APPENDIX D. WATERWAY DELINEATION AND ASSESSMENT REPORT

TDS Telecom
Winterhaven Last Mile Underserved Broadband Project
Imperial County, California

Waterway Delineation and Assessment Report

Prepared by:
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Prepared for:
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525 Junction Road
Madison, Wisconsin, 53717

Submitted by:
Tierra Right of Way Services, Ltd.
1575 East River Road, Suite 201
Tucson, Arizona 85718

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1.0 INTRODUCTION

This report provides regulatory information, methods, and results for a delineation of waterways potentially affected by the proposed construction of the Winterhaven Last Mile Underserved Broadband Project. The purpose of the delineation is to assess the limits of potential waters of the United States (WUS) and/or waters of the State of California (WS) within and adjacent to the project area that may be subject to regulation by the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and/or the California Department of Fish and Wildlife (CDFW).

2.0 PROJECT LOCATION

The project area is located in southeastern Imperial County, California, just north of Yuma, Arizona, and the Colorado River. Baseline Road, which runs north-south, marks the boundary between the Fort Yuma–Quechan Reservation (the Reservation) and private land; the Reservation is west of Baseline Road and private land is to the east. The southern edge of the project area is roughly bounded by the Union Pacific Railroad (UPRR) tracks, the community of Winterhaven, and the Paradise Casino on Picacho Road. The Cocopah Canal runs along the eastern boundary of the project area, and the community of Bard is located at the northeastern limits of the project area. Stalnacker and Ross Roads, along with the community of Ross Corner, make up the approximate northern limits of the project area, and the western edge of the project area is near Arnold Road, where the road approaches the UPRR. Specifically, the project area is located in portions of Section 2, Township 15 South, Range 24 East; Sections 11, 14, and 21–27, Township 16 South, Range 22 East; and Sections 4, 5, 7–9, 18, and 19, Township 16 South, Range 23 East, San Bernardino Baseline and Meridian (SBB&M), as depicted on the Araz, Bard, Yuma East, and Yuma West, AZ/CA, 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle maps (Figures 1 and 2).

3.0 PROJECT DESCRIPTION

The proposed project involves the construction of a second-generation, very-high-bit-rate, digital subscriber line (VDSL2) fiber-optic network capable of 25 Mbps/5 Mbps (download/upload) speeds. In total, approximately 24.65 km (15.31 miles) of new fiber-optic cable will be buried within protective conduit along existing roads in the project area. Approximately 2.25 km (1.40 miles) of existing buried copper line will be used to connect a proposed DLC site on Arnold Road to the new system. A summary of the associated lengths to be installed on and off the Fort Yuma–Quechan Reservation can be found in Table 1. The buried line installation, which consists of the telecommunications cable and its protective conduit, will be performed using plowing construction techniques, and a directional boring machine will be used to install the line at canal and road crossings. Ancillary equipment to be installed includes 10 new equipment cabinets that will serve as connecting "nodes" for customers, splice boxes, and line markers. The equipment cabinets will be approximately 0.6 m by 1.0 m by 1.2 m (2.0 feet by 3.0 feet by 4.0 feet) in size and will be installed on top of buried concrete vaults within an approximately 6-m-square (20-foot-square) area. Splice boxes are small rectangular metal enclosures that will be installed between lengths of cable. Line markers, which will be installed at intervals of approximately 305 m (1,000 feet), are approximately 1.2 m (4.0 feet) tall and made of flexible fiberglass.

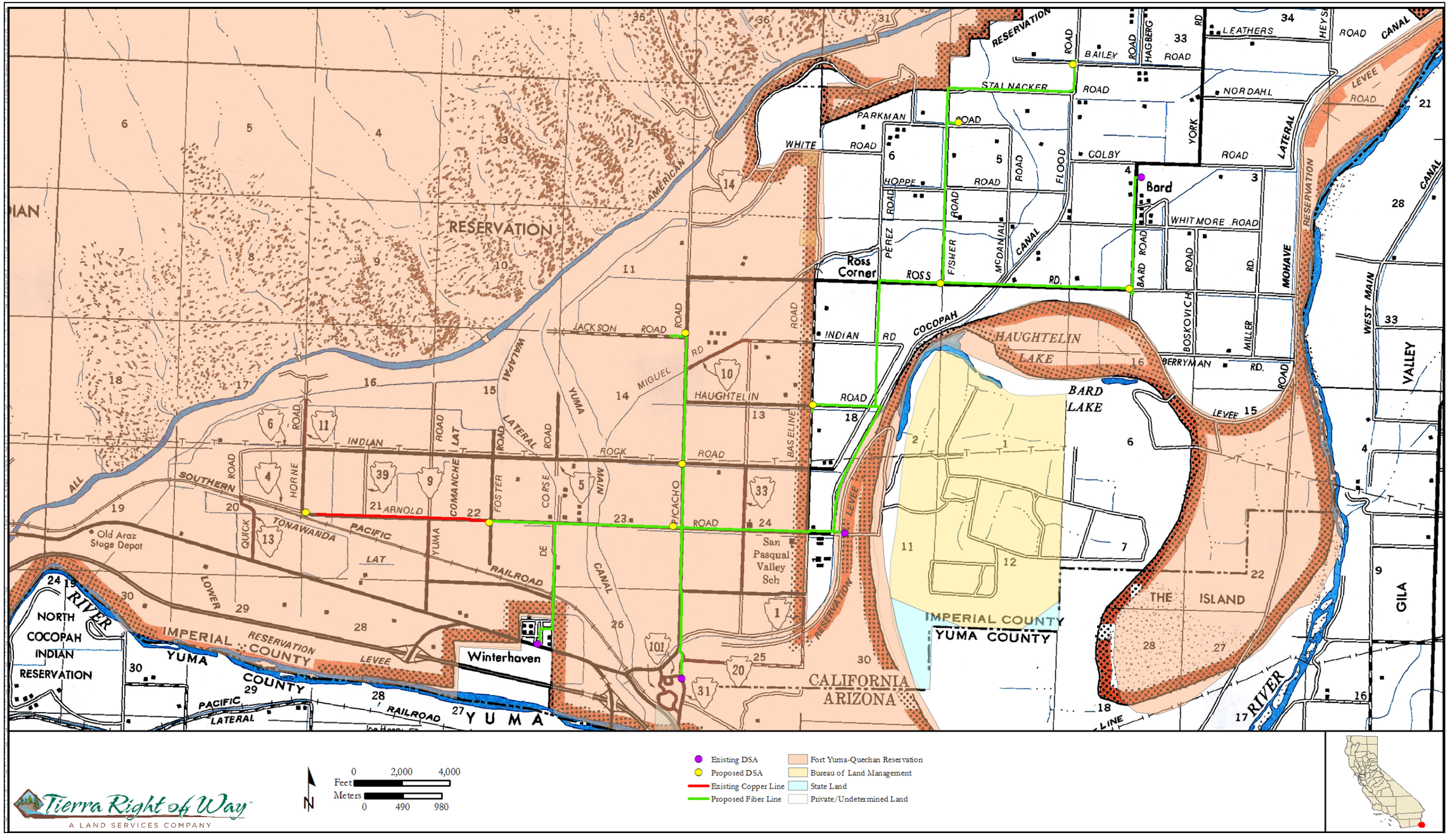

Figure 1. Project location.

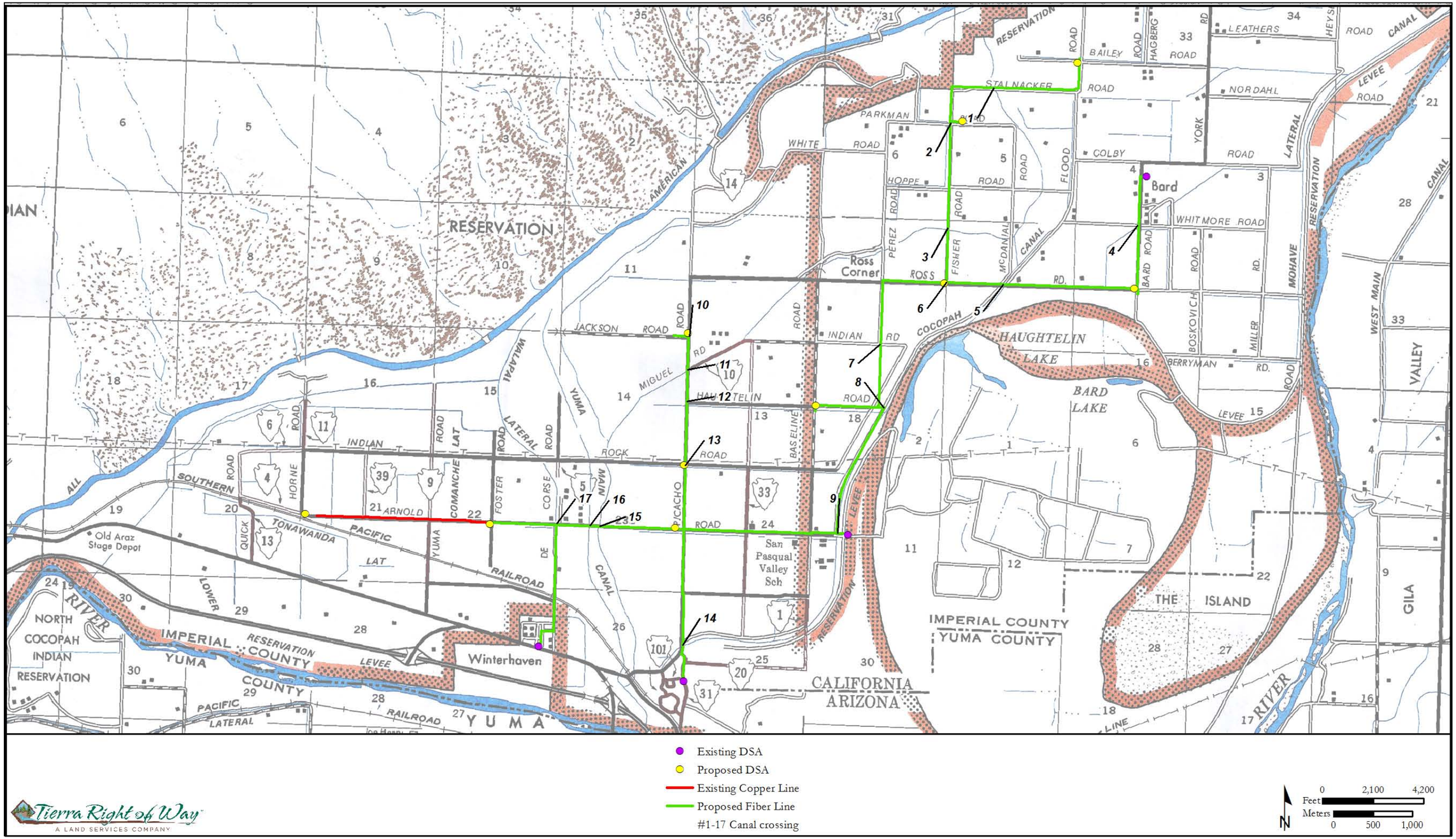

Figure 2. Project area.

