Appendix D-8

Focused Survey for Desert Tortoise Report

Environmental Intelligence, LLC

DRAFT
FOCUSED SURVEY FOR DESERT TORTOISE

LUGO-VICTORVILLE 500-KV TRANSMISSION LINE REMEDIAL ACTION SCHEME PROJECT

SAN BERNARDINO COUNTY, CALIFORNIA

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Environmental Intelligence, LLC (EI) was retained by Southern California Edison (SCE) to conduct a focused survey for desert tortoise (*Gopherus agassizii*) in support of the proposed Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project (Project) located in San Bernardino County, California. The results of these focused surveys will (1) support the Mojave National Preserve's (MNP) review of SCE's Special Use Permit application; (2) support the Bureau of Land Management's (BLM) review of SCE's Right-of-Way (ROW) application; and (3) assist in SCE's consultation with the United States Fish and Wildlife Service (USFWS).

Desert tortoise population densities in the region have been declining since at least 1980. The Mojave National Preserve (MNP) includes the Goffs Permanent Study Plot (a square mile plot in southeastern MNP), established in 1977 and sampled for tortoises through 2000 (Berry 2000). Population density estimates across all size classes (tortoises per square mile, with 95 percent confidence intervals) declined from 440 (370-522) in 1980 to 88 (34-230) in 2000; sub-adult and adult size class declined from 195 (162-234) in 1980 to 18 (6-54) in 2000. The 2011 Recovery Plan estimated 2007 adult/sub-adult densities (per square mile) at 12.2 in the Western Mojave Recovery Unit, 12.9 in the Eastern Mojave Recovery Unit, and 11.9 in the Northern Colorado Recovery Unit. Surveys for the Ivanpah Solar Electric Generating System Project in 2011 estimated densities at 18.0 adult/sub-adult tortoises per square mile (Sundance Biology 2011). The USFWS range-wide monitoring efforts determined 2014 densities (per square mile) of adult/sub-adult tortoises were 6.2 and 9.3 within the Superior-Cronese Critical Habitat Unit and Ord-Rodman Critical Habitat Unit, respectively, of the Western Mojave Recovery Unit, 6.0 within the Ivanpah Critical Habitat Unit of the Eastern Mojave Recovery Unit, and 12.4 and 7.3 within the Fenner Critical Habitat Unit and Chemehuevi Critical Habitat Unit, respectively, of the Colorado Desert Recovery Unit (USFWS 2015).

A total of thirteen (13) live desert tortoises were observed within Survey Areas; an additional two (2) sub-adults were incidentally observed on an access road outside of the Survey Area and are not included in population calculations. The thirteen (13) live tortoises observed within Survey Areas included ten (10) adult/sub-adult tortoises with a maximum carapace length (MCL) greater than 160mm and one (1) juvenile tortoise with a MCL less than or equal to 160mm; two (2) tortoises were deep in burrows and unable to be measured (assumed to be adult/sub-adult for population calculations). Eleven (11) of the thirteen (13) live tortoises observed were associated with a burrow (in burrow or at entrance); two (2) tortoises were observed in the open, one of which was an adult with an identification tag (#N92043).

Other desert tortoise sign observed included two hundred fifteen (215) tortoise burrows and an additional twenty-eight (28) burrows with tortoise tracks, one hundred eighty-five (185) pallets and an additional seven (7) pallets with tortoise tracks, one hundred forty (140) tortoise scat, thirty-five (35) tortoise carcasses, and five (5) locations with tortoise eggshell fragments.

The live desert tortoises and numerous sign observed along the Project alignment are a strong indication that this area provides high quality desert tortoise habitat. Of the tortoises encountered where surveyors could clearly see the animal's eyes, nares, and carapace, one (1) tortoise exhibited indications of possible respiratory infection (*i.e.*, wet nares and swollen/inflamed eyes).

In the Western Mojave Recovery Unit, four (4) adult/sub-adult desert tortoises were observed during transects within the Survey Area. The estimated number of adult/sub-adult tortoises (with 95 percent confidence interval) within the Action Area contained within the Western Mojave Recovery Unit is 8.9 (2.7 – 28.8) tortoises. The population density is approximately 20.6 adult/sub-adult tortoises per square mile. The estimated density of 20.6 adult/sub-adult desert tortoises per square mile is higher than the 2014 USFWS estimates of 6.2-9.3 tortoises per square mile for the Superior-Cronese and Ord-Rodman Critical Habitat Units.

In the Eastern Mojave Recovery Unit, eight (8) adult/sub-adult desert tortoises were observed during transects within the Survey Area. The estimated number of adult/sub-adult tortoises (with 95 percent confidence interval) within the Action Area contained within the Eastern Mojave Recovery Unit is 14.5

(6.1 – 34.6) tortoises. The population density is approximately 17.5 adult/sub-adult tortoises per square mile. The estimated density of 17.5 adult/sub-adult desert tortoises per square mile is higher than the 2014 USFWS estimates of 6.0-12.4 tortoises per square mile for the Ivanpah, Fenner, and Chemehuevi Critical Habitat Units, but similar to Ivanpah Solar's estimate of 18.0 tortoises per square mile.

Discrepancies in densities from various studies could be a result of habitat quality, variation between regional populations, survey time of year, and/or yearly weather fluctuations.

1.0 INTRODUCTION

Environmental Intelligence, LLC (EI) was retained by Southern California Edison (SCE) to conduct a focused survey for desert tortoise (*Gopherus agassizii*) in support of the proposed Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project (Project) located in San Bernardino County, California. The results of these focused surveys will (1) support the Mojave National Preserve's (MNP) review of SCE's Special Use Permit application; (2) support the Bureau of Land Management's (BLM) review of SCE's Right-of-Way (ROW) application; and (3) assist in SCE's consultation with the United States Fish and Wildlife Service (USFWS).

2.0 PROJECT LOCATION AND DESCRIPTION

The Project is located entirely within San Bernardino County, California, extending from Pisgah Substation (near Ludlow, CA) to the California-Nevada border (near Nipton Road) (Exhibit 1). The Project alignment passes through the following United States Geological Survey (USGS) 7.5-minute quadrangles: Hector, Sleeping Beauty, Broadwell Lake, West of Broadwell Mesa, Broadwell Mesa, Soda Lake South, Cowhole Mountain, Old Dad Mountain, Indian Spring, Marl Mountains, Cima, Cima Dome, Joshua, Ivanpah, Nipton, and Crescent Peak; material/laydown yards are located in Dunn and Baker USGS quadrangles. Land use along the Project alignment is primarily undisturbed desert scrub habitat. The Project alignment crosses lands owned by the BLM, private landowners, the State, and the National Park Service.

SCE proposes to install a new 84-mile telecommunication path consisting of Optical Ground Wire (OPGW) fiber optic cable. The Project is required to reliably interconnect and integrate multiple renewable generation projects in the Southern Nevada / Eastern California area onto the electric grid. The primary function of this Project will be to prevent thermal overloading on the jointly owned Lugo-Victorville 500-kV Transmission Line, a major power transfer path between SCE and the Los Angeles Department of Water and Power (LADWP). All work will occur within the existing SCE ROW and will include bucket truck work on disturbed areas at approximately 408 transmission tower locations, installation of guard poles at 14 locations, establishment of helicopter landing zones at 72 locations, pulling/tensioning activities at 27 locations, and establishment of several laydown yards.

3.0 DESERT TORTOISE BACKGROUND

The desert tortoise is a long-lived, terrestrial land turtle with a domed carapace (upper shell), which is oblong with rounded sides due to the joining of the carapace to the plastron (lower shell). The front limbs are flattened and heavily scaled for digging, and the hind limbs are rounded and stumpy. The front and hind feet are about equal in size and the tail is of short length. The scutes are often yellowish in the middle and have grooved, parallel, concentric growth rings that form outward with age toward the scute margins. The plastron is typically yellowish, becoming brown around the scute margins. The head is relatively small and rounded in front with reddish-tan coloring, and the iris is greenish-yellow.

The desert tortoise occupies a variety of desert habitats from sea level to over 7,000 feet, most commonly on gently sloping terrain with sandy-gravel soils and herbaceous plants. Desert tortoises feed on a variety of herbaceous annual forbs and grasses. They retreat into their horizontal burrow to avoid surface temperature extremes and to escape from predators. Desert tortoises are known to utilize an average of 7 to 12 burrows at any given time. Multiple tortoises are also known to occasionally share a single burrow (BLM 2006).

The Mojave population of the desert tortoise was listed as threatened by the California Department of Fish and Wildlife (CDFW) on August 3, 1989 and USFWS on April 2, 1990 (USFWS 1990). A desert tortoise recovery plan was prepared in 1994 (USFWS 1994a), which proposed the establishment of recovery units and Desert Wildlife Management Areas (DWMAs) to provide recovery strategies and actions for the long-term persistence of viable desert tortoise populations and the ecosystems upon which they depend. Critical habitat was also designated in 1994 (USFWS 1994b). The recovery plan was revised in 2011 (USFWS 2011), which updated the recovery unit boundaries. Reasons for its protection include loss and degradation of habitat by development, off-road vehicles, military training maneuvers, mining,

illegal dumping, livestock grazing and invasion of exotic grasses and forbs, predation by an increasing common raven (*Corvus corax*) population, illegal collecting (poaching) and intentional killing and harassment by an increasing human population, and a serious and fatal upper respiratory disease. These factors, coupled with delayed sexual maturity (13 to 20 years of age), low reproductive rates, and high mortality early in life, make recovery of the species difficult.

4.0 METHODS

4.1 Database Search and Literature Review

Prior to the initiation of field work, a review of pertinent literature was performed to verify known and reported desert tortoise occurrences in the vicinity of the Project and the location of the site relative to designated desert tortoise critical habitat and other conservation lands. This included a review of the California Natural Diversity Database (CNDDB) RareFind application (CDFW 2016), the 1994 and 2011 Desert Tortoise Recovery Plans (USFWS 1994a & 2011), Biological Assessment for the 2004 Fire Management Plan for the Mojave National Preserve (Dingman 2004), and other pertinent desert tortoise documents.

4.2 Desert Tortoise Focused Surveys

Desert tortoise focused surveys were conducted on October 10-15, 17-22 & 24-26 by EI qualified biologists Jim Buffington, Ben DeLancey, Scott Duff, Paul Flores, Mikaila Negrete, and Susan Seville. The survey was conducted in accordance with the *2010 Field Season Survey Protocol* (USFWS 2010). Ten-meter belt transects were surveyed over 100 percent of the proposed disturbance areas as well as a 200-foot buffer (Survey Area). This Survey Area acts as the Project's Action Area, defined as the areas to be affected directly or indirectly and not merely the immediate area involved in the Project's disturbance area. Access roads and other areas between the Survey Areas were not included in the Project's Action Area.

