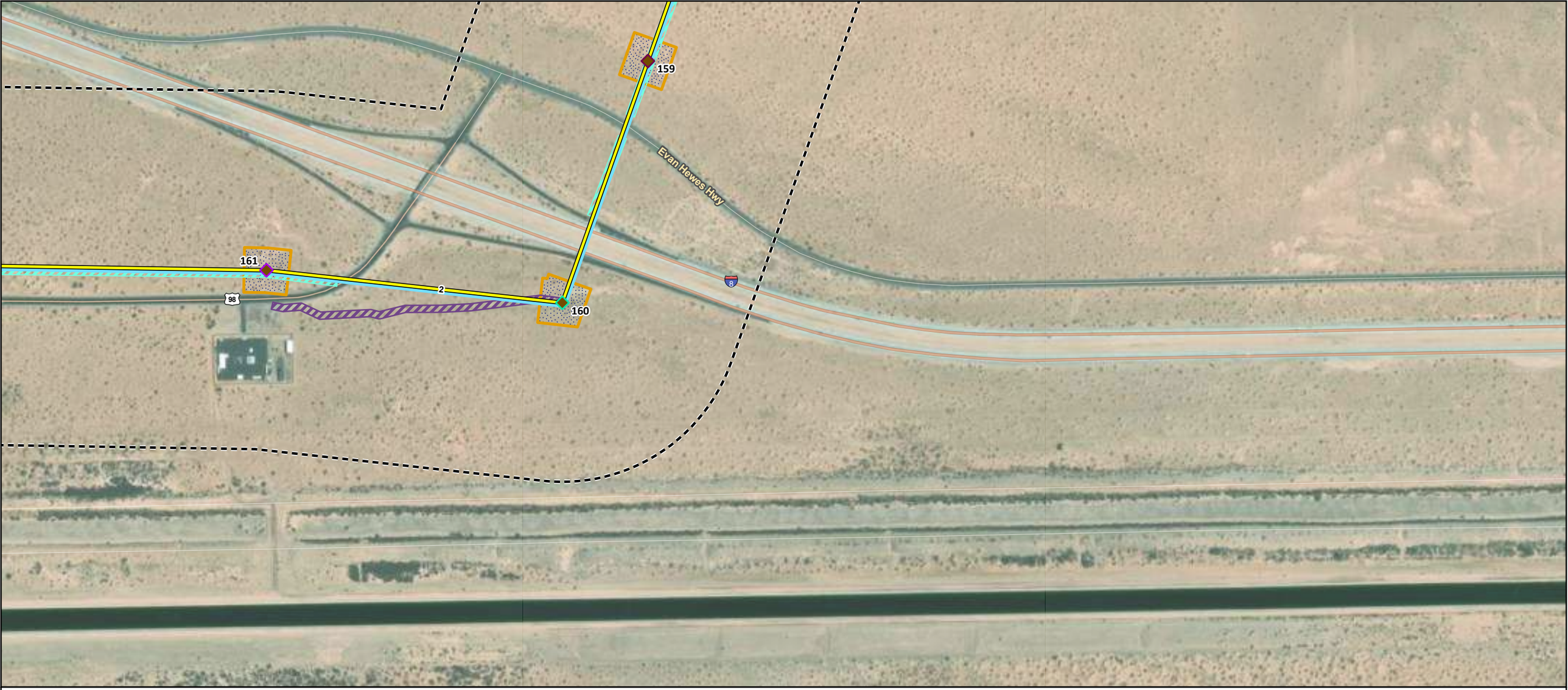
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Angle (LTA)

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

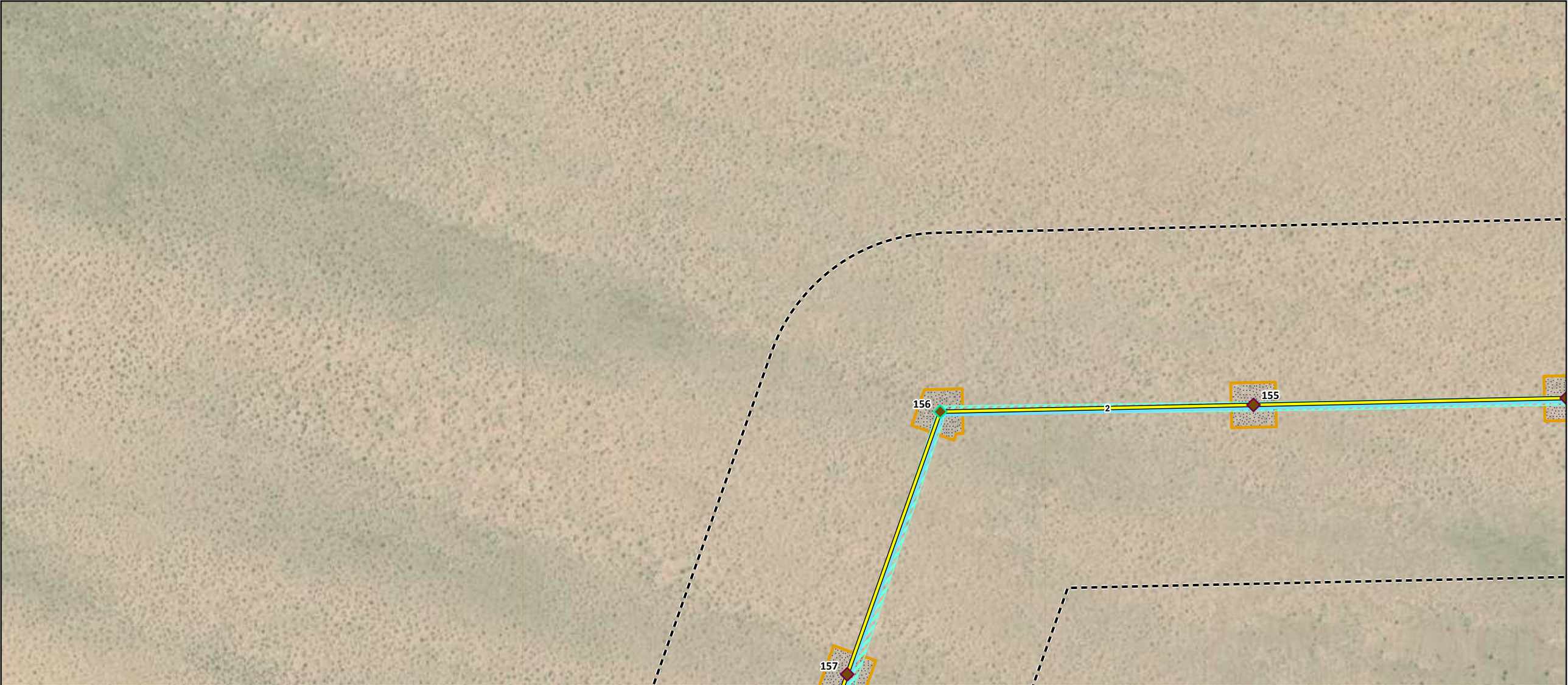
Construction Work Pad

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

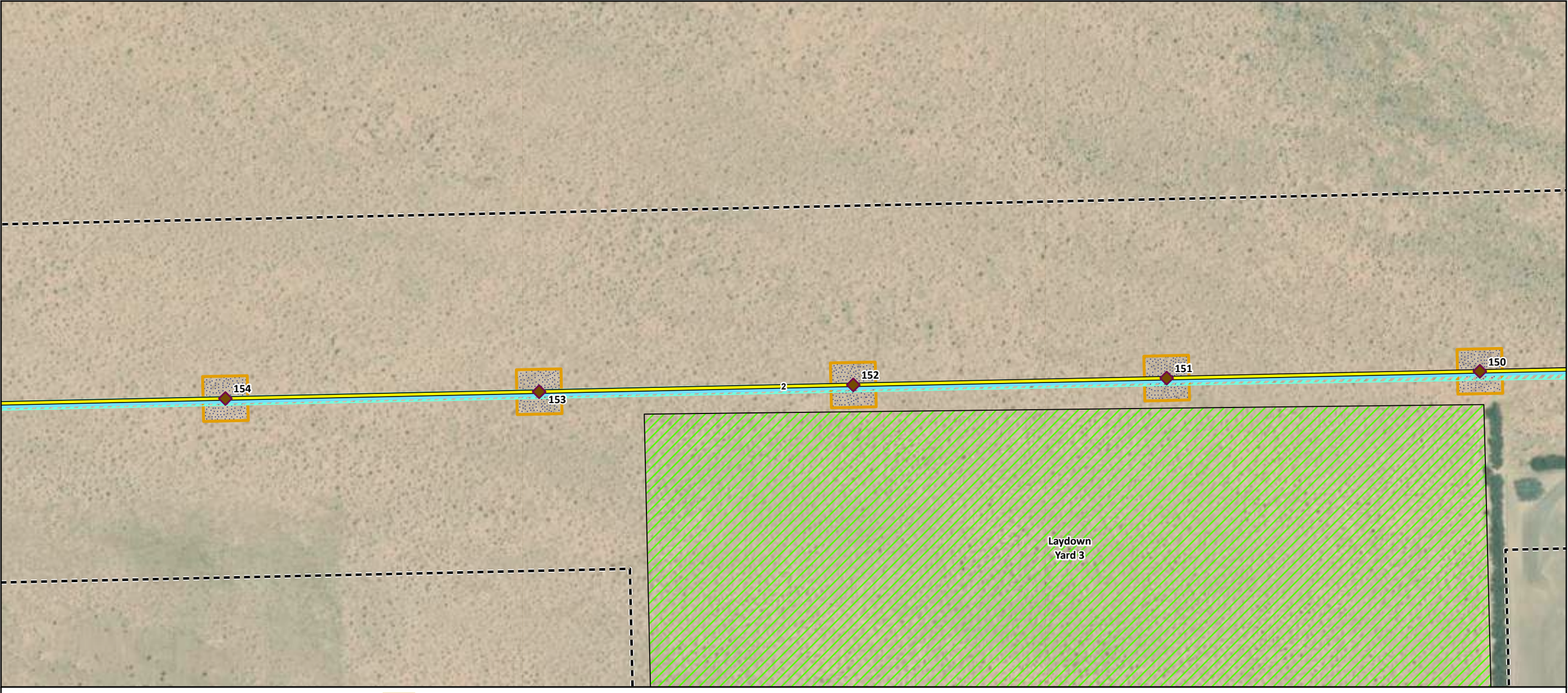
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Laydown Yard

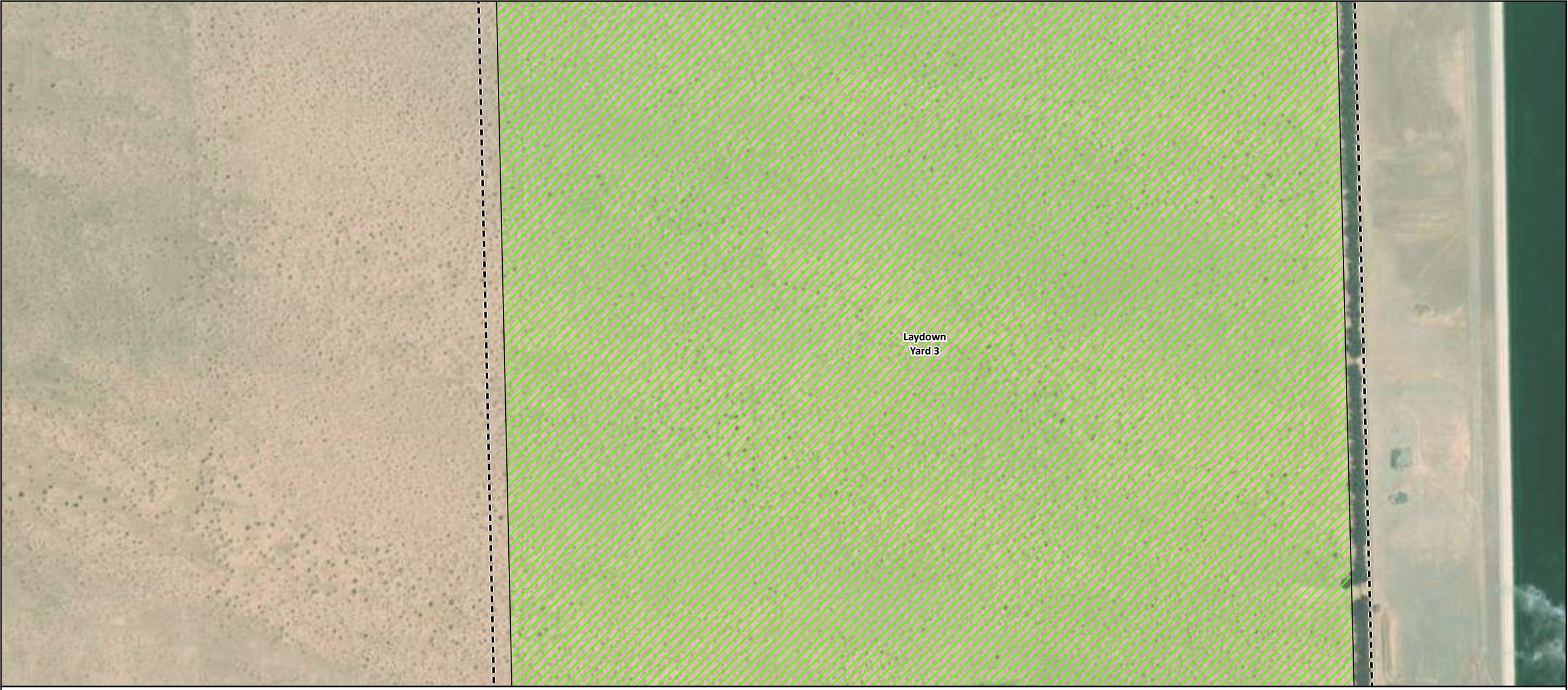
0 250 500

Feet

N



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Biological Study Area

Laydown Yard

0 250 500
Feet

N



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Biological Study Area

Laydown Yard

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

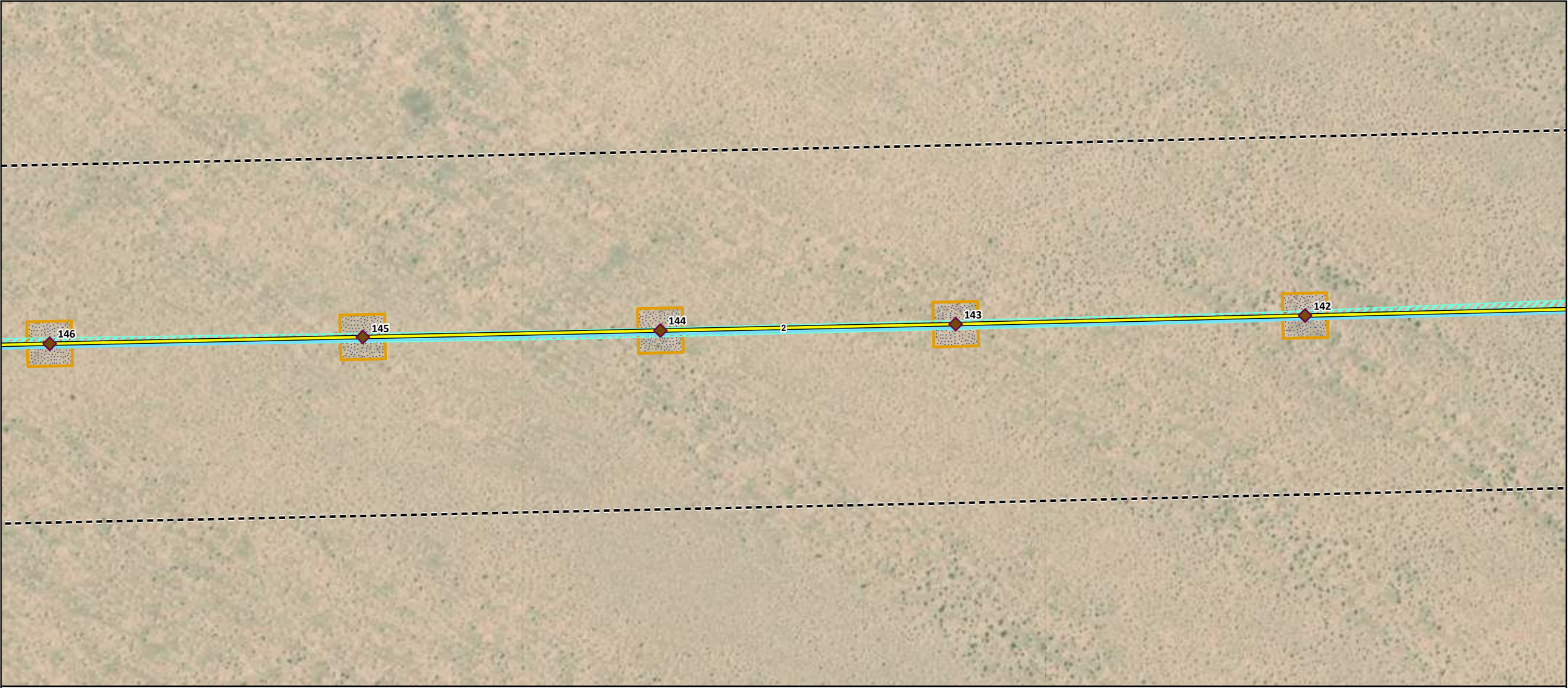
Laydown Yard

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

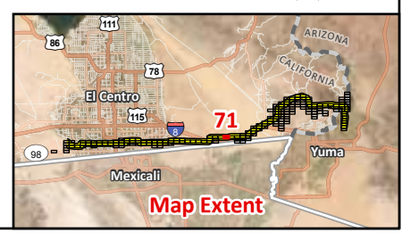
Type 3 New Road - Flat

Construction Work Pad

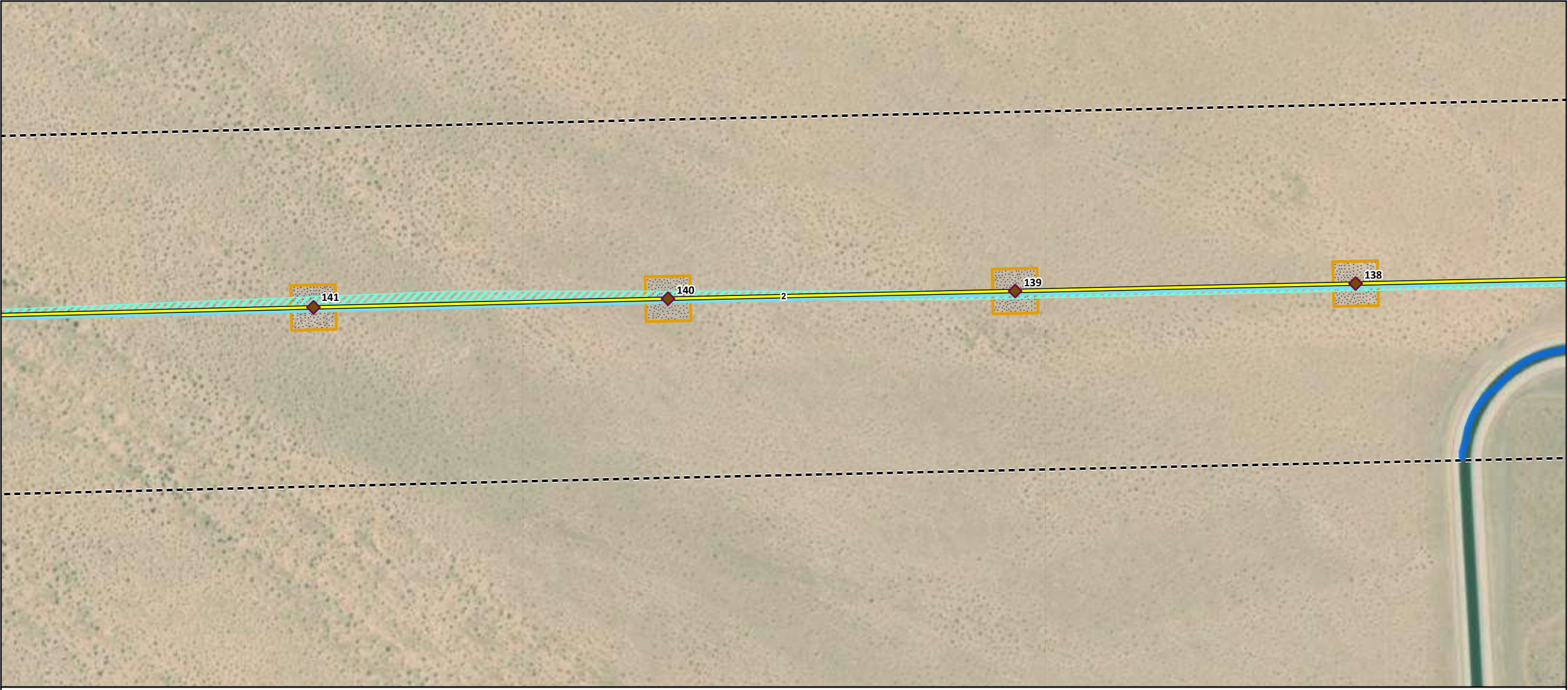
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Potential Jurisdictional Waters

Riverine

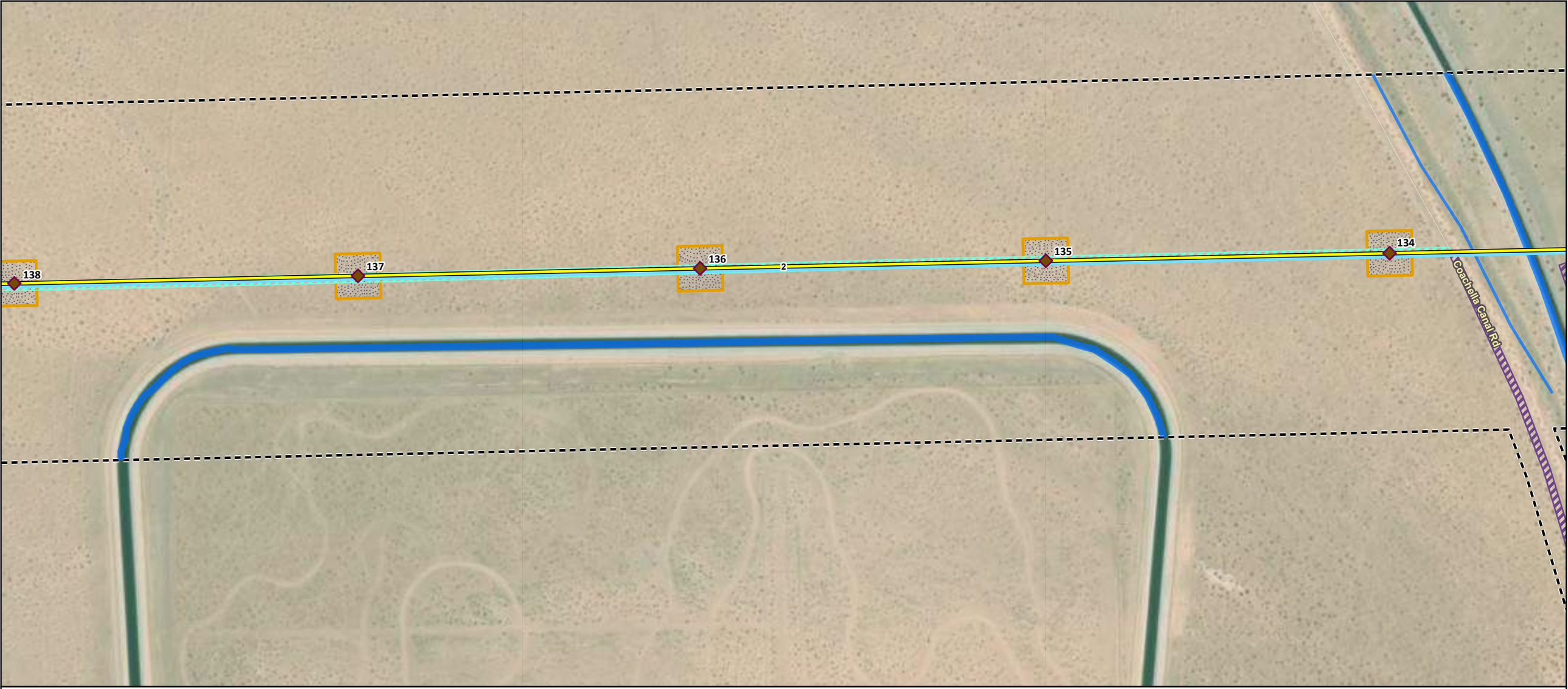
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

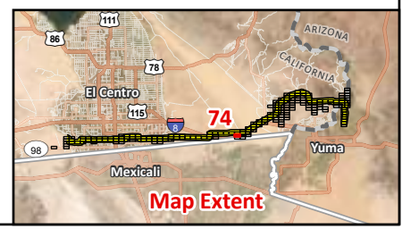
Laydown Yard

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

US-Mexico Border

Access Roads

Type 2 Existing Road - Needs Improvement

Laydown Yard

Potential Jurisdictional Waters

Riverine

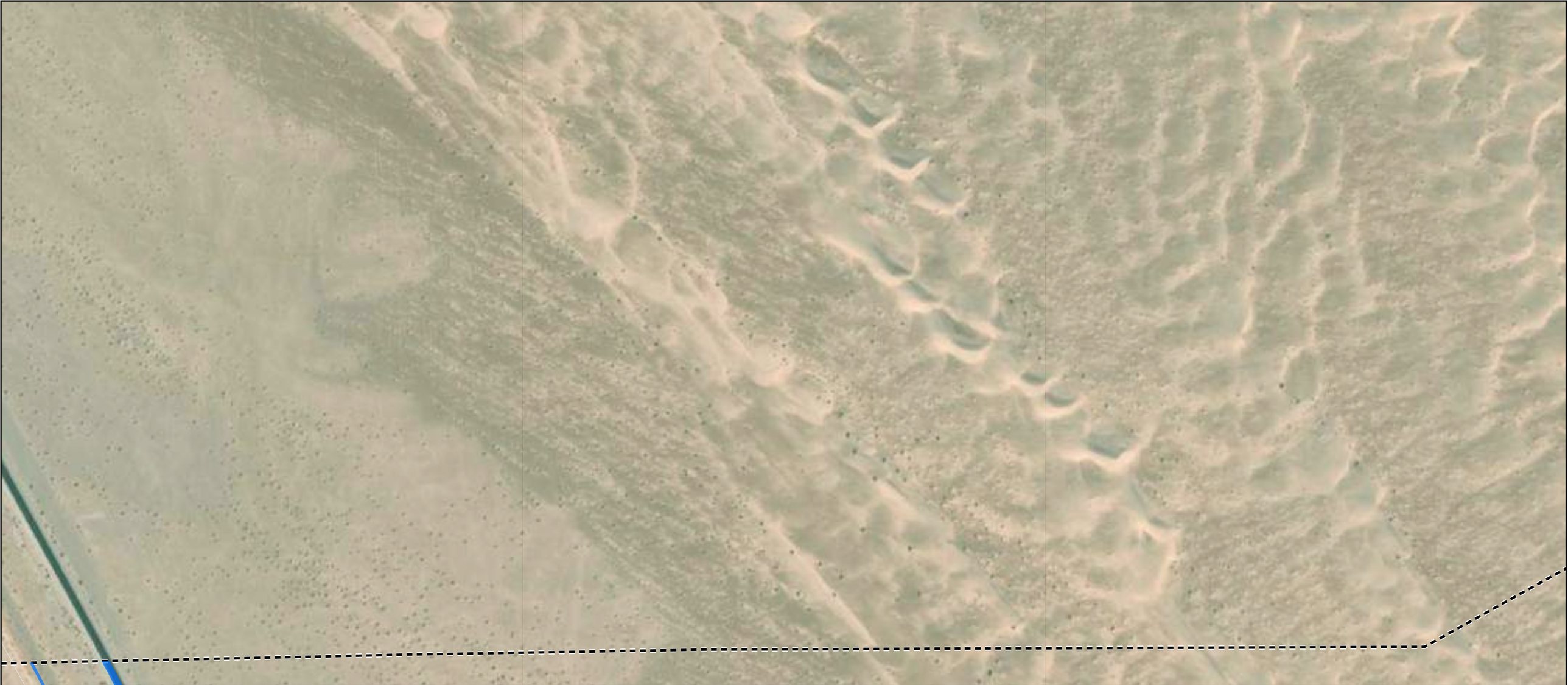
0 250 500

Feet

N



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Biological Study Area

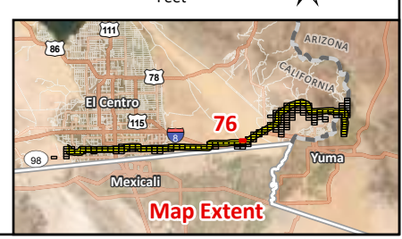
Potential Jurisdictional Waters

Riverine

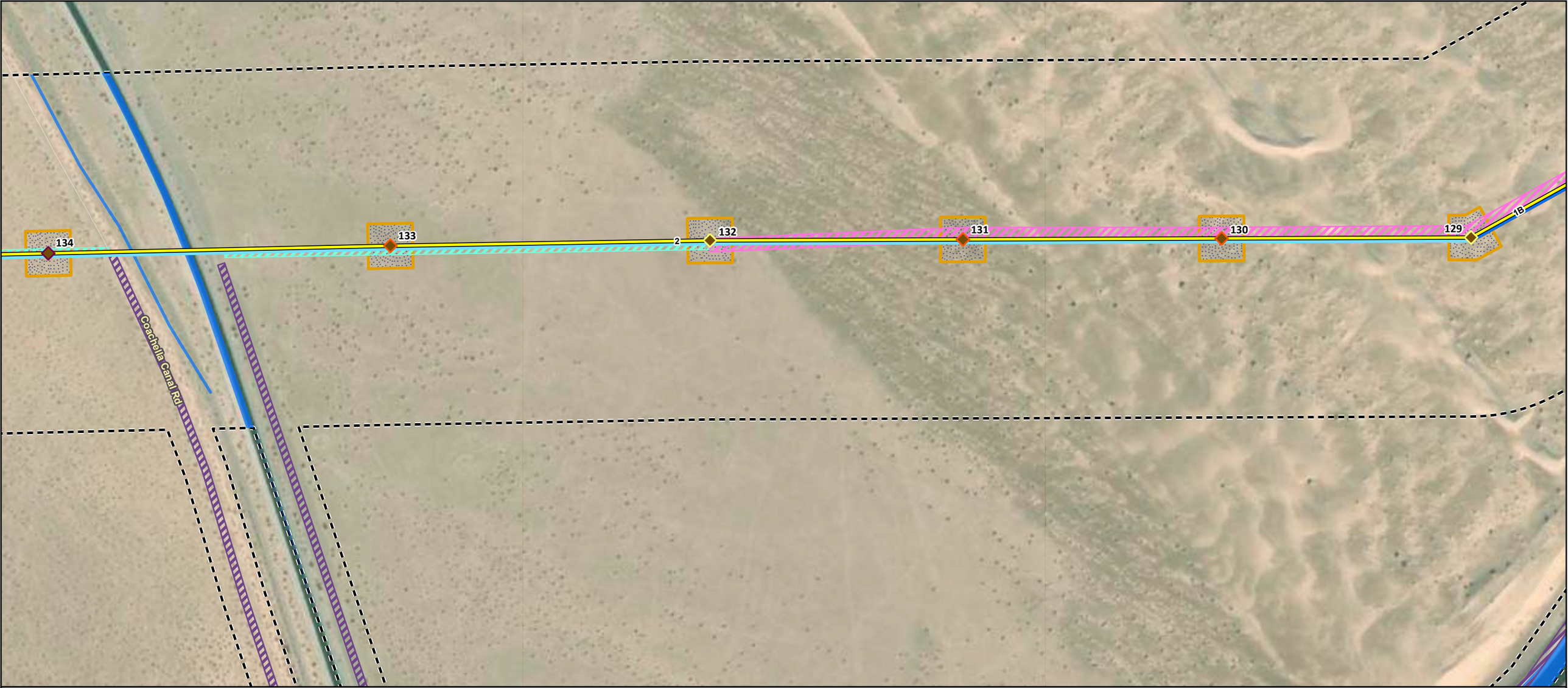
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I
1B

Segment II
2

Project Structure

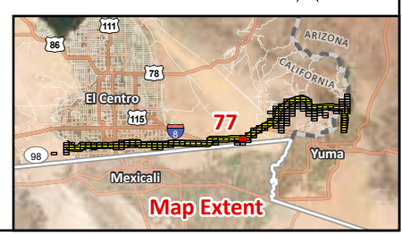
Transmission Structures
Lattice Guyed "V" (LGV) - Heavy
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads
Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Moderate
Construction Work Pad

Potential Jurisdictional Waters
Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

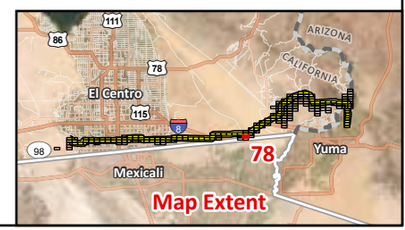
Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

US-Mexico Border

Access Roads

Type 2 Existing Road - Needs Improvement

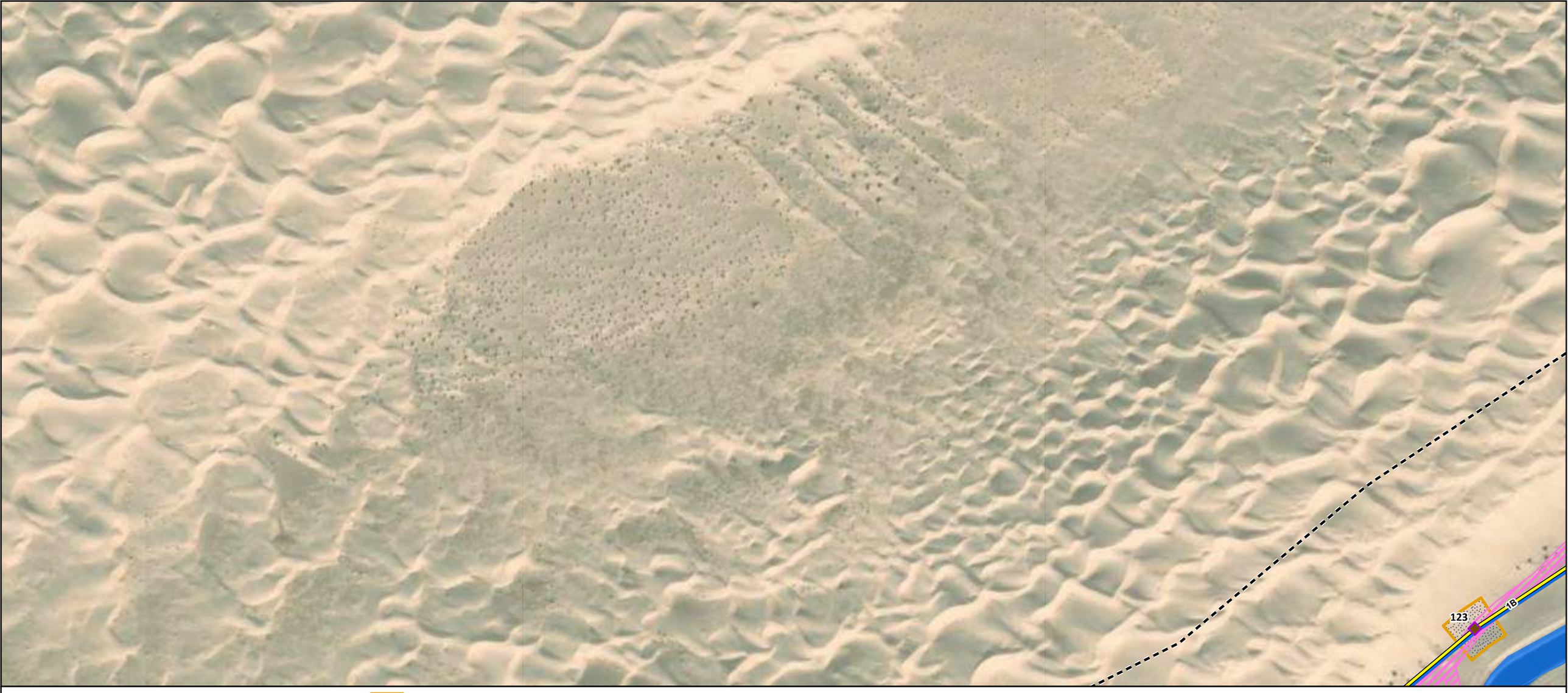
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Access Roads

Type 3 New Road - Moderate

Construction Work Pad

Potential Jurisdictional Waters

Riverine

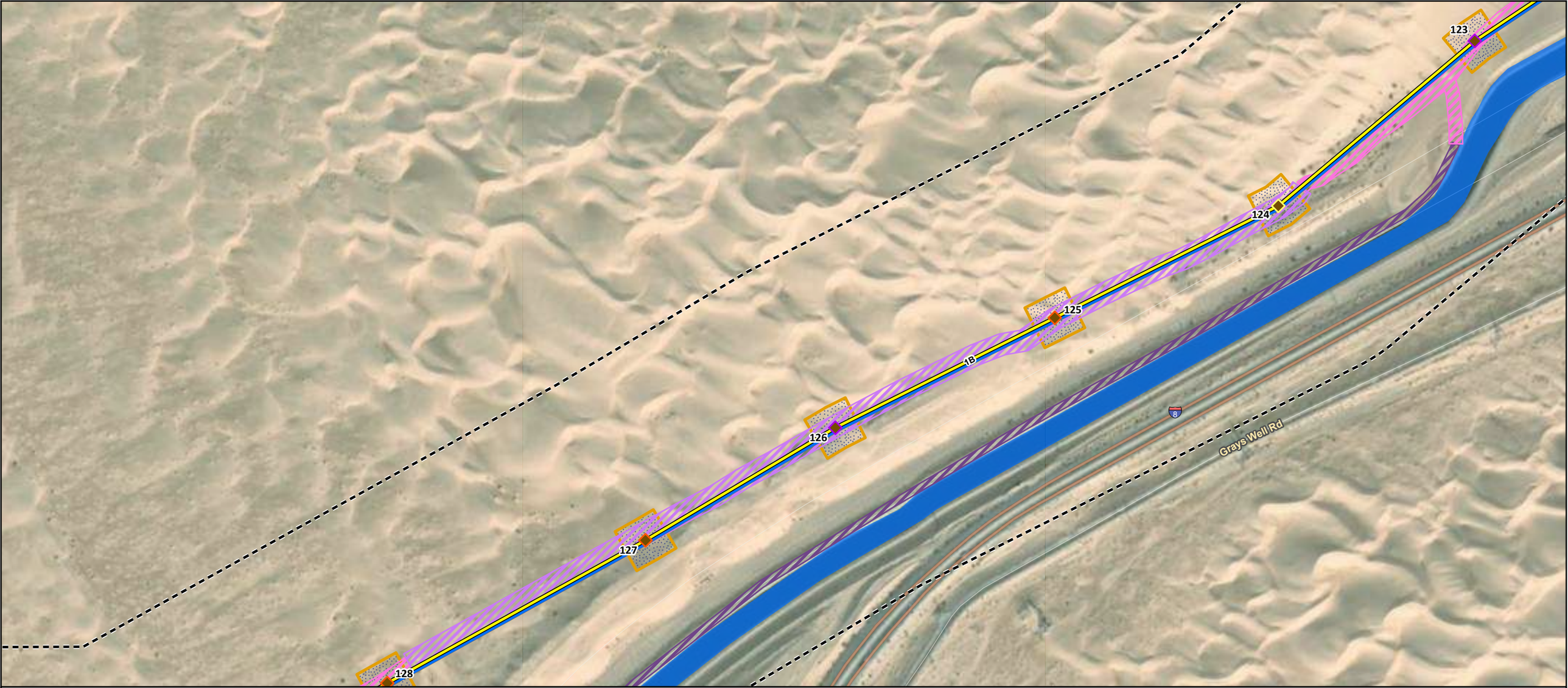
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Moderate
Type 3 New Road - Steep
Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Segment II

2

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

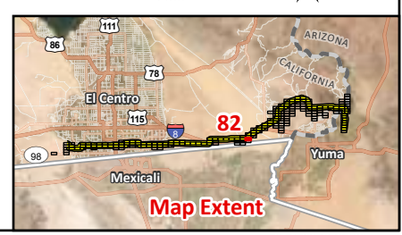
Potential Jurisdictional Waters

Riverine

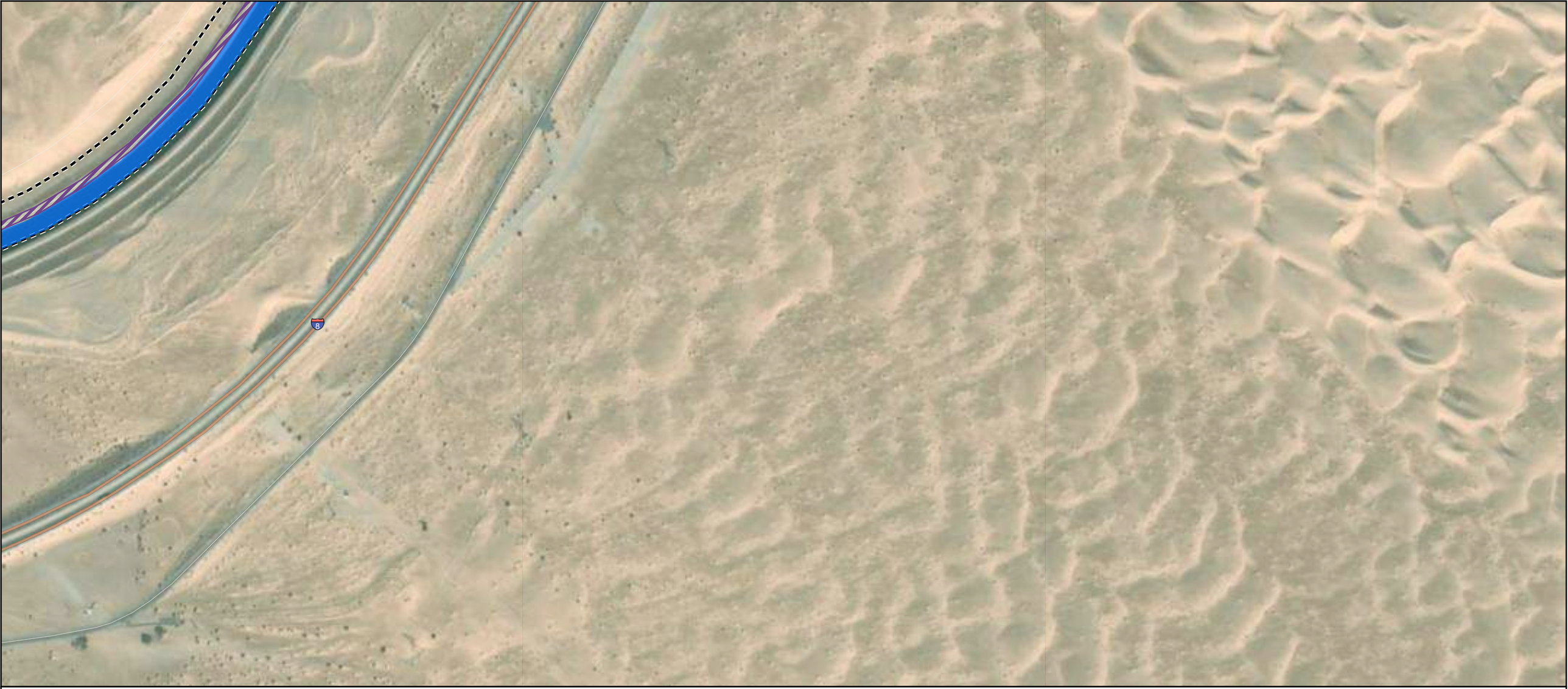
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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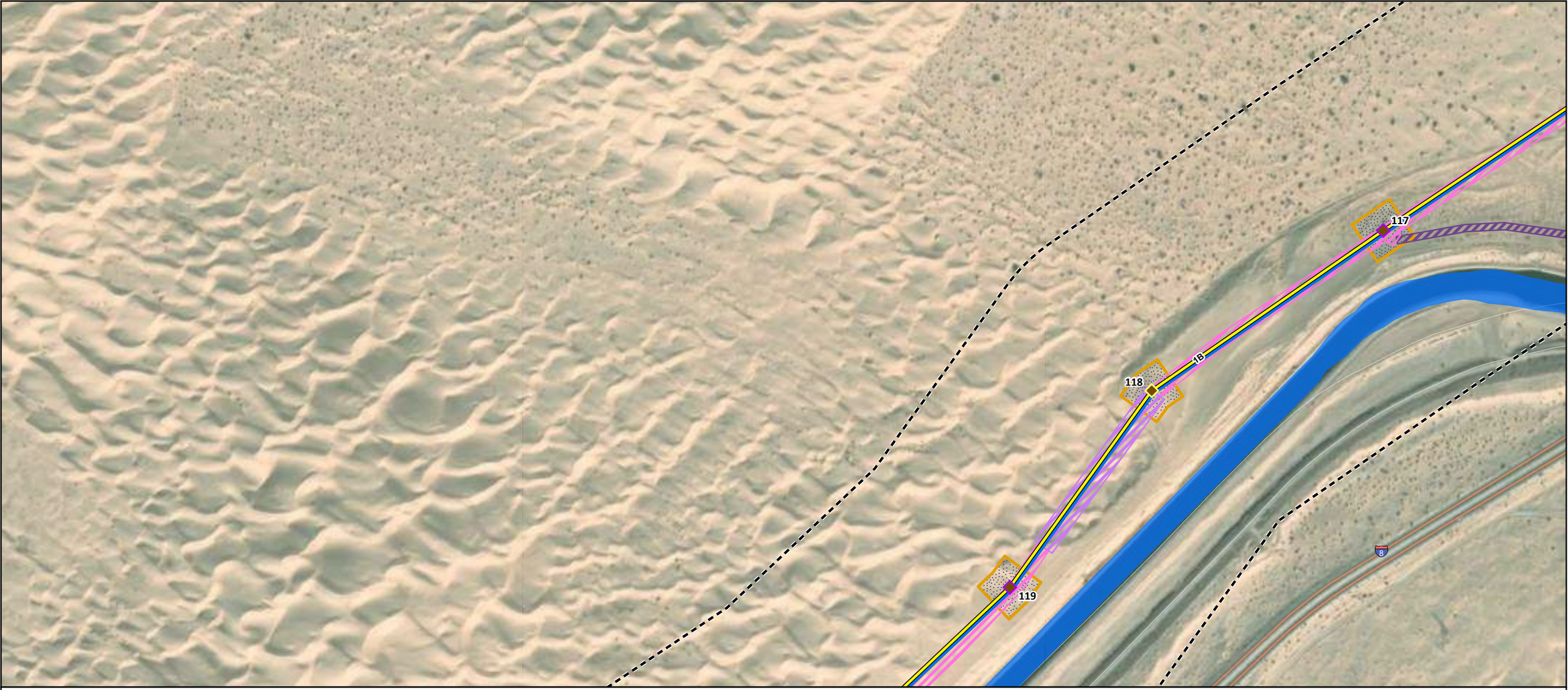
Biological Study Area

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

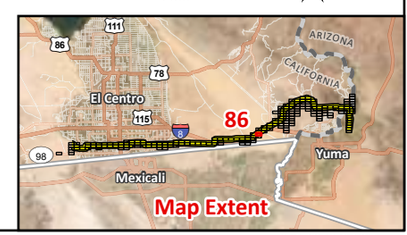
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

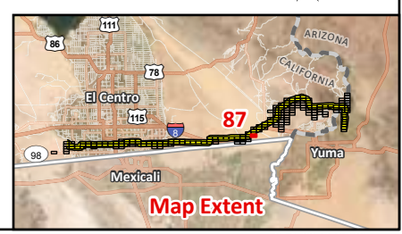
Potential Jurisdictional Waters

Riverine

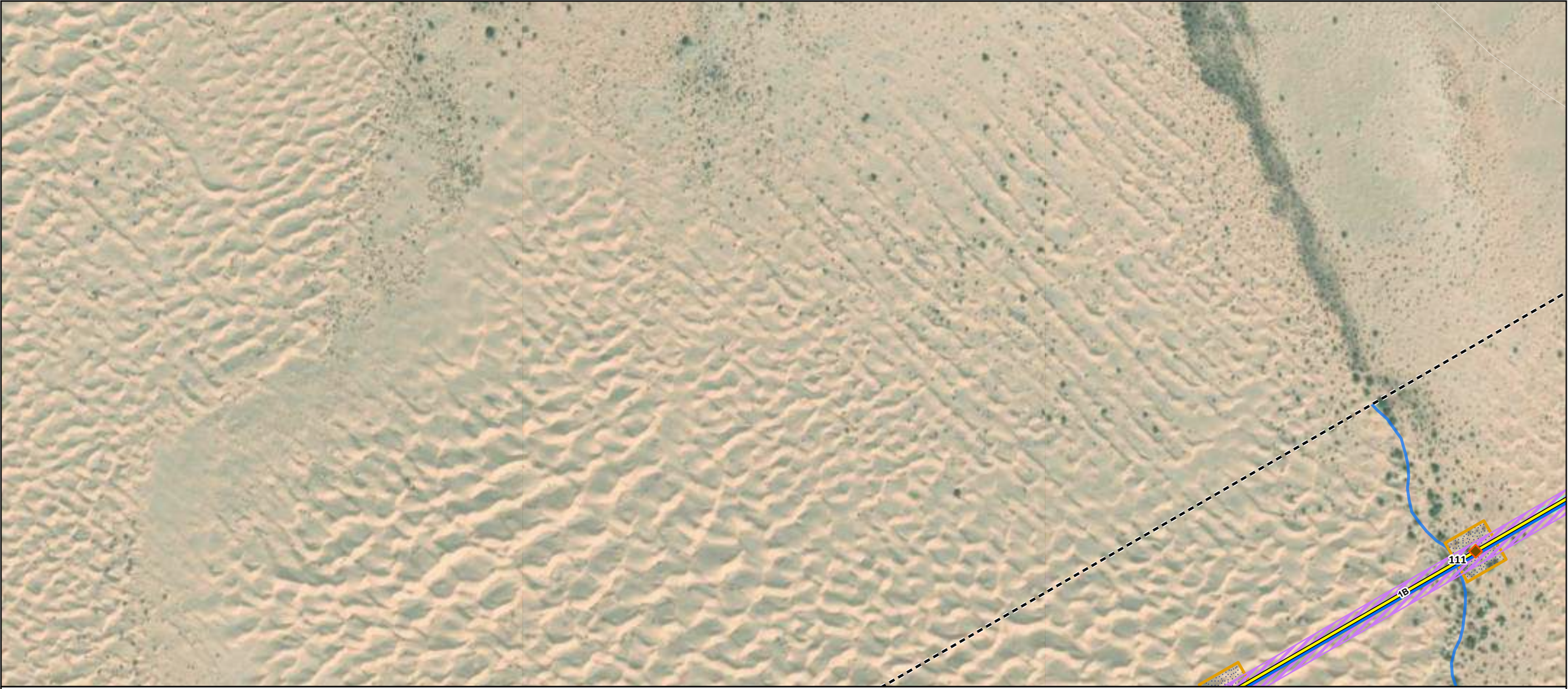
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Flat

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

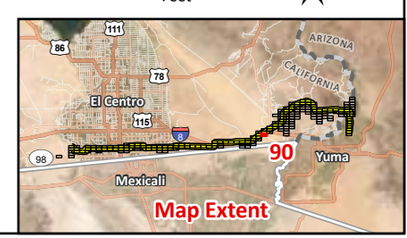
Potential Jurisdictional Waters

Riverine

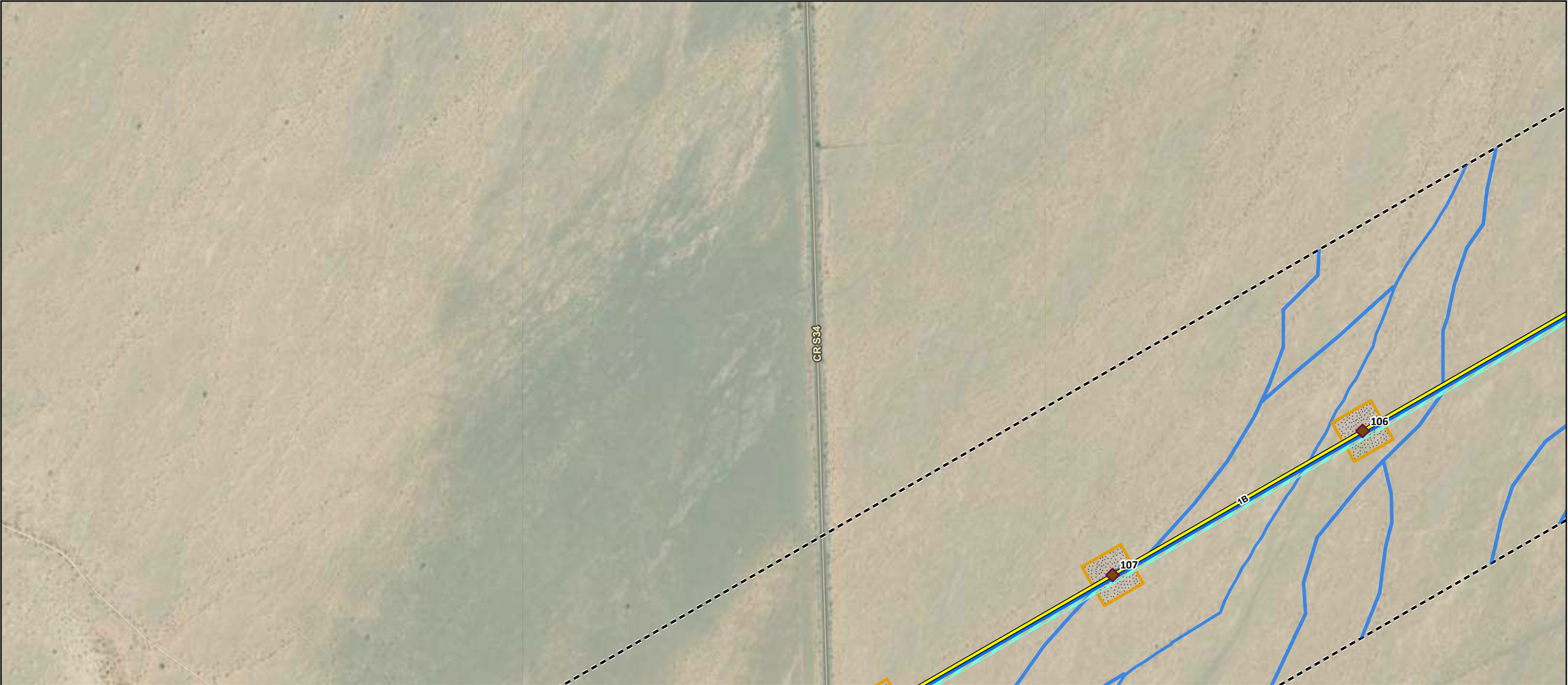
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

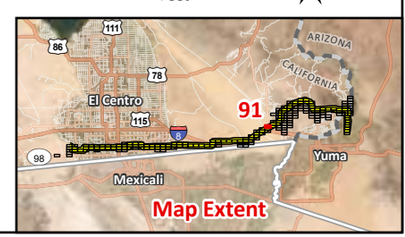
Construction Work Pad

Potential Jurisdictional Waters

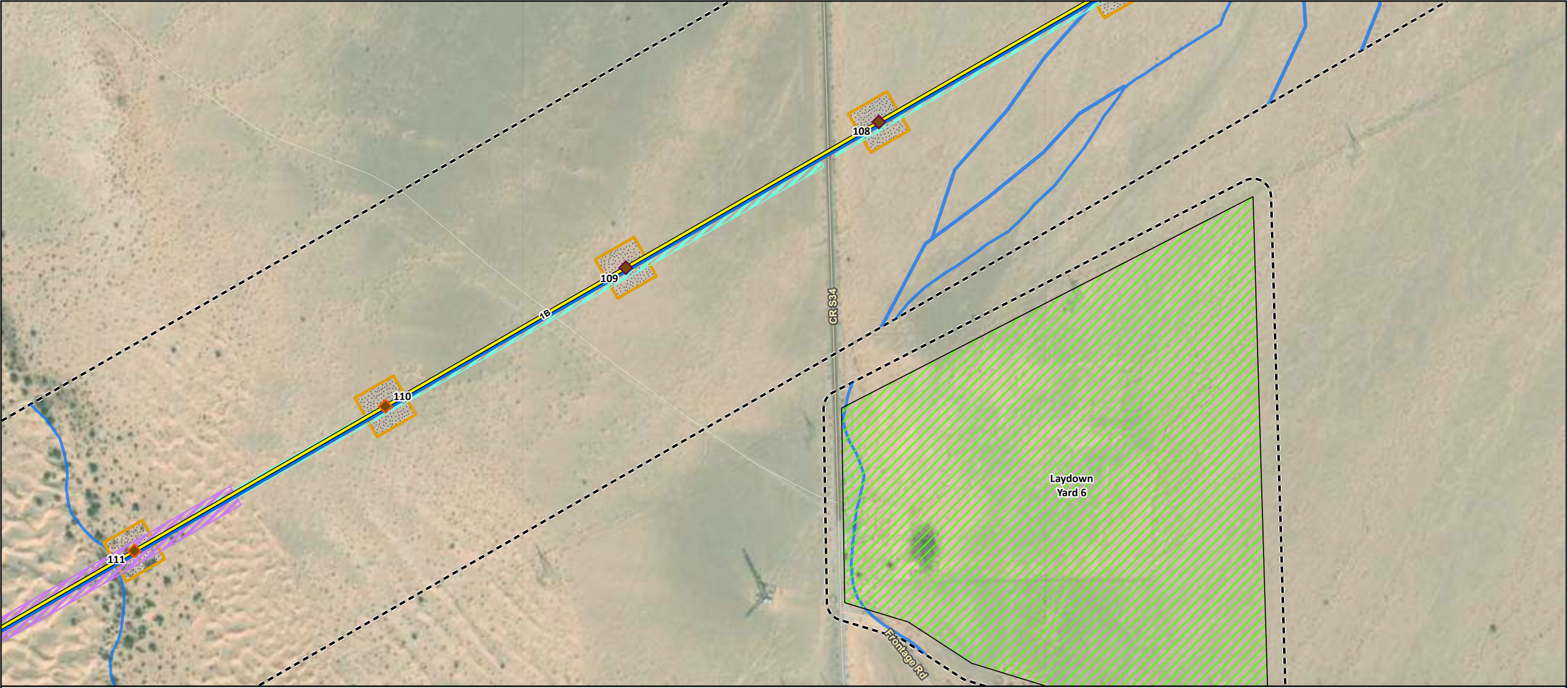
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Flat

Type 3 New Road - Steep

Construction Work Pad

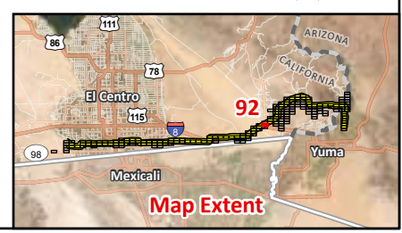
Laydown Yard

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Access Roads

Type 3 New Road - Steep

Laydown Yard

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Potential Jurisdictional Waters

Riverine

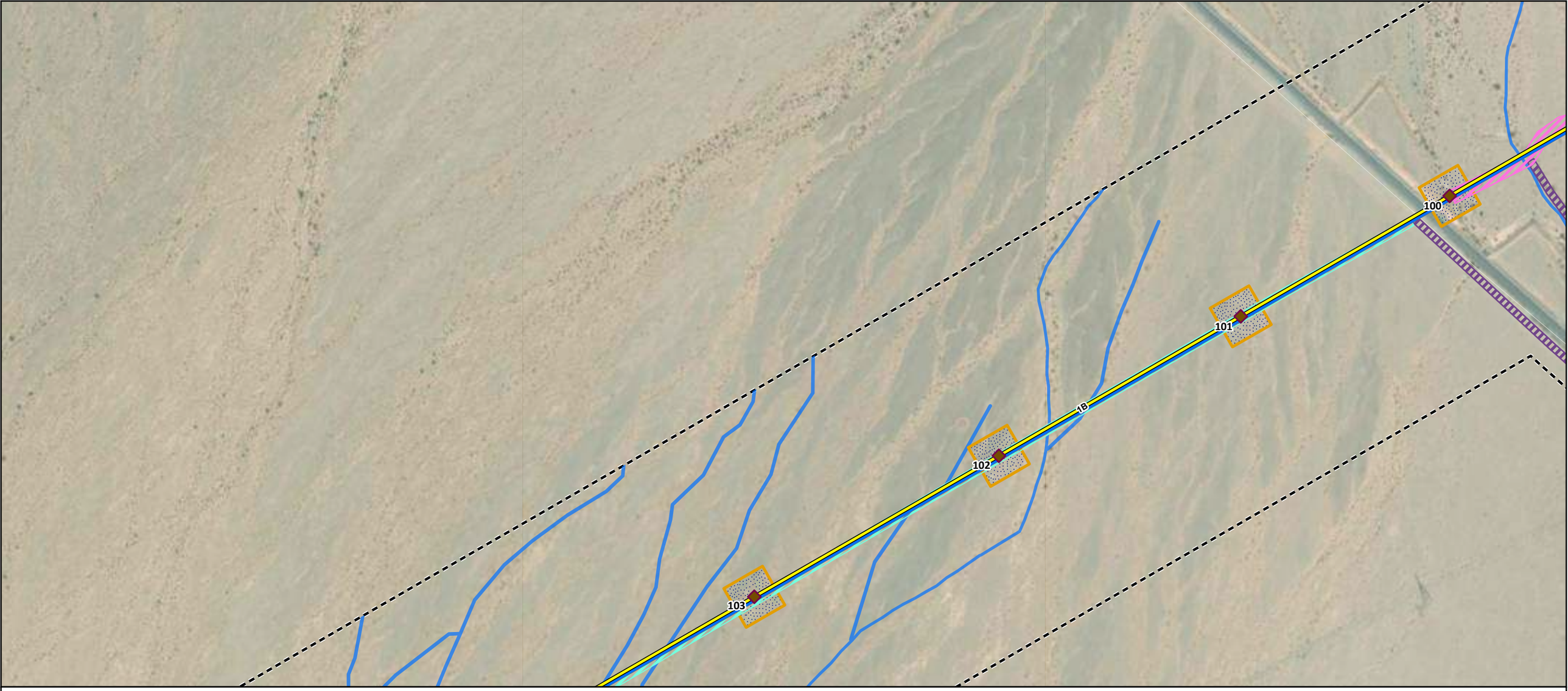
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Construction Work Pad

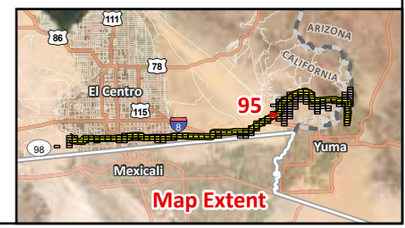
Potential Jurisdictional Waters

Riverine

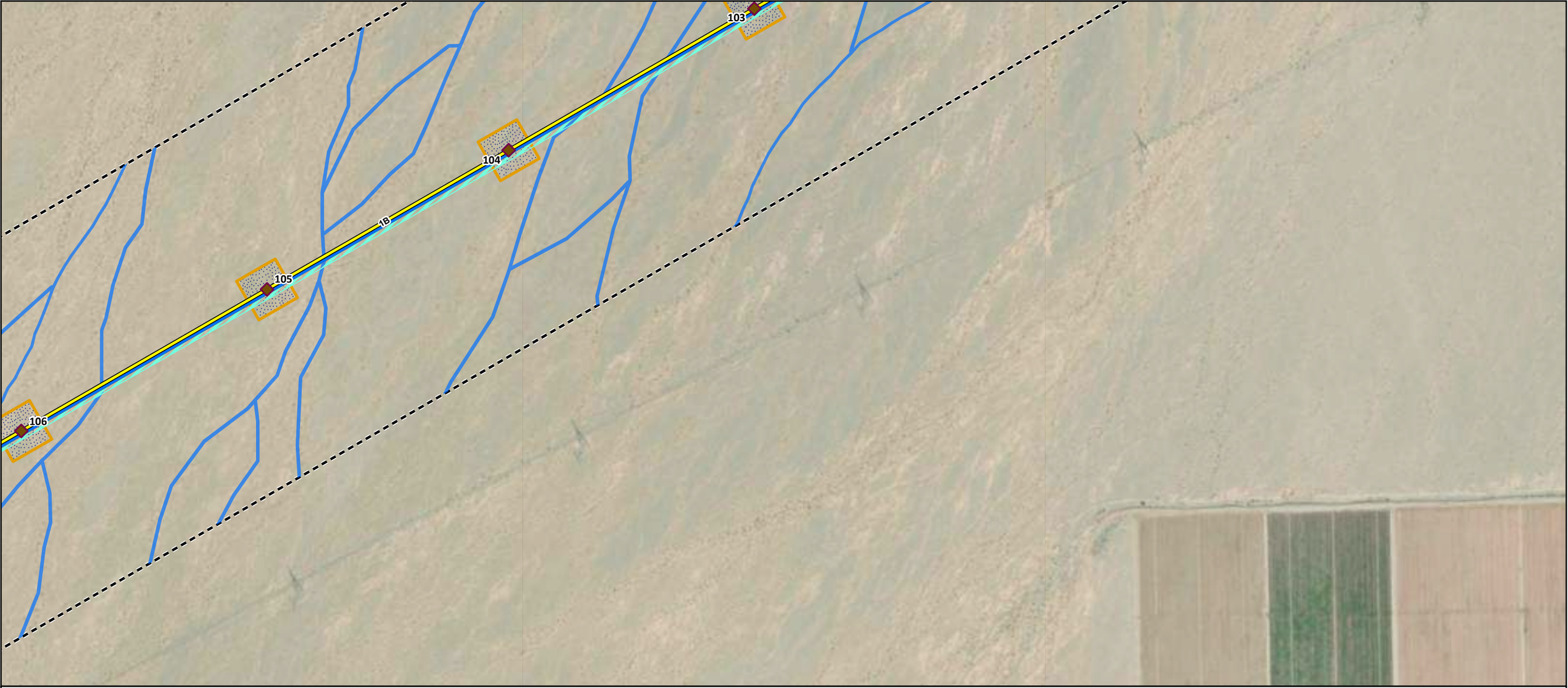
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Fly Yard

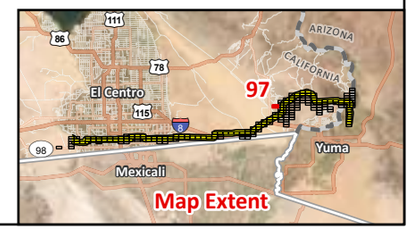
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