Table 1. Cable Installation Lengths

Installation	Length (m)	Length (km)	Length (feet)	Length (miles)
On-Reservation	10,139	10.14	33,264	6.30
Off-Reservation	14,507	14.51	47,595	9.01
Total	**24,646**	**24.65**	**80,859**	**15.31**

The line installation will be performed in two steps. First, a protective conduit for the fiber-optic cable will be installed by either plowing or directional boring construction methods. Second, the fiber-optic cable will be "blown" through the conduit using compressed air. The total combined ground disturbance associated with the project, including both the plowed and bored installations, would not exceed an area approximately 5.1 ha (12.5 acres) in size.

4.0 PHYSICAL SETTING

The project area is located in southeastern California on the Colorado River in an area primarily used for agricultural cultivation. Several irrigation canals operated by the Bureau of Reclamation's (BOR's) Imperial Irrigation District (IID) and Bard Water District (BWD) either cross or run parallel to the project corridors. Elevations in the project area range from approximately 38–43 m (126–140 feet) above mean sea level (AMSL).

The Western Regional Climate Center (WRCC) recorded seasonal climatic data from 1993–2013 at the Yuma Quartermaster Depot, located just south of the project area (WRCC 2013). These data include average maximum temperature, average minimum temperature, average total precipitation, and average snowfall. The average annual maximum temperature within the project area is 90.1° F (32.2° C), with the hottest month of the year being July with an average maximum temperature of 109.4° F (43.0° C). The average annual minimum temperature within the project area is 59.0° F (15.0° C), with December having the coldest average temperature of 43.4° F (6.3° C). The project area receives an average of 6.8 cm (2.67 inches) of precipitation annually, with February having the highest average precipitation at 1.2 cm (0.48 inches). The project area receives no snowfall in the average year.

While the project area is located within the Colorado Desert, as classified in *A Manual of California Vegetation* (Sawyer 2009), the dominant type of terrestrial habitat present in the project area consists of agricultural land that is being actively cultivated to produce Sudangrass (Sorghum × *drummondii*), wheat (*Triticum* sp.), cotton (*Gossypium* sp.), alfalfa, dates *(Phoenix dactylifera)*, citrus, and other crops. The road shoulders where the proposed telecommunications line is to be installed are mostly devoid of vegetation due to blading activities associated with road maintenance and agricultural activities. Due to this previous disturbance, little to no native vegetation remains in the project area.

5.0 JURISDICTIONS

5.1 U.S. Army Corps of Engineers

Wetlands and other WUS that are subject to Section 404 of the Clean Water Act are under the jurisdiction of the USACE. Typically, these waters include naturally occurring traditional navigable waters (TNWs), relatively permanent waters (RPWs), and/or ephemeral waters with a significant nexus to a TNW. Agricultural water conveyance systems, which are manmade and constructed wholly in uplands, are typically only considered jurisdictional if they are RPWs. The most recent

guidance on the topic states that "relatively permanent waters typically flow year-round or have continuous flow at least seasonally (e.g. typically three months)" (USACE 2008). Conversely, manmade drainages constructed solely in uplands that are not RPWs are generally not Federally jurisdictional.

5.2 California Department of Fish and Wildlife

The CDFW generally assumes jurisdiction over all stream features, including drains and canals, as WS. The CDFW's jurisdiction extends from the top of bank to the opposite top of bank on these features or to the limits of riparian vegetation if this vegetation extends beyond the top of the banks. Wetlands need to meet only one of the three USACE criteria (hydrophytic vegetation, hydric soils, and/or wetland hydrology) to be considered CDFW jurisdictional wetlands.

Under Section 1600 of the California Fish and Game Code, CDFW's jurisdiction includes "…bed, channel or bank of any river, stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit…" Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (Cylinder 1995).

6.0 METHODOLOGY

The delineation of waterways in the TDS project area began with a review of aerial imagery and topographic maps to determine the locations of waterways along the project corridors that the proposed installations would intersect. Each of the crossings was then digitized as a polygon that included the project corridor centerline and a 15.2-m (50.0-foot) buffer to either side of the centerline along with the extent of any vegetation surrounding the waterway that was evident in the aerial imagery. The crossing polygons were then uploaded as a background file into a Trimble Global Positioning System (GPS) handheld unit. The Trimble was used in the field to navigate to each crossing and the crossings' characteristics, such as canal construction type, presence/absence of water, and vegetation types and extent, were noted and photographs taken. While in the field, all canals intersecting the project corridors, including those not identified prior to the field visit, were recorded. Following the field visit, the pre-field crossing polygons were refined using notes taken in the field to develop the final extents of all waterways and any vegetation associated with the waterways to be crossed and ultimately avoided during the proposed telecommunications line installation.

7.0 RESULTS

Eleven irrigation canals and/or drains were identified in the project area that would be crossed by the proposed installations at 17 locations (Table 2). No USACE wetlands were identified within the project corridors during the field visit; however, WS riverine wetlands may be present along the unlined canals in the project area. The margins of unlined canals in the project area, especially the Reservation Main Drain, contain limited vegetation consisting mostly of Common Reed *(Phragmites australis)* and invasive species such as Salt Cedar *(Tamarix ramosissima)* that may provide habitat for wildlife. This vegetation is only marginally riparian because it is mostly low-growing, not structurally complex, and does not have a tree overstory.

Table 2. Observed Plant Species Wetland Indicator Status

Scientific Name	Common Name	Indicator Status[a]
Phragmites australis	Common Reed	FACW
Pluchea sericea	Arrow Weed	FACW
Salvinia molesta	Kariba Weed	OBL
Typha latifolia	Cattail	OBL

[a] 2012 National Wetland Plant List, USACE Arid West Region.
Key: FACW = facultative wetland, OBL = obligate.

Saturated soil, a primary indicator of wetland hydrology, was observed along the flowing and unlined canals in the project area. Hydrophytic vegetation, including facultative wetland (FACW) and obligate (OBL) plant species, was also observed along the unlined Reservation Main Drain and Tonowanda Canal (see Table 2).

The characteristics of each canal crossing identified in the project area, including the delineated extent to be avoided during construction and other descriptive information, can be found in Appendix A. A summary of the waterways that would be crossed by the proposed installations, including the names of the canals, their locations, and corresponding identification numbers as indicated on Figure 2, can be found in Table 3.

Table 3. Irrigation Canal Crossings in the Project Area

Map No.	Canal Name	Location
1	Reservation Main Drain	Stahlnacker Road
2	unnamed canal	Fisher and Parkman Roads
3	Reservation Main Drain	Fisher Road
4	Hopi Canal	Bard and Whitmore Roads
5	Cocopah Canal	Ross Road
6	unnamed canal	Fisher and Ross Roads
7	Papago Canal	Perez Road
8	Pima Canal	Haughtelin and Perez Roads
9	Cocopah Canal	Flood and Arnold Roads
10	Navajo Canal	Picacho and Jackson Roads
11	Reservation Main Drain	Picacho Road
12	Pima Canal	Picacho and Haughtelin Roads
13	Pueblo Canal	Picacho and Indian Rock Roads
14	Cocopah Canal	Picacho Road
15	Reservation Main Drain	Arnold Road
16	Yuma Main Canal	Arnold Road
17	Walapai Canal	Arnold Road

8.0 DISCUSSION

8.1 Waters of the U.S.

The drains and canals in the project area are part of an agricultural system and therefore, by definition (Environmental Laboratory 1987), are not classified as wetlands, though typical wetland/riparian plant species may be found within canals and drains. It was assumed that the canals and drains in the project area flow at least intermittently and in some cases, perennially. Examples of the latter would be the Yuma Main Canal and the Reservation Main Drain, two of the largest canals in the project area. Because of these assumed flow regimes, at least some of the canals and drains in the project area would be considered RPWs; likewise, they would be considered jurisdictional WUS by USACE (Table 4).

Table 4. Potentially Jurisdictional WUS

Type	Name (crossing #)	Notes
WUS (Wetlands)	none	agricultural system
WUS (Streams)	Cocopah Canal (5, 9, 14)	assumed RPW
	Papago Canal (7)	
	Reservation Main Drain (1, 3, 11, 15)	
	Hopi Canal (4)	
	Unnamed Canal (2)	
	Unnamed Canal (6)	
	Pima Canal (8)	
	Yuma Main Canal (16)	

8.2 Waters of the State

The flowing canals and drains in the project area all have varying capacities to provide habitat for terrestrial and/or aquatic species; therefore, they would be considered streams by the CDFW. Because only one of the three USACE wetland indicators needs to be present for CDFW to consider an area a wetland, several of the unlined canals crossed by the project corridors would also be considered State-jurisdictional wetlands (Table 4).

Table 4. Potentially Jurisdictional WS

Type	Name (crossing #)	Notes
WS (Streams)	all	–
WS (Wetlands)	Cocopah Canal (14)	wetland hydrology (saturation) present
	Papago Canal (7)	
	Reservation Main Drain (1, 3, 11, 15)	wetland hydrology (saturation) and vegetation present
	Hopi Canal (4)	wetland hydrology (saturation) present
	unnamed canal (2)	
	Yuma Main Canal (16)	

Type	Name (crossing #)	Notes
Habitat for wildlife and/or aquatic species	all except Pima (12), Pueblo (13), Navajo (10), and Walapai (17) Canals	–

9.0 CONCLUSIONS

No dredge-and-fill operations will occur within the canals in the project area and no subsequent loss of WUS will take place because all canals will be bored beneath during the proposed installations; therefore, a Clean Water Act Section 404 permit from USACE will not be required prior to project implementation. Likewise, no impacts to WS will occur and a stream alteration permit from CDFW is unnecessary because the canals and any potential wildlife habitat, either in the canals themselves or along the canal margins, will be avoided.

