# Appendix C

Biological Resources Assessment and Desert Tortoise Focused Survey Report

# APPENDIX C

# BIOLOGICAL RESOURCES ASSESSMENT AND DESERT TORTOISE FOCUSED SURVEY REPORT

# ASH HILL COMMUNICATIONS SITE ACCESS ROUTE BIOLOGICAL RESOURCES ASSESSMENT AND DESERT TORTOISE FOCUSED SURVEY REPORT

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## TABLE OF CONTENTS



## LIST OF FIGURES

## LIST OF TABLES



## LIST OF APPENDICES

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| % | percent |
| ~ | equivalent to |
| ACEC | Area of Critical Environmental Concern |
| Amec Foster Wheeler | Amec Foster Wheeler Environment and Infrastructure, Inc. |
| BLM | Bureau of Land Management |
| BNSF | Burlington Northern Santa Fe |
| BSA | Biological Survey Area |
| CA | California |
| CDCA | California Desert Conservation Area |
| CDFW | California Department of Fish and Wildlife |
| CMA | Conservation Management Action |
| CNDDB | California Natural Diversity Data Base |
| CNPS | California Native Plant Society |
| DRECP | Desert Renewable Energy Conservation Plan |
| ERMA | Extensive Recreation Management Area |
| ESA | Endangered Species Act |
| FCR | field contact representative |
| I-40 | Interstate Highway 40 |
| ICT | InterConnect Towers LLC |
| LUPA | Land Use Plan Amendment |
| MBTA | Migratory Bird Treaty Act |
| MUC | Multiple Use Class |
| NCL | National Conservation Lands |
| NEMO | Northern and Eastern Mojave |
| NEPA | National Environmental Policy Act |
| project | multi-carrier communications facility |
| SCG | Southern California Gas Company |
| U.S. | United States |
| USACE | United States Army Corps of Engineers |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |

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# 1.0 BACKGROUND

InterConnect Towers LLC (ICT) has proposed the construction, operation and maintenance of a multi-carrier communications facility (project) east of Ludlow in southeastern California (see Figure 1). A right-of-way and site lease has been requested from the Needles Field Office of the Bureau of Land Management (BLM) to locate this project on BLM managed public lands within the boundary of the Desert Renewable Energy Conservation Plan (DRECP) Land Use Plan Amendment (LUPA) to the California Desert Conservation Area (CDCA), as amended.

The proposed communication site would be located on BLM managed public lands south of Interstate Highway 40 (I-40), northeast of National Trails Highway (Route 66) and north of the east-west oriented Burlington Northern Santa Fe (BNSF) railroad (see Figure 2). The I-40 right-of-way fence is located immediately north of the proposed communications site. The involved public lands have been designated Multiple Use Class (MUC) Limited ("L") and are situated in a utility corridor outlined in the CDCA Plan (BLM 1999). The CDCA Plan allowed for the development of new communication sites on Class L lands in designated areas and after study in an Environmental Assessment (BLM 1999). Under the DRECP, the proposed communication site and access route are not in a Development Focus Area (reserved for renewable energy development), a Special Recreation Management Area or an Extensive Recreation Management Area but are within the Bristol Mountains Area of Critical Environmental Concern (ACEC), California Desert National Conservation Lands (NCL) and the Mojave Trails National Monument.

The communications site and an alternate access route were previously surveyed by Amec Foster Wheeler Environment and Infrastructure, Inc. (Amec Foster Wheeler) in 2010 for desert tortoise (*Gopherus agassizii*) and other biological resources. For this report, Amec Foster Wheeler biologists were tasked to survey the new access route and a 100-foot buffer around it for desert tortoise (tortoise, desert tortoise) and other biological resources (see Appendices E and F). Collectively, this area is referred to as the Biological Survey Area (BSA), and included most of the communications site footprint as well.

The route consists of a series of existing unpaved BLM designated open access routes/roads beginning at Route 66, and crossing under the BNSF railroad, with the final segment terminating at the proposed site. The roads include BLM Routes NS0017 and NS0003. These two roads will provide vehicular access via an approximately 5.2 mile route (see Figure 2). The proposed access route is all located on BLM land. The approximately 2.1 mile east-west segment of NS0003 paralleling I-40 is annually maintained by the Southern California Gas Company (SCG) in association with a pipeline buried immediately south of this road. An approximately 300-foot portion of the proposed NS0017 route is currently impassable to vehicles due to water damage. This area is in and adjacent to the bank of a wash north of the BNSF railroad undercrossing and approximately 100-feet northeast of the historic Atchison, Topeka & Santa Fe railroad alignment.

The communications site is located in Section 11, Range 9 East, Township 7 North of the Ash Hill, CA 7.5 minute United States Geological Survey (USGS) quadrangle (see Figure 2). From there, the access route crosses portions of Sections 10, 11, and 12 where it enters the Siberia, CA quadrangle. It then crosses a portion of Section 13 and reenters the Ash Hill quadrangle where

it crosses portions of Sections 24, 23, 26 and 22 before reaching Route 66. Elevation ranged from approximately 1,760 to 2,060 feet (535 to 630 meters) above mean sea level.

Project-related activities have the potential to impact biological resources in the BSA due to soil surface disturbance, the crushing/removal of native vegetation, the possible destruction or disturbance of animal burrows and/or bird nests, and disturbance to various wildlife species through vehicular and pedestrian access, material storage, work staging and facility operation/maintenance activities.


Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 11/29/2017 Basemap Source: ESRI Streets Maps

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Regional and Vicinity Map

Ash Hill Communications Site Access Route

FIGURE 1

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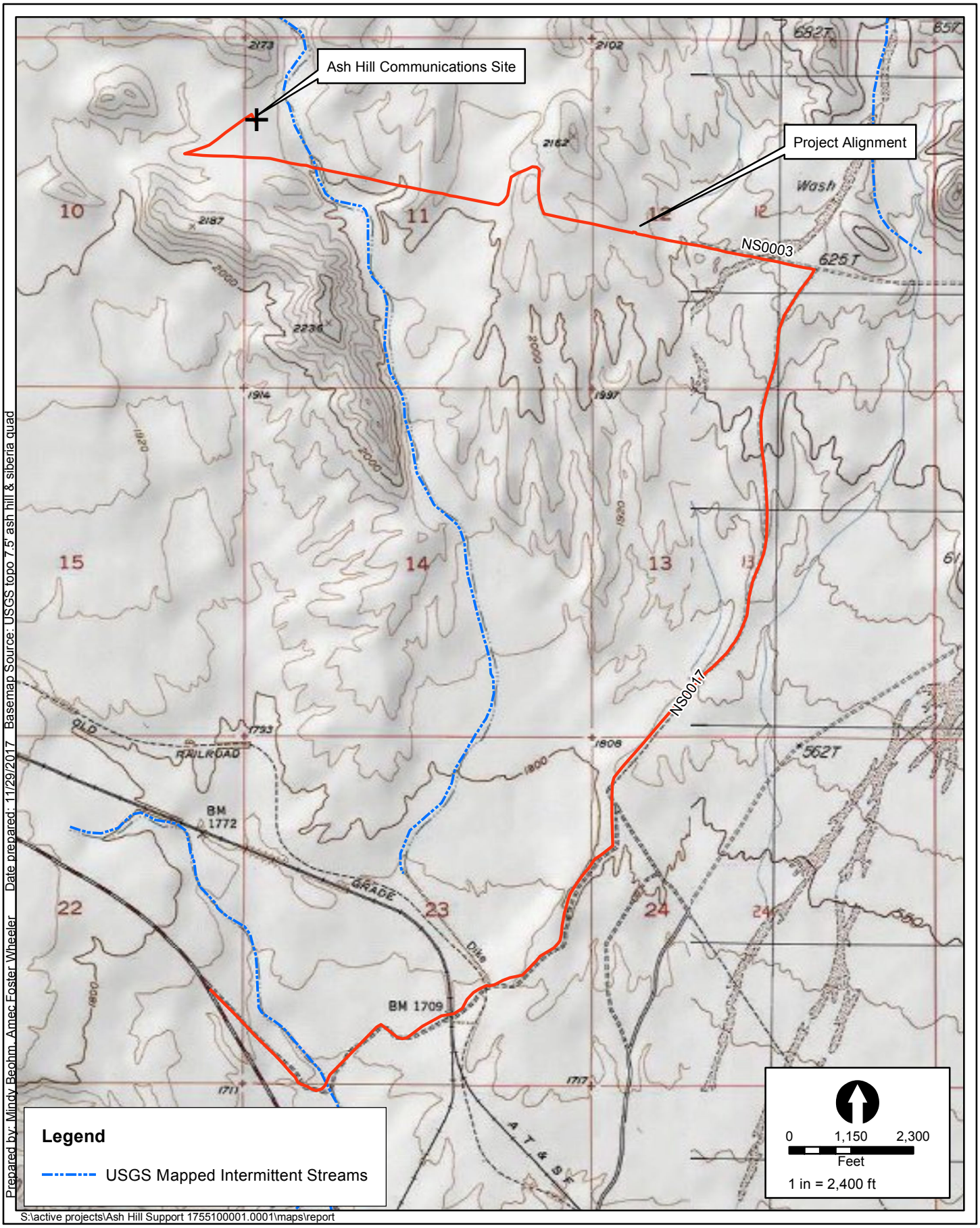


Topographic Map

Ash Hill Communications Site Access Route

FIGURE 2

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# 2.0 REGULATORY FRAMEWORK

## 2.1 Federal

*Endangered Species Act* (ESA) – The United States Fish and Wildlife Service (USFWS) is the designated federal agency accountable for administering the ESA. The ESA defines species as "endangered" or "threatened" and provides regulatory protection at the federal level.

- Section 9 of the ESA prohibits the "take" of listed (i.e., endangered or threatened) species. The ESA definition of take is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct." Recognizing that take cannot always be avoided, Section 10(a) includes provisions for take that is incidental to, but not the purpose of, otherwise lawful activities. Specifically, Section 10(a) (1) (A) permits (authorized take permits) are issued for scientific purposes. Section 10(a) (1) (B) permits (incidental take permits) are issued for the incidental take of listed species that does not jeopardize the species.
- Section 7 (a) (2) requires federal agencies to evaluate the proposed project with respect to listed or proposed listed, species and their respective critical habitat (if applicable). Federal agencies must employ programs for the conservation of listed species and are prohibited from authorizing, funding, or carrying out any action that would jeopardize a listed species or destroy or modify its "critical habitat."

As defined by the ESA, "individuals, organizations, states, local governments, and other non-federal entities are affected by the designation of critical habitat only if their actions occur on federal lands, require a federal permit, license, or other authorization, or involve federal funding."

*Migratory Bird Treaty Act* (MBTA) – Treaties signed by the U.S., Great Britain, Mexico, Japan, and the republics of the former Soviet Union make it unlawful to pursue, capture, kill, and/or possess, or attempt to engage in any such conduct to any migratory bird, nest, egg or parts thereof listed in this document. As with the ESA, the MBTA also allows the Secretary of the Interior to grant permits for the incidental take of these protected migratory bird species. Impacts include direct disturbance to/destruction of nests, eggs, and birds as well as indirect effects such as loud construction noises (e.g., drilling, operation of heavy equipment, etc. in excess of 60 dB over an hour at the nest site) and increased site activities (e.g., moving vehicles, use of guard dogs, presence of personnel) in close proximity to active nests.

*National Environmental Policy Act* (NEPA) – Portions of the proposed project could fall under the jurisdiction of a federal agency (i.e., BLM). NEPA establishes certain criteria that must be adhered to for any project that is "financed, assisted, conducted or approved by a federal agency." The federal lead agency is required to "determine whether the proposed action will significantly affect the quality of the human environment."

*Section 404 of the Clean Water Act* – This section of the Clean Water Act, administered by the U.S. Army Corps of Engineers (USACE), regulates the discharge of dredged and fill material into waters of the U.S." The USACE has created a series of nationwide permits that authorize certain

activities within waters of the U.S. provided that the proposed activity does not exceed the impact threshold for each of the permits, takes steps to avoid impacts to wetlands where practicable, minimize potential impacts to wetlands, and provide compensation for any remaining, unavoidable impacts through activities to restore or create wetlands. For projects that exceed the threshold for nationwide permits, individual permits under Section 404 can be issued.

# 3.0 METHODOLOGY

Prior to undertaking the biological resources survey of the BSA, a literature review and records search was conducted to identify potential special status biological resources and hydrology in the project vicinity. The following primary sources were used to gather environmental, geographical, and planning data:

- The biological report previously prepared for this project (AMEC 2011)
- The California Department of Fish and Wildlife's (CDFW) California Natural Diversity Data Base (CNDDB) Rarefind 5 application (CDFW 2017a) for a five mile area around the BSA.
- California Native Plant Society (2017) Inventory of Rare, Threatened, and Endangered Plants of California.

A full list of references can be found in Section 7.0.

On 18-19 October 2017, a team of Amec Foster Wheeler biologists conducted a focused desert tortoise survey of the access route and a 100-foot buffer around it. This included the recording of all detectable plant and vertebrate animal species, and recording the location of obvious drainages which cross the access route. The survey was conducted by walking 10 meter (~30 foot) width belt transects across the entire designated survey area following the protocol for desert tortoise (USFWS 2010) and transects of each road shoulder (see Appendix D). Representative photos were taken (see Appendix A).

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# 4.0 RESULTS

## 4.1 Critical Habitat

No federally designated critical habitat for desert tortoise or any other species was identified within the BSA (see Figure 3).

## 4.2 Areas of Critical Environmental Concern

The BSA is within the Bristol Mountains ACEC (see Figure 4). This ACEC was designated in the DRECP LUPA (BLM 2016). The Bristol Mountains ACEC lands link the Cady Mountain Wilderness Study Area and the Bristol Mountains, Kelso Dunes, Trilobite, and Clipper Mountains wilderness areas with Mojave National Preserve. The ACEC also connects with the Pisgah ACEC on the west and the Chemehuevi ACEC on the east. This creates a contiguous conservation area which encompasses a transition zone between both Mojave and Sonoran/Colorado Desert ecosystems. The area has some of the best tortoise habitat in the southeast Mojave Desert (Appendix B of BLM 2016). The transitional ecosystem attracts a variety of birds including sensitive species such as prairie falcons and burrowing owls. Numerous rare and sensitive plants inhabit the area. This area has critical wildlife movement corridors that maintain connections for regional metapopulations. The area has high scientific values due to the transition between desert ecosystems and the associated adaptations of plants and animals. These lands are within the recently designated Mojave Trails National Monument, which also protects sensitive biological resources.

Relevant biological resources include wildlife and plant assemblages. The area is high value for desert tortoise habitat and connectivity between the Ord-Rodman and Chemehuevi ACECs. Additionally, the area is critically important for bighorn sheep, burrowing owl, and several bat species. Some areas within the ACEC provide a combination of meteorological, geological, hydrological, topographical features that have been identified as important climate refugia for wildlife species.

The overarching goals for this ACEC are to protect biological values, including habitat quality, populations of sensitive species, and landscape connectivity while providing for compatible public uses. Where the Conservation Management Actions (CMAs) in the ACEC Special Unit Management Plan (Appendix B of BLM 2016) conflict with the CMAs included in the LUPA, the more restrictive CMA would be applied (i.e., management that best supports resource conservation and limits impacts to the values for which the conservation unit was designated), unless otherwise specified. Most of the ACEC is included in the California Desert NCL. Appropriate multiple uses will be allowed, consistent with the Special Unit Management Plan and the CMAs in the LUPA.

Management direction for the ACEC allows for new land use authorizations to be analyzed on a case-by-case basis to assess whether they are compatible with the ACEC and its management goals. Disturbance is capped at 0.5% - 1% of the ACEC area. Land use authorizations that may impair wildlife connectivity are not to be approved.

## 4.3 Existing Surface Disturbance

The project would utilize existing designated open routes and areas within existing ground disturbance. The approximately 2.1 mile portion of NS0003 adjacent to the SCG pipeline appears to be regularly graded and used for thoroughfare travel purposes. Excavated soil mounds from past road and/or pipeline work were obvious along this portion of the route. The NS0017 portion of the access road is less traveled and less maintained with more rocks, potholes, etc. No ground disturbance will take place at or within routes NS0017 and NS0003, aside from that created by continued vehicular access and hauling construction equipment to the proposed communication tower site, as well as limited, necessary road repairs of a 300 foot stretch of route NS0017 located 100 feet northeast of the historic Atchison, Topeka & Santa Fe railroad alignment. Also, light smoothing of routes NS0017 and NS0003 may be necessary following heavy rains.

## 4.4 Soils

Two soil associations are mapped along the access route (see Figure 5): the “Rock Outcrop-Upspring-Sparkhule” and “Nickel-Bitter-Arizo” Associations. As their name implies, each of these consists of three soil series, as described below.

The Sparkhule series consists of shallow, well drained loamy soils that formed from volcanic or granitic rocks. Sparkhule soils are on rock pediments and hills and have slopes of 5 to 50 percent. They have high to very high runoff and moderately slow permeability.