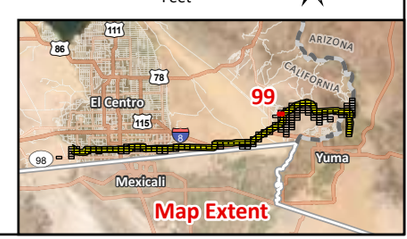
Fly Yard

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

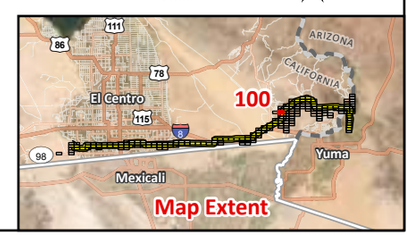
Fly Yard

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

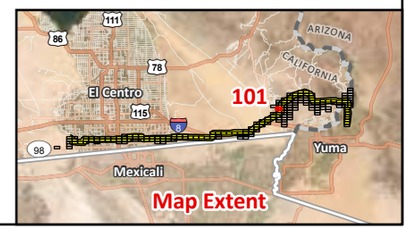
Fly Yard

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

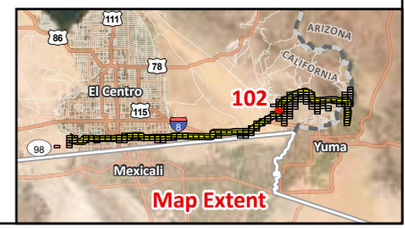
Construction Work Pad

Potential Jurisdictional Waters

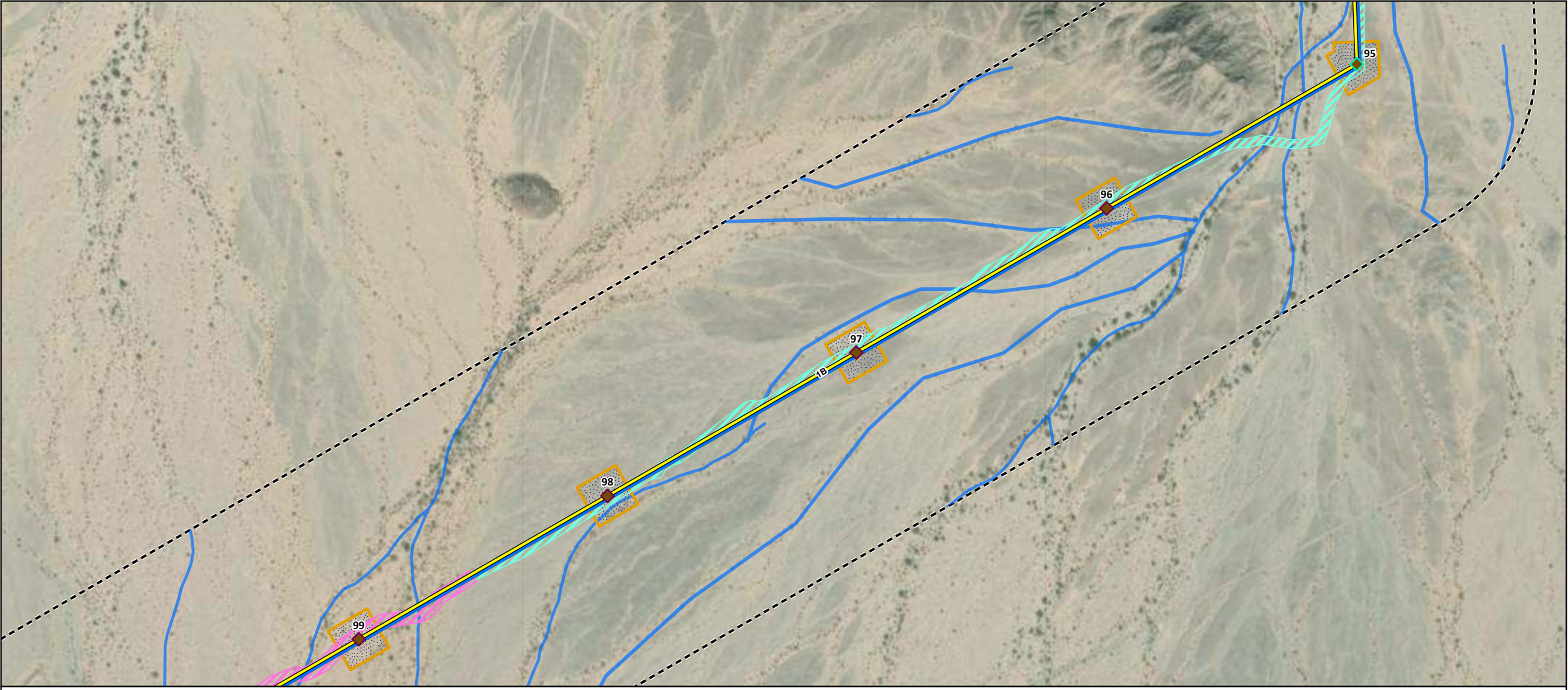
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 3 New Road - Flat

Type 3 New Road - Moderate

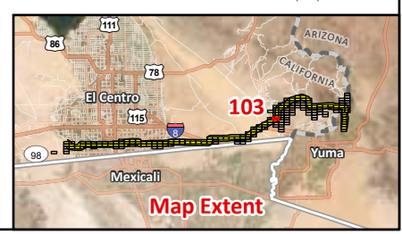
Construction Work Pad

Potential Jurisdictional Waters

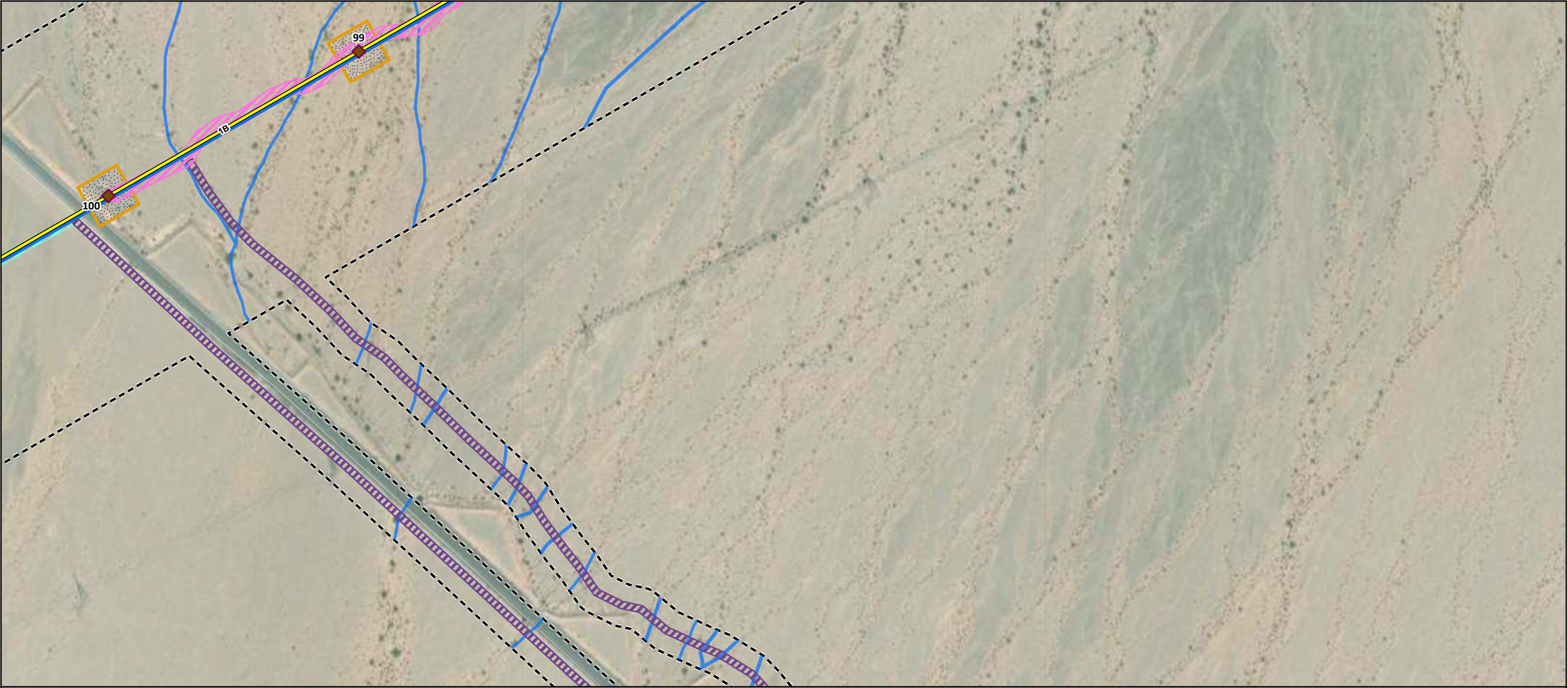
Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Construction Work Pad

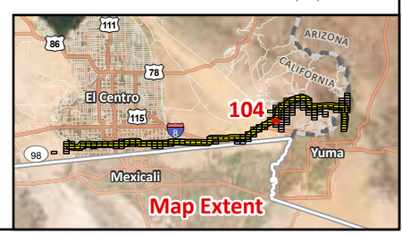
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

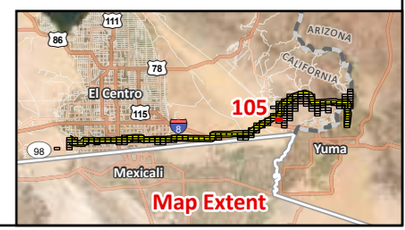
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

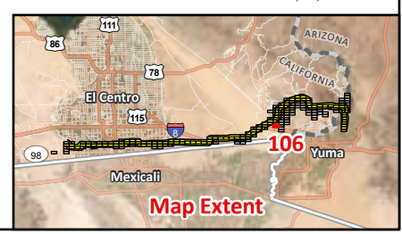
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

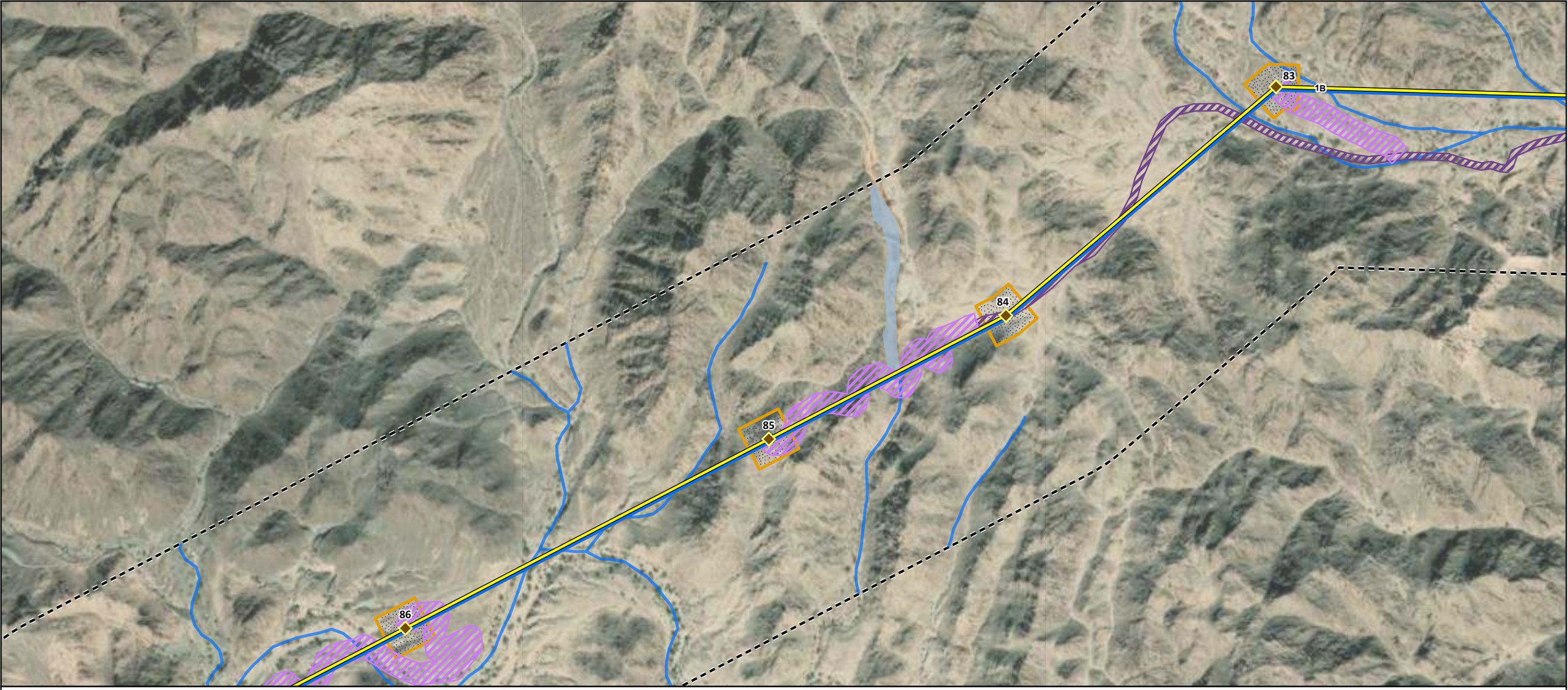
Riverine

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

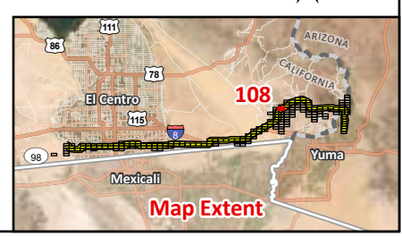
Freshwater Pond

Riverine

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

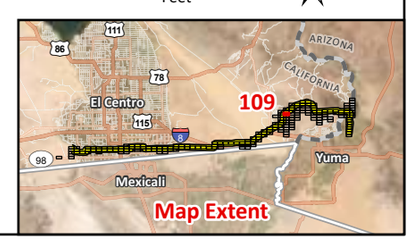
Fly Yard

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

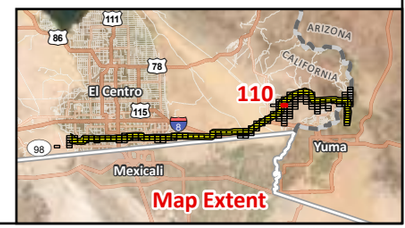
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

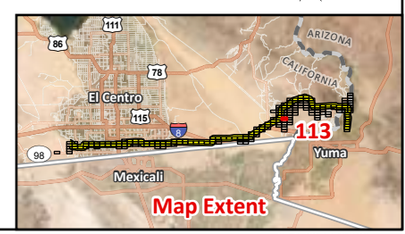
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

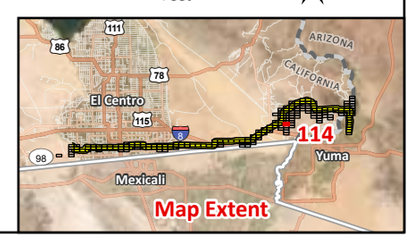
Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

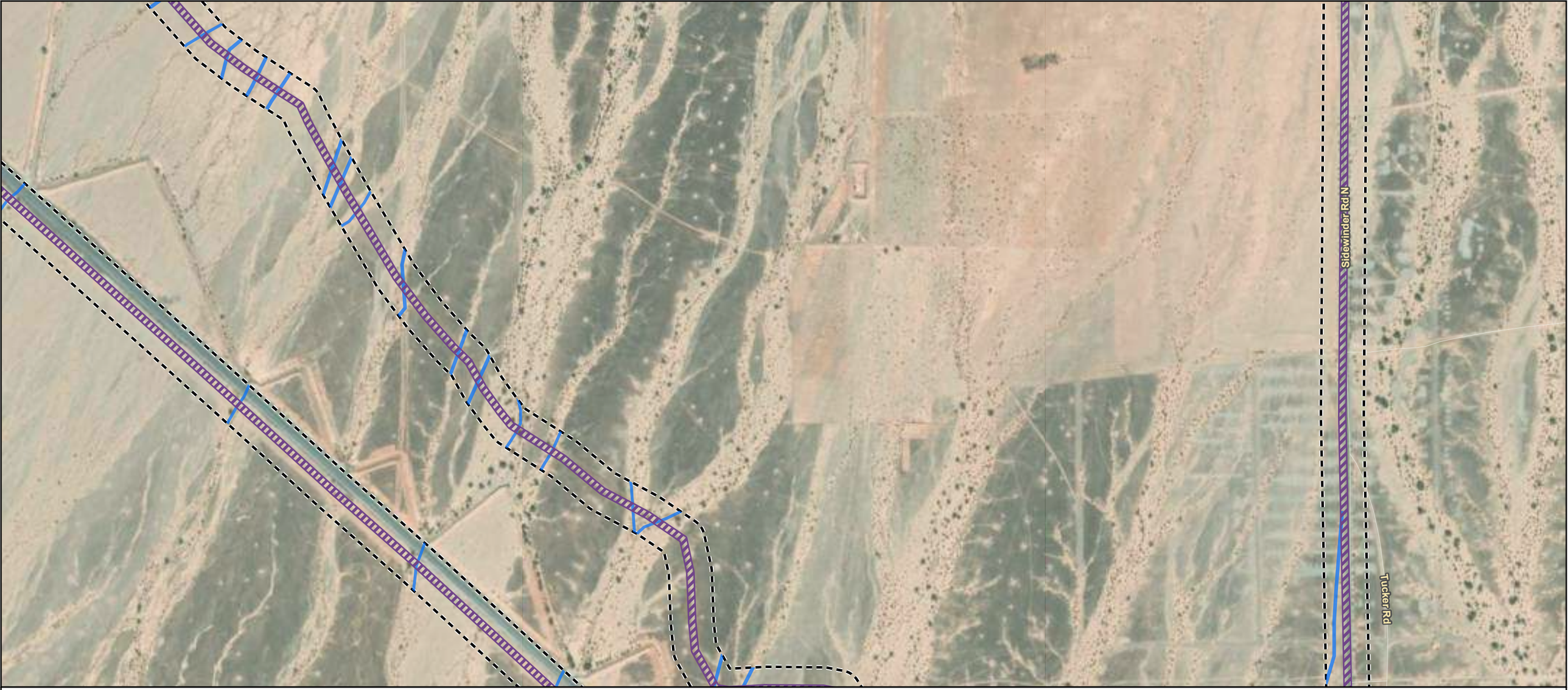
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

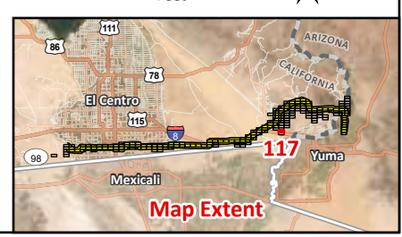
Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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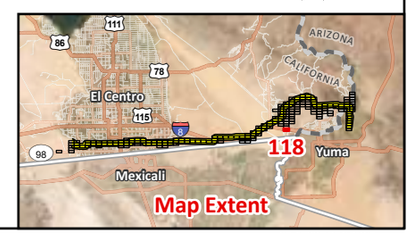
Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Moderate
Type 3 New Road - Steep

Construction Work Pad
Fly Yard

Potential Jurisdictional Waters

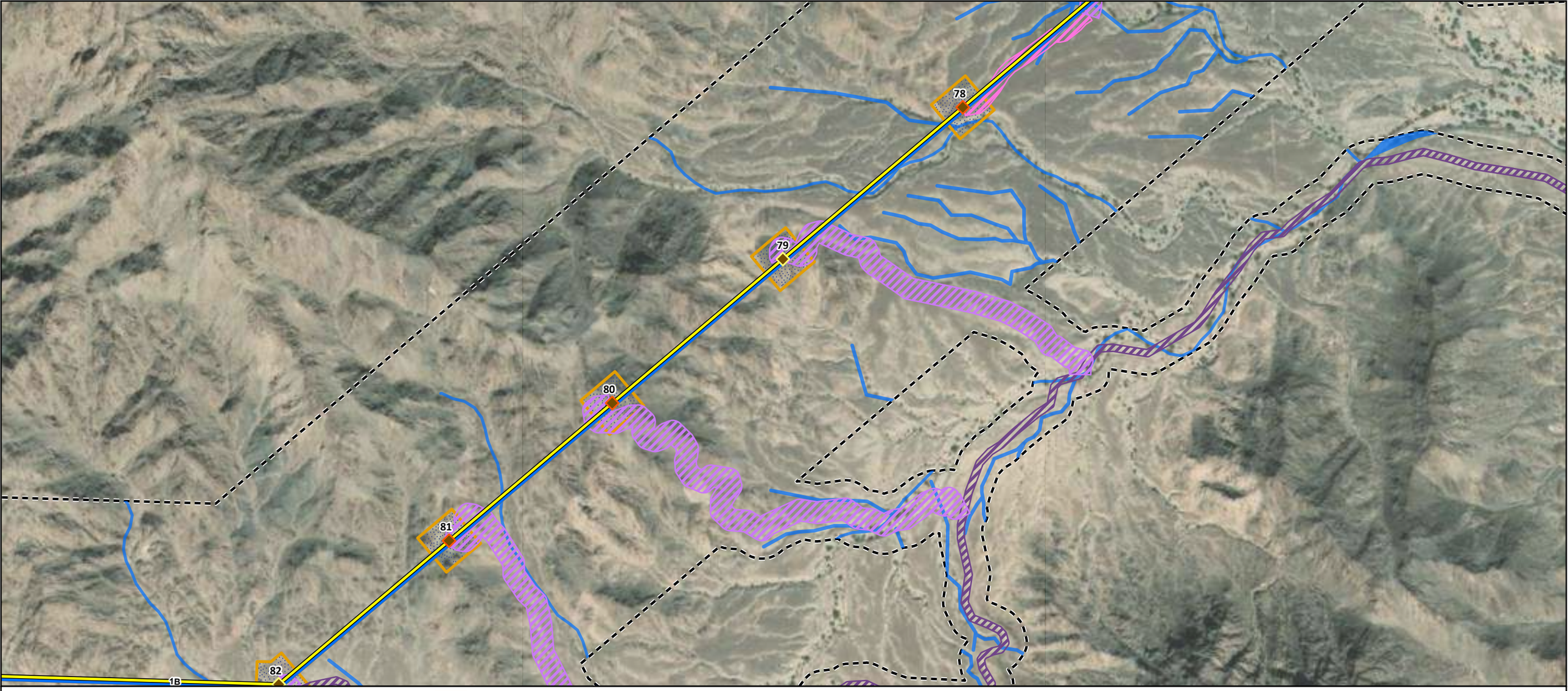
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

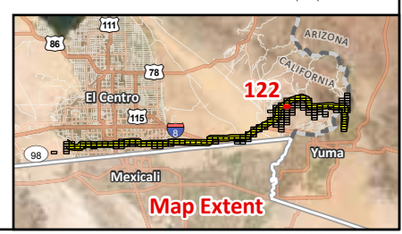
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

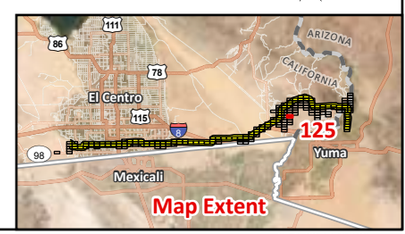
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

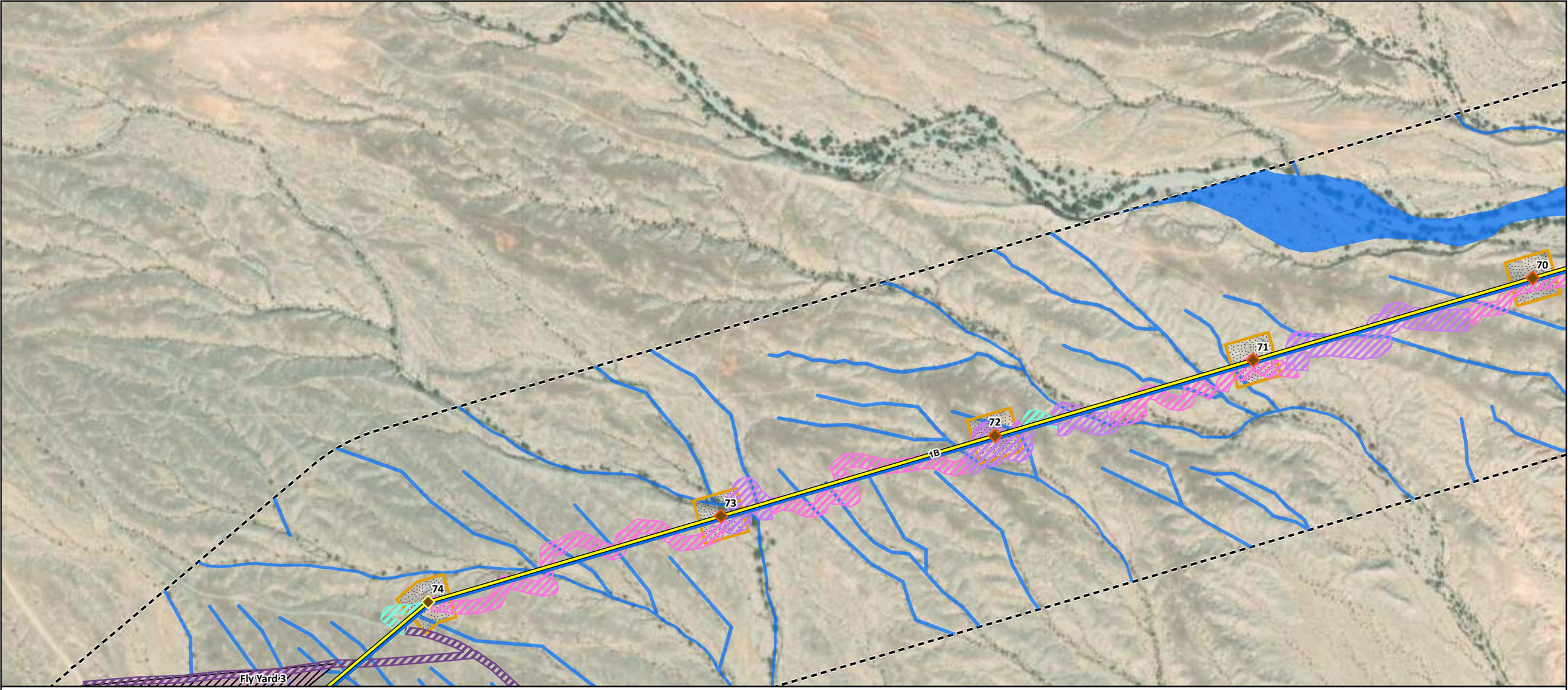
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Fly Yard

Potential Jurisdictional Waters

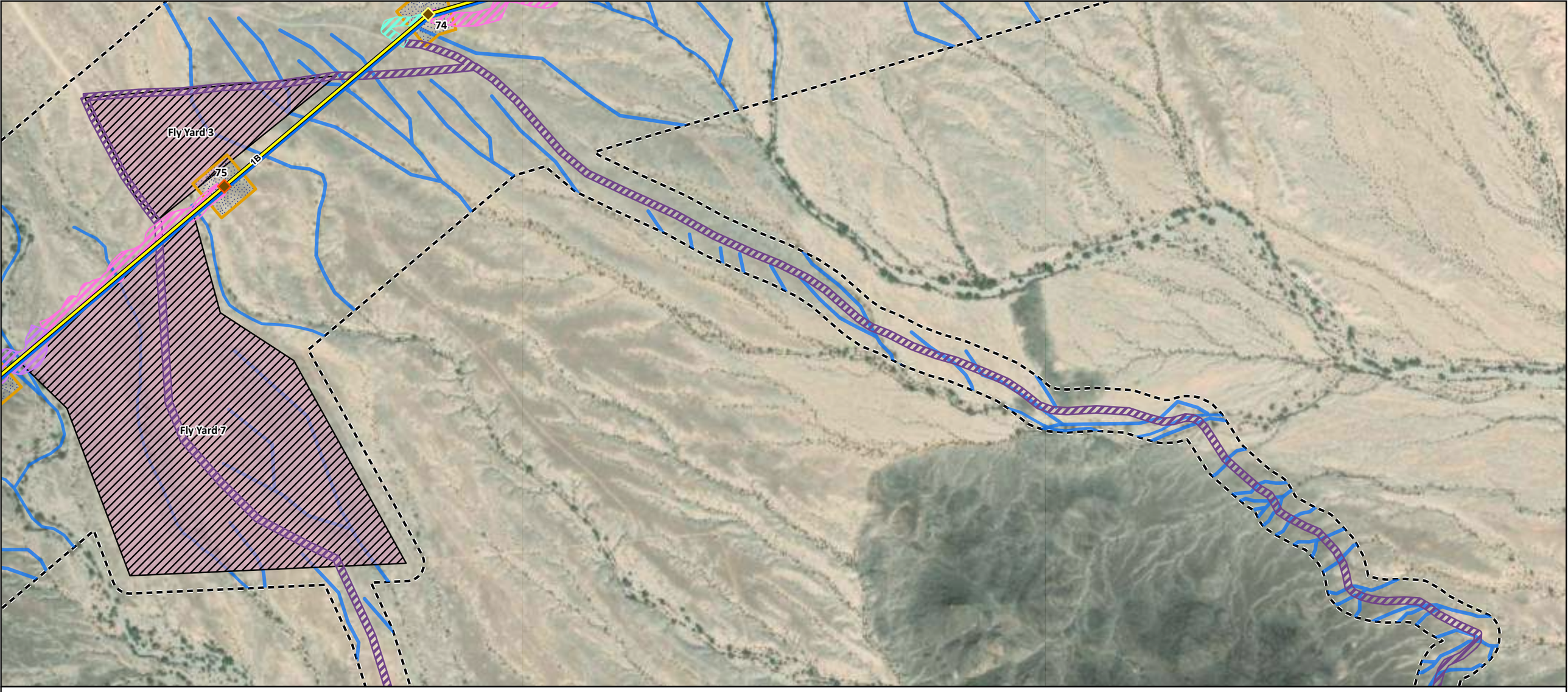
Riverine

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Fly Yard

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Fly Yard 2

Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Potential Jurisdictional Waters

Riverine

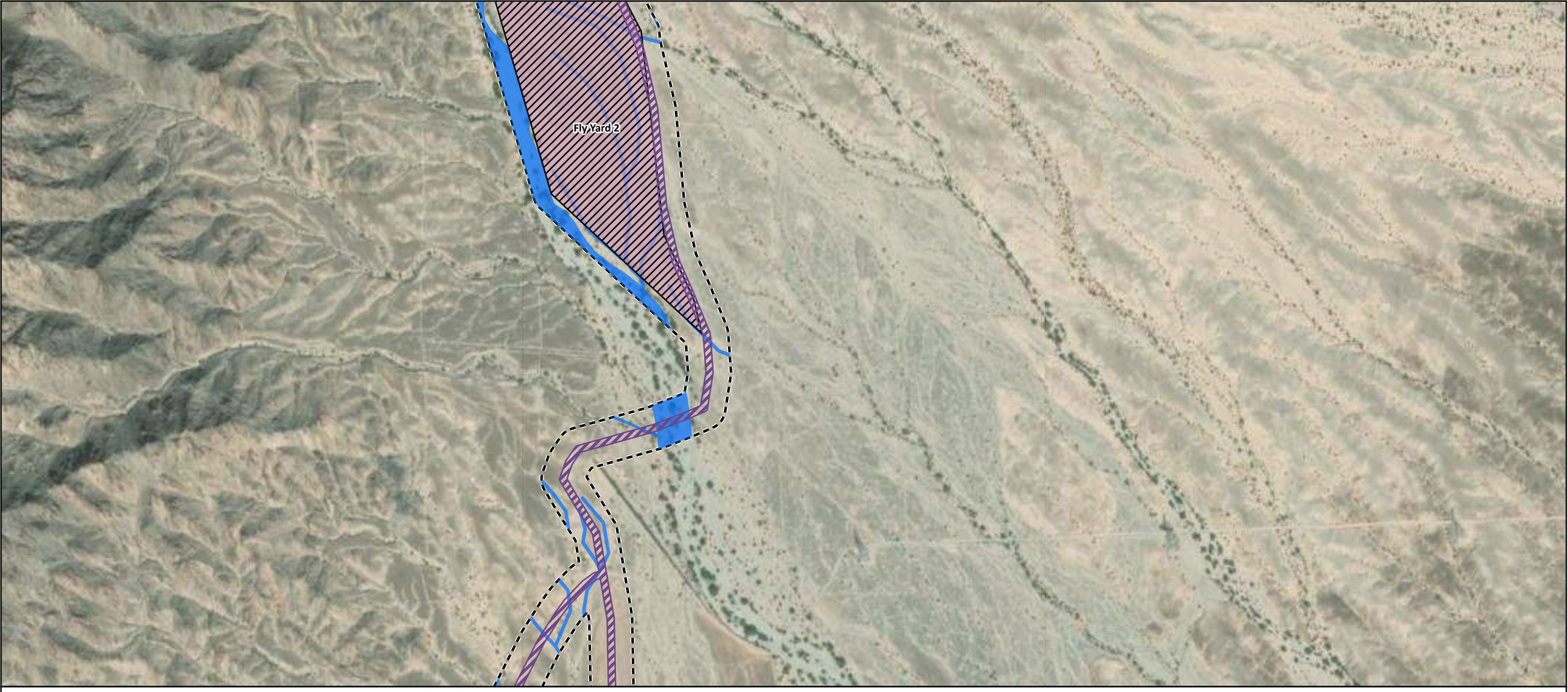
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

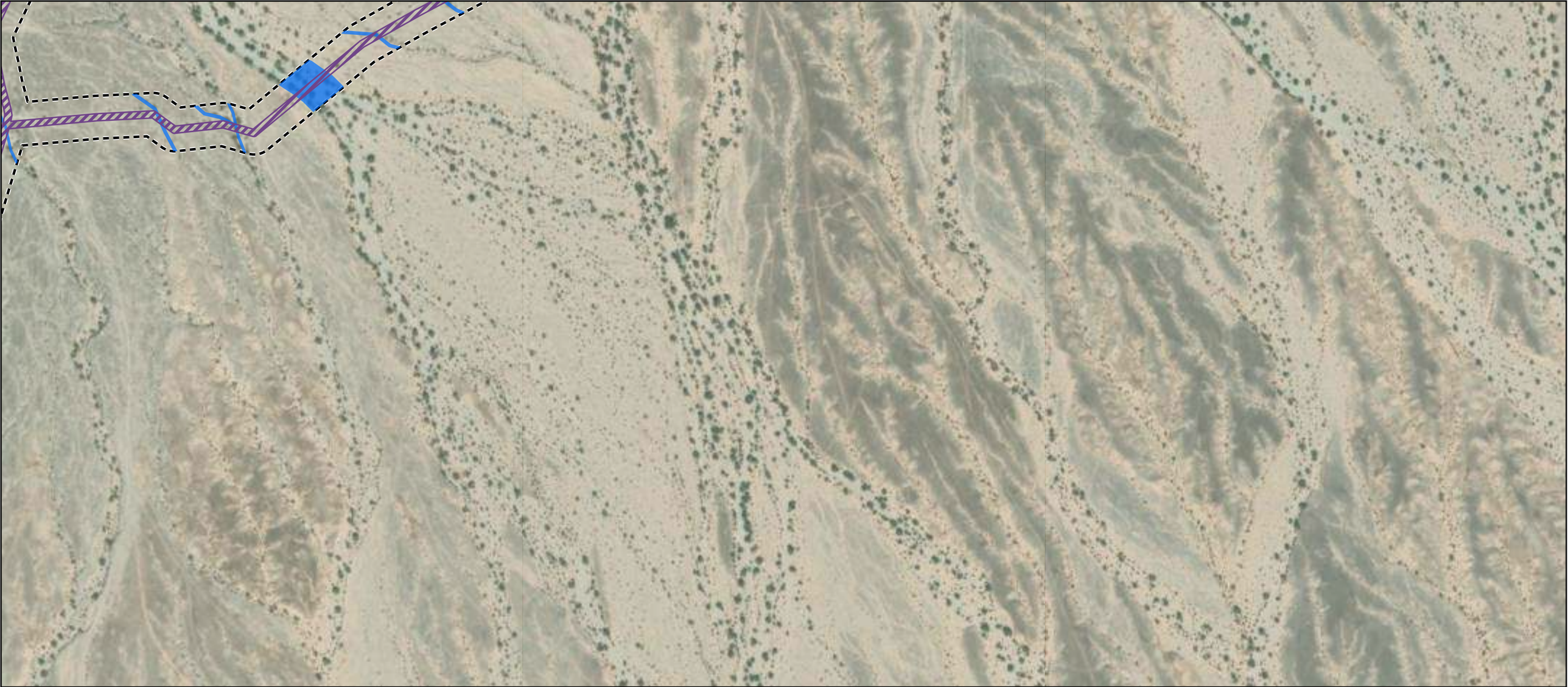
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

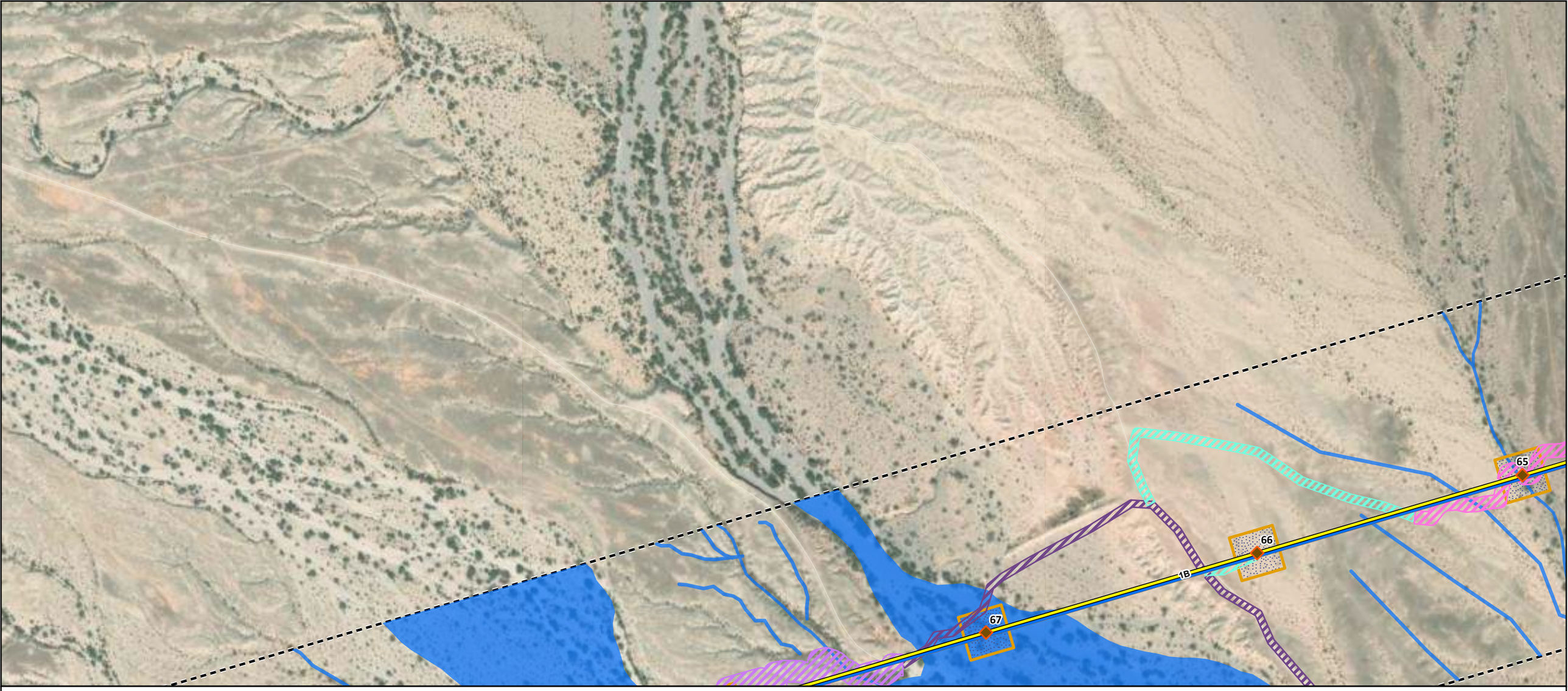
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

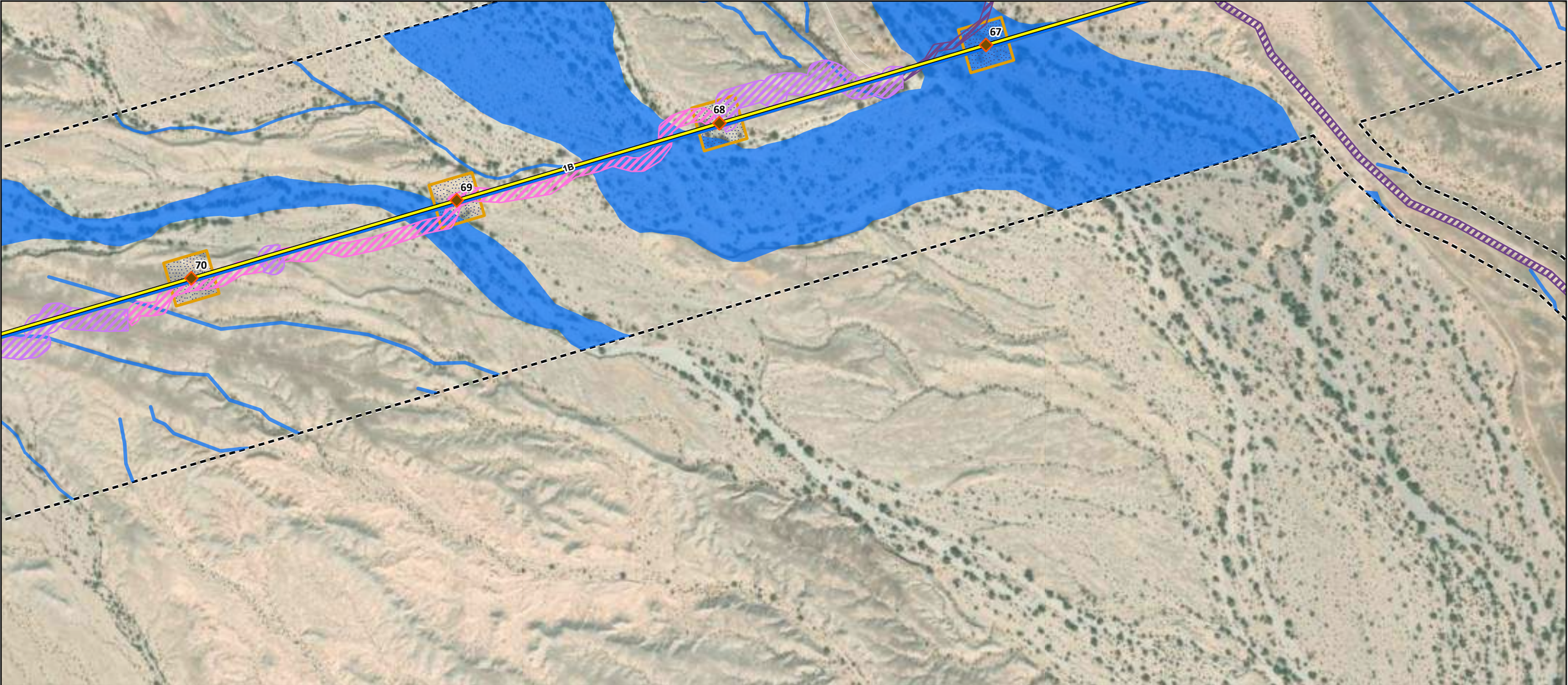
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Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

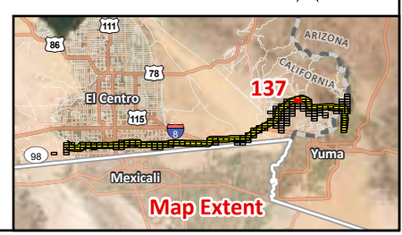
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

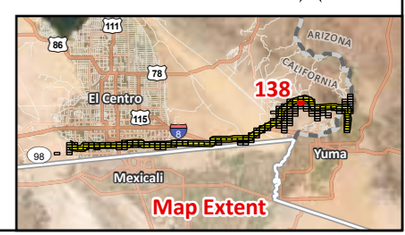
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

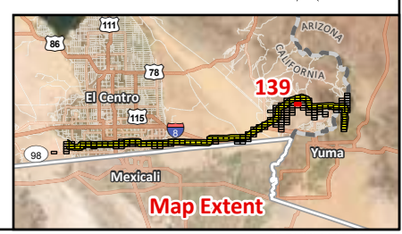
Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

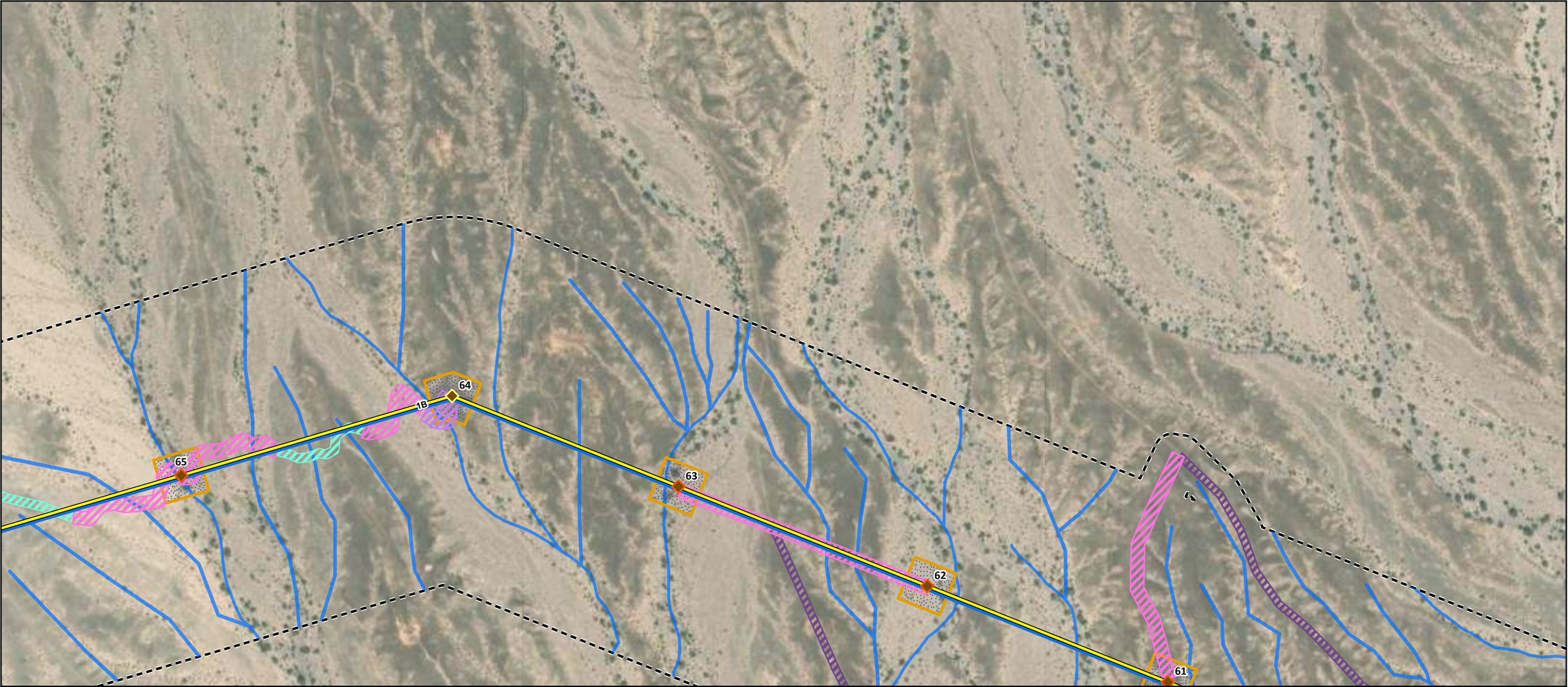
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Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

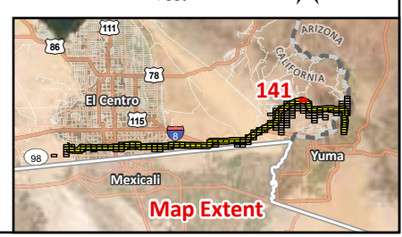
Construction Work Pad

Potential Jurisdictional Waters

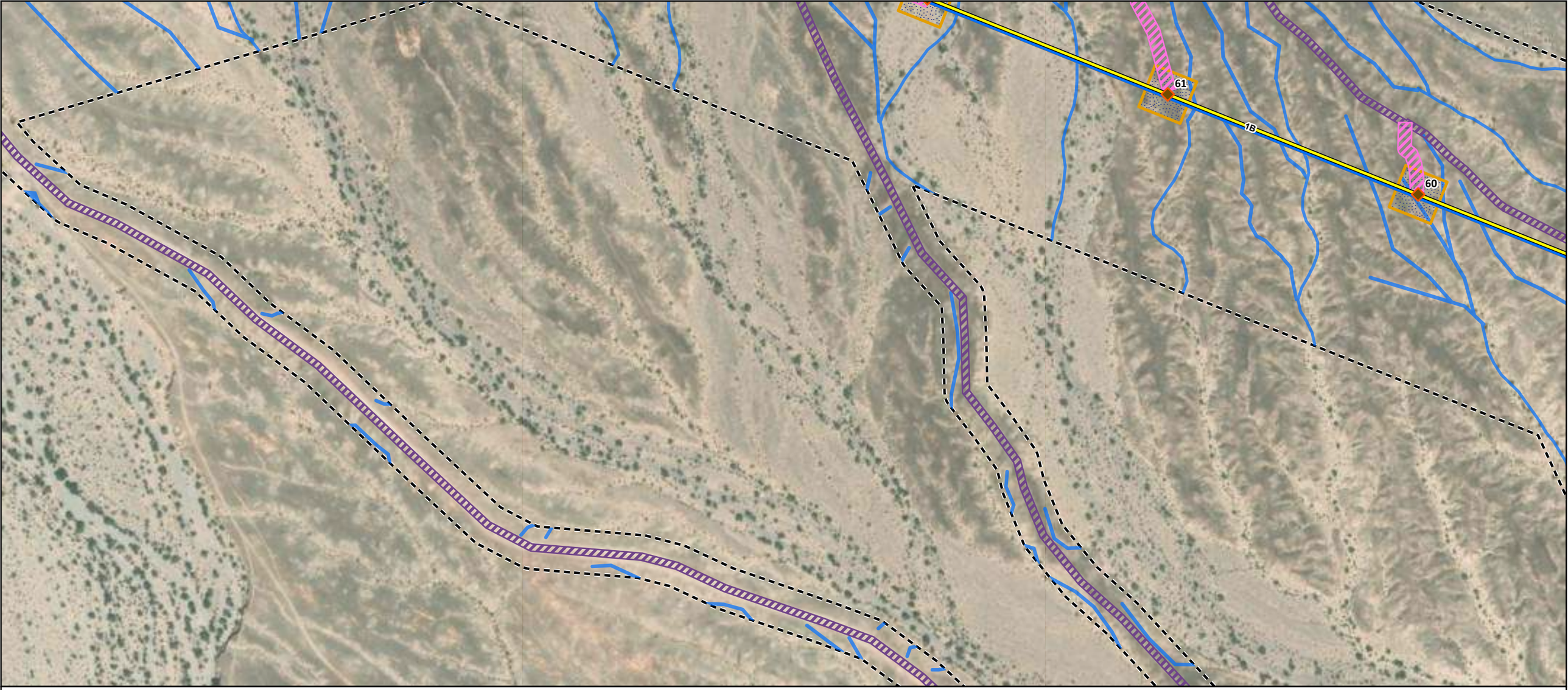
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

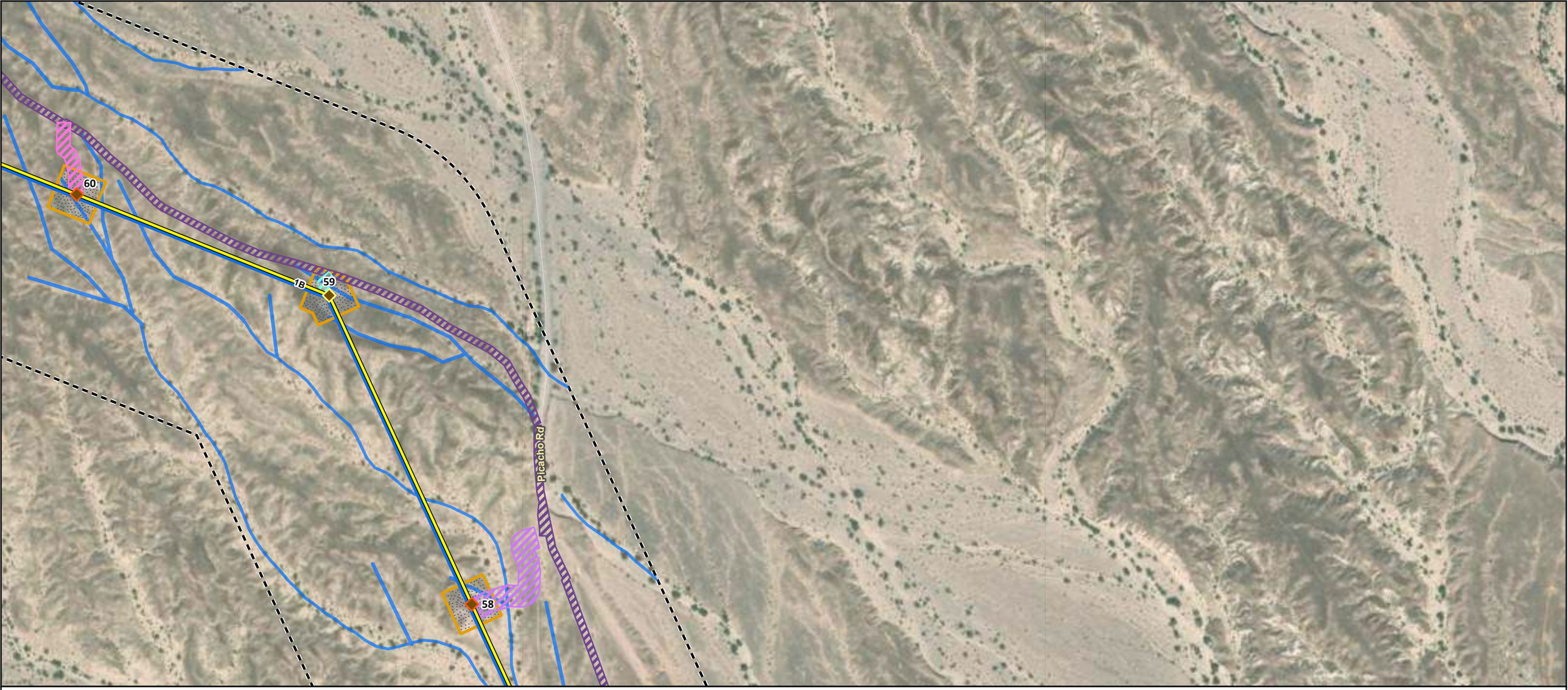
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Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

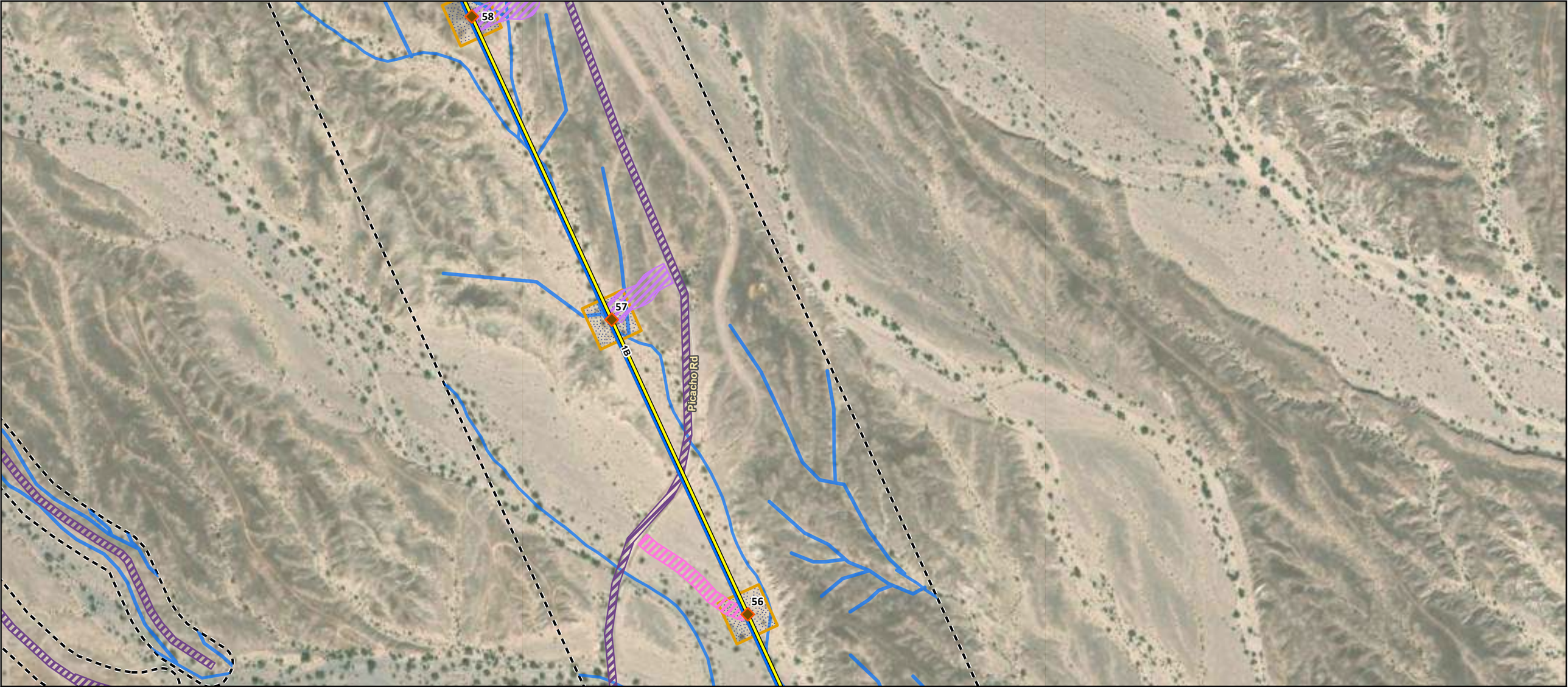
Riverine

0 250 500
Feet

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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

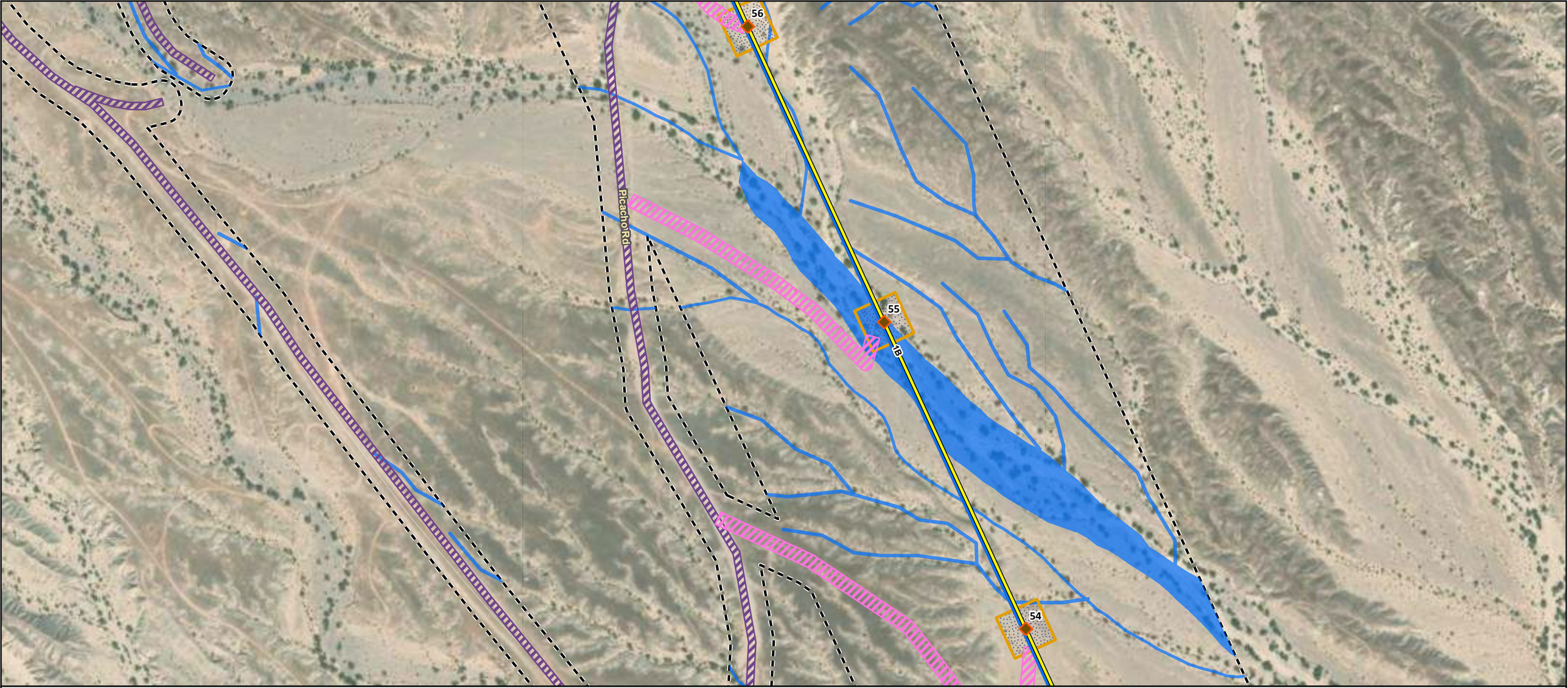
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

Potential Jurisdictional Waters

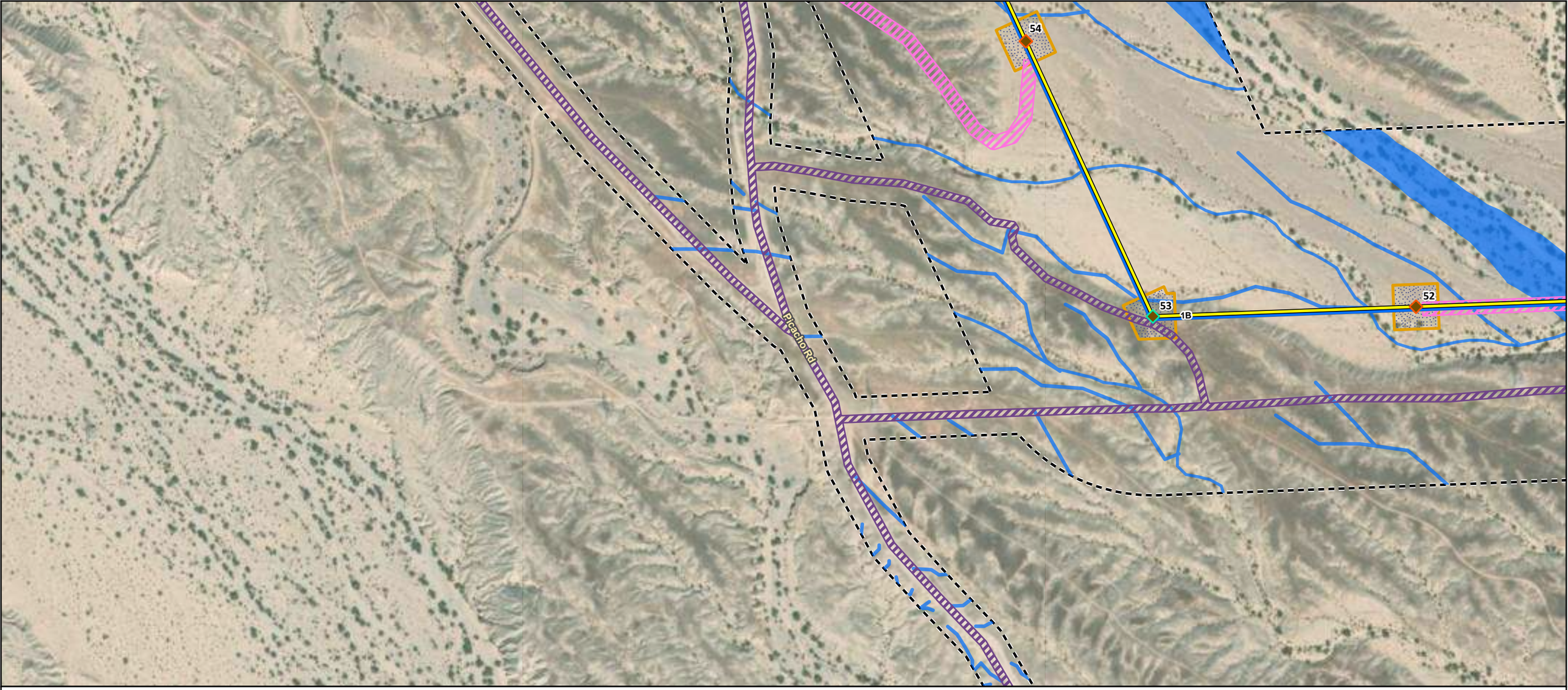
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Heavy

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Picacho Rd

Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

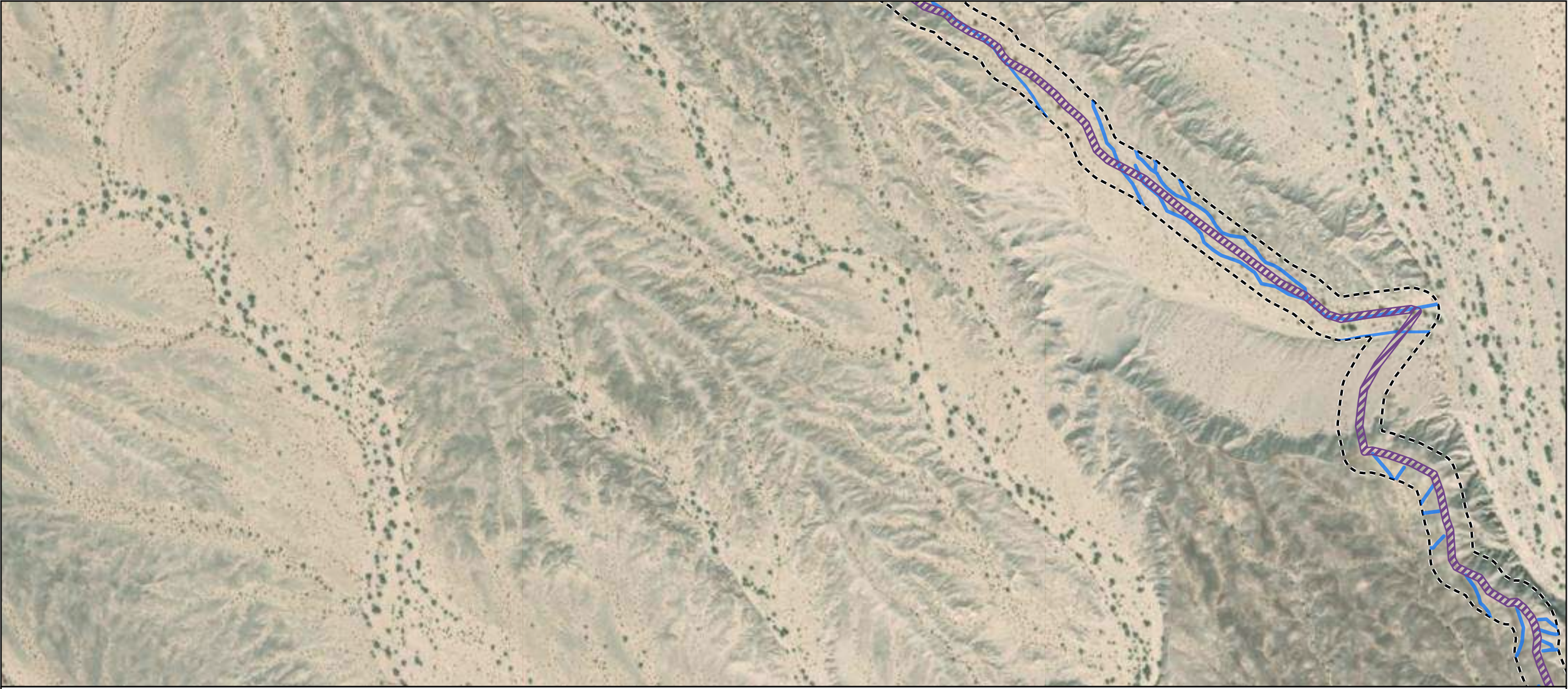
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