APPENDIX A. WATERWAY CROSSINGS IDENTIFIED IN THE PROJECT AREA

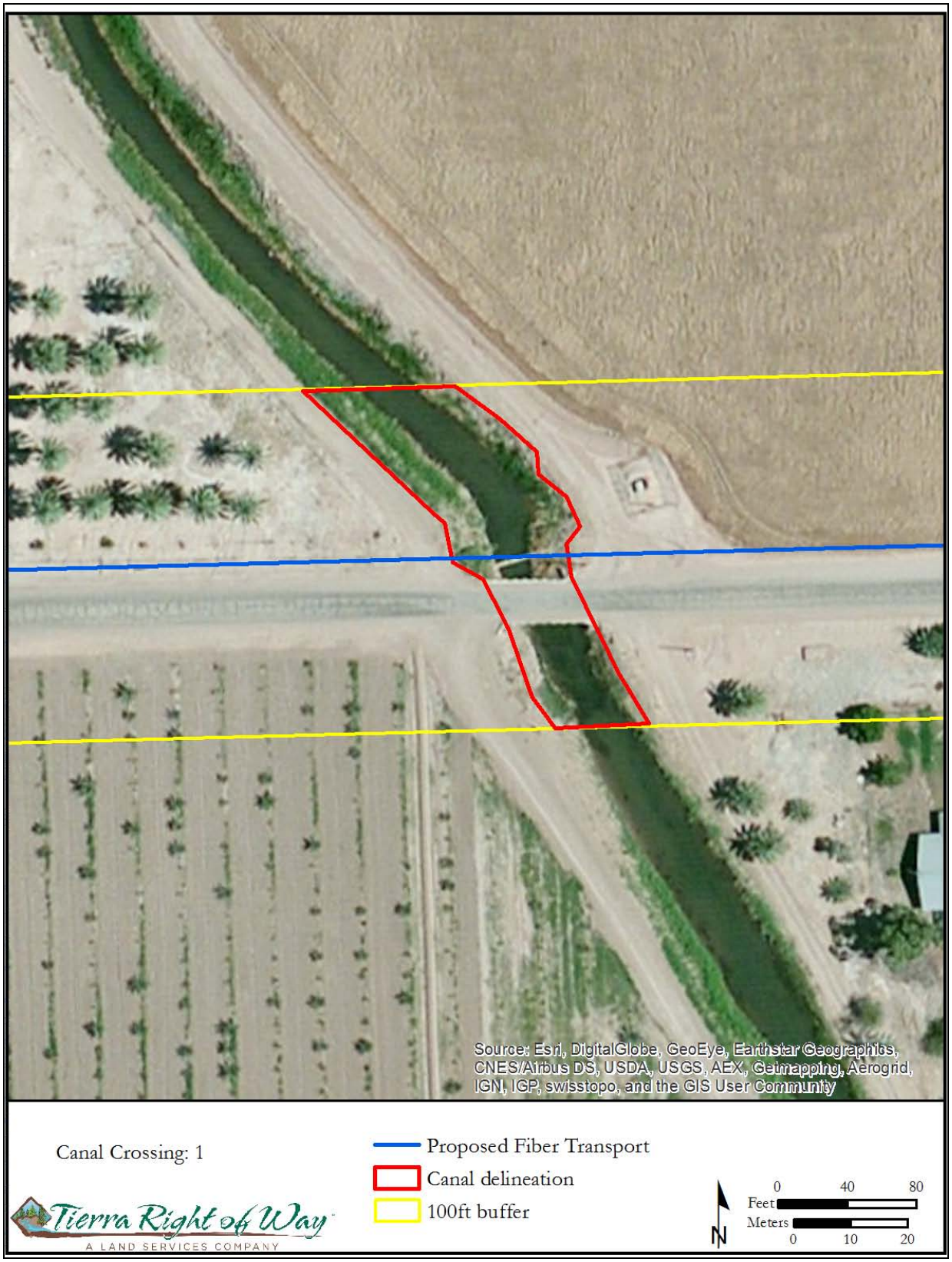

Figure A.1. Canal Crossing 1.

Photo A.1. Crossing 1, view to north.

Table A.1. Crossing 1

Canal Name	Reservation Main Drain
Construction	Earthen
Location Description	Stalnacker Road
Coordinates (NAD 83)	32° 48' 14.825" N, 114° 34' 34.415" W
Vegetation	Dense, low-growing marginal riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.1283 ha (0.3171 acres)
Approximate Directional Bore Length	61 m (200 feet)

Figure A.2. Canal Crossing 2.

Photo A.2. Crossing 2, view to east.

Table A.2. Crossing 2

Canal Name	Unnamed
Construction	Earthen
Location Description	Fisher and Parkman Roads
Coordinates (NAD 83)	32° 47' 59.896" N, 114° 34' 55.217" W
Vegetation	Minimal, non-riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.0169 ha (0.0418 acres)
Approximate Directional Bore Length	46 m (150 feet)

Figure A.3. Canal Crossing 3.

Photo A.3. Crossing 3, view to west.

Table A.3. Crossing 3

Canal Name	Reservation Main Drain
Construction	Earthen
Location Description	Fisher Road
Coordinates (NAD 83)	32° 47' 16.959" N, 114° 34' 54.695" W
Vegetation	Dense, low-growing marginal riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.1176 ha (0.2907 acres)
Approximate Directional Bore Length	61 m (200 feet)

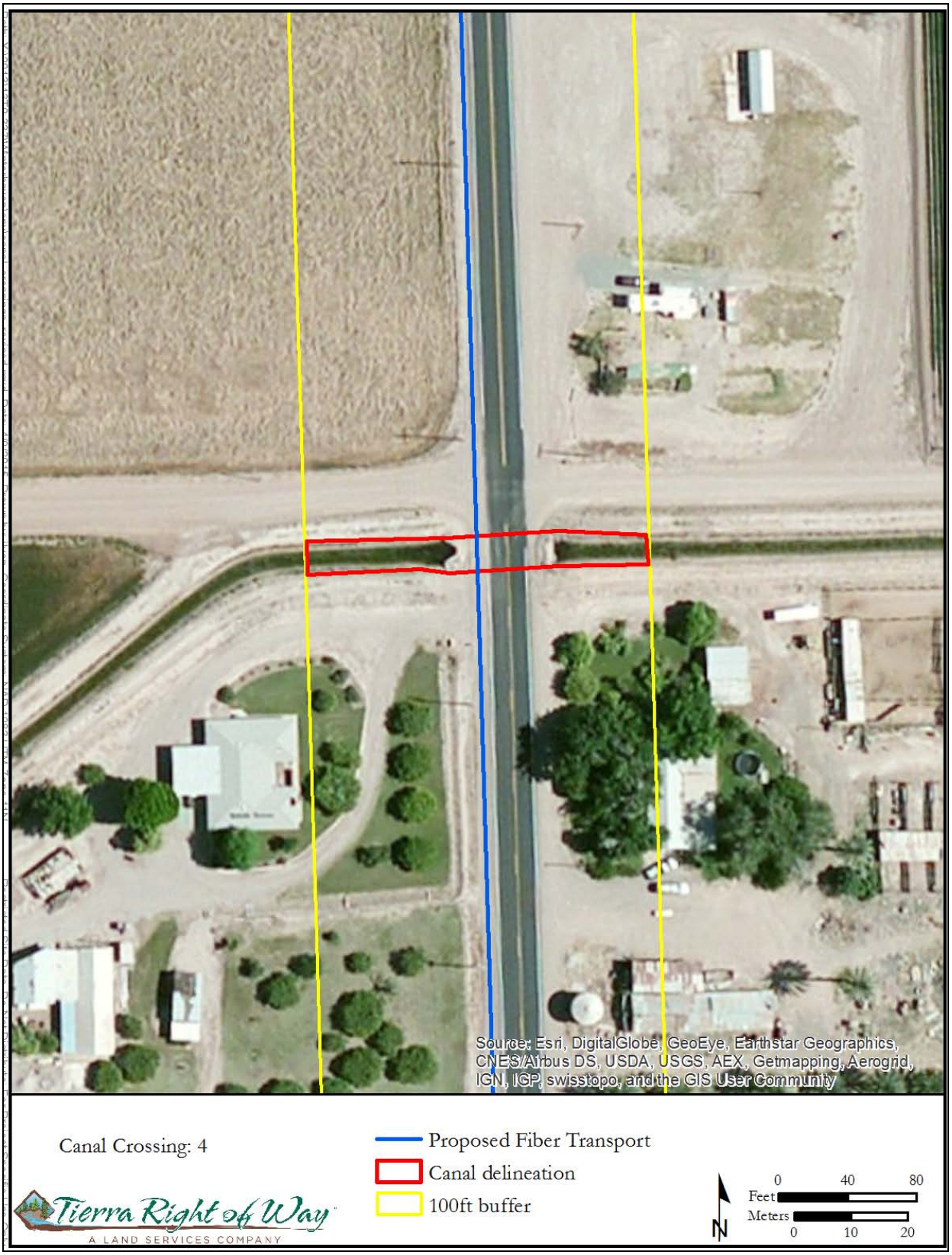

Figure A.4. Canal Crossing 4.

Photo A.4. Crossing 4, view to west.

Table A.4. Crossing 4

Canal Name	Hopi Canal
Construction	Earthen
Location Description	Bard and Whitmore Roads
Coordinates (NAD 83)	32° 47' 20.690" N, 114° 33' 22.047" W
Vegetation	Sparse, non-riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.0356 ha (0.0879 acres)
Approximate Directional Bore Length	52 m (170 feet)