Handheld Global Positioning System (GPS) units, digital cameras, binoculars and field forms/notes were used to aid in recording tortoise sign and other biological resources. A handheld weather meter was used to record temperatures at the start and end of each transect. Daily focused surveys were ceased if temperatures in the shade at 5cm above the ground reached 40° Celsius (C) (104° Fahrenheit [F]). All desert tortoise sign, as well as required survey and weather data was recorded on USFWS 2010 Desert Tortoise Pre-Project Survey Data Sheets (Appendix B). General health of live desert tortoises encountered was assessed when the head and carapace were visible to surveyors without stressing the animal. Binoculars were usually used to inspect the eyes, nares, and shell conditions of the tortoises for clinical signs of disease without handling or approaching the animals too closely. Desert tortoises encountered were not touched or handled at any time during the survey, and biological samples were not taken to assist in the assessments of health of the encountered tortoises. All flora and fauna observed were recorded on the field forms or in personal field notes.

4.3 Desert Tortoise Population Size and Density Estimates

The 2010 Field Season Survey Protocol provides an equation that accounts for the likelihood that not all tortoises on a particular site are above ground at the time of the performance of focused surveys. It also takes in account that desert tortoises are cryptic and thus may be overlooked. Other factors included in this equation include the amount of rainfall that was received in the area during the previous winter season. The equation to estimate the number of adult/sub-adult tortoises is as follows:

$$\text{Estimated number of tortoises within Action Area } (N) = \frac{\text{Number of tortoises observed above ground}}{\left(\text{Probability that a tortoise is above ground } [Pa]\right)\left(\text{Probability of detecting a tortoise if above ground } [Pd]\right)}\left(\frac{\text{Size of the action area}}{\text{Size of the area surveyed}}\right)$$

The probability that a tortoise is above ground (Pa) is determined by the amount of rainfall that was recorded in the area during the preceding fall/winter months (October through March). If less than 40mm (~1.57 inches) of rainfall was recorded during the preceding winter months, the Pa is assigned a value of 0.64 with a variance of 0.08. If greater than 40mm (~1.57 inches) of rainfall was recorded during the preceding winter months, the Pa is assigned a value of 0.80 with a variance of 0.05. The probability of detecting a tortoise if above ground (Pd) is 0.63 with a variance of 0.011 (USFWS established that trained surveyors detect an average of 63 percent of model tortoises within 5 meters of either side of the transect center-line). Appendix 1 of the 2010 Field Season Protocol (USFWS 2010) provides a detailed description of the formulas used to calculate abundance and confidence interval estimation.

5.0 RESULTS

5.1 Database Search and Literature Review

Desert tortoise conservation areas include desert tortoise habitat within critical habitat, DWMAs, Areas of Critical Environmental Concern (ACEC), Grand Canyon-Parashant National Monument, Desert National Wildlife Refuge, National Park Service lands, Red Cliffs Desert Reserve, and other conservation areas or easements managed for desert tortoises (USFWS 2011). The Project is located within the Western Mojave and Eastern Mojave Recovery Units as described in the Revised Desert Tortoise Recovery Plan (USFWS 2011), and it passes through the Ivanpah Valley Critical Habitat Unit (Exhibit 2). The Colorado Desert Recovery Unit is located southeast of the Project. CNDDB records have been reported throughout the region (Exhibit 2).

In the Western Mojave Recovery Unit, most rainfall occurs in fall and winter and produces winter annuals, which are the primary food source of tortoises. Above-ground activity occurs primarily (but not exclusively) in spring, associated with winter annual production. Thus, tortoises are adapted to a regime of winter rains and rare summer storms. Here, desert tortoises occur primarily in valleys, on alluvial fans, bajadas, and rolling hills. Desert tortoises in the Eastern Mojave Recovery Unit are generally found in creosote bush scrub communities of flats, valley bottoms, alluvial fans, and bajadas, but they occasionally use other habitats such as rocky slopes and blackbrush scrub. Desert tortoises are often active in this recovery unit in late summer and early fall, in addition to spring, reflecting the fact that this region receives up to about 40 percent of its annual rainfall in summer and supports two distinct annual floras on which tortoises can feed. They typically eat summer and winter annuals, cacti, perennial grasses, and herbaceous perennials. In the Colorado Desert Recovery Unit, desert tortoises are found in the valleys, on bajadas, desert pavements, rocky slopes, and in the broad, well-developed washes (especially to the south). Vegetation is characterized by relatively species-rich succulent scrub, creosote bush scrub, and blue paloverde-ironwood-smoke tree communities. Tortoises feed on both summer and winter annuals, because this region receives about one-third of its annual rainfall in summer and supports two distinct annual floras on which they can feed. The climate is somewhat warmer than in other recovery units, with very few freezing days per year.

Desert tortoise population densities in the region have been declining since at least 1980. The Mojave National Preserve (MNP) includes the Goffs Permanent Study Plot (a square mile plot in southeastern MNP), established in 1977 and sampled for tortoises in 1977, 1980, 1983-86, 1990, 1994, and 2000 (Berry 2000). Population density estimates across all size classes (tortoises per square mile, with 95 percent confidence intervals) declined from 440 (370-522) in 1980 to 88 (34-230) in 2000; sub-adult and adult size class declined from 195 (162-234) in 1980 to 18 (6-54) in 2000. The 2011 Recovery Plan estimated 2007 adult/sub-adult densities (per square mile) at 12.2 in the Western Mojave Recovery Unit, 12.9 in the Eastern Mojave Recovery Unit, and 11.9 in the Northern Colorado Recovery Unit. Surveys in 2011 for the Ivanpah Solar Electric Generating System Project, approximately 13 miles northwest of the Project, estimated densities at 18.0 adult/sub-adult tortoises per square mile (Sundance Biology 2011). The USFWS range-wide monitoring efforts determined 2014 densities (per square mile) of adult/sub-adult tortoises were 6.2 and 9.3 within the Superior-Cronese Critical Habitat Unit and Ord-Rodman Critical Habitat Unit, respectively, of the Western Mojave Recovery Unit, 6.0 within the Ivanpah Critical Habitat Unit of the Eastern Mojave Recovery Unit, and 12.4 and 7.3 within the Fenner Critical Habitat

Unit and Chemehuevi Critical Habitat Unit, respectively, of the Colorado Desert Recovery Unit (USFWS 2015).

5.2 Weather

Temperatures ranged from a low of 14˚C (57˚F) to a high of 37˚C (99˚F) during the surveys. Skies were primarily clear to partly cloudy, with one day of overcast skies (October 24). Winds ranged from calm to breezy, estimated to be between 0 and 10 miles per hour (mph). Rainfall (approximately 0.4 inch) was recorded on-site on October 24.

Precipitation recorded at the Twentynine Palms Expeditionary Air Field station (southwest end of alignment) and the Laughlin-Bullhead International station (northeast end of alignment), the nearest weather stations relative to the Project, from October 1, 2015 to March 31, 2016 (the preceding fall/winter months) was 1.14 and 2.09 inches, respectively; from April 1 to September 30, 2016 (the preceding spring/summer months), precipitation was 0.56 and 2.12 inches, respectively.

5.3 Topography

The Project traverses the Mojave Desert through the Western Mojave and Eastern Mojave Recovery Units, with elevations along the alignment ranging from 1,100 to 4,600 feet. Topography consists of valleys, flats, alluvial fans, bajadas, rolling hills, and rocky slopes.

5.4 Vegetation Communities / Land Cover Types and Flora

Twenty-one vegetation communities, including eight sensitive vegetation communities and thirteen non-sensitive vegetation communities, were identified and mapped during separate habitat and resource assessment surveys (Exhibit 3). A list of the vegetation communities and their California Natural Community Codes are presented in Table 1. Descriptions of the communities can be found in the Manual of California Vegetation, 2nd Edition (Sawyer et al. 2009). Two land cover types were identified and mapped; they are described below. Site photographs are presented in Appendix C.

TABLE 1. VEGETATION COMMUNITY / LAND COVER TYPE AND LOCATION

Vegetation Community / Land Cover Type
Sensitive Vegetation Communities
Chilopsis linearis (Desert willow woodland) Alliance 61.550.00
Ericameria paniculata (Black-stem rabbitbrush scrub) Alliance 35.340.00
Panicum urvilleanum (Desert panic grass patches) Alliance 42.095.00
Pleuraphis rigida (Big galleta shrub-steppe) Alliance 41.0303.00
Prunus fasciculata (Desert almond scrub) Alliance 33.300.00
Psorothamnus spinosus (Smoke tree woodland) Alliance 61.570.00
Rhus trilobata (Basket bush thickets) Provisional Alliance 37.802.00
Yucca brevifolia (Joshua tree woodland) Alliance 33.170.00
Non-Sensitive Vegetation Communities
Acacia greggii (Catclaw acacia thorn scrub) Alliance 33.040.00
Ambrosia dumosa (White bursage scrub) Alliance 33.060.00
Ambrosia salsola (Cheesebush scrub) Alliance 33.200.00
Atriplex hymenelytra (Desert holly scrub) Alliance 36.330.00
Atriplex polycarpa (Allscale scrub) Alliance 36.340.00
Bromus (*diandrus, hordeaceus*) - *Brachypodium distachyon* (Annual brome grasslands) Semi-natural Stands 42.026.00
Bromus rubens - *Schismus* (*arabicus, barbatus*) (Red brome or Mediterranean grass grasslands) Semi-natural Stands 42.024.00
Encelia farinosa (Brittle bush scrub) Alliance 33.030.00
Ephedra nevadensis (Nevada joint fir scrub) Alliance 33.280.00
Larrea tridentata (Creosote bush scrub) Alliance 33.010.00
Larrea tridentata - *Ambrosia dumosa* (Creosote bush - white burr sage scrub) Alliance 33.140.00

TABLE 1. VEGETATION COMMUNITY / LAND COVER TYPE AND LOCATION

Vegetation Community / Land Cover Type
Salazaria mexicana (Bladder sage scrub) Alliance 33.310.00
Yucca schidigera (Mojave yucca scrub) Alliance 33.070.00
Land Cover Types
Barren-Not Developed
Developed

Barren-Not Developed

Barren-not developed lands include cleared areas devoid of vegetation (e.g., ROW/easement, private property, roadside margin).

Developed

Developed lands include urban or built-up areas with much of the land covered by structures. Such areas include cities, transportation, power and communications facilities, mills, shopping centers, and other buildings that may, in some cases, be separate from urban areas. Urban or built-up land may contain a wide variety of native and non-native, ruderal, and ornamental plant species.