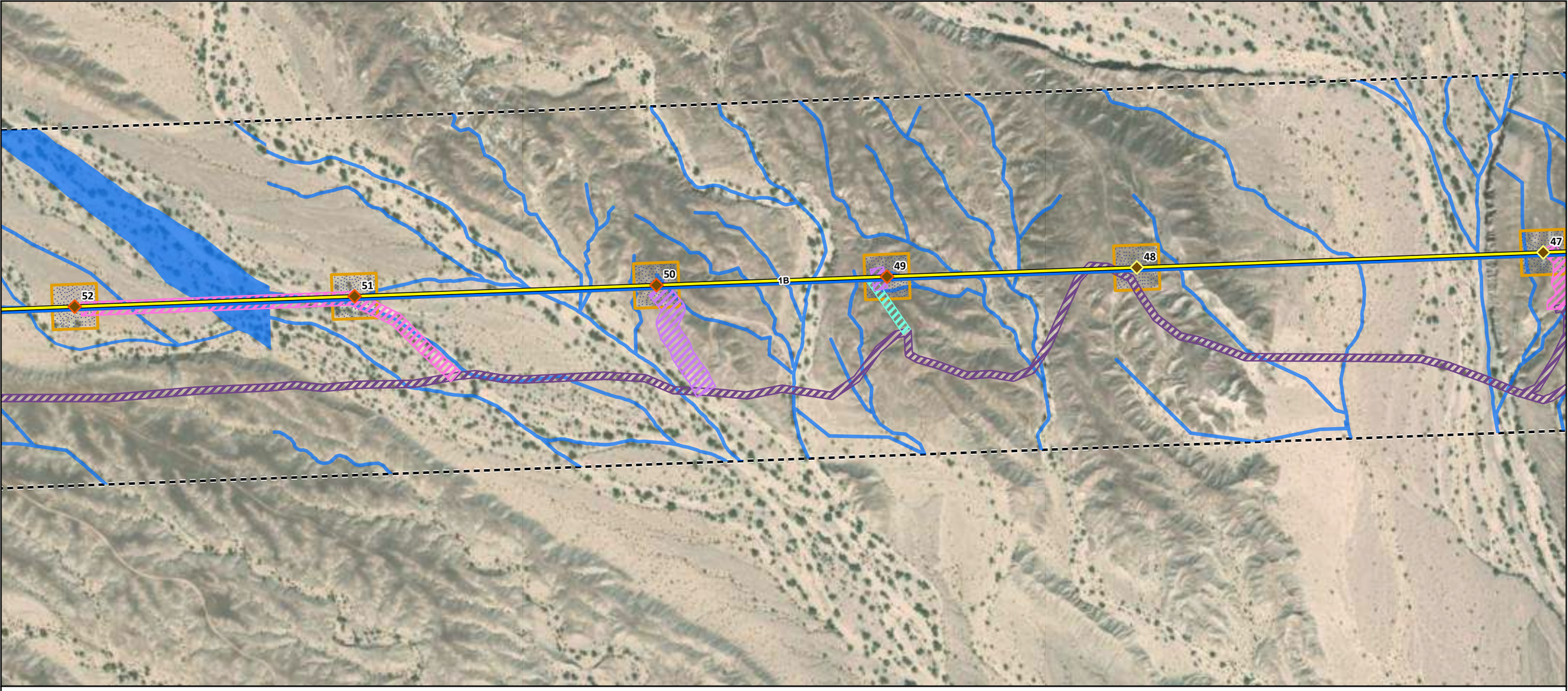
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

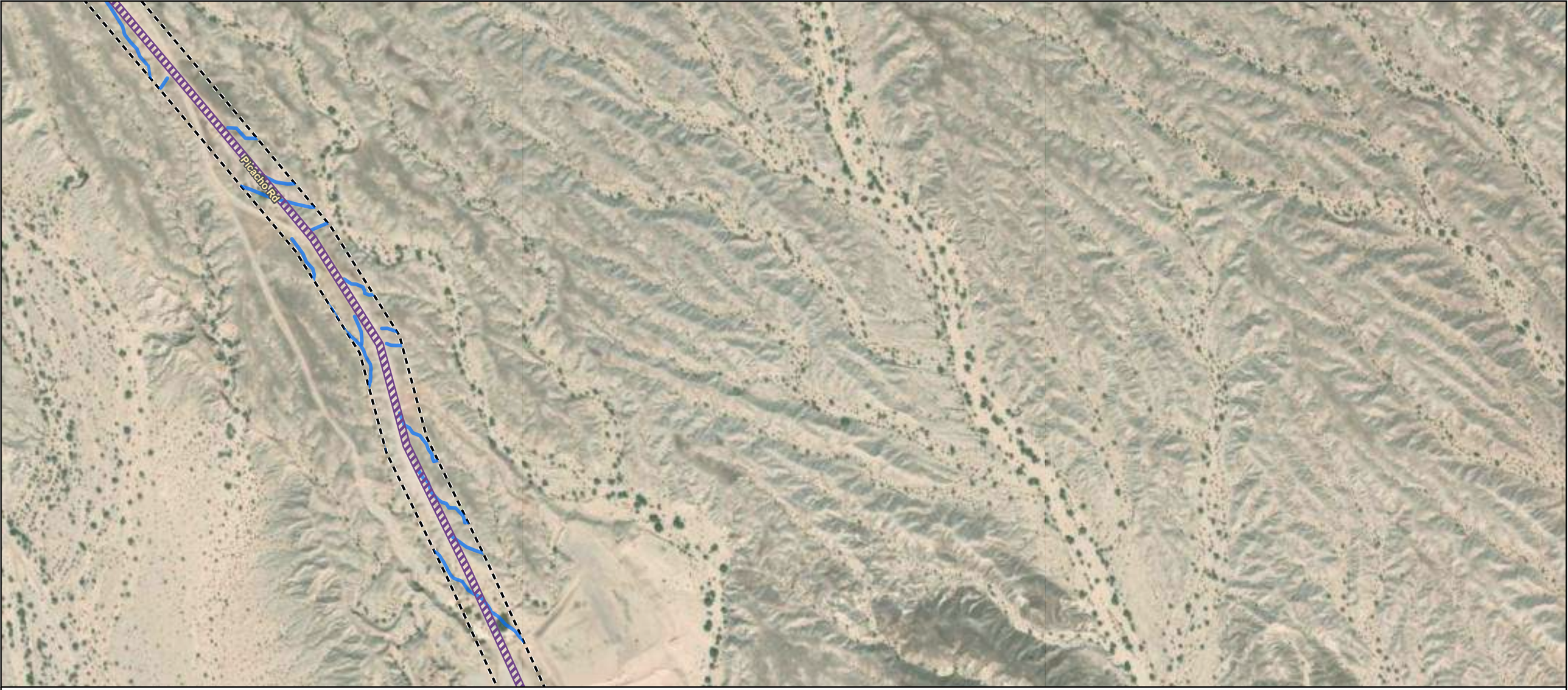
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

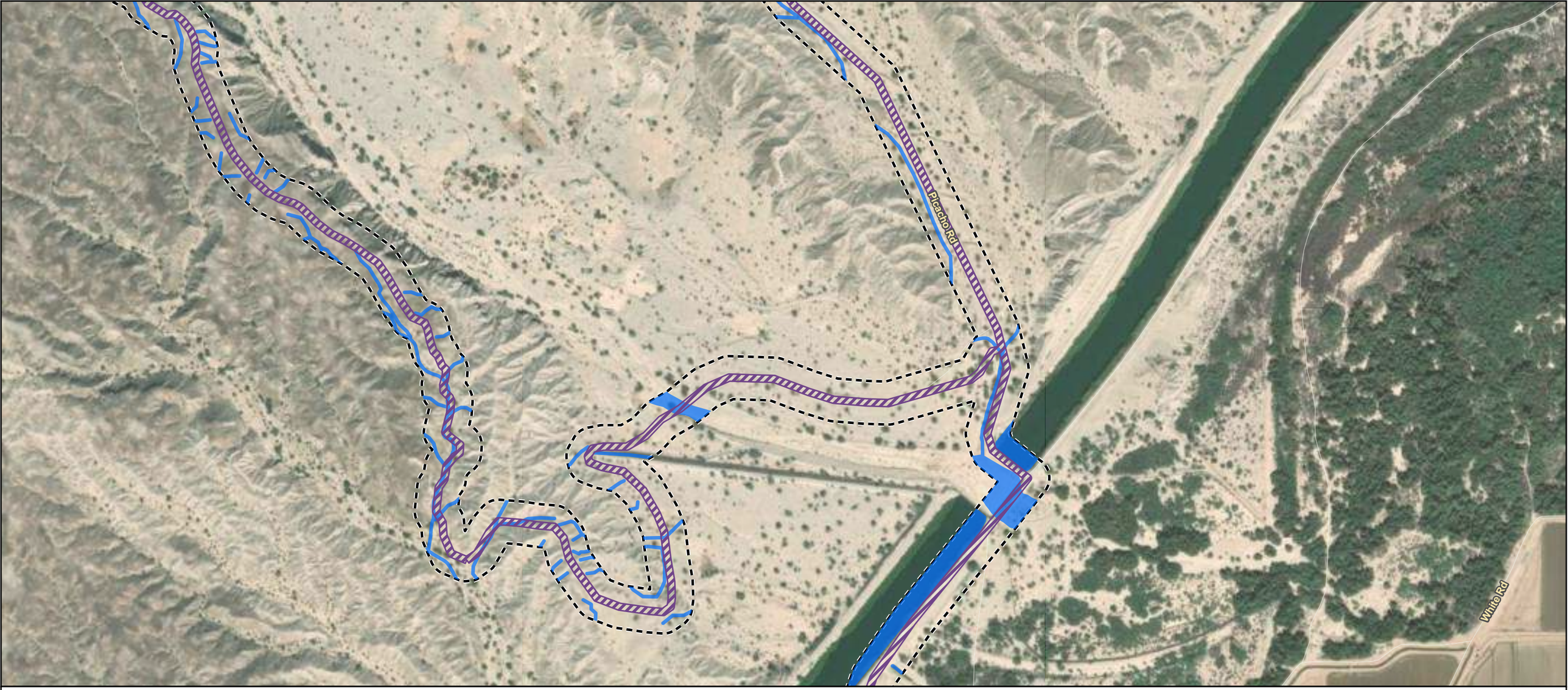
Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland

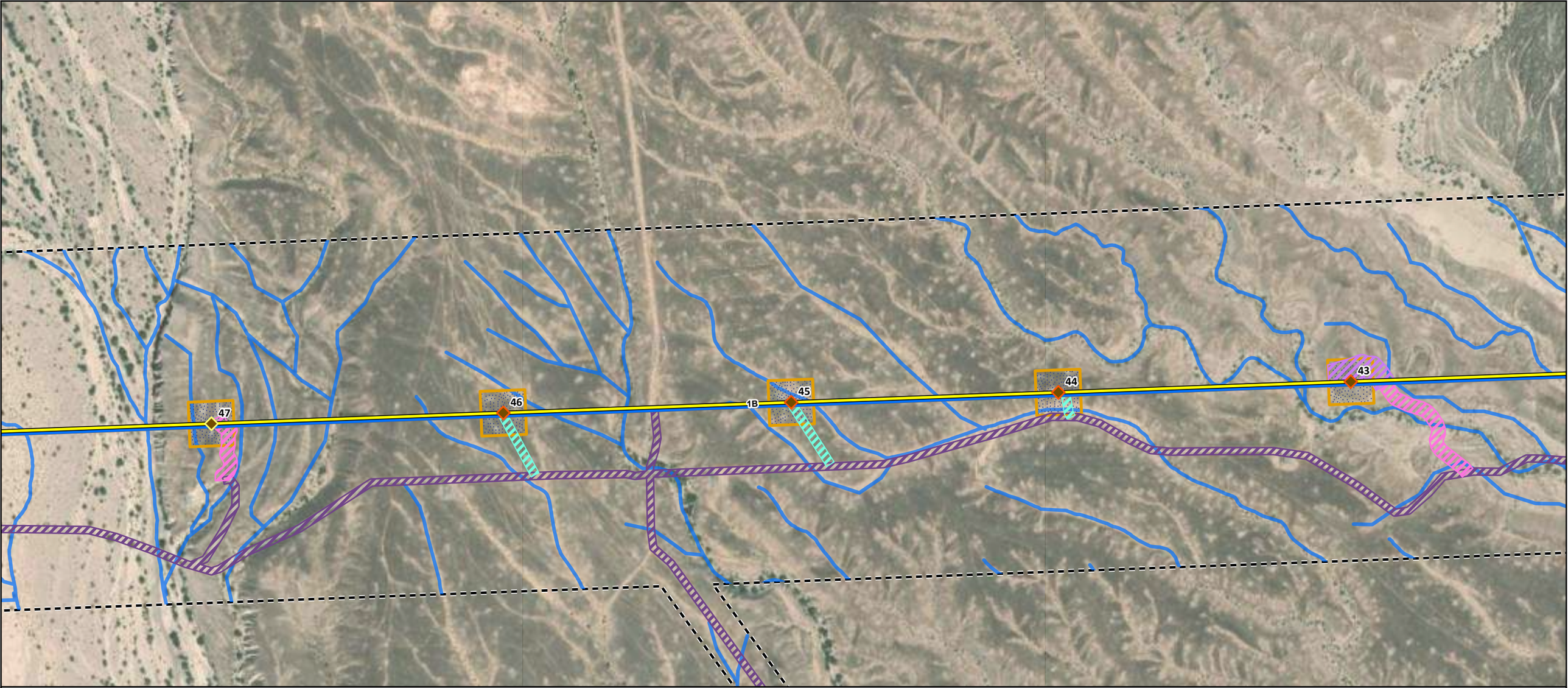
Riverine

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

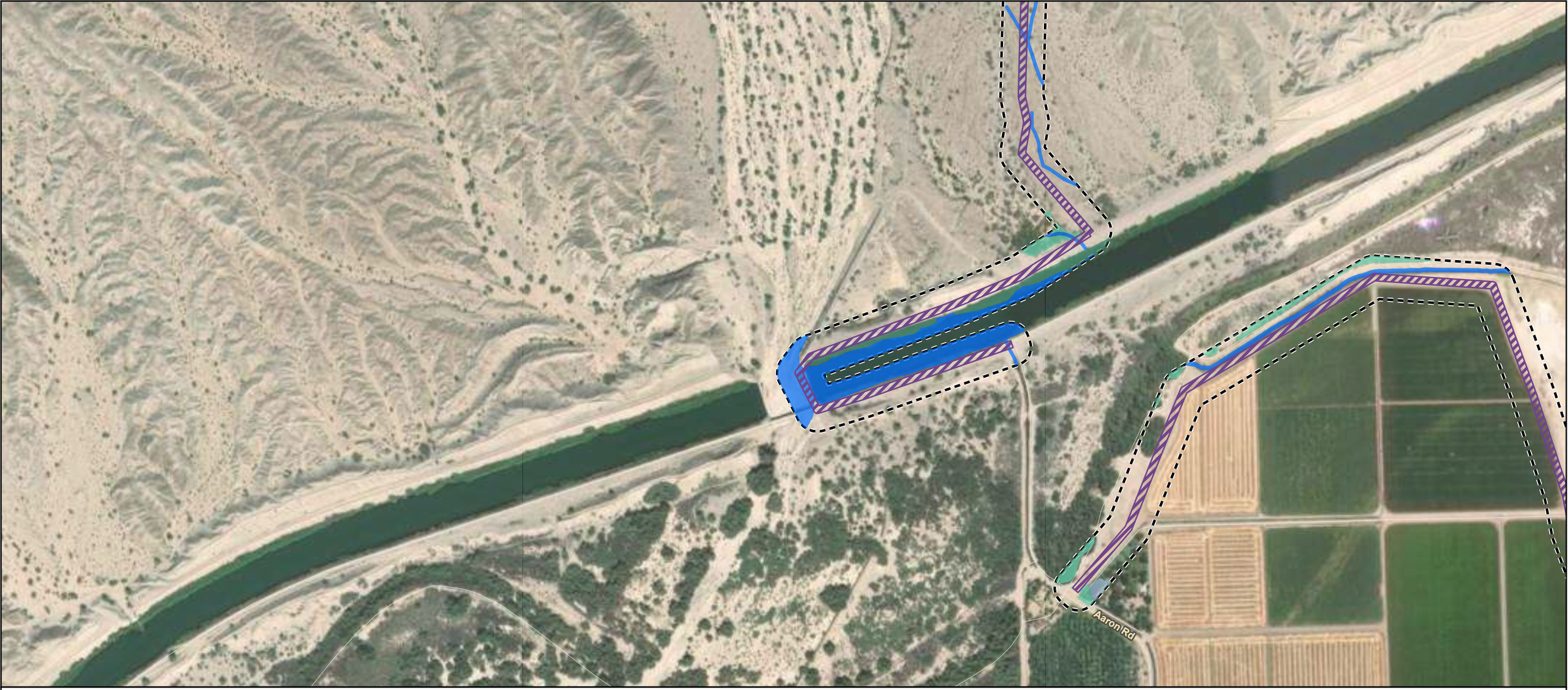
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

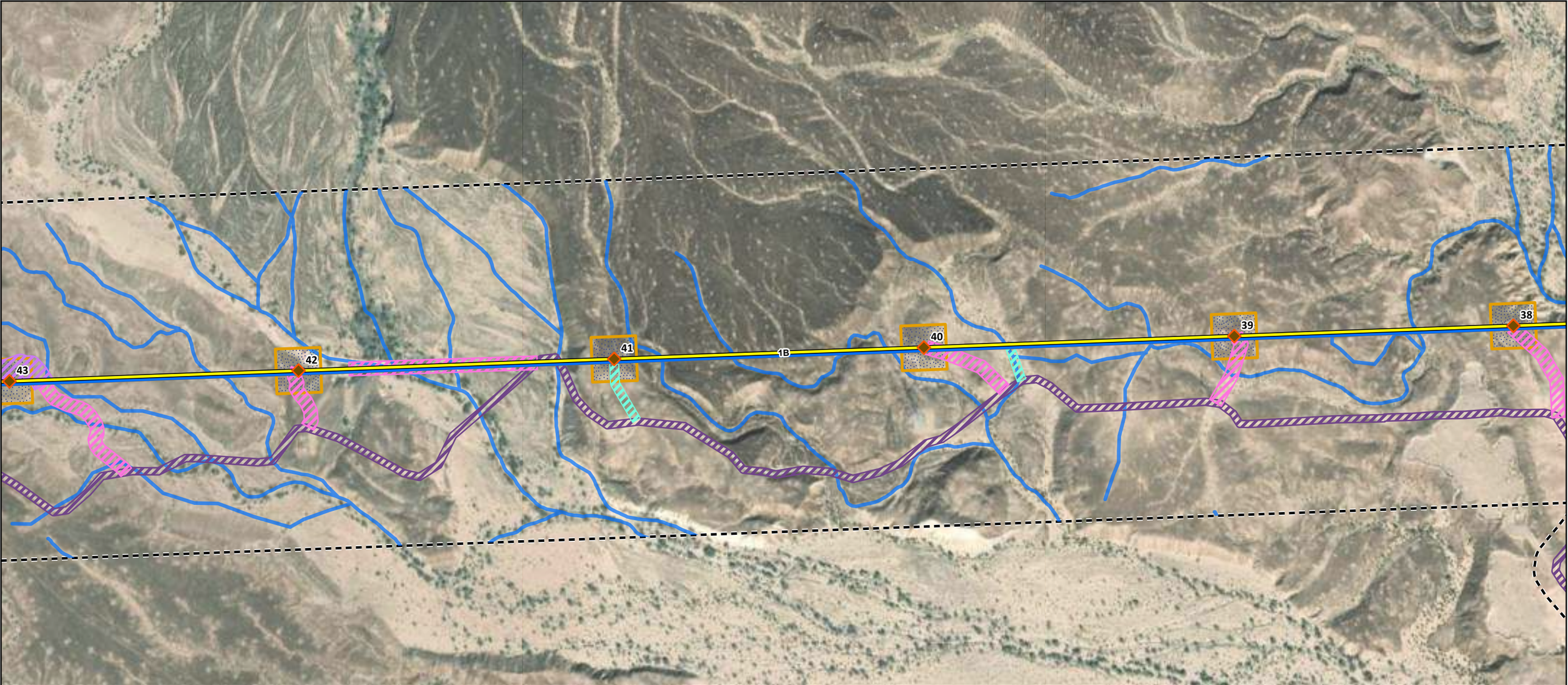
Type 2 Existing Road - Needs Improvement

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

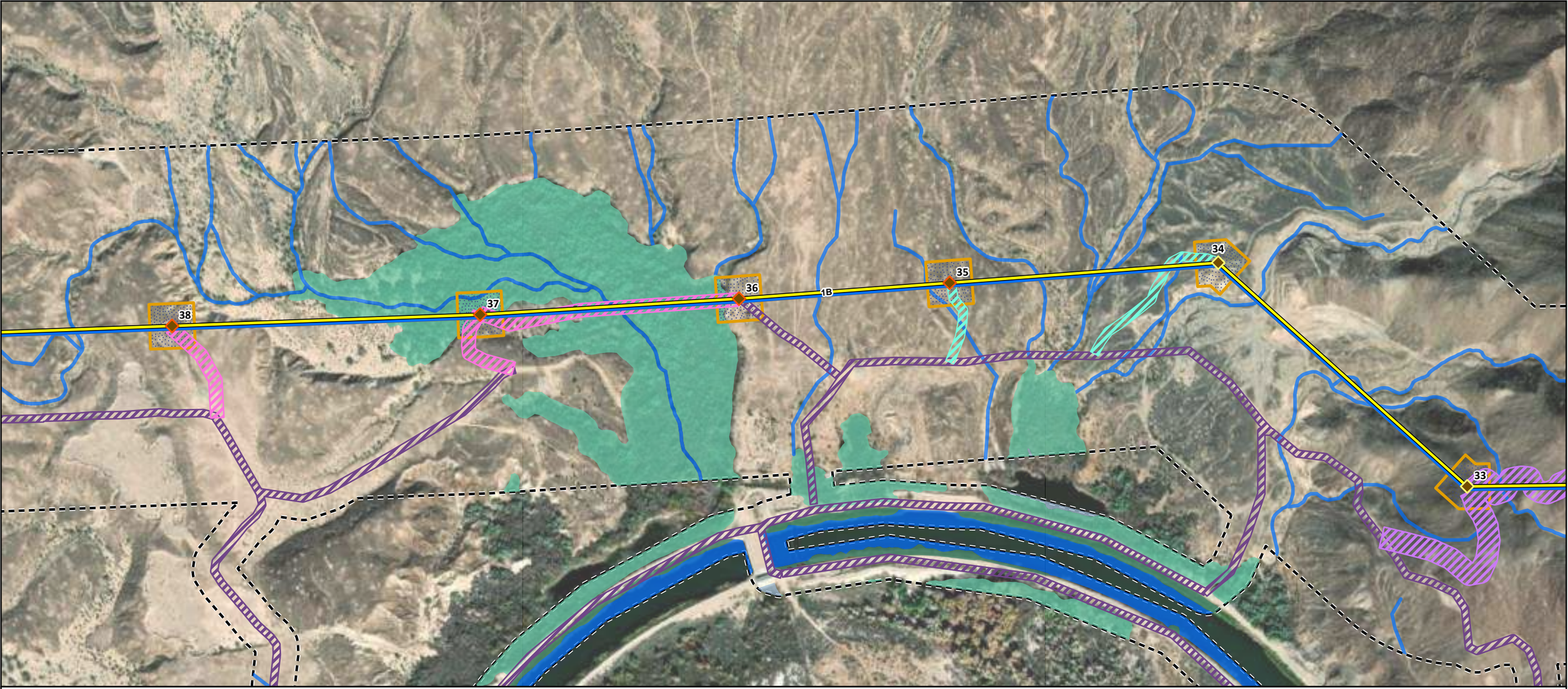
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

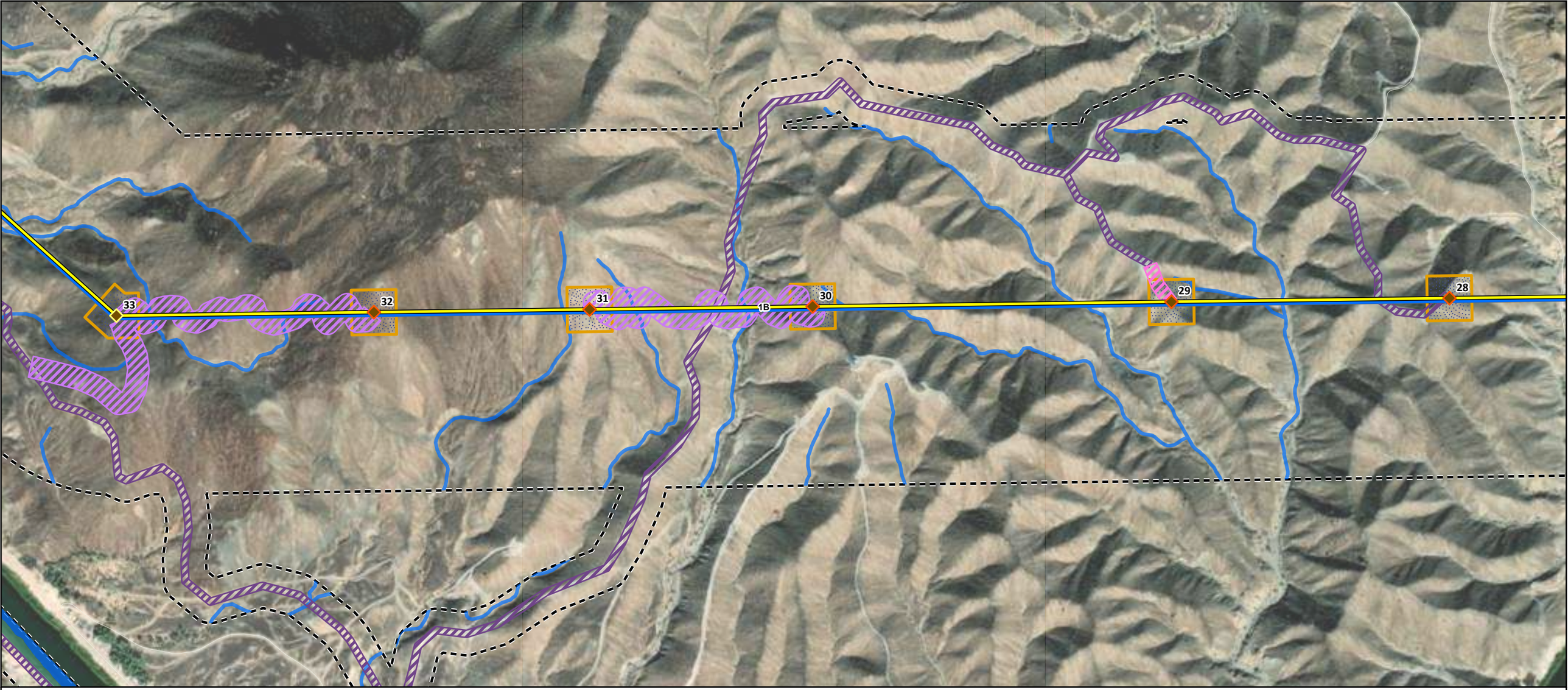
Riverine

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

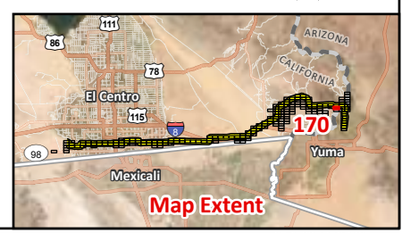
Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

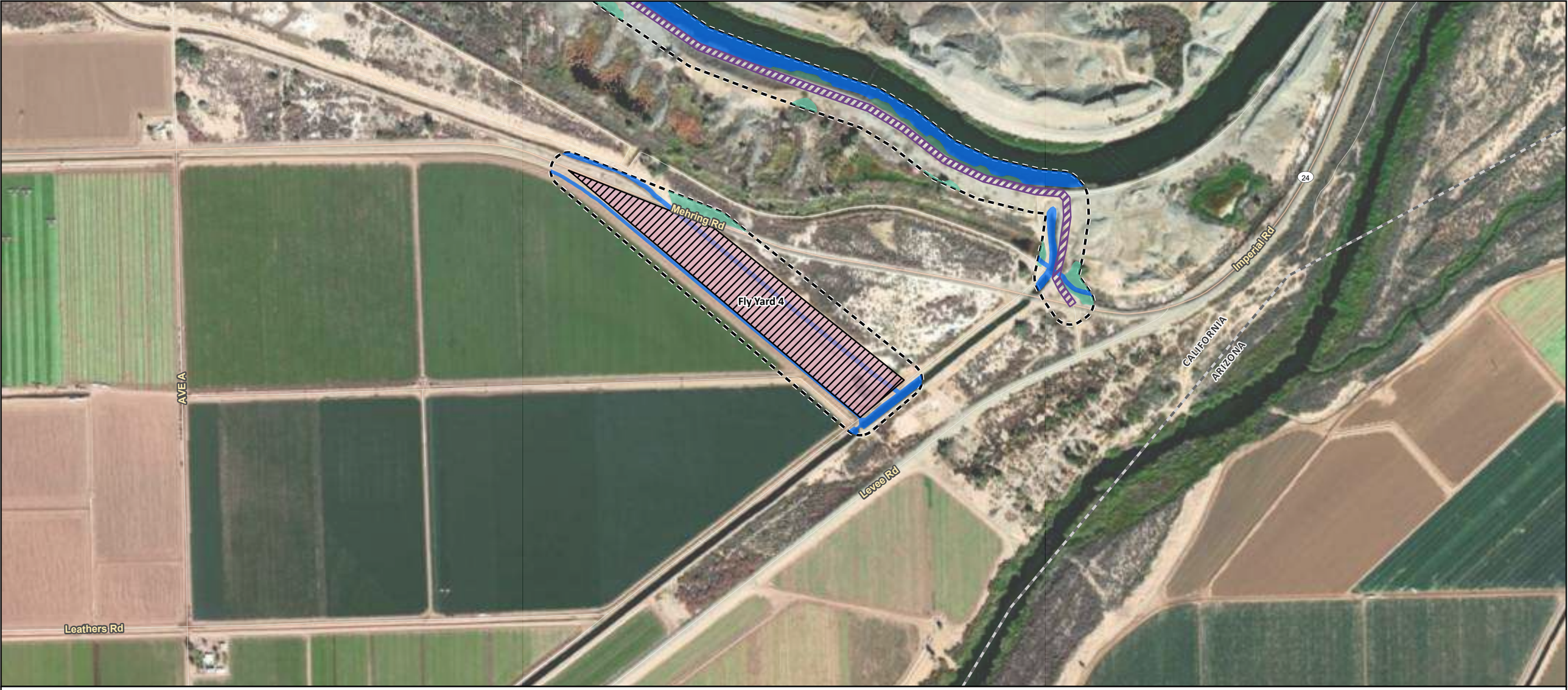
Riverine

0 250 500 Feet

N



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Potential Jurisdictional Waters

Freshwater Emergent Wetland

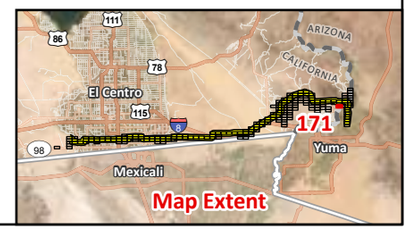
Freshwater Forested/Shrub Wetland

Riverine

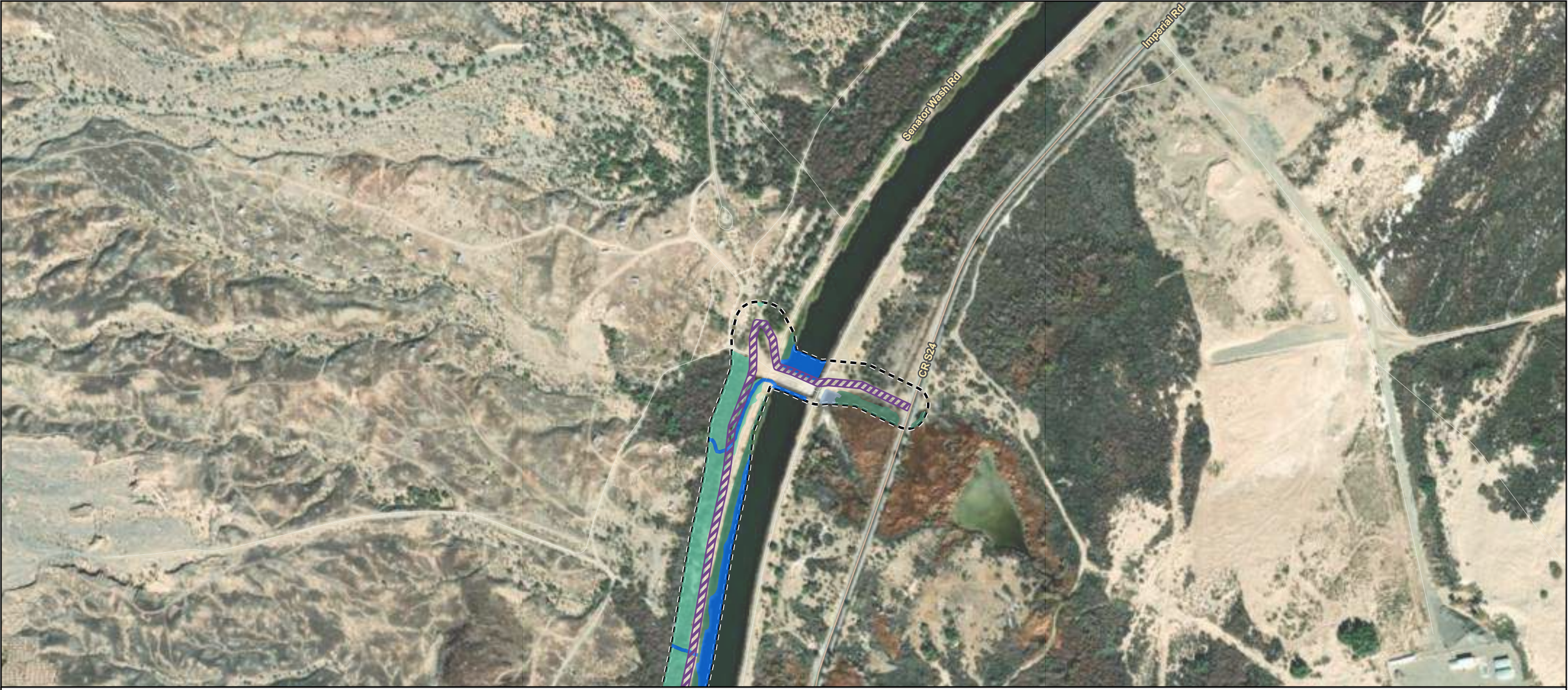
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Riverine

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

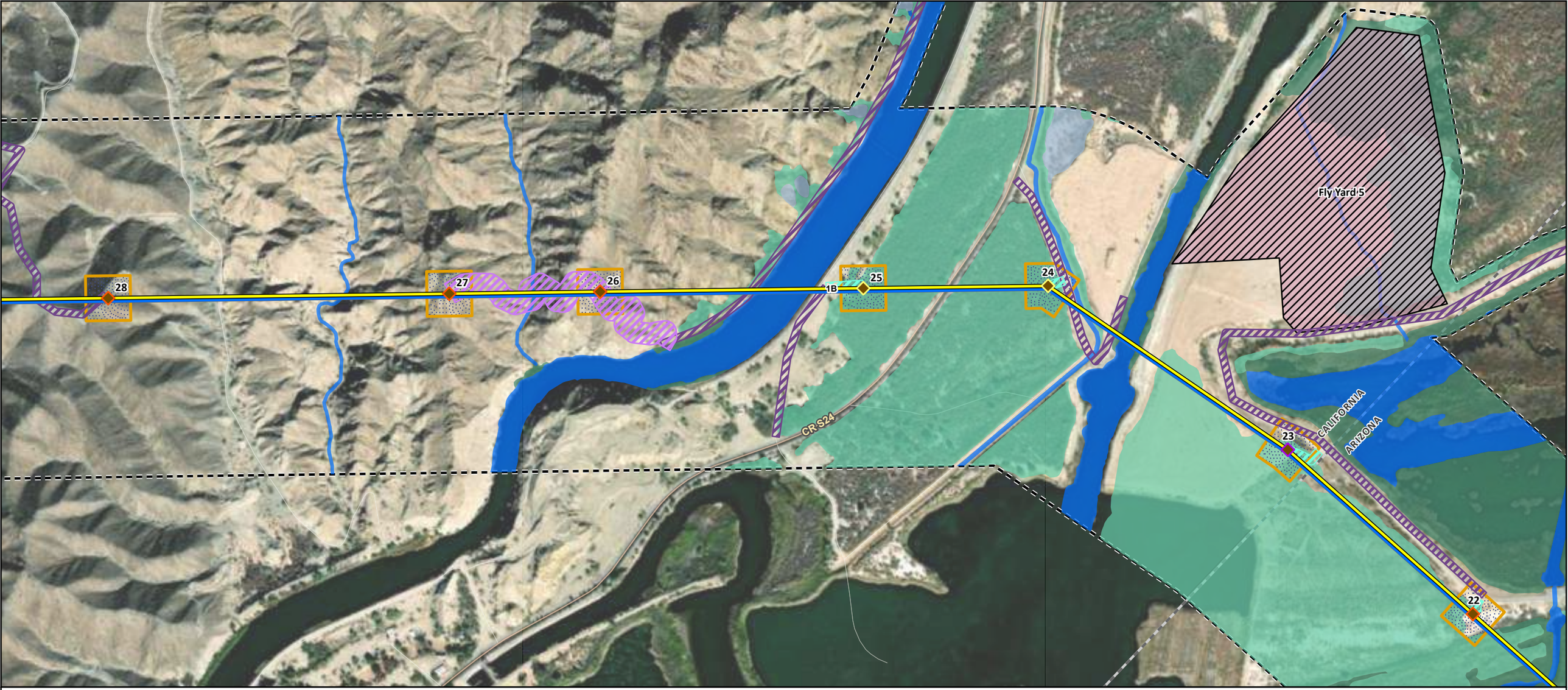
0 250 500

Feet

N



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Biological Study Area
State Boundary
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Steep
Construction Work Pad
Fly Yard

Potential Jurisdictional Waters

Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Riverine

0 250 500
Feet

N



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Biological Study Area
State Boundary
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Lake

Riverine

0 250 500
Feet

N



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Biological Study Area
State Boundary
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Steep

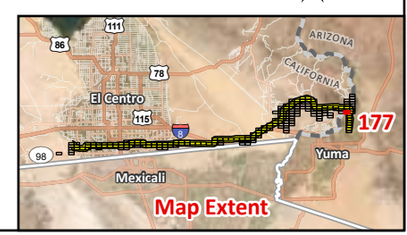
Construction Work Pad

Potential Jurisdictional Waters

Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Lake
Riverine

0 250 500
Feet

N



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Riverine

0 250 500

Feet

N



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Riverine

0 250 500

Feet

N



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

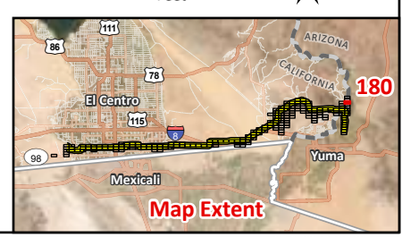
Freshwater Pond

Riverine

0 250 500

Feet

N



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland

Riverine

0 250 500

Feet

N



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Biological Study Area
State Boundary

Access Roads
Type 2 Existing Road - Needs Improvement

Fly Yard

Potential Jurisdictional Waters
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Riverine

0 250 500
Feet

N



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Biological Study Area
State Boundary
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Fly Yard

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Riverine

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Lake

Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

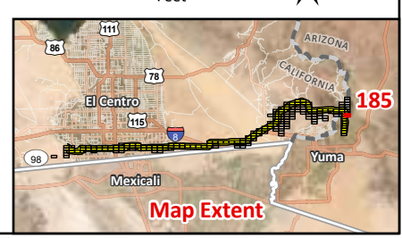
Lake

Riverine

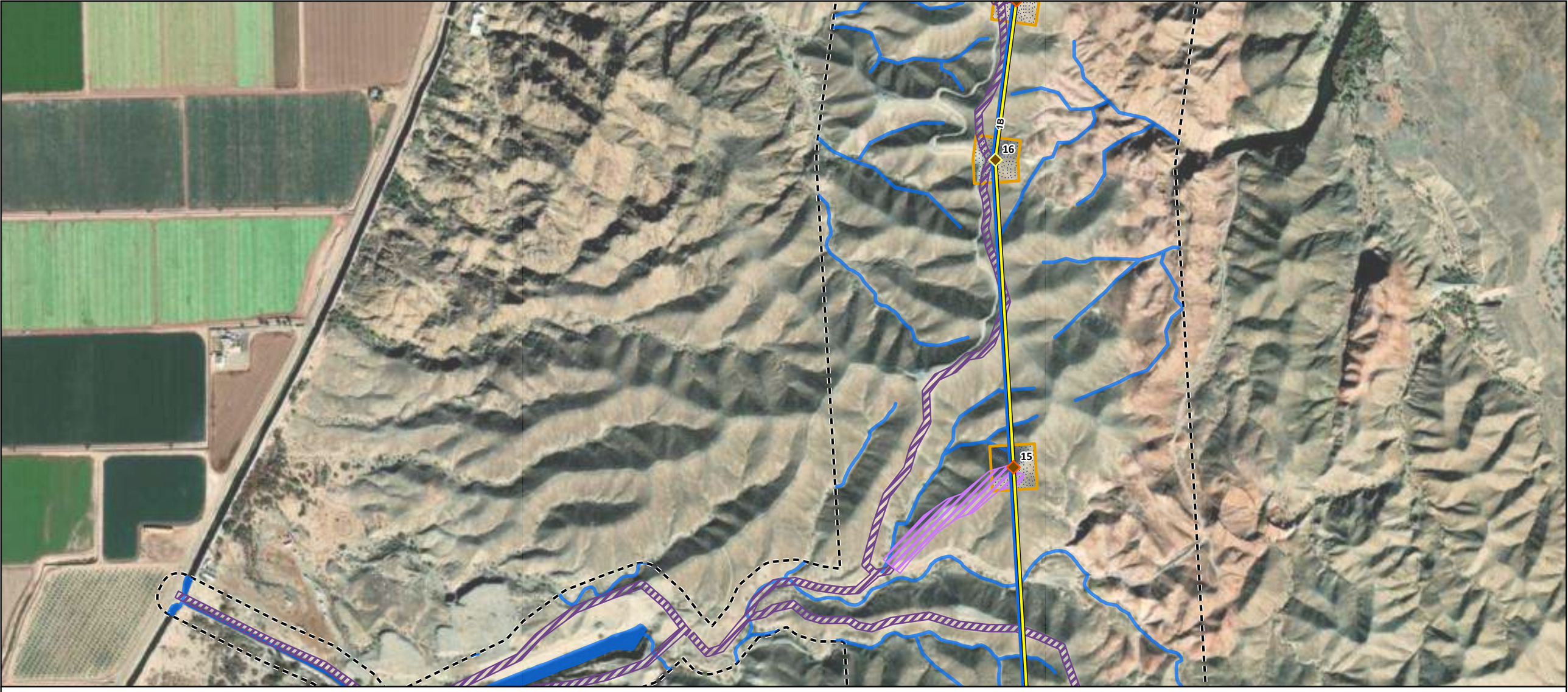
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Construction Work Pad

Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland

Riverine

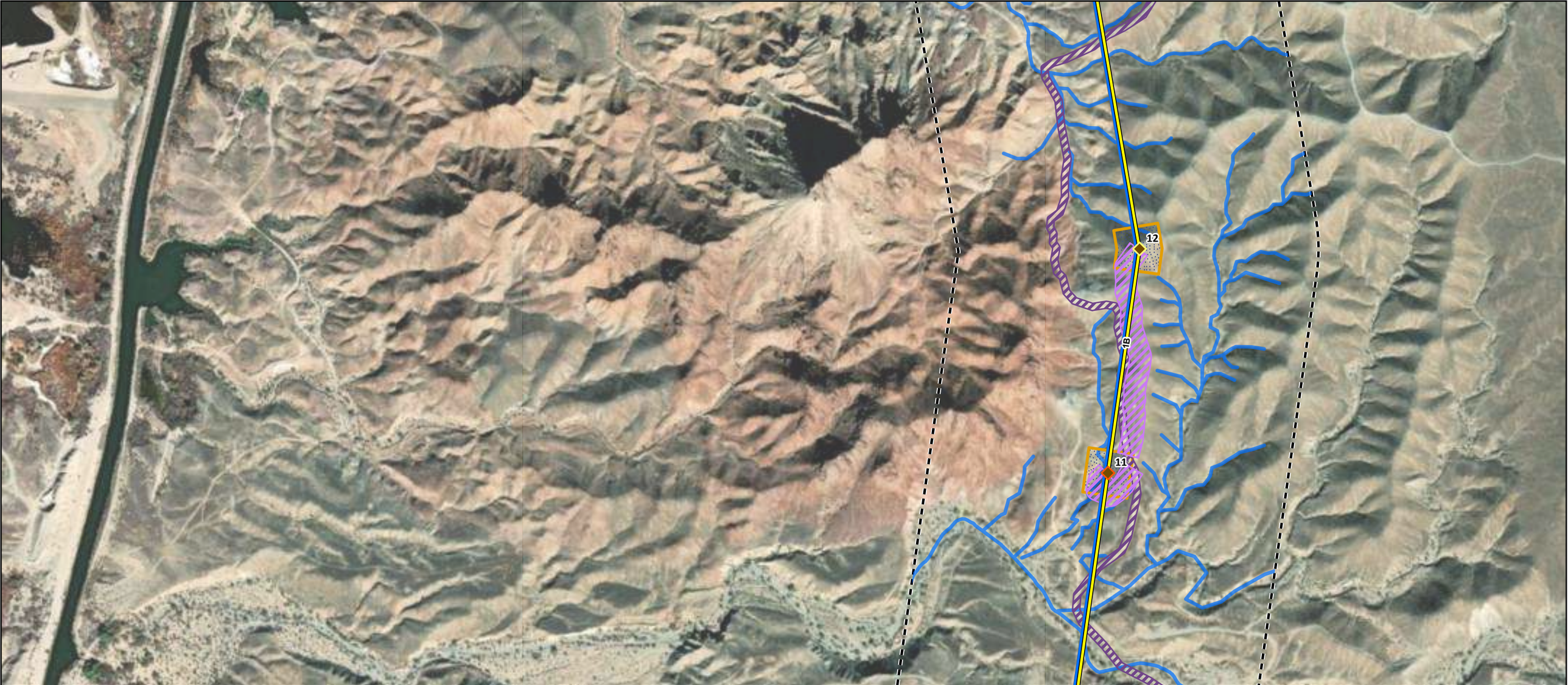
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

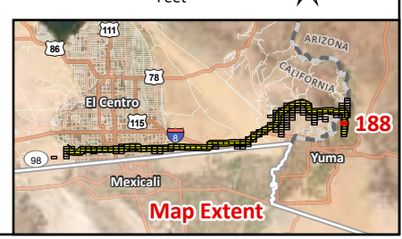
Construction Work Pad

Potential Jurisdictional Waters

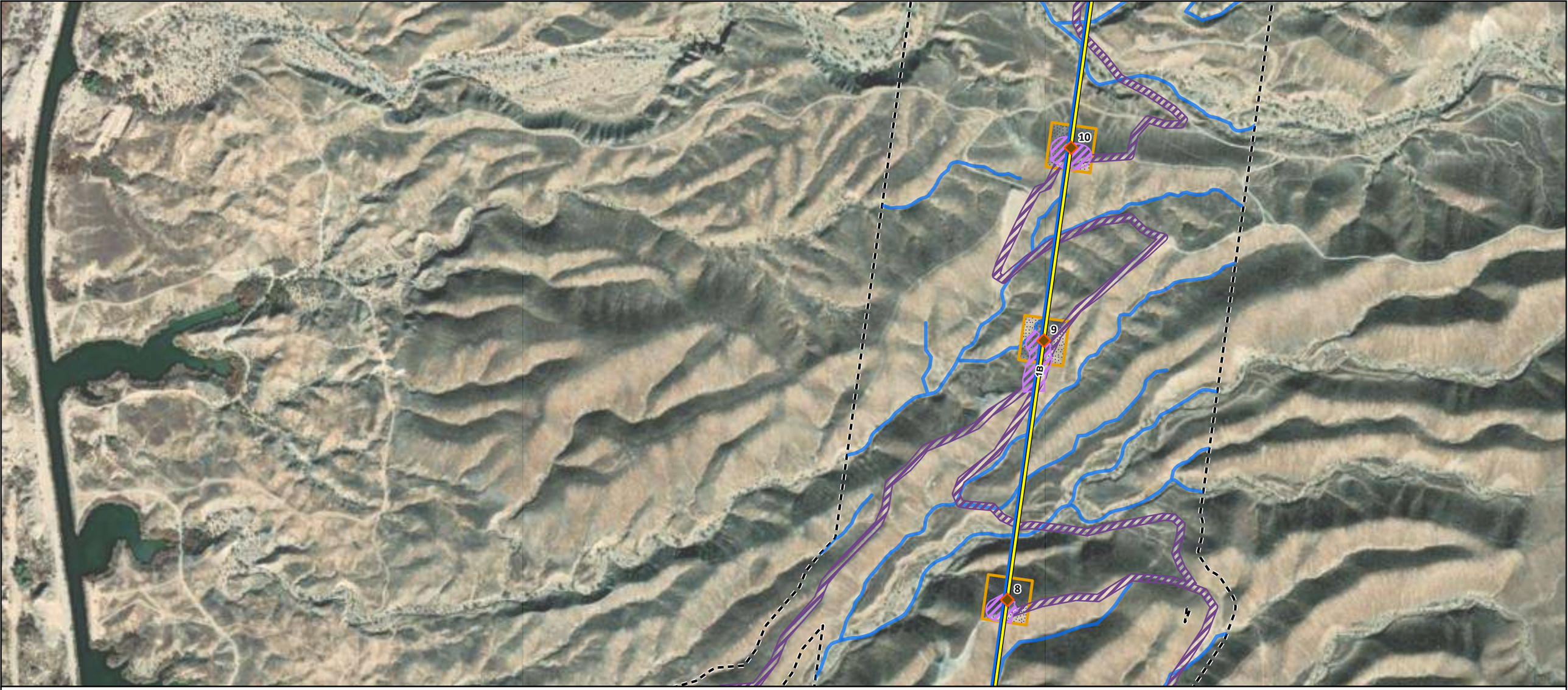
Riverine

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Riverine

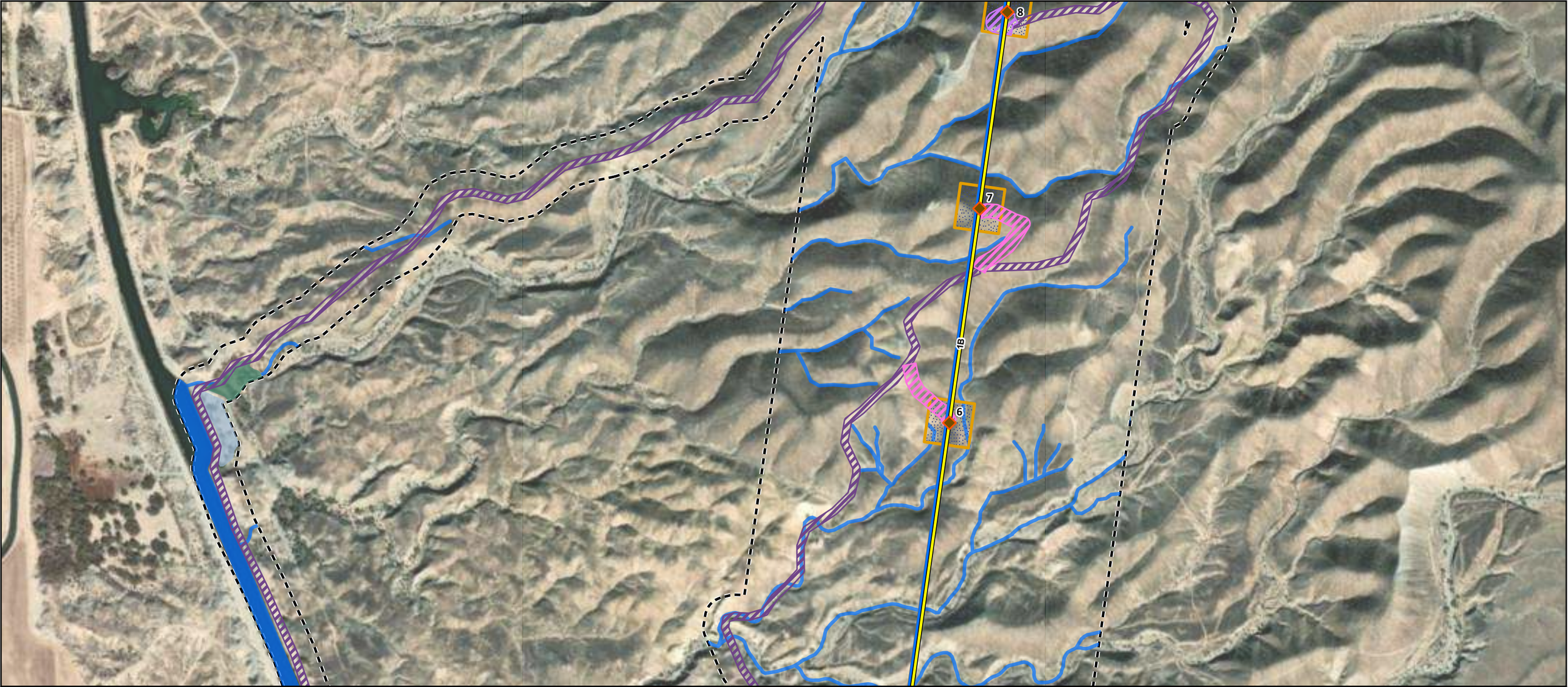
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Feet

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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Potential Jurisdictional Waters

Freshwater Emergent Wetland

Freshwater Pond

Riverine

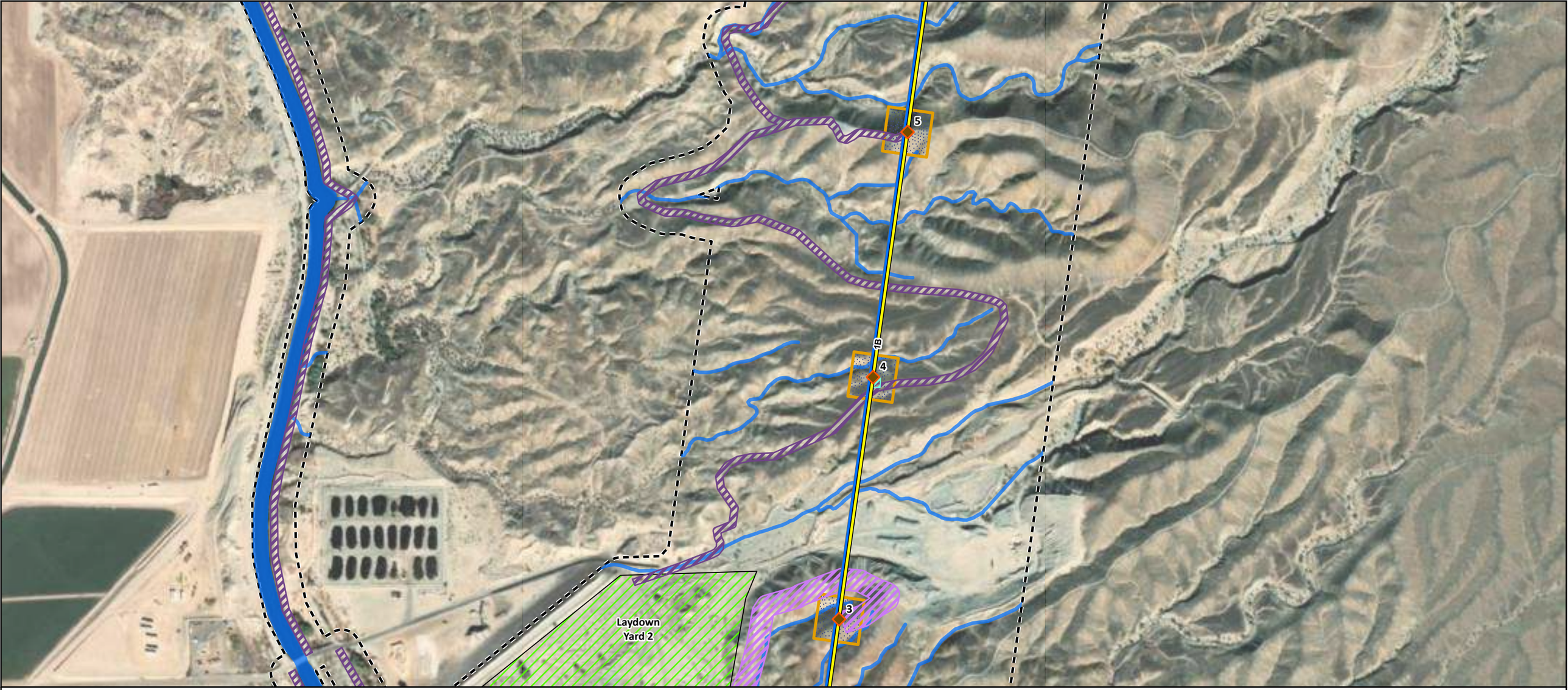
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Steep

Construction Work Pad

Laydown Yard

Potential Jurisdictional Waters

Riverine

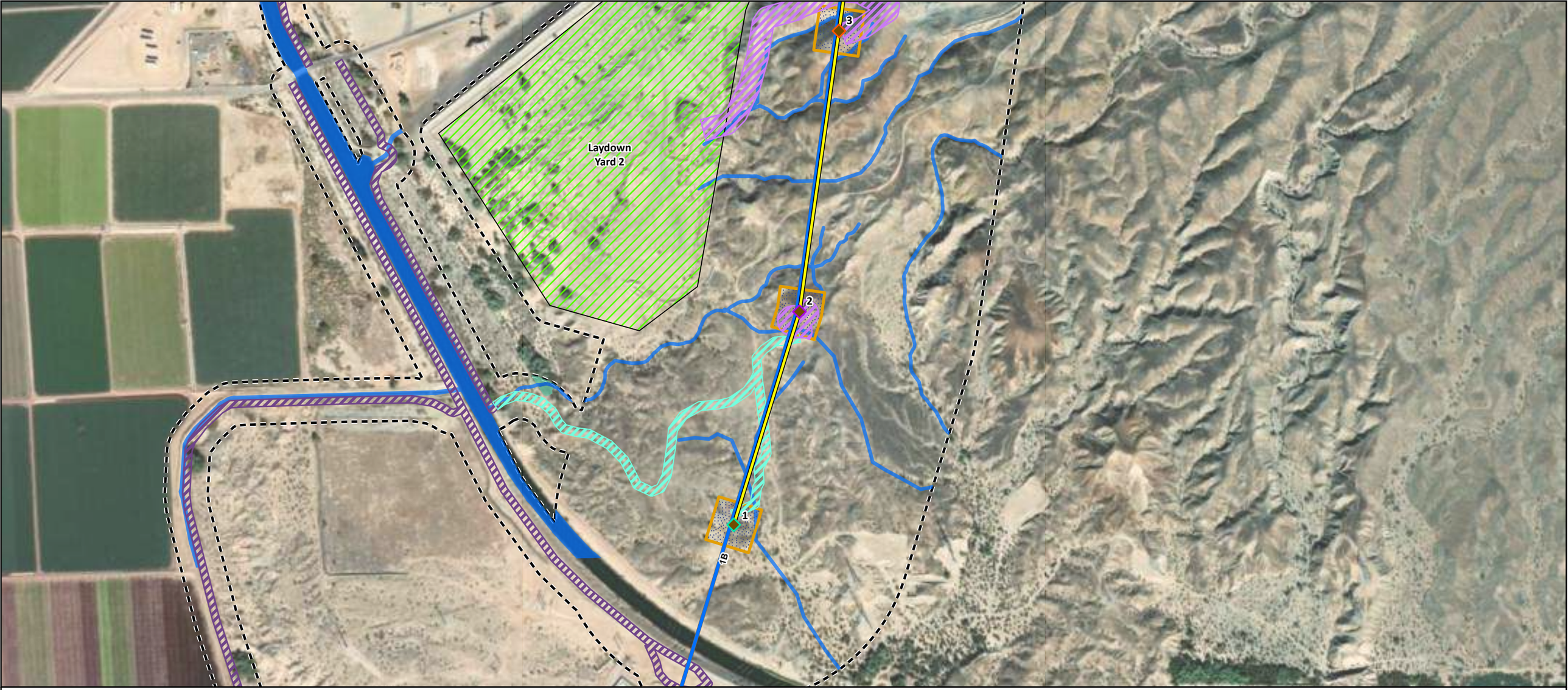
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Heavy
Lattice Tower Tangent (LTT)

Access Roads

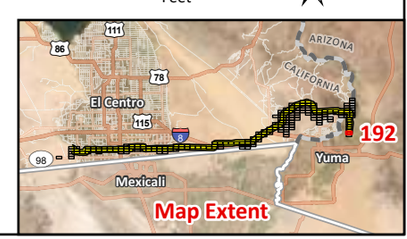
Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Steep
Construction Work Pad
Laydown Yard

Potential Jurisdictional Waters

Freshwater Forested/Shrub Wetland
Riverine

0 250 500
Feet

N



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Existing Substation

Biological Study Area

Alternative Route Segments*

Segment I

1B

Access Roads

Type 1 - Existing Access Road - No Improvement

Type 2 Existing Road - Needs Improvement

Potential Jurisdictional Waters

Riverine

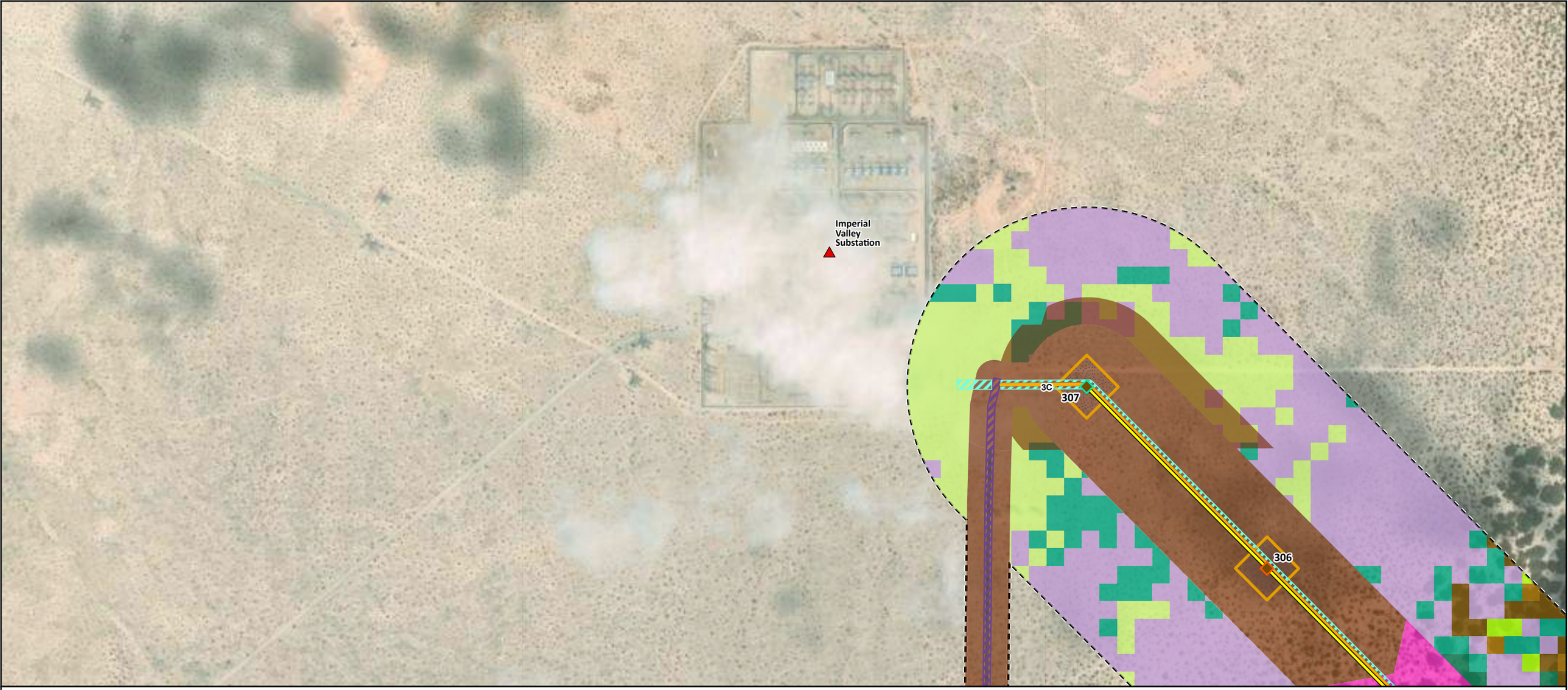
0 250 500

Feet

N



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Existing Substation
Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Heavy

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Developed

LandFire Vegetation

7

8

12

14

18

19

24

0 250 500
Feet

N



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Biological Study Area

Laydown Yard

Vegetation Communities

Creosote bush scrub

Land Cover Types

Developed

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Agriculture

Developed

LandFire Vegetation

6

7

8

12

14

16

18

19

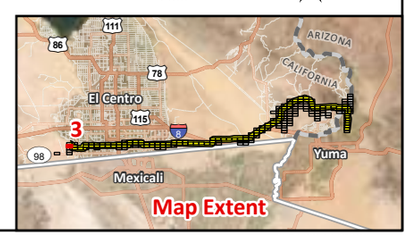
24

35

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Agriculture

Developed

LandFire Vegetation

6
7
8
12
14
16
17
18
19
24
35

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Creosote bush scrub

Land Cover Types

Developed

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Creosote bush scrub

Land Cover Types

Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Access Roads

Type 3 New Road - Flat

Vegetation Communities

Creosote bush scrub

Tamarisk thickets

LandFire Vegetation

7

8

12

14

16

18

19

24

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 3 New Road - Flat

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Agriculture

LandFire Vegetation

5

6

7

8

12

14

16

18

19

24

35

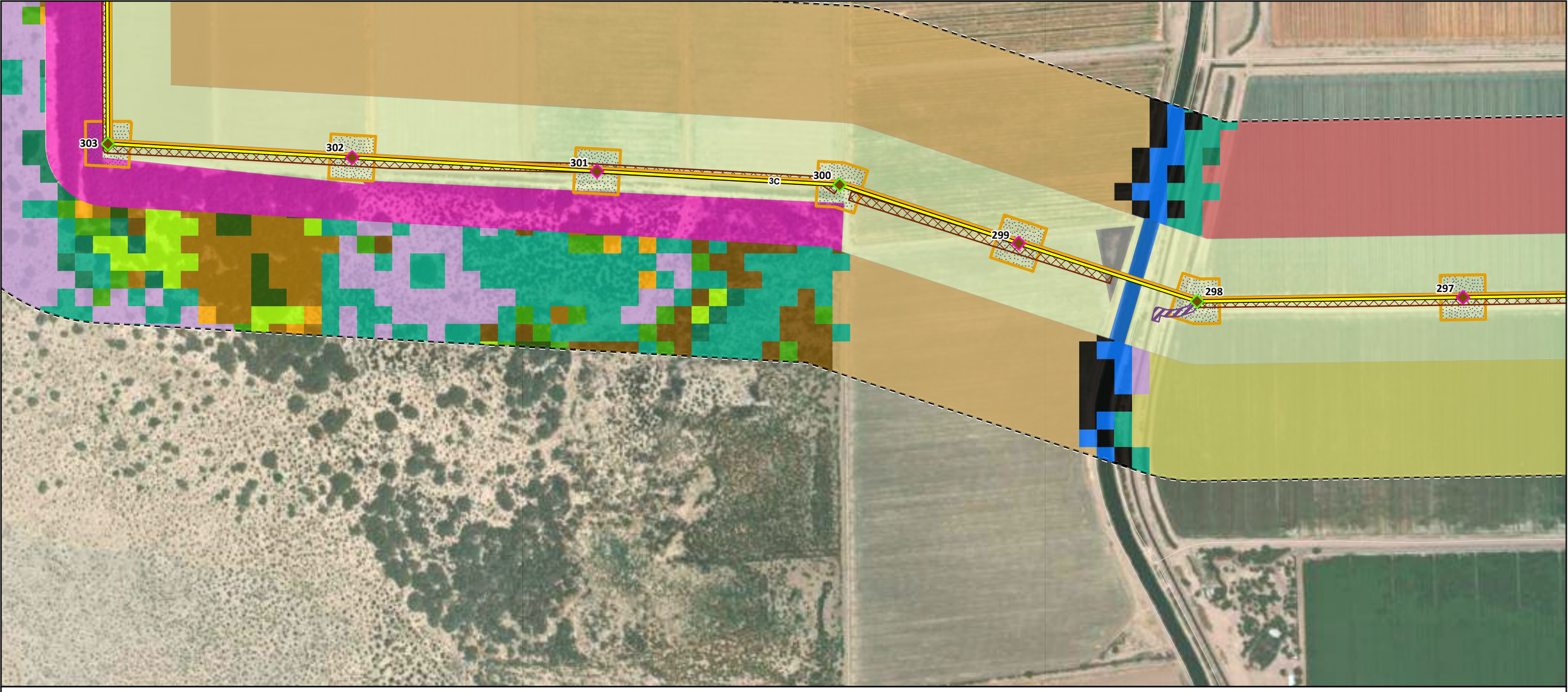
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Tamarisk thickets