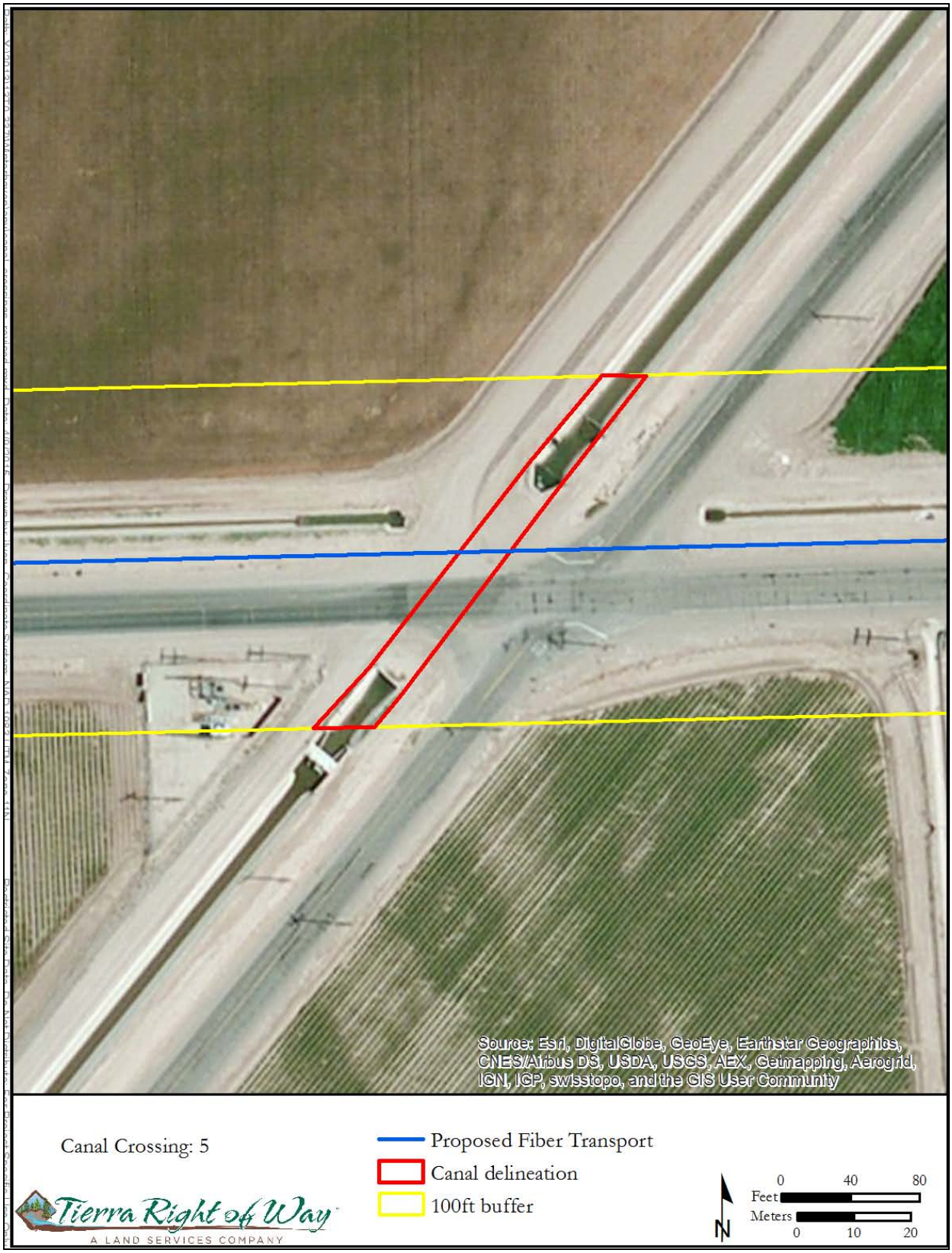

Figure A.5. Canal Crossing 5.

Photo A.5. Crossing 5, view to south.

Table A.5. Crossing 5

Canal Name	Cocopah Canal
Construction	Concrete lined
Location Description	Ross Road
Coordinates (NAD 83)	32° 46' 54.538" N, 114° 34' 26.542" W
Vegetation	Minimal, non-riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.0550 ha (0.1360 acres)
Approximate Directional Bore Length	146 m (480 feet)

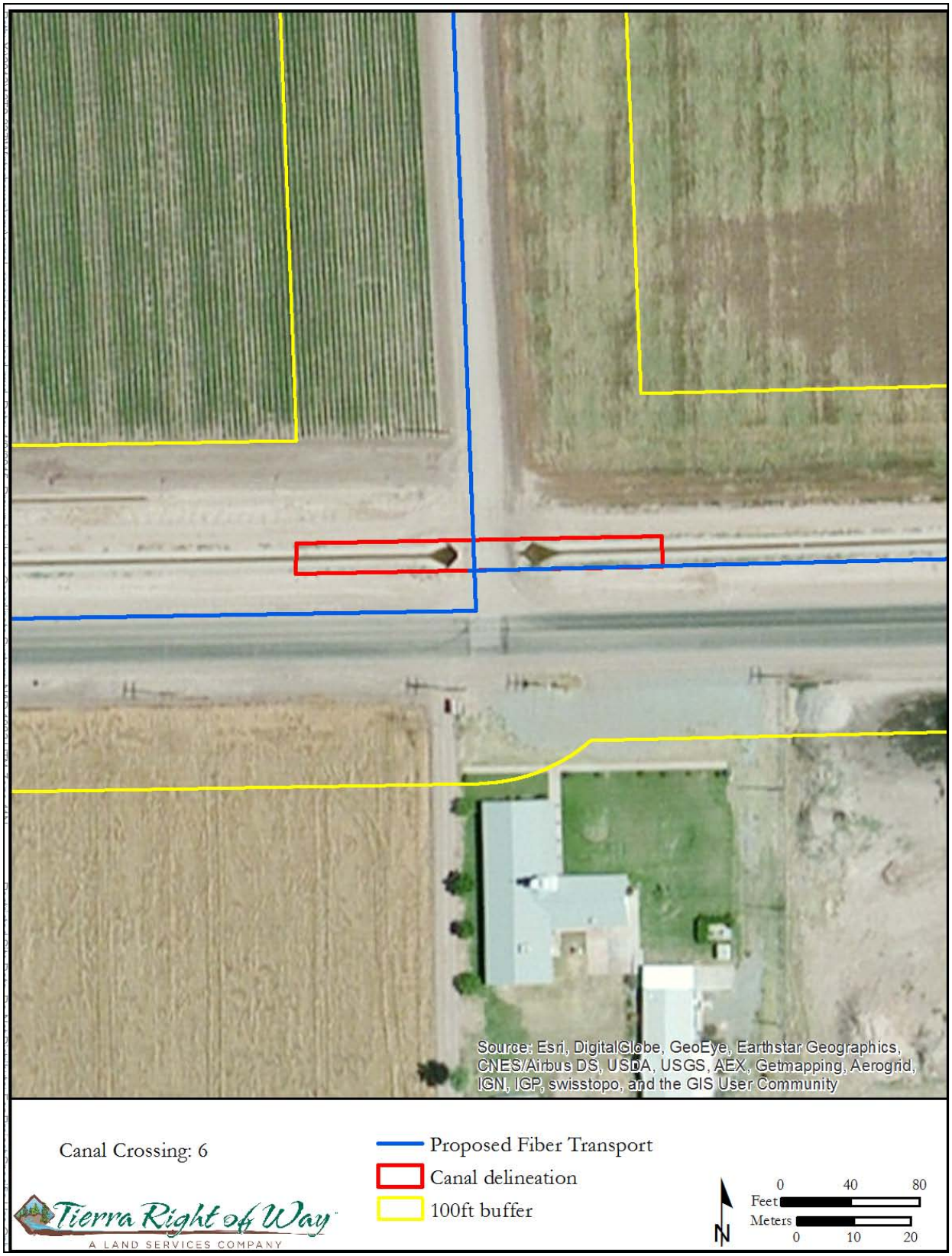

Figure A.6. Canal Crossing 6.

Photo A.6. Crossing 6, view to west.

Table A.6. Crossing 6

Canal Name	Unnamed
Construction	Concrete lined
Location Description	Fisher and Ross Roads
Coordinates (NAD 83)	32° 46' 54.589" N, 114° 34' 54.387" W
Vegetation	Sparse, non-riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.0343 ha (0.0848 acres)
Approximate Directional Bore Length	49 m (160 feet)

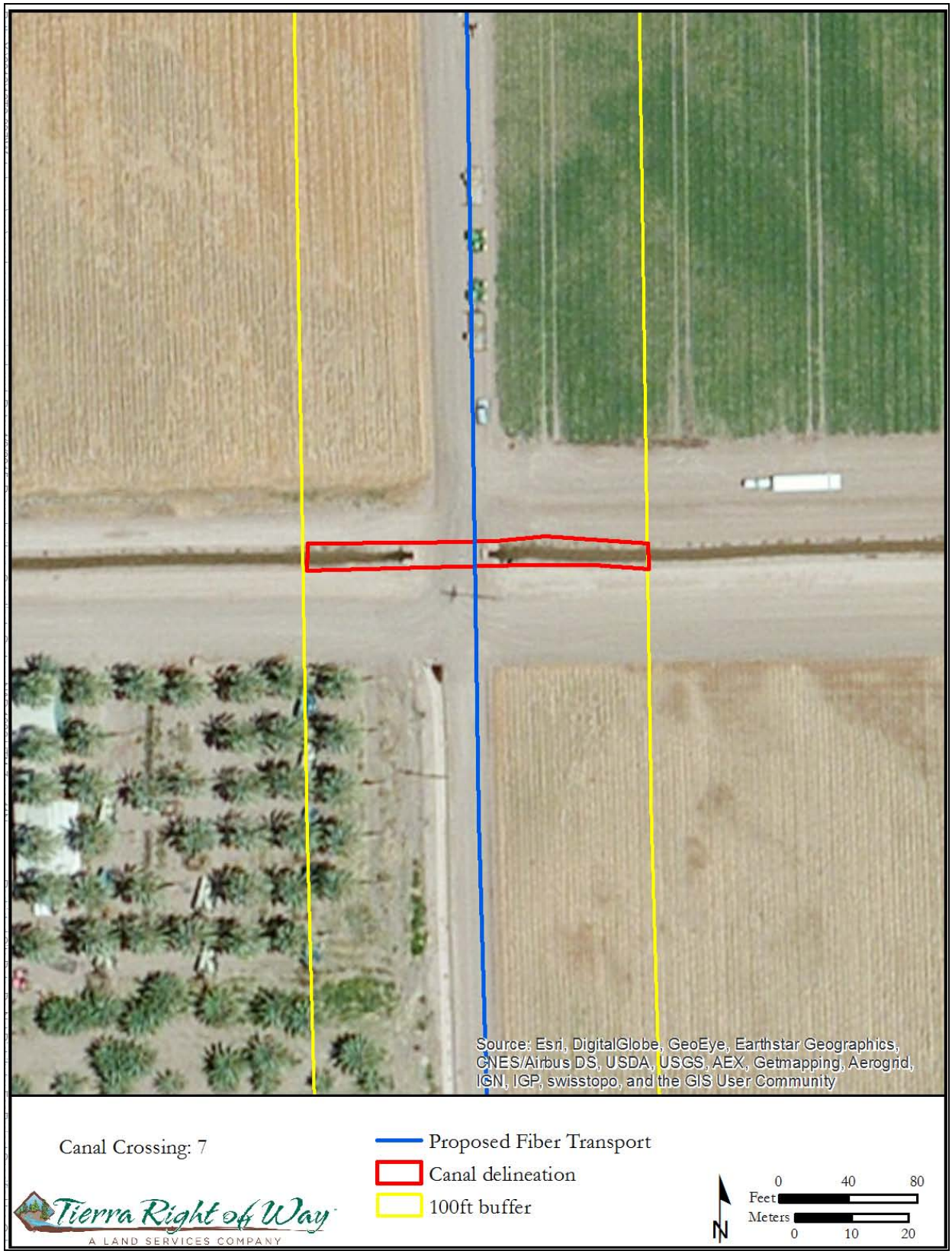

Figure A.7. Canal Crossing 7.

Photo 7: Crossing 7, view to west.