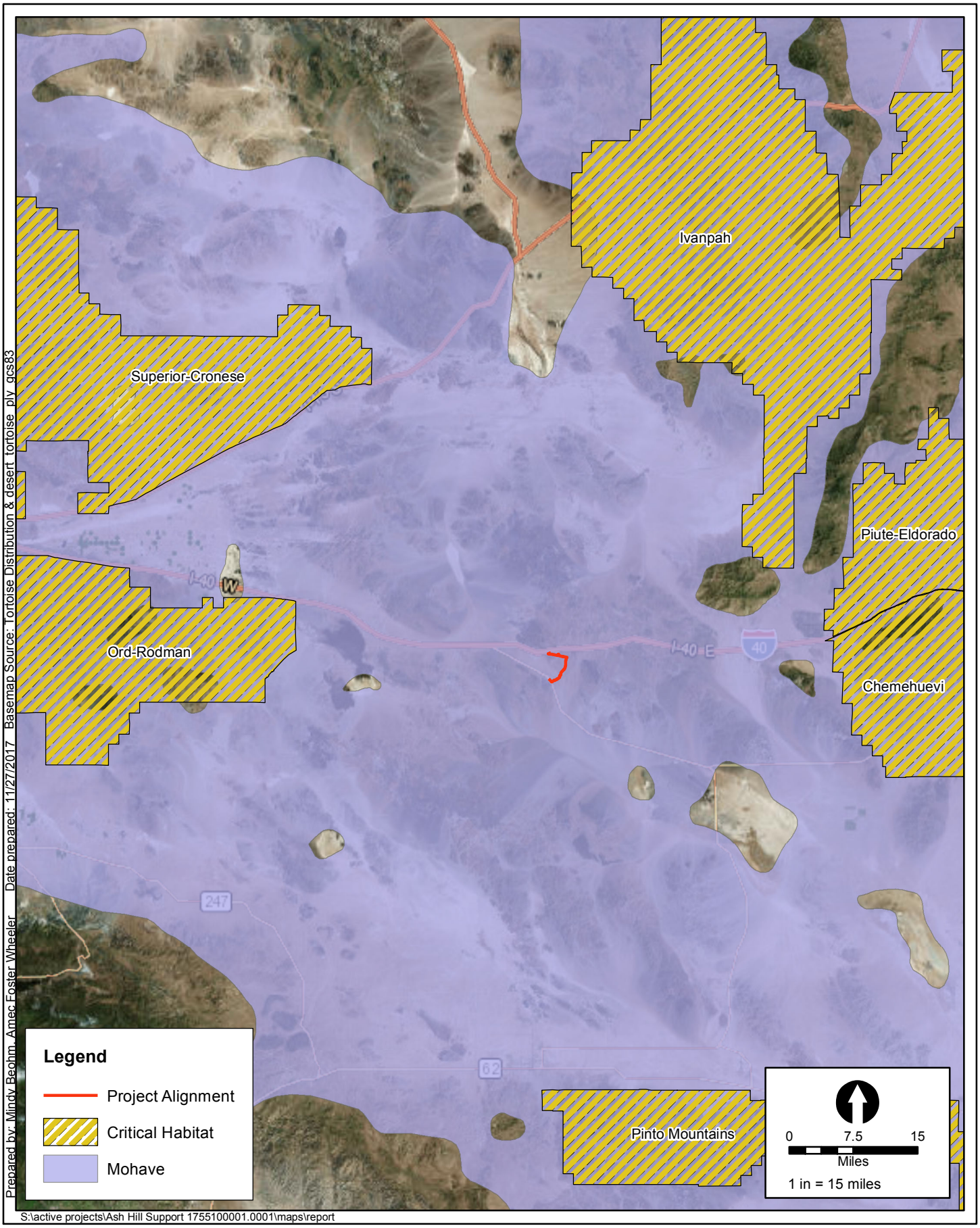
- The Upspring series consists of very shallow and shallow, somewhat excessively drained loamy soils formed in material weathered from extrusive basic igneous rocks and some
- pyroclastic material. Upspring soils are on hills, mountains, and plateaus and have slopes of 8 to 75 percent. They have high or very high runoff and moderately rapid permeability over impermeable bedrock.

Rock outcrops are not actually a soil series, but instead are unweathered bedrock at slopes of 15 to 75 percent.

The Nickel series consists of very deep, well drained loamy soils that formed in alluvium from mixed rock sources. Nickel soils are on fan remnants. Slope ranges from 0 to 35 percent. They have very low to medium runoff and moderate permeability.

The Bitter series consists of deep, well drained loamy soils that formed in material weathered from granitic, gneiss, schist, limestone and quartzite alluvium. Bitter soils are on dissected old fan terraces and have slopes of 2 to 20 percent. They have medium runoff and moderately slow permeability.

The Arizo series consists of very deep, excessively drained sandy soils that formed in mixed alluvium. Arizo soils are on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, and floodplains of intermittent streams and channels. Slope ranges from 0 to 15 percent. They have negligible to medium runoff.

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Desert Tortoise Critical Habitat & Distribution/ Modeled Habitat Map

Ash Hill Communications Site Access Route

FIGURE 3

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Areas of Critical Environmental Concern (ACEC)
Ash Hill Communications Site Access Route

FIGURE 4

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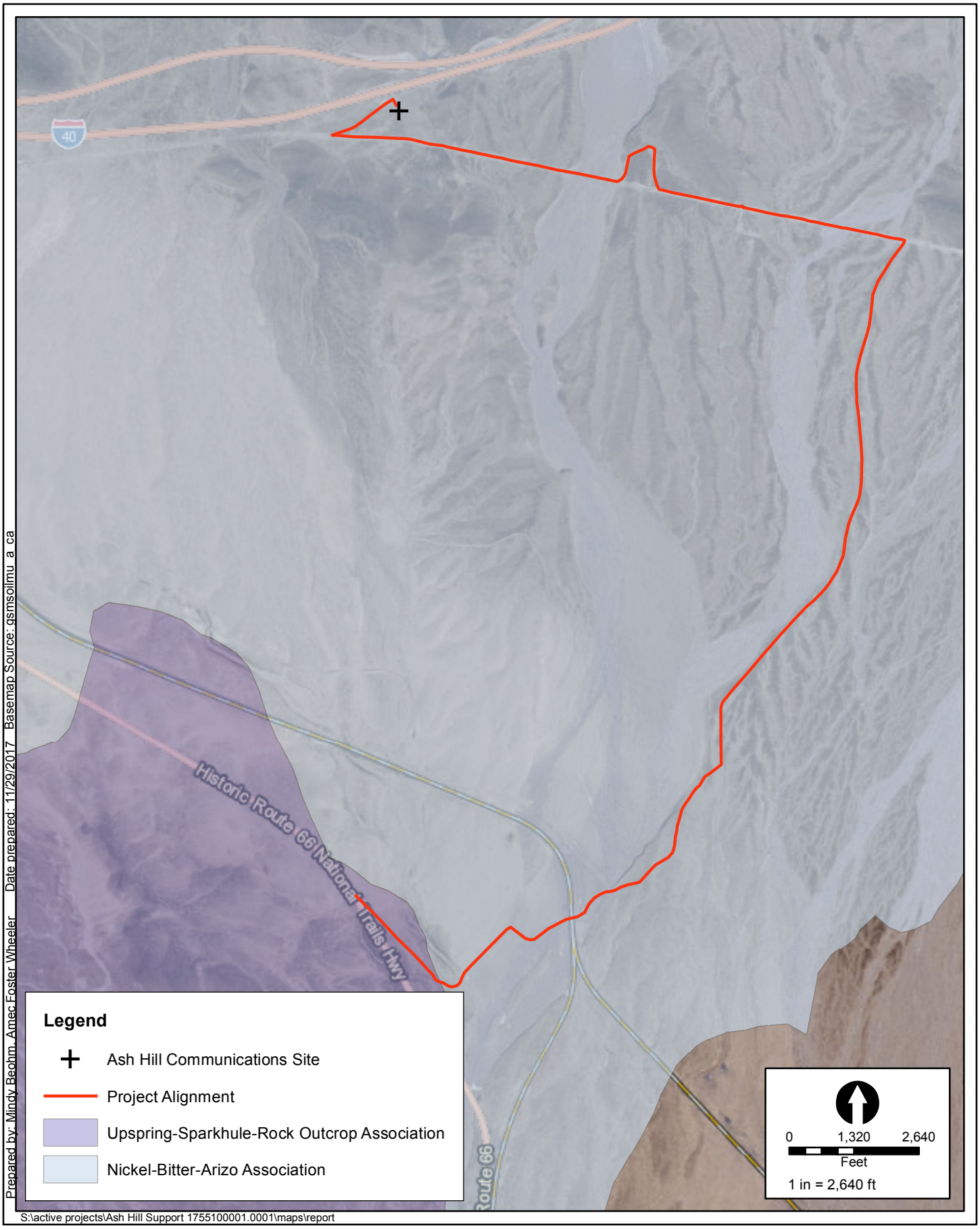


Soils Map

Ash Hill Communications Site Access Route

FIGURE 5

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None of these soils are specifically associated with special status species.

## 4.5 Hydrology

No surface water was encountered in the area and would only be expected temporarily following rain events. The access route is crossed by numerous southward trending drainages which are mapped in Appendix E. During and following rain events, road damage and impassability could potentially occur. Flow in drainage 3b has already caused an impassability issue where the access road climbs out of the wash (see page E-04 of Appendix E). To the north of the access route, a few large culverts and bridges are situated under I-40, allowing cross-freeway flow into the associated washes. If modifications to these washes are required in order to utilize the access roads, a jurisdictional delineation and permitting may be needed for potential impacts to federal jurisdictional waters.

## 4.6 Vegetation

Two relatively undisturbed native vegetation communities are mapped and present in the BSA (CDFW 2017c): Creosote Bush Mixed Scrub and Desert Wash Systems (Appendix F). In upland areas, a Creosote Bush Mixed Scrub community dominated by creosote bush (*Larrea tridentata*), white bur-sage (*Ambrosia dumosa*), and brittlebush (*Encelia farinosa*) is present. The upland areas are also interspersed with extensive areas of relatively unvegetated desert pavement. In the areas mapped as "Desert Wash Systems," species such as cheesebush (*Ambrosia salsola*), sweetbush (*Bebbia juncea* var. *aspera*), and catclaw (*Senegalia greggii*) are also dominants. The flora in the overall area is characterized by fairly short shrubs and wide interspaces between plants. Following adequate winter-spring (and occasionally, summer) rainfall, a light cover of annual forbs, wildflowers and short-lived grasses form within shrub interspaces and beneath shrub canopies in the area.

Besides those already mentioned, common perennial plants in the area included white rhatany (*Krameria bicolor*), smoke tree (*Psorothamnus spinosus*), pencil cactus (*Cylindropuntia ramosissima*), and rush milkweed (*Asclepias subulata*). Although the autumn time period of this survey meant that few annual plants were still living, we were able to identify several by their dried remains including desert plantain (*Plantago ovata*), spiny herb (*Chorizanthe rigida*), forget-me-not (*Cryptantha* ≥3 spp.), annual buckwheat (*Eriogonum* ≥2 spp.), and desert dandelion (*Malacothrix glabrata*). The non-native annual Mediterranean grass (*Schismus* sp.) was widespread, while the invasive, non-native Asian mustard (*Brassica tournefortii*) was found along roadsides nearer to Route 66. A complete list of plant species identified onsite is included as Appendix B.

## 4.7 Wildlife

Although the proposed communication site and access route footprint offer little in the way of wildlife habitat, they are surrounded by largely undisturbed natural habitat for a variety of terrestrial and avian species. I-40 presents a major impediment to animal (especially desert tortoise) movement from the north and the BNSF railroad forms an impediment to the south, but

culverts and bridges provide some limited safe travel corridors for wildlife species. Several wildlife species common to the region were recorded on lands situated adjacent to the proposed communications site and access route, and these species certainly cross the BSA in the course of their daily activities. Reptiles recorded during the survey effort included common side-blotched lizard (*Uta stansburiana*), zebra-tailed lizard (*Callisaurus draconoides*), and tiger whiptail (*Aspidoscelis tigris*). Avian species present included horned lark (*Eremophila alpestris*), rock wren (*Salpinctes obsoletus*), and common raven (*Corvus corax*). A verdin (*Auriparus flaviceps*) nest was observed in a tree near the proposed access route. Other migratory bird species are also expected to occur in the BSA and may construct nests adjacent to the proposed communications site and existing access route. Mammals or their sign detected in the area included white-tailed antelope squirrel (*Ammospermophilus leucurus*), black-tailed jackrabbit (*Lepus californicus*), and coyote (*Canis latrans*). A complete list of vertebrate animal species identified onsite is attached as Appendix C.

### 4.7.1 *Invasive Non-native Species*

No invasive and/or non-native animals were detected in the area proposed for surface disturbance or vehicle travel. As noted above, two non-native plant species were detected during the current survey effort: the well-established Mediterranean grass (*Schismus* sp.) and the very invasive Asian mustard (also known as Sahara mustard) which appears to be establishing itself on the periphery of the access route near Route 66.

### 4.7.2 *Special Status Elements*

Plant or animal taxa may be considered sensitive or special status due to declining populations, vulnerability to habitat change, or because they have restricted ranges. Some are listed as threatened or endangered by the USFWS and are protected by the ESA. Others have been identified as sensitive or as special status species by the USFWS, CDFW, or by private conservation organizations, including the California Native Plant Society (CNPS).

Habitat associations, natural history, seasonality, distribution, and the types of surveys conducted all affect the detectability of the various sensitive plants and animals known to occur throughout the region. For that reason, some special status species that were not observed in the BSA still have the potential to occur based on their geographic distribution, habitat preferences, and the regional location of the site. Appropriate seasonal focused surveys could more definitively determine their presence or absence.

The literature review and biological resources assessment resulted in the identification of 12 special status elements which were either observed in the BSA or had known records within an approximate five-mile radius of the site. These included four plants, two reptiles, four birds, and two mammals. Tables 1 through 4 provide a complete list of these sensitive biological resources, their associated status, their general habitat associations, and their respective potential to occur in the BSA based on geographic distribution, presence of potentially suitable habitat, best available information, and the collective expertise of Amec Foster Wheeler biologists. Those that

were encountered during the 2017 survey and those that were considered to potentially be present are discussed further following the table.

**Table 1. Special Status Plants**

| Species | Status | Habitat | Probability |
|---|---|---|---|
| *Coryphantha alversonii*<br>**foxtail cactus** | F = ND<br>C = S3<br>CNPS = 4.3 | Mojave and Sonoran desert scrub. 75 to 1,525 meters (m.). Blooms (B): April – June. | **Moderate**<br>Suitable habitat present. Not detected, but no focused plant survey conducted. |
| *Eriastrum harwoodii*<br>**Harwood's eriastrum** | F = BLM<br>C = S2<br>CNPS = List 1.B2 | Desert dunes; 125 - 915 m. B: March–June. | **Absent**<br>No dunes |
| *Funastrum utahense*<br>**Utah vine milkweed** | F = ND<br>C = S4<br>CNPS = 4.2 | Mojave and Sonoran desert scrub. 100 to 1,435 m. Blooms (B): (March) April-June (September-October). | **Moderate**<br>Suitable habitat present. Not detected, but no focused plant survey conducted. |
| *Saltugilia latimeri*<br>**Latimer's woodland-gilia** | F = BLM<br>C = S3<br>CNPS = List 1B.2 | Chaparral, Mojave desert scrub; pinyon and juniper woodland. 400-1,900 m. B: March – June. | **Moderate**<br>Suitable habitat present. Not detected, but no focused plant survey conducted. |

**Table 2. Special Status Reptiles**

| Species | Status | Habitat | Probability |
|---|---|---|---|
| *Gopherus agassizi*<br>**desert tortoise** | F: **THR**<br>C: **THR**, S2 | Creosote bush scrub, Joshua tree woodland, saltbush scrub; washes, arroyos, bajadas, rocky hillsides, open flat desert. | **Occurs**<br>Fresh sign present |
| *Uma scoparia*<br>**Mojave fringe-toed lizard** | F = BLM<br>C = SSC, S3S4 | Requires fine, loose, windblown sand interspersed with hardpan and widely spaced desert shrubs. | **Absent**<br>Insufficient sand |

## Table 3. Special Status Birds

| Species | Status | Habitat | Probability |
|---|---|---|---|
| *Athene cunicularia*<br>**burrowing owl** | F = MBTA, BCC, BLM<br>C = SSC, S2 | Open, dry annual or perennial grassland, deserts & scrublands characterized by low-growing vegetation. Burrows essential. | **Moderate**<br>Suitable habitat present. Not detected, but no focused owl survey conducted. |
| *Falco mexicanus*<br>**prairie falcon** | F = MBTA, BCC<br>C = SSC, S3 | Breeding sites located on cliffs, but forages far afield. | **Occurs**<br>Seen foraging onsite, nesting cliffs in the area. |
| *Lanius ludovicianus*<br>**loggerhead shrike** | F = MBTA, BCC<br>C = SSC, S4 | Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting. | **Occurs**<br>Seen onsite, breeding habitat present |
| *Polioptila melanura*<br>**black-tailed gnatcatcher** | F = MBTA<br>C = WL, S3S4 | Primarily inhabits wooded desert wash habitats; also occurs in desert scrub habitat, especially in winter. | **Occurs**<br>Seen onsite, breeding habitat present |

## Table 4. Special Status Mammals

| Species | Status | Habitat | Probability |
|---|---|---|---|
| *Ovis canadensis nelsoni*<br>**desert bighorn sheep** | F: BLM<br>C: FP, S3 | Open, rocky, steep areas with available water and herbaceous forage. | **Low**<br>Marginal habitat available along access route. Could potentially forage in area in wetter seasons. |
| *Taxidea taxus*<br>**American badger** | F = ND<br>C = SSC, S3 | Inhabits areas herbaceous, shrub, and open stages of most habitats with dry, friable soils. | **High**<br>Suitable habitat and potential burrows present. |

**Definitions of status designations and occurrence probabilities for Tables 1-4**

***Definitions of occurrence probability:***

***Occurs****:* Observed onsite by Amec Foster Wheeler personnel or recently reported onsite by another reliable source.

***High****:* Observed in similar habitat in region by qualified biologists, or habitat onsite is a type often utilized by the species and the site is within the known range of the species.

***Moderate****:* Reported sightings in surrounding region, or site is within the known range of the species and habitat onsite is a type occasionally used by the species.

***Low****:* Site is within the known range of the species but habitat onsite is rarely used by the species

***Absent****:* A focused study failed to detect the species, suitable habitat not present, or site is outside the geographic distribution of the species.

***Unknown****:* No focused surveys have been performed in the region, species' distribution and habitat are poorly known.

**Definitions of status designations and occurrence probabilities for Tables 1-4 (Continued)**

***Federal designations:*** (F = federal Endangered Species Act or USFWS designations)
**END:Federally listed, Endangered**
**THR:Federally listed, Threatened**
**CAN:Candidate for Federal listing**
MBTA: Migratory Bird Treaty Act
BEPA:Bald Eagle Protection Act (also protects Golden Eagles)
BCC:Birds of Conservation Concern
BLM: BLM Sensitive
ND:No designation

***State designations*:** (C = California Endangered Species Act or CDFW designations)
**END:State listed, Endangered**
**THR:State listed, Threatened**
**CAN:Candidate for State listing**
**RARE:State listed, Rare**
**FP**:Fully Protected Species
SSC:Species of Special Concern
WL:Watch List Species
ND:No designation

***CDFW state rankings*** are a reflection of the overall condition of an element throughout its California range. The number after the decimal point represents a threat designation attached to the rank:
**S1** = Critically Imperiled. Less than (<) 6 Element Occurrences (EOs) OR < 1,000 individuals OR < 2,000 acres
- **S1.1** = very threatened
- **S1.2** = threatened
- **S1.3** = no current threats known

**S2** = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
- **S2.1** = very threatened
- **S2.2** = threatened
- **S2.3** = no current threats known

**S3** = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
- **S3.1** = very threatened
- **S3.2** = threatened
- **S3.3** = no current threats known

**S4** = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern.
**S5** = Secure. Common, widespread, and abundant in the state.
**SH** = All known California sites are historical, not extant

***CNPS designations:***
Primary Categories
LIST 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
LIST 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
LIST 2A: Plants Presumed Extirpated in California, But Common Elsewhere
LIST 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
LIST 3: Plants About Which More Information is Needed - A Review List
LIST 4: Plants of Limited Distribution - A Watch List
Subdivisions within Categories
0.1: Seriously threatened in California
0.2: Moderately threatened in California
0.3: Not very threatened in California

### 4.7.3 *Special Status Plant Species*

No special status plant species or Unusual Plant Assemblages were encountered during the 2010 or 2017 surveys, but the 2017 survey was not conducted during the season when these species would be most detectable. None of the potentially occurring special status plant species are state or federally listed as threatened or endangered.