Land Cover Types

Agriculture

Disturbed

Open Water

LandFire Vegetation

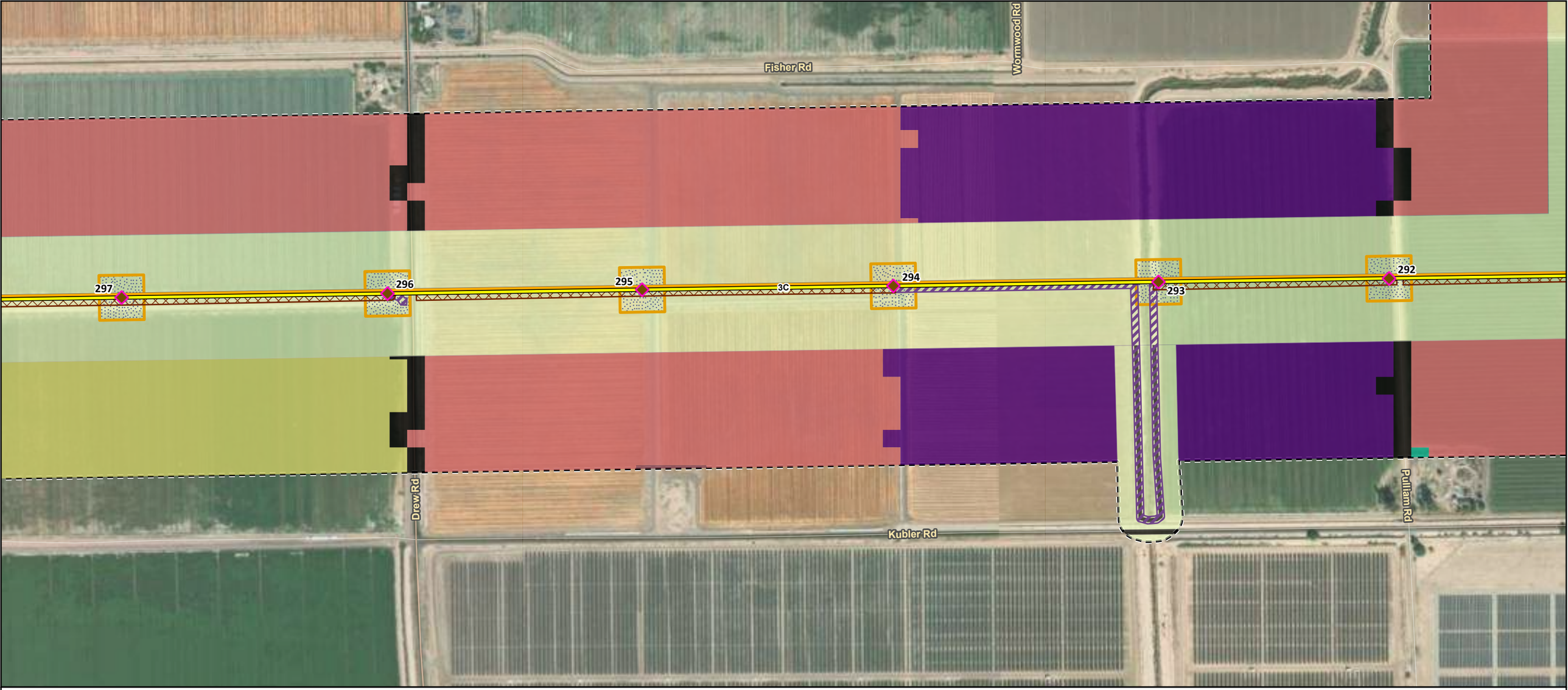
5
6
7
8
14
16
17
18
19
22
24
34
35
39

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Land Cover Types

Agriculture

Developed

LandFire Vegetation

5

19

29

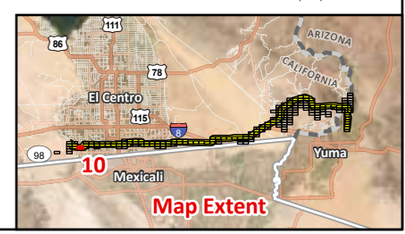
30

34

39

0 250 500
Feet

N



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Biological Study Area

LandFire Vegetation

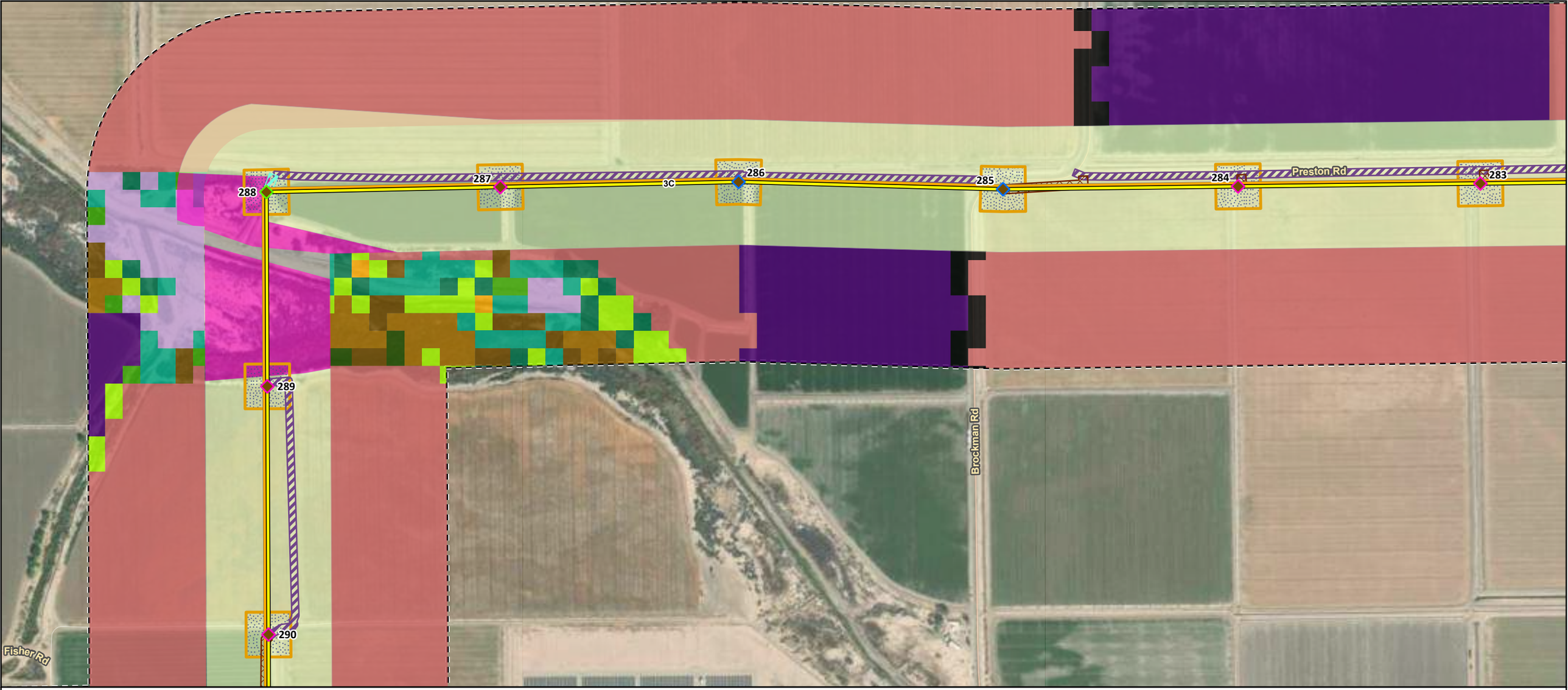
- 5
- 29
- 34

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)
Tubular Monopole Angle (TMA)
Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 4 Temporary Road
Construction Work Pad

Vegetation Communities

Tamarisk thickets

Land Cover Types

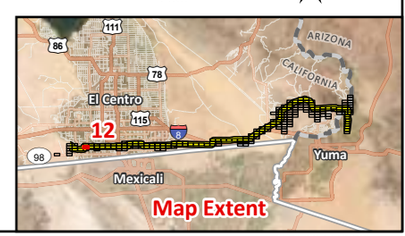
Agriculture
Disturbed

LandFire Vegetation

5
6
7
8
14
16
17
18
19
24
29
34

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Land Cover Types

Agriculture

LandFire Vegetation

5

19

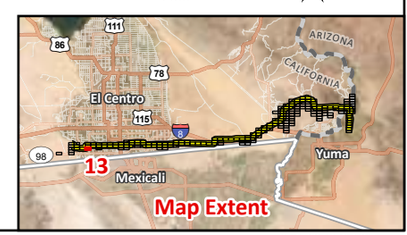
29

34

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Mesquite thickets

Land Cover Types

Agriculture

Developed

LandFire Vegetation

5

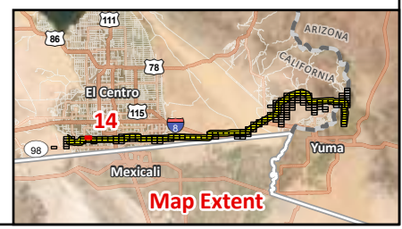
29

34

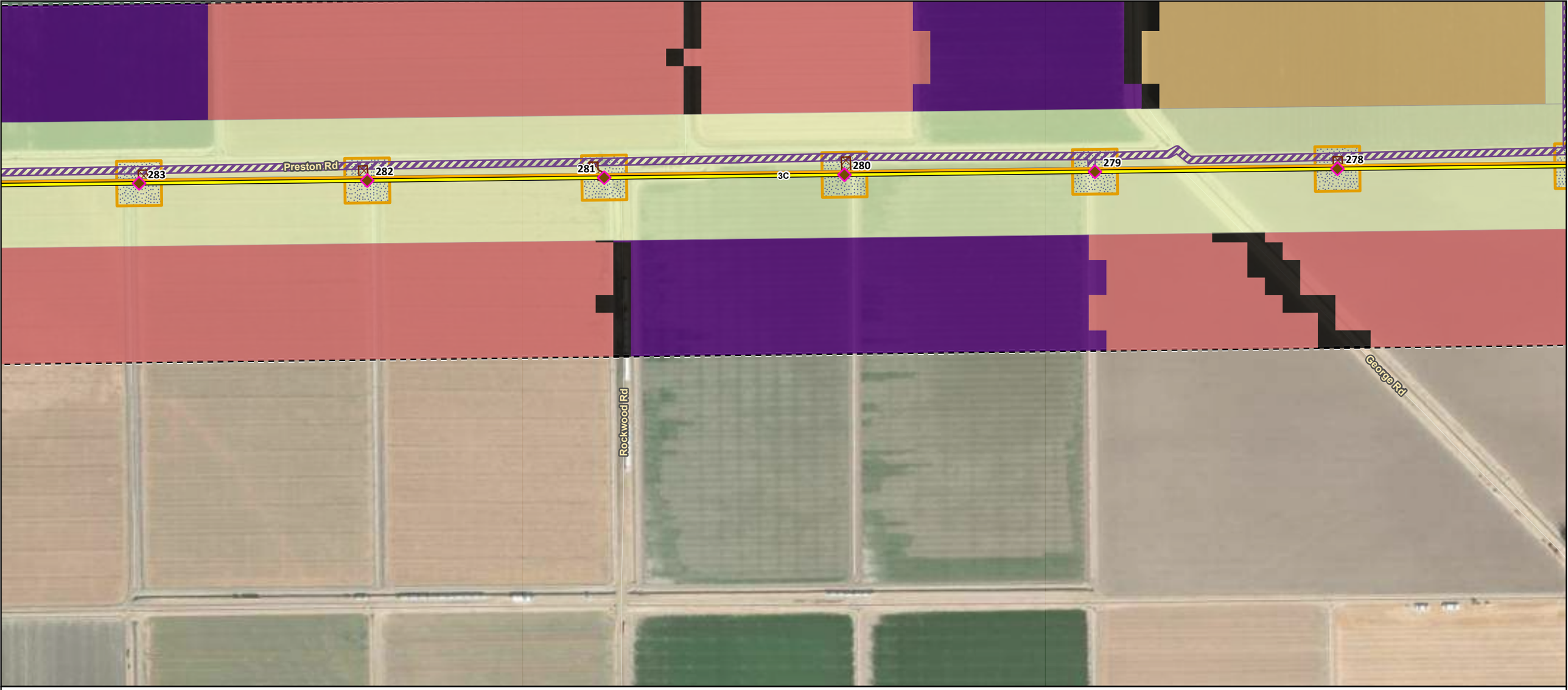
35

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Land Cover Types

Agriculture

Developed

LandFire Vegetation

5

29

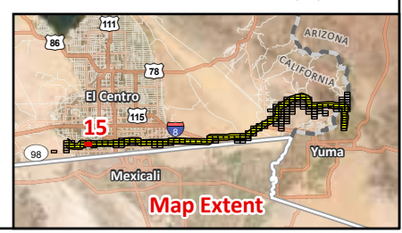
34

35

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Mesquite thickets

Land Cover Types

Agriculture

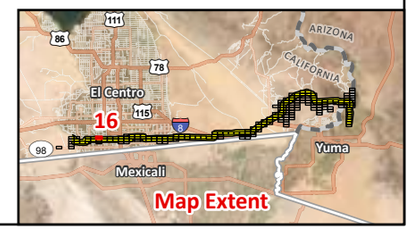
Developed

LandFire Vegetation

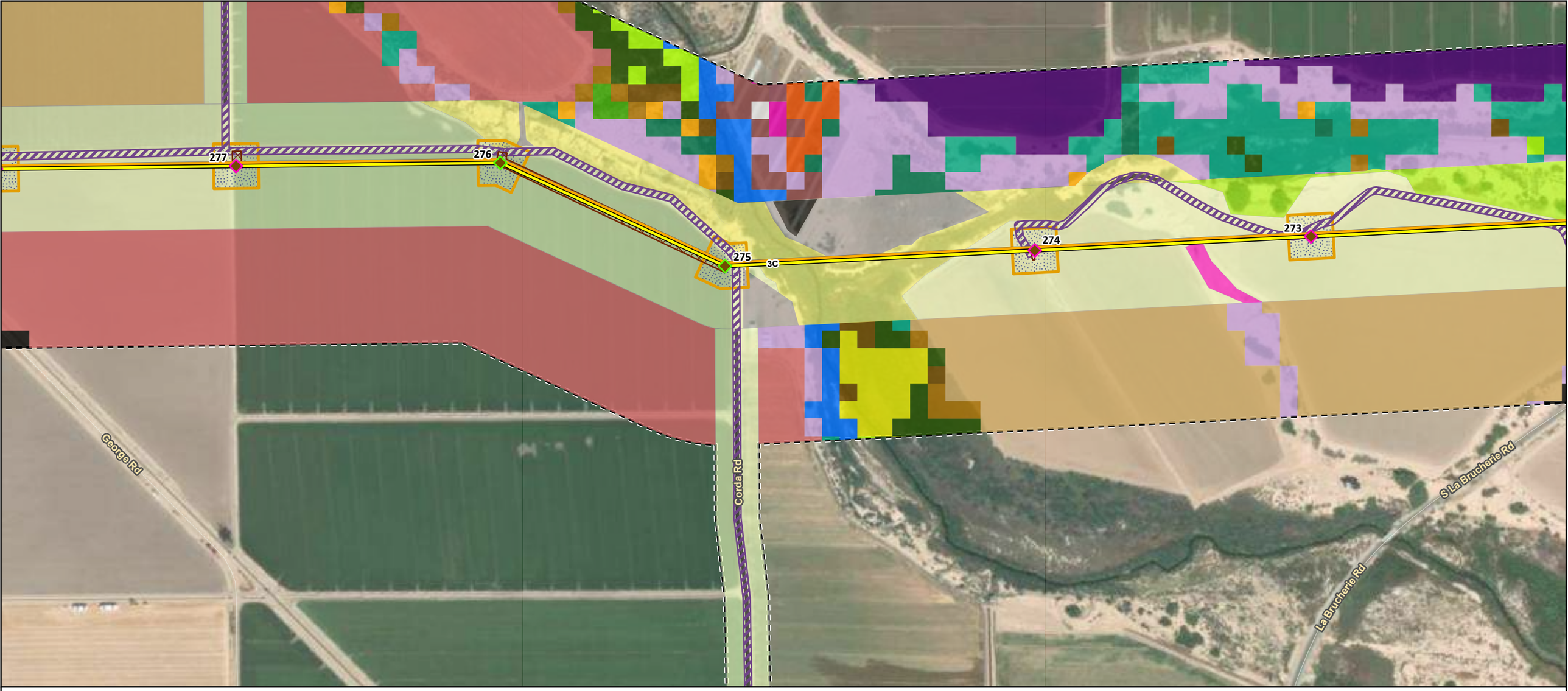
4
6
7
8
11
14
16
17
18
19
22
24
29
30
31
34
35

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Arrow weed thickets

Mesquite thickets

Tamarisk thickets

Land Cover Types

Agriculture

Developed

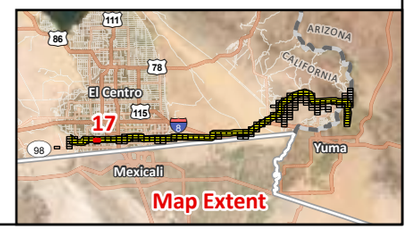
Disturbed

LandFire Vegetation

3
4
5
6
7
8
11
14
16
17
18
19
22
24
29
30
31

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Mesquite thickets

Land Cover Types

Agriculture

Developed

0 250 500

Feet

N



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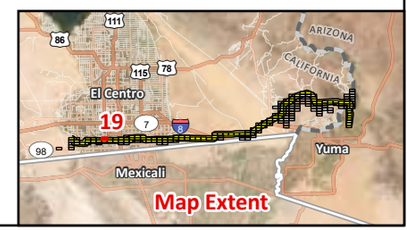
Biological Study Area

LandFire Vegetation

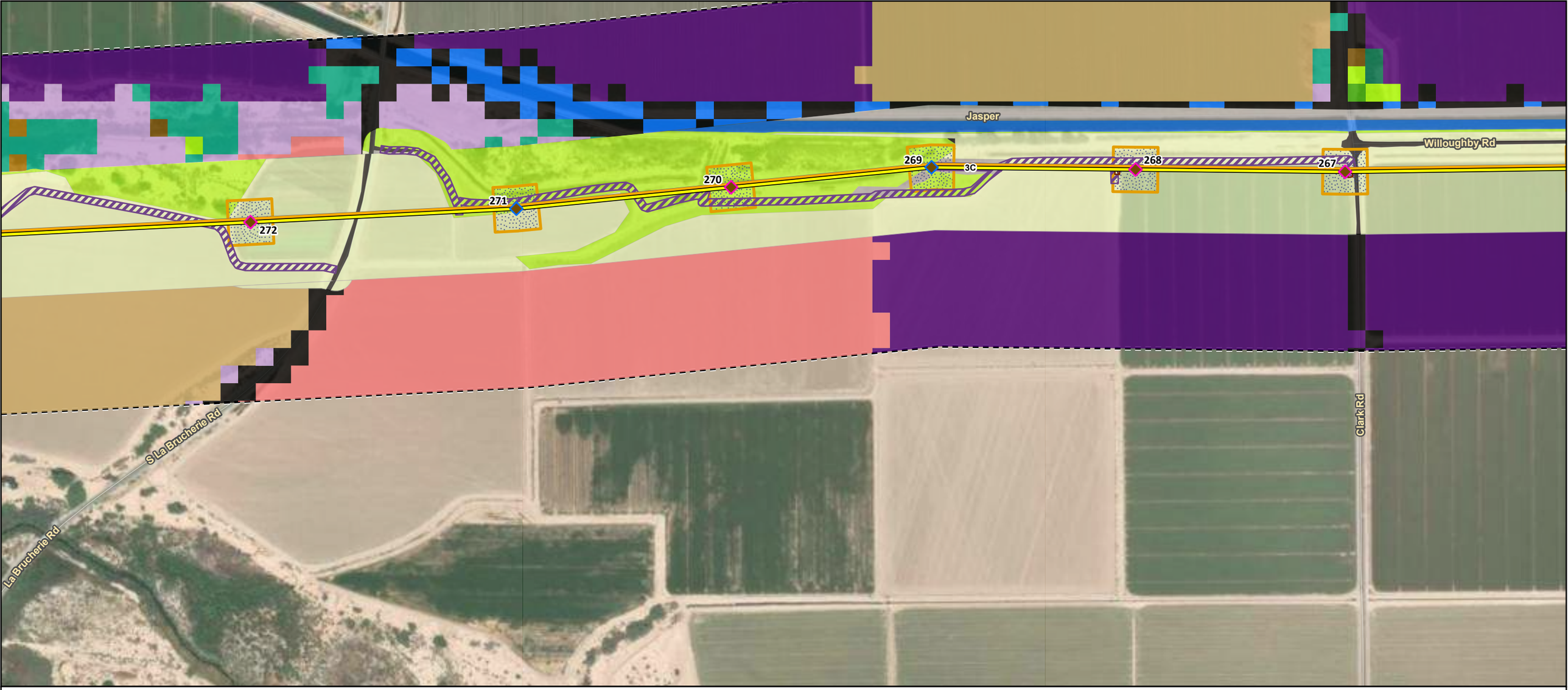
- 5
- 8
- 14
- 16
- 18
- 19
- 22
- 24
- 29
- 35

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Arrow weed thickets

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

5

7

8

14

16

18

19

22

24

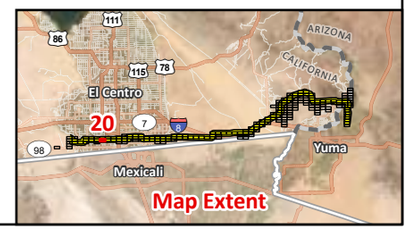
29

32

35

0 250 500 Feet

N



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Biological Study Area

Vegetation Communities

Tamarisk thickets

Land Cover Types

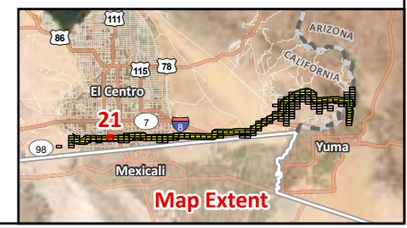
Disturbed

LandFire Vegetation

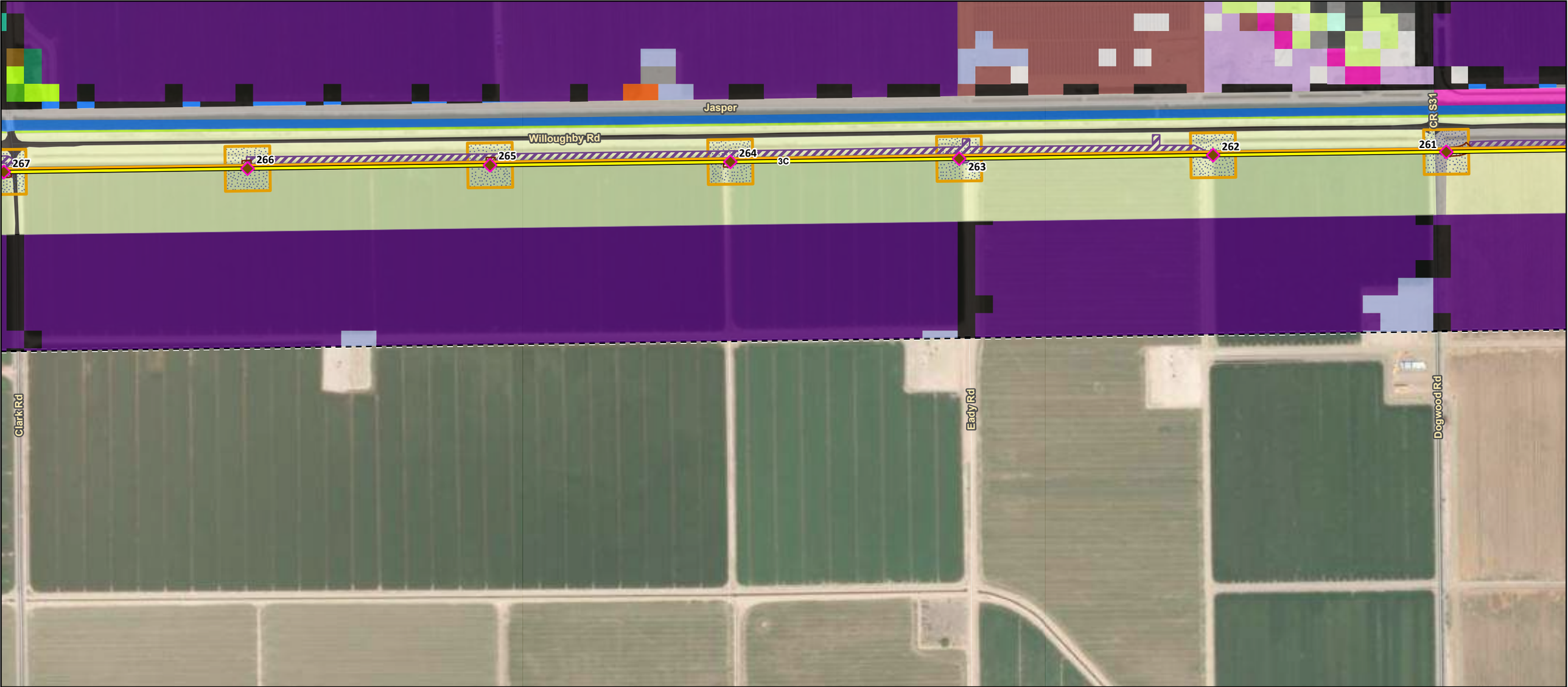
2
3
4
5
8
12
13
14
16
18
19
22
23
24
29
31
36

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Arrow weed thickets

Tamarisk thickets

Land Cover Types

Agriculture

Developed

Disturbed

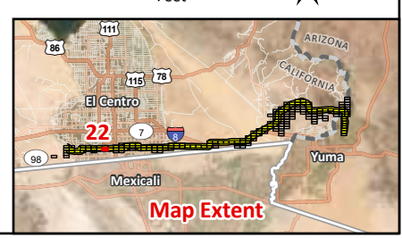
Open Water

LandFire Vegetation

2, 3, 4, 5, 8, 12, 13, 14, 16, 18, 19, 22, 23, 24, 29, 31, 36

0 250 500
Feet

N



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- Biological Study Area
- Proposed Project

Alternative Route Segments*

Segment III

- 3C

Project Structure

Transmission Structures

- Tubular 3-Pole Dead-End (T3D)

Access Roads

- Type 2 Existing Road - Needs Improvement
- Type 4 Temporary Road
- Construction Work Pad

Vegetation Communities

- Arrow weed thickets
- Tamarisk thickets

Land Cover Types

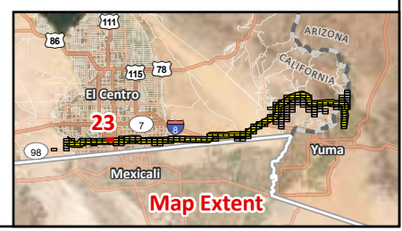
- Agriculture
- Developed
- Disturbed
- Open Water

LandFire Vegetation

2, 3, 4, 5, 12, 13, 18, 19, 22, 23, 24, 29, 31, 34, 38

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Arrow weed thickets

Eucalyptus - tree of heaven - black locust groves

Tamarisk thickets

Land Cover Types

Agriculture

Developed

Disturbed

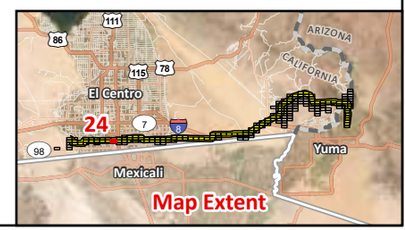
Open Water

LandFire Vegetation

2, 3, 4, 5, 12, 13, 18, 19, 22, 23, 24, 25, 29, 30, 31, 34, 38

0 250 500 Feet

N



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Scaroni Rd
111
Yourman Rd
255
254
253
252
3C
251
250
249
E Jasper Rd
Laydown Yard 7

Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Laydown Yard

Vegetation Communities

Tamarisk thickets

Land Cover Types

Agriculture

Developed

LandFire Vegetation

5

24

29

35

0 250 500
Feet

N

ARIZONA
CALIFORNIA
El Centro
Yuma
Mexicali
Map Extent

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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Laydown Yard

Vegetation Communities

Arrow weed thickets

Tamarisk thickets

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

3

5

24

29

30

35

38

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Laydown Yard

Vegetation Communities

Arrow weed thickets

Land Cover Types

Developed

Disturbed

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Agriculture

Developed

Open Water

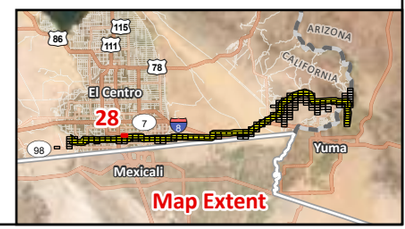
LandFire Vegetation

39

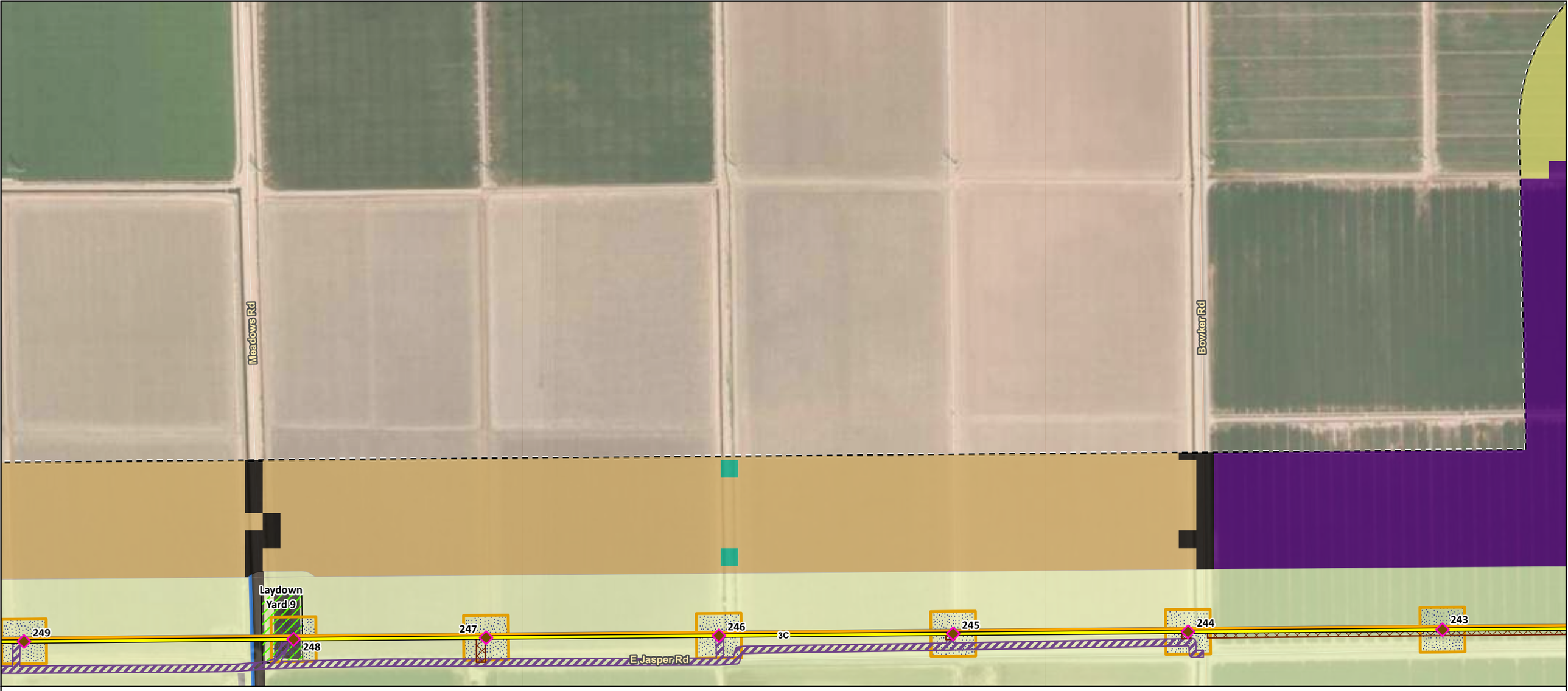
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Laydown Yard

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

5

19

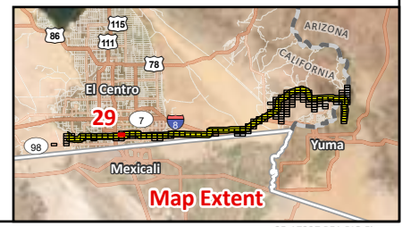
29

35

39

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Laydown Yard

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

3

5

18

19

29

30

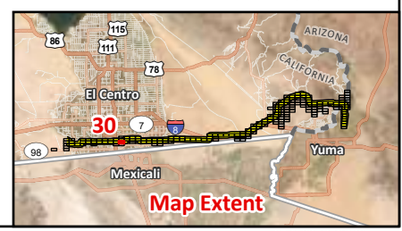
34

35

38

0 250 500
Feet

N



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Biological Study Area

Laydown Yard

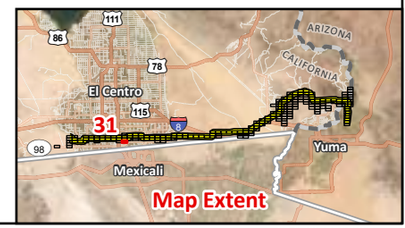
Land Cover Types

Developed

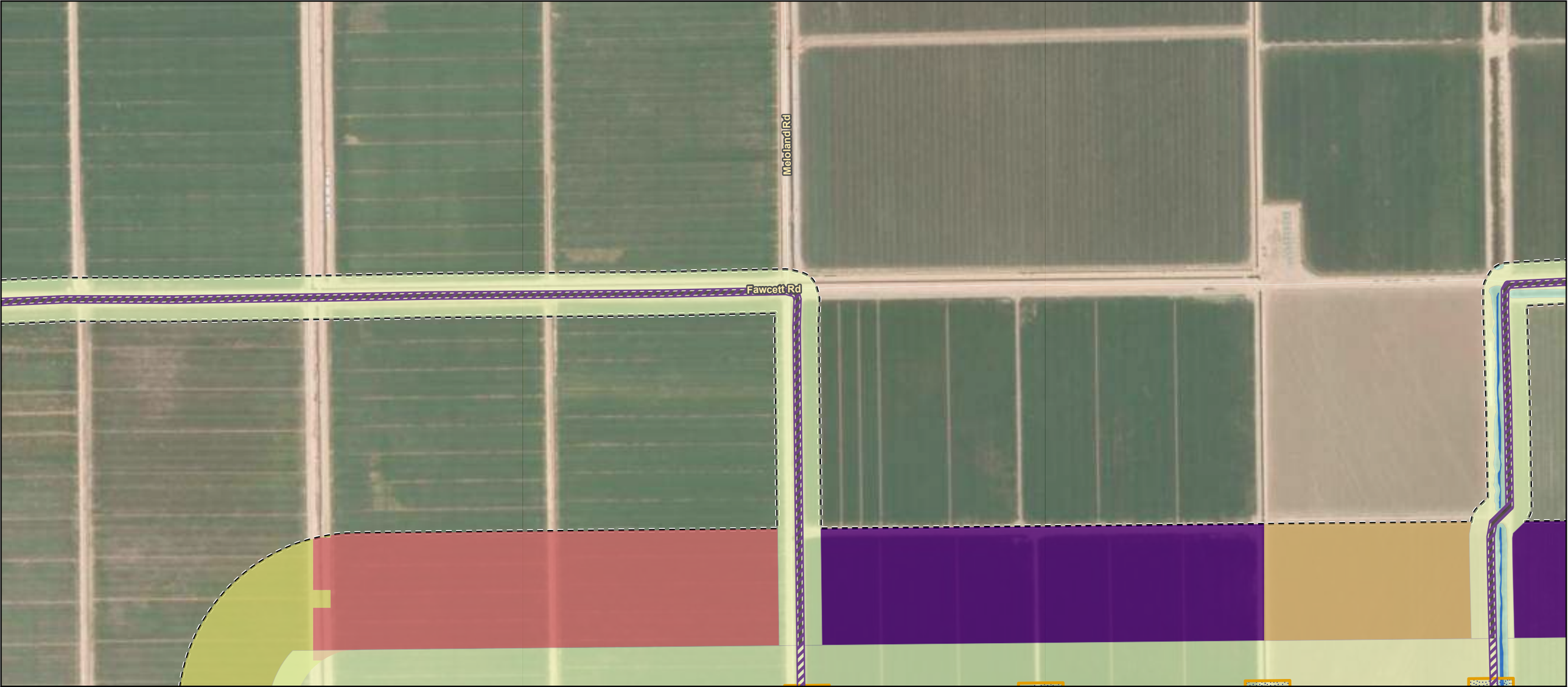
Disturbed

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Construction Work Pad

Vegetation Communities

Common reed marshes

Land Cover Types

Agriculture

Developed

Open Water

LandFire Vegetation

29

34

35

39

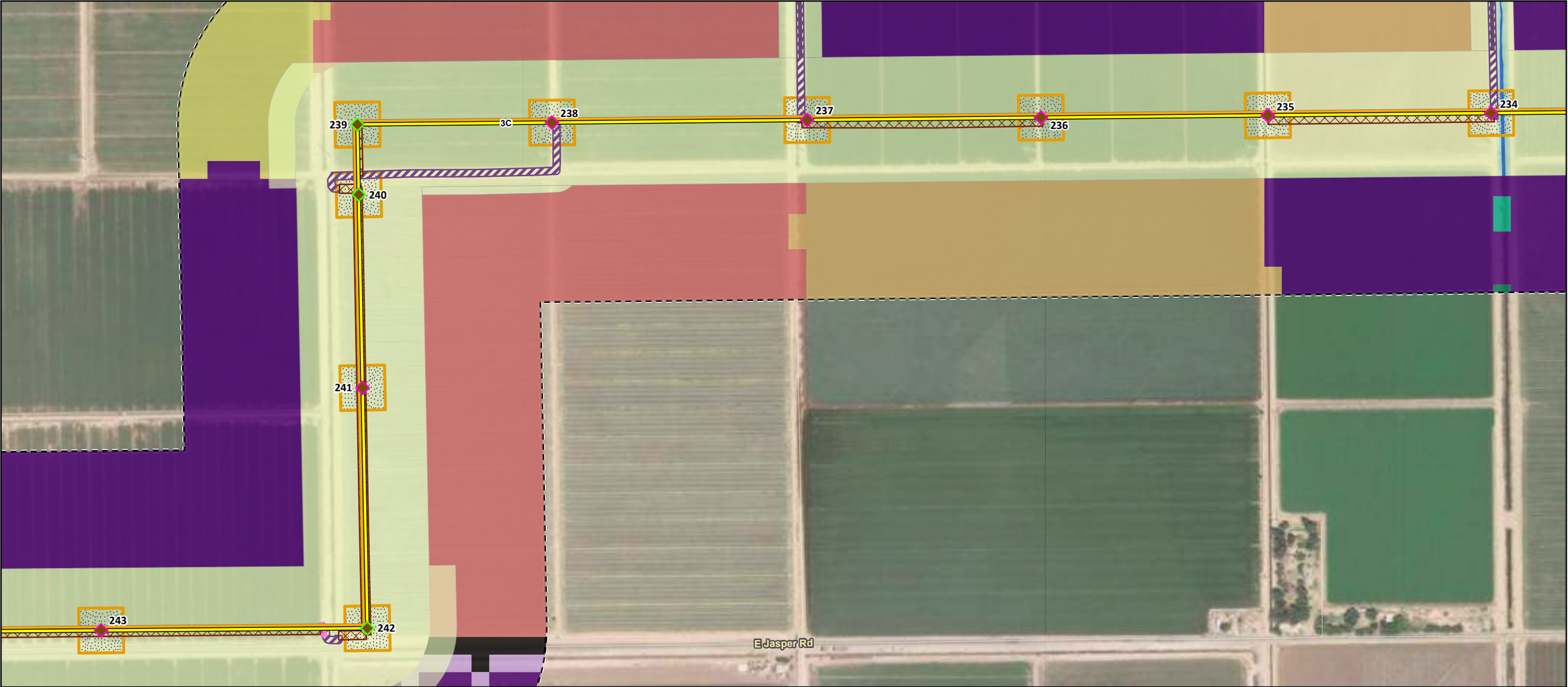
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Common reed marshes

Land Cover Types

Agriculture

Developed

Open Water

LandFire Vegetation

5

18

19

24

29

34

35

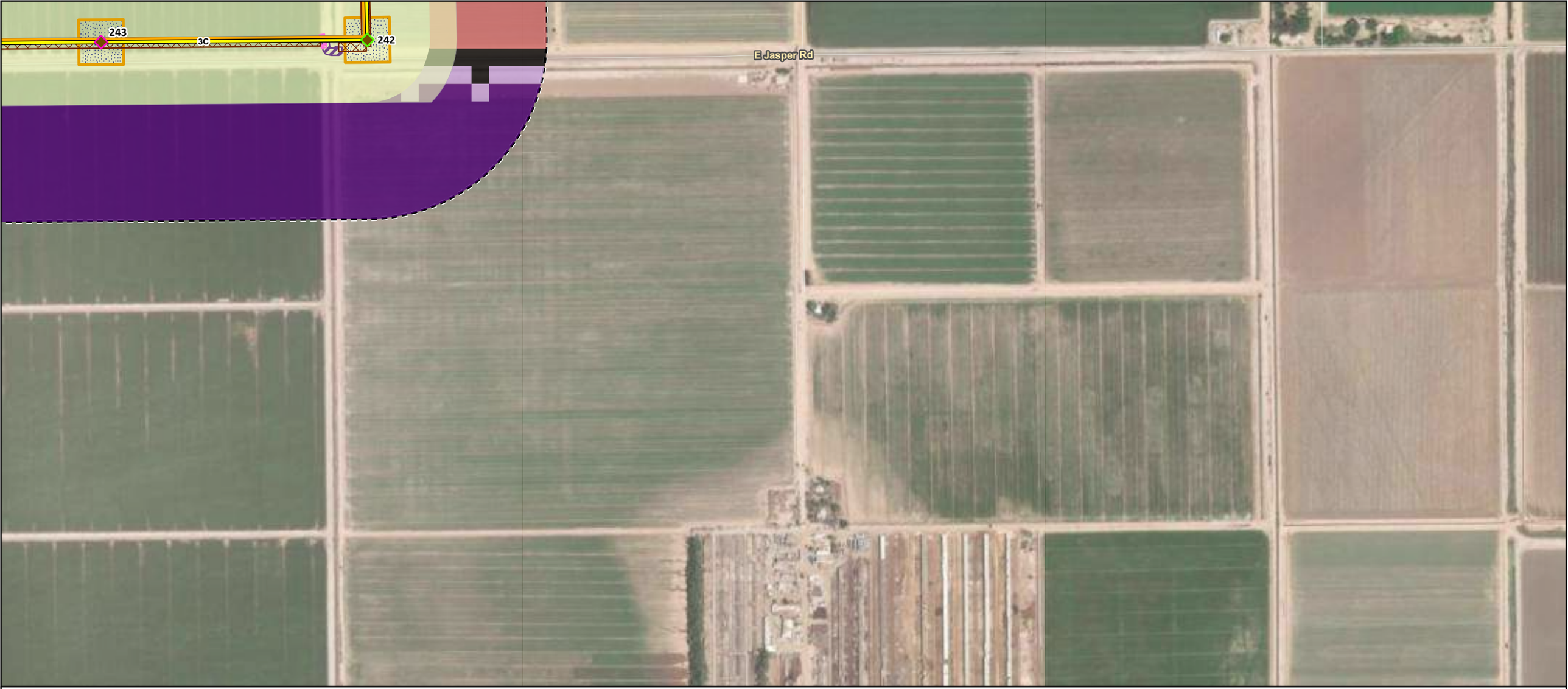
39

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular 3-Pole Dead-End (T3D)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 4 Temporary Road

Construction Work Pad

Land Cover Types

Agriculture

LandFire Vegetation

5

24

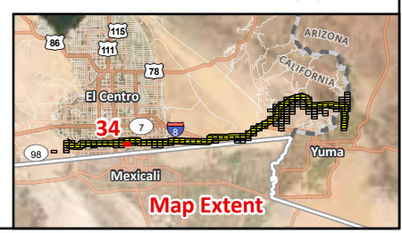
29

34

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Common reed marshes

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

5

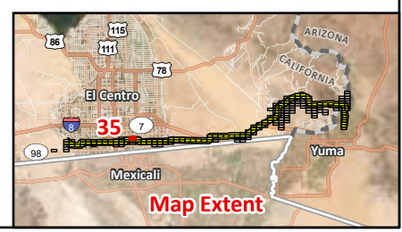
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29

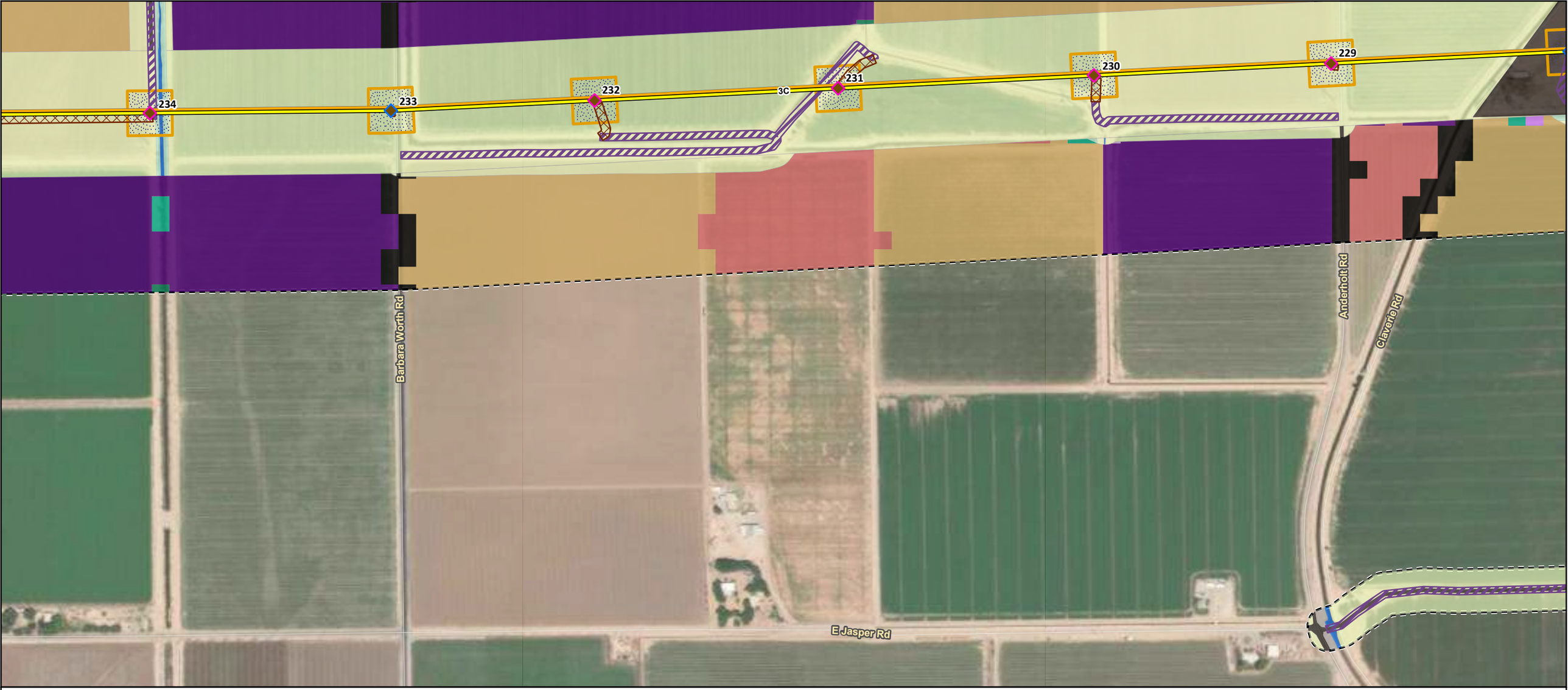
35

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Common reed marshes

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

5

18

19

24

25

29

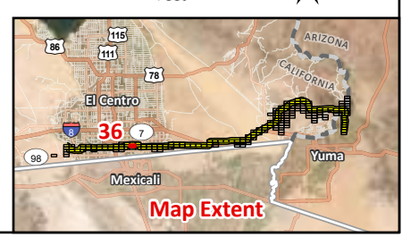
34

35

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

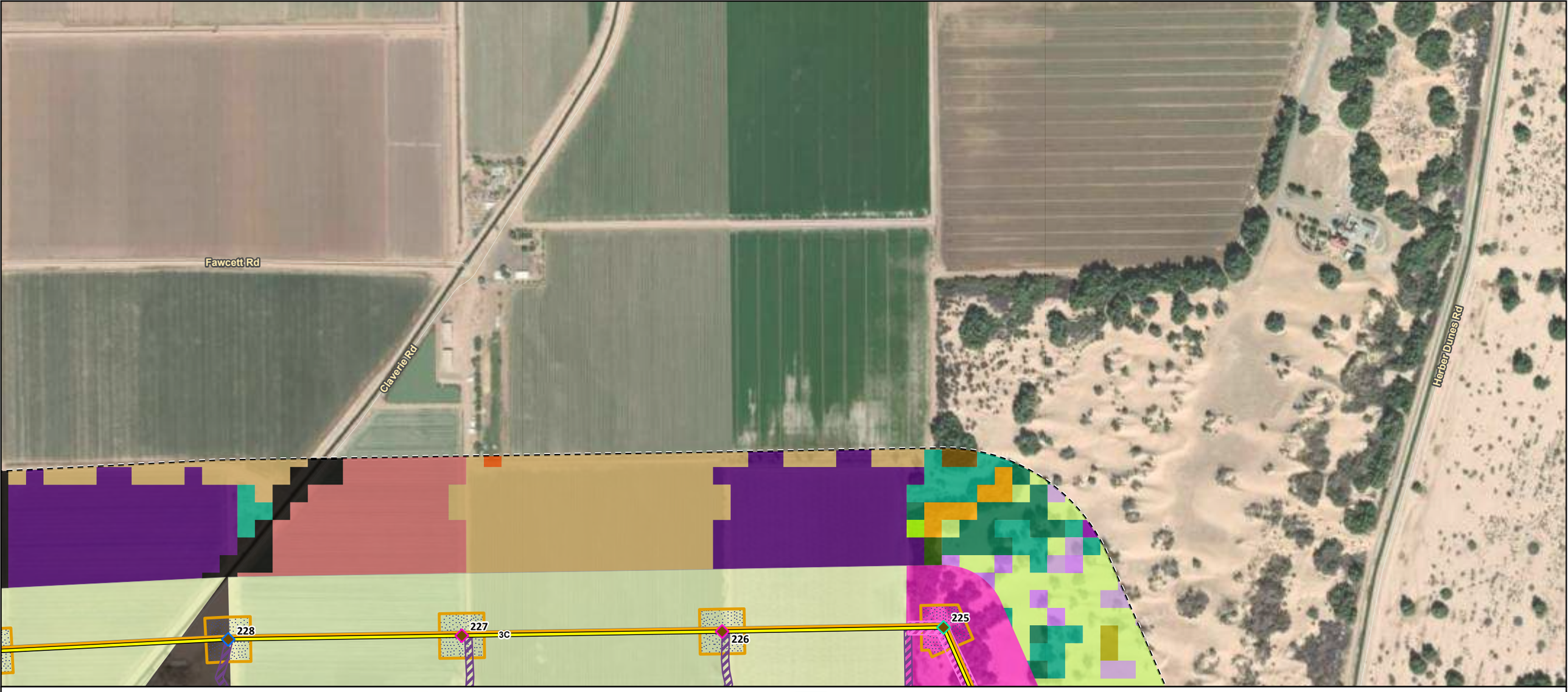
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III
3C

Project Structure

Transmission Structures
Lattice Tower Dead-End (LTD) - Heavy
Tubular Monopole Angle (TMA)
Tubular Monopole Tangent (TMT)

Access Roads
Type 2 Existing Road - Needs Improvement
Type 3 New Road - Moderate

Construction Work Pad

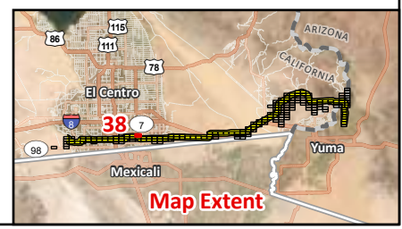
Vegetation Communities
Tamarisk thickets

Land Cover Types
Agriculture
Developed

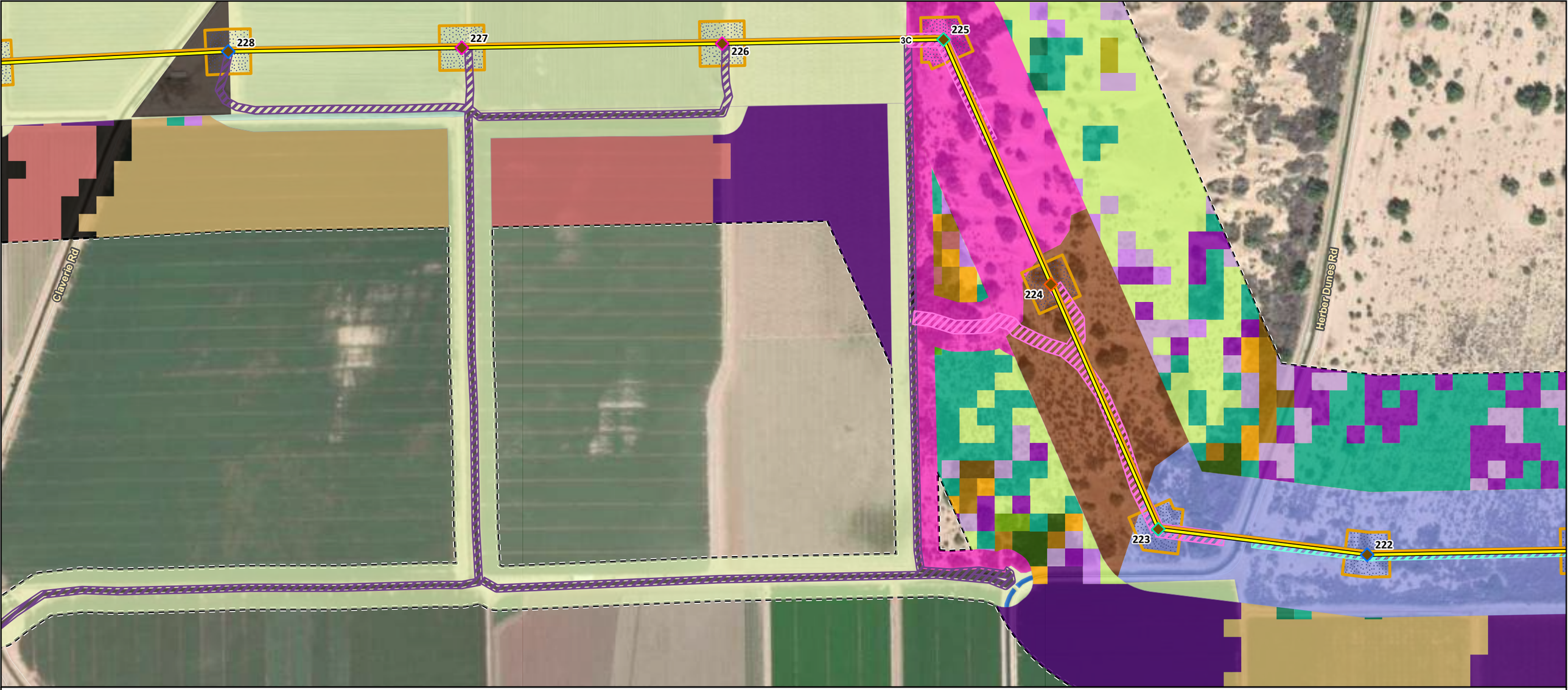
LandFire Vegetation
5
6
7
8
10
12
14
17
18
19
24
25
28
29
34
35
36

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

- Lattice Tower Dead-End (LTD) - Heavy
- Lattice Tower Tangent (LTT)
- Tubular Monopole Angle (TMA)
- Tubular Monopole Tangent (TMT)

Access Roads

- Type 2 Existing Road - Needs Improvement
- Type 3 New Road - Flat
- Type 3 New Road - Moderate
- Construction Work Pad

Vegetation Communities

- Common reed marshes
- Creosote bush scrub
- Eucalyptus - tree of heaven - black locust groves
- Tamarisk thickets

Land Cover Types

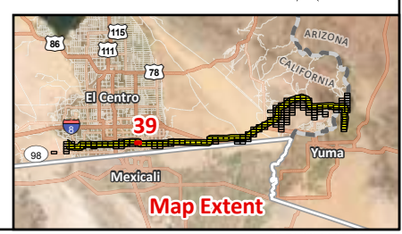
- Agriculture
- Developed
- Open Water

LandFire Vegetation

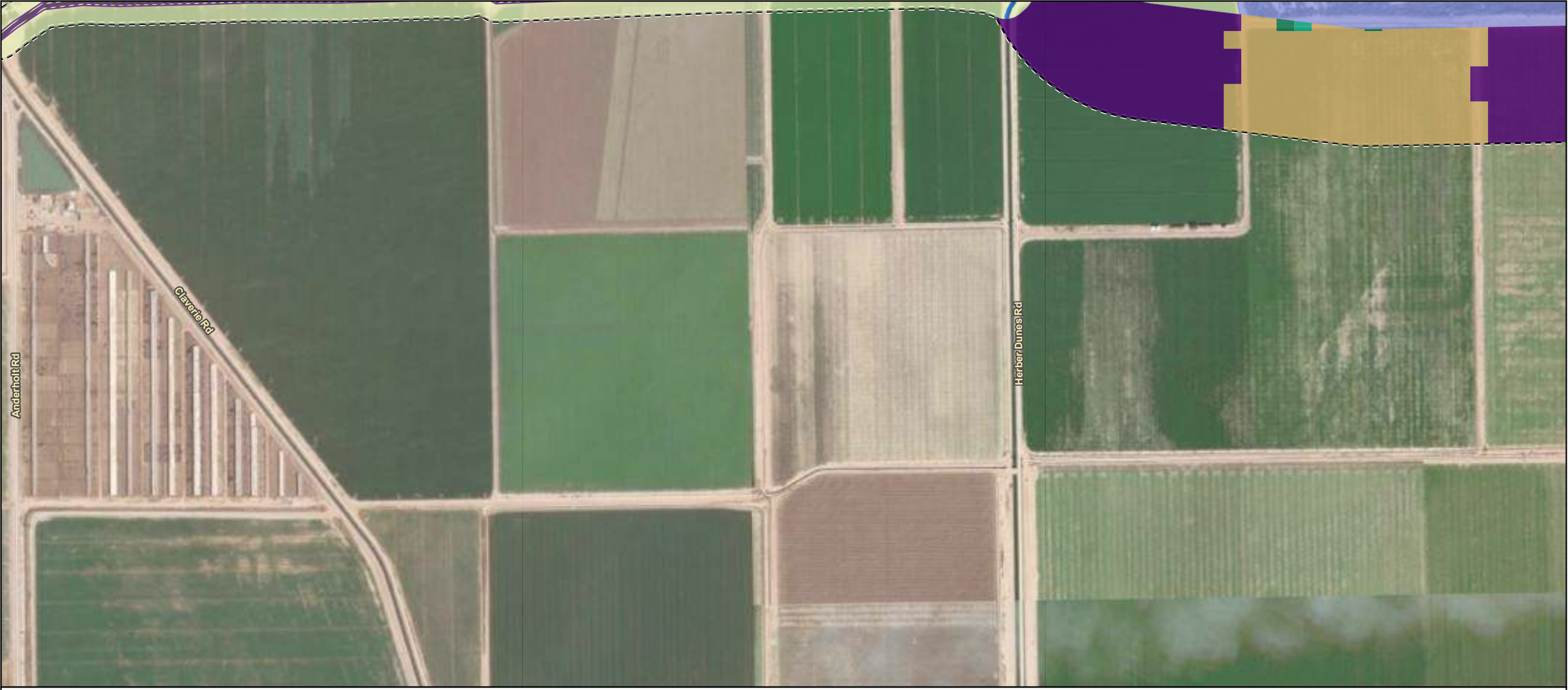
5, 6, 7, 8, 10, 12, 15, 16, 17, 18, 19, 24, 25, 28, 29, 34, 35

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Eucalyptus - tree of heaven - black locust groves

Land Cover Types

Agriculture

Developed

Open Water

LandFire Vegetation

18

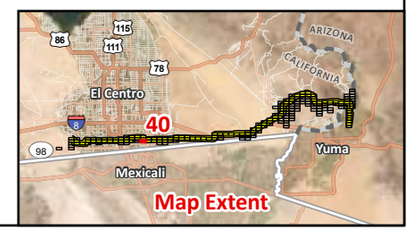
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29

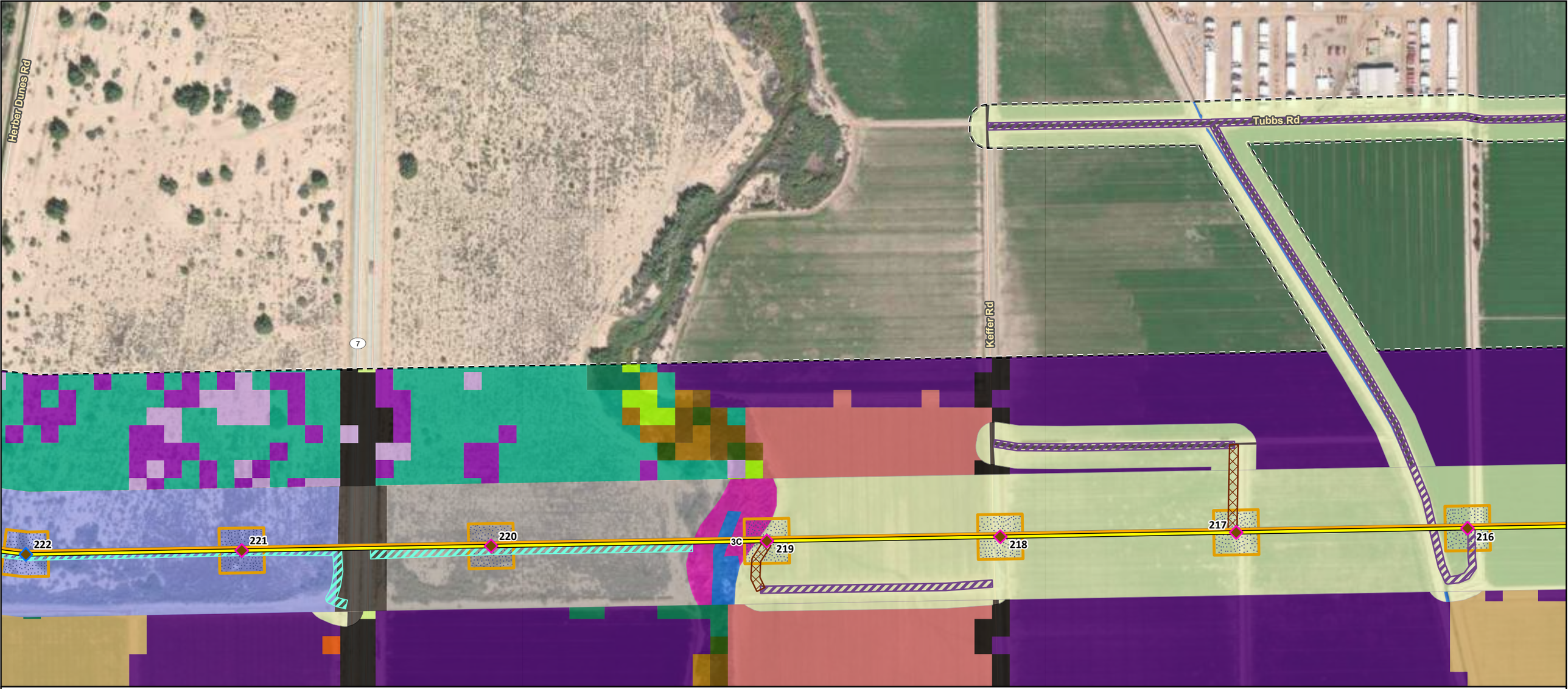
35

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)
Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Eucalyptus - tree of heaven - black locust groves
Tamarisk thickets

Land Cover Types

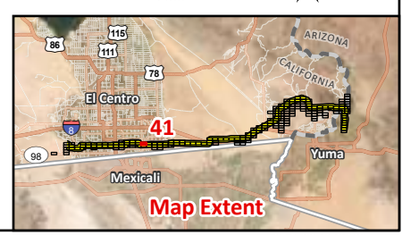
Agriculture
Developed
Disturbed
Open Water

LandFire Vegetation

5
7
8
12
14
17
18
19
24
28
29
34
35
36

0 250 500
Feet

N



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Biological Study Area

Access Roads
- Type 2 Existing Road - Needs Improvement
- Type 3 New Road - Flat
- Type 4 Temporary Road

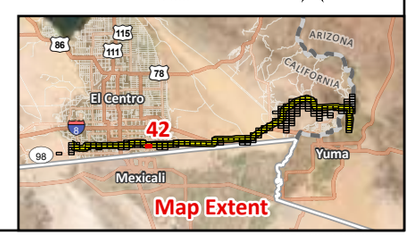
Vegetation Communities
- Eucalyptus - tree of heaven - black locust groves
- Tamarisk thickets