Table A.7. Crossing 7

Canal Name	Papago Canal
Construction	Earthen
Location Description	Perez Road
Coordinates (NAD 83)	32° 46' 28.371" N, 114° 35' 25.516" W
Vegetation	Minimal, non-riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.0277 ha (0.0684 acres)
Approximate Directional Bore Length	40 m (130 feet)

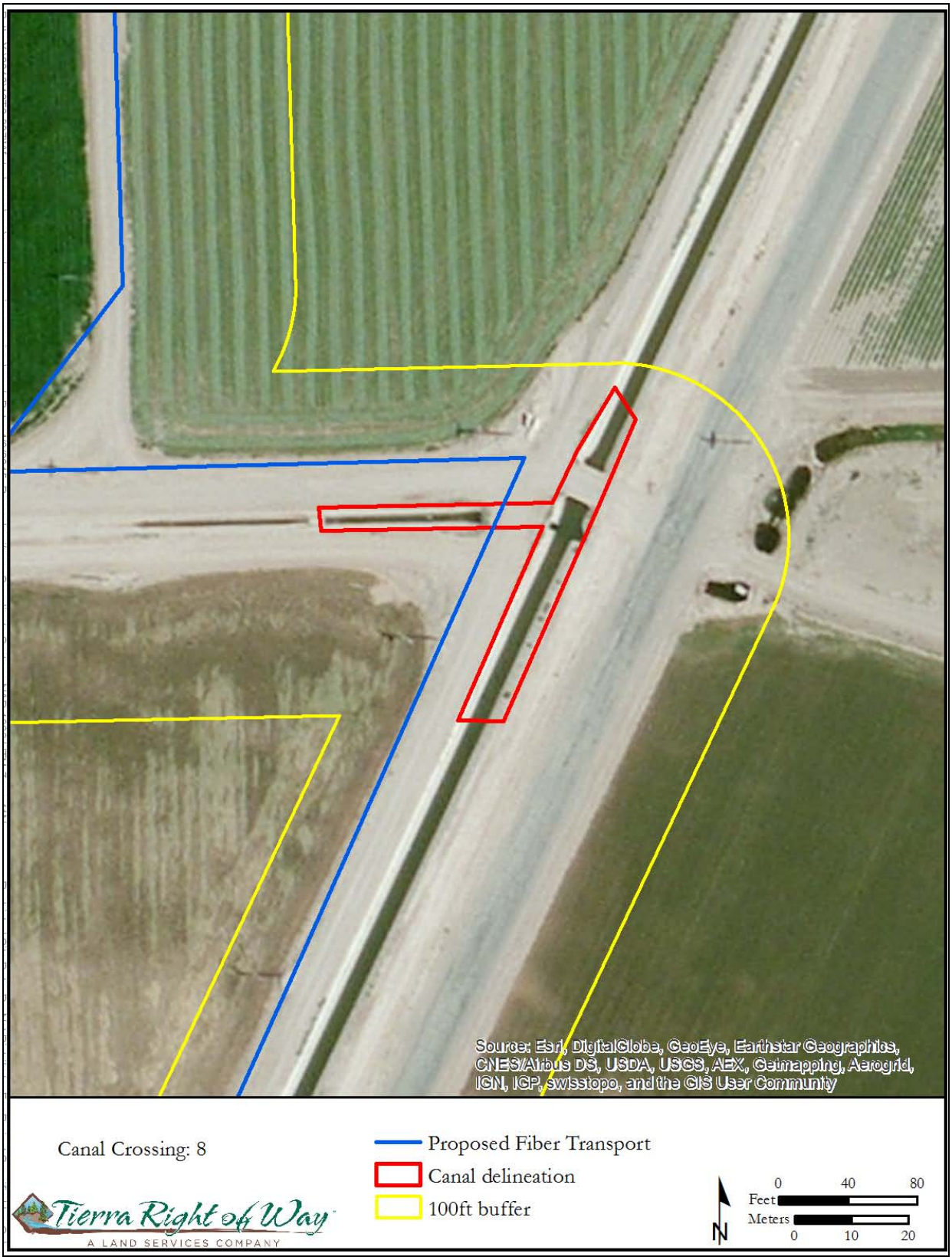

Figure A.8. Canal Crossing 8.

Photo A.8. Crossing 8, view to west.

Table A.8. Crossing 8

Canal Name	Pima Canal
Construction	Concrete lined
Location Description	Haughtelin and Perez Roads
Coordinates (NAD 83)	32° 46' 2.012" N, 114° 35' 26.459" W
Vegetation	Sparse, non-riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.0259 ha (0.0640 acres)
Approximate Directional Bore Length	24 m (80 feet)

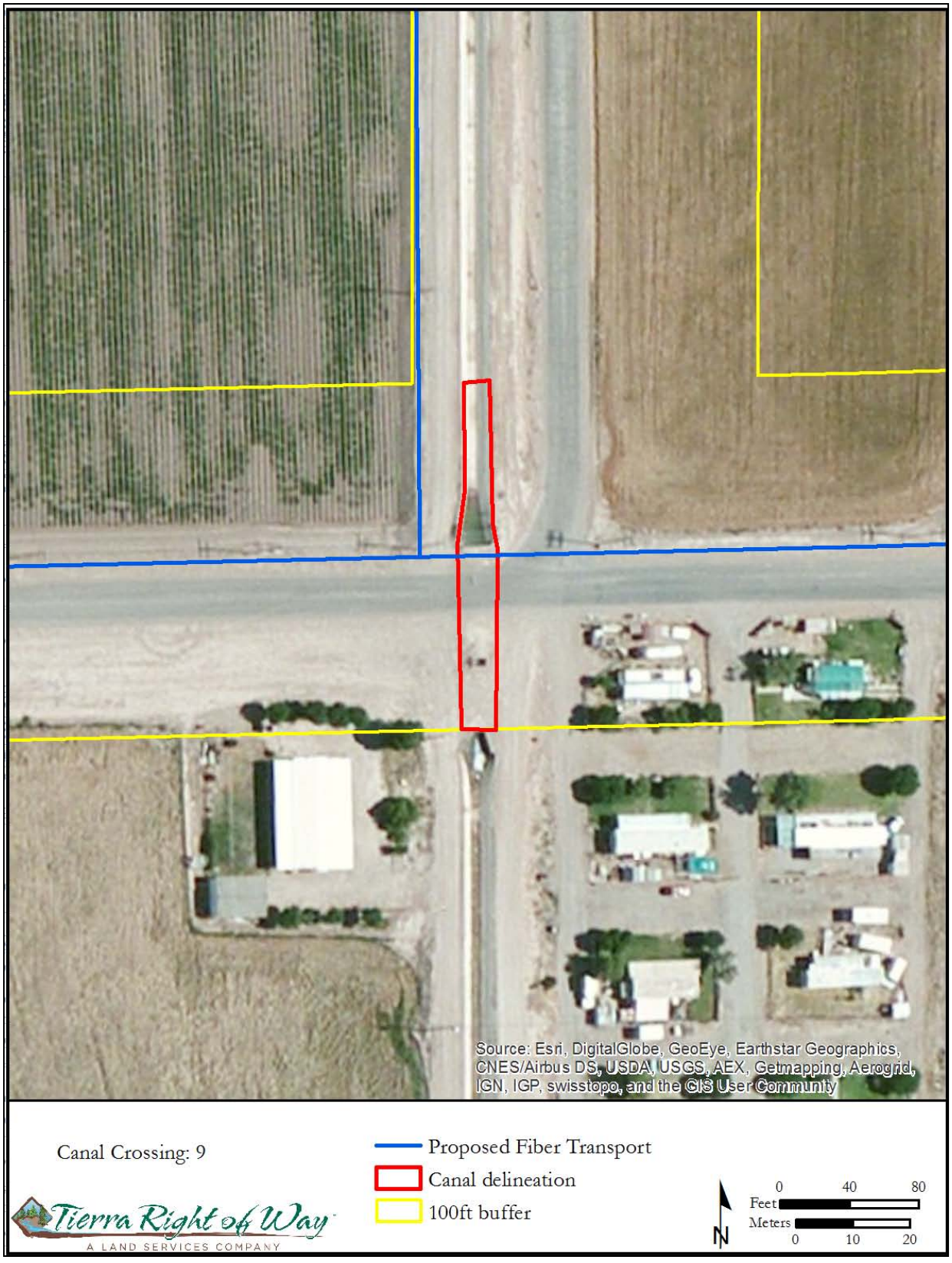

Figure A.9. Canal Crossing 9.

Photo A.9. Crossing 9, view to north.

Table A.9. Crossing 9

Canal Name	Cocopah Canal
Construction	Concrete lined
Location Description	Flood and Arnold Roads
Coordinates (NAD 83)	32° 45' 10.348" N, 114° 35' 43.169" W
Vegetation	Sparse, non-riparian
Potentially Jurisdictional Extent	Top of bank
Delineated Area	0.0360 ha (0.0890 acres)
Approximate Directional Bore Length	49 m (160 feet)