5.5 Vertebrate Fauna

Thirty-three (33) vertebrates, including the desert tortoise, were either directly observed or detected through presence of sign during surveys. These included four (4) reptiles, twenty-one (21) birds, and eight (8) mammals. Some of these are resident, common species in the Mojave Desert, while others (i.e., birds) are seasonal migrants passing through the area. Representative common wildlife species detected included, but were not limited to, southern desert horned lizard (*Phrynosoma platyrhinos calidiarum*), greater roadrunner (*Geococcyx californianus*), common raven (*Corvus corax*), rock wren (*Salpinctes obsoletus*), Bell's sparrow (*Artemisiospiza belli*), desert woodrat (*Neotoma lepida*), and coyote (*Canis latrans*). The full list of vertebrate species observed during surveys is included in Appendix D.

5.6 Desert Tortoise

5.6.1 DESERT TORTOISE SIGN

A total of thirteen (13) live desert tortoises were observed within Survey Areas (Table 2; Exhibit 3); an additional two (2) sub-adults were incidentally observed on an access road outside of the Survey Area and are not included in population calculations. The thirteen (13) live tortoises observed within Survey Areas included ten (10) adult/sub-adult tortoises with a maximum carapace length (MCL) greater than 160mm and one (1) juvenile tortoise with a MCL less than or equal to 160mm; two (2) tortoises were deep in burrows and unable to be measured (assumed to be adult/sub-adult for population calculations). Eleven (11) of the thirteen (13) live tortoises observed were associated with a burrow (in burrow or at entrance); two (2) tortoises were observed in the open, one of which was an adult with an identification tag (#N92043).

Other desert tortoise sign observed included two hundred fifteen (215) tortoise burrows and an additional twenty-eight (28) burrows with tortoise tracks, one hundred eighty-five (185) pallets and an additional seven (7) pallets with tortoise tracks, one hundred forty (140) tortoise scat, thirty-five (35) tortoise carcasses, and five (5) locations with tortoise eggshell fragments (Table 2; Exhibit 3).

TABLE 2. DESERT TORTOISE SIGN OBSERVED

Sign Type	Class[1]						
	1	2	3	4	5	Unclassified	Totals
Live Desert Tortoises	8	2	1	0	0	2	13
Burrows	11	53	97	53	1	0	215
Burrows with Tracks	5	21	2	0	0	0	28
Pallets	185						185
Pallets with Tracks	7						7
Scat	0	2	0	2	6	130	140
Tracks not associated with burrow	0						0
Carcasses/Shell Remains	0	0	0	0	22	13	35
Drinking Depressions with Tracks	0						0
Locations with Eggshell Fragments	5						5

[1]Desert Tortoise Sign Classification:

Live Desert Tortoises (Maximum Carapace Length)
Class 1 – Adult (≥215mm)
Class 2 – Sub-Adult (161-214mm)
Class 3 – Juvenile (101-160mm)
Class 4 – Very Young (61-100mm)
Class 5 – Hatchling (≤60mm)
Unclassified – Completely in burrow, unable to measure

Burrows
Class 1 – Currently active with tortoise or recent sign
Class 2 – Good condition (definitely tortoise), but no evidence of recent use
Class 3 – Deteriorated condition (definitely tortoise)
Class 4 – Deteriorated condition (possibly tortoise)
Class 5 – Good condition (possibly tortoise)

Scat
Class 1 – Wet or moist (not from rain or dew) or dried with obvious odor
Class 2 – Dry, dark brown, has a glaze and some odor
Class 3 – Dry, light brown, slightly bleached, no glaze or odor, plant fibers tightly packed
Class 4 – Dry, light brown to pale yellow, somewhat bleached, no glaze or odor, plant fibers not tightly packed, scaly appearance
Class 5 – Dry, white/bleached, no glaze or odor, consists only of plant fibers
Unclassified – Class not recorded (advised by client)

Carcasses/Shell Remains
Class 1 – Fresh or putrid
Class 2 – Not fresh or putrid, is of normal color, and scutes adhere to bone
Class 3 – Scutes peeling from the bone
Class 4 – Shell bone is falling apart and growth rings on scutes are peeling
Class 5 – Disarticulated and scattered
Unclassified – Class not recorded

5.6.2 ESTIMATED DESERT TORTOISE POPULATION SIZE AND DENSITY

Using the calculations provided in the 2010 Field Season Protocol (USFWS 2010), desert tortoise abundance and confidence interval as well as densities were estimated. The Action Area was split into two sections based on the Recovery Unit boundaries.

In the Western Mojave Recovery Unit, four (4) adult/sub-adult desert tortoises were observed during transects within the Survey Area (Exhibit 3). Precipitation for the previous winter months (and summer months) was less than 40mm (~1.57 inches), so the Pa was assigned a value of 0.64 with a variance of 0.08. The estimated number of adult/sub-adult tortoises (with 95 percent confidence interval) within the Action Area contained within the Western Mojave Recovery Unit is 8.9 (2.7 – 28.8) tortoises. The population density is approximately 20.6 adult/sub-adult tortoises per square mile.

In the Eastern Mojave Recovery Unit, eight (8) adult/sub-adult desert tortoises were observed during transects within the Survey Area, all within the Ivanpah Critical Habitat Unit (Exhibit 3). Precipitation for the previous winter months (and summer months) was greater than 40mm (~1.57 inches), so the Pa was assigned a value of 0.80 with a variance of 0.05. The estimated number of adult/sub-adult tortoises (with

95 percent confidence interval) within the Action Area contained within the Eastern Mojave Recovery Unit is 14.5 (6.1 – 34.6) tortoises. The population density is approximately 17.5 adult/sub-adult tortoises per square mile.

6.0 DISCUSSION

The thirteen (13) live desert tortoises, four hundred (400) burrows (including pallets), one hundred forty (140) tortoise scat, thirty-five (35) locations with tortoise tracks (including those observed at burrows and pallets), thirty-five (35) tortoise carcasses, and five (5) locations with tortoise eggshell fragments observed along the Project alignment are a strong indication that this area provides high quality desert tortoise habitat. Of the tortoises encountered where surveyors could clearly see the animal's eyes, nares, and carapace, one (1) tortoise exhibited indications of possible respiratory infection (*i.e.*, wet nares and swollen/inflamed eyes).

In the Western Mojave Recovery Unit, the estimated density of 20.6 adult/sub-adult desert tortoises per square mile is higher than the 2014 USFWS estimates of 6.2-9.3 tortoises per square mile for the Superior-Cronese and Ord-Rodman Critical Habitat Units. In the Eastern Mojave Recovery Unit, the estimated density of 17.5 adult/sub-adult desert tortoises per square mile is higher than the 2014 USFWS estimates of 6.0-12.4 tortoises per square mile for the Ivanpah, Fenner, and Chemehuevi Critical Habitat Units, but similar to Ivanpah Solar's estimate of 18.0 tortoises per square mile. Discrepancies in densities from various studies could be a result of habitat quality, variation between regional populations, survey time of year, and/or yearly weather fluctuations.

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USFWS. 1990. Endangered and Threatened Wildlife and Plants: Determination of Threatened Status for the Mojave Population of the Desert Tortoise, *Federal Register*, 55:12178-12191.

USFWS. 1989. Endangered and Threatened Wildlife and Plants. Emergency Determination of Endangered Status for the Mojave Population of the Desert Tortoise, *Federal Register*, 54: 32326-32331.

Appendix A:

EXHIBITS

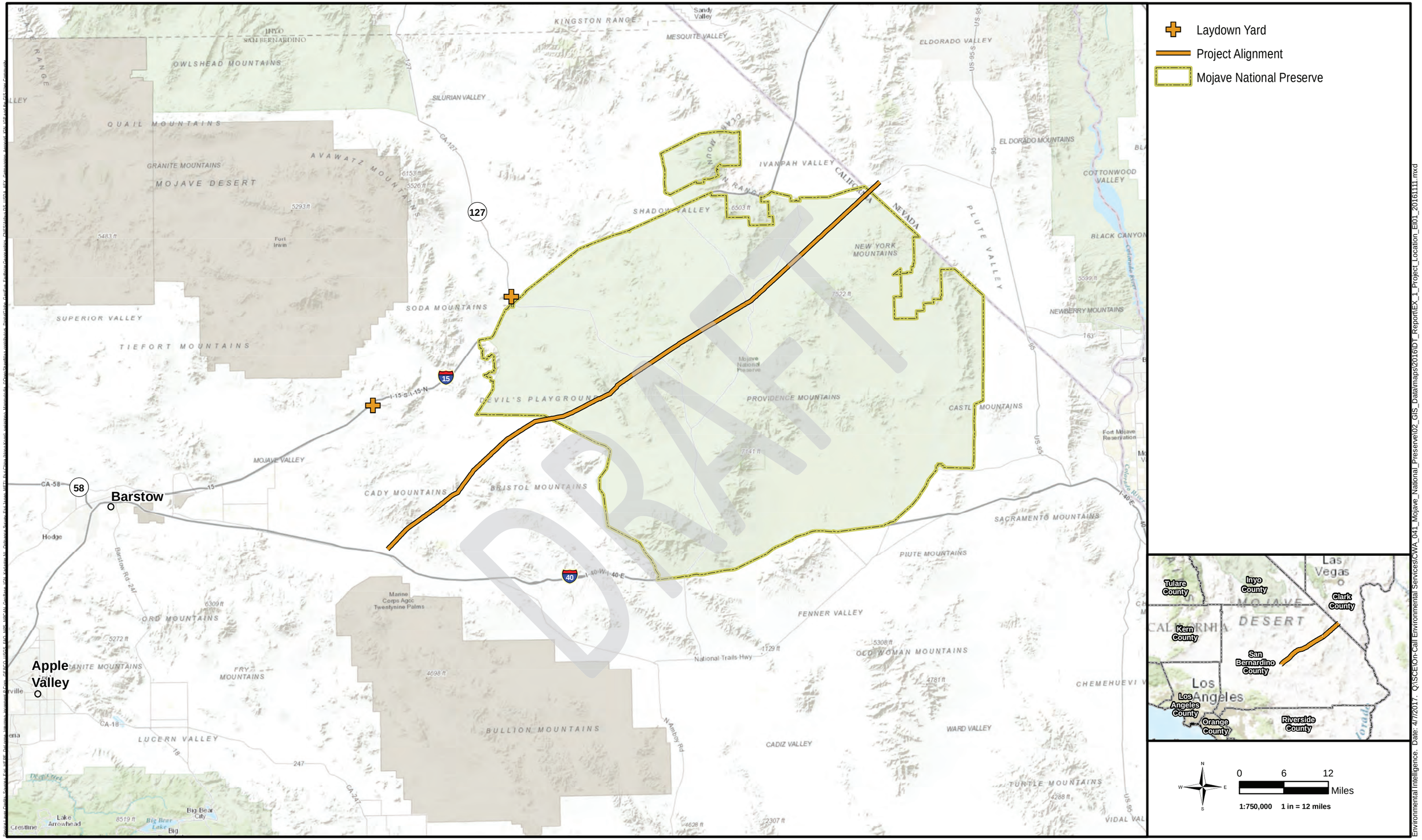

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Exhibit 1. Project Location

LVRAS Project | San Bernardino County, CA and Clark County, NV

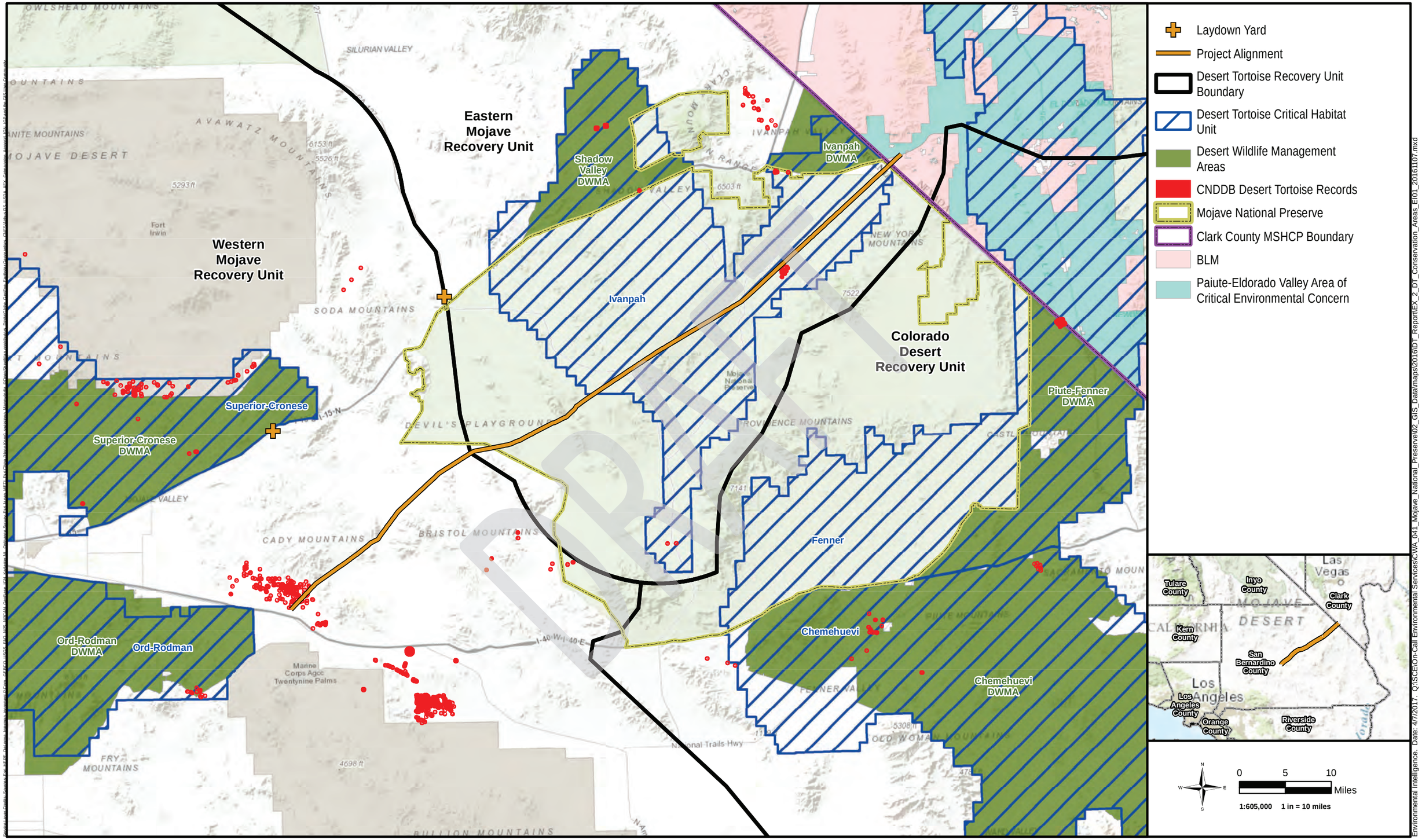

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Exhibit 2. Desert Tortoise Conservation Areas and CNDDB Records
LVRAS Project | San Bernardino County, CA and Clark County, NV

Laydown Yard
Project Alignment
Desert Tortoise Recovery Unit Boundary
Desert Tortoise Critical Habitat Unit
Desert Wildlife Management Areas
Mojave National Preserve
Clark County MSHCP Boundary
BLM
Paiute-Eldorado Valley Area of Critical Environmental Concern

Desert Tortoise Sign

Live Tortoise

Eastern Mojave Recovery Unit
Western Mojave Recovery Unit
Colorado Desert Recovery Unit

Shadow Valley DWMA
Ivanpah DWMA
Superior-Cronese DWMA
Chemehuevi DWMA
Ord-Rodman DWMA

Ivanpah
Fenner
Superior-Cronese
Chemehuevi

AVAWATZ MOUNTAINS
SILURIAN HILLS
CLARK MOUNTAIN RANGE
IVANPAH VALLEY
Mountain Pass
MESCAL RANGE
IVANPAH MOUNTAINS
NEW YORK MOUNTAINS
PROVIDENCE MOUNTAINS
MID HILLS
LANFAIR VALLEY
SODA MOUNTAINS
Red Pass Lake
Dry Lake
CRONISE VALLEY
DEVIL'S PLAYGROUND
KELSO MOUNTAINS
HACKBERRY MOUNTAIN
WOODS MOUNTAINS
HIDDEN VALLEY
BROADWELL VALLEY
GRANITE MOUNTAIN
OLD DAD MOUNTAINS
CLIPPER VALLEY
Ludlow

Tulare County
Inyo County
Clark County
Kern County
San Bernardino County
Los Angeles County
Orange County
Riverside County
Las Vegas
MOJAVE DESERT
CALIFORNIA

N
W
E
S
0 3 6 Miles
1:400,000 1 in = 6 miles

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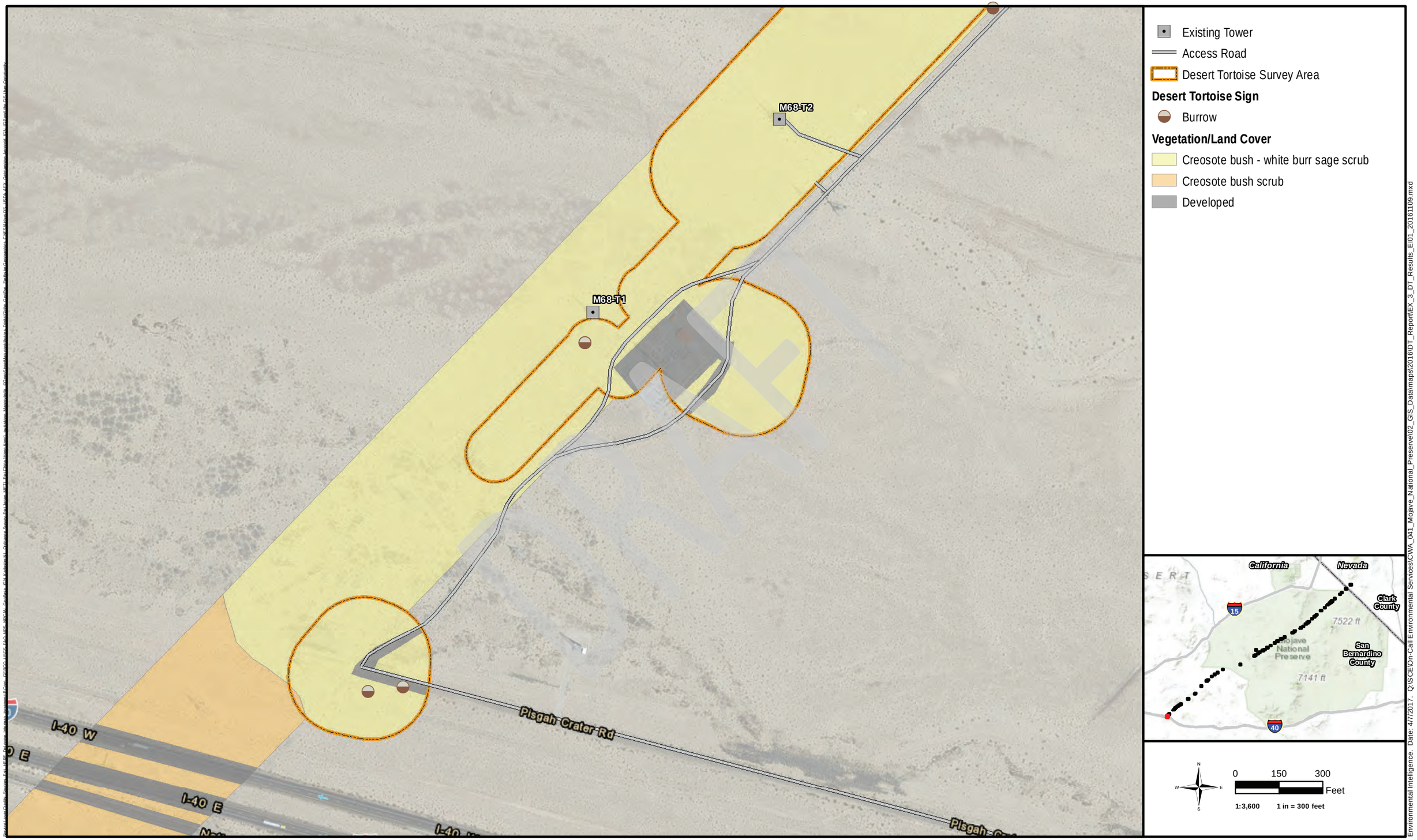
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Cal Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_ReportEX_3_Overview_EI01_20161111.mxd

Exhibit 3. Desert Tortoise Survey Area and Results Overview
LVRAS Project | San Bernardino County, CA and Clark County, NV



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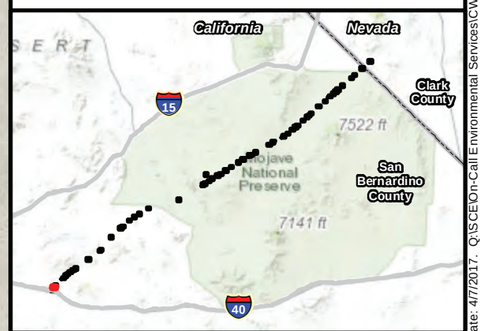
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Pallet