### 4.7.4 *Desert Tortoise*

Although no live tortoises were directly observed during the 2017 survey, very recent sign such as fresh tracks was detected, as well as carcasses, burrows, and scat showing that the area is still occupied by the species (see Appendices D and G).

A large, herbivorous and long-lived reptile, the desert tortoise occurs in the Mojave and Sonoran Deserts, as well as in the northern Sinaloa region of Mexico (Boarman 2002). The Mojave population of the tortoise, i.e., those animals living north and west of the Colorado River in California, Nevada, Arizona, and southwestern Utah, has been designated as threatened (USFWS 1990; USFWS 1994a). Critical habitat for the Mojave population of the tortoise has also been designated.

The BSA is located outside of designated critical habitat for this listed population (USFWS 1994b), in an area modeled as potentially suitable habitat (see Figure 3). While the BSA was not previously categorized as tortoise habitat by BLM, a small area of BLM-Category III tortoise habitat occurs a few miles to the east (see Map Set A below, first map). The tortoise density within this BLM-Category III habitat area, as depicted in Map Set A below (second map), was at one time roughly estimated to range from 20 to 50 tortoises per square mile (BLM 1980). The Northern and Eastern Mojave (NEMO) Plan (BLM 2002a) identified the general region of the BSA as a recovery planning zone for the desert tortoise (see Map Set A below, third map). The DRECP (Appendix B of BLM 2016) states that the Bristol Mountains ACEC has some of the best, high value, tortoise habitat in the southeast Mojave Desert.

Tortoises occupy a variety of habitats from valleys, alluvial fans and bajadas dominated by creosote bush and saltbush scrub at lower elevations to rocky slopes supporting mixed Mojave scrub and Joshua tree woodlands (USFWS 1990). In general, tortoises occur on gently sloping terrain with sandy to gravel soils supporting low-growing shrubs and herbaceous plants, at elevations of 2,000-3,300 feet (Weinstein 1989). Soils must be friable enough for digging of burrows, but firm enough so that burrows do not collapse. On occasion, tortoises have also been recorded in rocky and lava areas bordering more typical alluvial fan and wash habitat.

Literature relating tortoise burrowing and use habits, along with at least one model (indicate that tortoises tend to favor southwest exposures and loamy soils, while avoiding stony soils and areas of low plant cover (Anderson et al. 2000). Tortoises typically avoid steep slopes and obstacles to free movement such as rocks and debris (Boarman 2002). Highways and railroads can also be formidable impediments to tortoise movement (USFWS 1990).

The outright loss of habitat and animal mortality/injury/removal, as well as degradation of habitat caused by livestock use, fire and off-road vehicle travel, poses a significant and increasing problem for the viability of tortoise populations (Boarman 2002). Vehicle use, surface grading, vegetation removal and excavation work are all known as potential sources of tortoise injury and mortality. Common raven predation of juvenile tortoises, as well as several diseases which may be exacerbated when tortoises are stressed and/or occupied habitat is degraded, have also been implicated as significant current impacts upon tortoise populations (USFWS 1994a, 2008).

**Map Set A.** The proposed Ash Hill Communications Site would be located west of a previously designated Category III desert tortoise habitat (first map; BLM 1988). The 1980 tortoise density within this categorized habitat was estimated to range from 20 to 50 tortoises per square mile (second map; BLM 1980). The recovery planning zone for the desert tortoise is shown on the third map (BLM 2002a).

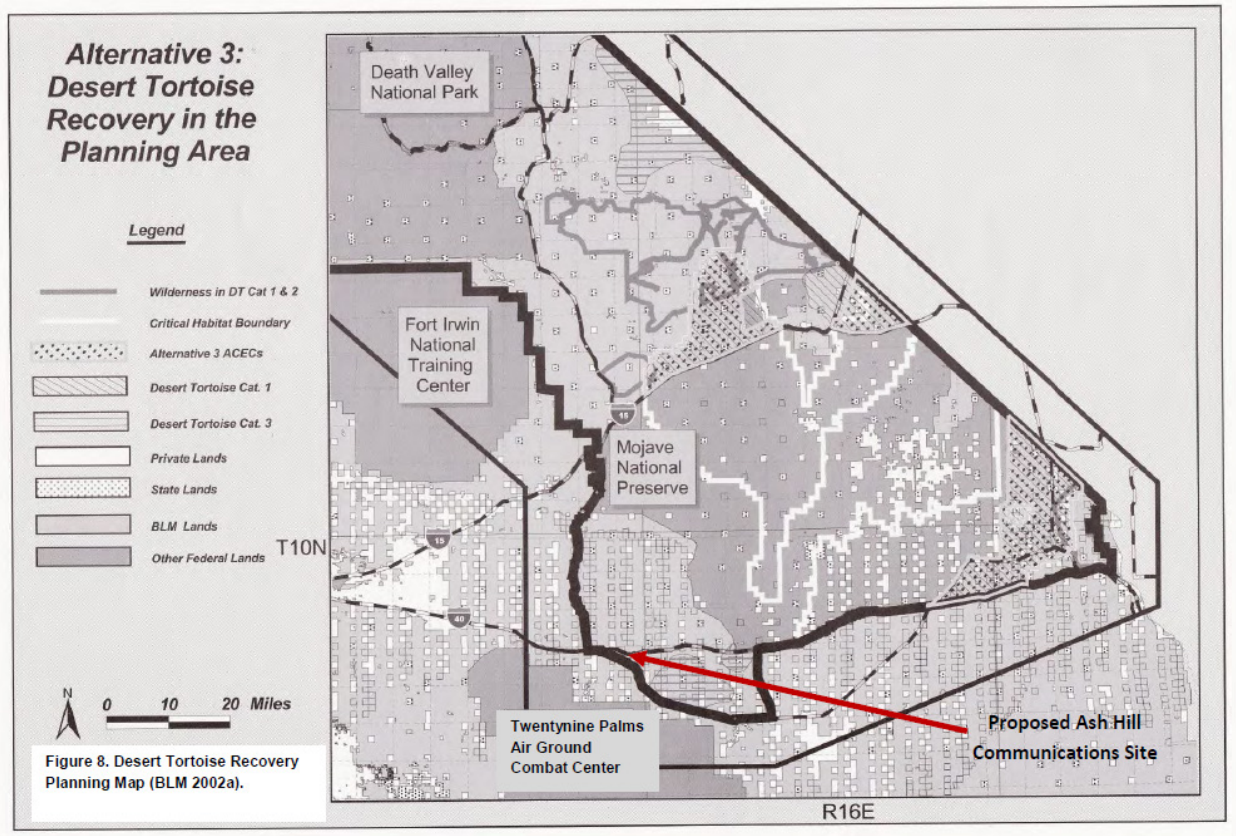
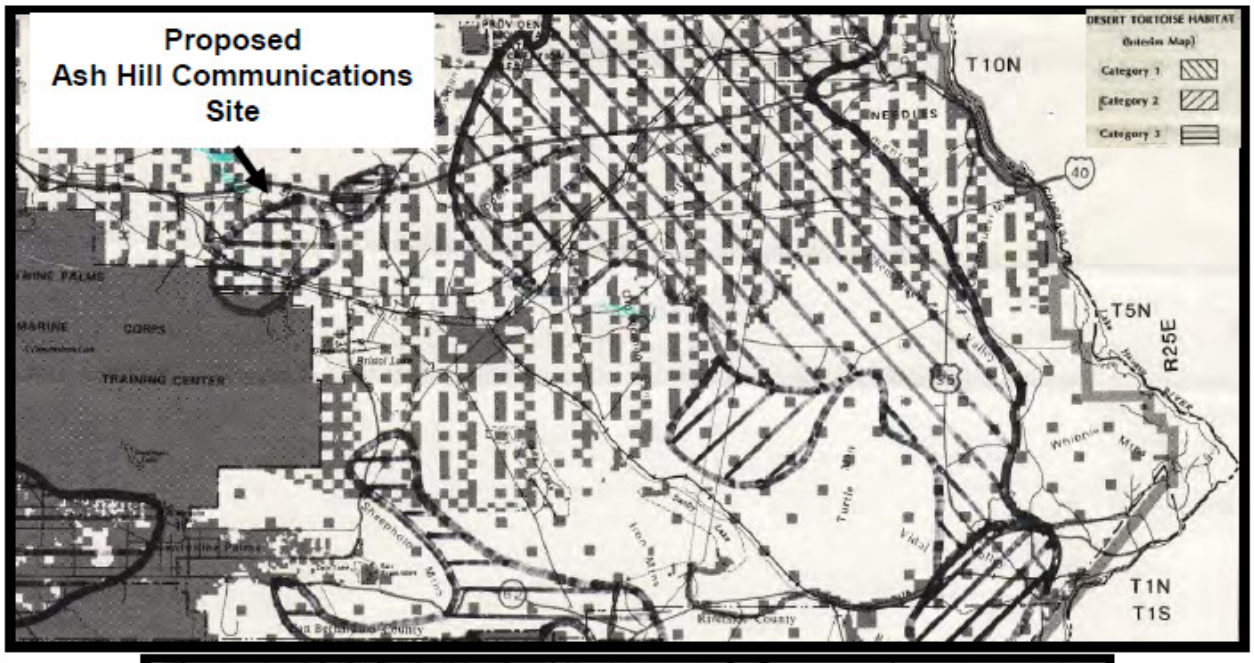
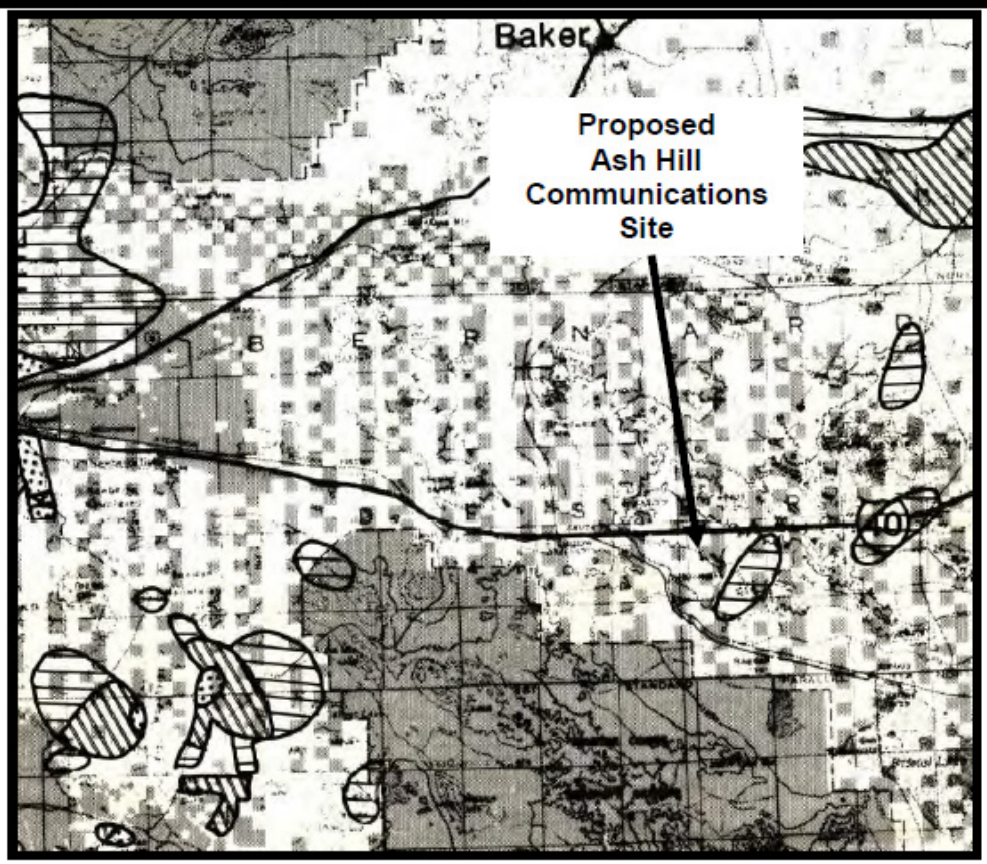


Figure 8. Desert Tortoise Recovery Planning Map (BLM 2002a).


Proposed
Ash Hill Communications
Site
DESERT TORTOISE HABITAT
Category 1
Category 2
Category 3
T10N
T5N
R25E
T1N
T1S
MARINE CORPS
TRAINING CENTER
NEEDLES
40
95


Baker
Proposed
Ash Hill
Communications
Site
BERNARDINO
15

### 4.7.5 *Burrowing Owl*

Garrett and Dunn (1981) indicate that the burrowing owl "is quite scarce in the northern deserts from the east Mojave Desert north through Inyo County" and that open desert is widely but sparsely populated. There is some winter movement of this owl species from northern areas into southern California, with a peak abundance noted in the agricultural areas of Imperial County (Campbell 1998). The species appears to have a tendency for coloniality and the dispersal of young, as well as seasonal migration, can result in occasional appearances of this owl anywhere within the species' general range.

The burrowing owl is generally found in open, dry and level grasslands, prairie and desert landscapes (Grinnell and Miller 1944). Vegetation density, prey, and suitably-sized burrow availability, as well as predation, have strong bearing on habitat selection by this species. The population in the western U.S. rarely construct their own burrows, instead generally occupying burrows constructed by other species such as ground squirrels, desert tortoise, coyote (*Canis latrans*), and kit fox (*Vulpes macrotis*). Man-made burrow sites such as banks and ditches, piles of broken concrete, and culverts are also occasionally used by burrowing owl.

The BSA is not known to support an owl breeding site or wintering area, but suitable habitat is present. No burrowing owls or their sign were encountered during the 2010 or 2017 surveys, but no focused survey was conducted. Although not state or federally listed as threatened or endangered, burrowing owls (*Athene cunicularia*) are treated differently than most unlisted birds because they are uniquely vulnerable to ground disturbance. This is because they both roost and nest underground.

### 4.7.6 *Other Special Status Bird Species*

Three special status bird species (prairie falcon, loggerhead shrike, and black-tailed gnatcatcher) were encountered along the access route, and all potentially nest in the area. None are state or federally listed as threatened or endangered, but like most native birds, all are protected by state code and the MBTA.

### 4.7.7 *Desert Bighorn Sheep*

Traditional taxonomy identifies four subspecies of bighorn sheep as occurring in the southwestern desert region, with desert bighorn sheep recognized as occurring in the Transverse Range and most California desert mountain ranges (Wehausen 1998). Three desert bighorn sheep metapopulations are commonly recognized in the Mojave Desert region: the south, central and north Mojave Desert metapopulations (Torres et al. 1994, 1996). The fenced I-40 and Interstate Highway 15 generally form the geographic boundaries of these metapopulations.

Within the desert, bighorn sheep have been noted to prefer visually open, often steep and rocky terrain on or near mountain above the desert floor (Wehausen 1998). Considerable movement of bighorn sheep populations between mountain ranges has been confirmed through telemetry studies and within individual mountain ranges populations are generally small. The species could potentially enter the BSA, as it is known to occur in the Bristol and Old Dad Mountains located

north of I-40, as well as in the Bullion Mountains southwest of Highway 66, but is not expected as a permanent resident. This subspecies is not state or federally listed as threatened or endangered, but is “fully protected” by the state. No bighorn sheep or their sign were encountered during the 2010 or 2017 surveys.

### 4.7.8 *American Badger*

There is a high probability that the American badger occurs in the BSA. Potentially suitable burrows were seen. This species is not state or federally listed as threatened or endangered.

# 5.0 RECOMMENDED MITIGATION MEASURES FOR THE PROJECT

Although the 2017 survey was focused on the new proposed access route, the BSA included most of the communications site footprint as well, so the recommendations previously made for that site are included here as well.

## 5.1 Plants

Extensive previous surface disturbance has removed most vegetation from the proposed communication site area. The less utilized portions of the access route, south of the gas pipeline road/NS0003, contain some vegetation. No yuccas, trees, cacti, special status, or succulent plants are expected to be impacted provided that project activity is confined to the existing access roads and the disturbed project site.

### 5.1.1 *Non-native Invasive Plant Risk Assessment*

While no invasive plant species were noted at the proposed communication site itself, the invasive non-native Asian (Sahara) mustard is present along the southerly access route, near Route 66. No plants designated as noxious are known to occur in the proposed action vicinity.

The seeds of invasive plants can be transported by vehicles along access roads and in construction areas, where suitable germination potential occurs. Larger populations of invasive plants are often found along transportation corridors, where they become first established in the under-story of certain shrubs. Following wet winter conditions, many such invasive plant species can become more established in Mojave Desert upland habitats. Any disturbance within native plant communities can and does present opportunities for subsequent invasive weed infestation. Established non-native plants often spread invasively in disturbed soil surface areas and can subsequently establish themselves outside of these disturbance zones.

In certain circumstances, established invasive plants can increase wildfire fuel loads. Several wildfires are known to have occurred along transportation corridors in the Mojave Desert, where this fuel loading likely influenced the rate and extent of fire spread (BLM 2005).

Soil disturbance in the immediate vicinity of the proposed communication site is unlikely to provide much additional germination area for invasive plant species. A concrete pad would be installed in most of the heavy equipment construction zone; eliminating suitable soils for plant germination. However, some minor weed establishment, including potentially invasive plant species, may occur along the edges of the constructed concrete pad following adequate rainfall. Operation and maintenance of this facility will continue to provide opportunities for invasive weed species, as will road maintenance. The following measures will help minimize and mitigate the spread of invasive plants.

1. ICT shall limit the size of any vegetation and/or ground disturbance to the absolute minimum necessary to perform the activity safely and as designed. ICT will avoid creating soil conditions that promote weed germination and establishment.

2. ICT shall begin project operations in weed-free areas whenever feasible before operating in weed-infested areas.
3. ICT shall locate equipment storage, machine and vehicle parking or any other area needed for the temporary placement of people, machinery, and supplies in areas that are relatively weed-free. ICT shall avoid or minimize all types of travel through weed-infested areas or restrict major activities to periods of time when the spread of seed or plant parts are least likely.
4. BLM or ICT shall determine equipment-cleaning sites (for when equipment is contaminated with weed seeds, plant parts, or soil). Project related equipment and machinery, including the nooks and crannies of undercarriages, will be cleaned using compressed air or water to remove mud, dirt and plant parts before moving into and from relatively weed-free areas. Seeds and plant parts will be collected, bagged, and deposited in dumpsters destined for local landfills, when practical. Such cleaning will be done prior to entry to the access route or site unless contamination has occurred onsite.
5. ICT personnel shall inspect, remove, and dispose of weed seed and plant parts found on their clothing and personal equipment, bag the product, and dispose of in a dumpster for deposit in local landfills.
6. ICT shall evaluate options, including area closures, to regulate the flow of traffic on-site where native vegetation needs to be established.
7. Operation and maintenance of this facility will continue to provide opportunities for invasive weed species. ICT will contact BLM about any weed invasions on the project footprint and will work with the BLM to control such weed populations.