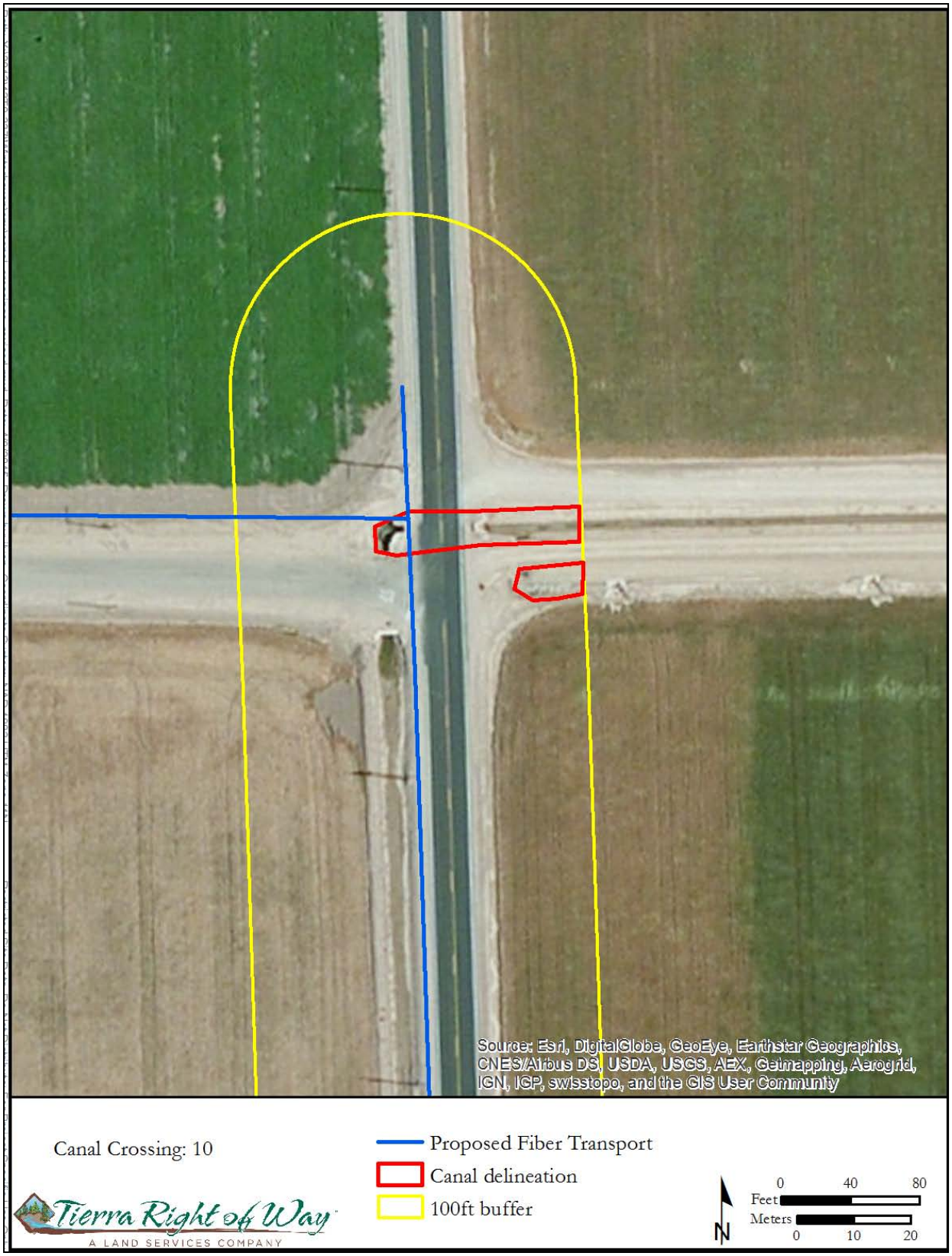

Figure A.10. Canal Crossing 10.

Photo A.10. Crossing 10 northern canal, view to east.

Photo A.11. Crossing 10 southern canal, view to east.

Table A.10. Crossing 10.

Canal Name	Navajo Canal (N)/Unnamed (S)
Construction	Earthen
Location Description	Picacho and Jackson Roads
Coordinates (NAD 83)	32° 46' 28.491" N, 114° 36' 58.913" W
Vegetation	Sparse, non-riparian (N)/none (S)
Potentially Jurisdictional Extent	Top of bank
Delineated Area	0.0292 ha (0.0721 acres)
Approximate Directional Bore Length	58 m (190 feet)

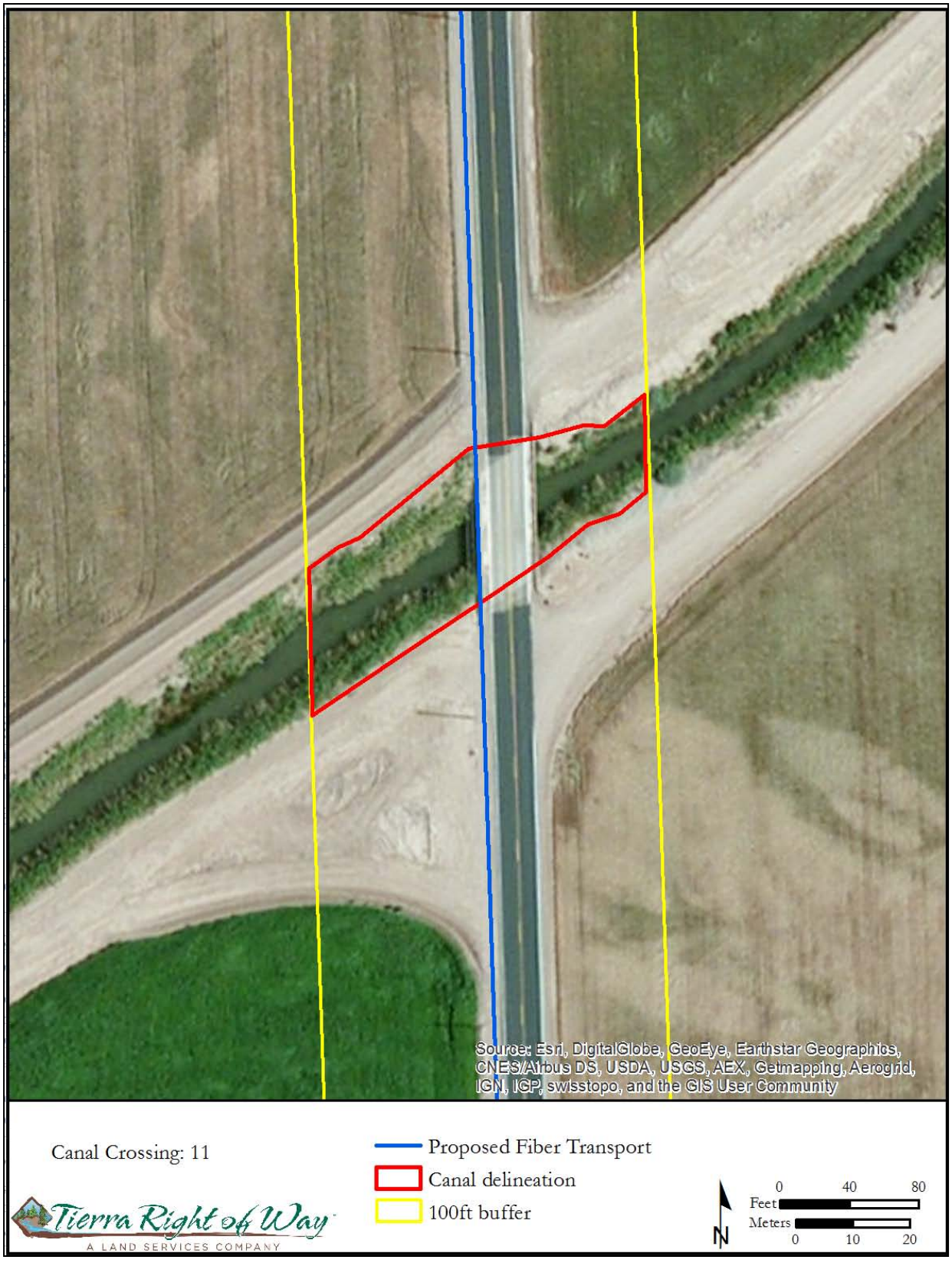

Figure A.11. Canal Crossing 11.

Photo A.12. Crossing 11, view to southwest.

Table A.11. Crossing 12

Canal Name	Reservation Main Drain
Construction	Earthen
Location Description	Picacho Road
Coordinates (NAD 83)	32° 46' 15.206" N, 114° 36' 58.732" W
Vegetation	Dense, low-growing marginal riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.1401 ha (0.3462 acres)
Approximate Directional Bore Length	128 m (420 feet)

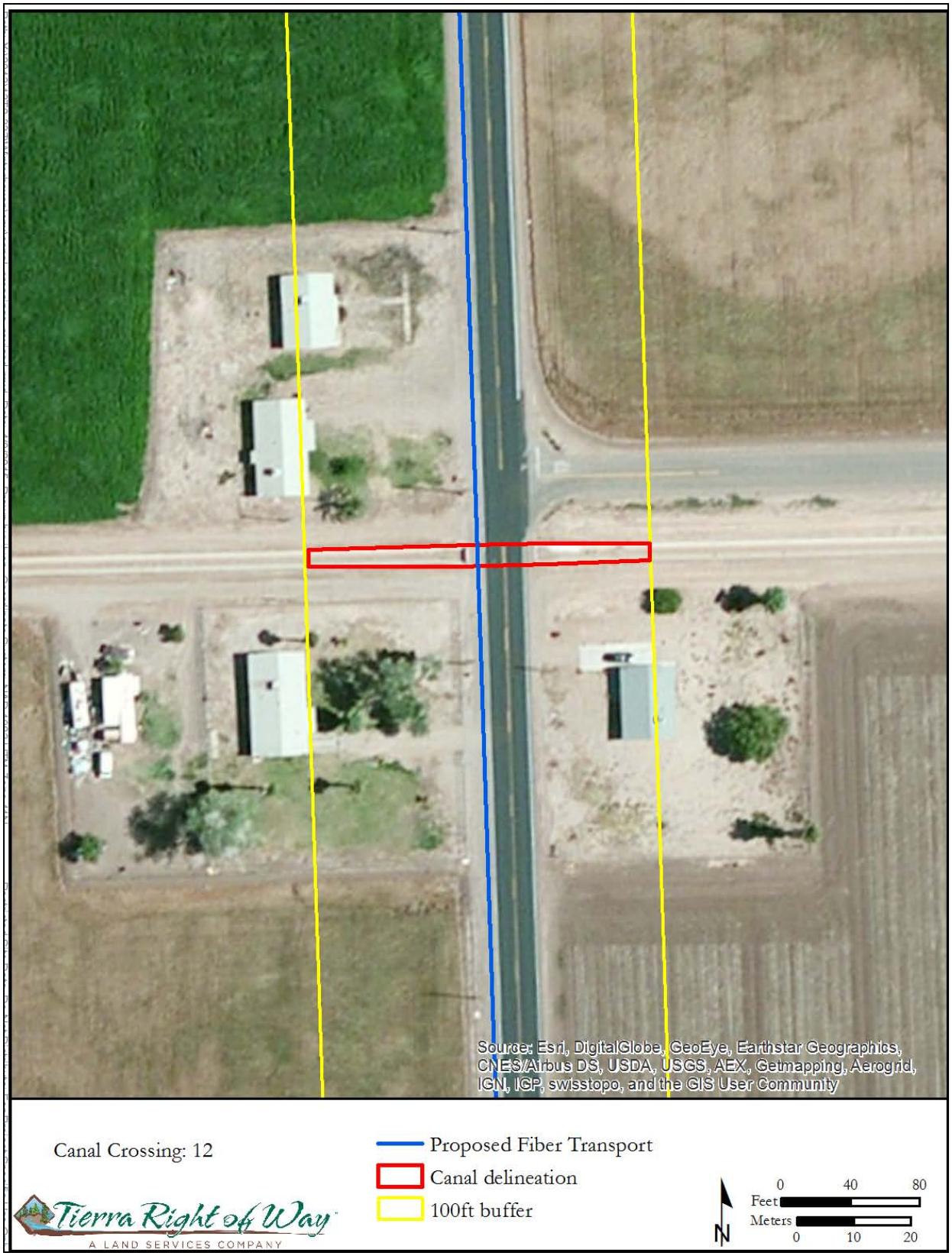

Figure A.12. Canal Crossing 12.

Photo A.13. Crossing 12, view to east.