Vegetation/Land Cover

Creosote bush - white burr sage scrub
Developed



0 150 300 Feet

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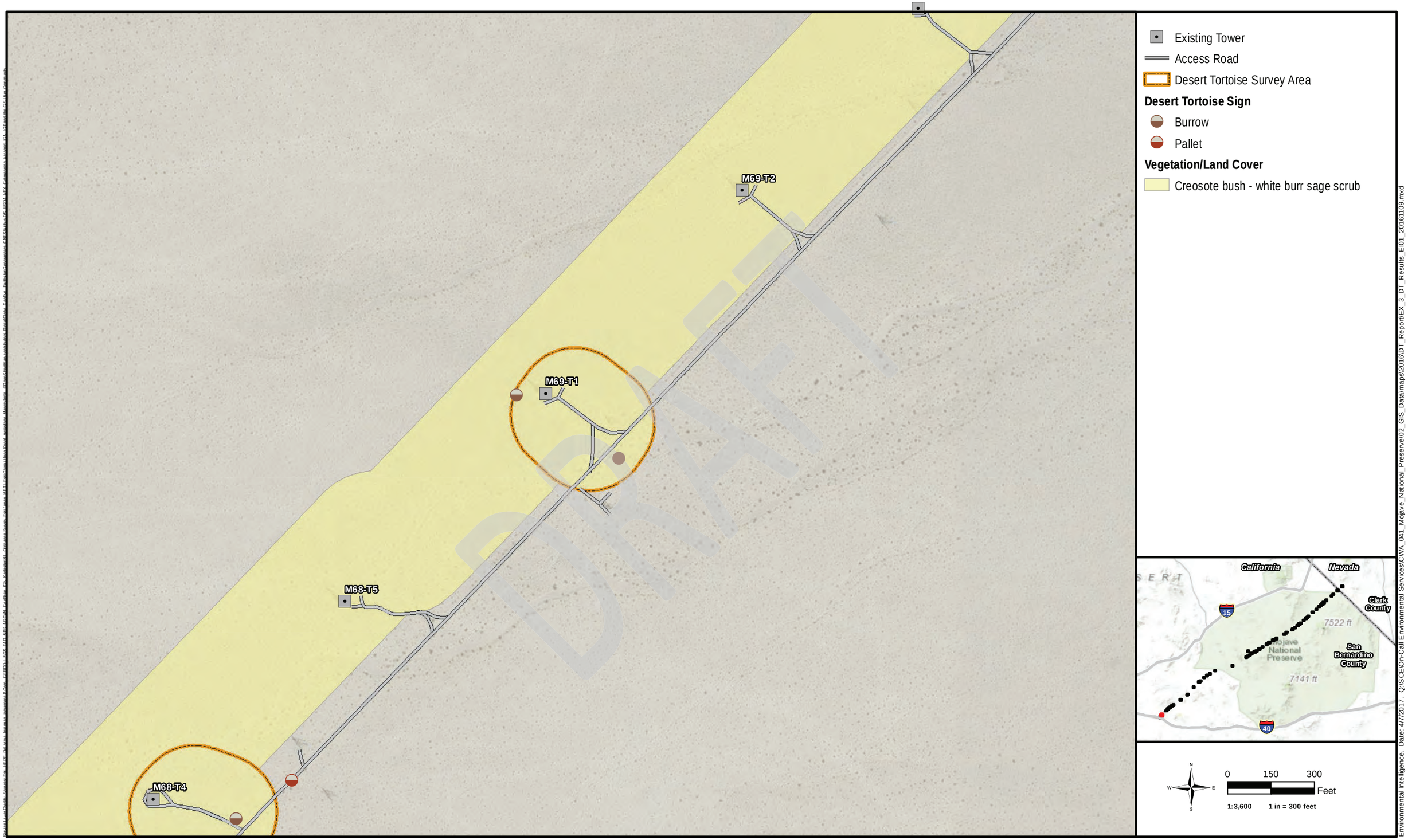
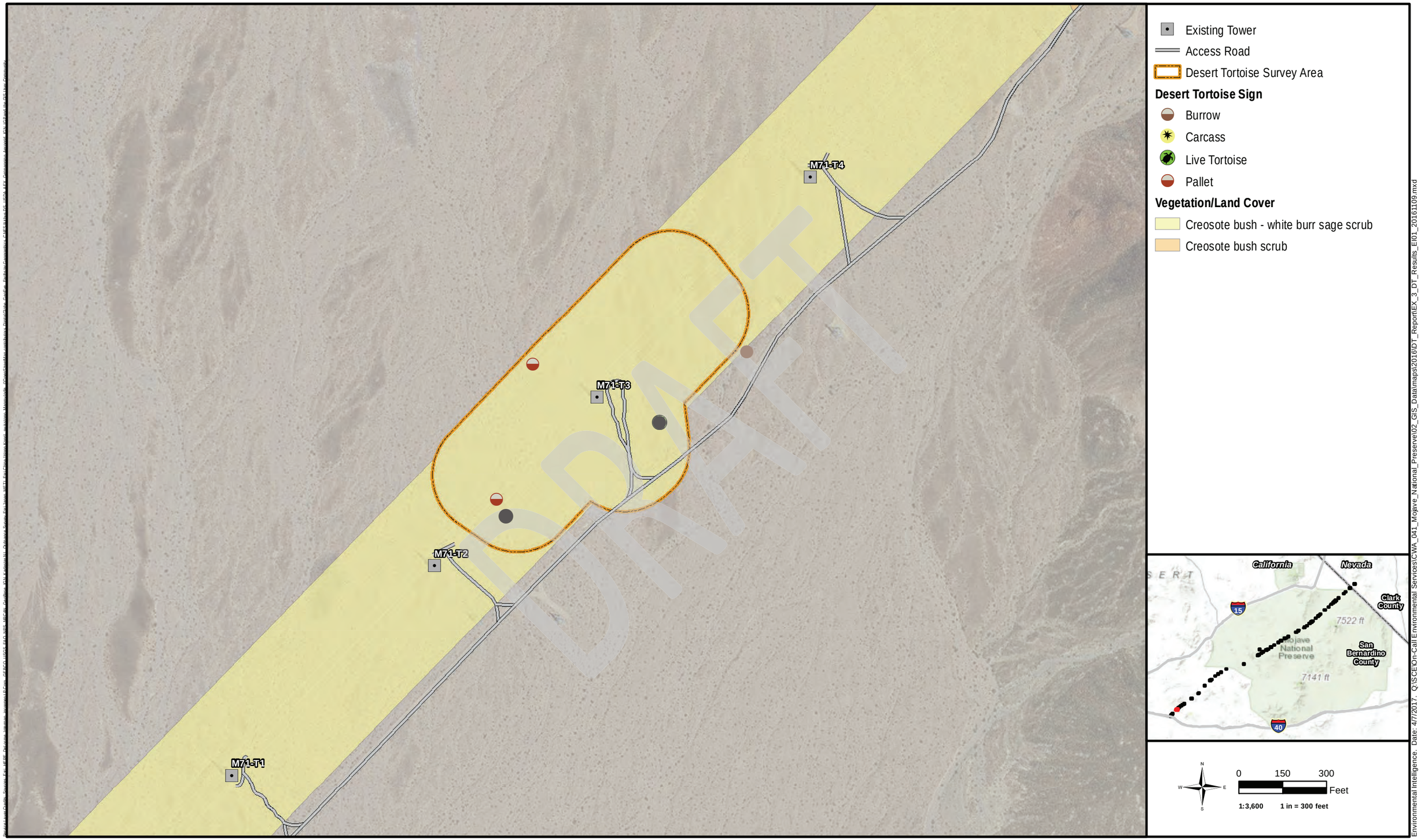
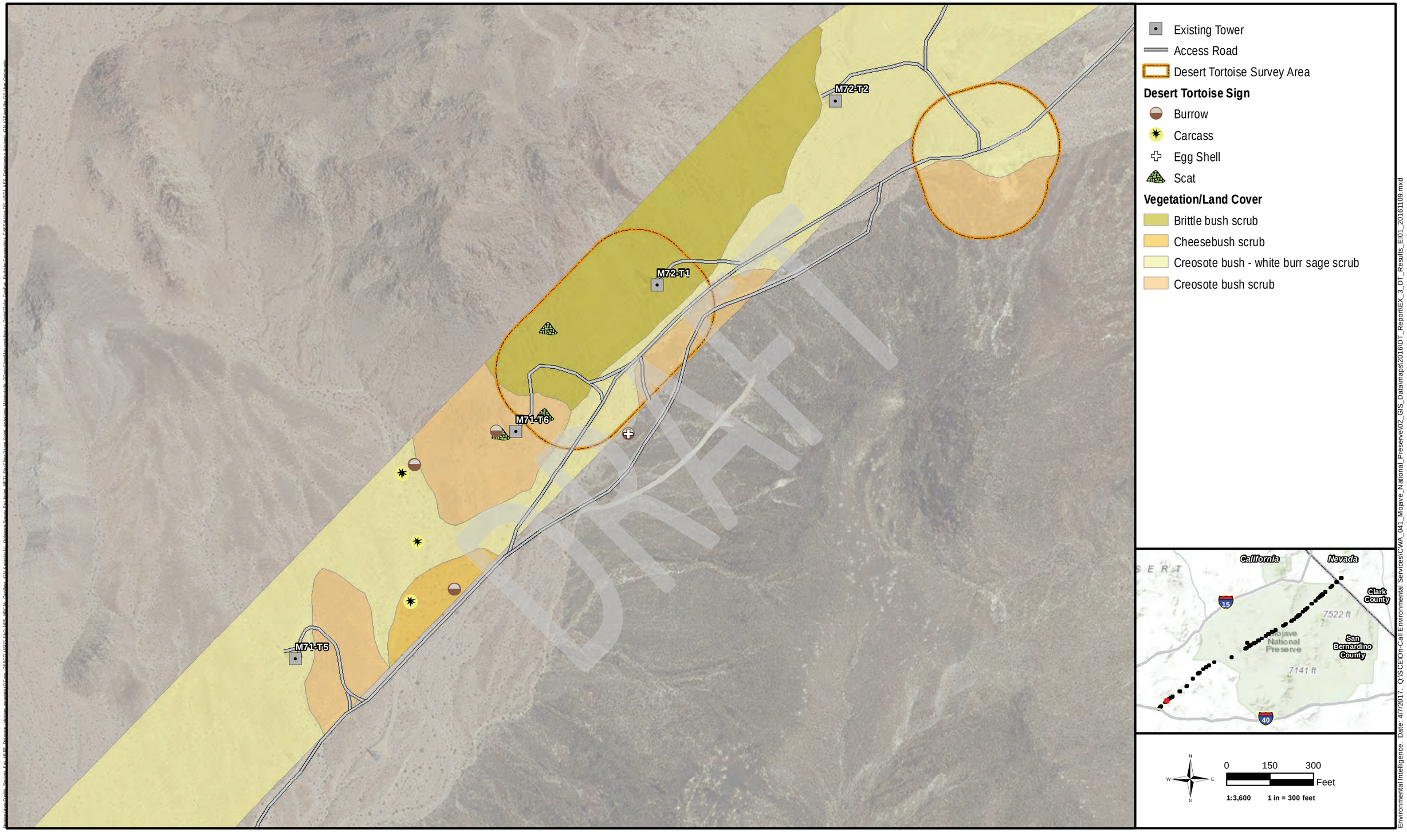
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