## 5.2 Wildlife

Although the proposed communication site and access route offer little in the way of wildlife habitat, they are surrounded by a largely undisturbed native plant community which provides habitat for a variety of terrestrial and avian species. Little to no wildlife impacts are expected relative to surface disturbance and construction activities proposed for the project, provided that work remains inside the identified disturbed communication site and existing roadbed. Very little vegetative cover and available habitat would be affected in the proposed construction zone. Small mammals and reptiles are unlikely to be significantly affected by the proposed action; as little if any vegetation, burrows or habitat components which this fauna may be dependent on would be removed or disturbed. Larger mammals are also not expected to be affected by the proposed action; as little or no habitat components would be lost. No significant reduction of any territory or wildlife corridor would occur. In addition, the measures for the protection of desert tortoise below will reduce potential impacts to other wildlife species.

### 5.2.1 *Migratory Birds*

Migratory birds are known to forage and nest in the vicinity. Those birds which utilize habitat on adjacent lands for nesting purposes are protected under the MBTA and state code. Direct and indirect impacts to nesting birds can be minimized or eliminated by conducting work outside of

the local breeding season. Within the BSA, breeding activity is expected to occur between 1 February and 31 August. Work from about 1 September through 31 January would therefore be expected to avoid nesting activity. If work must be done during the breeding season, potential nesting areas should be examined by a qualified biologist prior to disturbance, especially where there could be any direct impacts. While there is no established protocol for nest avoidance, when consulted, the CDFW generally recommends avoidance buffers of about 500 feet for raptors and threatened/endangered species and 100 – 300 feet for other birds. If active nests are found, they should be avoided until young have fledged. This distance for avoidance buffers is directly related to the disturbance tolerance of each individual species. Listed species and/or species with a very low tolerance for disturbance will have a much larger avoidance buffer. Species with a high disturbance tolerance will have a much shorter avoidance buffer. The use of visual and/or noise attenuation barriers when adjacent to nesting habitat or known nests may allow such buffers to be reduced or eliminated.

### 5.2.2 *Desert Tortoise*

The 2017 survey indicates that desert tortoise is present in the area along the proposed access route. Although impediments to tortoise movement exist in the area, they do not prevent the potential for tortoise travel onto the proposed access road and communication site. Should tortoises occur on the access road or communication site during construction, equipment delivery, or road maintenance activities, potential exists for them to be adversely affected.

These adverse effects could include harassment through handling and moving tortoises out of harm's way (if authorized by BLM in compliance with an incidental take permit and biological opinion issued by USFWS), as well as injury or mortality associated with vehicle travel and heavy equipment operations in the BSA. Specific mitigation measures are proposed below to reduce the potential for incidental take of tortoises during vehicle use and equipment operations to negligible levels.

Improper disposal of trash items and food during proposed construction work could indirectly provide nest materials and food for predators, including the common raven (BLM 2005). Ravens are known to prey upon juvenile tortoises in certain circumstances (Boarman and Berry 1995). The communications site tower itself could also serve as a nest and perching site for ravens (BLM 2005), as could the roofs of the communications site building.

Best management practices and mitigation measures proposed below would minimize potential raven/predator attractants associated with the proposed action. Measures to address the potential construction of raven nests on the proposed communication site tower are also outlined below. Although mitigation measures proposed below would minimize the possibility of incidental take of tortoise associated with the proposed action, potential remains for the project to affect this federally listed species.

As a consequence, ESA Section 7 consultation is recommended in authorizing the project. BLM has completed a previous programmatic consultation for small actions which may have a potential for incidental take of tortoises. The resulting "*Biological Opinion for Small Projects in Desert*

*Tortoise Habitat*" (USFWS 1997) has been issued to BLM as a programmatic consultation which can be applied to satisfy ESA Section 7 consultation requirements on certain land use authorizations, potentially including this one.

The following best management practices and mitigation measures taken from the "*Biological Opinion for Small Projects in Desert Tortoise Habitat*" (USFWS 1997) have been included below as recommended mitigation to avoid incidental take of desert tortoises (USFWS 1997). These measures will also serve to protect other wildlife, including special status species.

1. A qualified biologist[1] (i.e., an individual with appropriate education, training and experience to conduct desert tortoise surveys, monitor project activities in tortoise habitat, and provide worker education programs) is recommended to:
    a. Provide an environmental awareness and tortoise education training program to all personnel who work onsite prior to initiation of field activities, including entry to the access route and whenever a new employee prepares to enter the access route or site once the project is underway (see details below).
    b. Accompany and monitor any heavy equipment that is employed to smooth or repair the existing road proposed for vehicle travel and equipment transport to the site. Any tortoises and/or earthen burrows detected along this access route shall be closely monitored and avoided during road smoothing operations, especially during the April through May and September through October seasons when tortoises are most active.
    c. Survey the proposed site immediately prior to any surface disturbance to ensure no tortoises or tortoise burrows are present.
    d. Maintain a record of all tortoises and/or tortoise burrows detected in proximity to the site and access road.
    e. Monitor the installation of temporary tortoise exclusion fencing (USFWS 2005) appropriate to the communications site, which shall be erected around the perimeter of the proposed surface disturbance area, equipment staging, and material storage areas. This fencing should be installed in a manner that avoids any detected desert tortoise burrows and allows for the installation of proposed facility chain-link fencing within the temporary fence perimeter. Upon the completion of all proposed construction and staging activity, this fencing shall be removed. Fencing will not be installed along access routes, which will be monitored as needed.
    f. The fence shall be constructed of hardware cloth with a 1/2-inch mesh size unless changed by the Desert Tortoise Management Oversight Group. It shall extend 18 inches above ground and 12 inches below ground. Where burial of the fence is not

[1] The term "qualified biologist" in these measures is defined as a trained wildlife biologist who is knowledgeable concerning desert tortoise biology, tortoise mitigation techniques, tortoise habitat requirements, identification of tortoise sign, and procedures for surveying for tortoises. Evidence of such knowledge may include one or more of the following: employment as a field biologist working on desert tortoise or successful completion of a contract dealing with desert tortoise fieldwork. Attendance at the training course sponsored by the Desert Tortoise Council would be a supporting qualification.

possible, the lower 12 inches shall be folded outward against the ground and fastened to the ground so as to prevent tortoise entry. The fence shall be supported sufficiently to maintain its integrity. Gate(s) shall be tortoise-proof. This gate shall remain closed except for the immediate passage of vehicles. The fence shall be checked at least monthly and maintained when necessary by ICT to ensure its integrity.

2. ICT shall designate a field contact representative (FCR) who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the BLM. The FCR must be onsite during all project activities. The FCR shall have the authority to halt all project activities that are in violation of the stipulations. The FCR shall have a copy of all stipulations when work is being conducted on the site. The FCR may be a crew chief or field supervisor, a project manager, any other employee of ICT, or a project biologist.
3. ICT is responsible for ensuring that the education program to be presented by the qualified biologist is developed and presented prior to conducting activities. The employee education program must be received, reviewed, and approved by the BLM Resource Area Office at least 15 days prior to the presentation of the program. The program may consist of a class presented by a qualified biologist (BLM or contracted) in person or in a video. Wallet-sized cards or a one-page handout with important information for workers to carry are recommended. The program shall cover the following topics at a minimum:
    a. Distribution of the desert tortoise,
    b. General behavior and ecology of the tortoise,
    c. Sensitivity to human activities,
    d. Legal protection,
    e. Penalties for violations federal laws,
    f. Reporting requirements, and
    g. Project protective mitigation measures.
    h. Maximum speed limit of 15 mph for all vehicles on the access road and the responsibility of vehicle operators to avoid tortoises that may be encountered along this existing road and onsite.
    i. The need to look beneath all vehicles and equipment prior to moving them.
4. Only biologists authorized by the USFWS and the BLM shall handle desert tortoises. The BLM or ICT shall submit the name(s) of proposed authorized biologist(s) to the USFWS for review and approval at least 15 days prior to the onset of activities. No handling activities shall begin until an authorized biologist is approved. [2] Authorization for handling shall be granted under the auspices of the "*Biological Opinion for Small Projects in Desert Tortoise Habitat*" (USFWS 1997).

[2] An "authorized biologist" is defined as a wildlife biologist who has been authorized to handle desert tortoises under the auspices of a biological opinion. An authorized biologist is generally approved by the USFWS and the BLM.

a. Desert tortoises may be handled only by an authorized biologist and only when necessary. In handling desert tortoises, an authorized biologist shall follow the techniques form handling desert tortoises in "Guidelines for Handling Desert Tortoises during Construction Projects" (Desert Tortoise Council 1994 [revised 1999]).

b. The authorized biologist shall maintain a record of all desert tortoises handled. This information shall include for each tortoise:

   i. The locations (narrative and maps) and dates of observations;

   ii. General condition and health, including injuries and state of healing and whether animals voided their bladders;

   iii. Location moved from and location moved to;

   iv. Diagnostic markings (i.e., identification numbers or marked lateral scutes).

   v. A photograph of each handled desert tortoise as described in a previous measure.

c. No later than 90 days after completion of construction or termination of activities, the FCR and authorized biologist shall prepare a report for the BLM. The report shall document the compliance with, effectiveness, and practicality of the mitigation measures, the number of tortoises excavated from burrows, the number of tortoises moved from the site, the number of tortoises killed or injured, and the specific information for each tortoise as described previously. It will summarize all monitoring activity. The report may make recommendations for modifying the stipulations to enhance tortoise protection or to make it more workable in the future. The report shall provide an estimate of the actual acreage disturbed by various aspects of the operation. If any suitable tortoise habitat is impacted by project activities, standard BLM compensation requirements shall apply.

d. Upon locating a dead or injured tortoise, ICT and/or a project biologist is to notify the BLM Resource Area Office. The BLM must then notify the appropriate field office (Carlsbad or Ventura) of the USFWS by telephone within three days of the finding. Written notification must be made within five days of the finding, both to the appropriate USFWS field office and to the USFWS Division of Law Enforcement in Torrance.

   The information provided must include the date and time of the finding or incident (if known), location of the carcass or injured animal, a photograph, cause of death, if known, and other pertinent information.

   An injured animal shall be transported to a qualified veterinarian for treatment at the expense of ICT. If an injured animal recovers, the appropriate field office of USFWS should be contacted for final disposition of the animal.

   The BLM shall endeavor to place the remains of intact tortoise carcasses with educational or research institutions holding the appropriate state and federal permits. If such institutions are not available or the animal's remains are in poor condition, the information noted above shall be obtained and the carcass left in place. If left in place and sufficient pieces are available, the BLM (or its agent) shall attempt to mark the

carcass to ensure that it is not reported again. Arrangements for disposition to a museum shall be made prior to removal of the carcass from the field.

e. Workers shall inspect for tortoises under a vehicle prior to moving it. If a tortoise is present, the worker shall carefully move the vehicle only when necessary and when the tortoise would not be injured by moving the vehicle or shall wait for the tortoise to move out from under the vehicle.

f. All trash and food items shall be promptly contained within closed, raven and predator proof containers. These shall be regularly removed from the project site to reduce the attractiveness of the area to ravens and other tortoise predators.

In addition to the measures recommended above, any common raven nest constructed on the proposed communication site tower or associated facility shall be reported to the BLM and removed by ICT in the inactive nesting season when the nest is unoccupied by birds.

5. The area of disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, public health and safety, and other limiting factors.
6. Work area boundaries shall be delineated with flagging or other marking to minimize surface disturbance associated with vehicle straying. Special habitat features, such as burrows, identified by the qualified biologist shall be avoided to the extent possible.
7. To the extent possible, previously disturbed areas within the project site shall be utilized for the stockpiling of excavated materials, storage of equipment, location of office trailers, and parking of vehicles. The qualified biologist, in consultation with ICT, shall ensure compliance with this measure.

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# 6.0 CONCLUSION

The proposed Ash Hill Communication site access route and an adjacent buffer (the BSA) were surveyed for desert tortoise and general biological resources in 2010 and 2017. Plant communities, wildlife habitats, and animal species observed in the BSA were recorded and characterized.

Sign of the desert tortoise, including recent sign, was seen on and near the access route (see Appendix D). Three special status bird species were also observed in the course of this biological survey effort. Lands to be directly disturbed by project work on the communications site and access road bed were judged to be unsuitable habitat for desert tortoise and other special status resources due to previous surface disturbance. However, the BSA outside of the direct project footprint provides habitat for a variety of plants and wildlife, including the desert tortoise and other special-status species. Because of this, there is a possibility that desert tortoises and other special status wildlife may enter the project and access route footprints.

Mitigation measures have been recommended to ensure that adverse effects are avoided and/or minimized during the course of the surface-disturbing activity associated with the project.

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# APPENDIX A
# SITE PHOTOS

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Photo 1. Conditions at the communications facility site.

Photo 2. Typical wash conditions along the east-west gas pipeline road/NS0003.

Photo 3. Typical upland conditions along the east-west gas pipeline road/NS0003.

Photo 4. Typical upland conditions along the north-south trending road/NS0017 north of the railroad and wash 3b.

Photo 5. Looking southwest at impassable, severely eroded access route dropping into Drainage 3b north of the railroad.

Photo 6. Looking south at the access road/NS0017 within Drainage 3b which continues in the wash under the railroad bridge in the distance. This is the point where the access route would exit the drainage heading north if the road was passable.

Photo 7. Desert tortoise burrow with fresh tracks.

Photo 8. Desert tortoise burrow with tortoise scats. Also see desert tortoise carcass photo on the cover of this report.

# APPENDIX B
# PLANT SPECIES DETECTED ONSITE

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## Species List: Vascular Plants

This list reports only plants observed onsite by this study. Other species may have been overlooked or undetectable due to their growing season.

*†= special-status species, ** = non-native species, sp. = identified only to genus, spp. = two or more species, cf. = compares favorably with], var. = variety, ssp. = subspecies

| | |
|---|---|
| **CONIFERAE** | **CONE BEARING PLANTS** |
| **GNETAE** | **JOINT FIRS** |
| **Ephedraceae** | **Ephedra Family** |
| *Ephedra californica* | desert tea |
| **ANGIOSPERMAE** | **FLOWERING PLANTS** |
| **DICOTYLEDONEAE** | **DICOTYLEDONOUS PLANTS** |
| **Amaranthaceae** | **Amaranth Family** |
| *Tidestromia lanuginosa* | Woolly tidestromia |
| **Apocynaceae** | **Dogbane Family** |
| *Asclepias subulata* | rush milkweed |
| *Funastrum hirtellum* | trailing townula |
| **Asteraceae** | **Sunflower Family** |
| *Ambrosia dumosa* | white bur-sage |
| *Ambrosia salsola* | cheesebush |
| *Bebbia juncea* var. *aspera* | sweetbush |
| cf. *Chaenactis fremontii* | Fremont pincushion |
| *Encelia farinosa* | brittlebush |
| *Encelia* cf. *frutescens* | rayless encelia |
| *Geraea canescens* | desert-sunflower |
| *Malacothrix glabrata* | desert dandelion |
| *Stephanomeria exigua* | small wirelettuce |
| **Boraginaceae** | **Borage Family** |
| *Cryptantha* ≥3 spp. | forget me not |
| *Phacelia* sp. | phacelia |
| *Tiquilia plicata* | fan-leaved tiquilia |
| **Brassicaceae** | **Mustard Family** |
| *Brassica tournefortii** | Asian mustard |
| **Cactaceae** | **Cactus Family** |
| *Cylindropuntia echinocarpa* | golden cholla |
| *Cylindropuntia ramosissima* | pencil cactus |
| *Echinocactus polycephalus* var. *polycephalus* | cottontop cactus |
| *Opuntia basilaris* | beavertail |
| **Chenopodiaceae** | **Goosefoot Family** |
| *Atriplex canescens* | four-wing saltbush |
| *Atriplex hymenelytra* | desert-holly |
| **Convolvulaceae** | **Morning Glory Family** |
| *Cuscuta* sp. | dodder |

| | |
|---|---|
| **Cucurbitaceae** | **Gourd Family** |
| *Cucurbita palmata* | coyote melon |
| **Euphorbiaceae** | **Spurge Family** |
| *Euphorbia polycarpa* | smallseed sandmat |
| **Fabaceae** | **Legume Family** |
| *Dalea mollis* | hairy prairie clover |
| *Psorothamnus spinosus* | smoke tree |
| *Senegalia greggii* | catclaw |
| *Senna armata* | spiny senna |
| **Krameriaceae** | **Rhatany Family** |
| *Krameria bicolor* | white rhatany |
| *Krameria erecta* | little-leaved rhatany |
| **Lamiaceae** | **Mint Family** |
| *Salvia columbariae* | chia |
| **Loasaceae** | **Loasa Family** |
| *Mentzelia albicaulis* | whitestem blazingstar |
| *Petalonyx thurberi* | Thurber's sandpaper plant |
| **Onagraceae** | **Evening Primrose Family** |
| *Camissonia* sp. | evening primrose sp. |
| *Oenothera* sp. | evening primrose sp. |
| **Plantaginaceae** | **Plantain Family** |
| *Plantago ovata* | desert plantain |
| **Polemoniaceae** | **Phlox Family** |
| *Eriastrum* sp. | woollystar sp. |
| *Gilia* sp. | gilia sp. |
| *Langloisia* cf. *setosissima* | bristly langlosia |
| *Loeseliastrum* sp. | calico sp. |
| **Polygonaceae** | **Buckwheat Family** |
| *Chorizanthe rigida* | spiny herb |
| *Eriogonum deflexum* | flat-top buckwheat |
| *Eriogonum inflatum* | desert trumpet |
| *Eriogonum* ≥2 additional spp. | annual buckwheat sp. |
| **Solanaceae** | **Nightshade Family** |
| *Physalis crassifolia* | thick-leaved ground cherry |
| **Zygophyllaceae** | **Caltrop Family** |
| *Larrea tridentata* | creosote bush |
| **MONOCOTYLEDONEAE** | **MONOCOTYLEDONOUS PLANTS** |
| **Poaceae** | **Grass Family** |
| *Dasyochloa pulchellum* | fluffgrass |
| *Schismus* sp.* | Mediterranean grass |

# APPENDIX C
# VERTEBRATE ANIMAL SPECIES DETECTED ONSITE

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## Species List: Vertebrate Animals

This list reports only vertebrate animals or their sign observed by this study. Other species may have been overlooked or undetectable due to the season, their activity patterns, or weather conditions.