Table A.12. Crossing 12

Canal Name	Pima Canal
Construction	Concrete lined
Location Description	Picacho and Haughtelin Roads
Coordinates (NAD 83)	32° 46' 1.989" N, 114° 36' 58.551" W
Vegetation	None
Potentially Jurisdictional Extent	Top of bank
Delineated Area	0.0206 ha (0.0509 acres)
Approximate Directional Bore Length	46 m (150 feet)

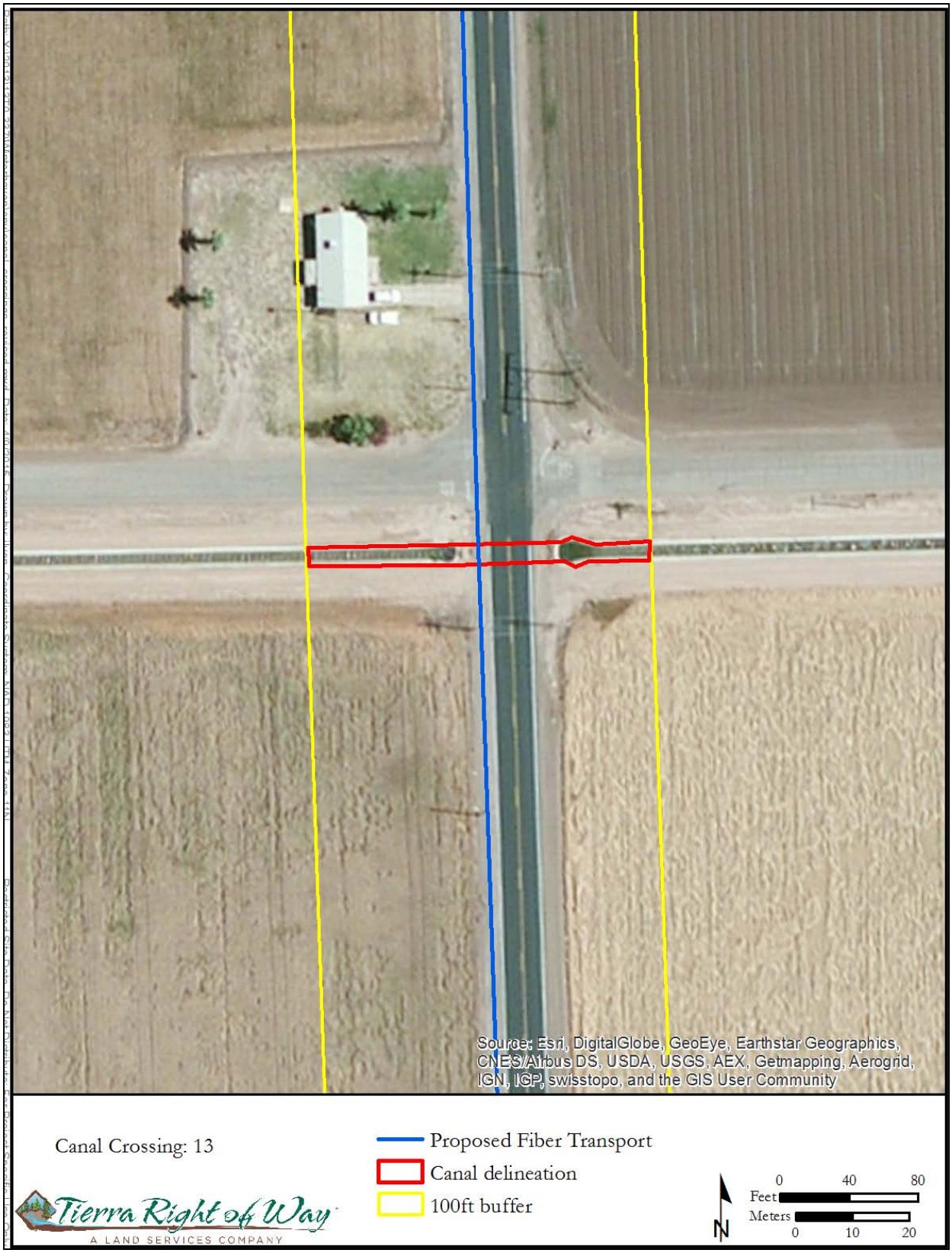

Figure A.13. Canal Crossing 13.

Photo A.14. Crossing 13, view to east.

Table A.13. Crossing 13

Canal Name	Pueblo Canal
Construction	Concrete lined
Location Description	Picacho and Indian Rock Roads
Coordinates (NAD 83)	32° 45' 35.792" N, 114° 36' 58.232" W
Vegetation	Sparse, non-riparian
Potentially Jurisdictional Extent	Top of bank
Delineated Area	0.0210 ha (0.0518 acres)
Approximate Directional Bore Length	46 m (150 feet)

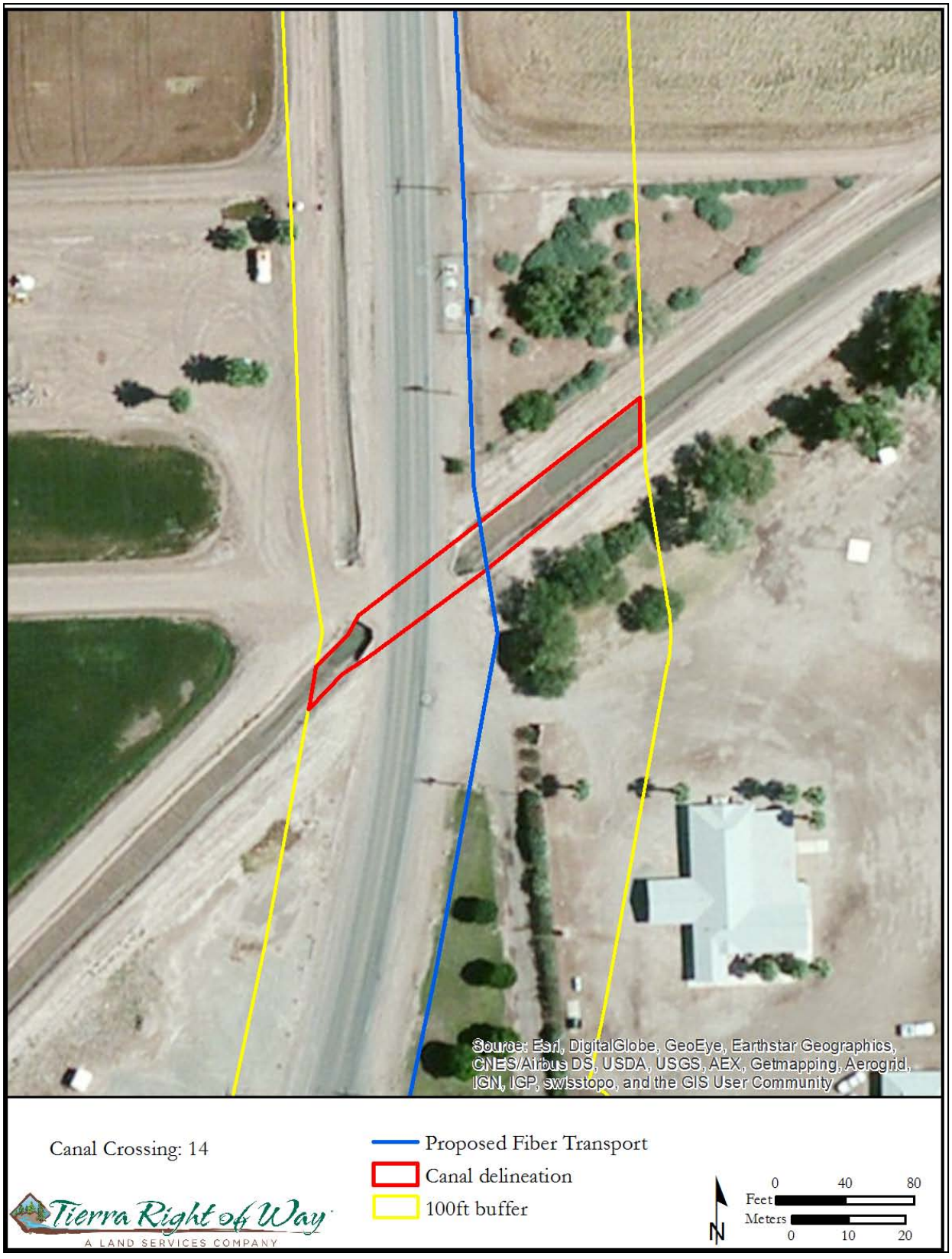

Figure A.14. Canal Crossing 14.

Photo A.15. Crossing 14, view to east.

Table A.14. Crossing 14

Canal Name	Cocopah Canal
Construction	Earthen
Location Description	Picacho Road
Coordinates (NAD 83)	32° 44' 21.987" N, 114° 36' 56.446" W
Vegetation	Minimal, non-riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.0494 ha (0.1222 acres)
Approximate Directional Bore Length	134 m (440 feet)