M69-T2
M69-T1
M68-T5
M68-T4
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Vegetation/Land Cover
Creosote bush - white burr sage scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call\Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


M71-T4
M71-T3
M71-T2
M71-T1
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Live Tortoise
Pallet
Vegetation/Land Cover
Creosote bush - white burr sage scrub
Creosote bush scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M72-T2
M72-T1
M71-T6
M71-T5
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Egg Shell
Scat
Vegetation/Land Cover
Brittle bush scrub
Cheesebush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
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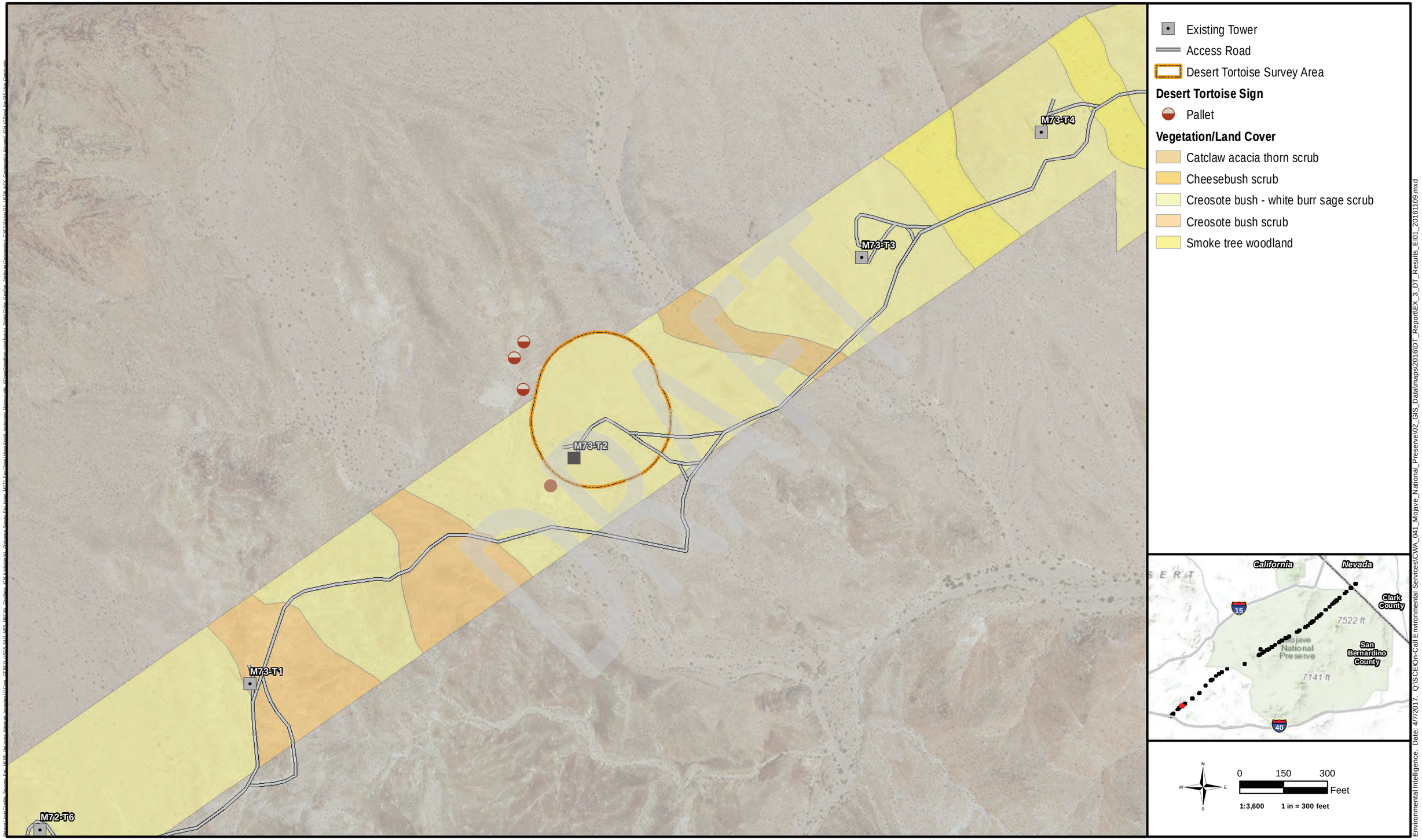
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M72-T6
M72-T5
M72-T4
M72-T3
M72-T2
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Pallet
Scat
Vegetation/Land Cover
Brittle bush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M73-T4
M73-T3
M73-T2
M73-T1
M72-T6
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Pallet
Vegetation/Land Cover
Catclaw acacia thorn scrub
Cheesebush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
Smoke tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
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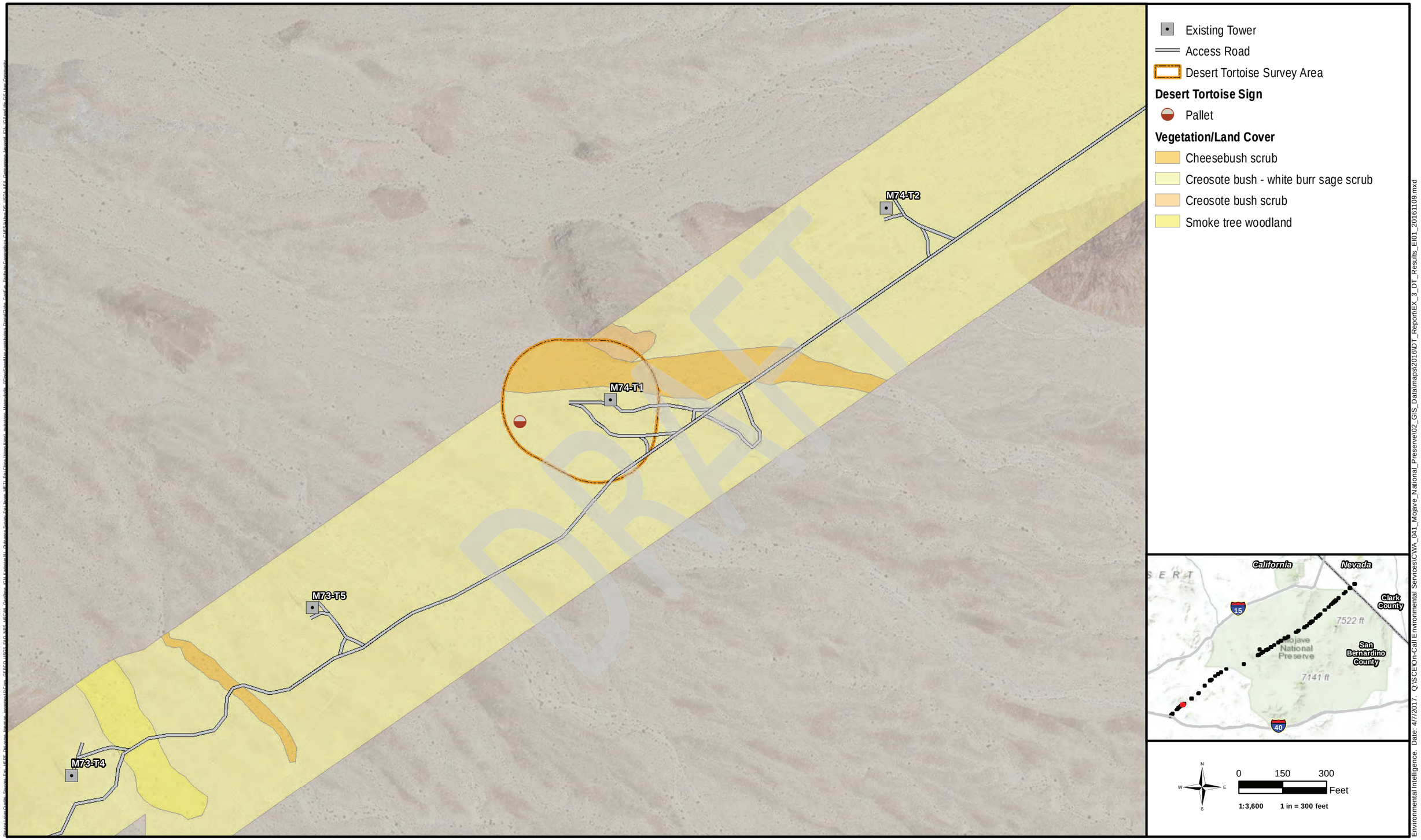
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call\Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M74-T2
M74-T1
M73-T5
M73-T4
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Pallet
Vegetation/Land Cover
Cheesebush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
Smoke tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
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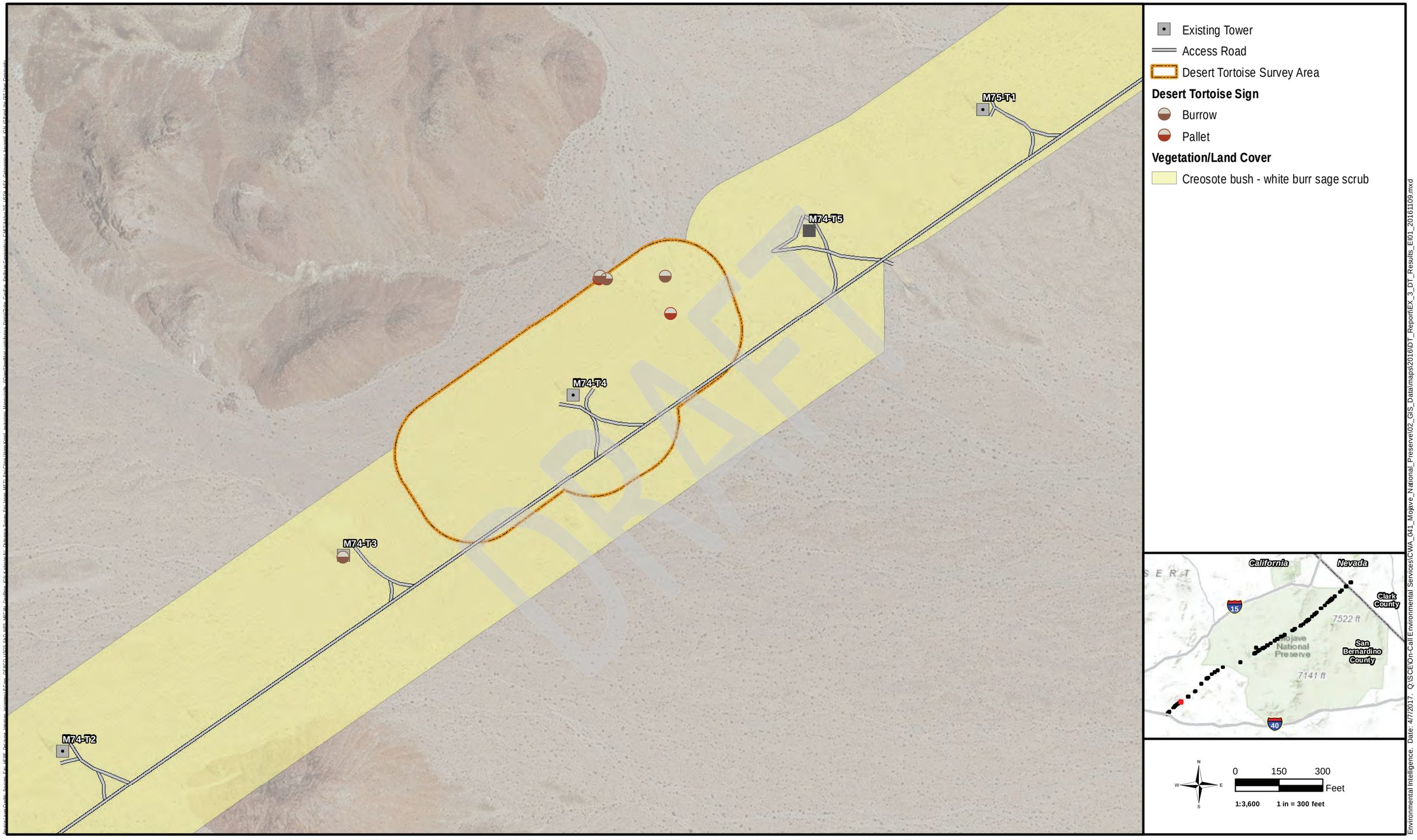
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M75-T1
M74-T5
M74-T4
M74-T3
M74-T2
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Vegetation/Land Cover
Creosote bush - white burr sage scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
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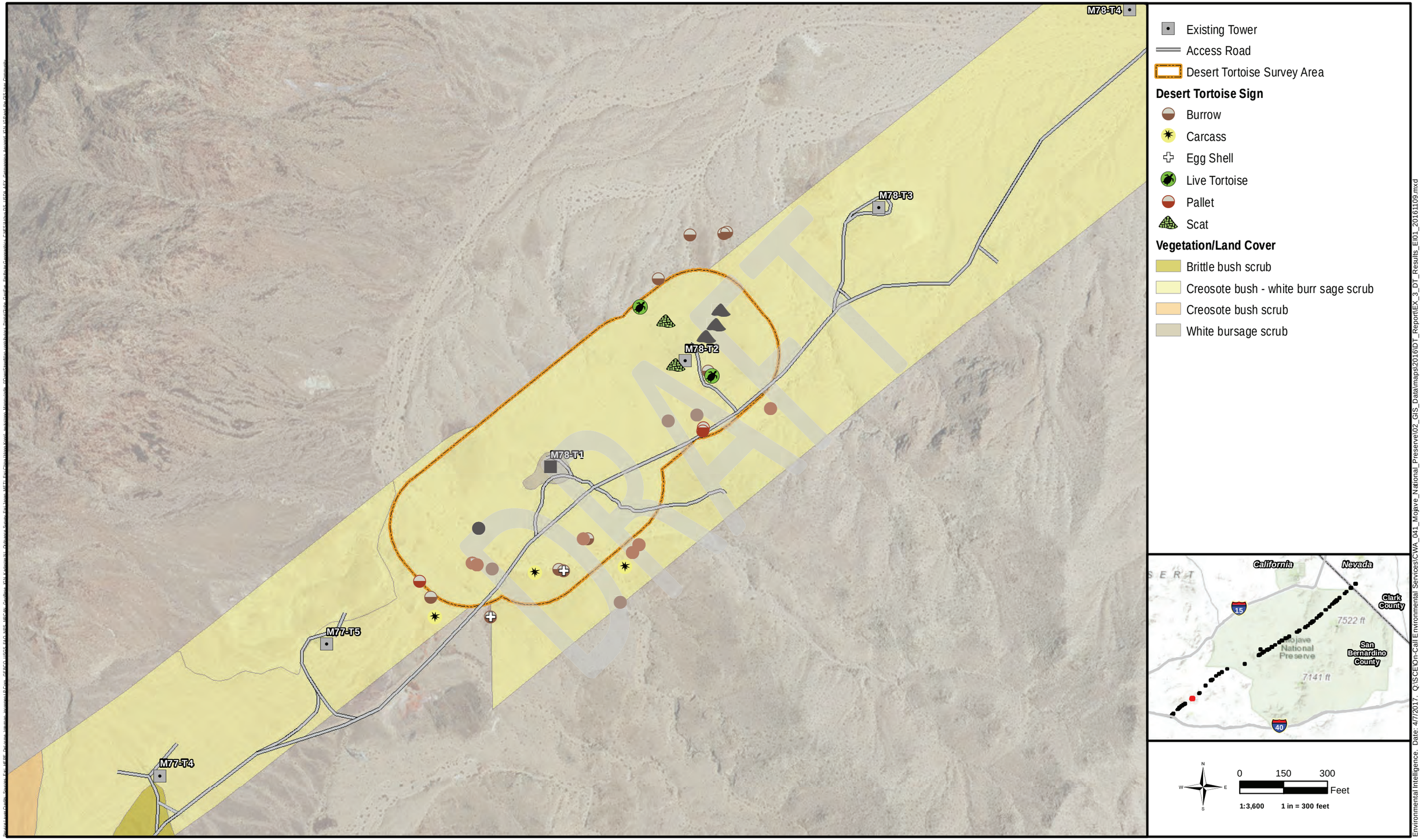
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M78-T4
M78-T3
M78-T2
M78-T1
M77-T5
M77-T4
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Egg Shell
Live Tortoise
Pallet
Scat
Vegetation/Land Cover
Brittle bush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
White bursage scrub
DRAFT
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
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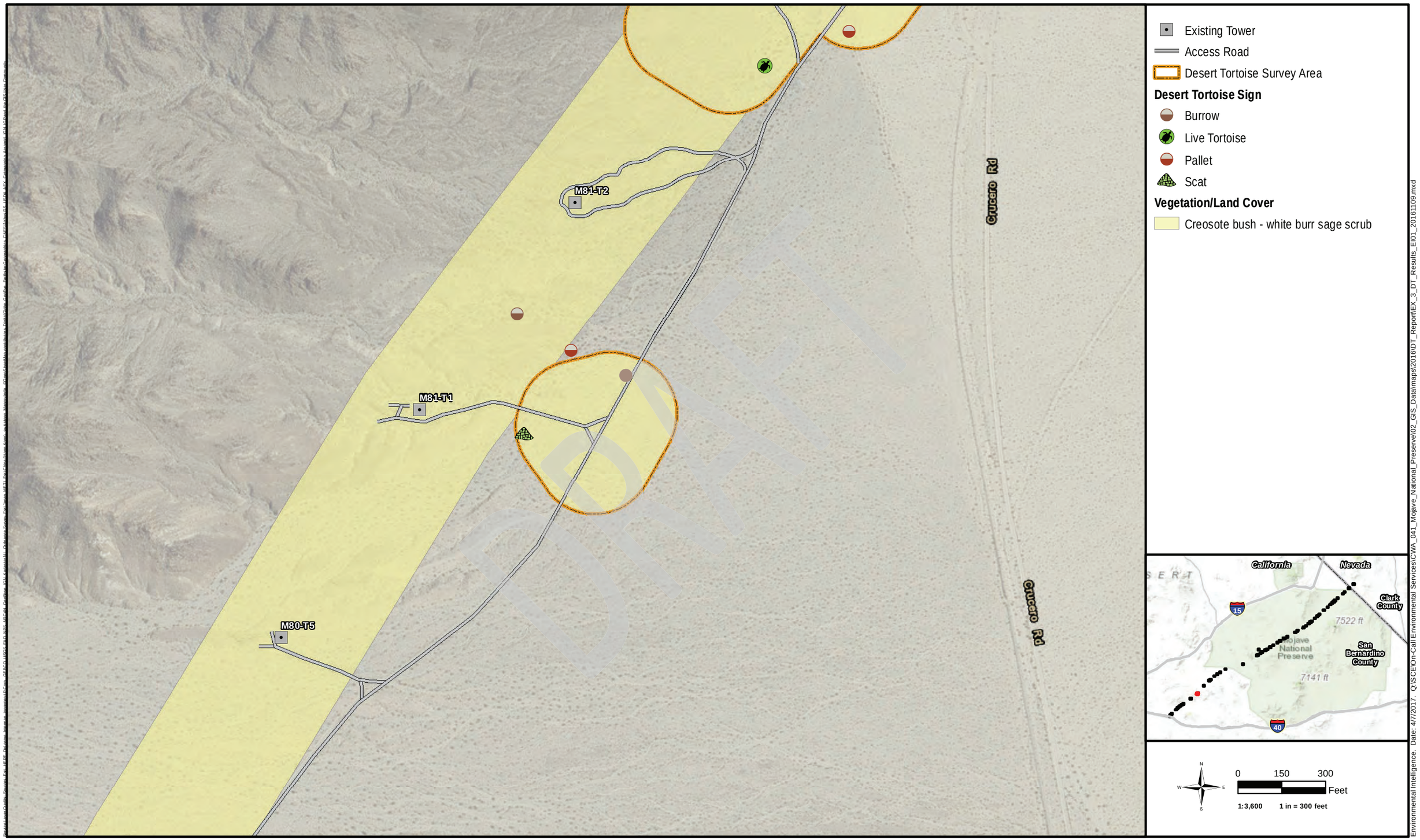
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