*†*= special-status species*, ** = non-native species, sp. = identified only to genus, spp. = two or more species, cf = compares favorably with

| **CLASS REPTILIA** | **REPTILES** |
|---|---|
| **Testudinae** | **Tortoise Family** |
| *Gopherus agassizii †* | Mohave desert tortoise (burrows, sign) |
| **Teiidae** | **Whiptail and Relatives Family** |
| *Aspidoscelis tigris* | tiger whiptail |
| **Iguanidae** | **Iguana Family** |
| *Sauromalus ater* | common chuckwalla |
| **Phrynosomatidae** | **Spiny Lizard Family** |
| *Uta stansburiana* | common side-blotched lizard |
| *Callisaurus draconoides* | zebra-tailed lizard |
| **Colubridae** | **Harmless Egg-Laying Snake Family** |
| *Coluber flagellum* | coachwhip |
| **CLASS AVES** | **BIRDS** |
| **Falconidae** | **Caracaras and Falcons Family** |
| *Falco mexicanus †* | prairie falcon |
| **Laniidae** | **Shrike Family** |
| *Lanius ludovicianus †* | loggerhead shrike |
| **Corvidae** | **Jay, Magpie & Crow Family** |
| *Corvus corax* | common raven |
| **Alaudidae** | **Lark Family** |
| *Eremophila alpestris* | horned lark |
| **Remizidae** | **Penduline Tits and Verdins Family** |
| *Auriparus flaviceps* | verdin (nest) |
| **Troglodytidae** | **Wren Family** |
| *Salpinctes obsoletus* | rock wren |
| **Polioptilidae** | **Gnatcatchers and Gnatwrens Family** |
| *Polioptila melanura †* | black-tailed gnatcatcher |
| **Emberizidae** | **Sparrow Family** |
| *Artemisiospiza belli* | Bell's sparrow |
| **Icteridae** | **True Finch Family** |
| *Euphagus cyanocephalus* | Brewer's blackbird |
| **Parulidae** | **Wood-Warblers** |
| *Setophaga coronata* | yellow-rumped warbler |

| **CLASS MAMMALIA** | **MAMMALS** |
|---|---|
| **Canidae** | **Fox, Wolf & Coyote Family** |
| *Canis latrans* | coyote (scat) |
| *Vulpes macrotis* | kit fox (scat, burrows) |
| **Cricetidae** | **New World Rat & Mouse Family** |
| *Neotoma* sp. | woodrat (middens) |
| **Heteromyidae** | **Pocket Mice and Kangaroo Rats** |
| *Dipodomys* sp. | kangaroo rat (sign of this & other rodents) |
| **Leporidae** | **Rabbit & Hare Family** |
| *Lepus californicus* | black-tailed jackrabbit |
| **Sciuridae** | **Squirrel Family** |
| *Ammospermophilus leucurus* | white-tailed antelope squirrel |

# APPENDIX D
# DESERT TORTOISE TRANSECTS AND RESULTS

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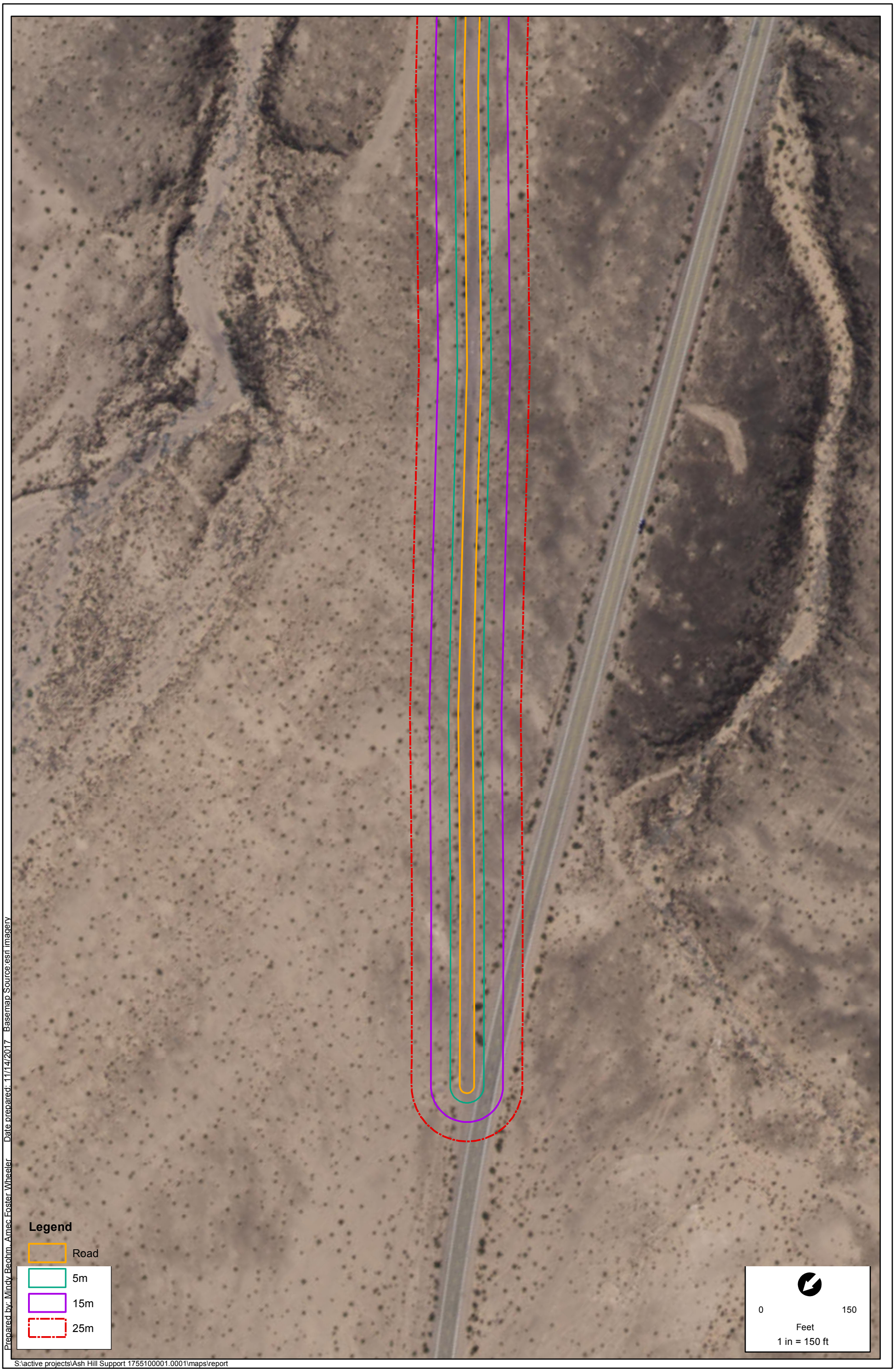


amec foster wheeler

Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-01


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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-02


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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-03


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:esri imagery

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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-04

Legend

Road

5m

15m

25m

0 150

Feet

1 in = 150 ft

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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-05

Legend

Road
- 5m
- 15m
- 25m

Burrow
- Tracks

0 150
Feet
1 in = 150 ft

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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-06

Legend

| Road | Burrow |
|---|---|
| 5m | Carcass |
| 15m | Scat |
| 25m | Tracks |

0 150

Feet

1 in = 150 ft

Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 11/14/2017 Basemap Source:esri imagery

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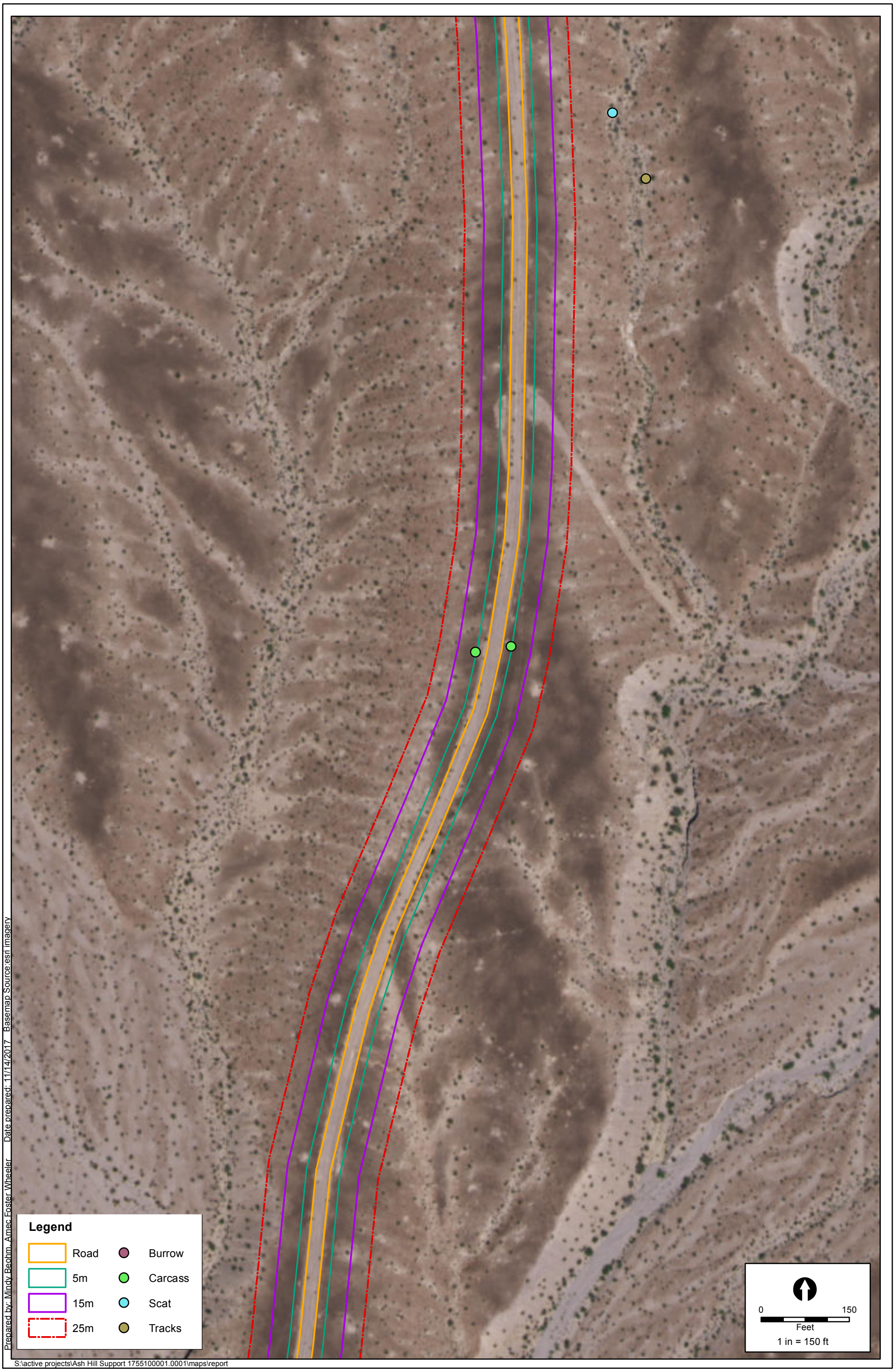
Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-07

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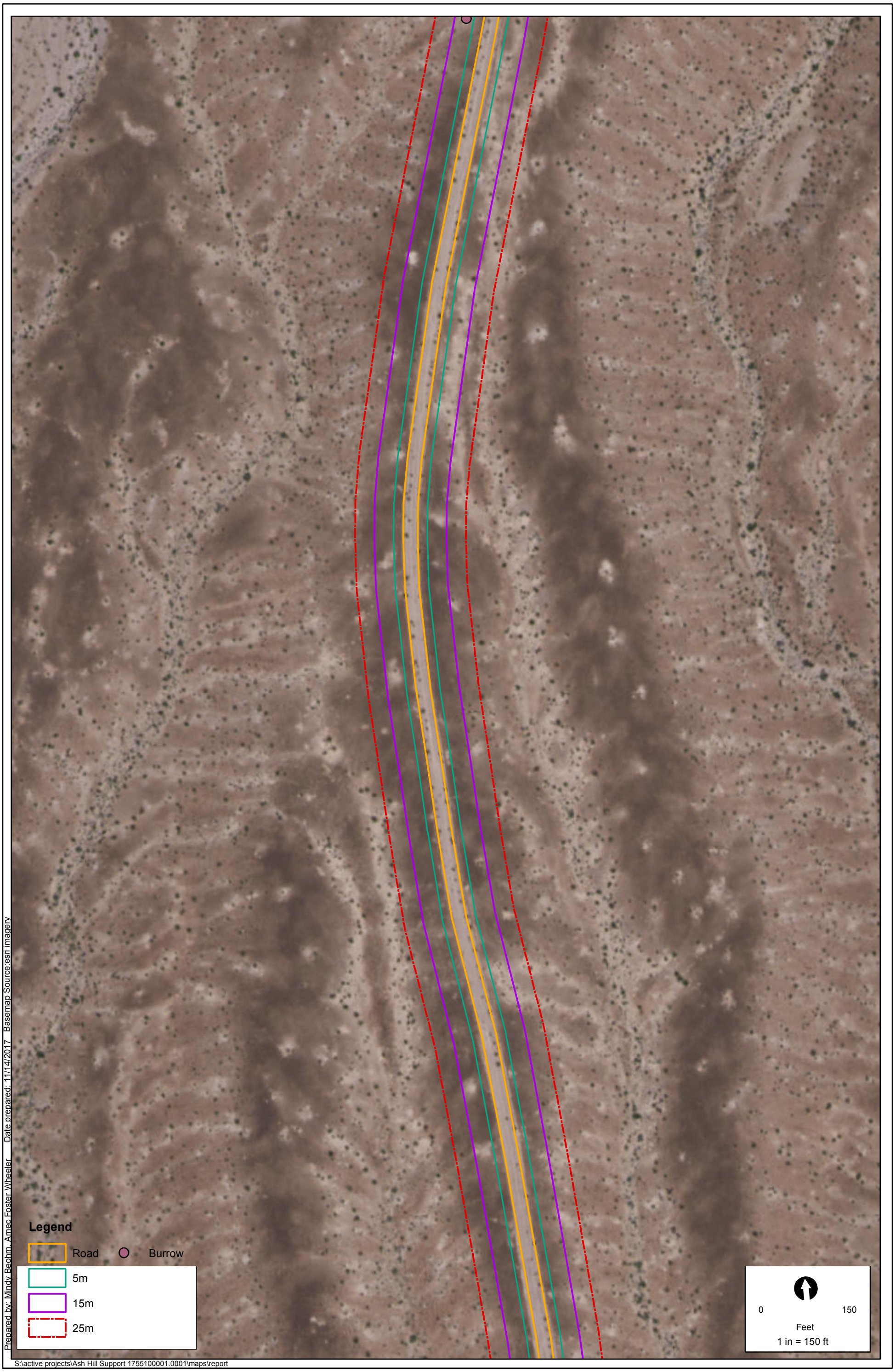
Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-08

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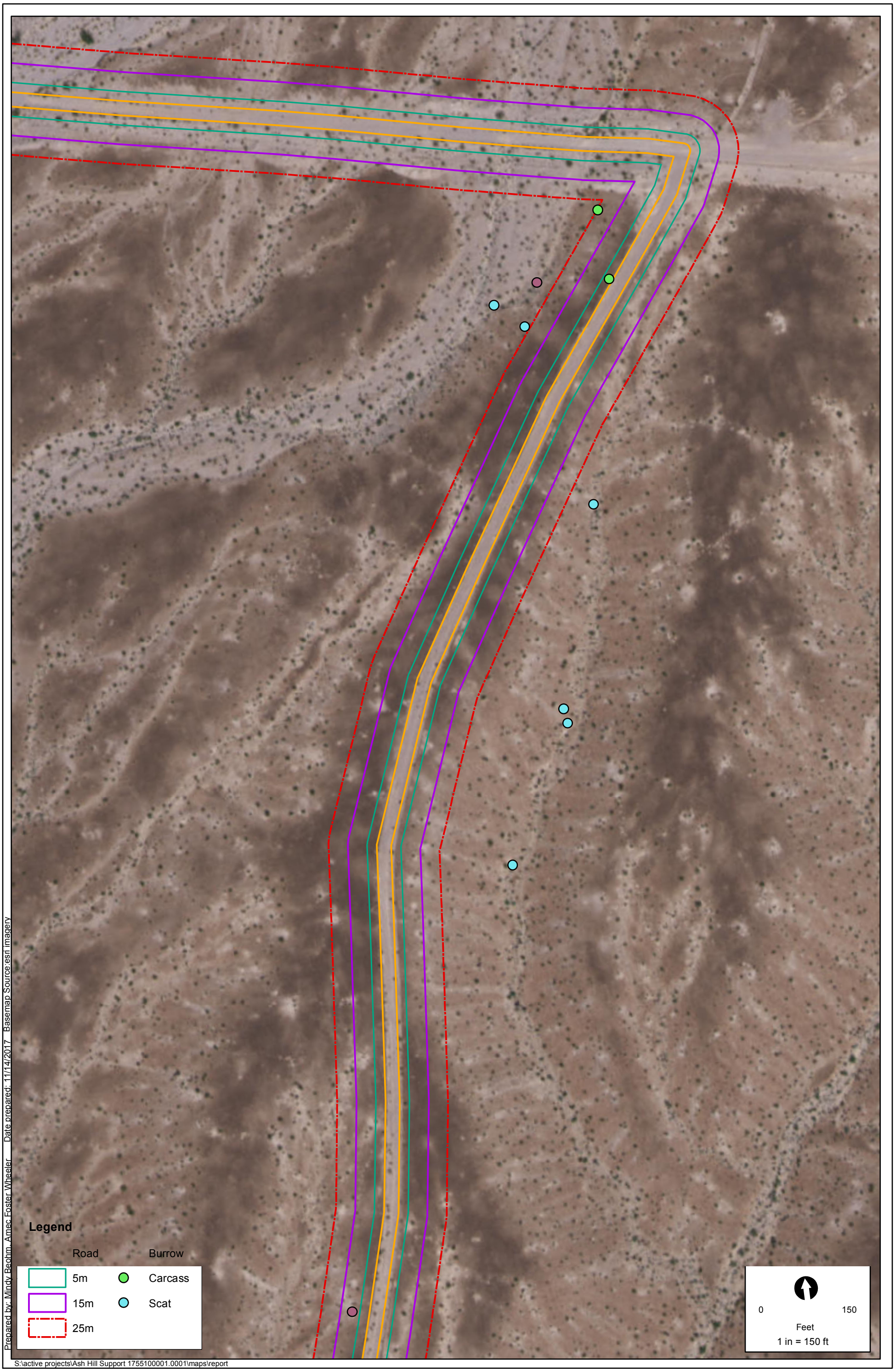
Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-09