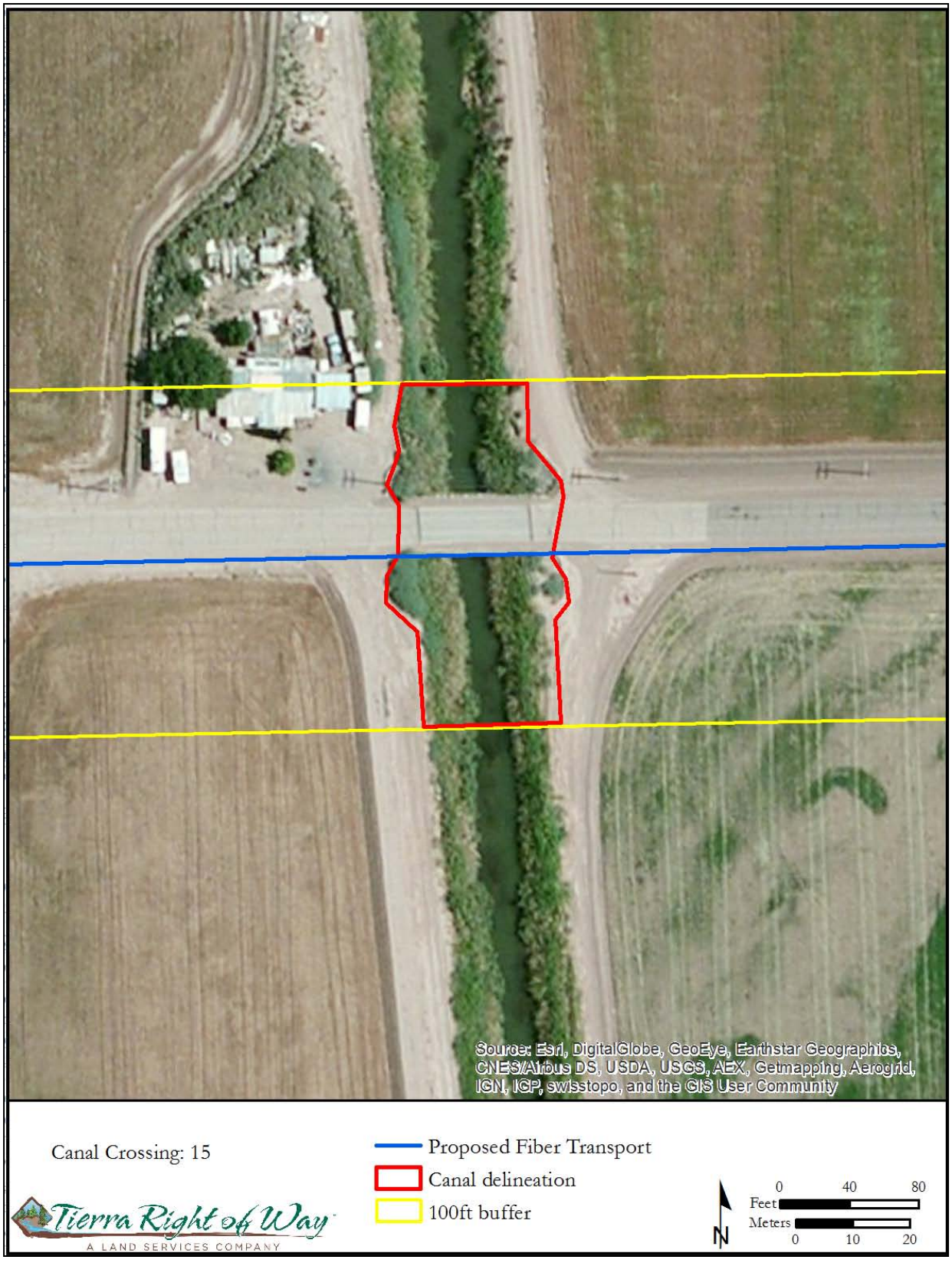

Figure A.15. Canal Crossing 15.

Photo A.16. Crossing 15, view to south.

Table A.15. Crossing 15

Canal Name	Yuma Main Canal
Construction	Earthen
Location Description	Arnold Road
Coordinates (NAD 83)	32° 45' 9.849" N, 114° 37' 43.537" W
Vegetation	Sparse, non-riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.2583 ha (0.6384 acres)
Approximate Directional Bore Length	354 m (1,160 feet) bored with #15

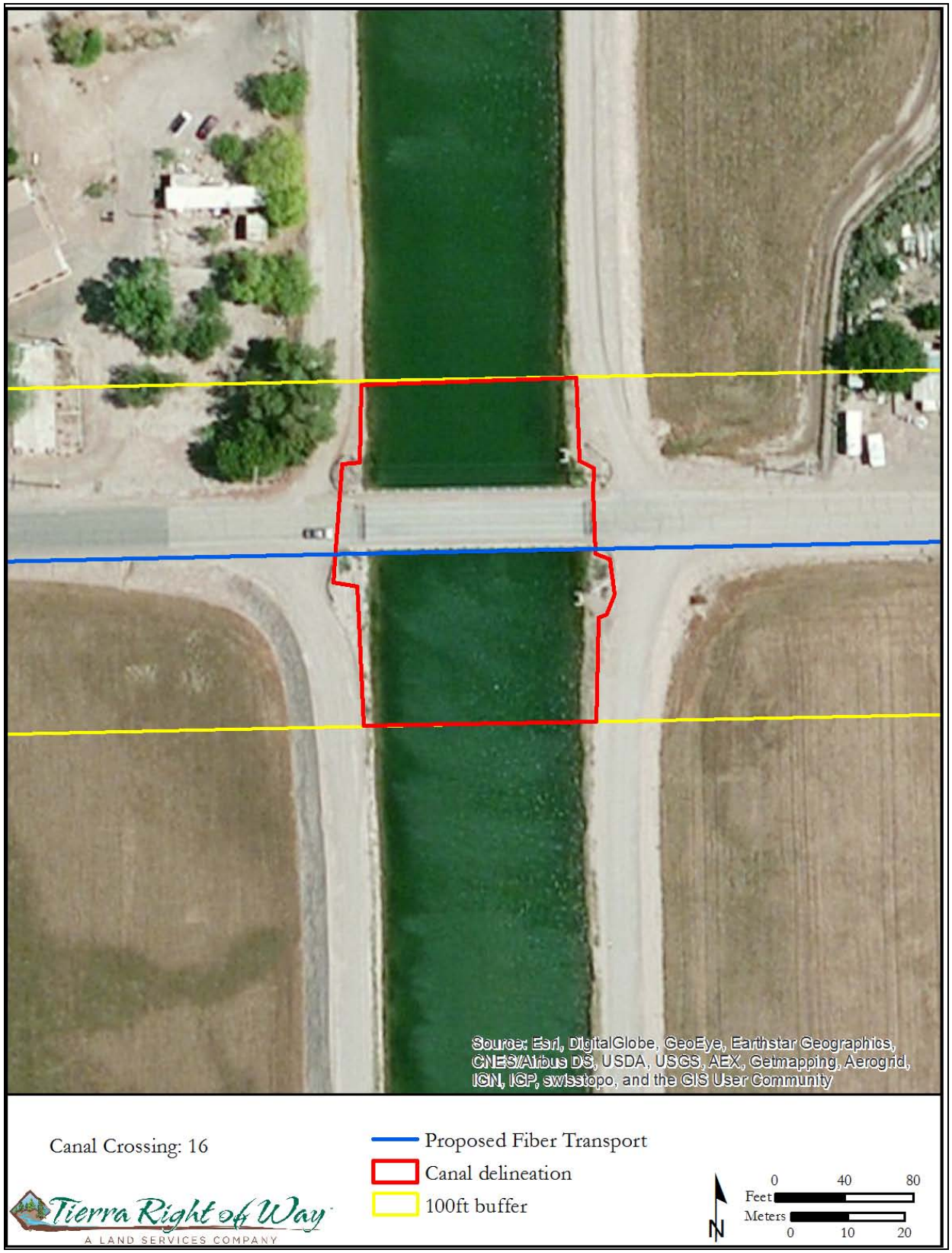

Figure A.16. Canal Crossing 16.

Photo A.17. Crossing A.16, view to west.

Table A.16. Crossing 16

Canal Name	Yuma Main Canal
Construction	Earthen
Location Description	Arnold Road
Coordinates (NAD 83)	32° 45' 9.849" N, 114° 37' 43.537" W
Vegetation	Sparse, non-riparian
Potentially Jurisdictional Extent	Edge of vegetation
Delineated Area	0.2583 ha (0.6384 acres)
Approximate Directional Bore Length	354 m (1,160 feet) bored with #15

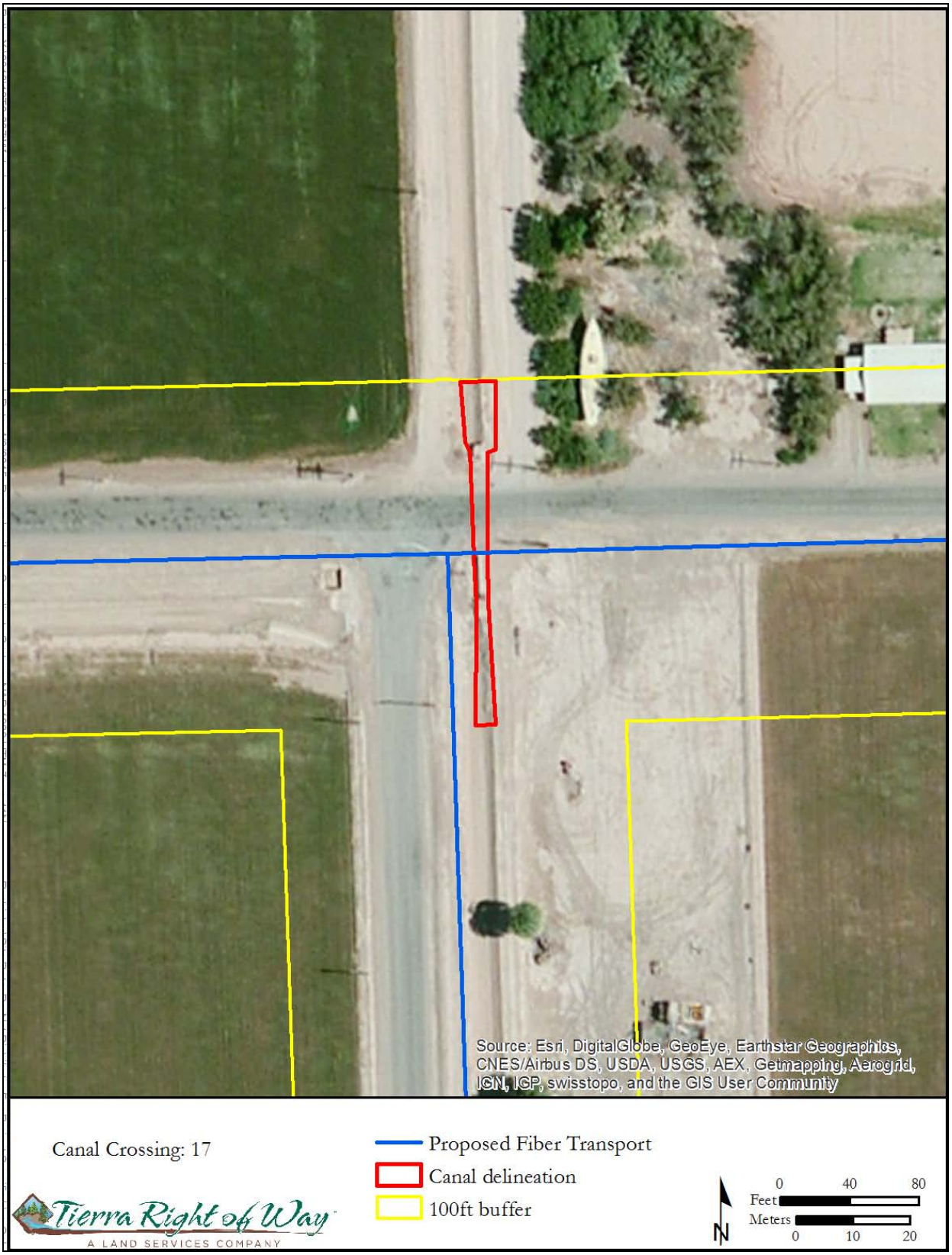

Figure A.17. Canal Crossing 17.

Photo A.18. Crossing 17, view to south.

Table A.17. Crossing 17

Canal Name	Walapai Canal
Construction	Earthen
Location Description	Arnold and De Corse Roads
Coordinates (NAD 83)	32° 45' 9.826" N, 114° 37' 59.821" W
Vegetation	Sparse, non-riparian
Potentially Jurisdictional Extent	Top of bank
Delineated Area	0.0199 ha (0.0493 acres)
Approximate Directional Bore Length	49 m (160 feet)