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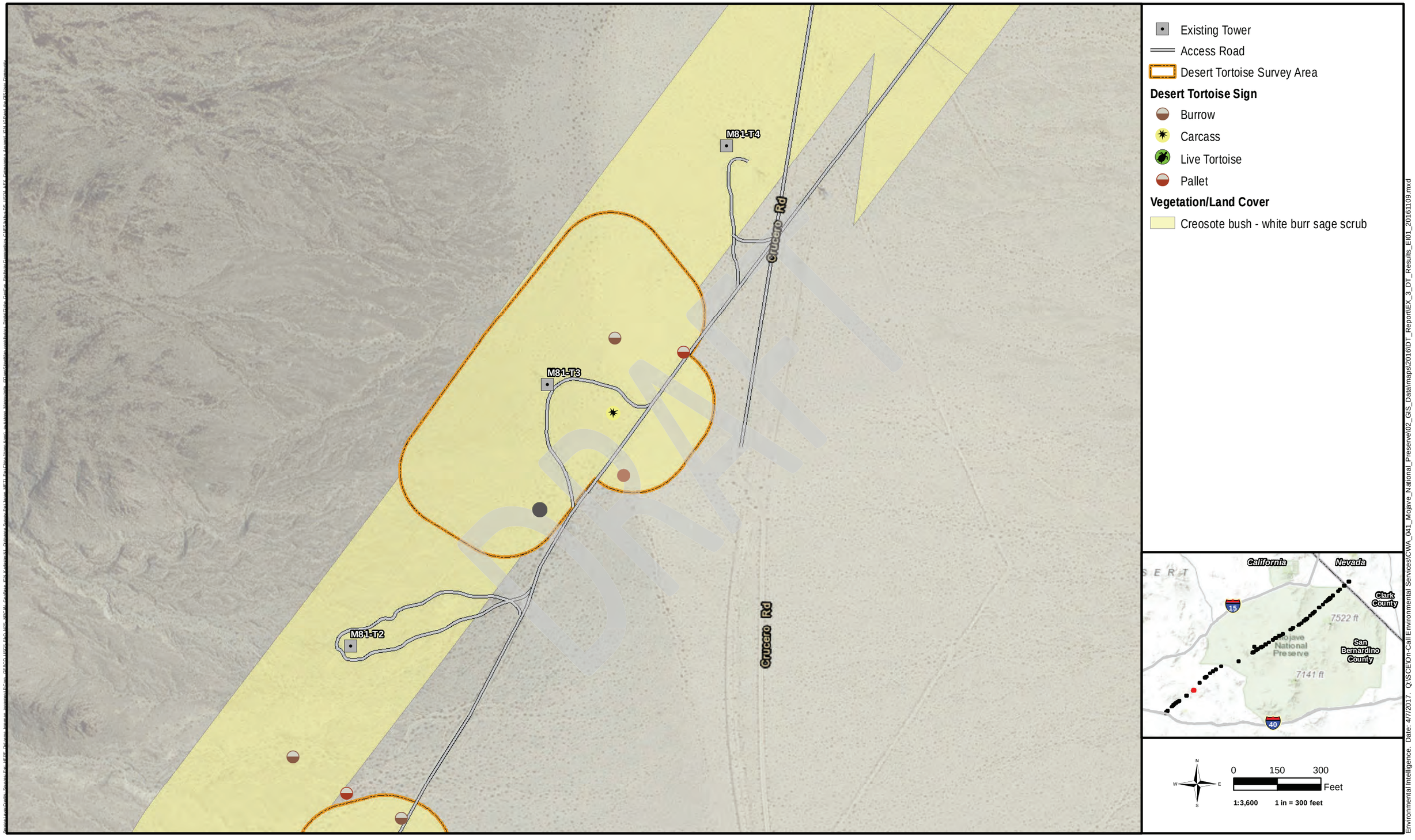
M81-T4
M81-T3
M81-T2
Crucero Rd
Crucero Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Live Tortoise
Pallet
Vegetation/Land Cover
Creosote bush - white burr sage scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
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Feet
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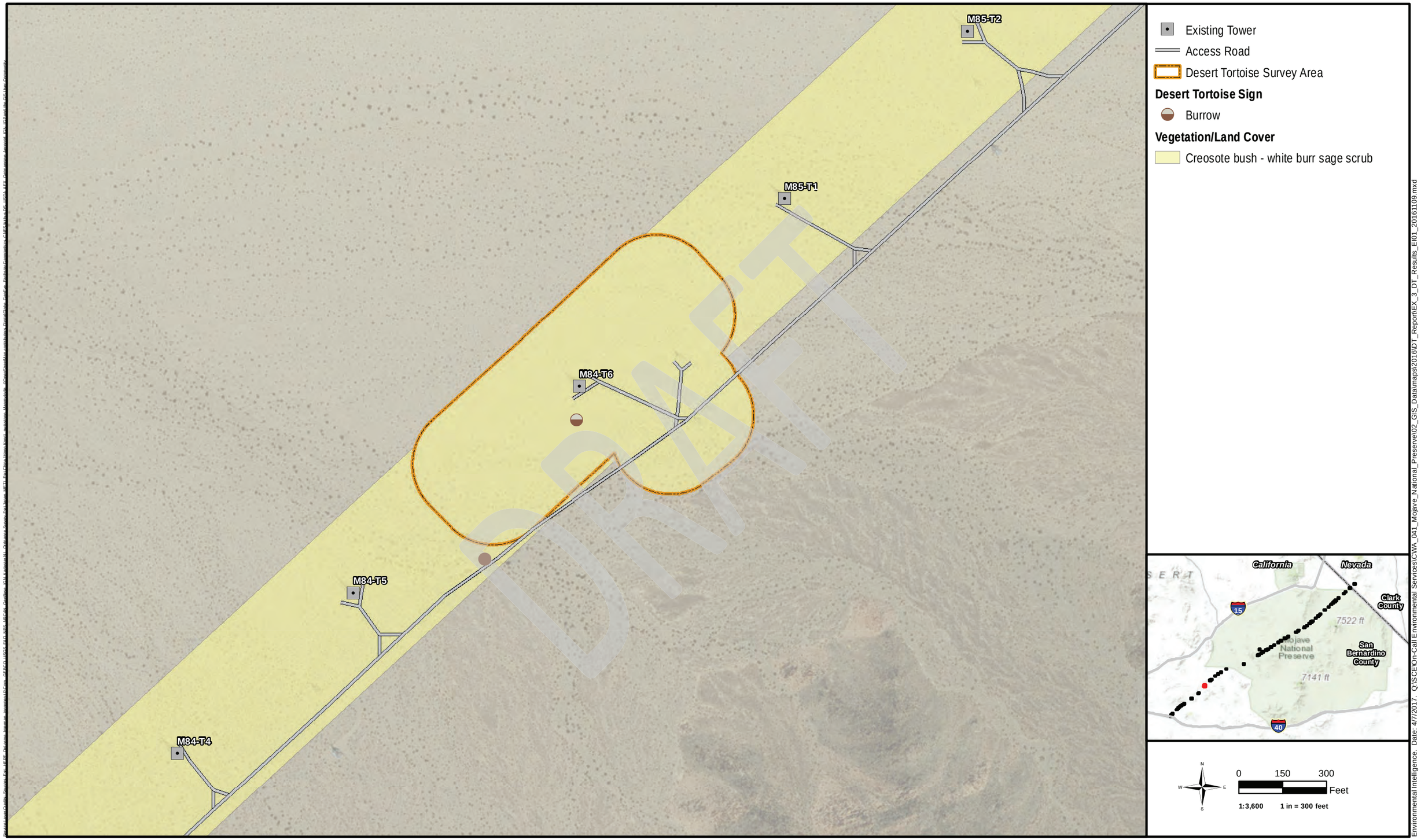
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