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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-10

Legend

Road

Burrow

5m

15m

25m

0 150

Feet

1 in = 150 ft

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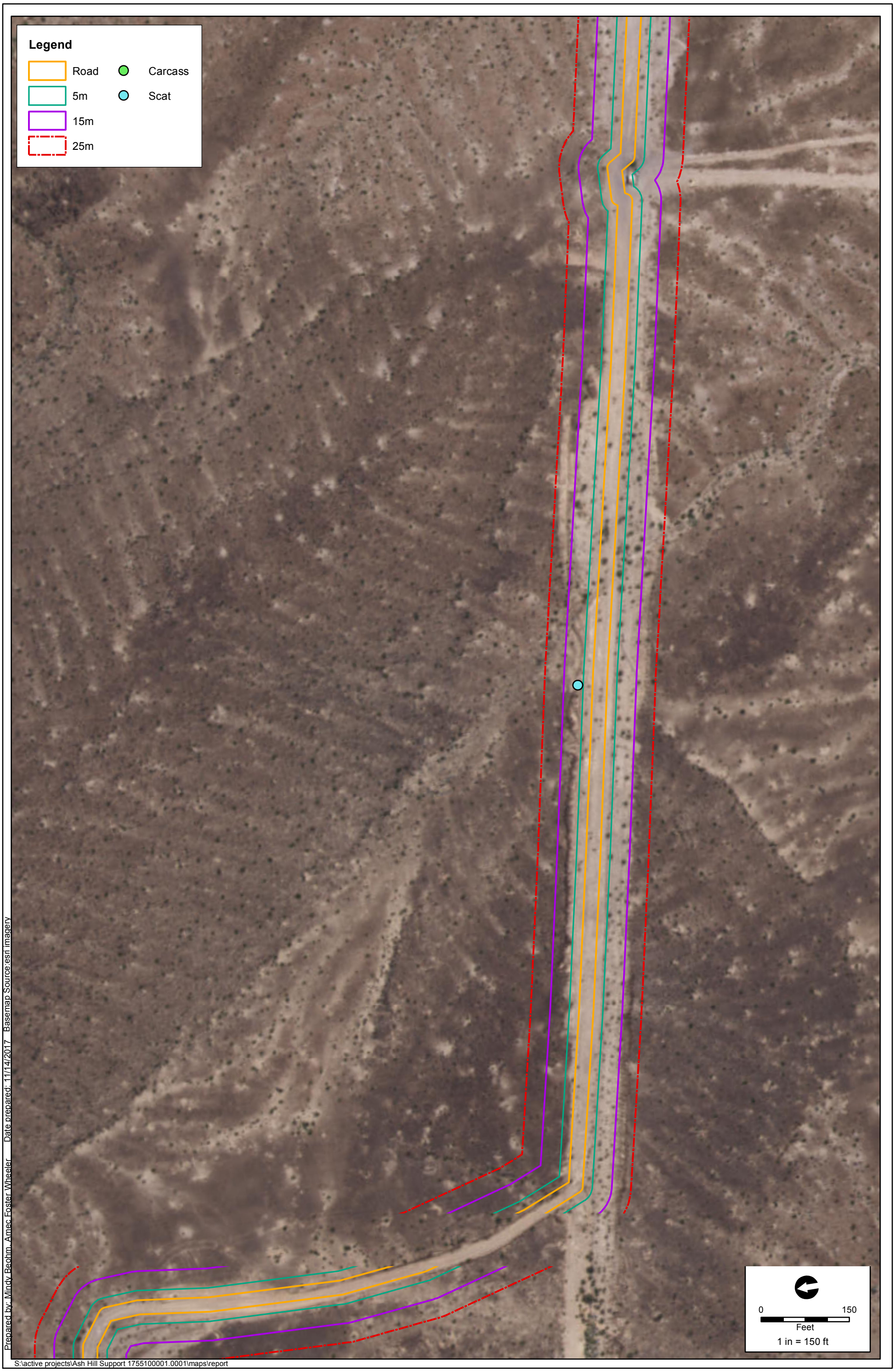
Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-11

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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-12


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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-13


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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-14


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Desert Tortoise Transects and Results Map

Proposed Ash Hill Communications Site

APPENDIX

D-15

# APPENDIX E
# DRAINAGE MAP

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Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:esri imagery

**Legend**

- Survey Area
- Road

0 150
Feet
1 in = 150 ft

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-01

Legend

Survey Area

Road

Drainages

0 150

Feet

1 in = 160 ft

Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 11/14/2017 Basemap Source:esri imagery

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-02

Legend

Survey Area

Road

Drainages

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-03


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:esri imagery

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-04


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:esri imagery

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-05


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source: esri imagery

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-06


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:esri imagery

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-07


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:esri imagery

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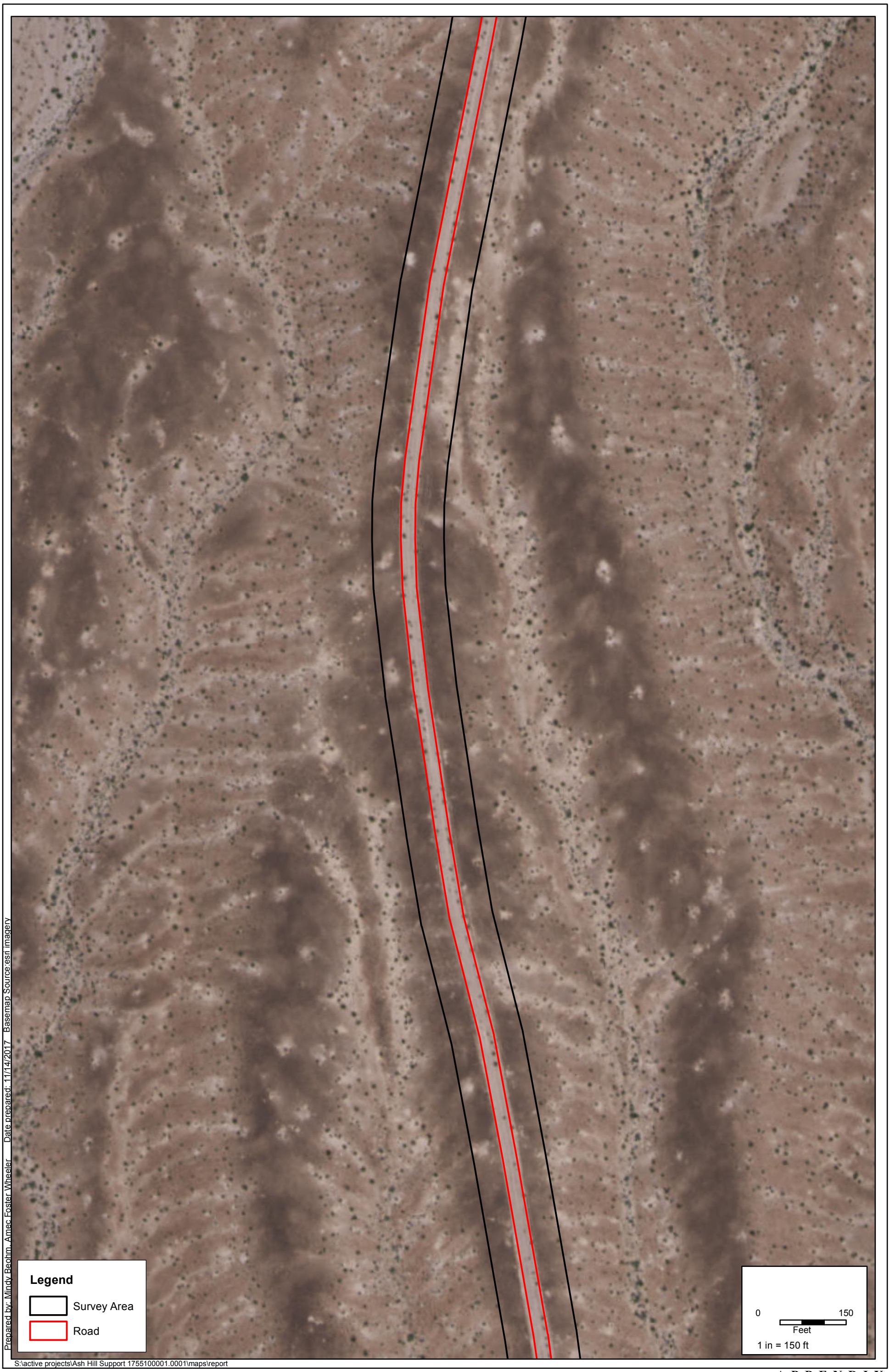
Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-08

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-09


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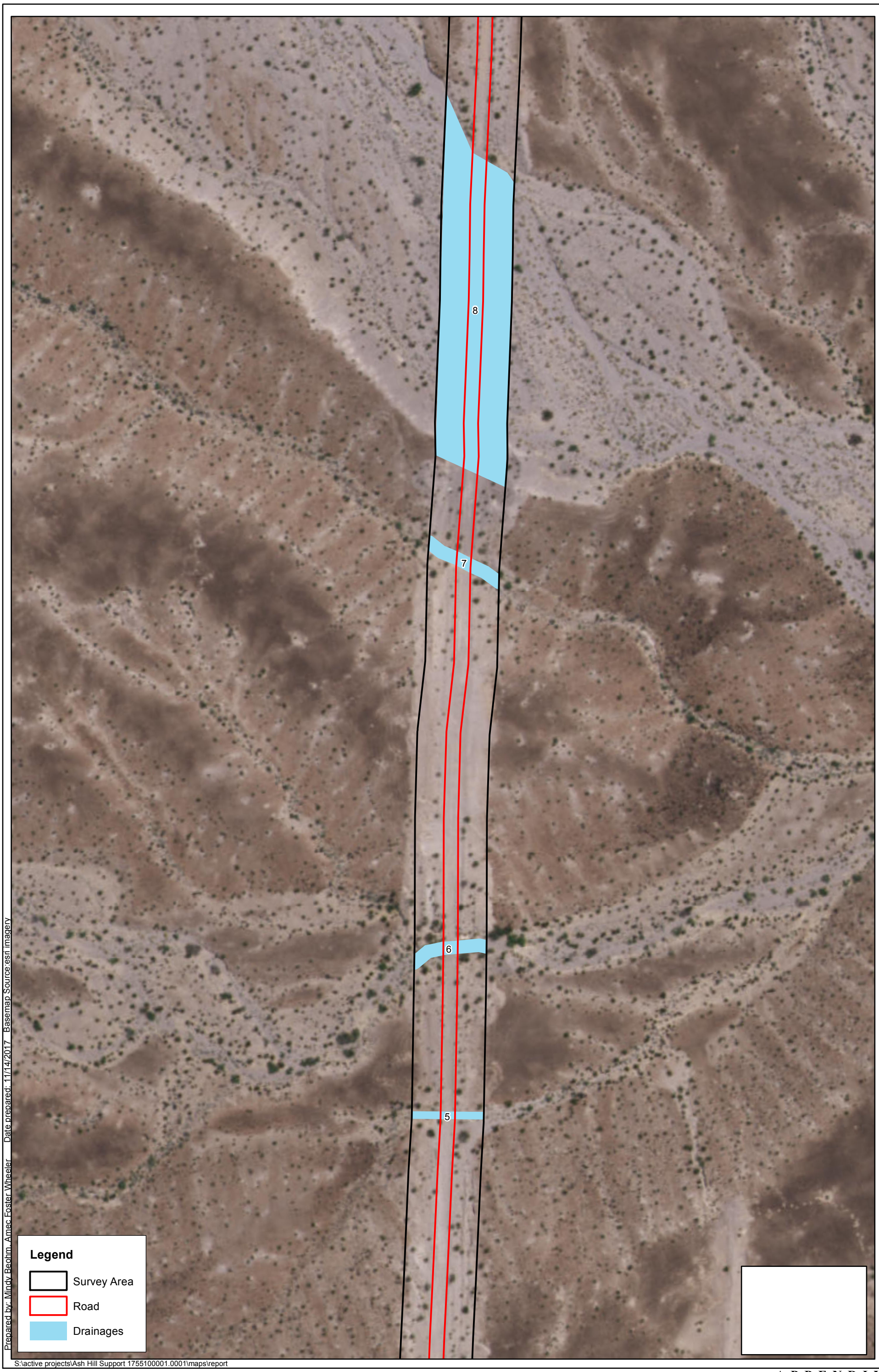
Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-10

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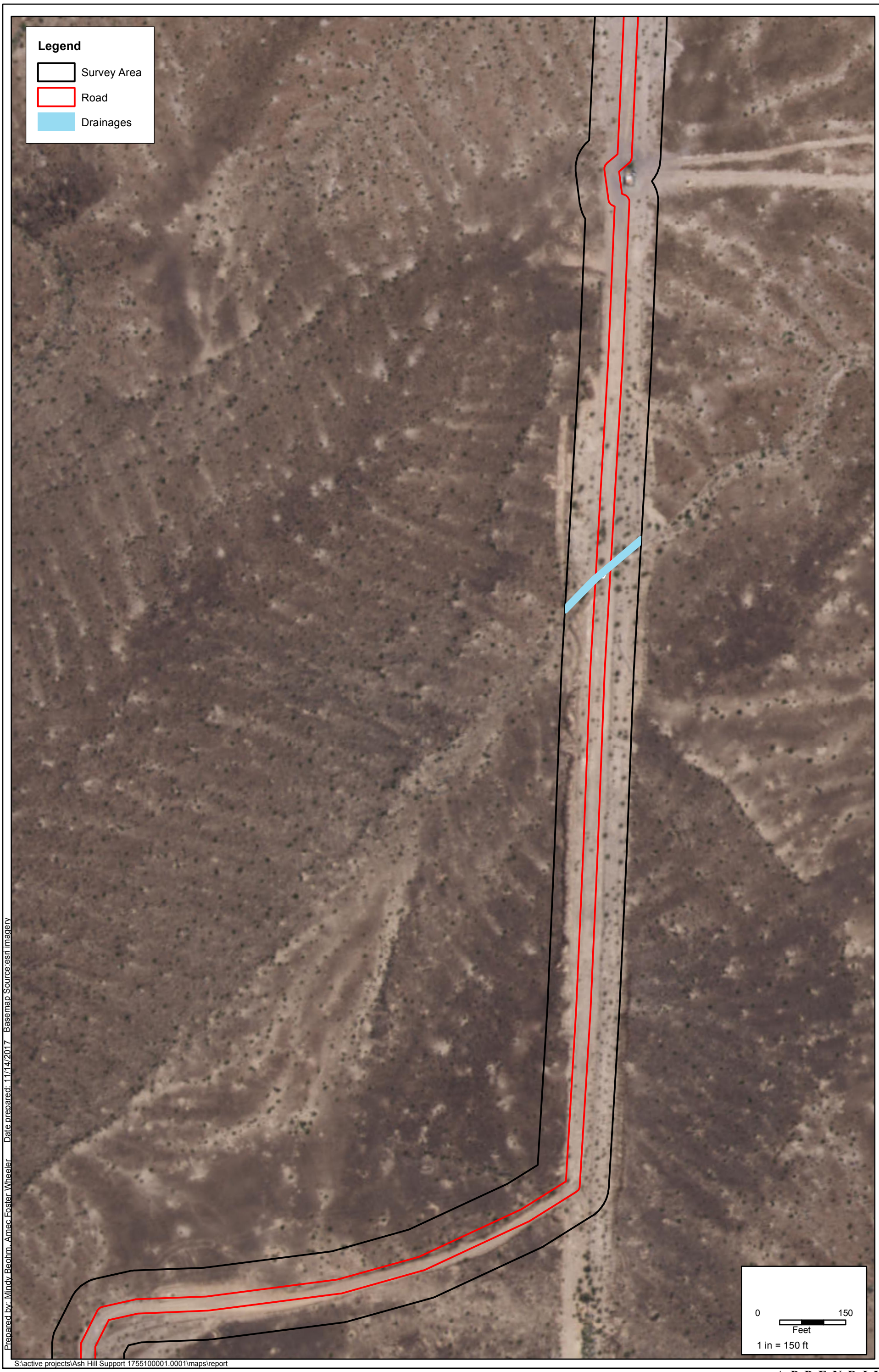
Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-11

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-12

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-13


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:esri imagery

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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-14


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Drainage Map

Proposed Ash Hill Communications Site

APPENDIX

E-15

# APPENDIX F
# VEGETATION MAP

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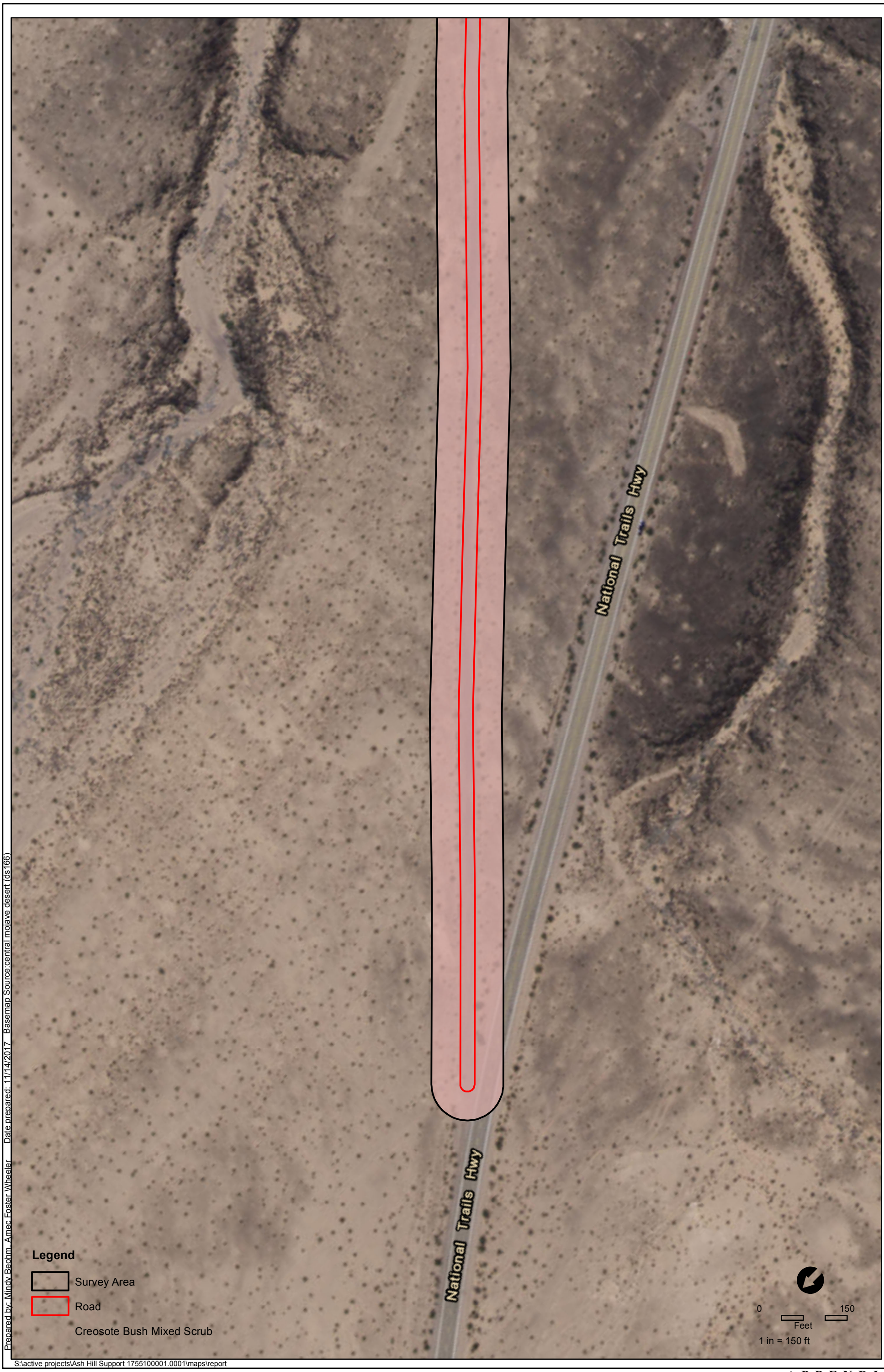