Land Cover Types
- Agriculture
- Developed
- Disturbed
- Open Water

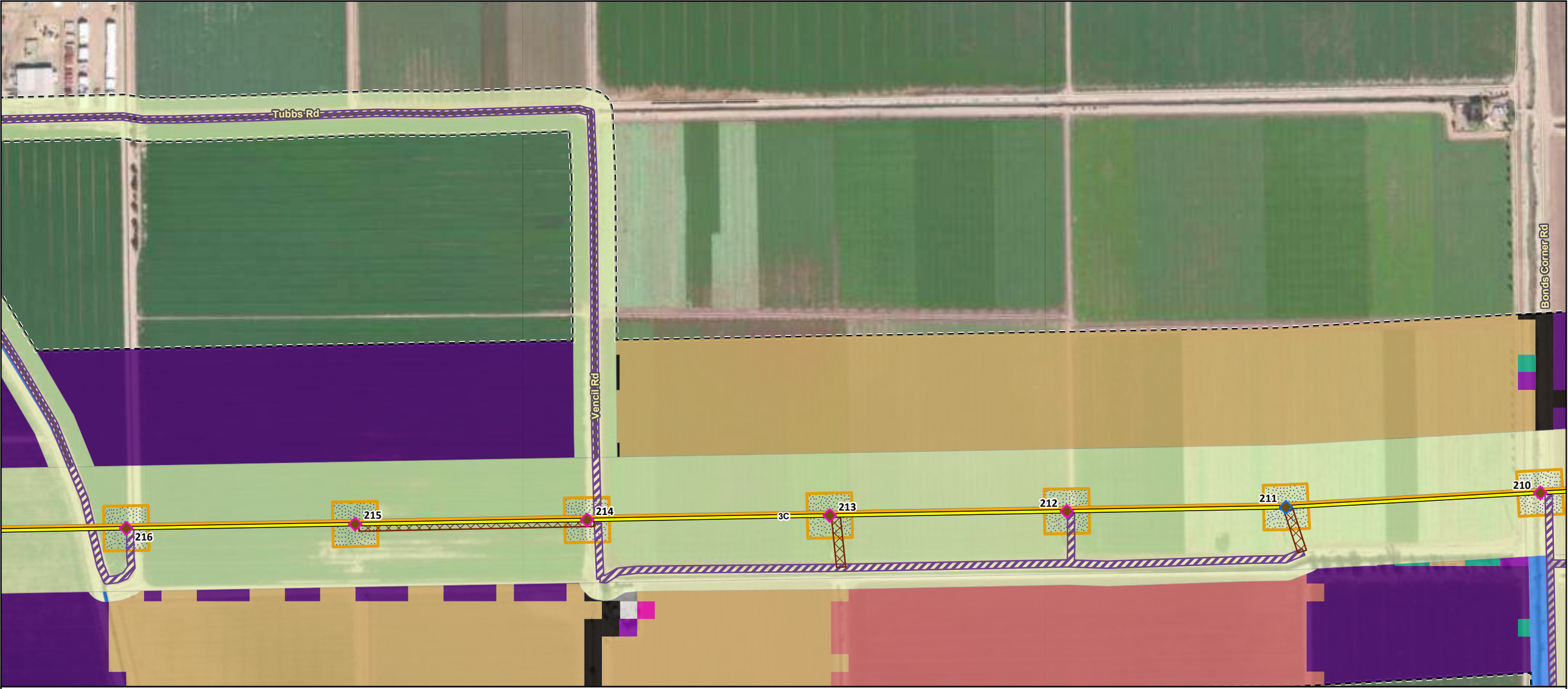
LandFire Vegetation
- 5
- 7
- 8
- 12
- 17
- 18
- 29
- 34
- 35
- 36

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

3

4

5

19

28

29

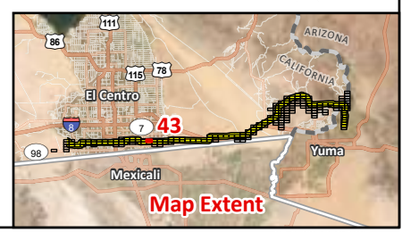
31

34

35

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

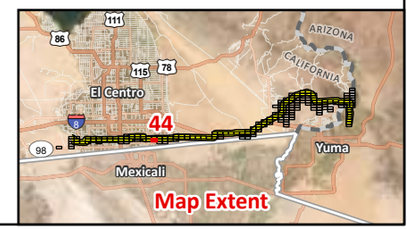
Agriculture
Developed
Disturbed
Open Water

LandFire Vegetation

3
4
5
19
28
29
31
34
35

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Angle (TMA)

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

5

19

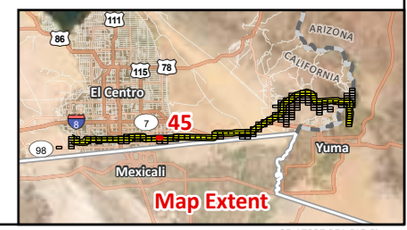
28

29

35

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

19

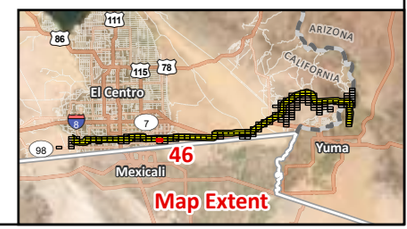
29

35

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

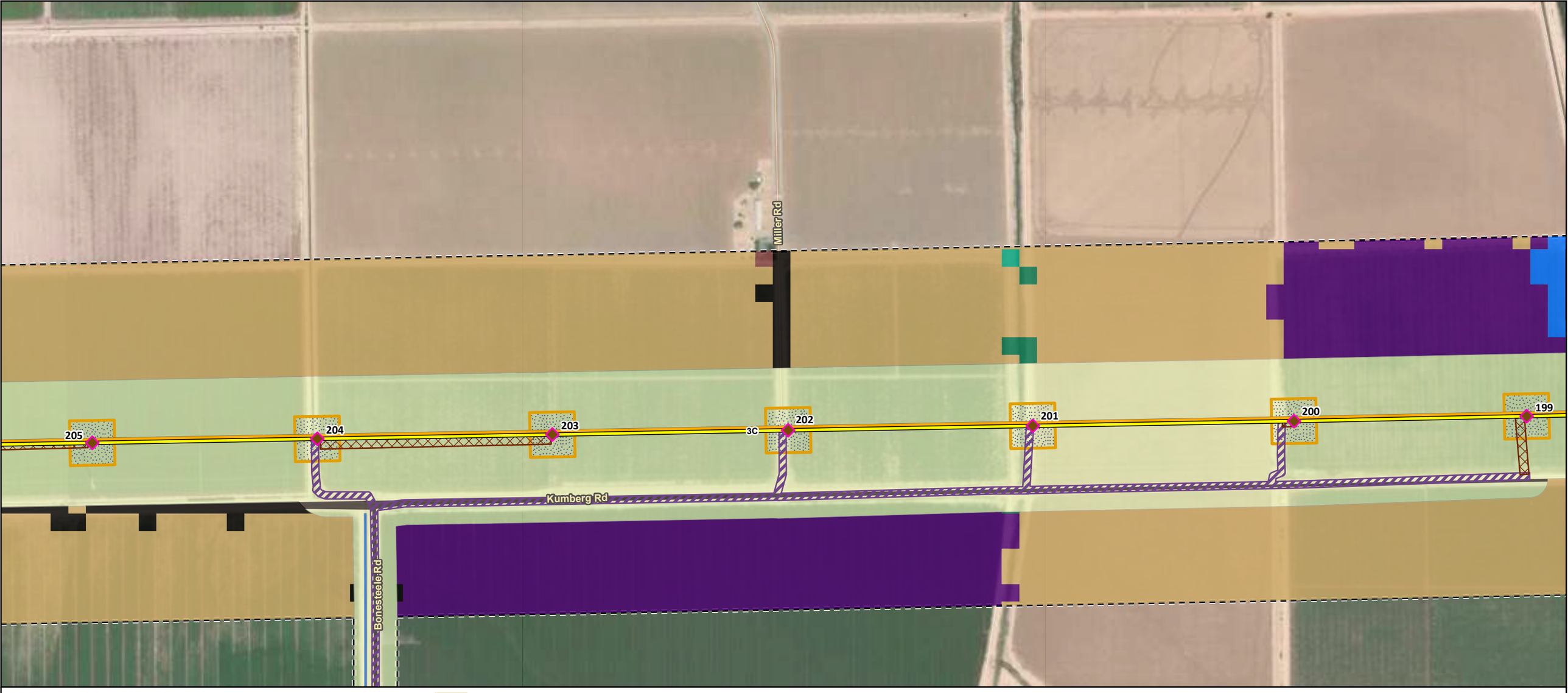
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Land Cover Types

Agriculture

Developed

Open Water

LandFire Vegetation

5

18

19

22

29

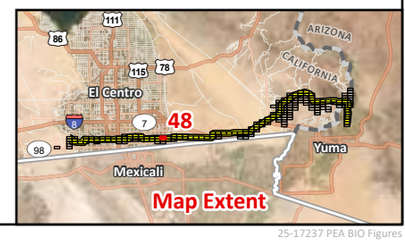
35

38

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Agriculture

Developed

Open Water

LandFire Vegetation

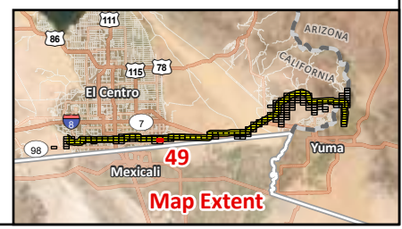
5

29

35

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Agriculture

Developed

Open Water

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment III

3C

Project Structure

Transmission Structures

Tubular Monopole Tangent (TMT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 4 Temporary Road

Construction Work Pad

Vegetation Communities

Cattail marshes

Common reed marshes

Creosote bush scrub

Mesquite thickets

Tamarisk thickets

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

5

12

15

18

19

22

24

25

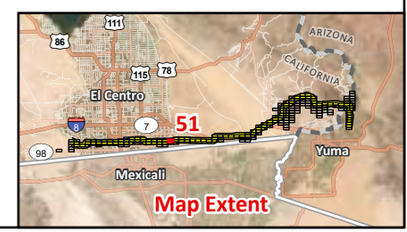
28

29

35

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Arrow weed thickets

Cattail marshes

Common reed marshes

Mesquite thickets

Tamarisk thickets

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

5

22

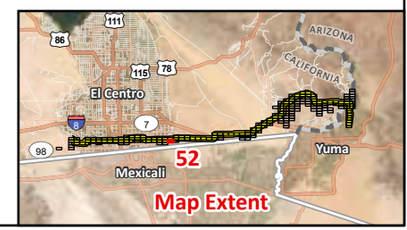
25

35

0 250 500

Feet

N



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Biological Study Area

Construction Work Pad

Vegetation Communities

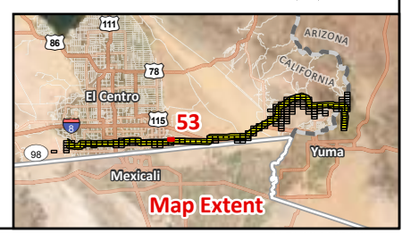
- Arrow weed thickets
- Mesquite thickets
- Tamarisk thickets

LandFire Vegetation

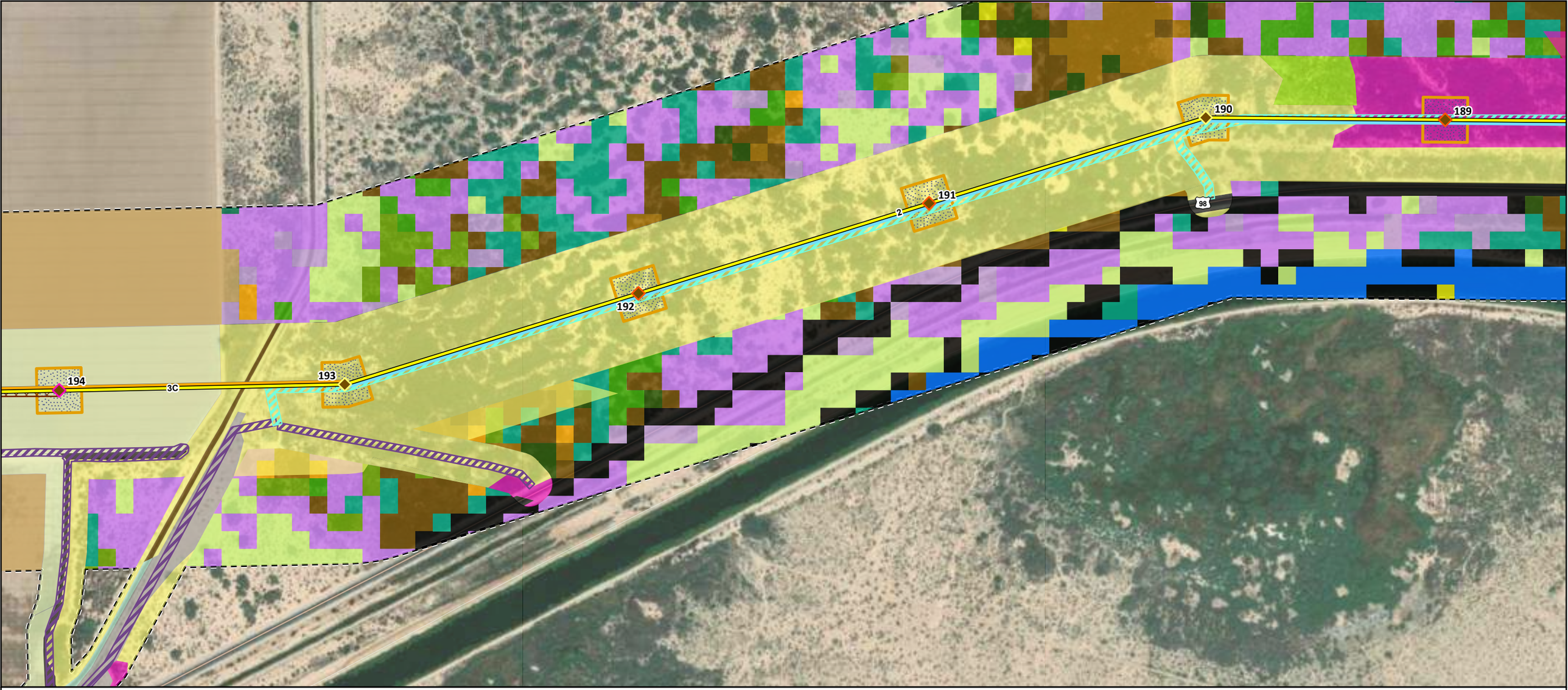
- 6
- 7
- 8
- 9
- 11
- 12
- 15
- 16
- 17
- 19
- 24
- 25

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment II
2

Segment III
3C

Project Structure

Transmission Structures
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)
Tubular Monopole Tangent (TMT)

Access Roads
Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 4 Temporary Road

Construction Work Pad

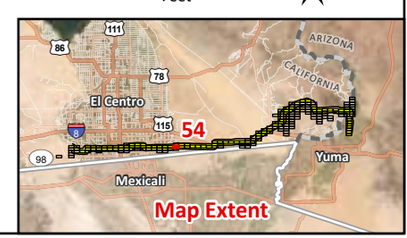
Vegetation Communities
Arrow weed thickets
Cattail marshes
Common reed marshes
Mesquite thickets
Tamarisk thickets

Land Cover Types
Agriculture
Developed
Disturbed

LandFire Vegetation
5
6
7
8
9
11
12
15
16
17
18
19
22
24
25
35

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Arrow weed thickets

Common reed marshes

Mesquite thickets

Tamarisk thickets

Land Cover Types

Agriculture

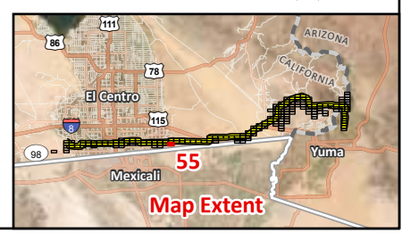
Developed

Disturbed

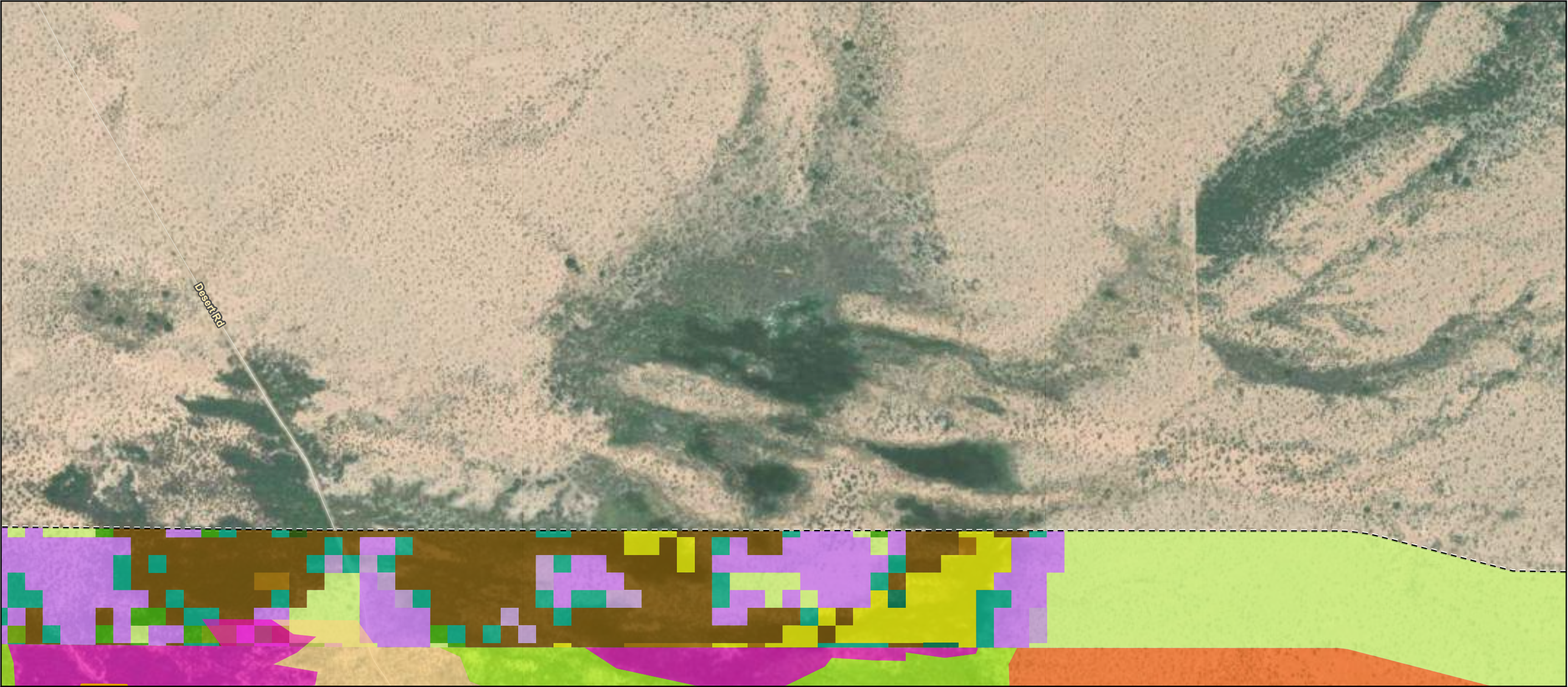
0 250 500

Feet

N



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Biological Study Area

Construction Work Pad

Vegetation Communities

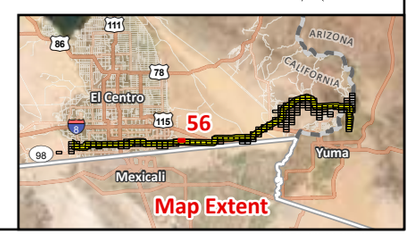
- Arrow weed thickets
- Bush seepweed scrub
- Creosote bush - white burr sage scrub
- Tamarisk thickets

LandFire Vegetation

- 7
- 8
- 11
- 12
- 15
- 16
- 17
- 18
- 19
- 24
- 25

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Arrow weed thickets

Bush seepweed scrub

Creosote bush - white burr sage scrub

Mesquite thickets

Tamarisk thickets

Land Cover Types

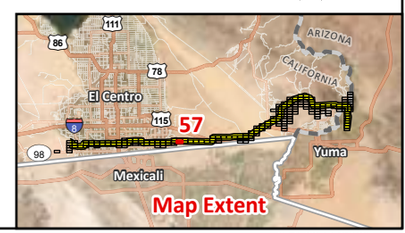
Developed

LandFire Vegetation

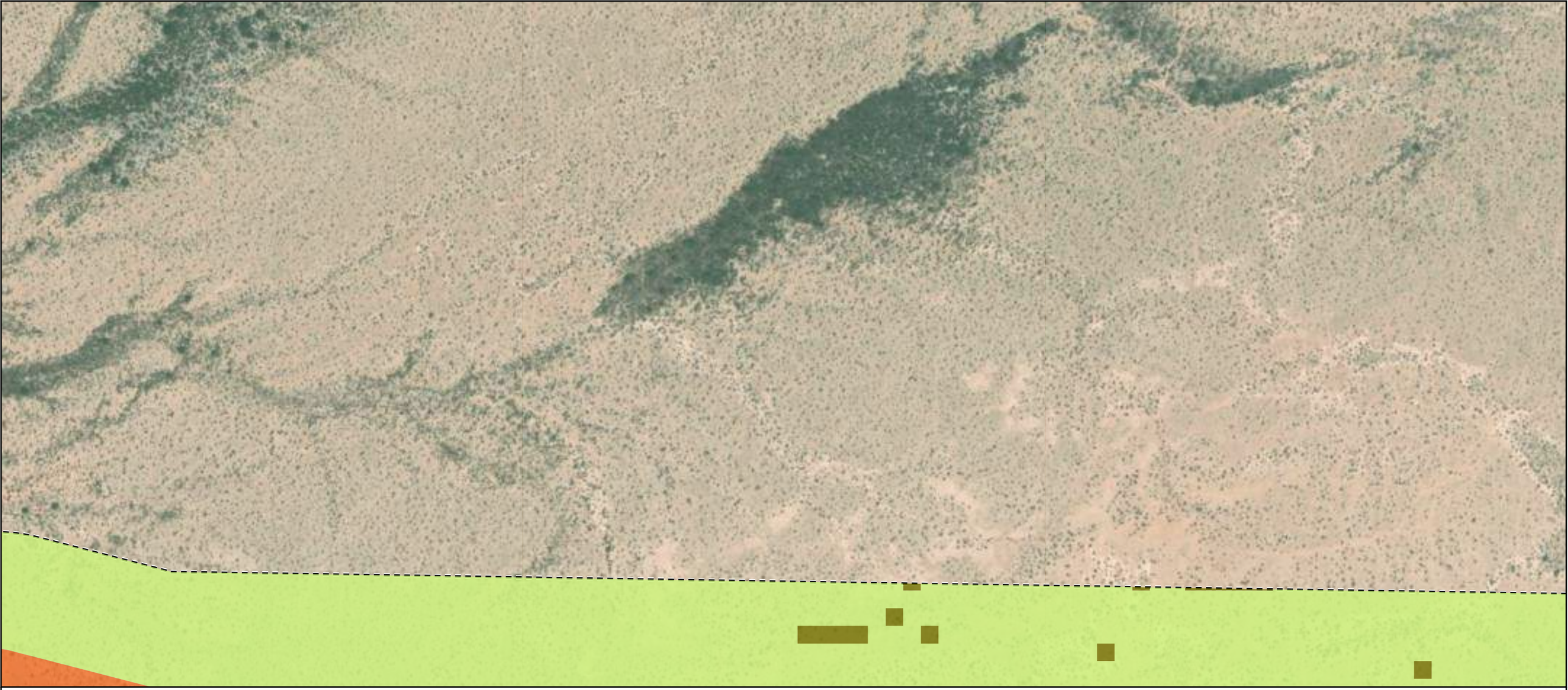
5, 7, 8, 9, 11, 12, 15, 16, 17, 18, 19, 22, 24, 25

0 250 500 Feet

N



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Biological Study Area

Vegetation Communities

Creosote bush - white burr sage scrub

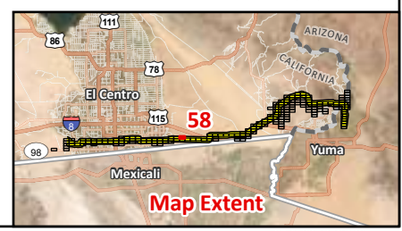
LandFire Vegetation

9

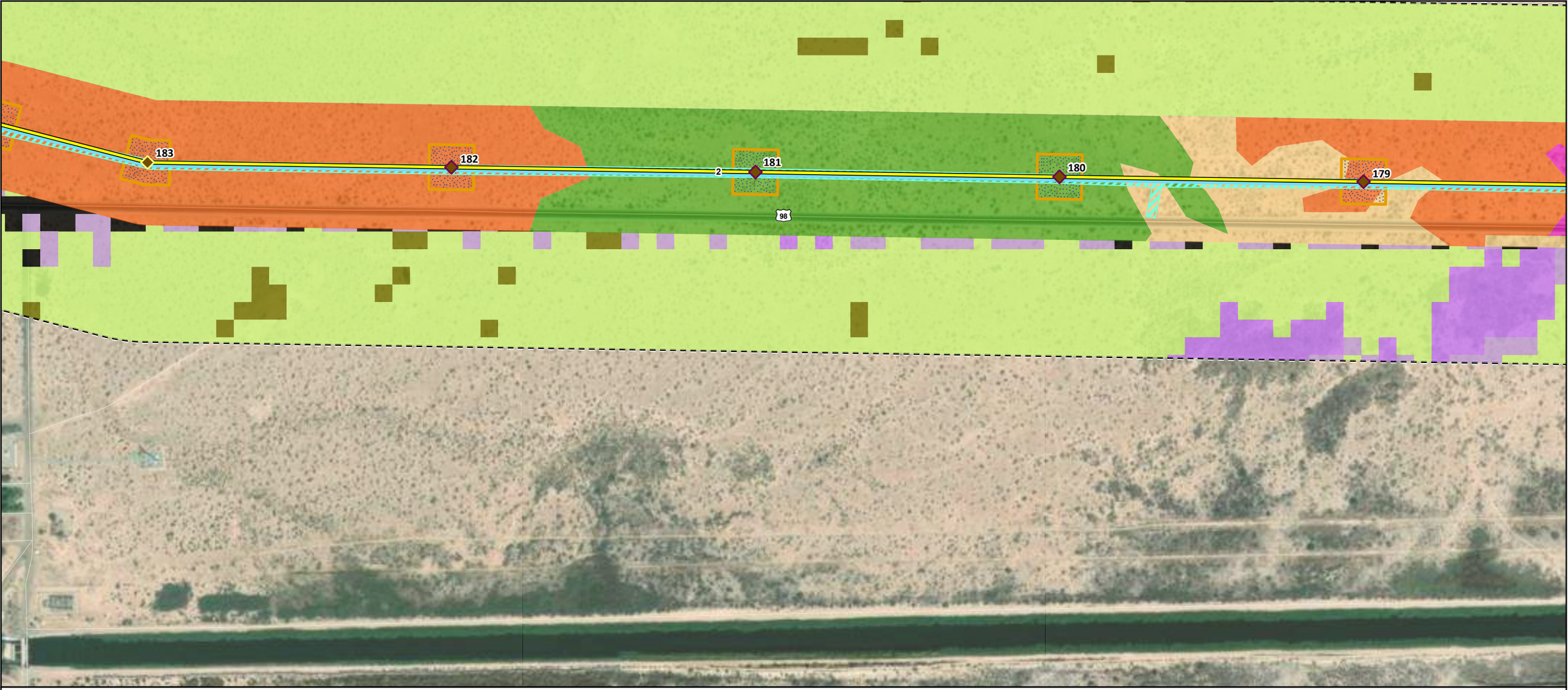
12

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Bush seepweed scrub

California joint fir - longleaf joint-fir scrub

Creosote bush - white burr sage scrub

Tamarisk thickets

LandFire Vegetation

5

9

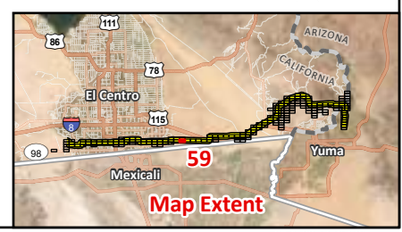
12

24

25

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

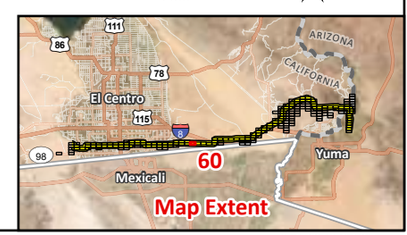
- Bush seepweed scrub
- California joint fir - longleaf joint-fir scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Mesquite thickets
- Tamarisk thickets

LandFire Vegetation

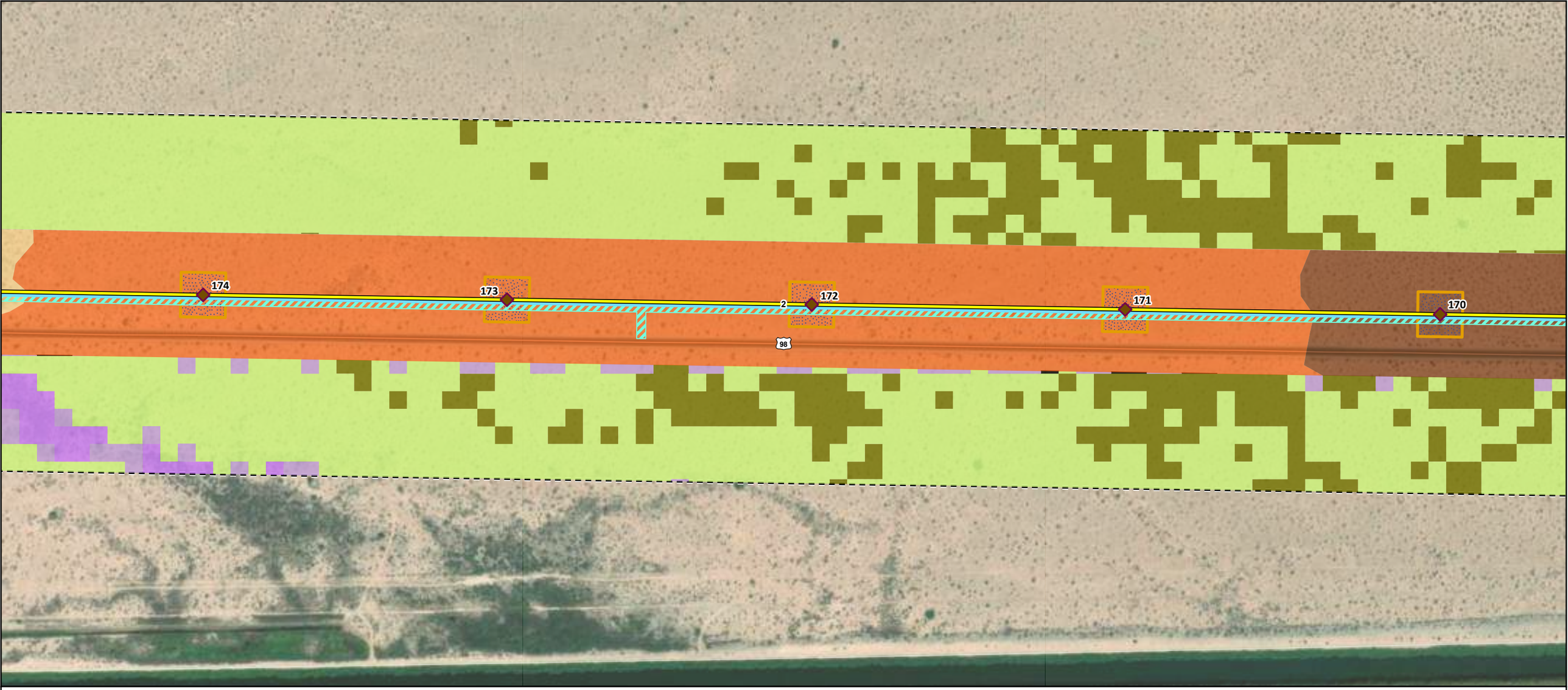
5, 7, 8, 9, 11, 12, 17, 19, 24, 25

0 250 500 Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Bush seepweed scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

LandFire Vegetation

5

9

12

24

25

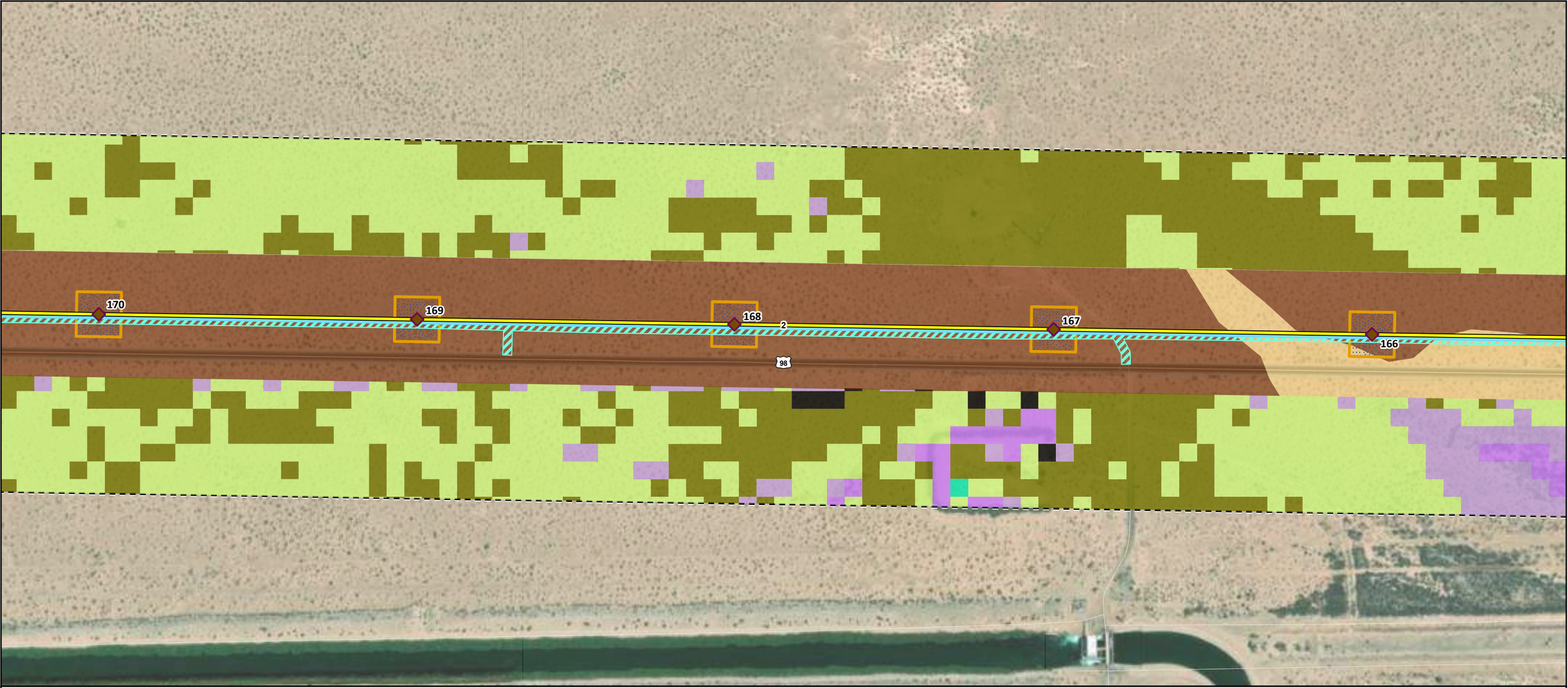
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Bush seepweed scrub

Creosote bush scrub

LandFire Vegetation

5

9

12

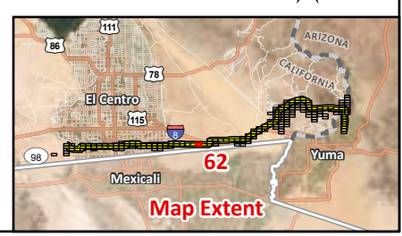
20

24

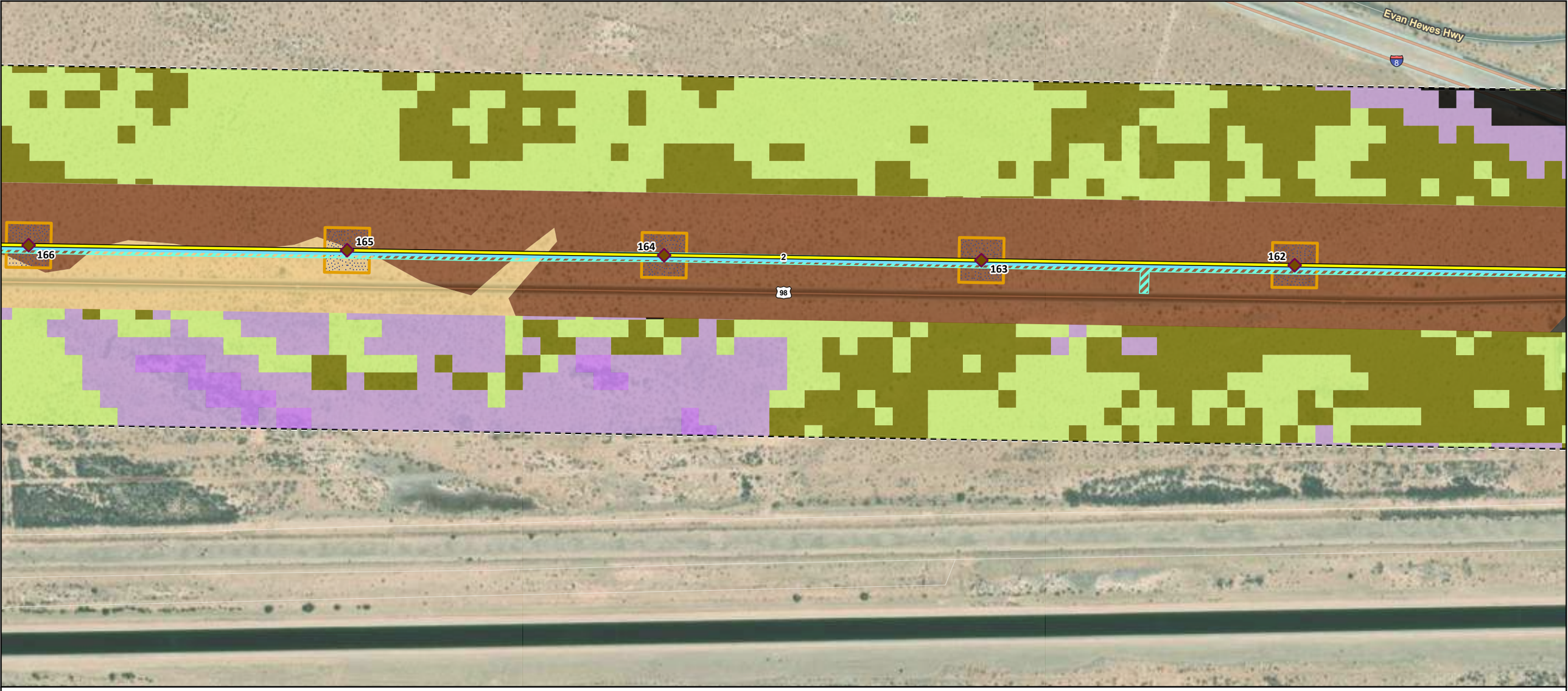
25

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Bush seepweed scrub

Creosote bush scrub

Land Cover Types

Developed

LandFire Vegetation

5

9

12

24

25

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy
Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Land Cover Types

Developed

LandFire Vegetation

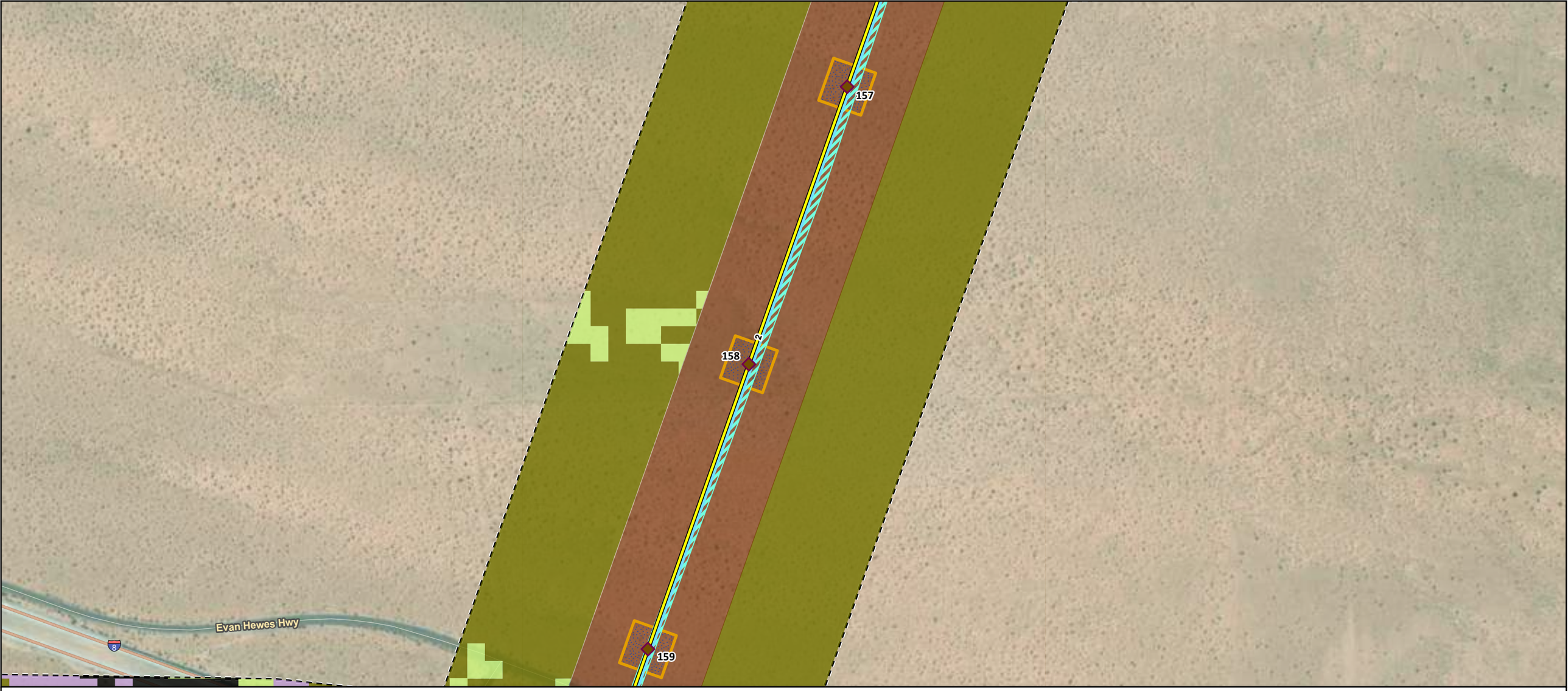
3
5
9
12
20
24
38

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Creosote bush scrub

LandFire Vegetation

5

9

12

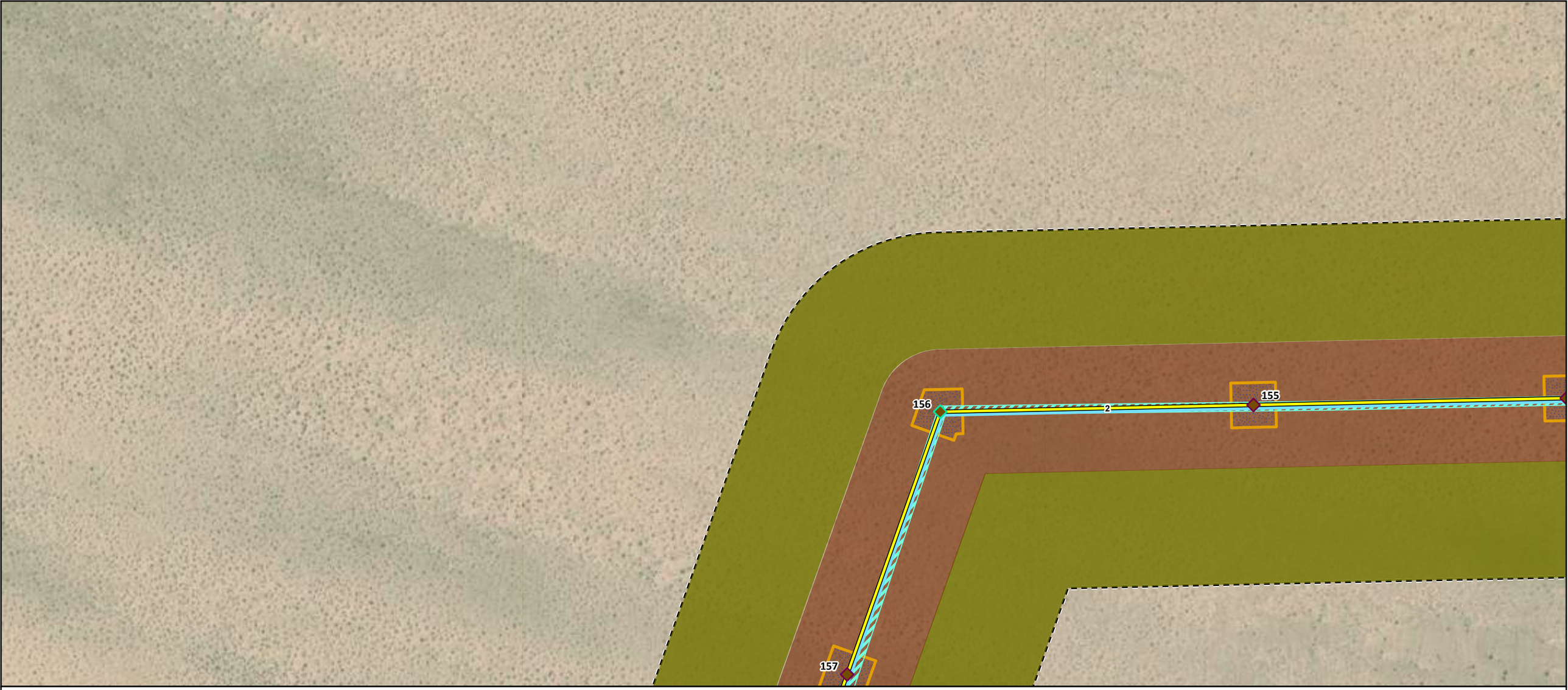
24

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

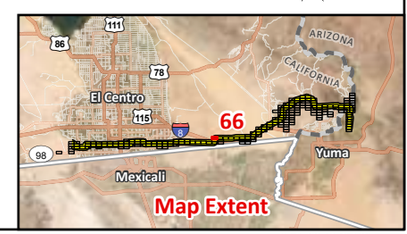
Creosote bush scrub

LandFire Vegetation

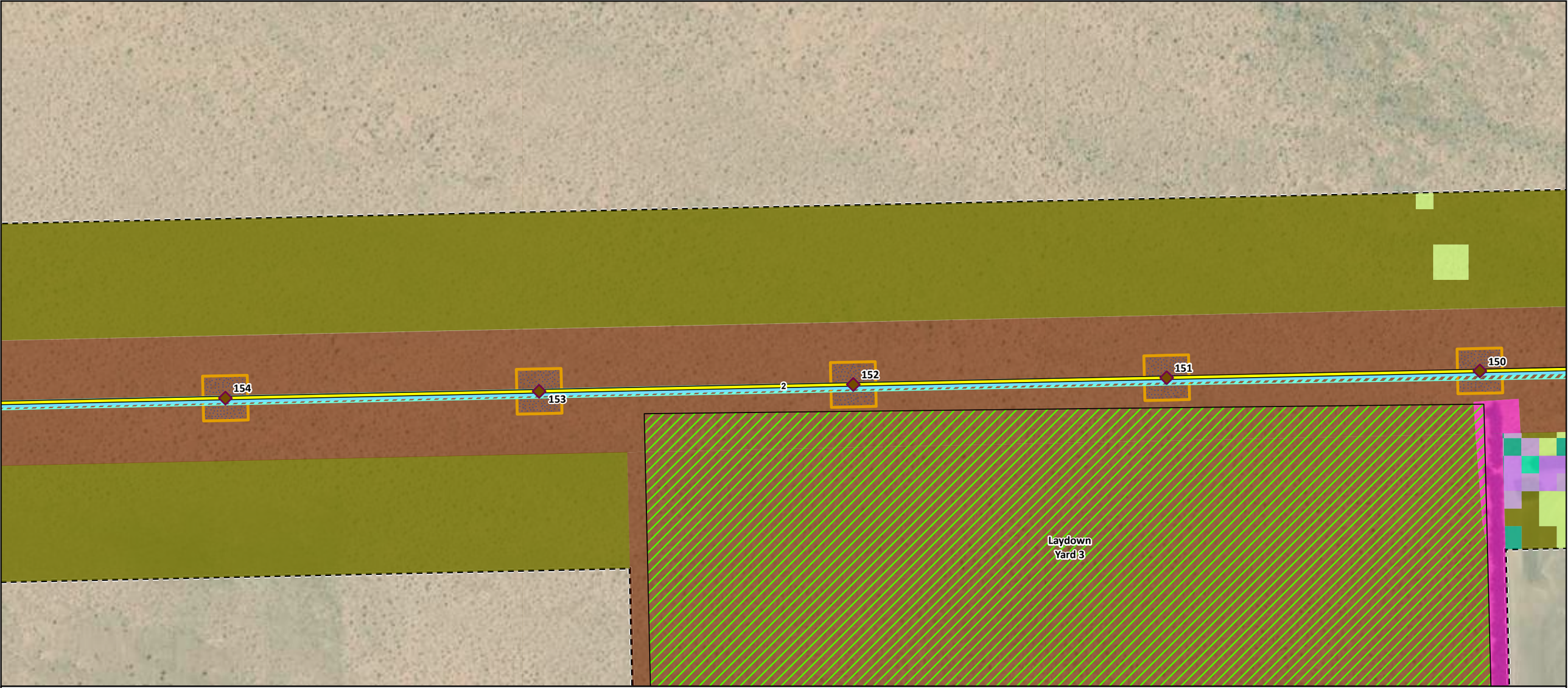
9

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Laydown Yard

Vegetation Communities

Creosote bush scrub

Tamarisk thickets

LandFire Vegetation

9

12

19

20

24

25

0 250 500

Feet

N



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Biological Study Area

Laydown Yard

Vegetation Communities

Creosote bush scrub

Tamarisk thickets

0 250 500

Feet

N



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Biological Study Area

Laydown Yard

Vegetation Communities

Creosote bush scrub

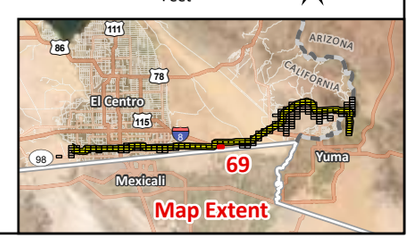
Tamarisk thickets

Land Cover Types

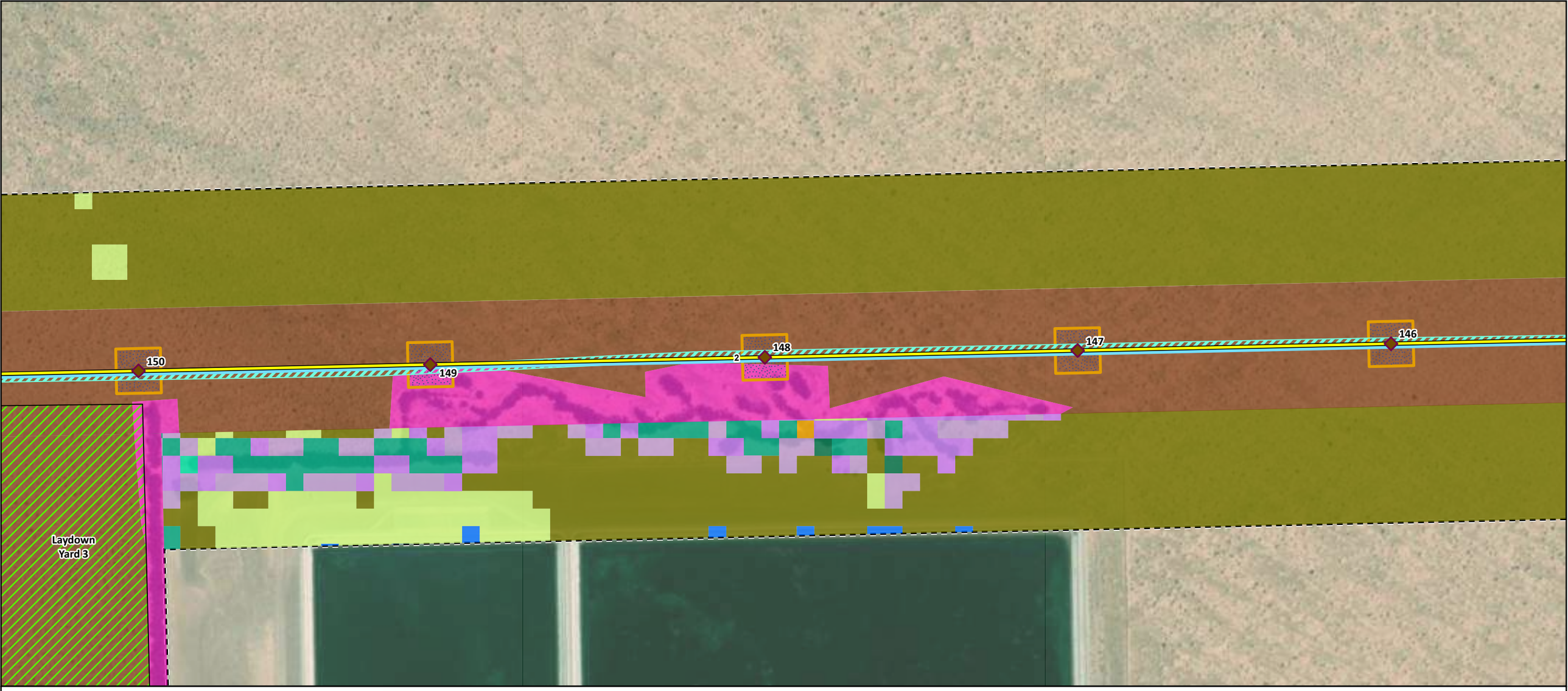
Developed

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad
Laydown Yard

Vegetation Communities

Creosote bush scrub
Tamarisk thickets

LandFire Vegetation

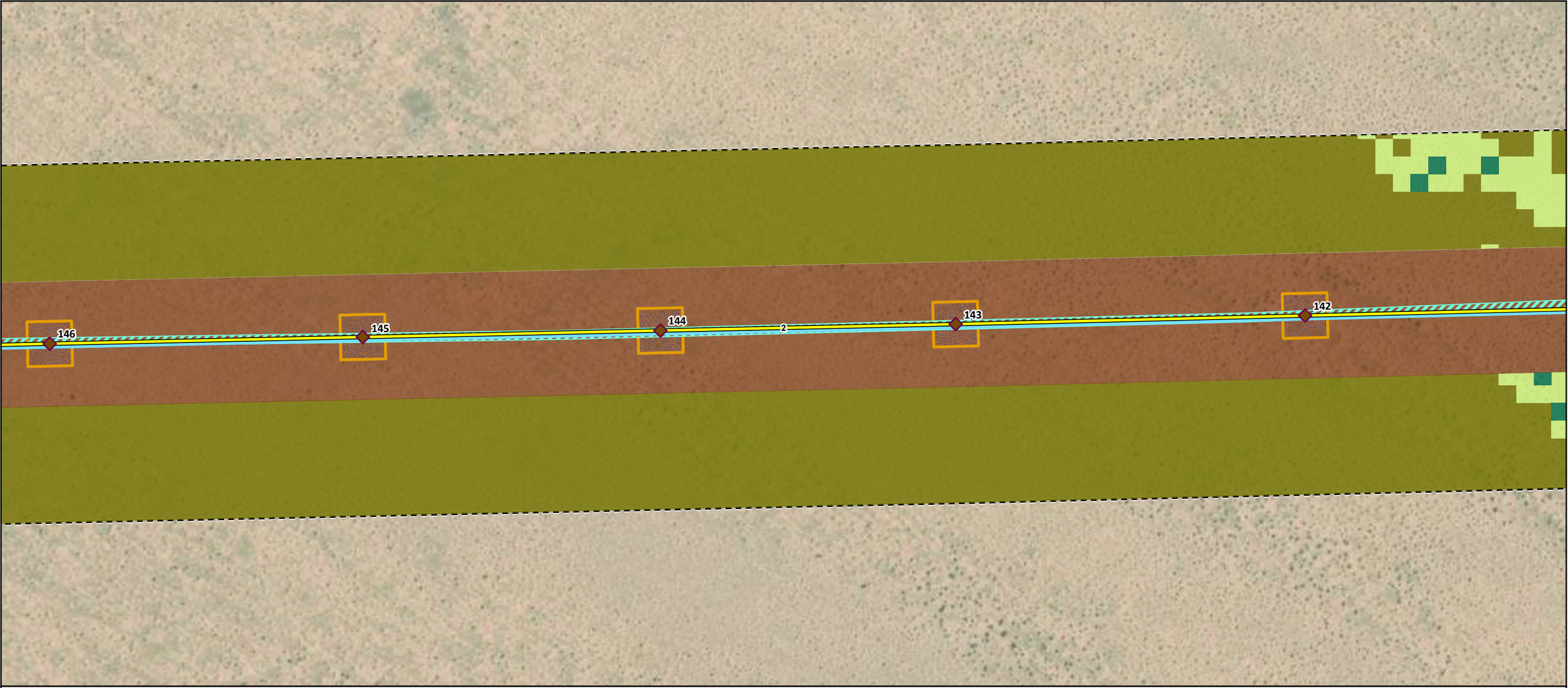
6
9
12
18
19
20
22
24
25

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Creosote bush scrub

LandFire Vegetation

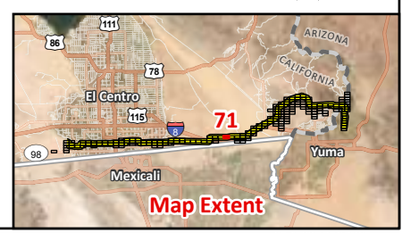
9

12

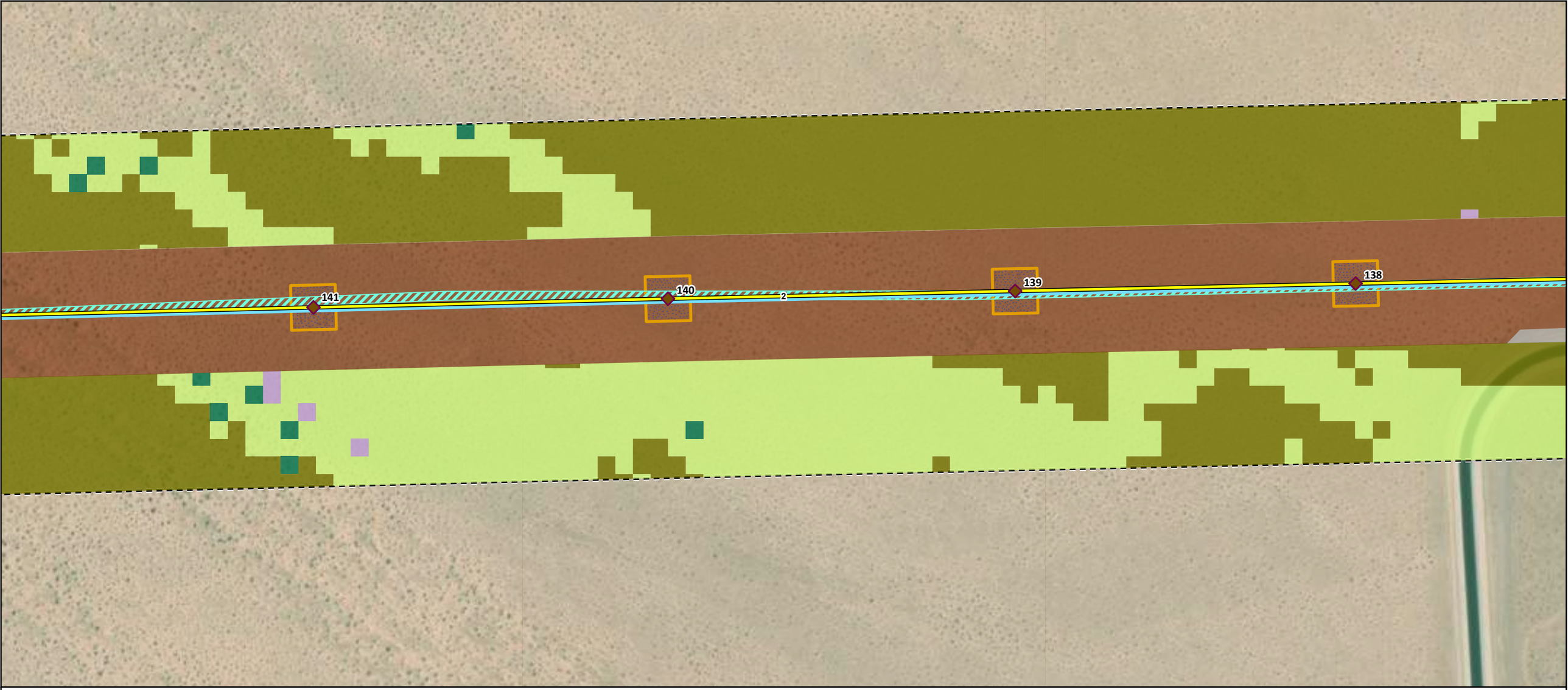
18

0 250 500
Feet

N



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Biological Study Area
Proposed Project
Alternative Route Segments*
Segment II
2

Project Structure
Transmission Structures
Lattice Guyed "V" (LGV) - Heavy
Access Roads
Type 3 New Road - Flat

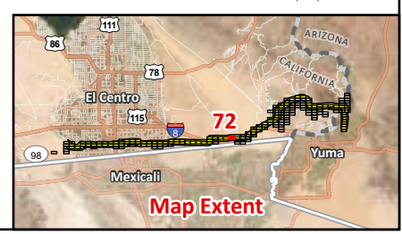
Construction Work Pad

Vegetation Communities
Creosote bush scrub
Land Cover Types
Disturbed

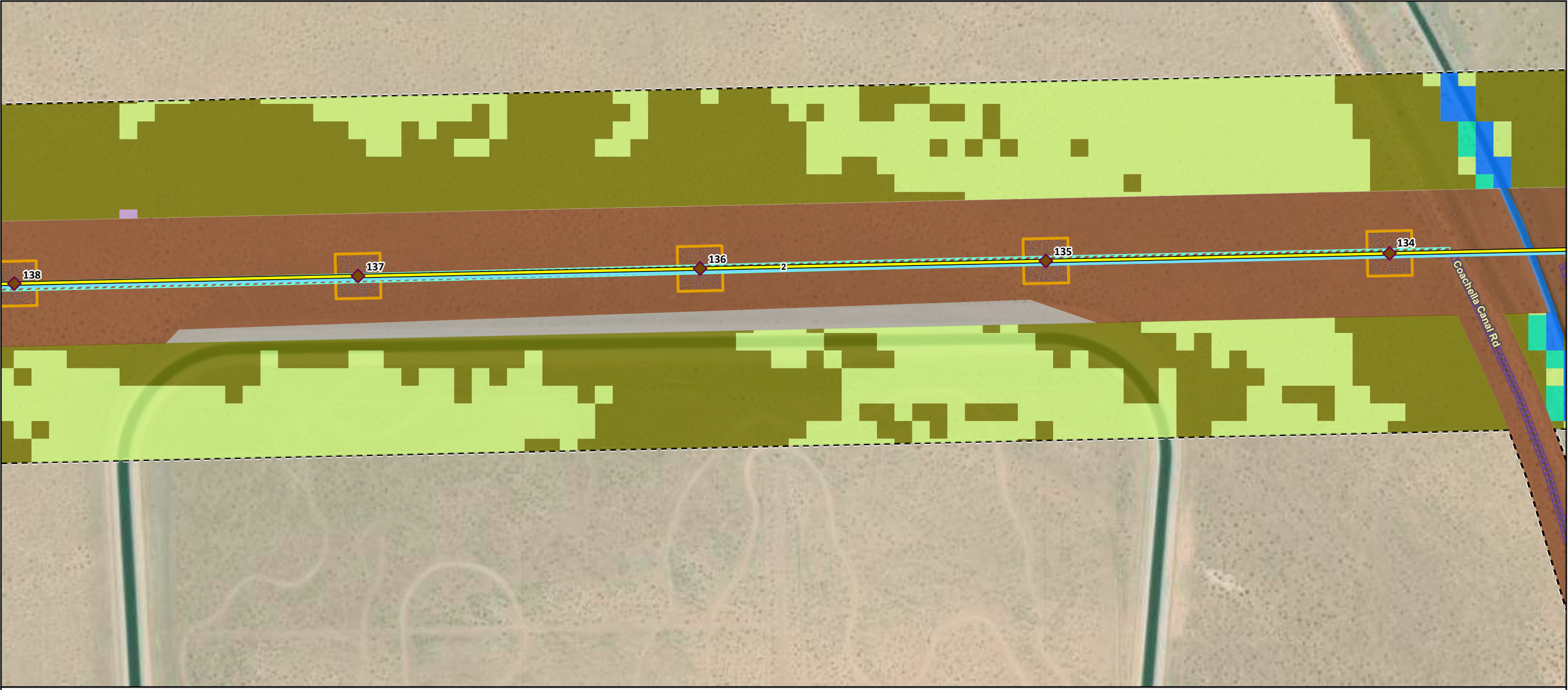
LandFire Vegetation
9
12
18
24

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment II

2

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Land Cover Types

Developed

Disturbed

Open Water

LandFire Vegetation

9

12

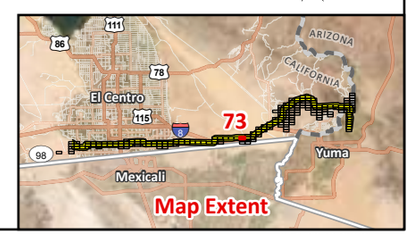
20

22

24

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Laydown Yard

Vegetation Communities

Creosote bush scrub

Land Cover Types

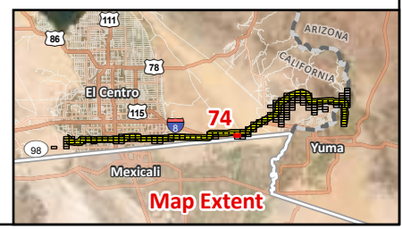
Developed

Disturbed

Open Water

0 250 500
Feet

N



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Biological Study Area

US-Mexico Border

Access Roads

Type 2 Existing Road - Needs Improvement

Laydown Yard

Vegetation Communities

Creosote bush scrub

Land Cover Types

Developed

Disturbed

Open Water

0 250 500

Feet

N



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Biological Study Area

LandFire Vegetation

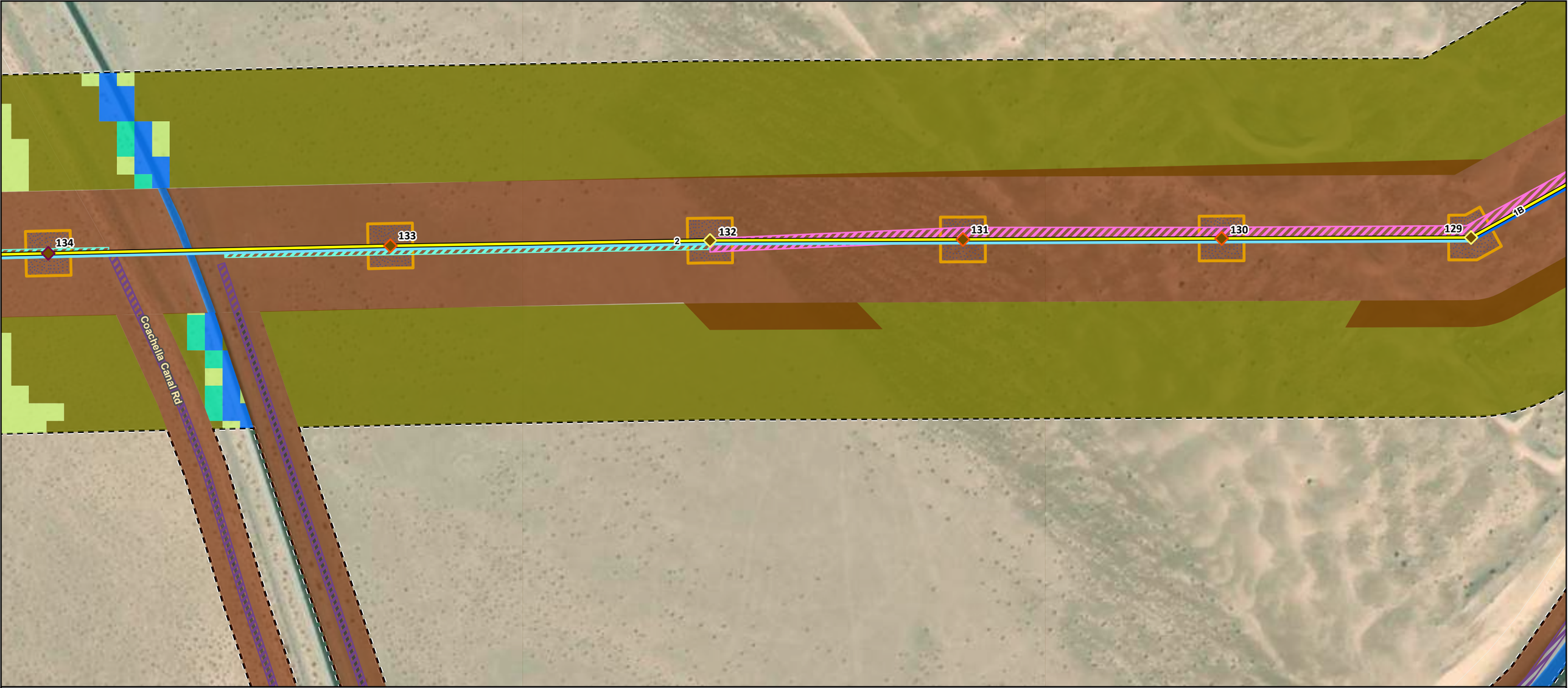
- 9
- 12
- 22

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I
1B

Segment II
2

Project Structure

Transmission Structures
Lattice Guyed "V" (LGV) - Heavy
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads
Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Moderate
Construction Work Pad