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:central mojave desert (ds166)

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APPENDIX

amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

F-01


APPENDIX

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Vegetation Map

Ash Hill Communications Site Access Route

F-02


Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 11/14/2017 Basemap Source:central mojave desert (ds166)

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APPENDIX

amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

F-03


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:central mojave desert (ds166)

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APPENDIX

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Vegetation Map

Ash Hill Communications Site Access Route

F-04

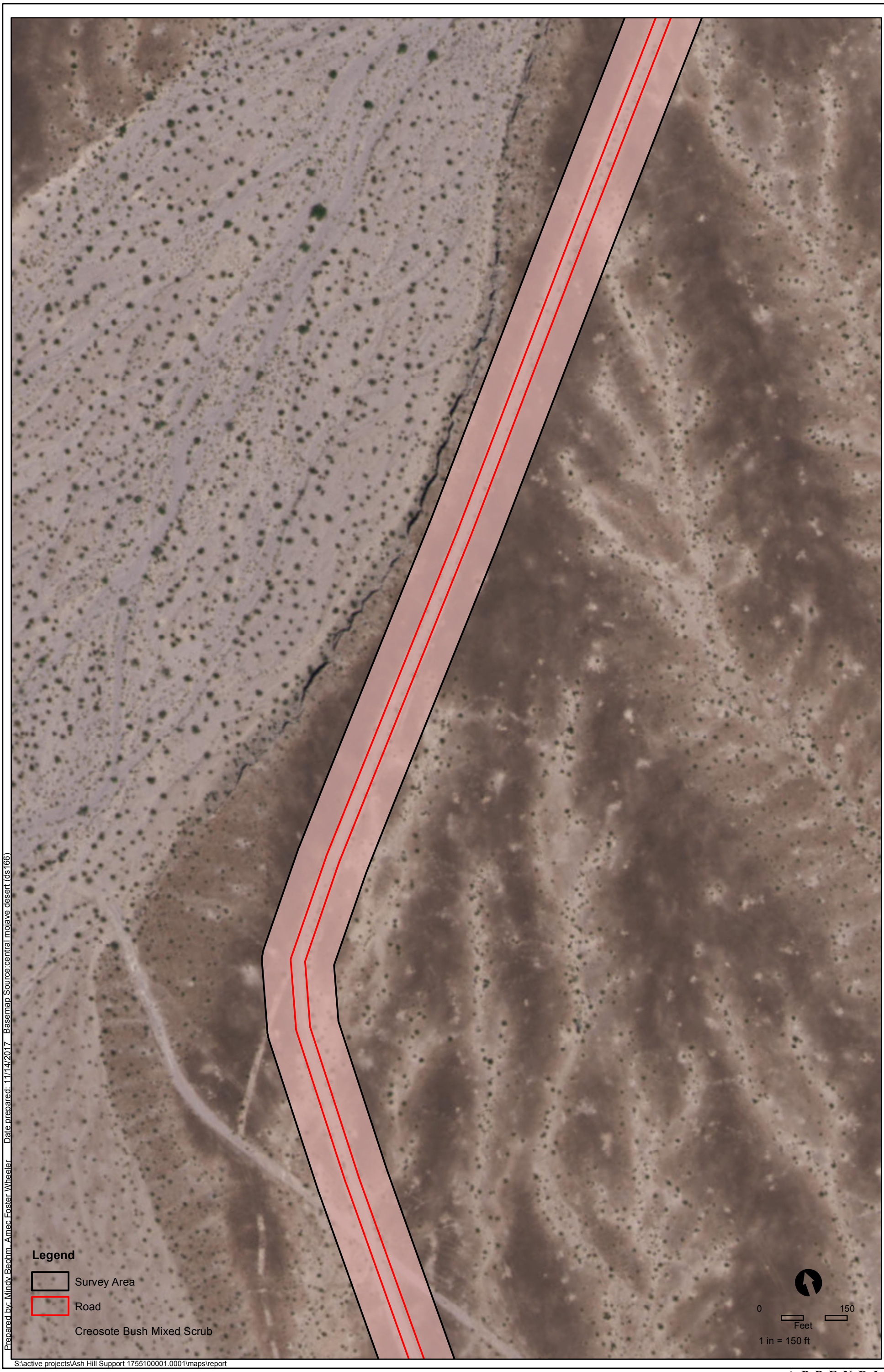

APPENDIX

amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

F-05




APPENDIX

amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

F-06


Prepared by: Mindy Bechm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:central mojave desert (ds166)

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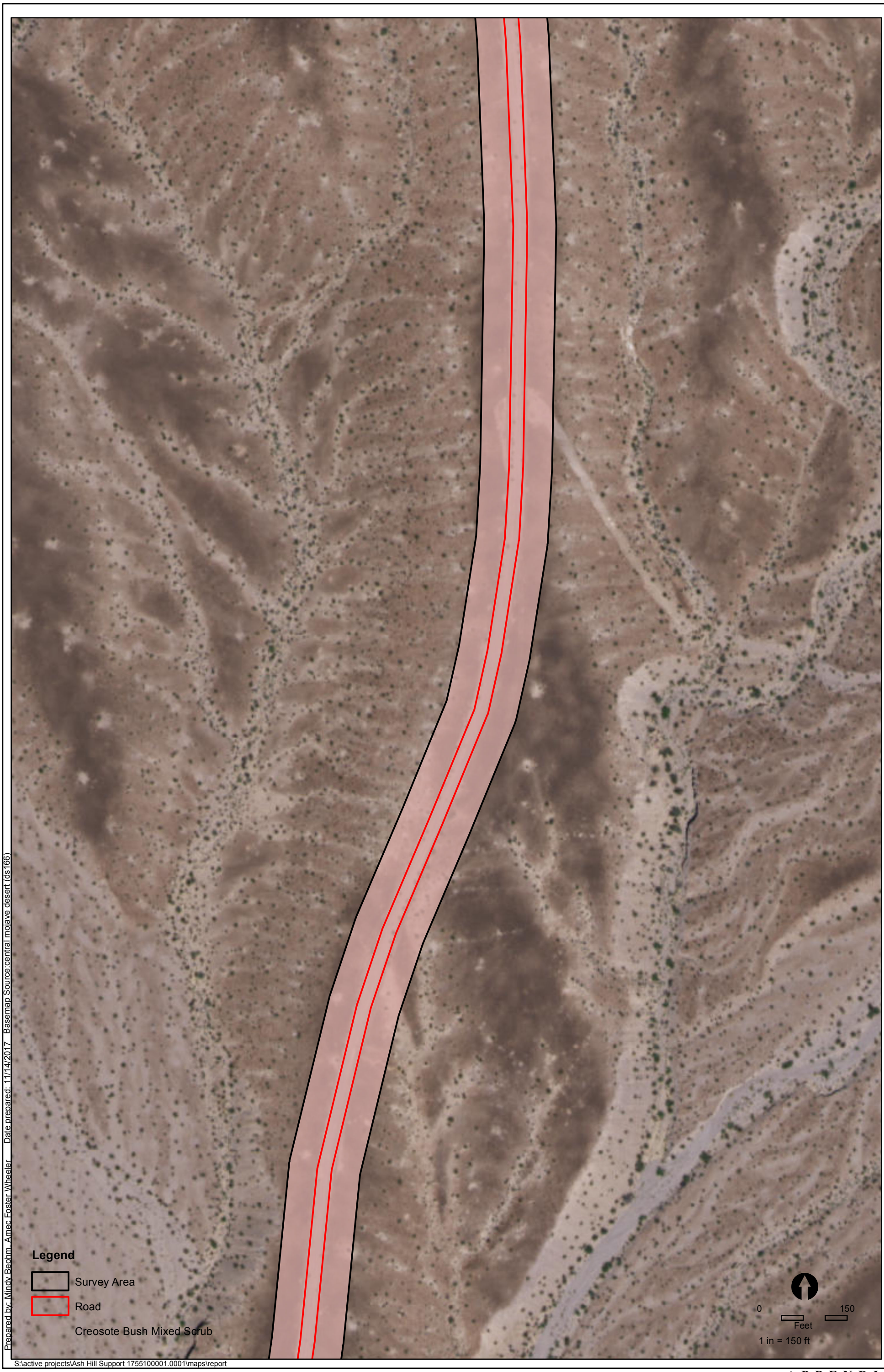
APPENDIX

amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

F-07




Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 11/14/2017 Basemap Source:central mojave desert (ds166)

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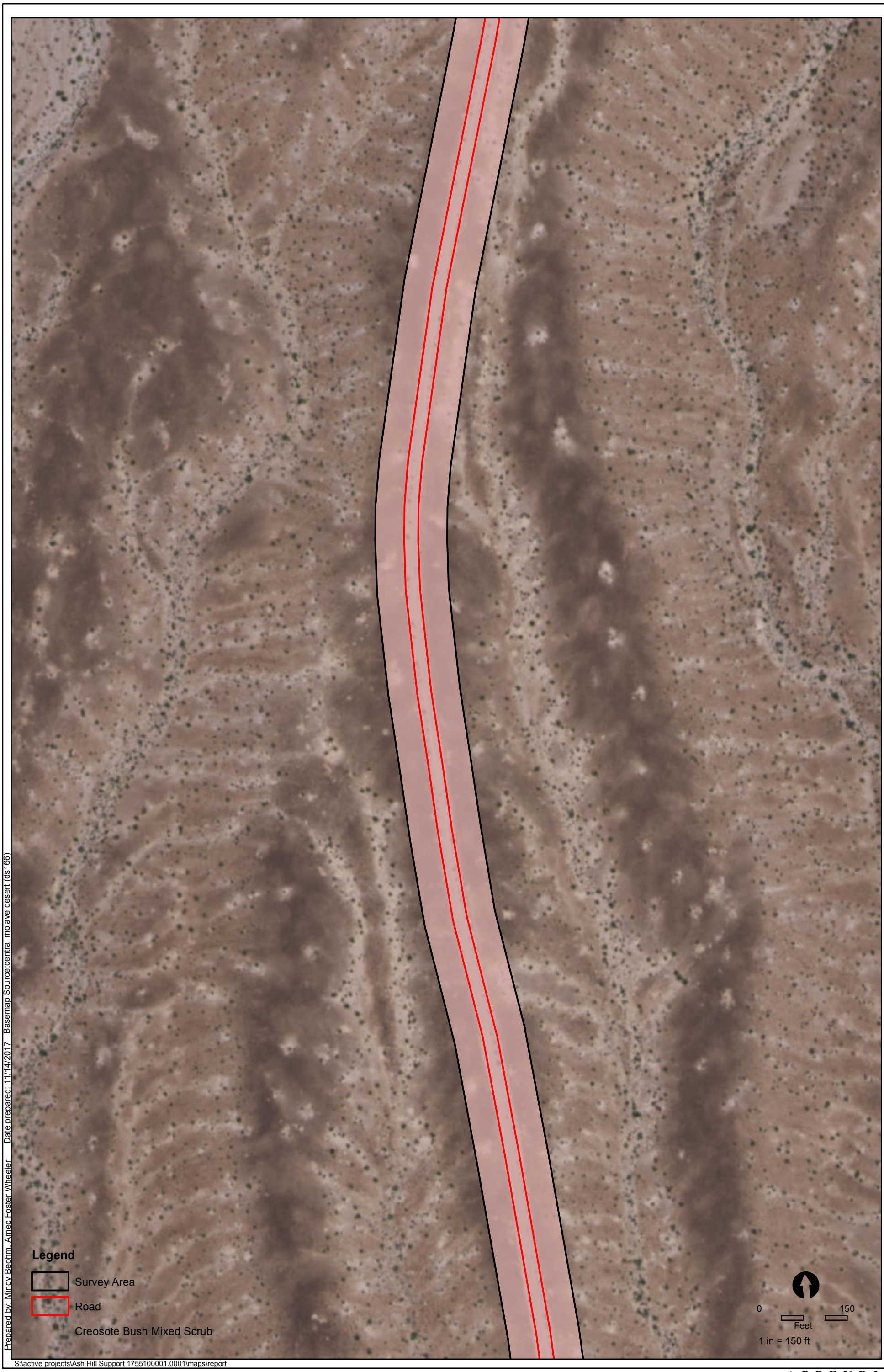
APPENDIX

amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

F-08




APPENDIX

amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

F-09

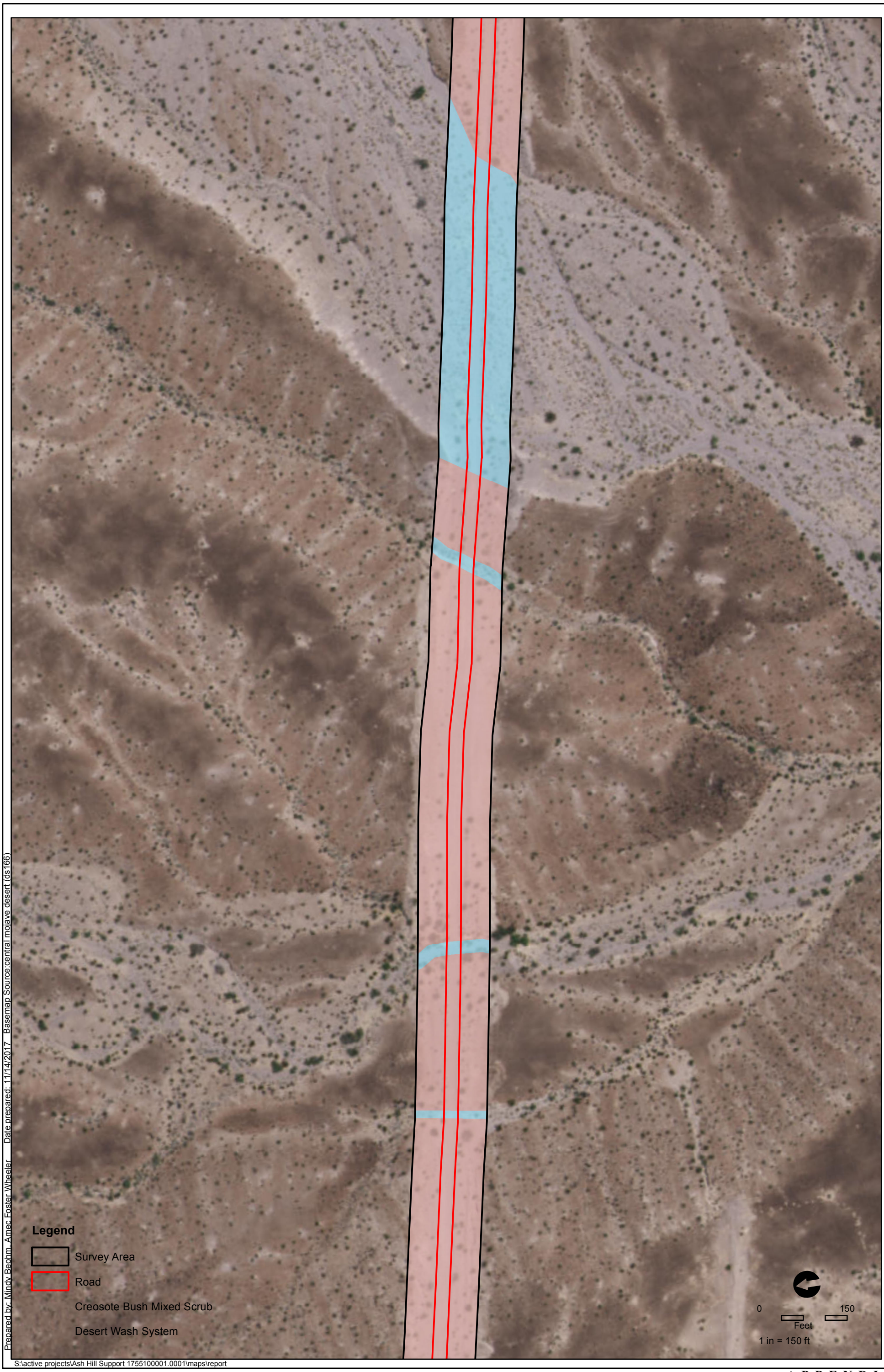

APPENDIX

amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

F-10




Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:central mojave desert (ds166)

S:\active projects\Ash Hill Support 1755100001.0001\maps\report

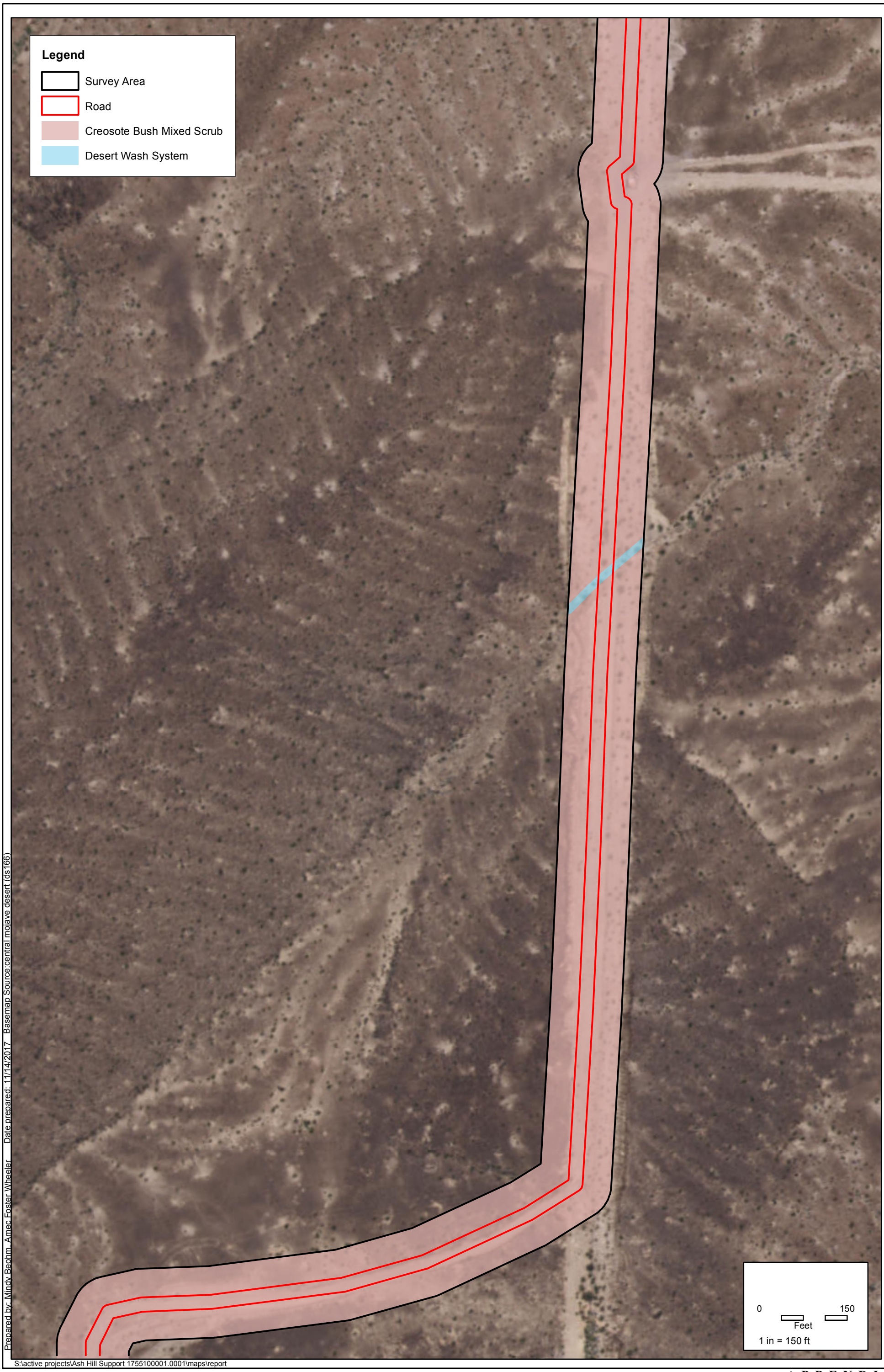
amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

APPENDIX

F-11




Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 11/14/2017 Basemap Source:central mojave desert (ds166)

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APPENDIX

amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

F-12


Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:central mojave desert (ds166)

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Prepared by: Mindy Beohm, Amec Foster Wheeler  Date prepared: 11/14/2017  Basemap Source:central mojave desert (ds166)

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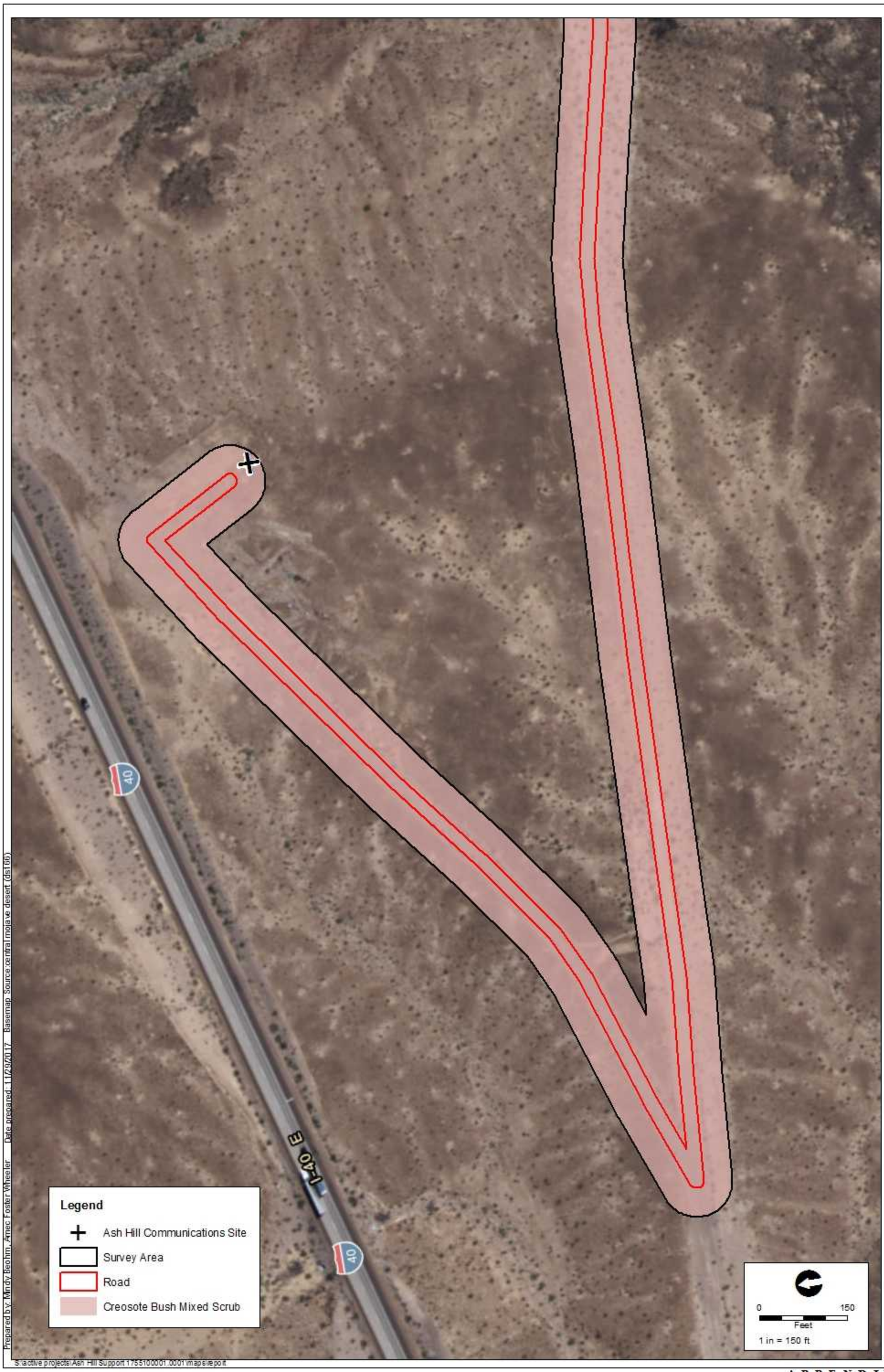
amec foster wheeler

Vegetation Map

Ash Hill Communications Site Access Route

APPENDIX

F-14




APPENDIX

Vegetation Map

Ash Hill Communications Site Access Route

F-15

# APPENDIX G
# SURVEY DATA SHEETS

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# USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

*Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion*

Date of survey: 18 Oct 17 (day, month, year) Survey biologist(s): J Green (name, email, and phone number)

Site description: Ash Hill (project name and size, general location)

County: San Bern Quad: Ash Hill, Location: ICT (UTM coordinates, lat-long, and/or TRS, map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 1 Transect length: 5.2 mi

GPS Start-point: 589480 3841953 605m (easting, northing, elevation in meters) Start time: 0800 am/pm

GPS End-point: 589304 3837954 502m (easting, northing, elevation in meters) End time: 1525 am/pm

Start Temp: 74 °F End Temp: 93 °F

## Live Tortoises

| Detection number | GPS location Easting | GPS location Northing | Time | Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*) | Approx MCL >180-mm? (Yes, No, or Unknown) | Existing tag # and color, if present |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
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| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |

## Tortoise Sign (burrows, scats, carcasses, etc)

| Detection number | GPS location Easting | GPS location Northing | Type of sign (*burrows, scats, carcass, etc*) | Description and comments |
|---|---|---|---|---|
| 1 | 589605 | 3841771 | Type 5 pallet | |
| 2 | 592039 | 3841249 | Carcass | Class 5, ~3' W. of road |
| 3 | 591991 | 3841243 | burrow, 8 scats | Class 2, other burrows & pallets nearby |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |



Char. rigida ✓ Dodder ✓
Cheesebush ✓
Ephedra trifurca ✓
Eriogonum spp 1, 2 ✓

✓ small mammal ✓ Kit Fox ✓
BRBL burrows/ Krat Chuckwalla ✓
Red Racer ✓ Vertebrate nest ✓
HOLA ✓ PRFA ✓ Coyote scat ✓
CORA ✓

Page: ____ of ____
Transect number: ____

## USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

*Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion*

Date of survey: 10/10/17 (day, month, year) Survey biologist(s): Michelle Tobin (name, email, and phone number)

Site description: Ash Hill Access Route Survey (project name and size; general location)

County: San Budo Quad: Ash Hill/Sibenia Location: Ash Hill location (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 2 Transect length: 5.2mi

GPS Start-point: 589483, 3841947 606m (easting, northing, elevation in meters) Start time: 0800 (am/pm)

GPS End-point: 589305, 3837961 502m (easting, northing, elevation in meters) End time: 0323 (am/pm)

Start Temp: 74°F °C End Temp: 93°F °C

### Live Tortoises

| Detection number | GPS location Easting | GPS location Northing | Time | Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*) | Approx MCL >160-mm? (Yes, No, or Unknown) | Existing tag # and color, if present |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
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| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |

### Tortoise Sign (burrows, scats, carcasses, etc)

| Detection number | GPS location Easting | GPS location Northing | Type of sign (*burrows, scats, carcass, etc*) | Description and comments |
|---|---|---|---|---|
| 1 | 591852 | 3840005 | carcass class II | very old bone fragments, next to road |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |

## USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

*Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion*

Date of survey: 18/10/2017 (day, month, year) Survey biologist(s): N. Moorhatch (name, email, and phone number)

Site description: Ash Hill Access Route Survey (project name and size; general location)

County: San Bndo Quad: Ash Hill / Siberia Location: Ash Hill location (UTM coordinates, lat-long, and/or TRS, map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 3 Transect length: 5.2 mi.

GPS Start-point: 589485 3841941 604m (easting, northing, elevation in meters) Start time: 0800 am/pm

GPS End-point: 589301 3837967 499m (easting, northing, elevation in meters) End time: 1523 am/pm

Start Temp: 74 °F End Temp: 93 °F

### Live Tortoises

| Detection number | GPS location Easting | Northing | Time | Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*) | Approx MCL >160-mm? (*Yes, No or Unknown*) | Existing tag # and color, if present |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | NONE | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |

### Tortoise Sign (burrows, scats, carcasses, etc)

| Detection number | GPS location Easting | Northing | Type of sign (*burrows, scats, carcass, etc*) | Description and comments |
|---|---|---|---|---|
| 1 | 592003 | 3841234 | Scat (2) | Class 2-3 |
| 2 | 591690 | 3840927 | Burrow | Class 4 |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |

Atriplex hymenelytra ✓ LOSH ✓ ROWR ✓ Lepus cal. ✓ Encelia virgensii ? ✓ Krameria grayi ✓ YRWA ✓
Larrea ✓ * Schismus sp ✓ Atriplex canescens ✓ Bebbia juncea ✓
Gilia sp. (dead) ✓ Plantago ovata ✓ Asclepias subulata ✓
Ambrosia dumosa ✓

Page: ____ of ____ → more

## USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

*Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion*

Date of survey: 10/10/17 (day, month, year) Survey biologist(s): Jennifer Toban (name, email, and phone number)

Site description: Ash Hill Access Route Survey (project name and size; general location)

County: _____ Quad: Ash Hill / Siberia Location: Ash Hill Location (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 4 Transect length: 5.2mi

GPS Start-point: 589493 3841934 601m (easting, northing, elevation in meters) Start time: 0800 am/pm

GPS End-point: 589296 3837973 501m (easting, northing, elevation in meters) End time: 1523 am/pm

Start Temp: 74 °F End Temp: 93 °F

### Live Tortoises

| Detection number | GPS location Easting | GPS location Northing | Time | Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*) | Approx MCL >180-mm? (Yes, No, or Unknown) | Existing tag # and color, if present |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |

### Tortoise Sign (burrows, scats, carcasses, etc)

| Detection number | GPS location Easting | GPS location Northing | Type of sign (*burrows, scats, carcass, etc*) | Description and comments |
|---|---|---|---|---|
| 1 | 592040 | 3841280 | carcass fragment | class 5 single scute w/ attached bone |
| 2 | | | burrow | class 4 some filling in off transect |
| 3 | 592010 | 3841251 | burrows | class 2, 2 burrows |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |

# USFWS 2010 Desert Tortoise Pre-Project Survey Data Sheet

*Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion*

Date of survey: 19/10/17 (day, month, year) Survey biologist(s): Nathan Moorhatch (name, email, and phone number)

Site description: Ash Hill Access Route Survey (project name and size; general location)

County: San Bndo. Quad: Ash Hill/Siberia Location: Ash Hill Location (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 1 Transect length: 5.2 miles

GPS Start-point: 589480 3841951 600m (easting, northing, elevation in meters) Start time: 0745 am/pm

GPS End-point: 589313 3837940 499m (easting, northing, elevation in meters) End time: 1504 am/pm

Start Temp: 73 °F End Temp: 92 °F

## Live Tortoises

| Detection number | GPS location Easting | Northing | Time | Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*) | Approx MCL >160-mm? (Yes, No or Unknown) | Existing tag # and color, if present |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |

NO LIVE

## Tortoise Sign (burrows, scats, carcasses, etc)

| Detection number | GPS location Easting | Northing | Type of sign (*burrows, scats, carcass, etc*) | Description and comments |
|---|---|---|---|---|
| 1 | 590804 | 3841813 | Carcass fragment | 1 small piece (old) class 5 in midden Neotoma |
| 2 | 591909 | 3840235 | Scat (1) | Class 2 (adult) |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |

2010 Field Season

Dalea mollis ✓ Langlosia setosissima? ✓ Psorothamnus spinosus ✓ Cylindropuntia echinocarpa ✓

Tidestromia oblongifolia (Chorizanthe sweetii) ✓ Senna armata ✓ Aspidoscelis tigris

## USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

*Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion*

Date of survey: 9/10/17 (day, month, year) Survey biologist(s): Jennifer Tobin (name, email, and phone number)

Site description: Ash Hill Access Route survey (project name and size; general location)

County: San Bernardino Quad: Ash Hill/Siberia Location: Ash Hill Location (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 2 Transect length: 5.2 miles

GPS Start-point: 589484, 3841949 602m (easting, northing, elevation in meters) Start time: 0745 (am)/pm

GPS End-point: 589317, 3837932 497m (easting, northing, elevation in meters) End time: 1504 am/(pm)

Start Temp: 73 °C End Temp: 92 °C

### Live Tortoises

| Detection number | GPS location Easting | GPS location Northing | Time | Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*) | Approx MCL >180-mm? (Yes, No or Unknown) | Existing tag # and color, if present |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |

### Tortoise Sign (burrows, scats, carcasses, etc)

| Detection number | GPS location Easting | GPS location Northing | Type of sign (*burrows, scats, carcass, etc*) | Description and comments |
|---|---|---|---|---|
| 1 | 590703 | 3841741 | scat | class 2, 2 pieces |
| 2 | 591030 | 3841515 | scat | 2 pieces, class 3 and class 4 in woodrat midden |
| 3 | 591865 | 3840014 | carcass | Class 5, very old fragments, likely the same as across the road |
| 4 | 591634 | 3839468 | carcass | class 5, old bone fragments |
| 5 | 591396 | 3839203 | burrow | class 1 w/ tracks |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |

## USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

*Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion*

Date of survey: 10/19/17 (day, month, year) Survey biologist(s): John Green (name, email, and phone number)

Site description: Ash Hill Access Route Survey (project name and size; general location)

County: San Bern Quad: Ash Hill/Silberia Location: Ash Hill Location (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 3 Transect length: 5.2mi

GPS Start-point: 589490, 3841943 599m (easting, northing, elevation in meters) Start time: 0745 am/pm

GPS End-point: 589347 3837888 498m. (easting, northing, elevation in meters) End time: 1505 am/pm

Start Temp: 73 °C F End Temp: 92° °C F

### Live Tortoises

| Detection number | GPS location Easting | GPS location Northing | Time | Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*) | Approx MCL >160-mm? (Yes, No or Unknown) | Existing tag # and color, if present |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
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| 7 | | | | | | |
| 8 | | | | | | |

### Tortoise Sign (burrows, scats, carcasses, etc)

| Detection number | GPS location Easting | GPS location Northing | Type of sign (*burrows, scats, carcass, etc*) | Description and comments |
|---|---|---|---|---|
| 1 | 591924 | 3840207 | burrow, footprints | Class 1 |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |

2017 Field Season

CORA BESP

## USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

*Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion*

Date of survey: 9/10/17 (day, month, year) Survey biologist(s): Michelle Tobin (name, email, and phone number)

Site description: Ash Hill Access Route Survey (project name and size; general location)

County: San Bernardino Quad: Ash Hill/Siberia Location: Ash Hill Location (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 4 Transect length: 5.2mi

GPS Start-point: 589495, 3841937 600m (easting, northing, elevation in meters) Start time: 07:45 (am)/pm

GPS End-point: 589358, 3837868 500m (easting, northing, elevation in meters) End time: 03:02 am (pm)

Start Temp: 73°F°C End Temp: 92°F°C

### Live Tortoises

| Detection number | GPS location Easting | Northing | Time | Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*) | Approx MCL >160-mm? (Yes, No or Unknown) | Existing tag # and color, if present |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
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| 7 | | | | | | |
| 8 | | | | | | |

### Tortoise Sign (burrows, scats, carcasses, etc)

| Detection number | GPS location Easting | Northing | Type of sign (*burrows, scats, carcass, etc*) | Description and comments |
|---|---|---|---|---|
| 1 | 592025 | 3841154 | scat class II | One piece [redacted] class II, adult |
| 2 | 592003 | 3841069 | scat class II | 2 pieces, juverile |
| 3 | 592002 | 3841062 | scat class II | very shiny, [redacted] smaller adult |
| 4 | 591971 | 3841007 | scat class V | usuable caliche shelter nearby |
| 5 | 591650 | 3839442 | carcass class IV | plastron fragments |
| 6 | 591619 | 3839419 | carcass class IV | from same as above |
| 7 | 591599 | 3839385 | tortoise track | are footprint |
| 8 | 591532 | 3839318 | burrow class I | tracks + plastron slide in apron, adult |