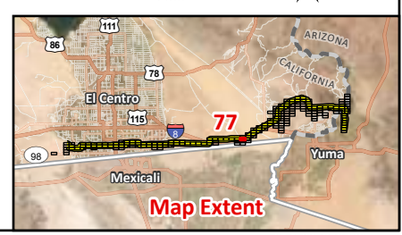
Vegetation Communities
Creosote bush scrub

Land Cover Types
Developed
Disturbed
Open Water

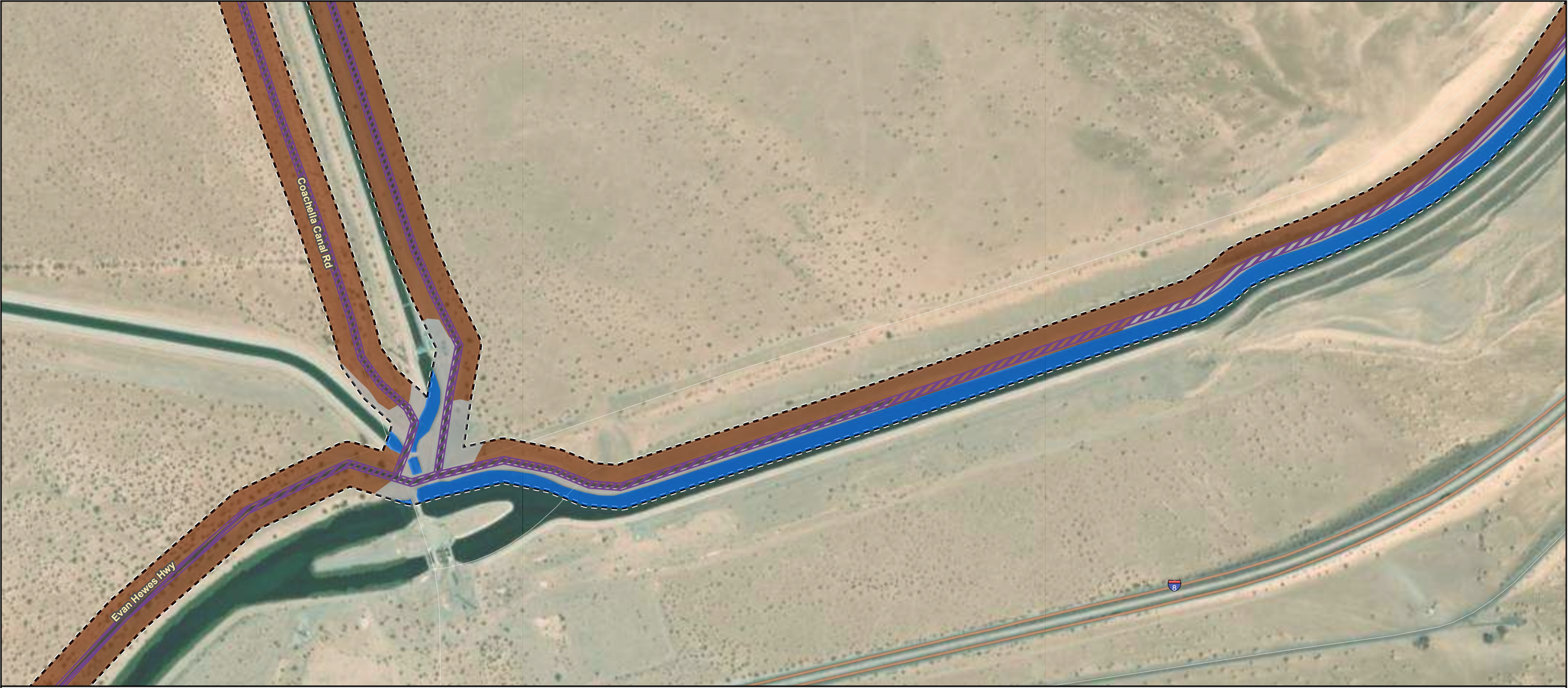
LandFire Vegetation
9
12
20
22

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Creosote bush scrub

Land Cover Types

Developed

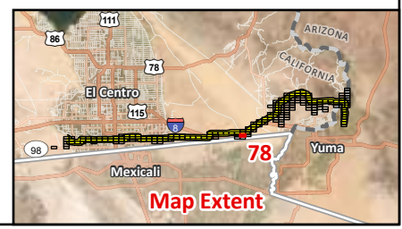
Disturbed

Open Water

0 250 500

Feet

N



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Biological Study Area

US-Mexico Border

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Creosote bush scrub

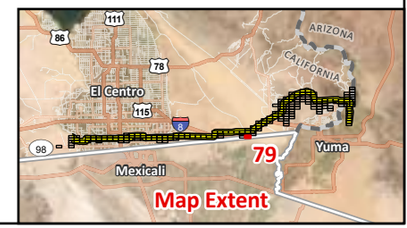
Land Cover Types

Developed

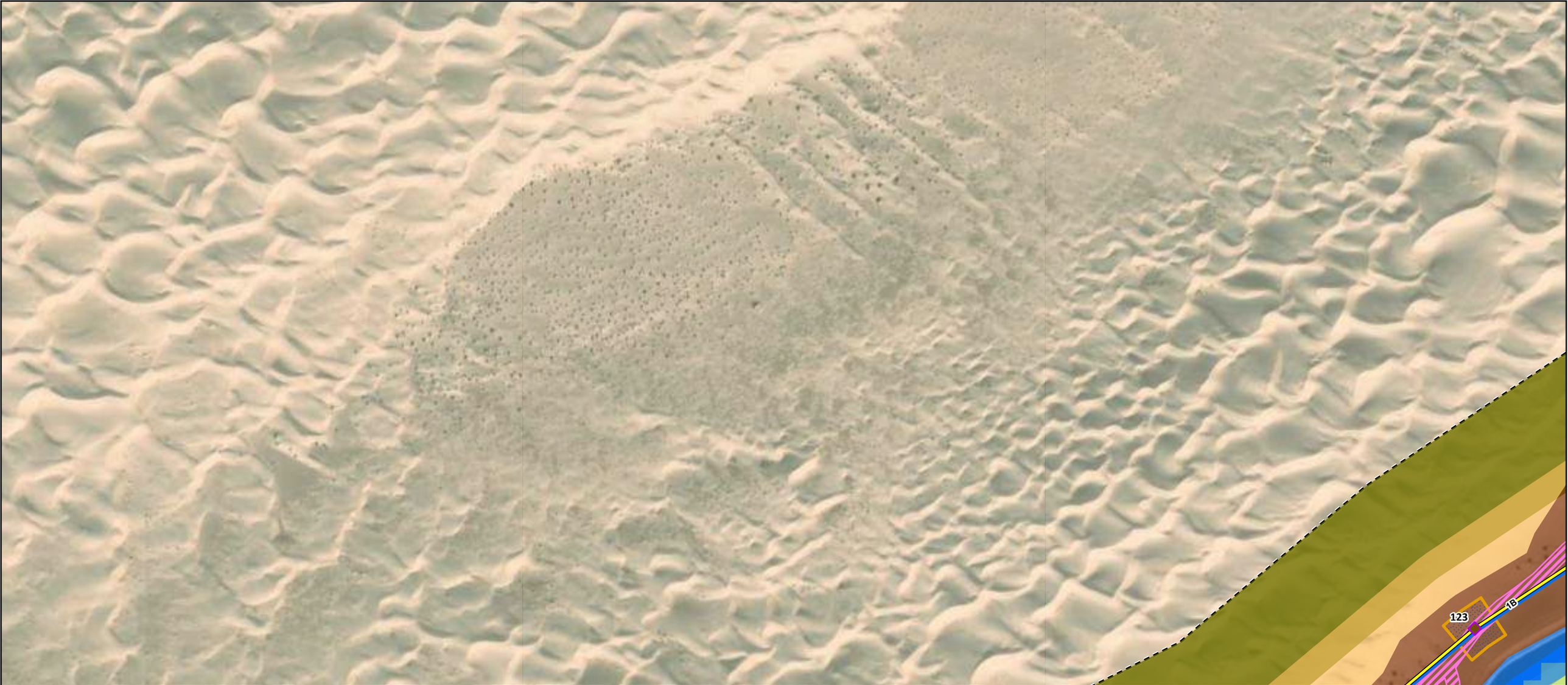
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Access Roads

Type 3 New Road - Moderate

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Land Cover Types

Disturbed

Mojave-Sonoran desert dunes

Open Water

LandFire Vegetation

9

12

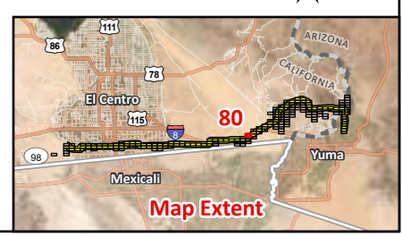
20

22

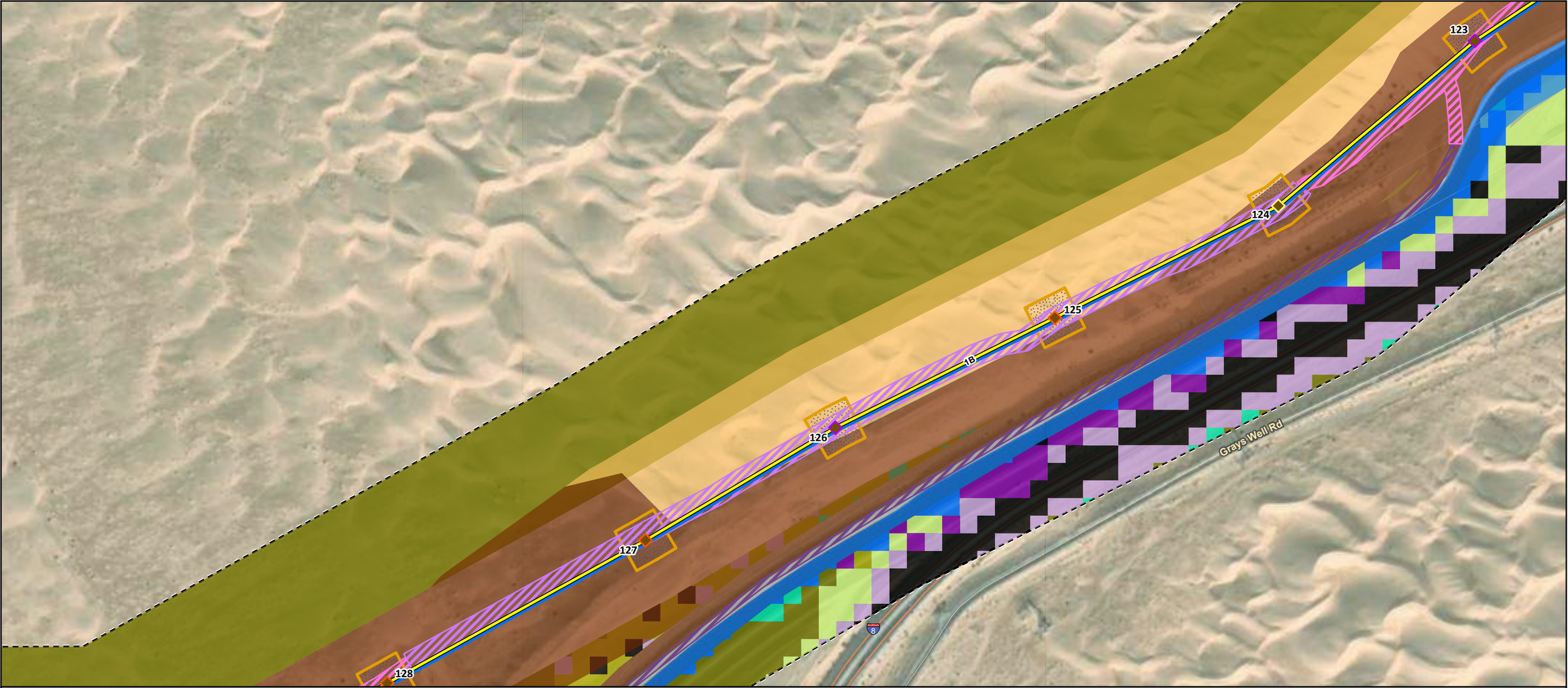
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Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Moderate
Type 3 New Road - Steep
Construction Work Pad

Vegetation Communities

Creosote bush scrub

Land Cover Types

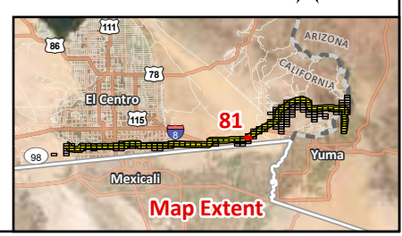
Disturbed
Mojave-Sonoran desert dunes
Open Water

LandFire Vegetation

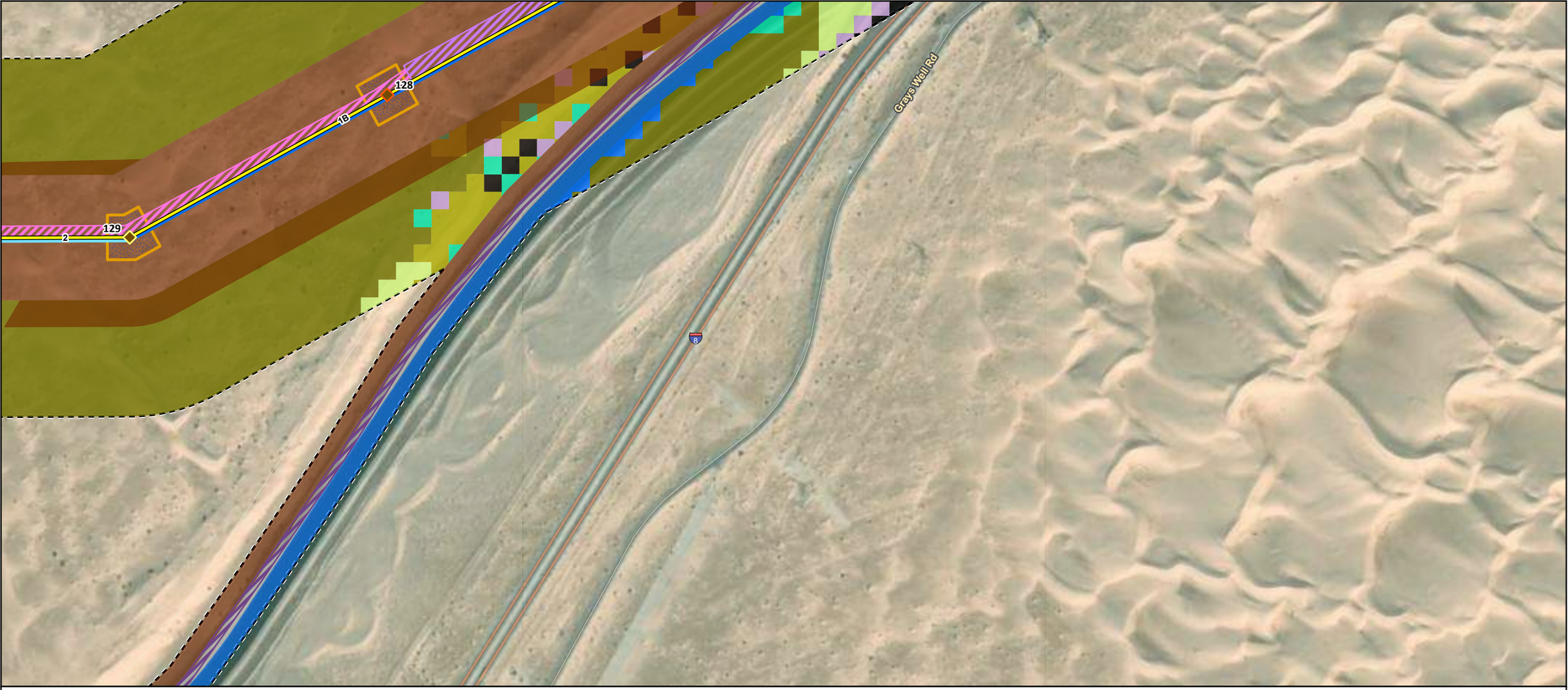
5
9
10
12
20
22
24
28

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I
1B

Segment II
2

Project Structure

Transmission Structures
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads
Type 2 Existing Road - Needs Improvement
Type 3 New Road - Moderate
Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities
Creosote bush scrub

Land Cover Types
Disturbed
Open Water

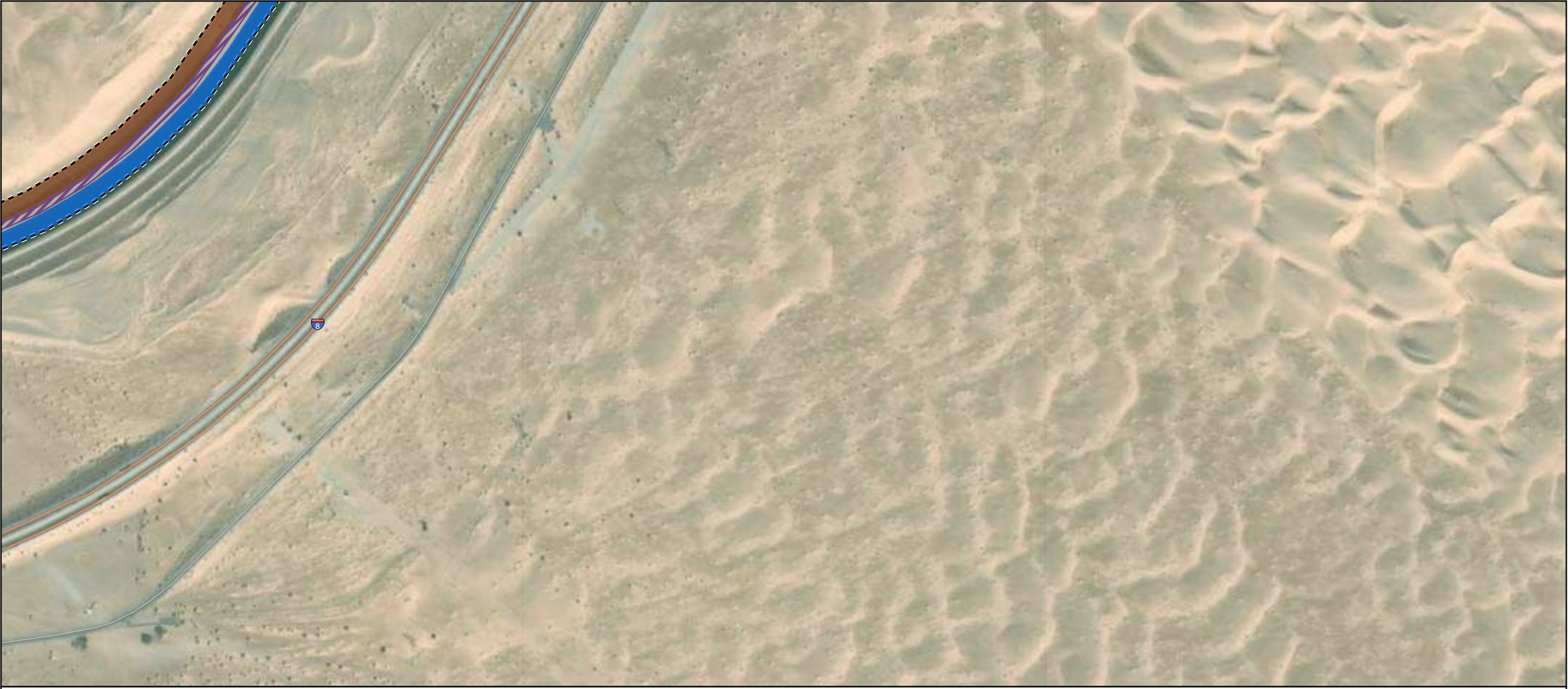
LandFire Vegetation
5
9
10
12
20
22
24

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Creosote bush scrub

Land Cover Types

Disturbed

Open Water

0 250 500
Feet

N



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Biological Study Area

Vegetation Communities

Creosote bush scrub

LandFire Vegetation

9

24

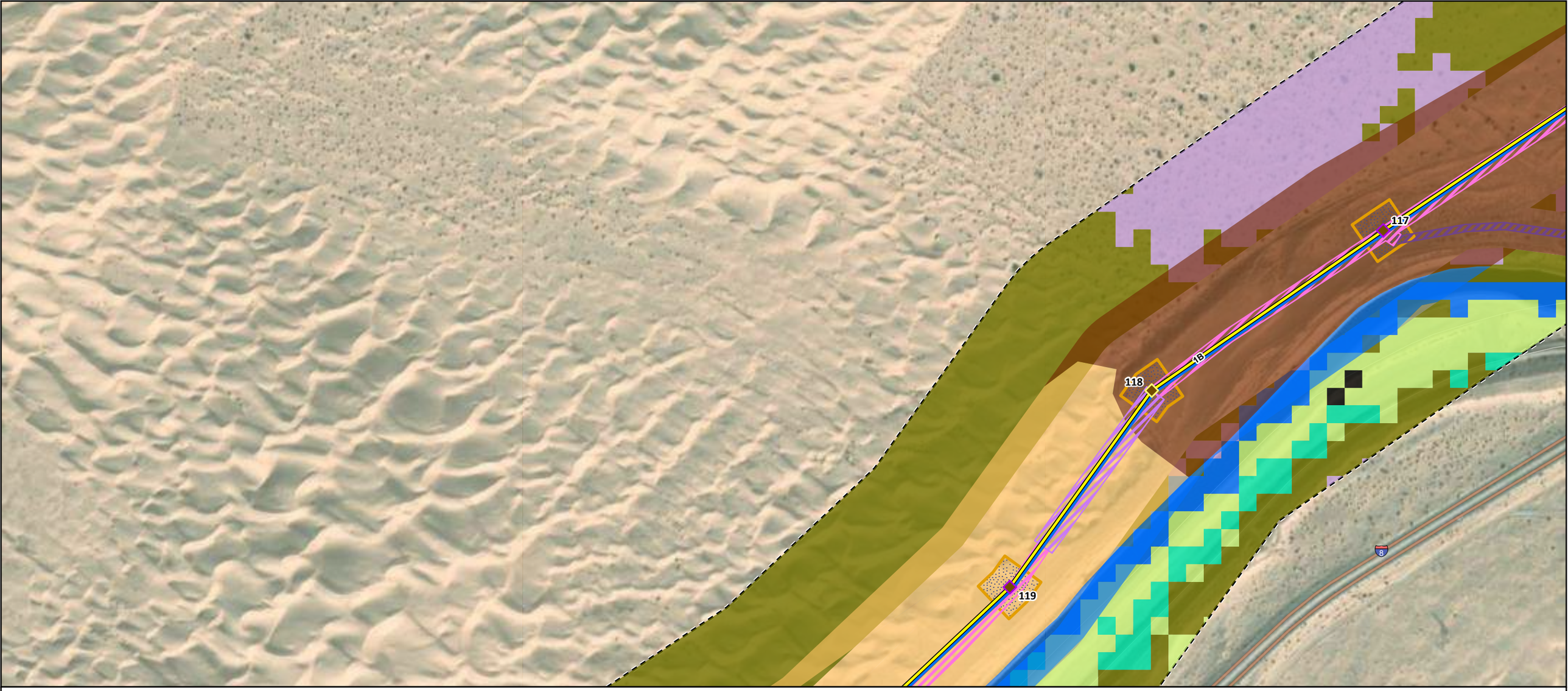
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Feet

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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Land Cover Types

Disturbed

Mojave-Sonoran desert dunes

Open Water

LandFire Vegetation

5

9

12

20

22

24

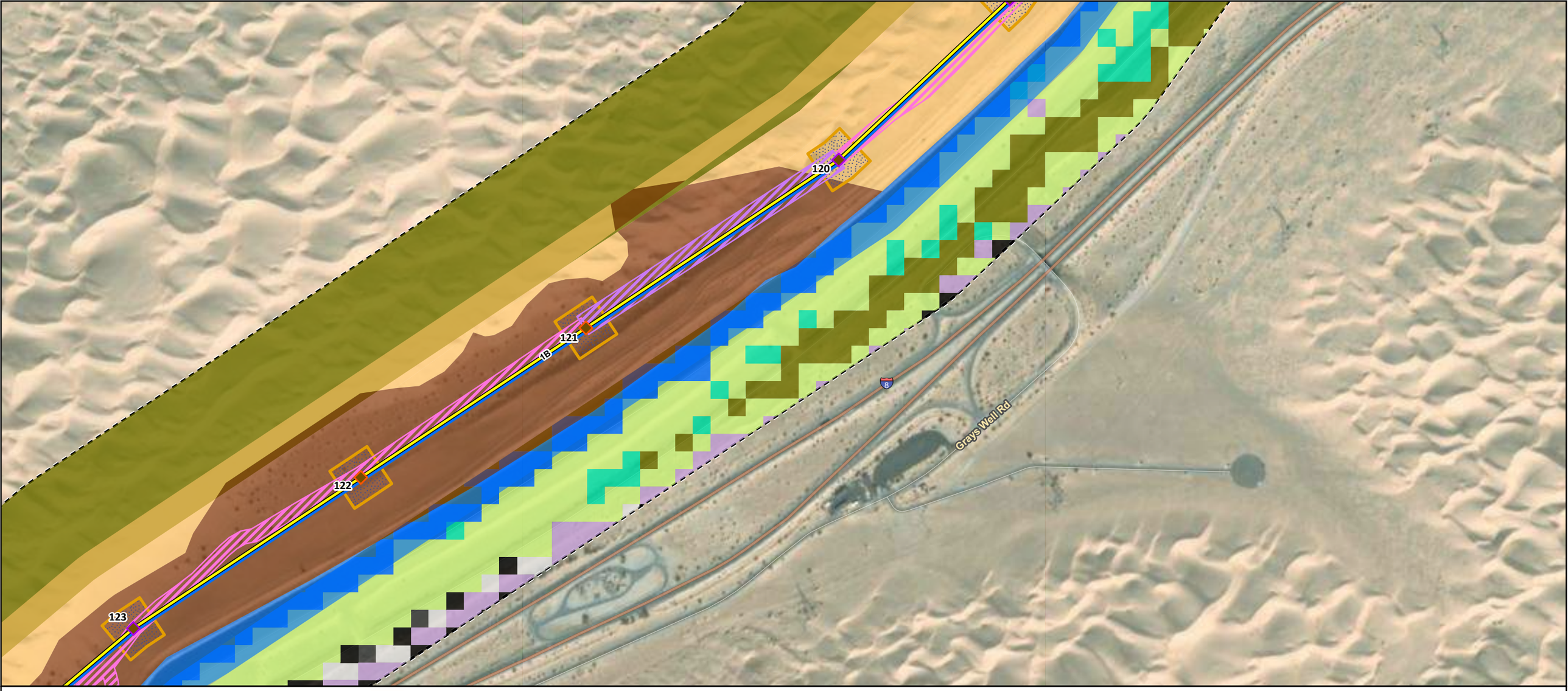
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Feet

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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Land Cover Types

Disturbed

Mojave-Sonoran desert dunes

Open Water

LandFire Vegetation

2

3

5

9

12

20

22

24

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Land Cover Types

Disturbed

Mojave-Sonoran desert dunes

Open Water

LandFire Vegetation

2

3

5

9

12

20

22

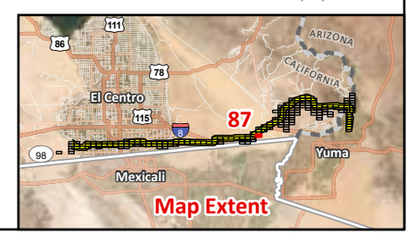
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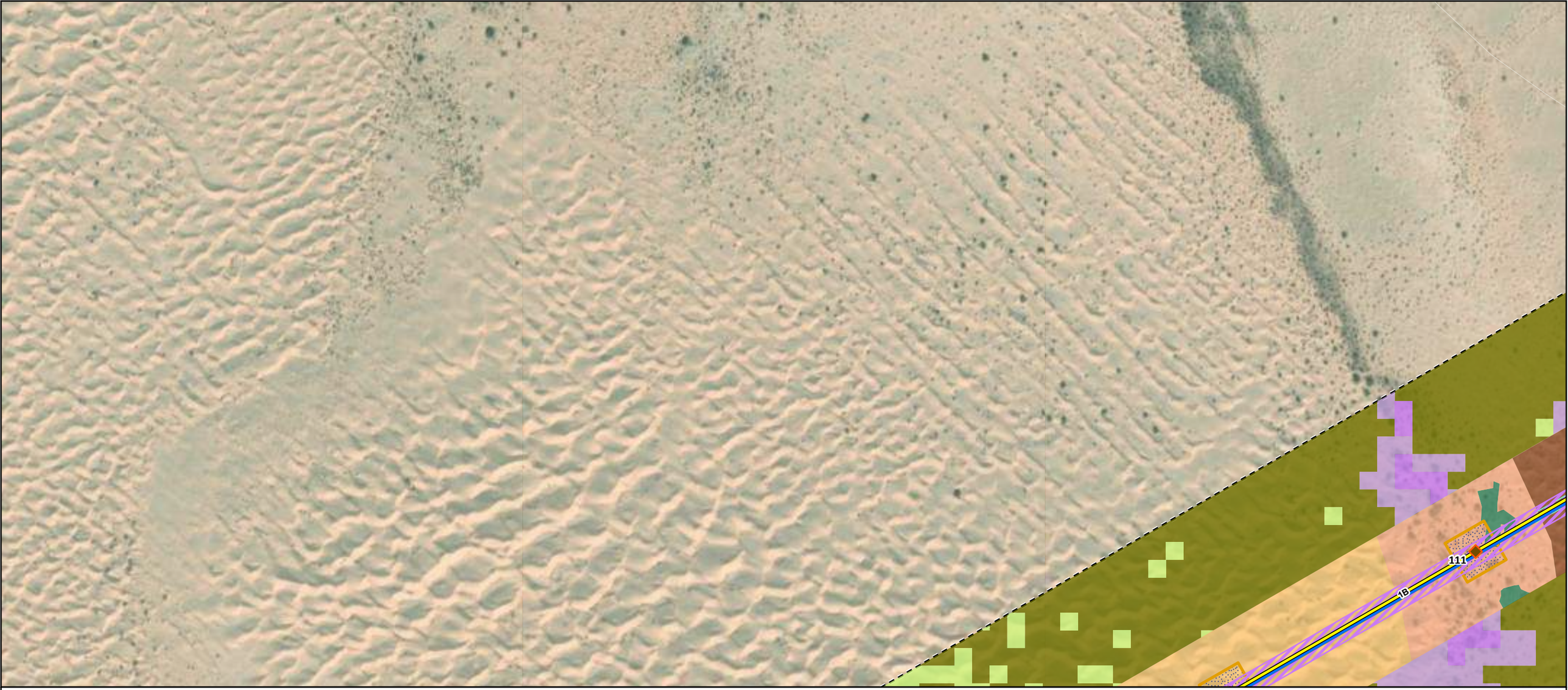
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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Flat

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush scrub

Land Cover Types

Mojave-Sonoran desert dunes

LandFire Vegetation

9

12

24

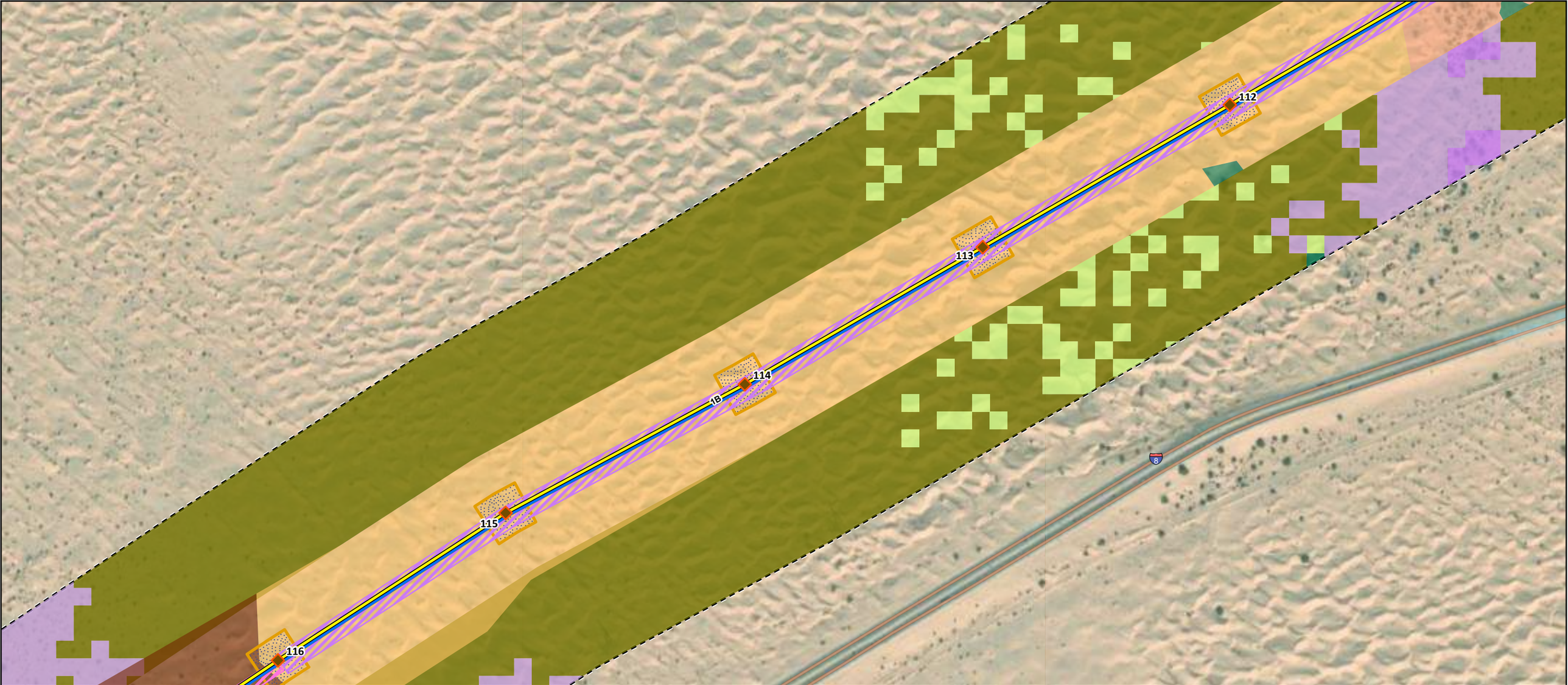
25

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Moderate
Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush scrub

Land Cover Types

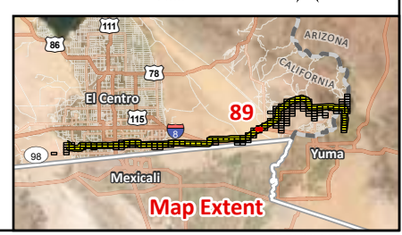
Mojave-Sonoran desert dunes

LandFire Vegetation

9
12
18
24
25

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Creosote bush scrub

Land Cover Types

Developed

Disturbed

Mojave-Sonoran desert dunes

Open Water

LandFire Vegetation

5

9

12

20

22

24

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Creosote bush scrub

LandFire Vegetation

5

12

24

25

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Tangent (LTT)

Access Roads

Type 3 New Road - Flat

Type 3 New Road - Steep

Construction Work Pad

Laydown Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush scrub

Land Cover Types

Disturbed

Mojave-Sonoran desert dunes

LandFire Vegetation

5

9

12

24

25

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Access Roads

Type 3 New Road - Steep

Laydown Yard

Vegetation Communities

Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush scrub

Land Cover Types

Disturbed
Mojave-Sonoran desert dunes

LandFire Vegetation

9
12
24
25

0 250 500
Feet

N



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Biological Study Area

Vegetation Communities

Creosote bush - brittle bush scrub

LandFire Vegetation

12

24

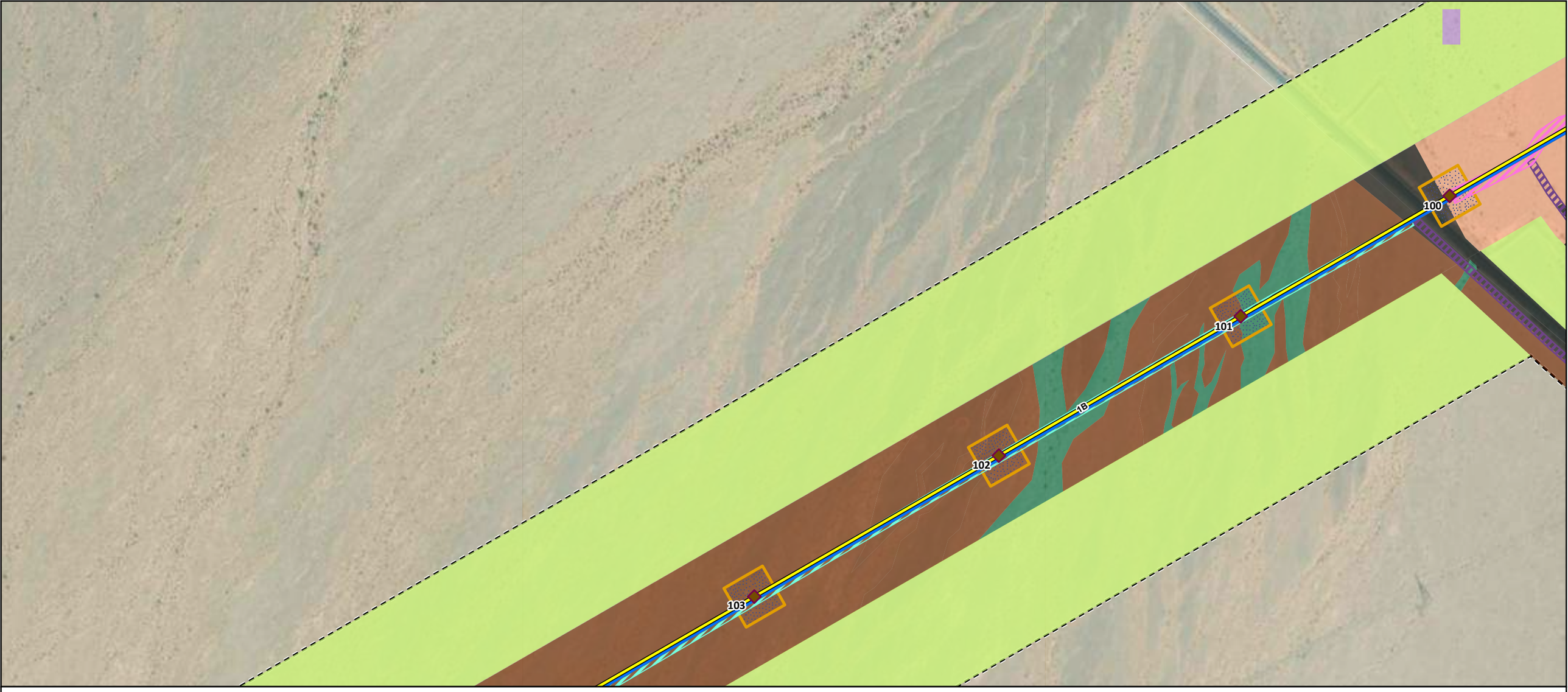
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Moderate

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush scrub

Land Cover Types

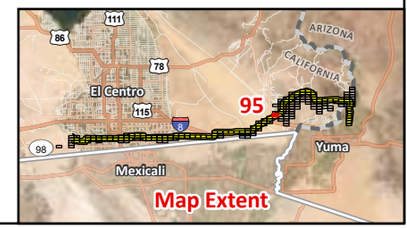
Developed

LandFire Vegetation

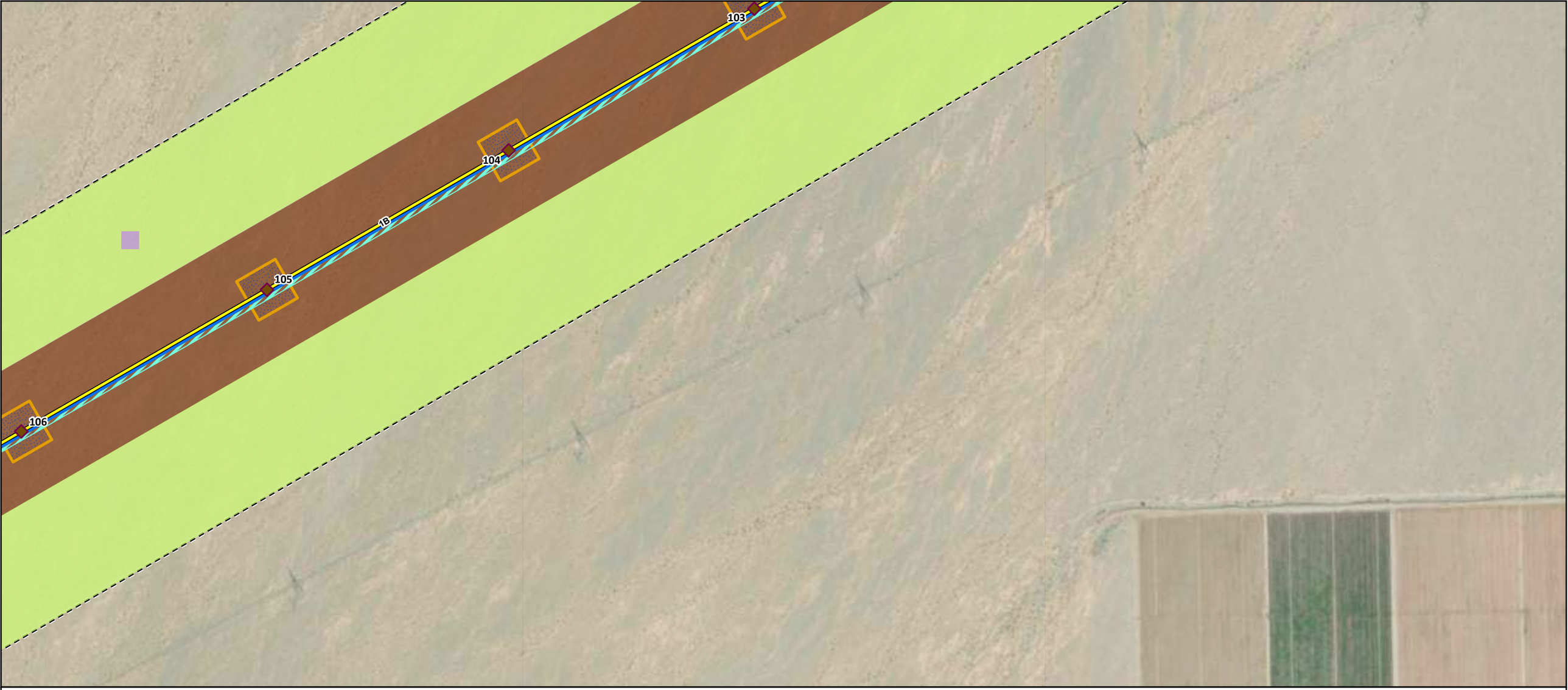
12
24

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Creosote bush scrub

LandFire Vegetation

12

24

0 250 500

Feet

N



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Biological Study Area

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Land Cover Types

Disturbed

0 250 500 Feet

N



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Biological Study Area

Vegetation Communities

- Blue palo verde - ironwood woodland
- Creosote bush - brittle bush scrub

LandFire Vegetation

- 10
- 20
- 24
- 28

0 250 500
Feet

N



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- Biological Study Area
- Proposed Project

Alternative Route Segments*

Segment I

- 1B

Project Structure

Transmission Structures

- Lattice Tower Dead-End (LTD) - Light
- Lattice Tower Tangent (LTT)

Access Roads

- Type 2 Existing Road - Needs Improvement
- Type 3 New Road - Moderate
- Type 3 New Road - Steep
- Construction Work Pad
- Fly Yard

Vegetation Communities

- Blue palo verde - ironwood woodland
- Creosote bush - brittle bush scrub
- Creosote bush scrub

LandFire Vegetation

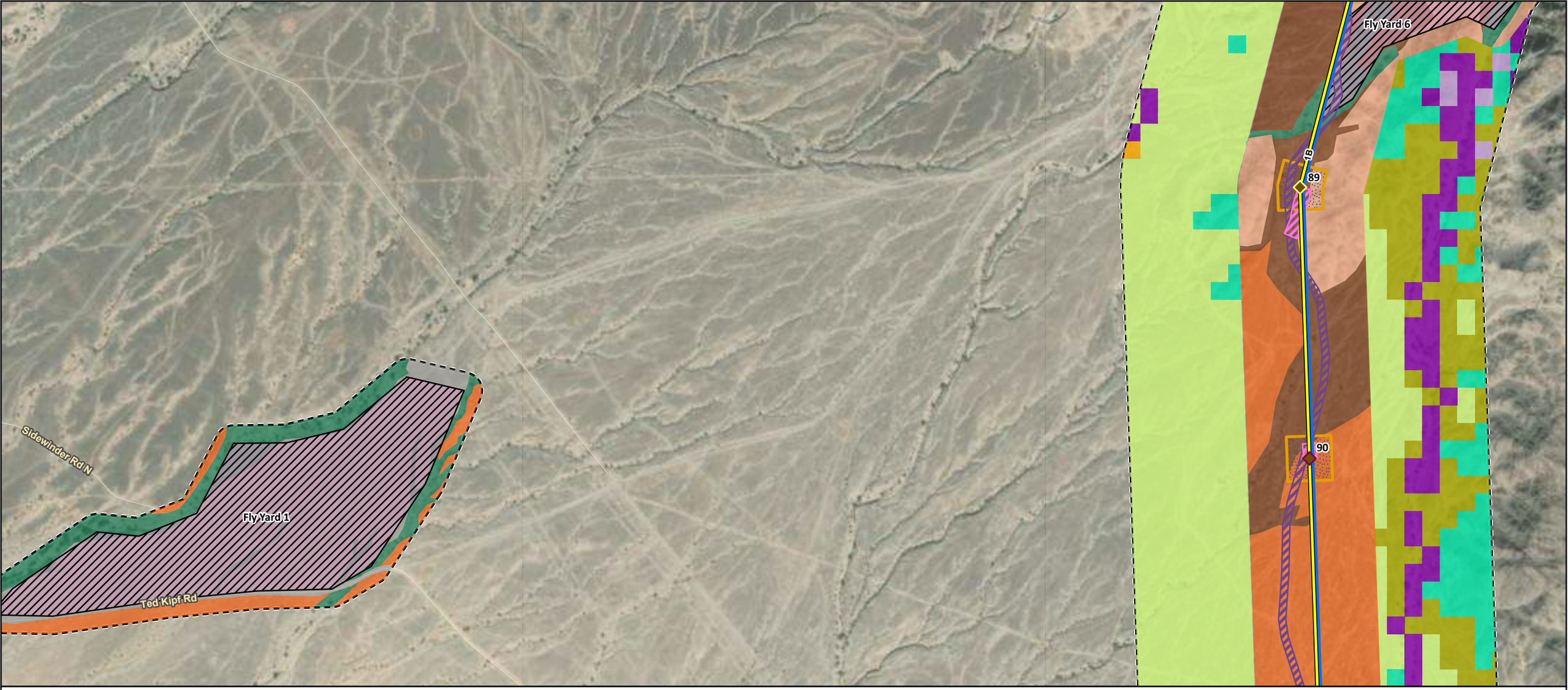
- 6
- 10
- 12
- 20
- 24
- 28

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Disturbed

LandFire Vegetation

6

10

12

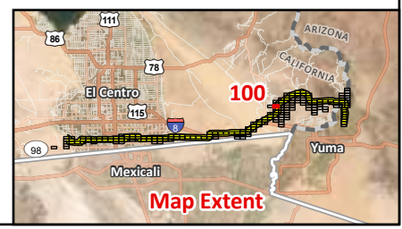
20

24

28

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Disturbed

LandFire Vegetation

10

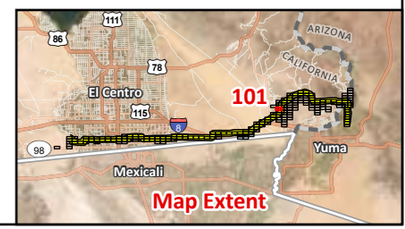
12

20

28

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Construction Work Pad

Vegetation Communities

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

LandFire Vegetation

10

12

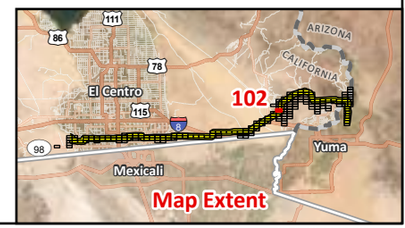
20

24

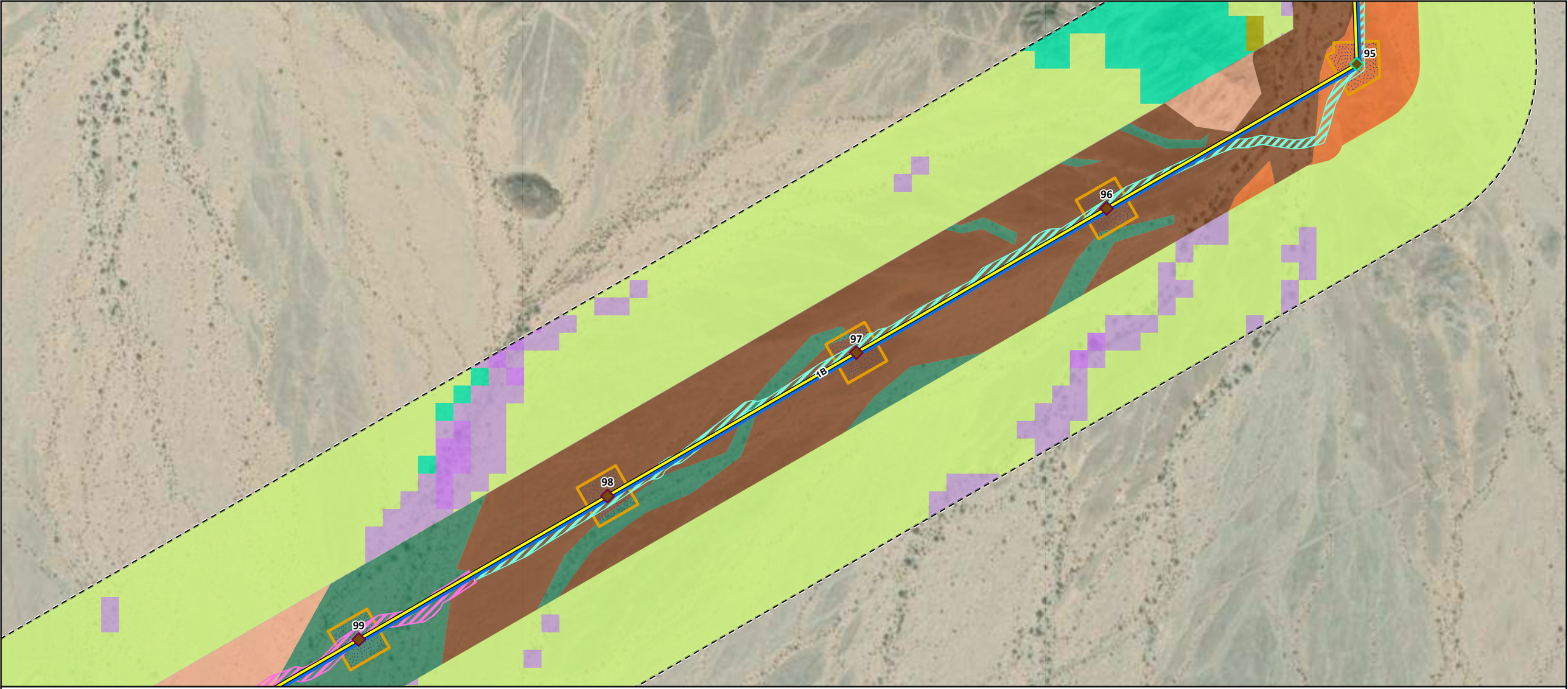
28

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 3 New Road - Flat

Type 3 New Road - Moderate

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

LandFire Vegetation

10

12

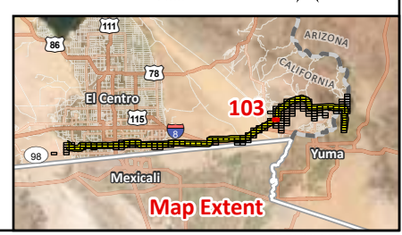
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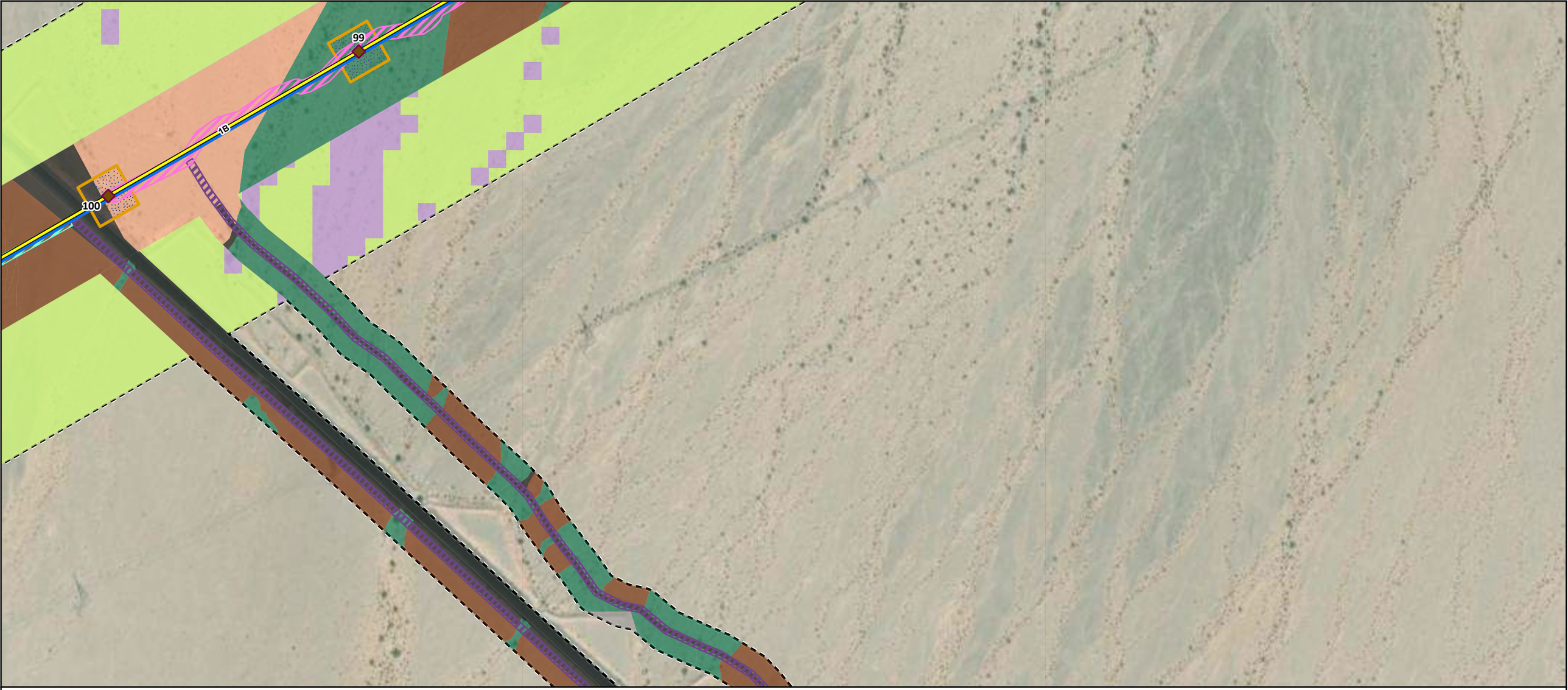
25

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush scrub

Land Cover Types

Developed

Disturbed

LandFire Vegetation

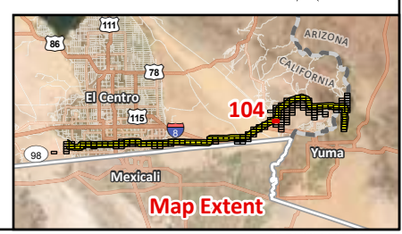
12

24

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush scrub

Land Cover Types

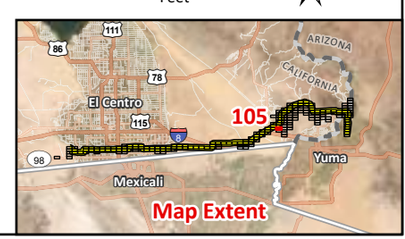
Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

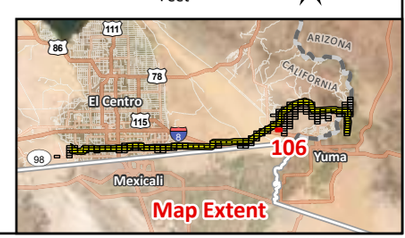
Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

LandFire Vegetation

6

10

12

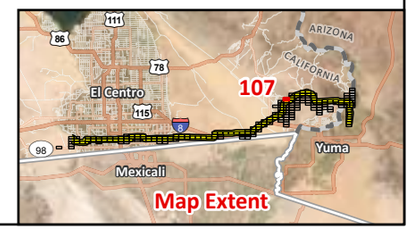
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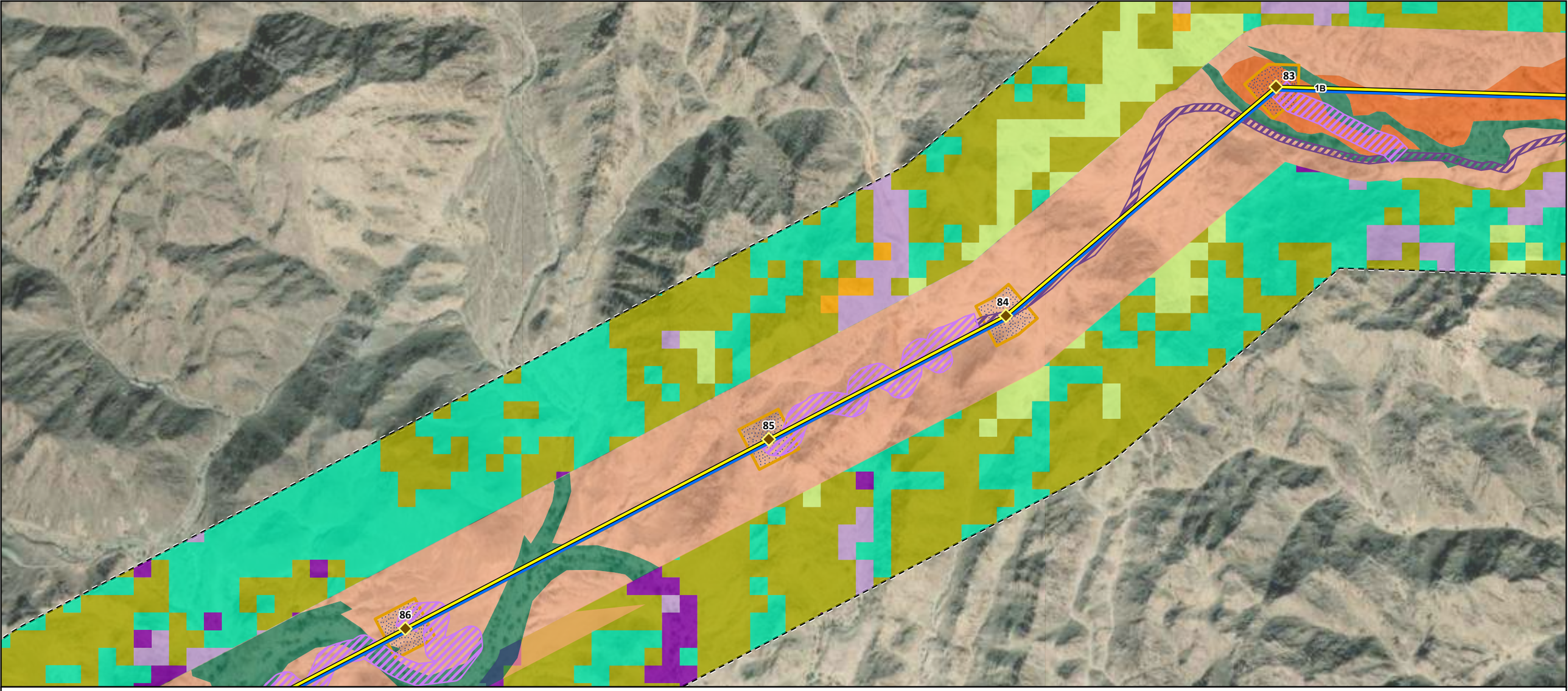
28

0 250 500 N

Feet



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

LandFire Vegetation

6

10

12

20

24

28

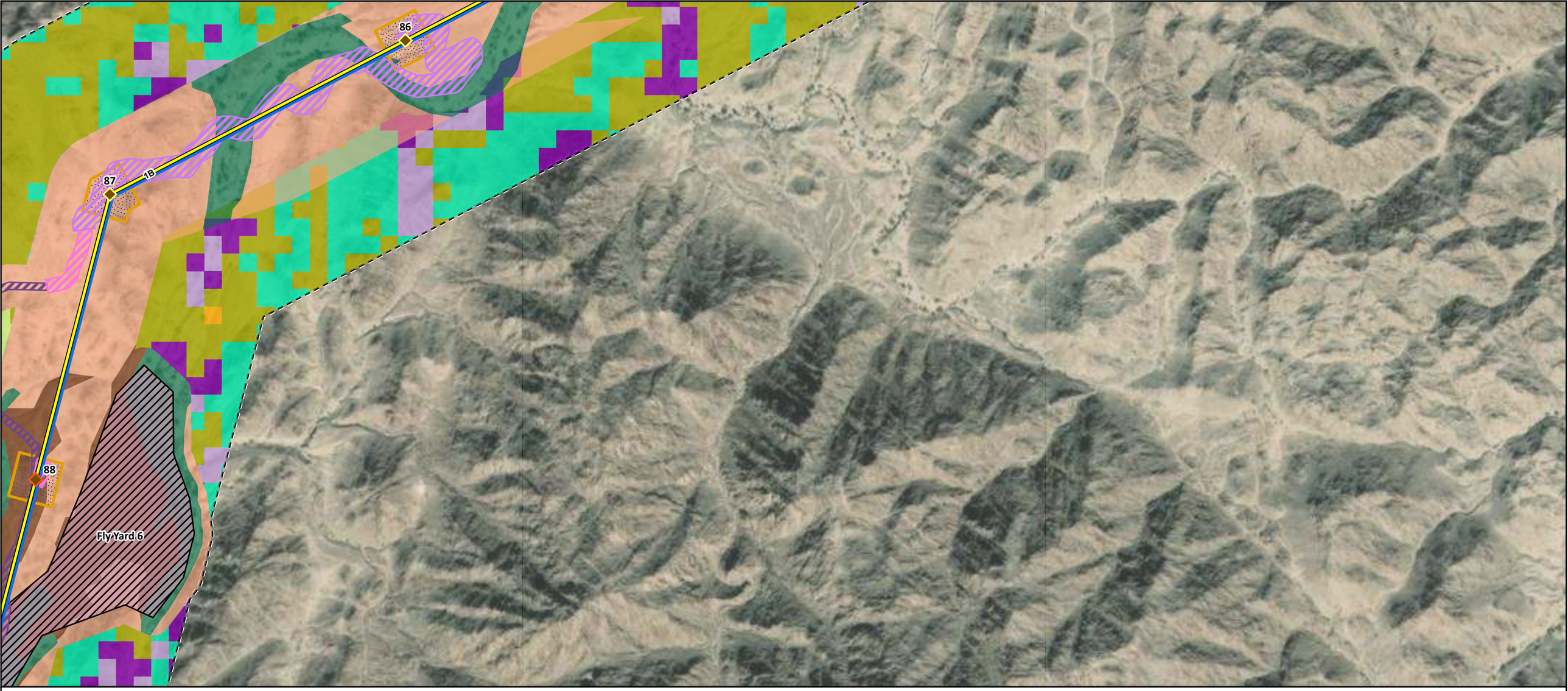
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Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush scrub

LandFire Vegetation

6

10

12

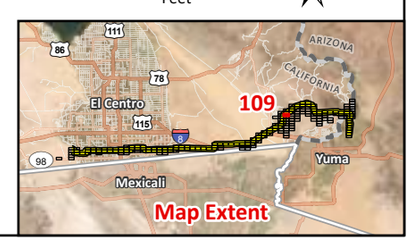
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24

28

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

LandFire Vegetation

10

12

20

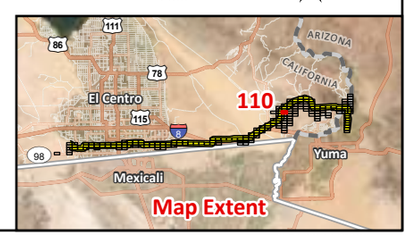
24

28

0 250 500

Feet

N



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Biological Study Area

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Construction Work Pad

Vegetation Communities

Creosote bush - white burr sage scrub

Creosote bush scrub

LandFire Vegetation

10

12

20

28

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Guyed "V" (LGV) - Heavy

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

LandFire Vegetation

12

28

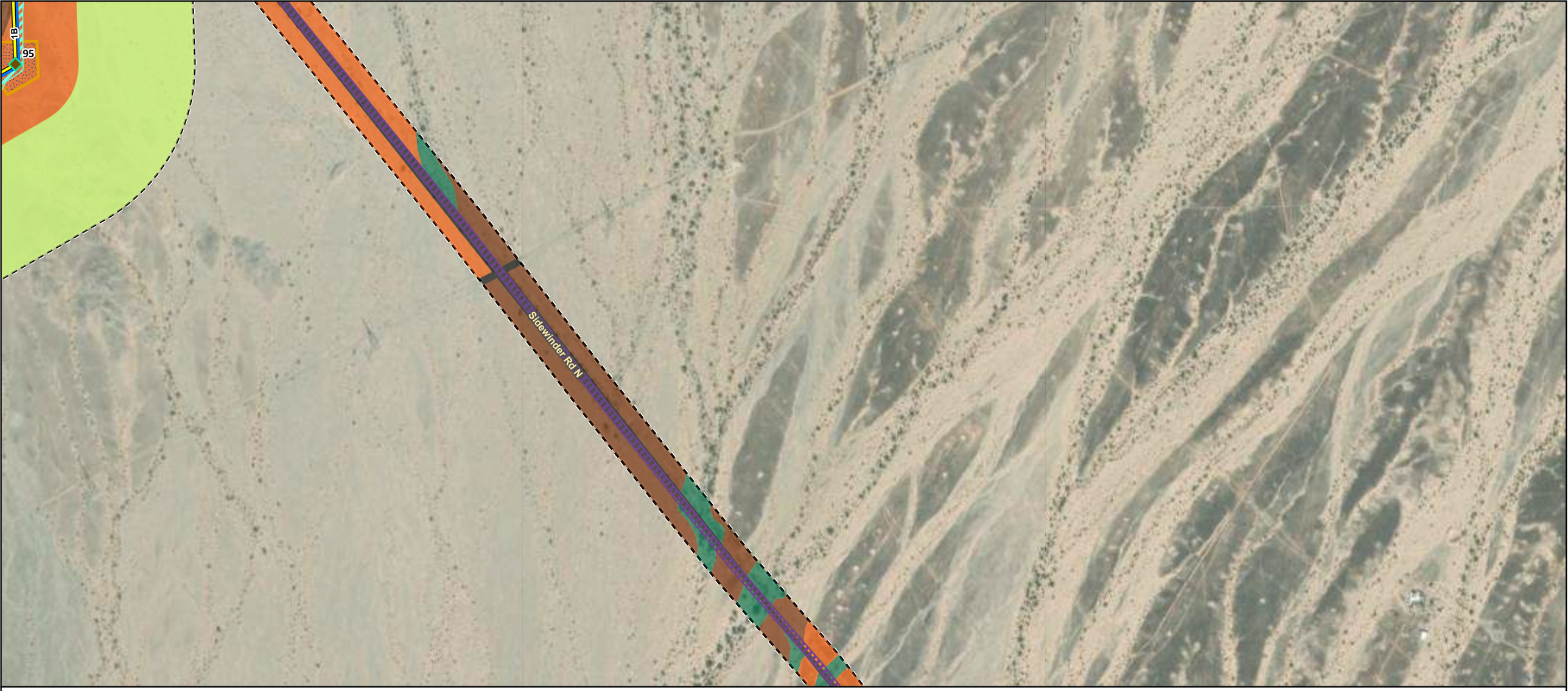
0 250 500

Feet

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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Heavy

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

LandFire Vegetation

12

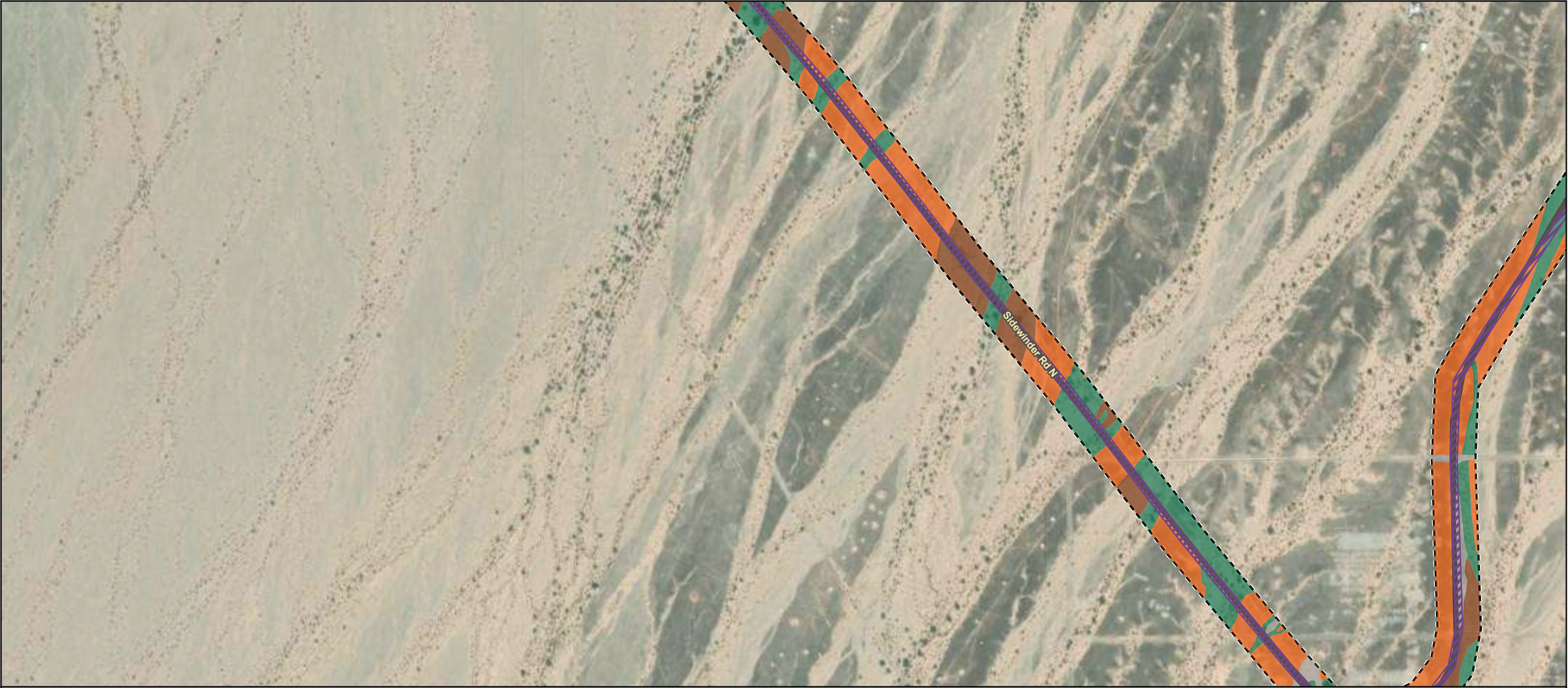
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Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

Disturbed

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

Disturbed

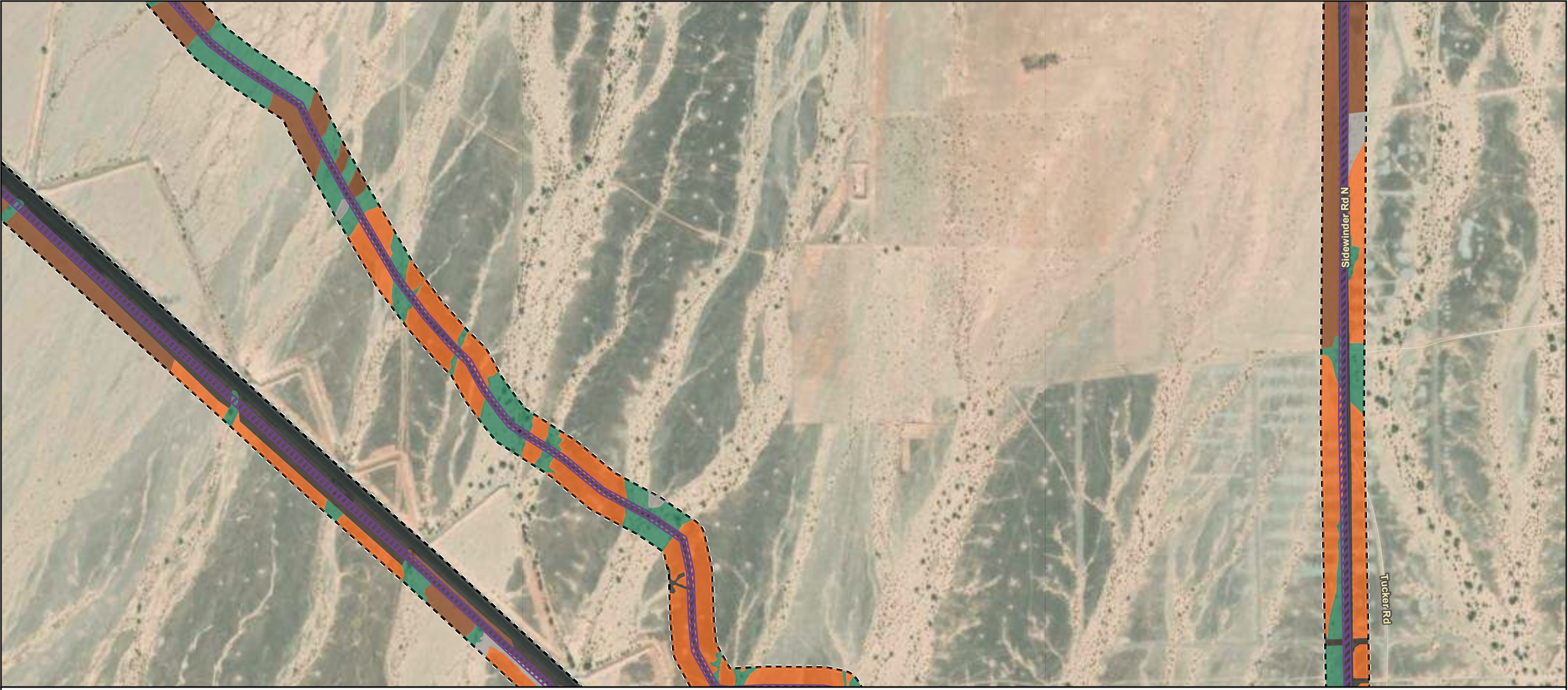
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

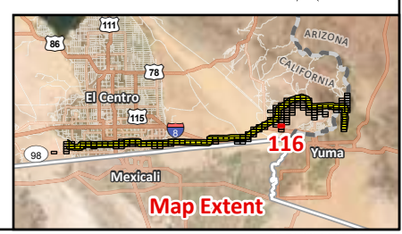
Land Cover Types

Developed

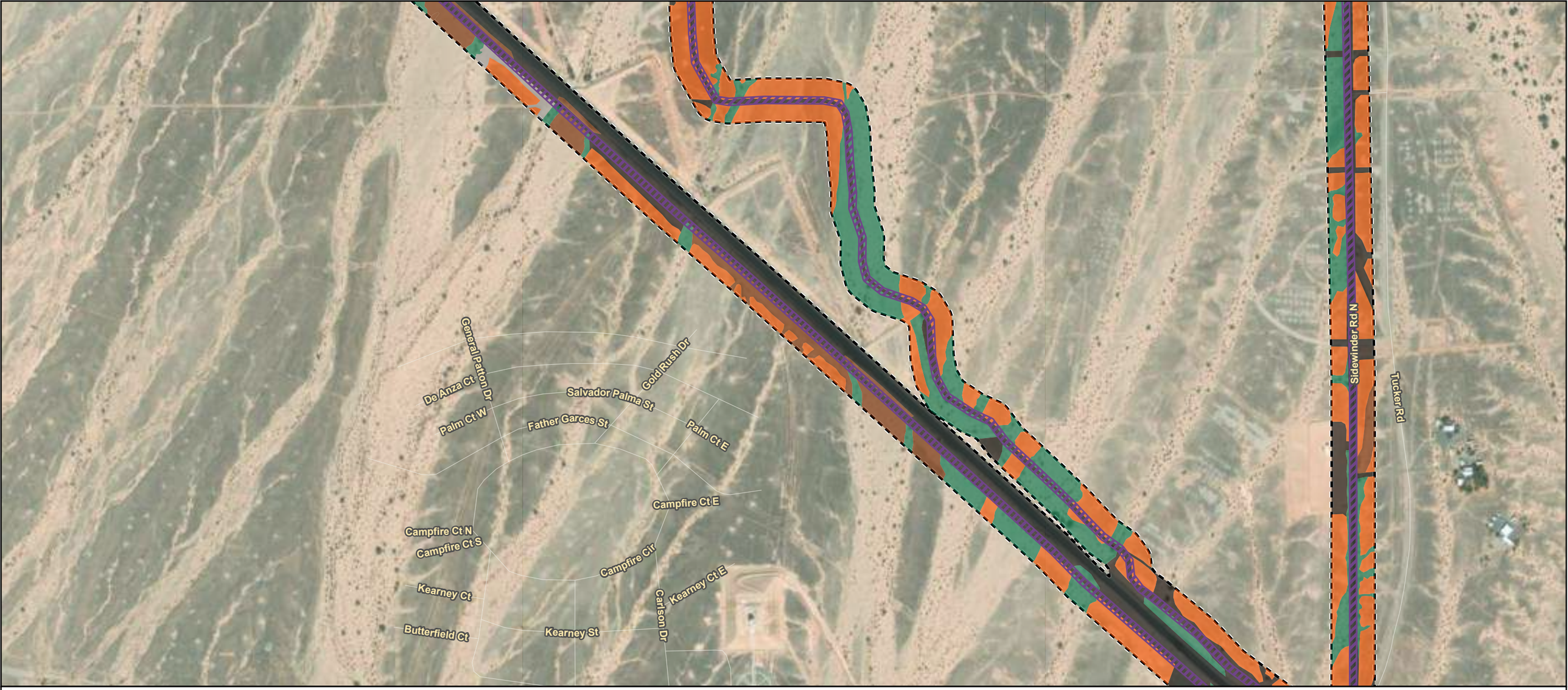
Disturbed

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

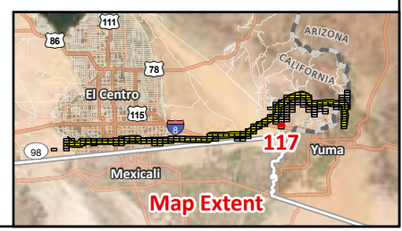
Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

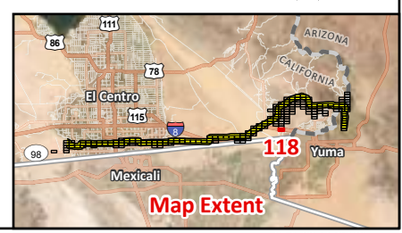
Land Cover Types

Developed

Disturbed

0 250 500 Feet

N



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Fly Yard 3

Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Land Cover Types

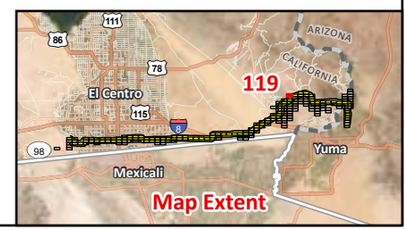
Disturbed

LandFire Vegetation

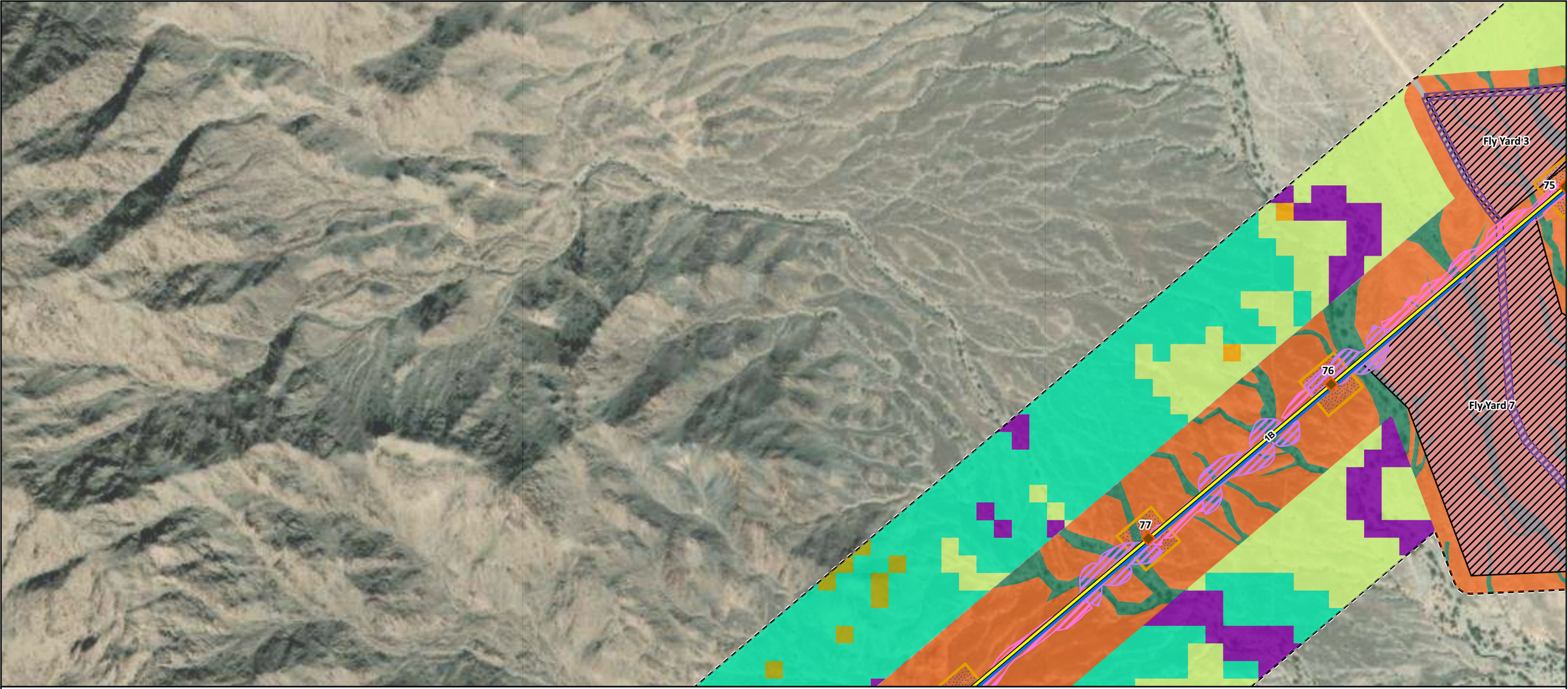
12

0 250 500 Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Moderate
Type 3 New Road - Steep

Construction Work Pad
Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland
Creosote bush - white burr sage scrub

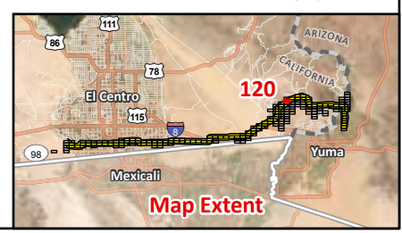
Land Cover Types

Disturbed

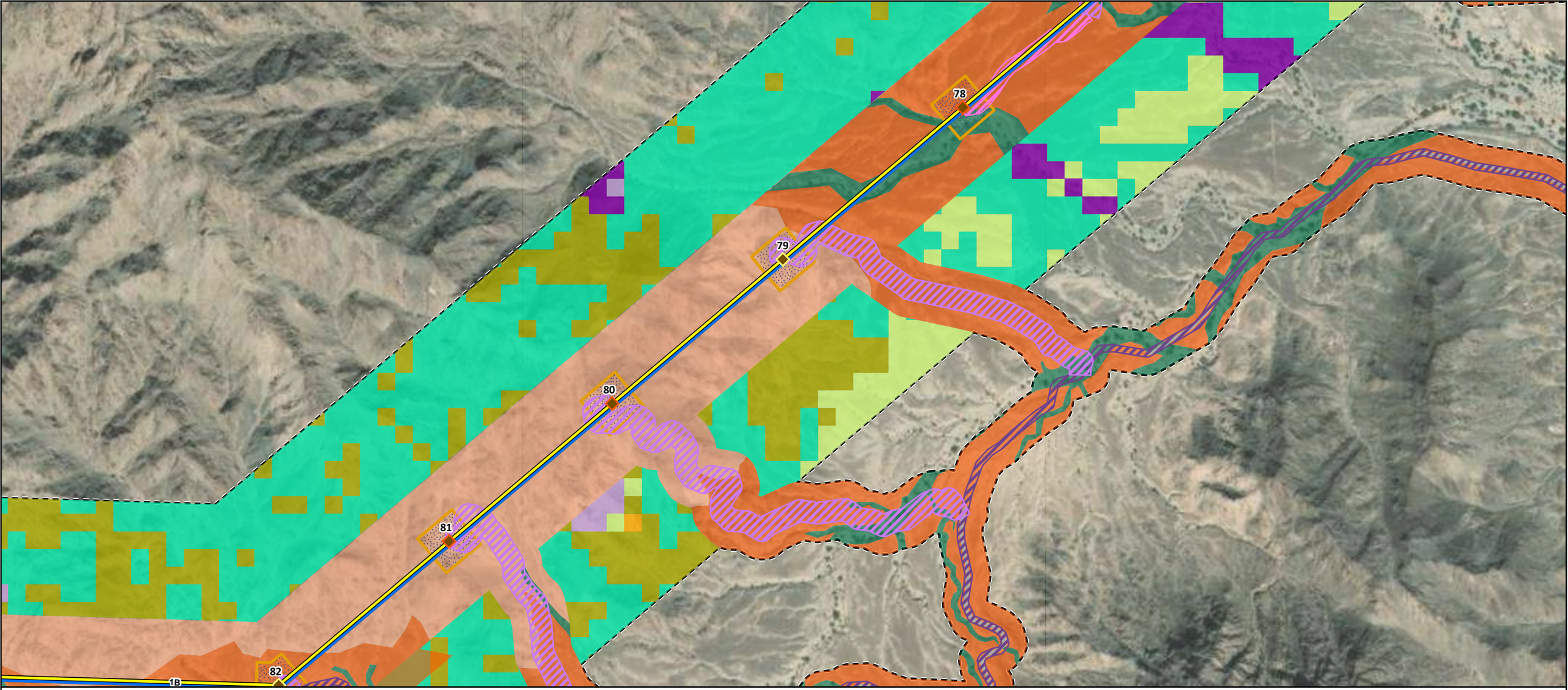
LandFire Vegetation

6
10
12
20
28

0 250 500 N
Feet



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Land Cover Types

Disturbed

LandFire Vegetation

6

10

12

20

24

28

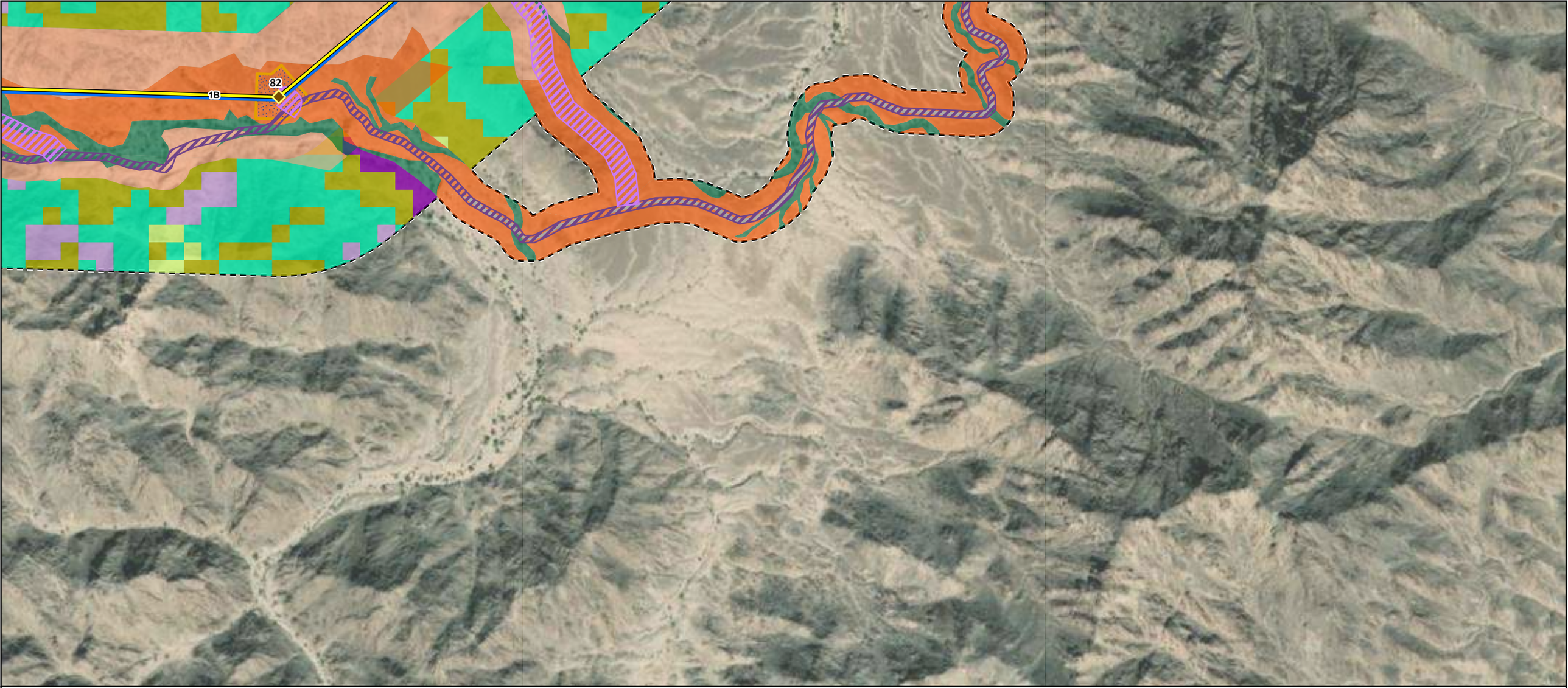
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Land Cover Types

Disturbed

LandFire Vegetation

6

10

12

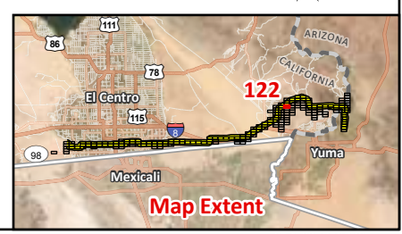
20

24

28

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

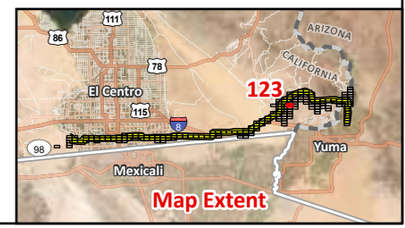
Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Land Cover Types

Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Land Cover Types

Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

Disturbed

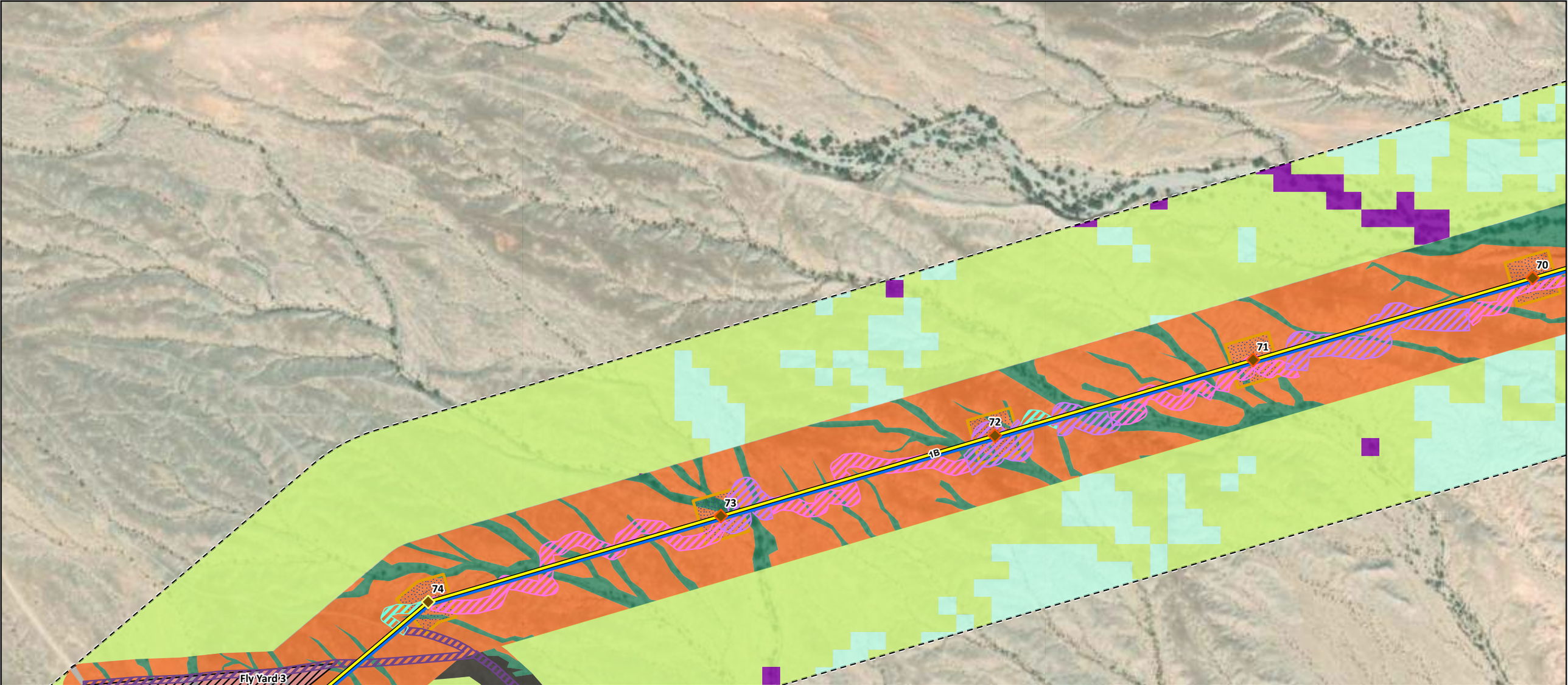
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Land Cover Types

Developed

Disturbed

LandFire Vegetation

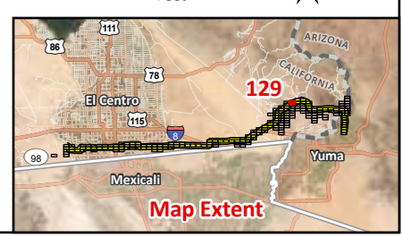
12

13

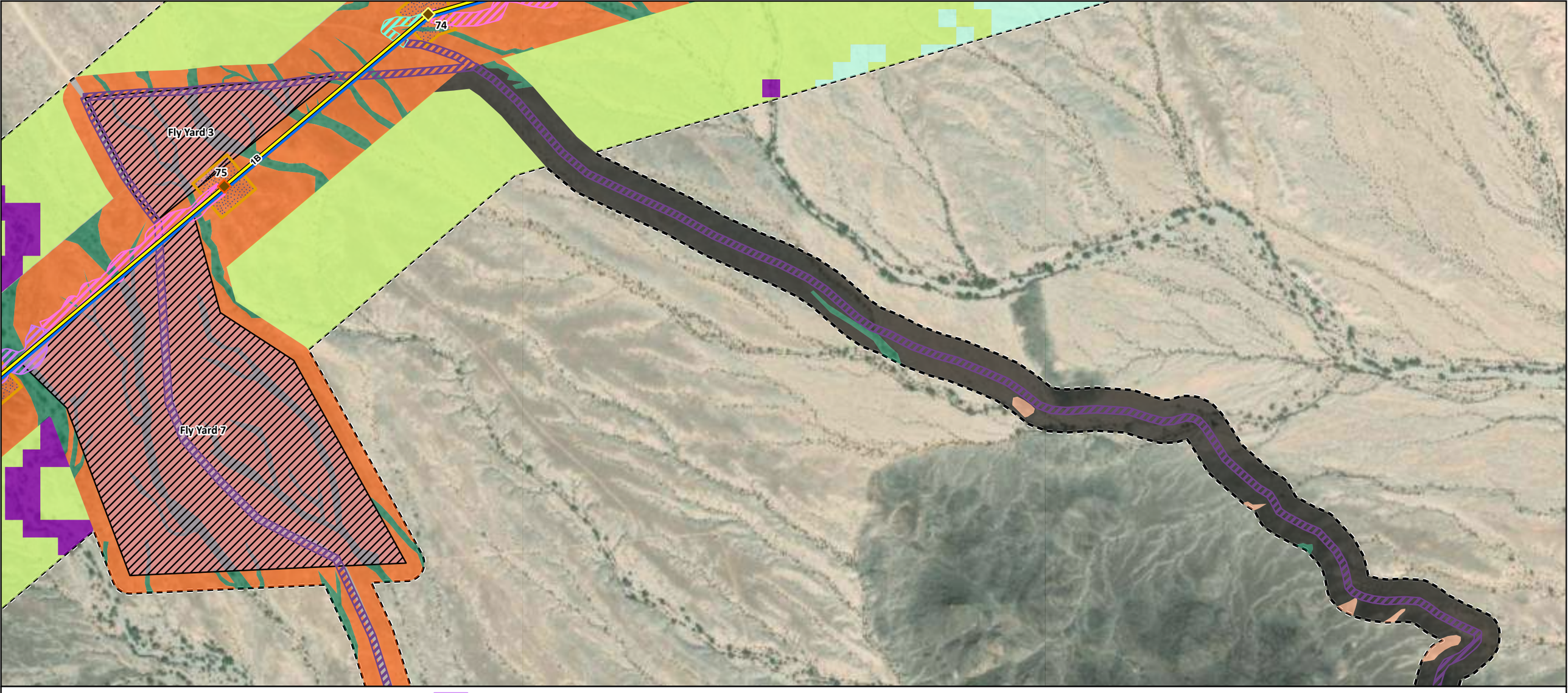
28

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Land Cover Types

Developed

Disturbed

LandFire Vegetation

12

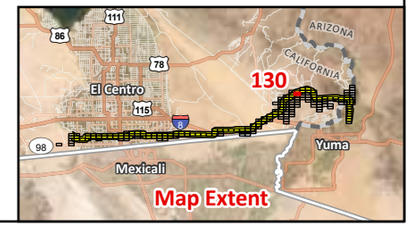
13

20

28

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Vegetation Communities

- Blue palo verde - ironwood woodland
- Creosote bush - brittle bush scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub

Land Cover Types

- Developed
- Disturbed

LandFire Vegetation

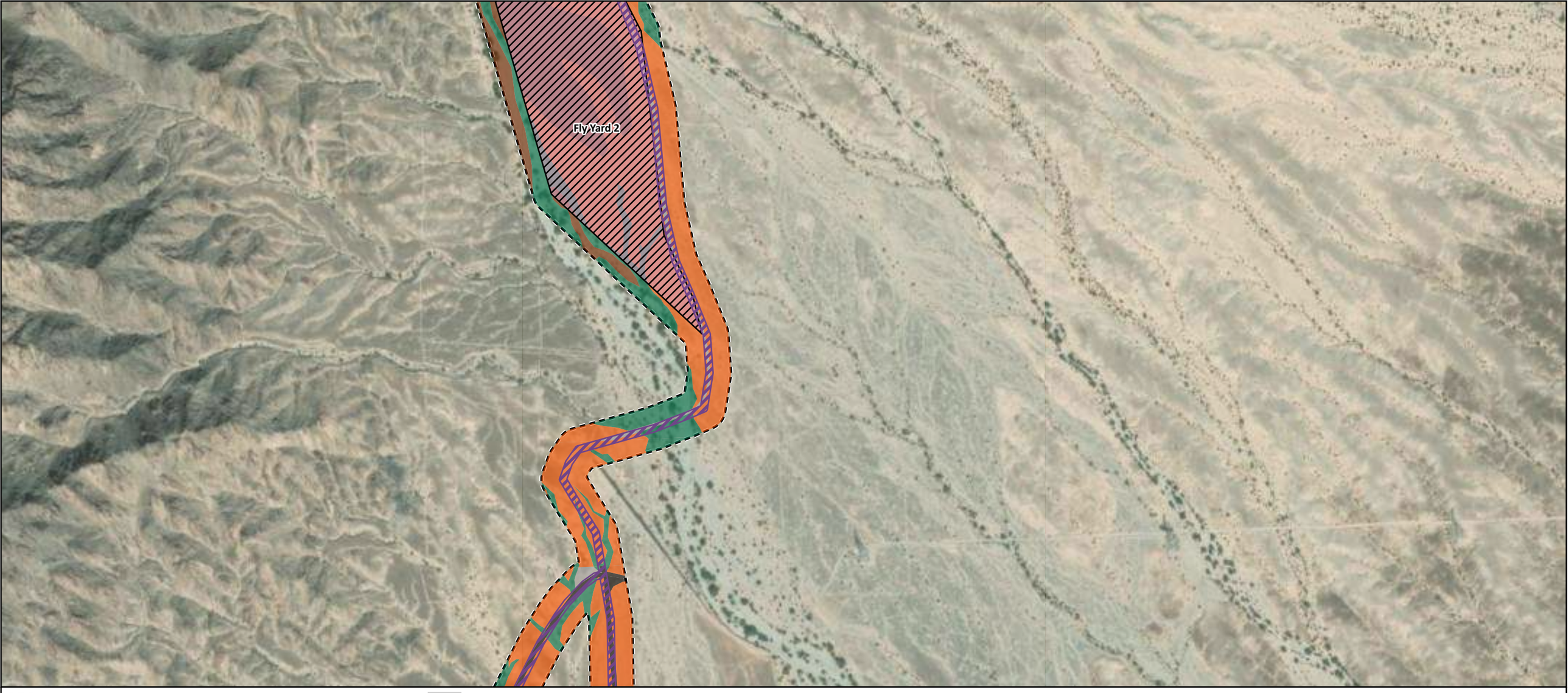
- 12
- 20

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Land Cover Types

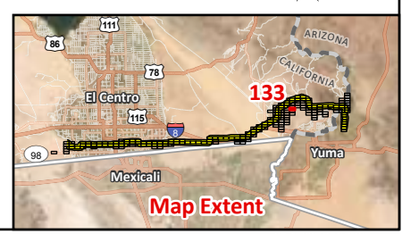
Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Moderate
Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland
Creosote bush - white burr sage scrub

Land Cover Types

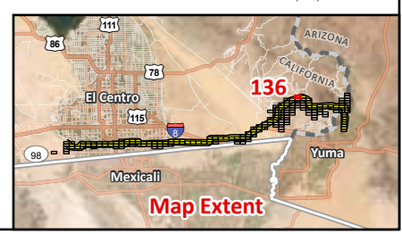
Developed

LandFire Vegetation

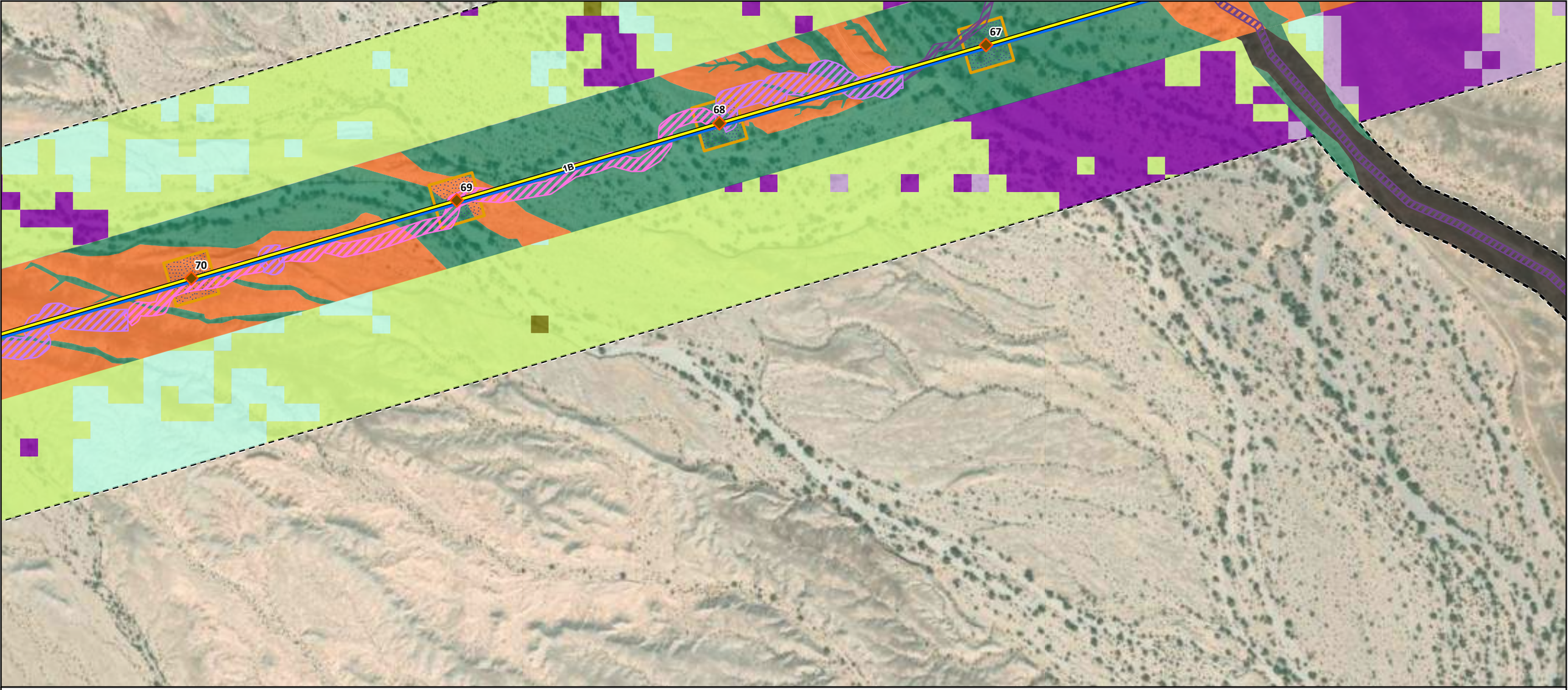
9
12
13
24
28

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Land Cover Types

Developed

LandFire Vegetation

9

12

13

24

28

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

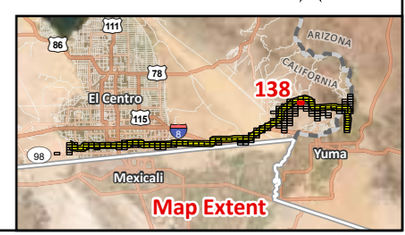
Creosote bush - brittle bush scrub

Land Cover Types

Developed

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

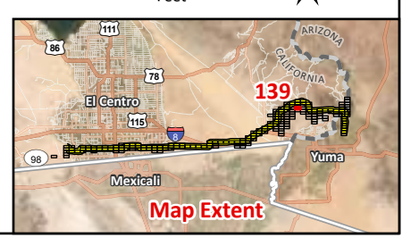
Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Land Cover Types

Developed

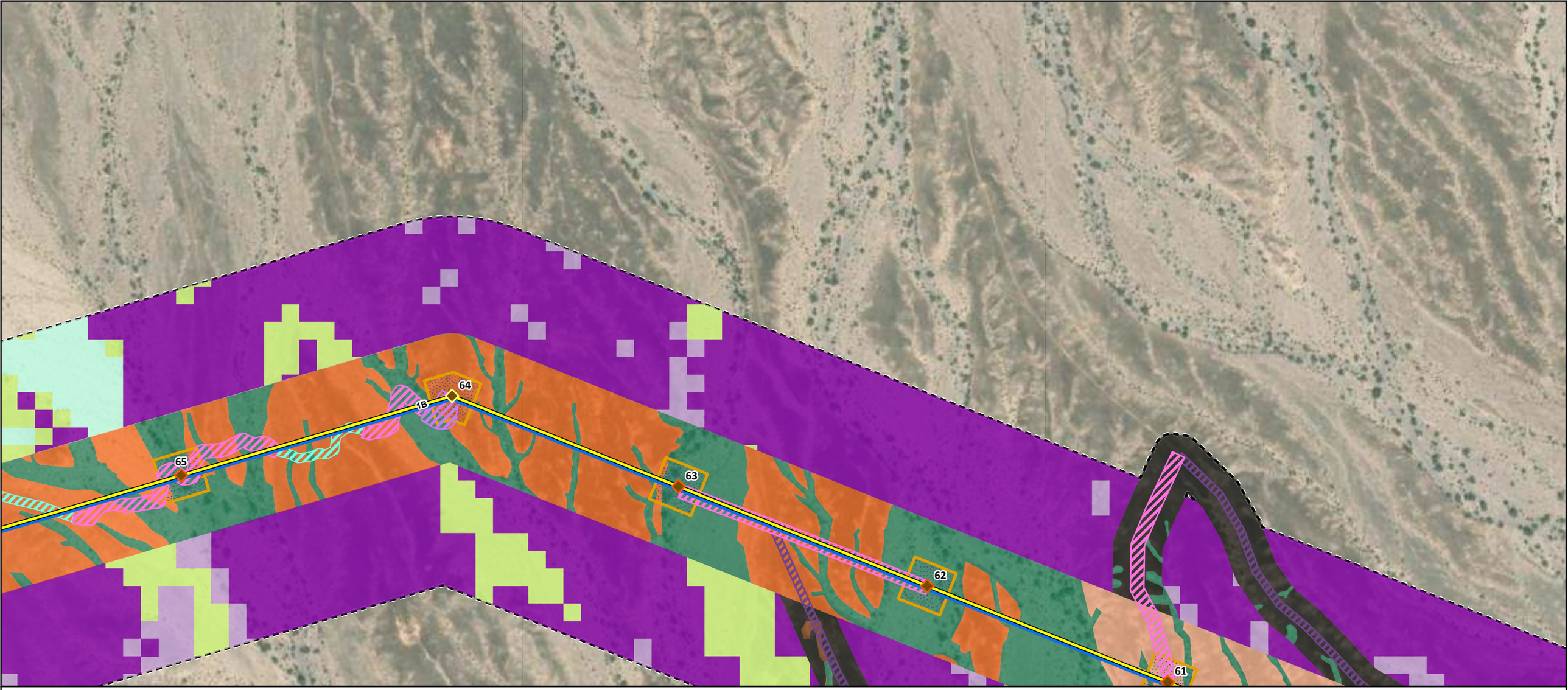
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

LandFire Vegetation

12

13

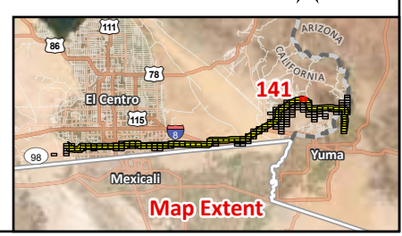
24

28

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

Land Cover Types

Developed

LandFire Vegetation

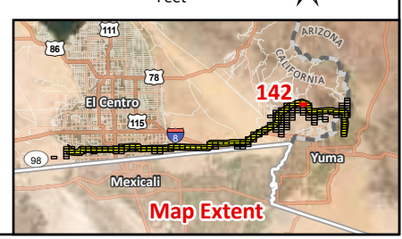
12

24

28

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Land Cover Types

Developed

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Developed

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

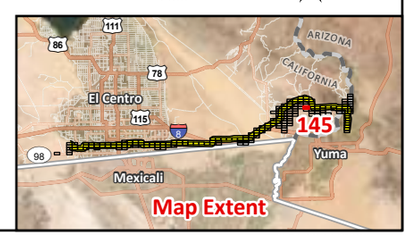
Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

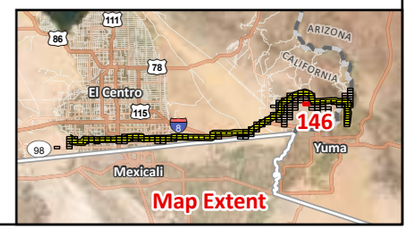
Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Land Cover Types

Developed

LandFire Vegetation

12

24

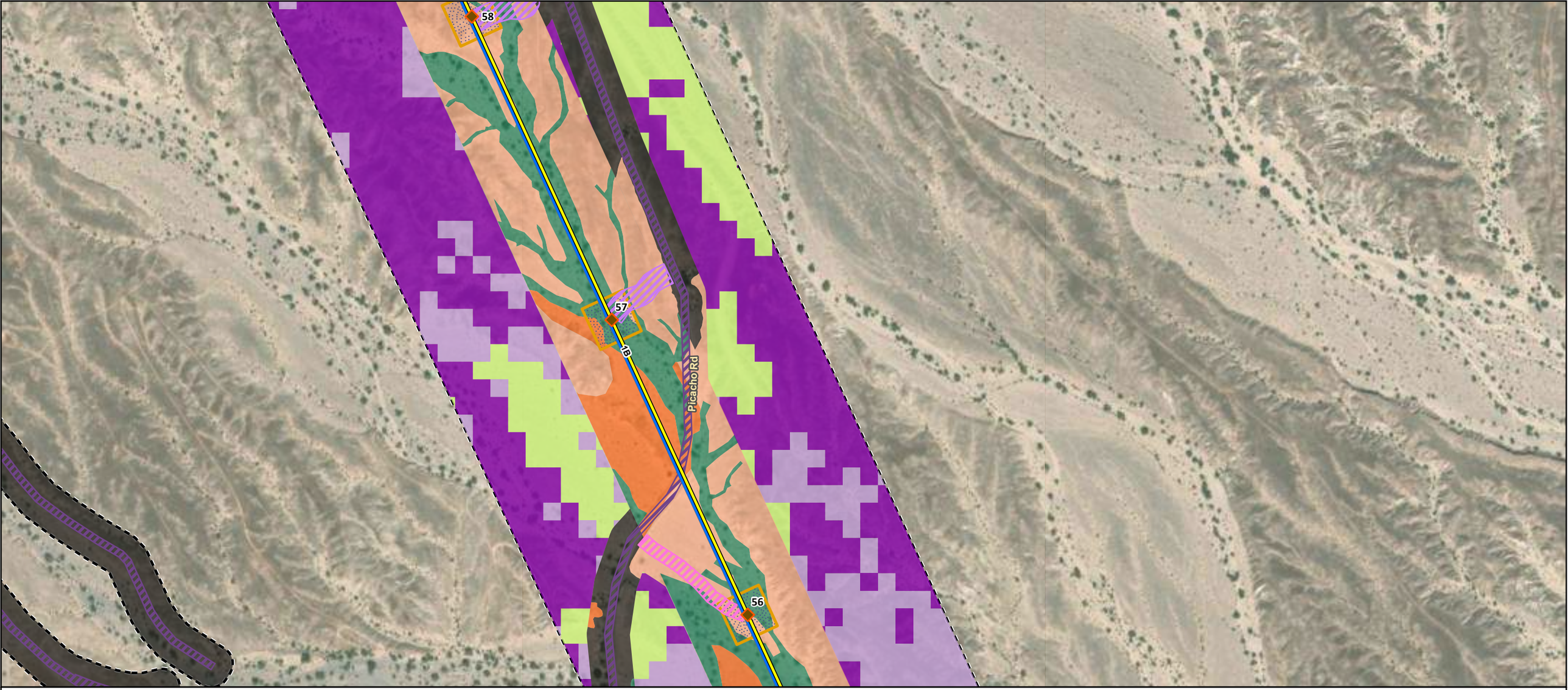
28

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Moderate
Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush - white burr sage scrub

Land Cover Types

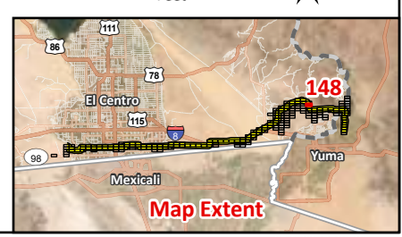
Developed

LandFire Vegetation

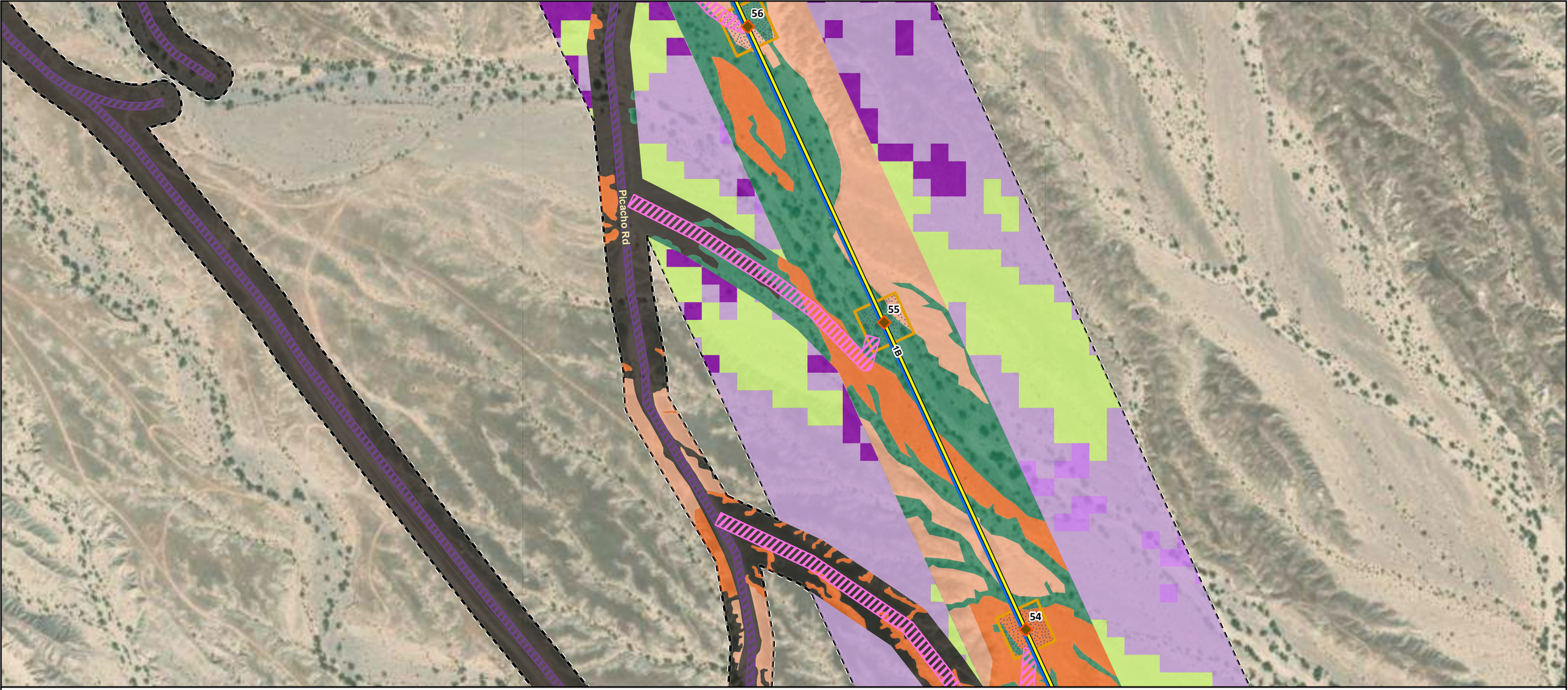
12
24
28

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Land Cover Types

Developed

LandFire Vegetation

12

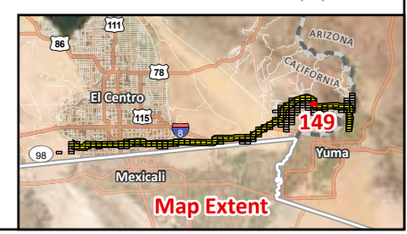
24

25

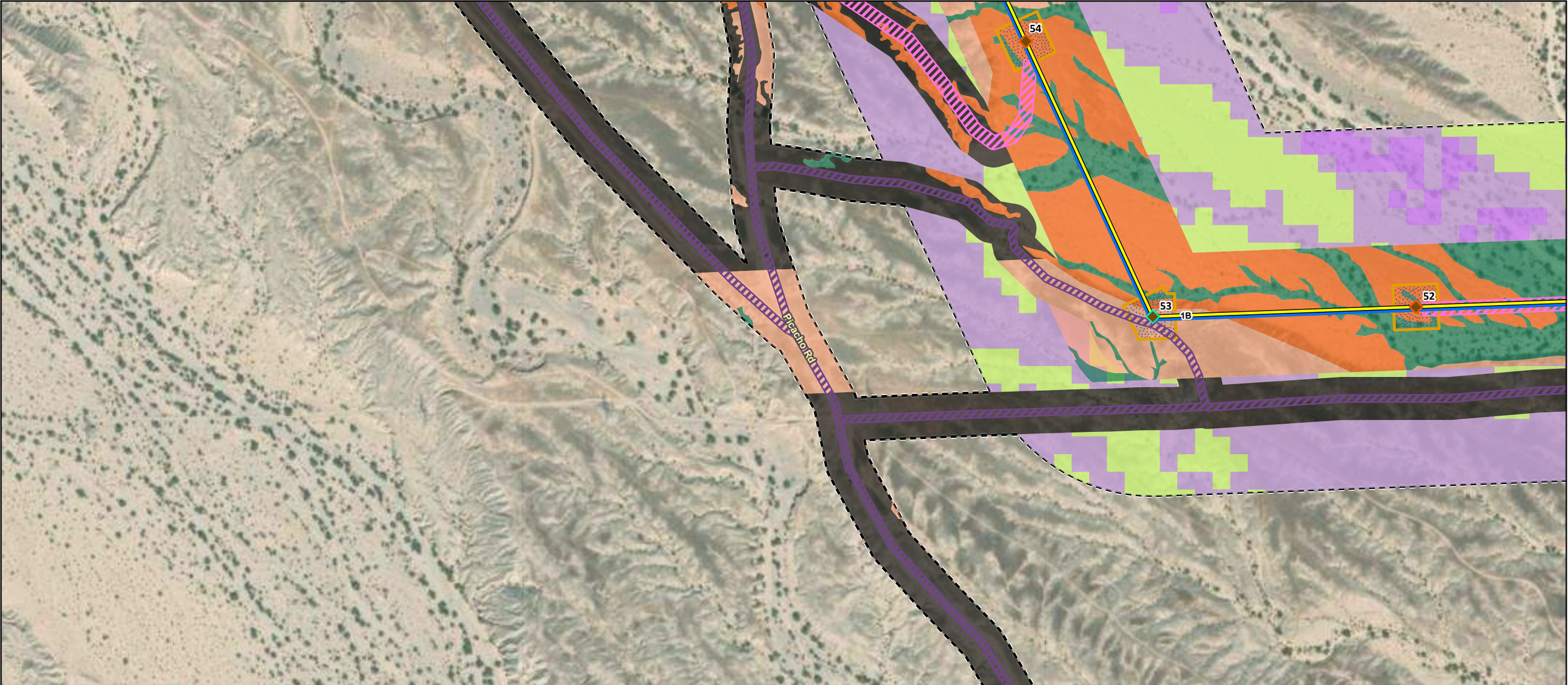
28

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Heavy

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Land Cover Types

Developed

LandFire Vegetation

12

24

25

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Land Cover Types

Developed

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Land Cover Types

Developed

LandFire Vegetation

9

10

12

24

25

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Land Cover Types

Developed

0 250 500
Feet

N



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Picacho Rd

Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Creosote bush - brittle bush scrub

Land Cover Types

Developed

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Tamarisk thickets

Land Cover Types

Agriculture

Developed

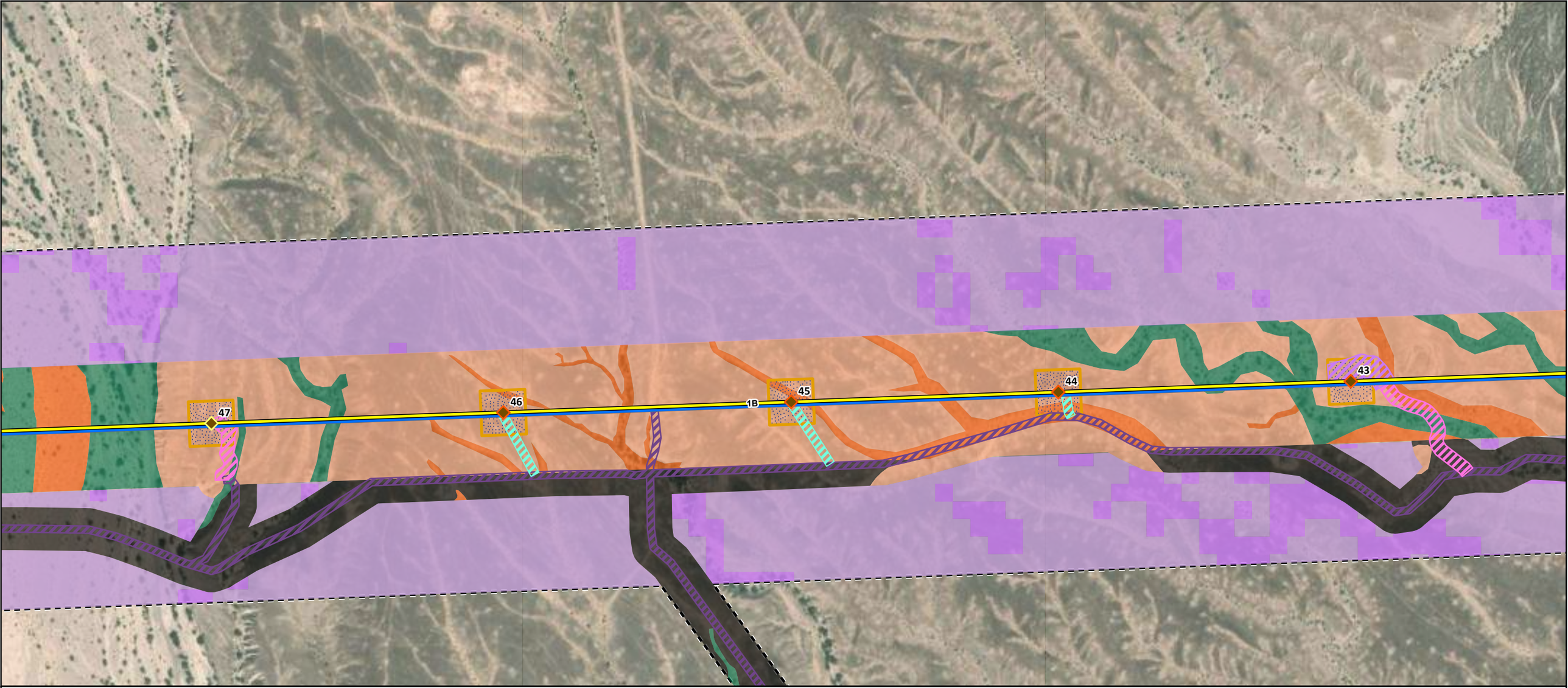
0 250 500

Feet

N



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- Biological Study Area
- Proposed Project

Alternative Route Segments*

Segment I

- 1B

Project Structure

Transmission Structures

- Lattice Tower Dead-End (LTD) - Light
- Lattice Tower Tangent (LTT)

Access Roads

- Type 2 Existing Road - Needs Improvement
- Type 3 New Road - Flat
- Type 3 New Road - Moderate
- Type 3 New Road - Steep
- Construction Work Pad

Vegetation Communities

- Blue palo verde - ironwood woodland
- Creosote bush - brittle bush scrub
- Creosote bush - white burr sage scrub

Land Cover Types

- Developed

LandFire Vegetation

- 12
- 24
- 25

0 250 500 Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - white burr sage scrub

Land Cover Types

Developed

LandFire Vegetation

12

24

25

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Land Cover Types

Developed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush scrub

Tamarisk thickets

Land Cover Types

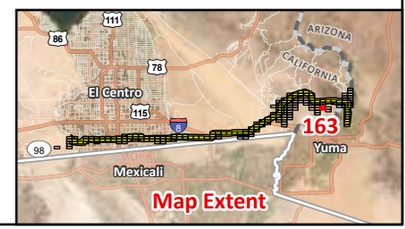
Developed

Disturbed

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Developed

Disturbed

0 250 500
Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Land Cover Types

Agriculture

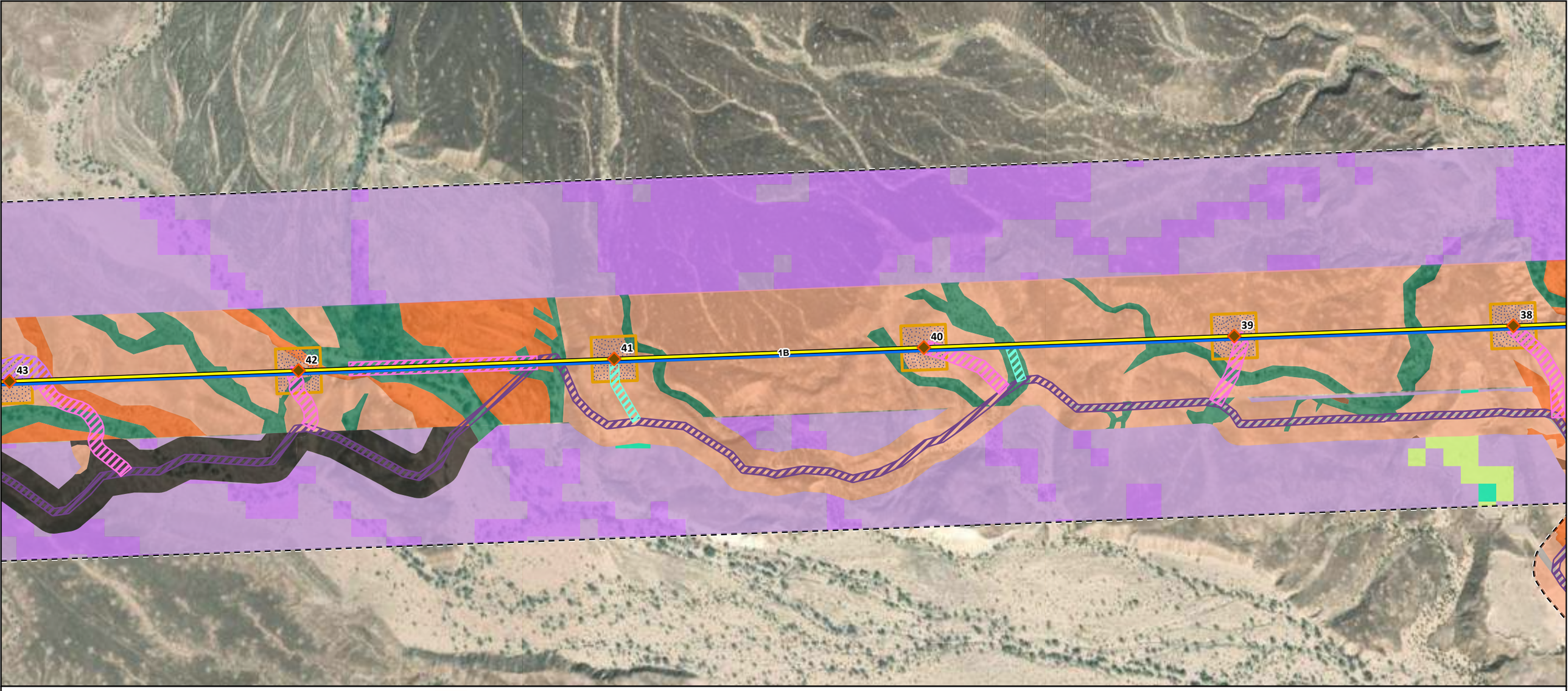
Developed

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Moderate
Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub

Land Cover Types

Developed
Disturbed

LandFire Vegetation

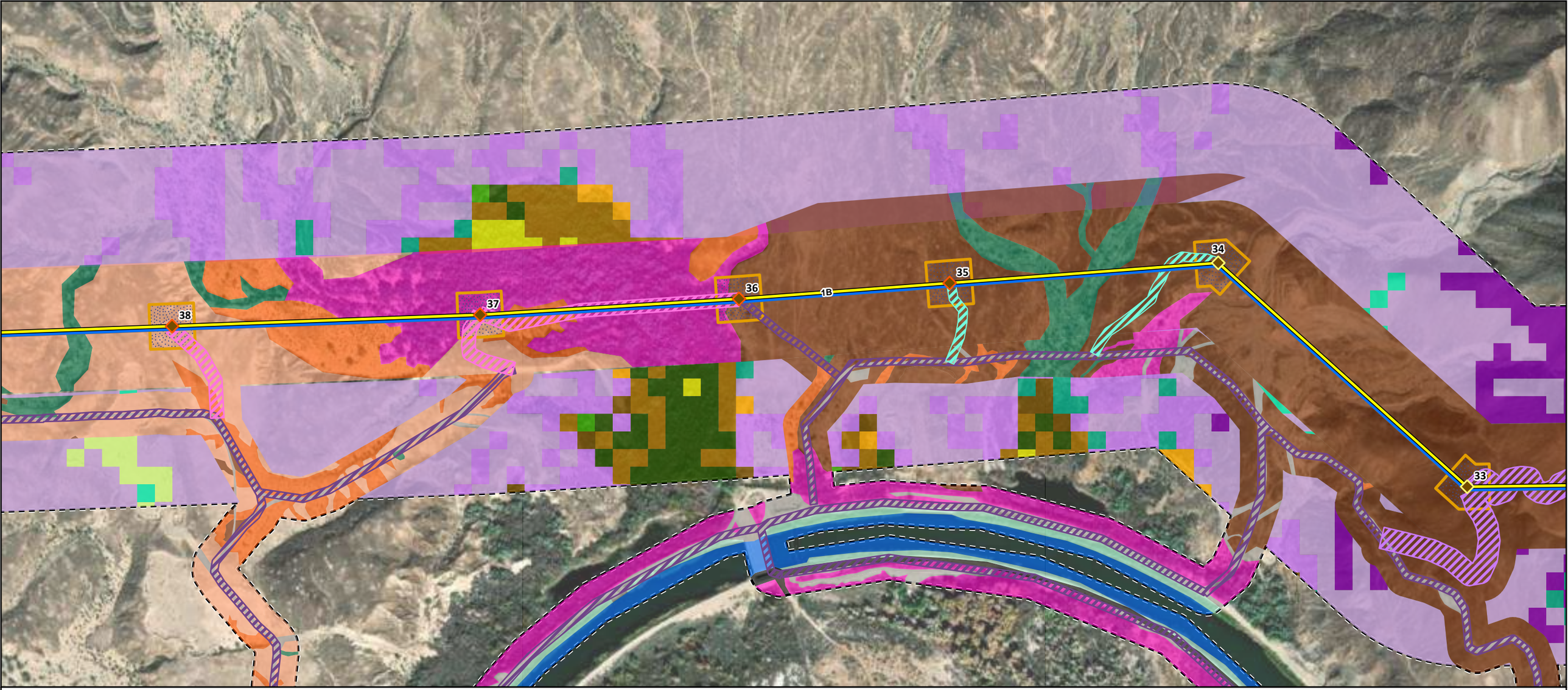
12
20
24
25

0 250 500
Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Common reed marshes

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Developed

Disturbed

Open Water

LandFire Vegetation

6

7

8

11

12

16

17

19

20

24

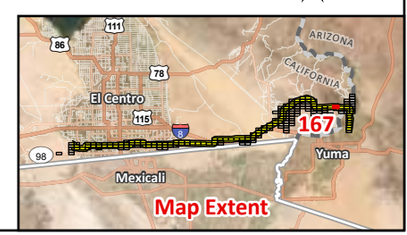
25

28

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Common reed marshes

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Developed

Disturbed

Mojave-Sonoran desert dunes

Open Water

LandFire Vegetation

19

24

25

28

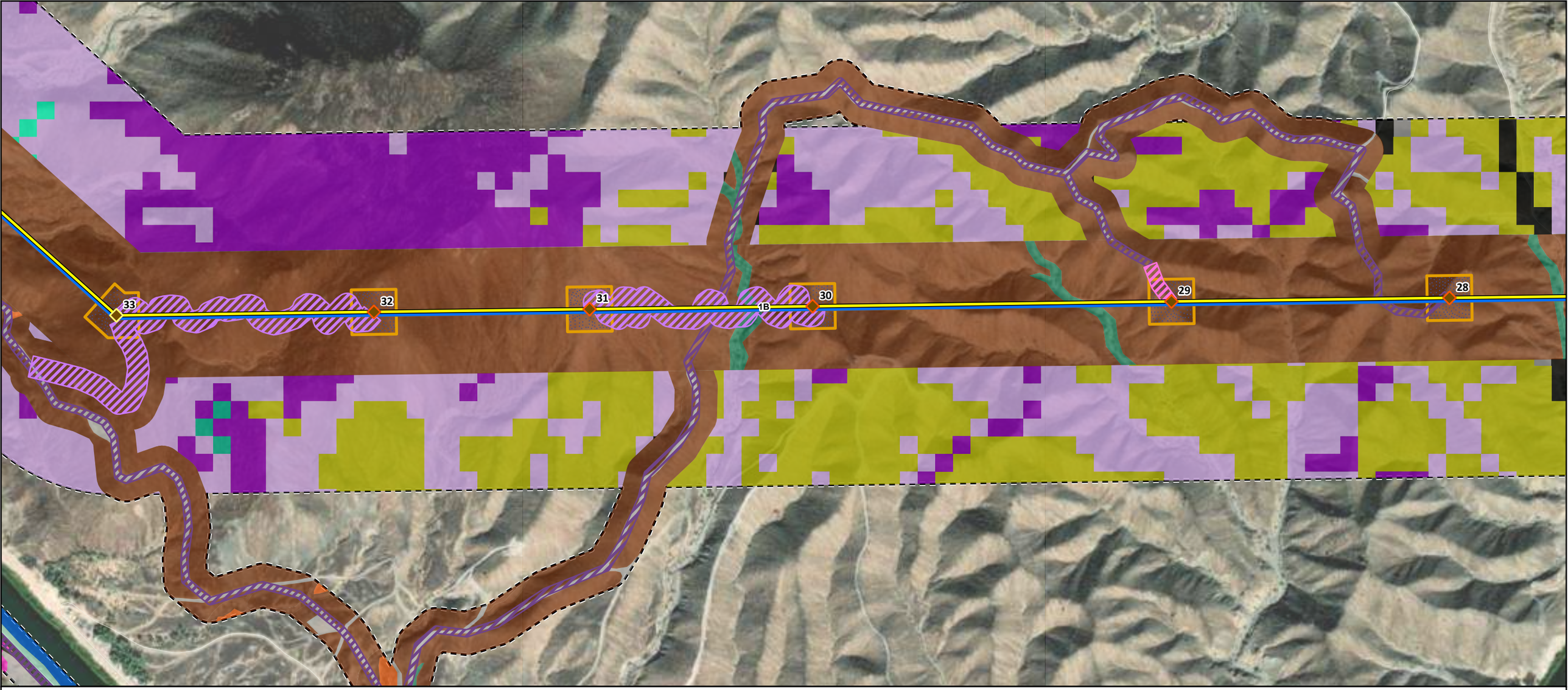
0 250 500

Feet

N



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Biological Study Area

Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Moderate

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Common reed marshes

Creosote bush - white burr sage scrub

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Developed

Disturbed

Open Water

LandFire Vegetation

4

5

10

19

20

24

28

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Common reed marshes

Creosote bush - white burr sage scrub

Creosote bush scrub

Tamarisk thickets

Land Cover Types

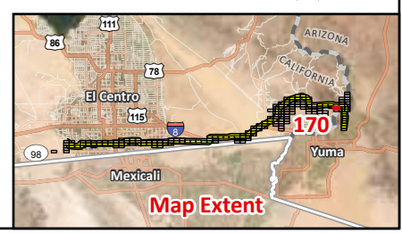
Developed

Disturbed

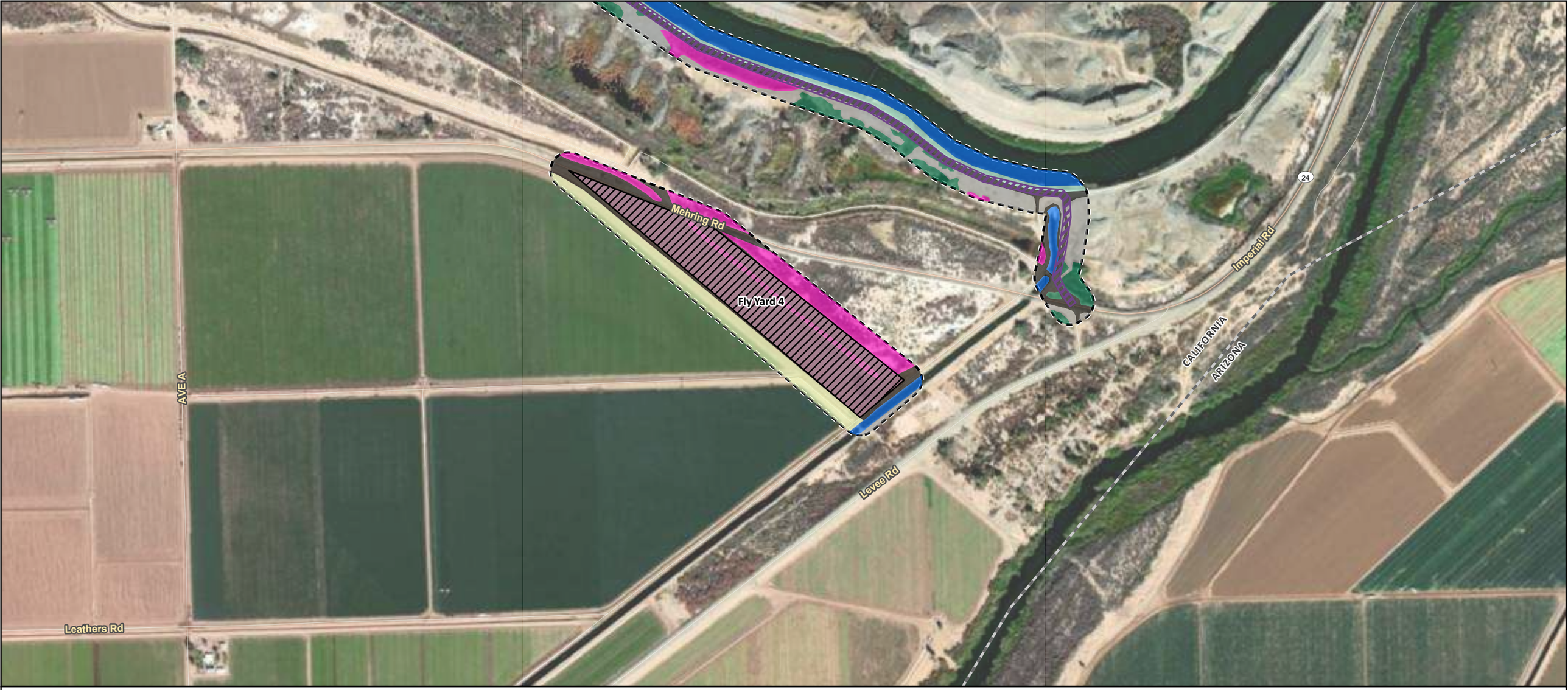
Open Water

0 250 500 N

Feet



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Common reed marshes

Tamarisk thickets

Land Cover Types

Agriculture

Developed

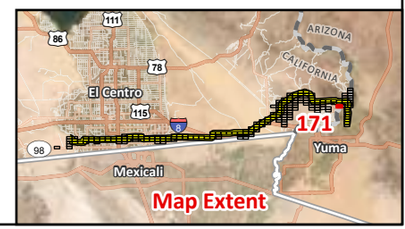
Disturbed

Open Water

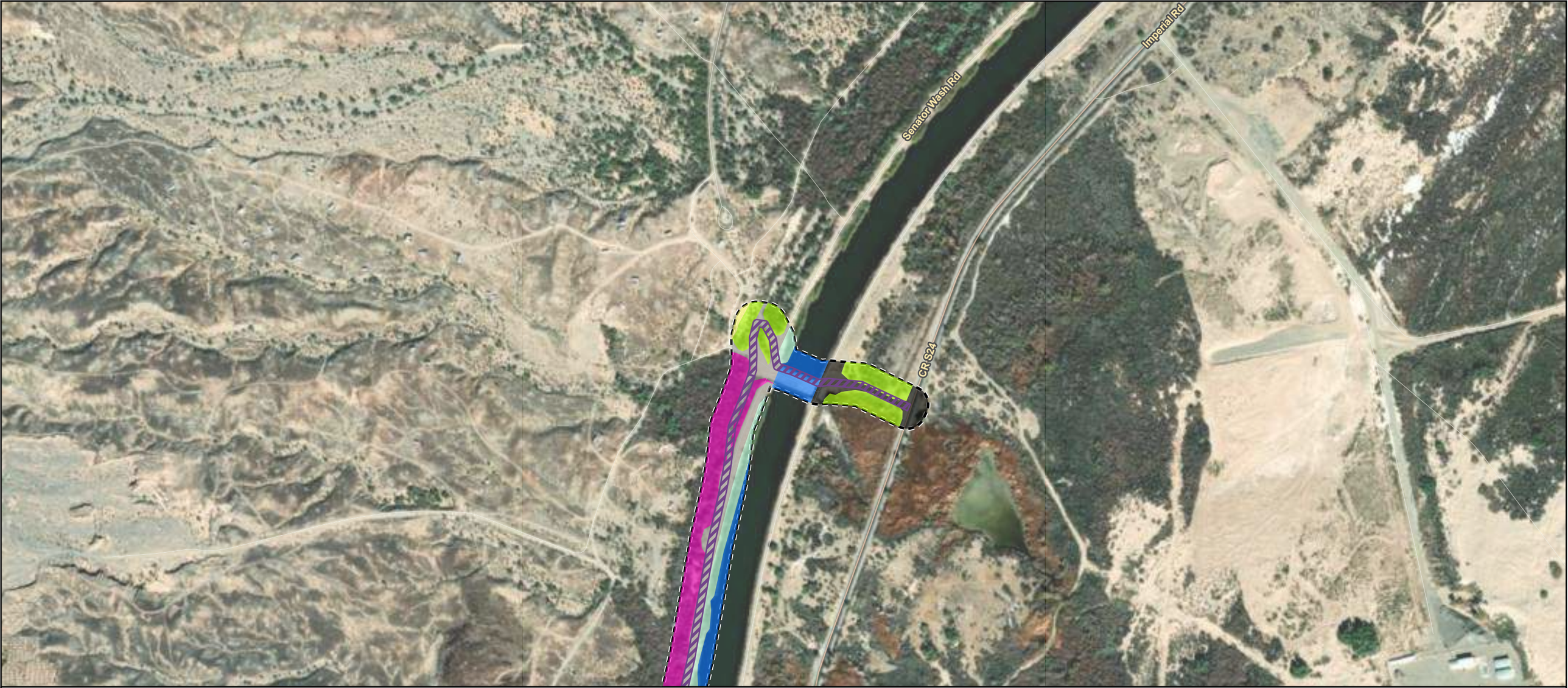
0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Arrow weed thickets

Common reed marshes

Mesquite thickets

Tamarisk thickets

Land Cover Types

Developed

Disturbed

Open Water

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Common reed marshes

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Disturbed

Open Water

0 250 500

Feet

N



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Biological Study Area

Access Roads

Type 2 Existing Road - Needs Improvement

Fly Yard

Vegetation Communities

Blue palo verde - ironwood woodland

Common reed marshes

Creosote bush scrub

Tamarisk thickets

Land Cover Types

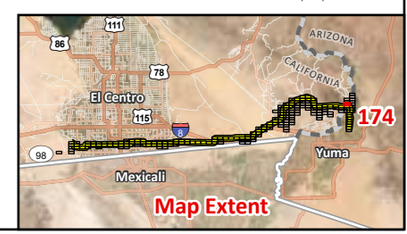
Disturbed

Open Water

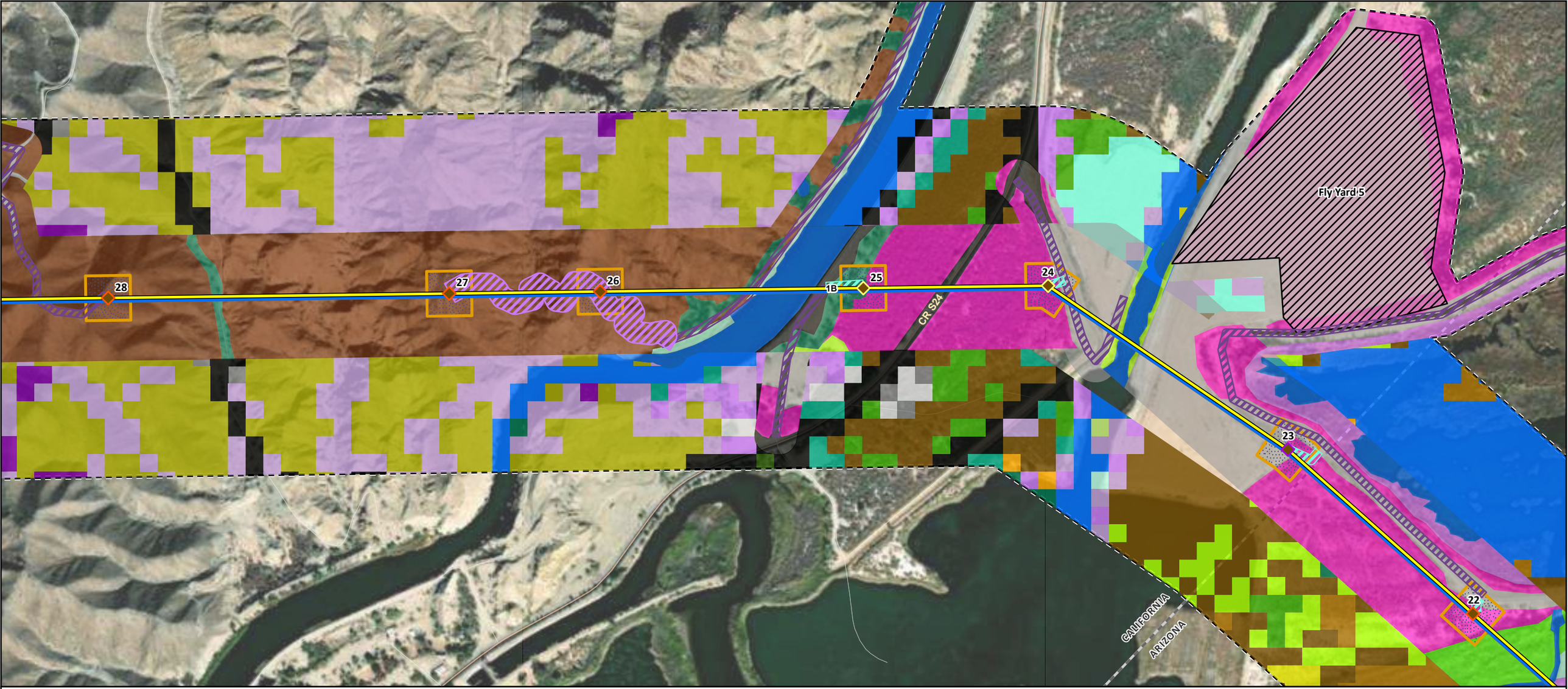
0 250 500

Feet

N



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Biological Study Area
State Boundary
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Steep

Construction Work Pad
Fly Yard

Vegetation Communities

Arrow weed thickets
Blue palo verde - ironwood woodland
Common reed marshes
Creosote bush scrub
Fremont cottonwood forest and woodland
Hardstem and California bulrush marshes
Tamarisk thickets

Land Cover Types

Disturbed
Open Water

LandFire Vegetation

3
4
5
6
7
8
10
11
12
13
14
15
16
17
18

0 250 500
Feet

N



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Biological Study Area
State Boundary
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Arrow weed thickets

Cattail marshes

Common reed marshes

Creosote bush - brittle bush scrub

Fremont cottonwood forest and woodland

Hardstem and California bulrush marshes

Mesquite thickets

Quailbush scrub

Disturbed

Open Water

LandFire Vegetation

5

6

7

8

10

11

12

14

16

17

18

19

21

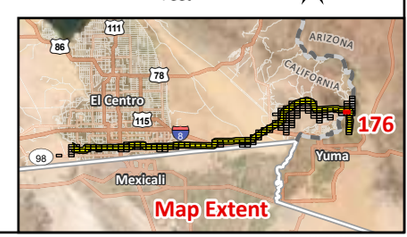
22

24

0 250 500

Feet

N



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Biological Study Area
State Boundary
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Creosote bush - brittle bush scrub
Mesquite thickets
Tamarisk thickets

Land Cover Types

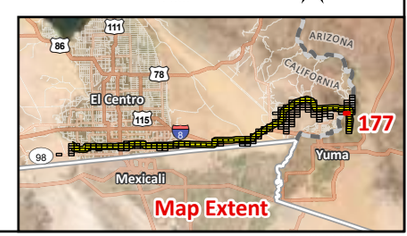
Developed
Disturbed
Open Water

LandFire Vegetation

5
6
7
8
10
12
16
17
19
22
24
25
27

0 250 500
Feet

N



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Arrow weed thickets

Common reed marshes

Creosote bush scrub

Land Cover Types

Developed

Disturbed

Open Water

0 250 500

Feet

N



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Arrow weed thickets

Common reed marshes

Creosote bush scrub

Land Cover Types

Developed

Disturbed

Open Water

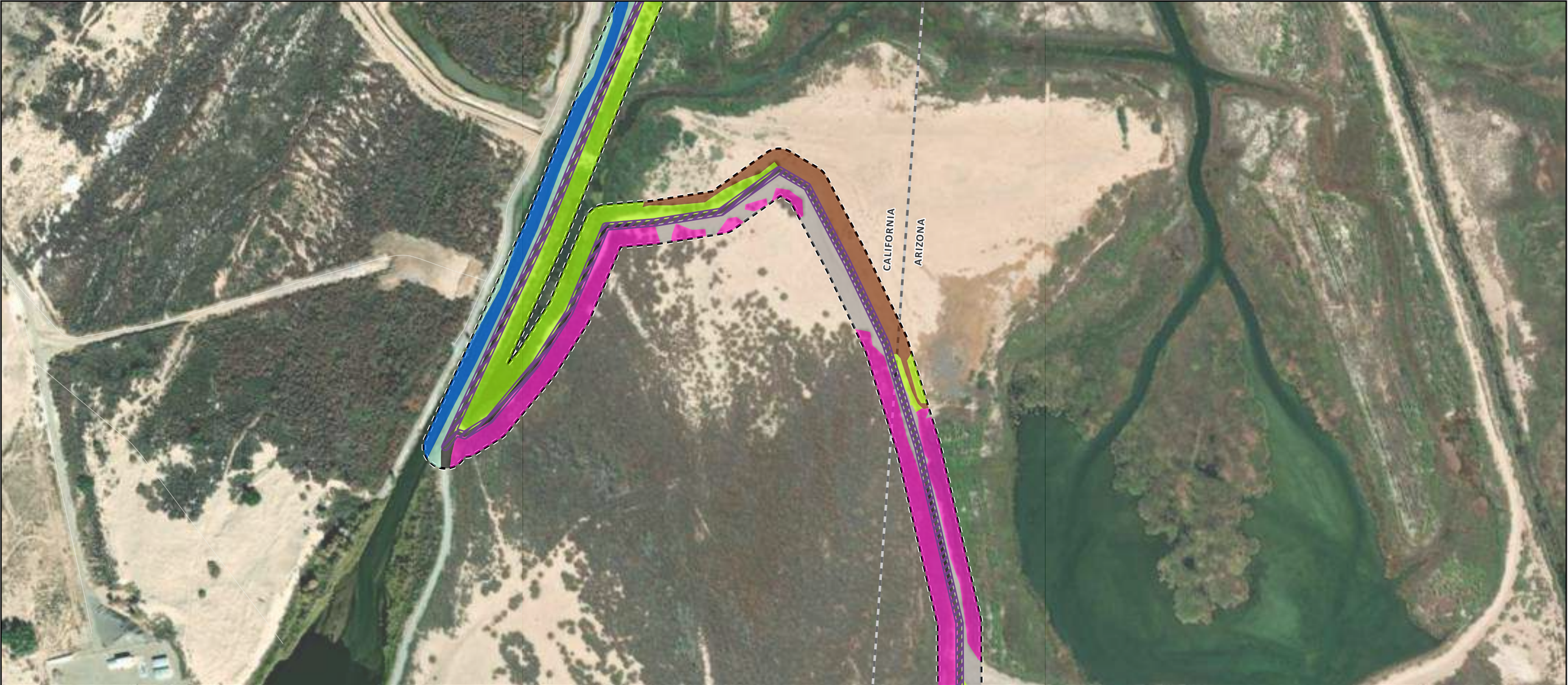
0 250 500

Feet

N



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Arrow weed thickets

Common reed marshes

Creosote bush scrub

Tamarisk thickets

Open Water

Land Cover Types

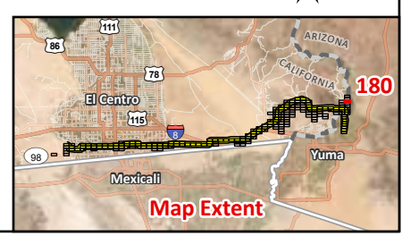
Developed

Disturbed

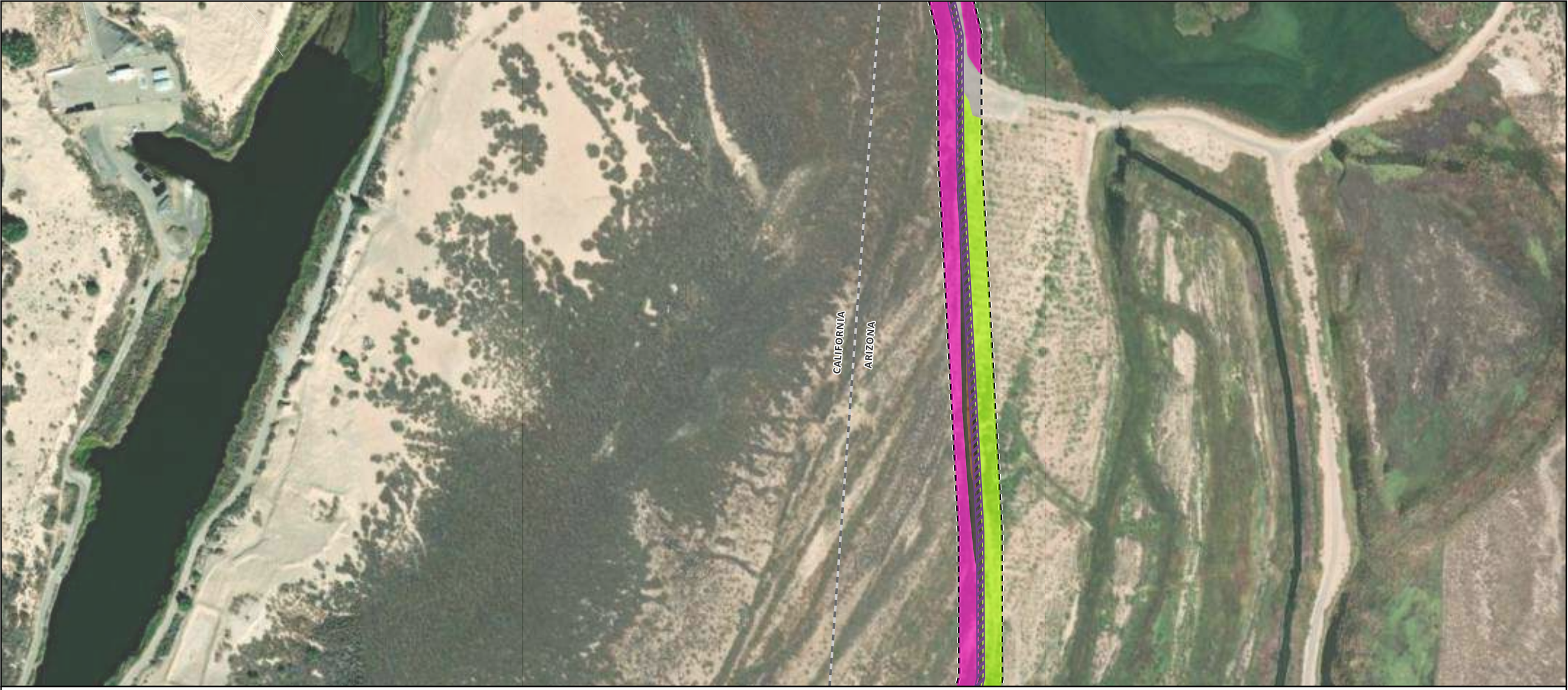
0 250 500

Feet

N



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Biological Study Area

State Boundary

Access Roads

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Arrow weed thickets

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Developed

Disturbed

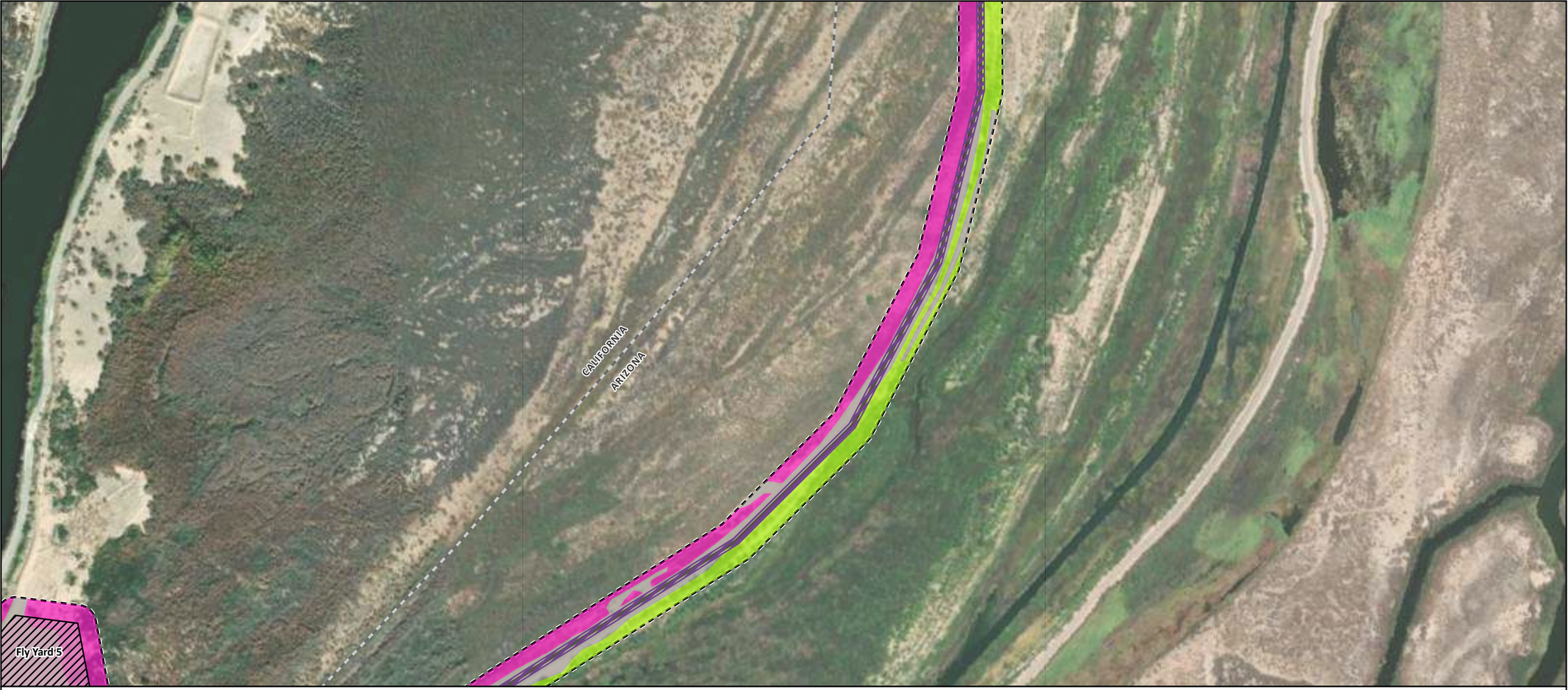
0 250 500

Feet

N



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Biological Study Area
State Boundary

Access Roads
Type 2 Existing Road - Needs Improvement

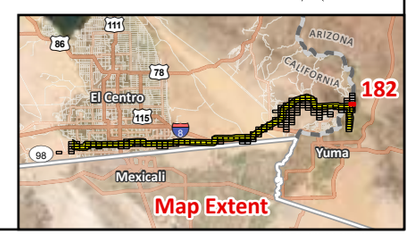
Fly Yard

Vegetation Communities
Arrow weed thickets
Tamarisk thickets

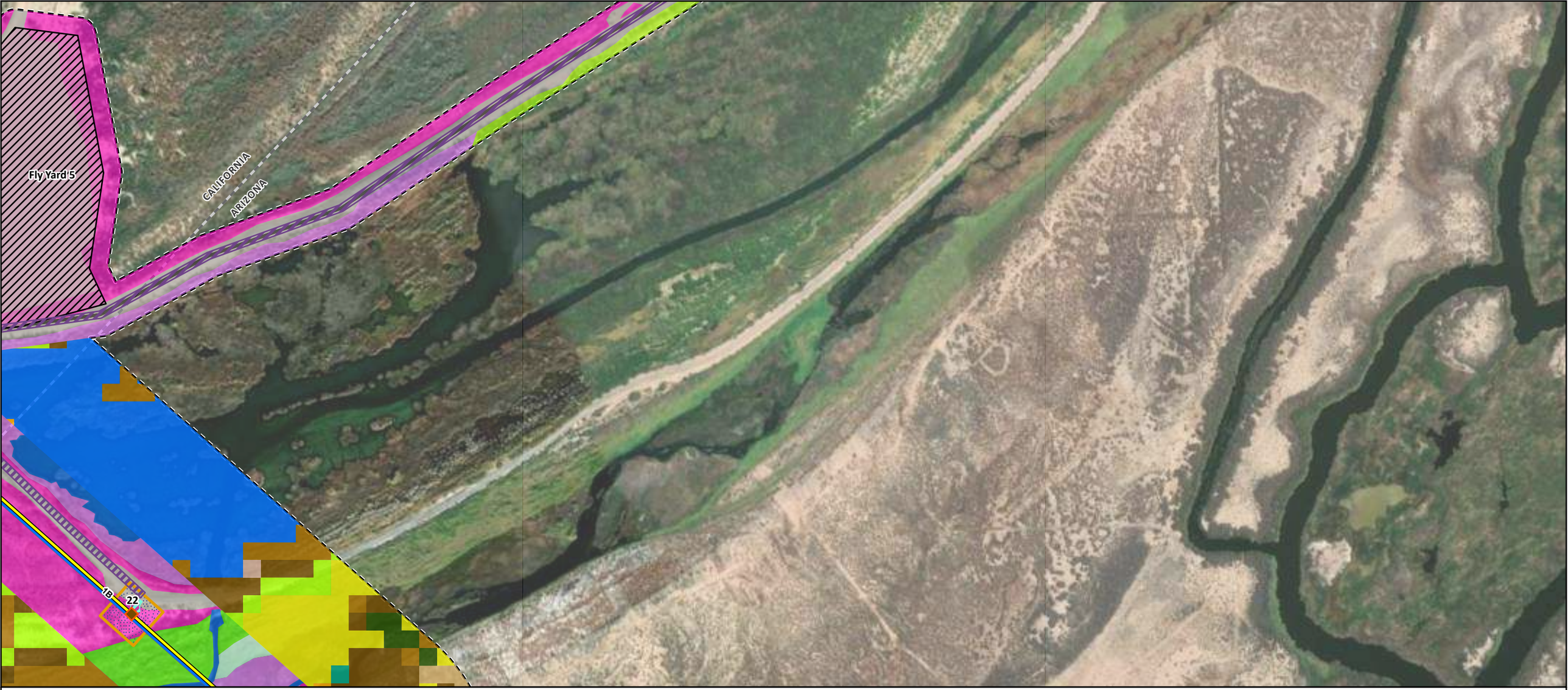
Land Cover Types
Developed
Disturbed

0 250 500
Feet

N



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Biological Study Area
State Boundary
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Fly Yard

Vegetation Communities

Arrow weed thickets

Common reed marshes

Fremont cottonwood forest and woodland

Hardstem and California bulrush marshes

Tamarisk thickets

Land Cover Types

Developed

Disturbed

Open Water

LandFire Vegetation

6

7

8

11

14

17

19

22

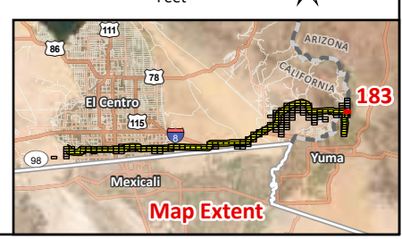
33

35

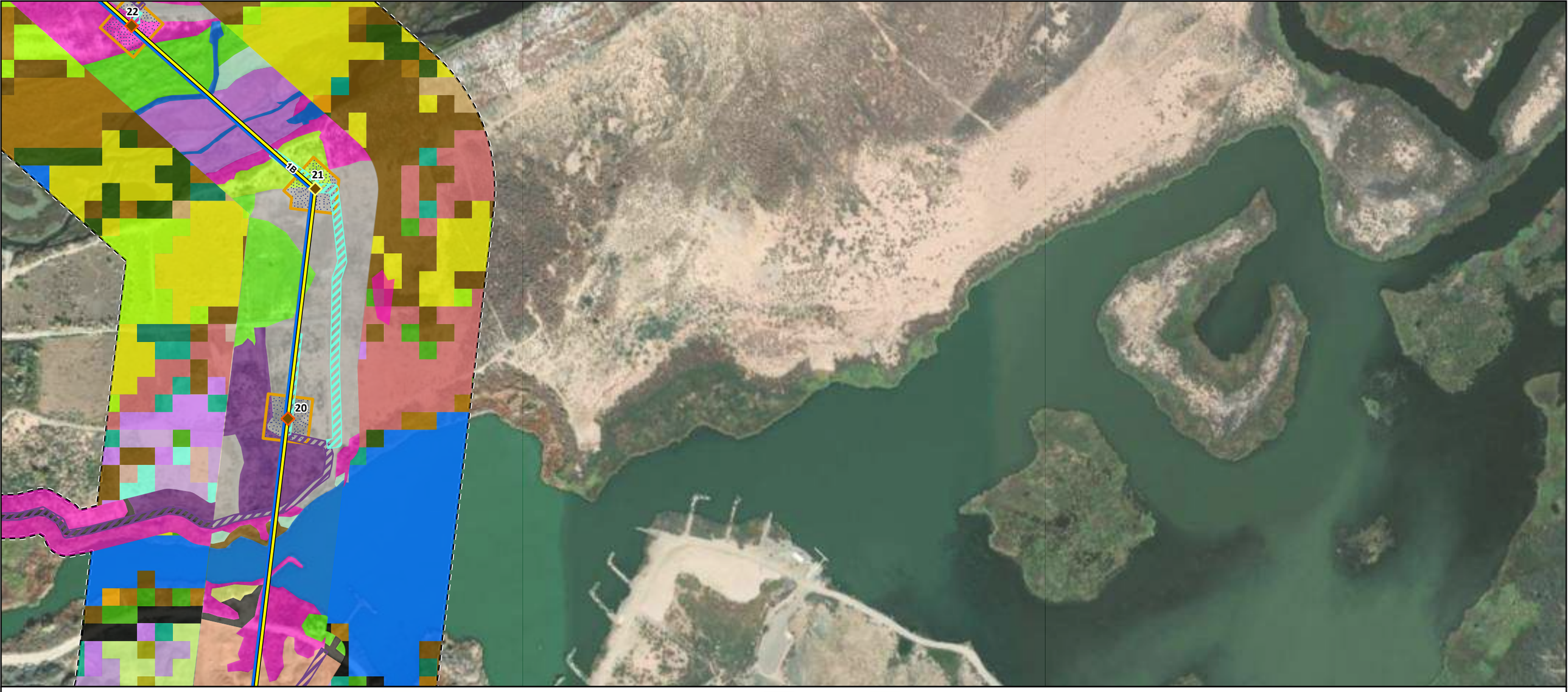
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Flat

Construction Work Pad

Vegetation Communities

Arrow weed thickets

Cattail marshes

Common reed marshes

Creosote bush - brittle bush scrub

Fremont cottonwood forest and woodland

Hardstem and California bulrush marshes

Mesquite thickets

Quailbush scrub

Disturbed

Open Water

LandFire Vegetation

5

6

7

8

10

11

12

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17

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19

21

22

24

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Light
Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Creosote bush - brittle bush scrub
Fremont cottonwood forest and woodland
Mesquite thickets
Tamarisk thickets

Land Cover Types

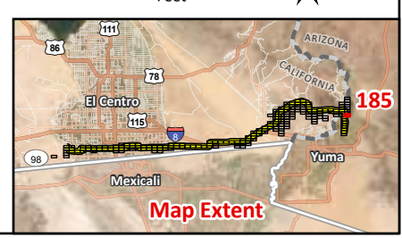
Developed
Open Water

LandFire Vegetation

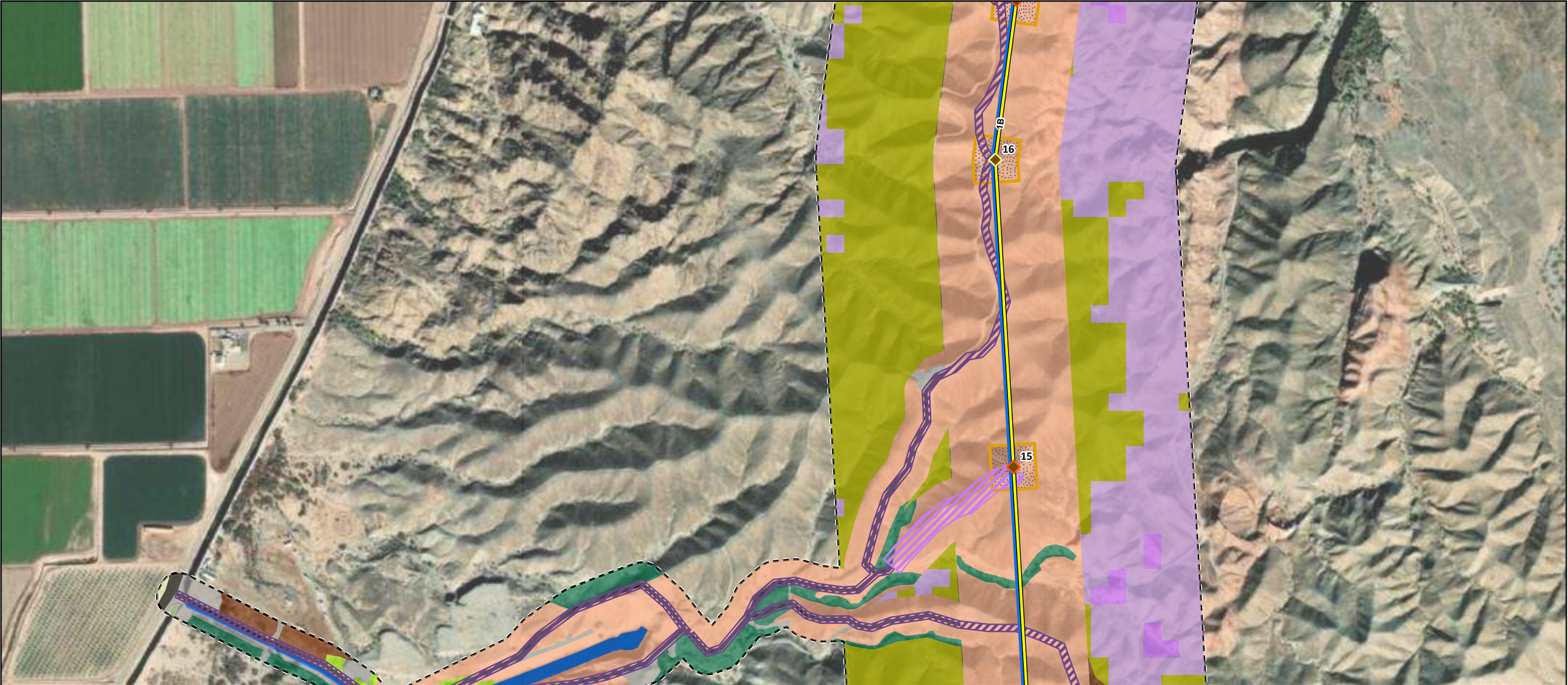
5
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22
24
25
27

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Arrow weed thickets

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush scrub

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

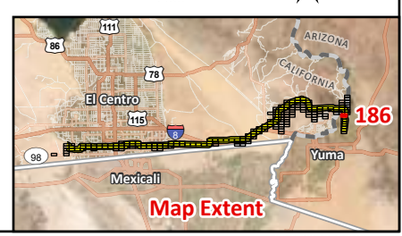
10

24

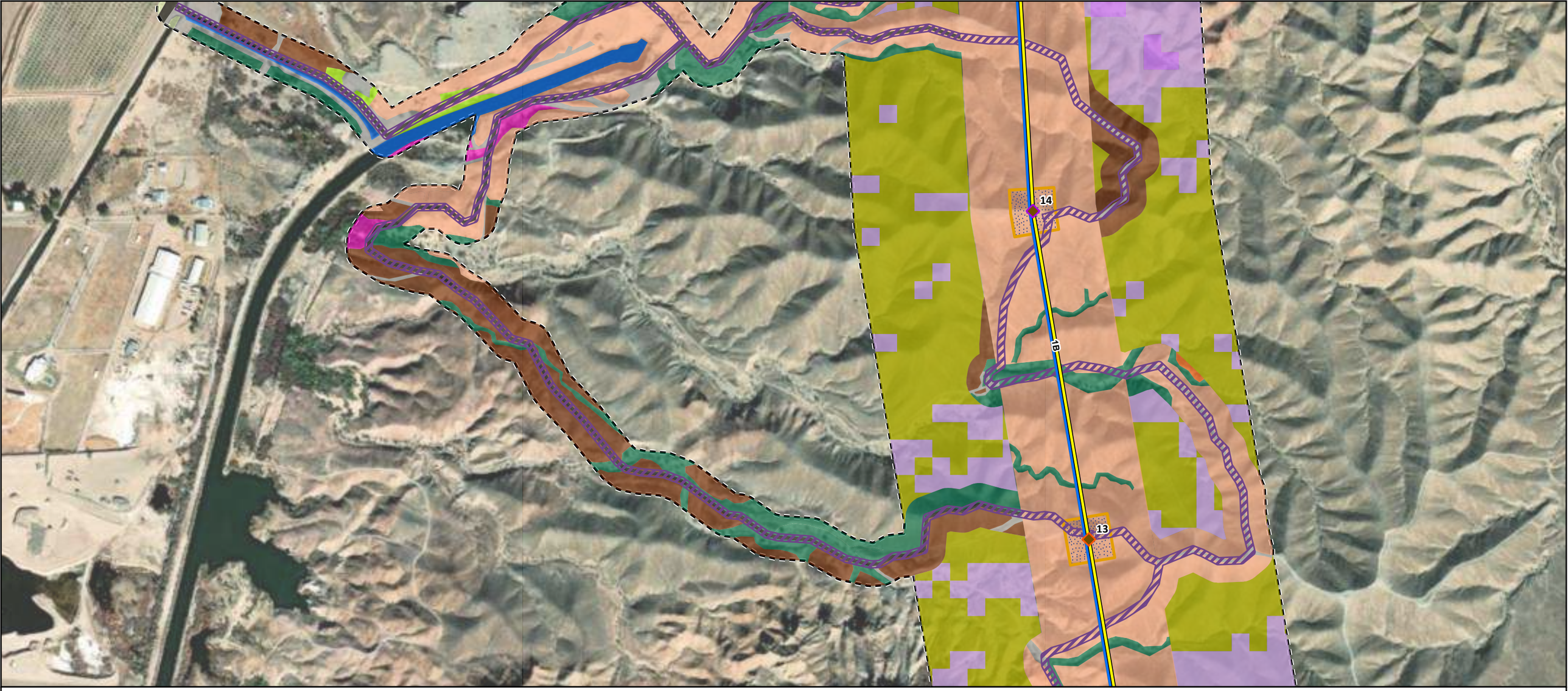
25

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Construction Work Pad

Vegetation Communities

Arrow weed thickets

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Creosote bush - white burr sage scrub

Creosote bush scrub

Tamarisk thickets

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

10

24

25

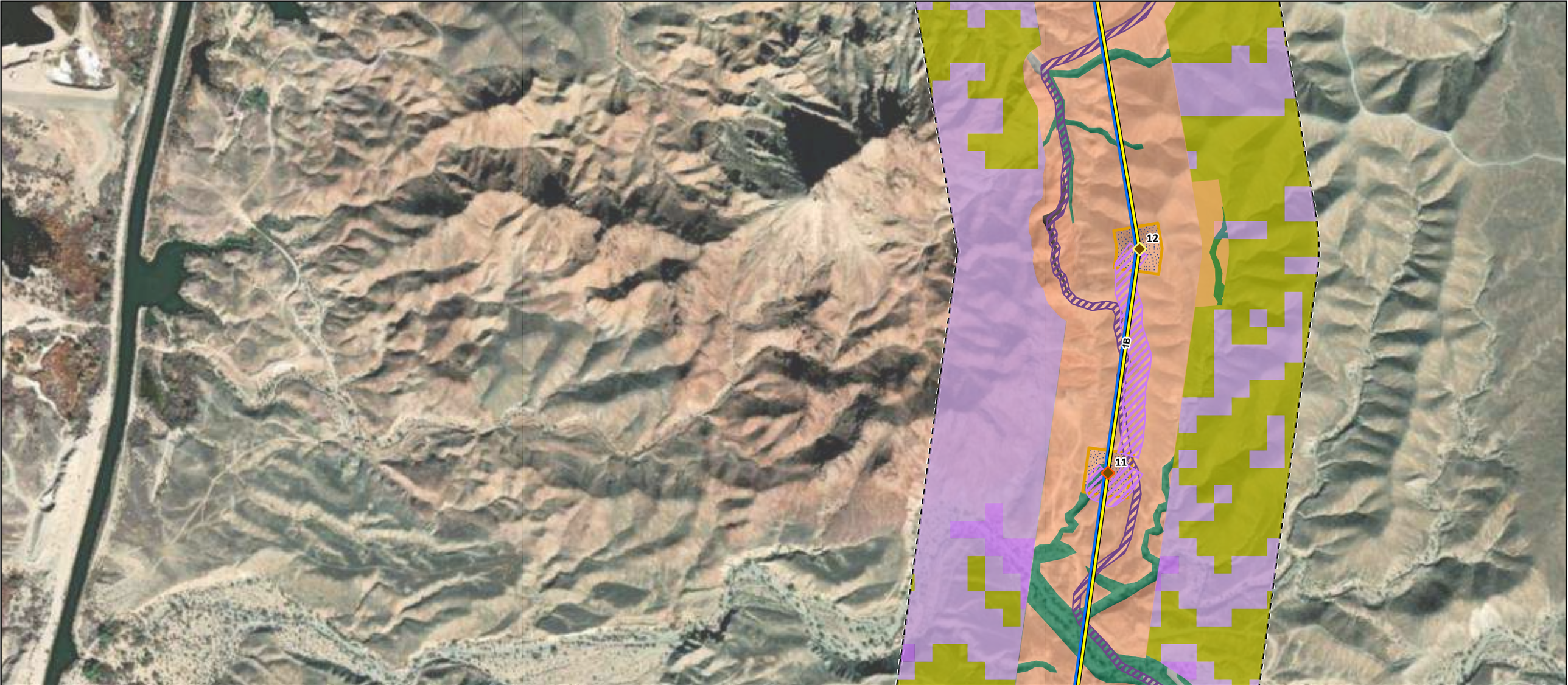
0 250 500

Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Dead-End (LTD) - Light

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Land Cover Types

Developed

Disturbed

LandFire Vegetation

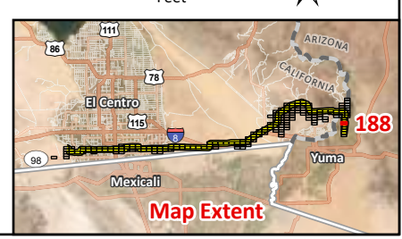
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24

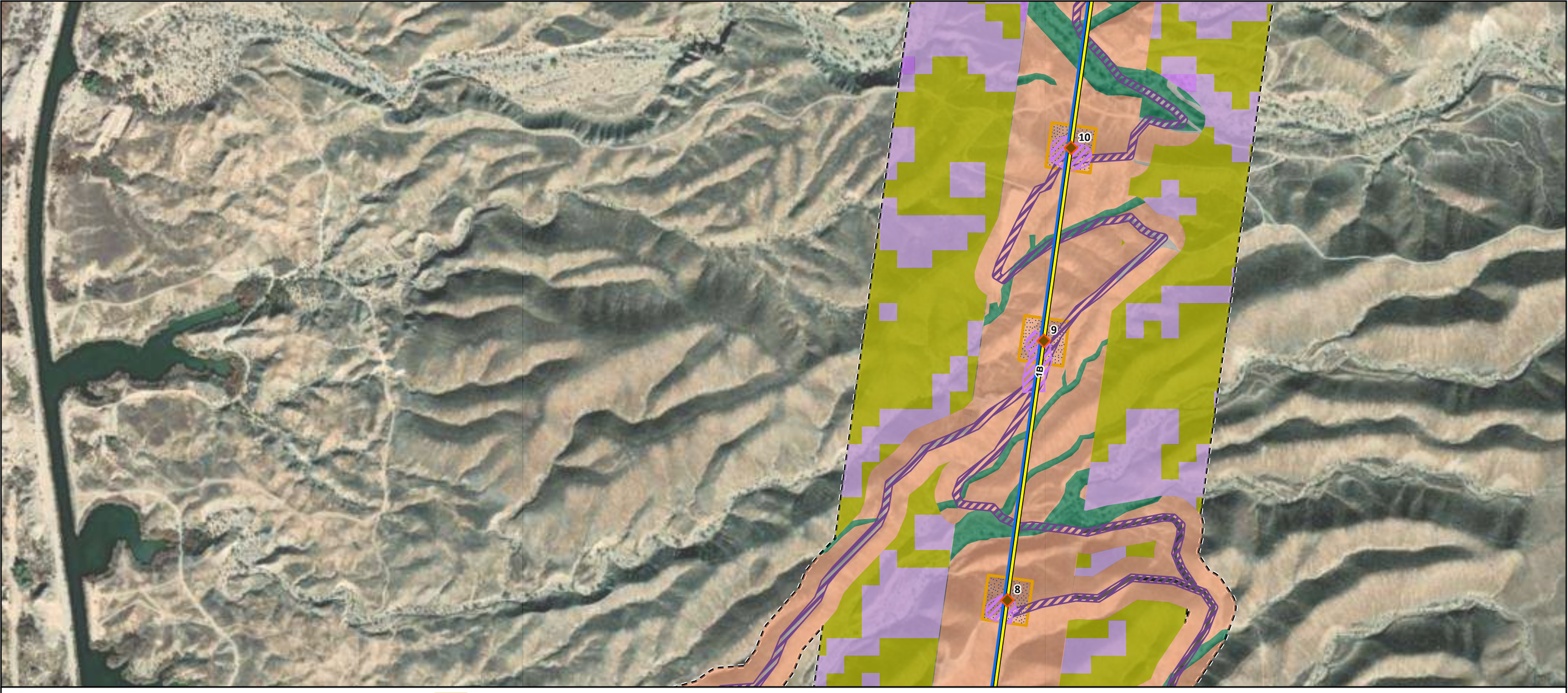
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0 250 500 Feet

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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement

Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Blue palo verde - ironwood woodland

Creosote bush - brittle bush scrub

Land Cover Types

Developed

Disturbed

LandFire Vegetation

10

24

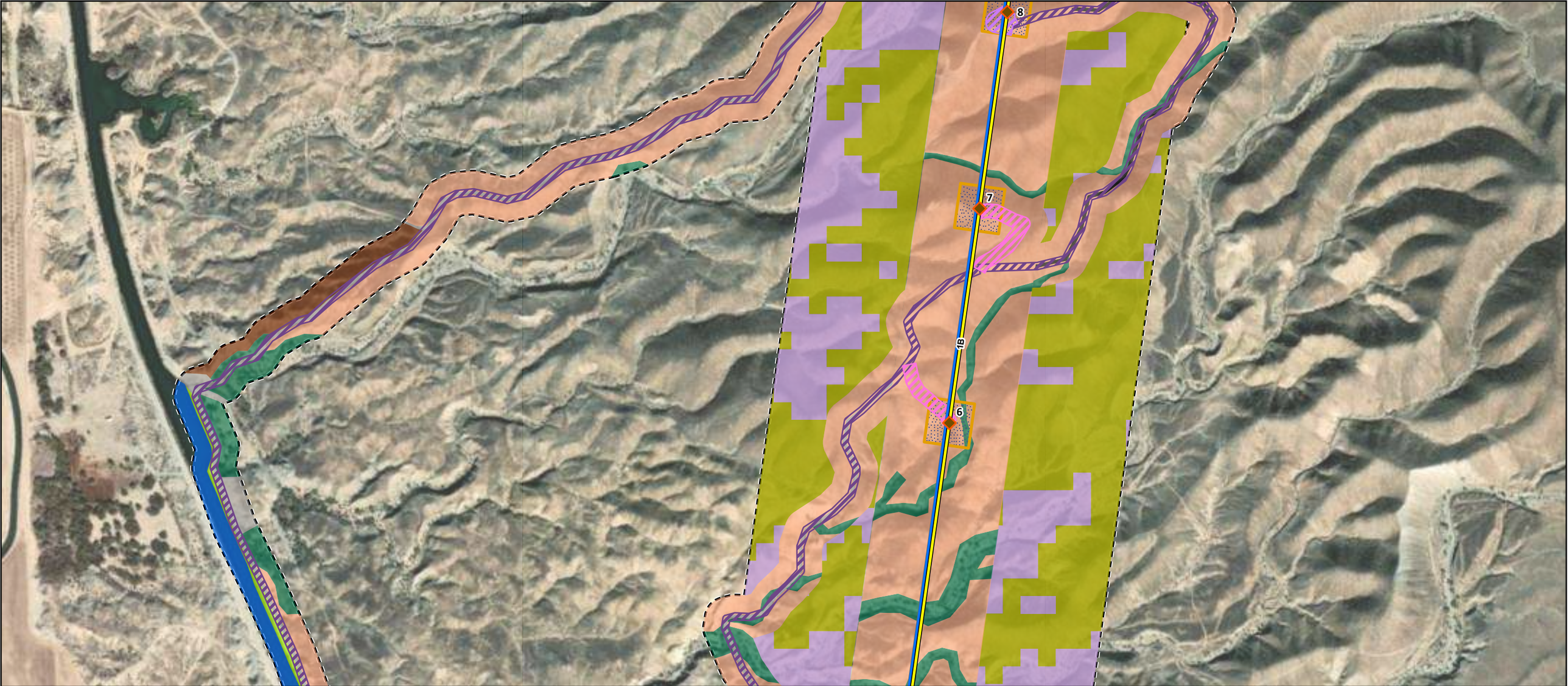
25

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Moderate
Type 3 New Road - Steep

Construction Work Pad

Vegetation Communities

Arrow weed thickets
Blue palo verde - ironwood woodland
Creosote bush - brittle bush scrub
Creosote bush scrub

Land Cover Types

Developed
Disturbed

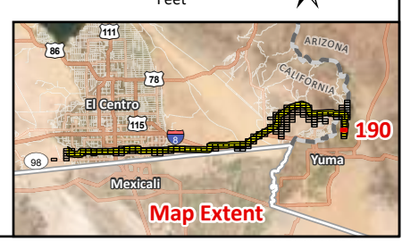
Open Water

LandFire Vegetation

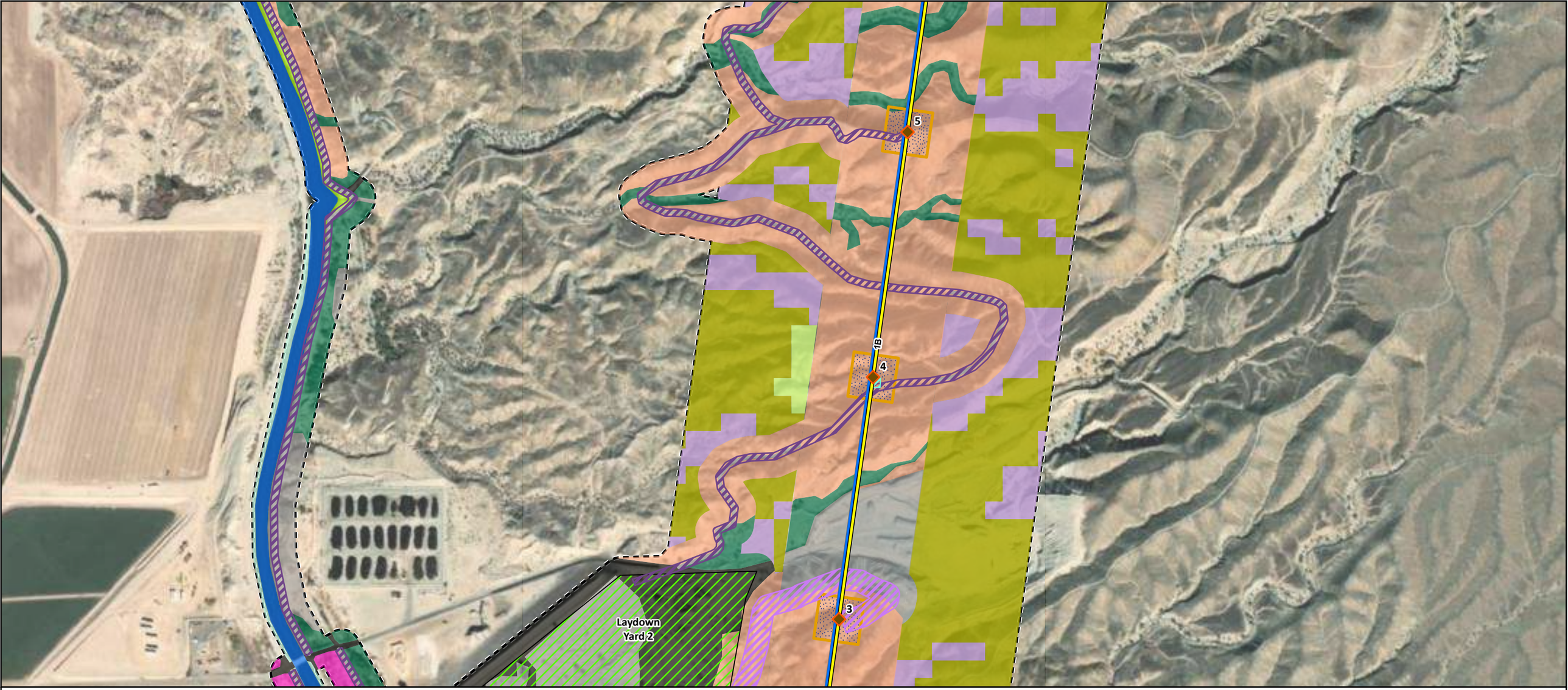
10
24

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Steep

Construction Work Pad
Laydown Yard

Vegetation Communities

Arrow weed thickets
Blue palo verde - ironwood woodland
Common reed marshes
Creosote bush - brittle bush scrub
Creosote bush scrub
Tamarisk thickets

Land Cover Types

Developed
Disturbed
Open Water

LandFire Vegetation

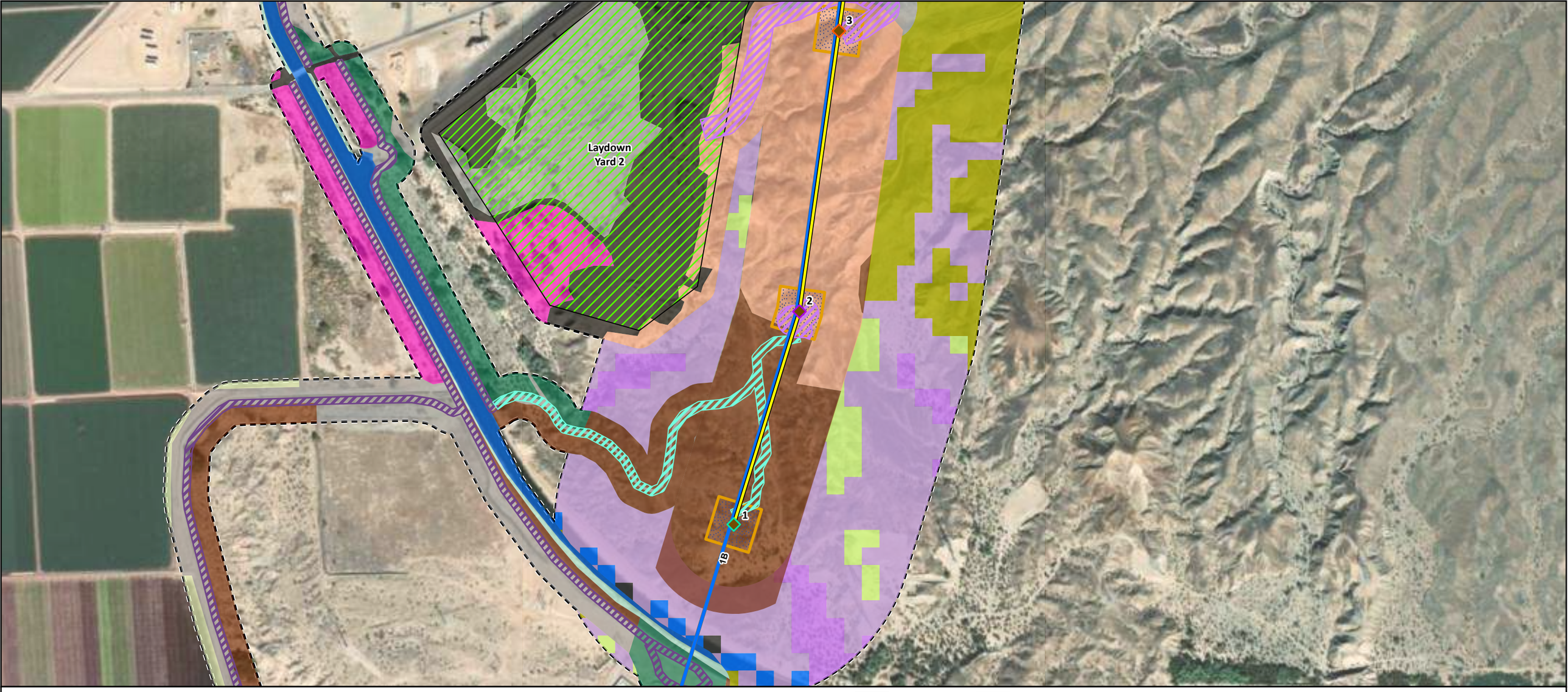
10
12
24

0 250 500
Feet

N



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Biological Study Area
Proposed Project

Alternative Route Segments*

Segment I

1B

Project Structure

Transmission Structures

Lattice Tower Angle (LTA)
Lattice Tower Dead-End (LTD) - Heavy
Lattice Tower Tangent (LTT)

Access Roads

Type 2 Existing Road - Needs Improvement
Type 3 New Road - Flat
Type 3 New Road - Steep
Construction Work Pad
Laydown Yard

Vegetation Communities

Blue palo verde - ironwood woodland
Common reed marshes
Creosote bush - brittle bush scrub
Creosote bush scrub
Tamarisk thickets

Land Cover Types

Agriculture
Developed
Disturbed
Open Water

LandFire Vegetation

2
10
12
22
24
25

0 250 500
Feet

N



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Existing Substation

Biological Study Area

Alternative Route Segments*

Segment I

1B

Access Roads

Type 1 - Existing Access Road - No Improvement

Type 2 Existing Road - Needs Improvement

Vegetation Communities

Blue palo verde - ironwood woodland

Common reed marshes

Creosote bush scrub

Land Cover Types

Agriculture

Developed

Disturbed

Open Water

LandFire Vegetation

2

10

12

22

24

25

0 250 500

Feet

N



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