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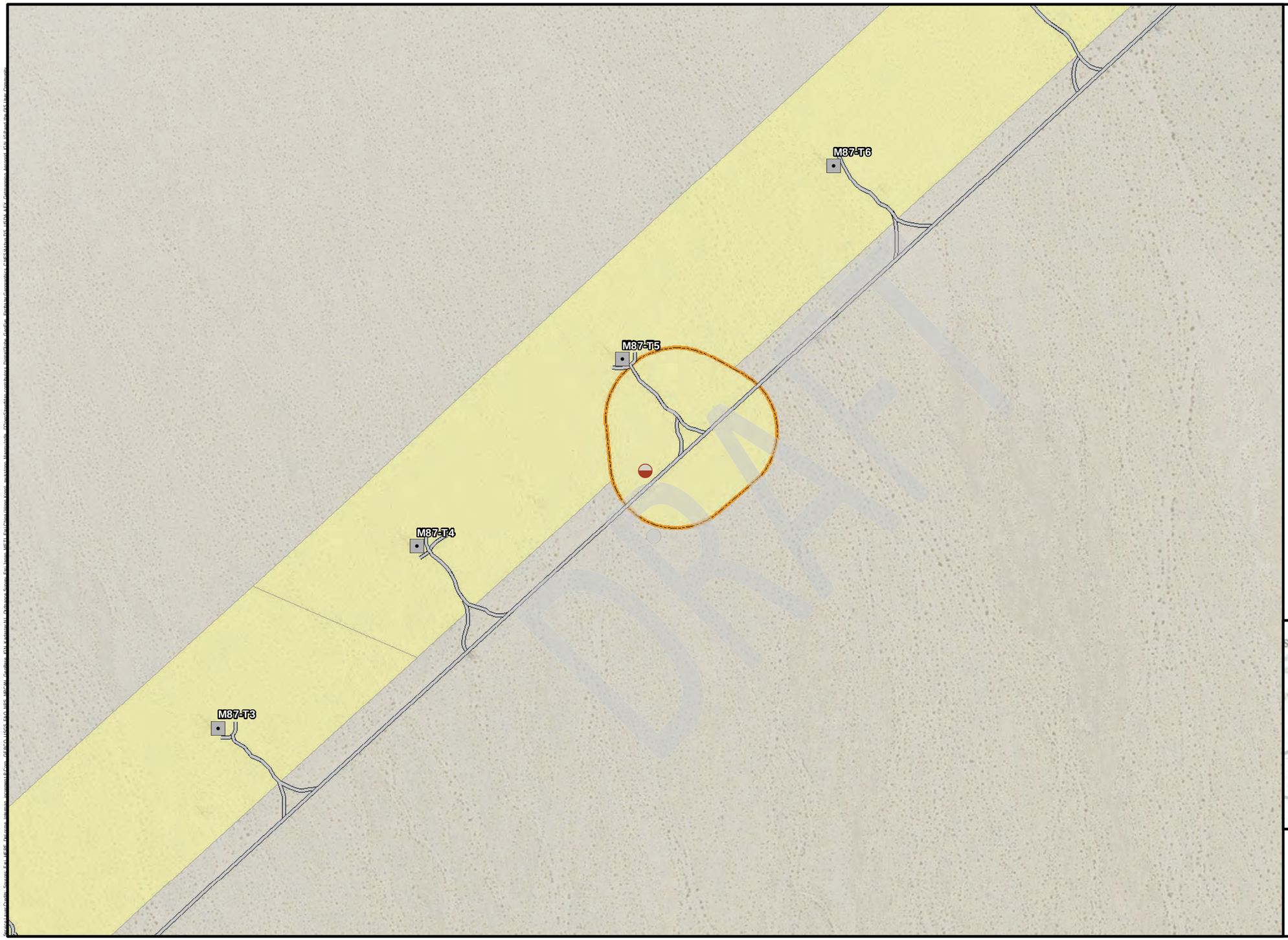


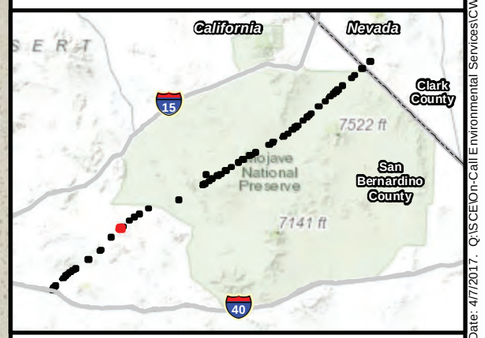
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Pallet

Vegetation/Land Cover

Creosote bush - white burr sage scrub

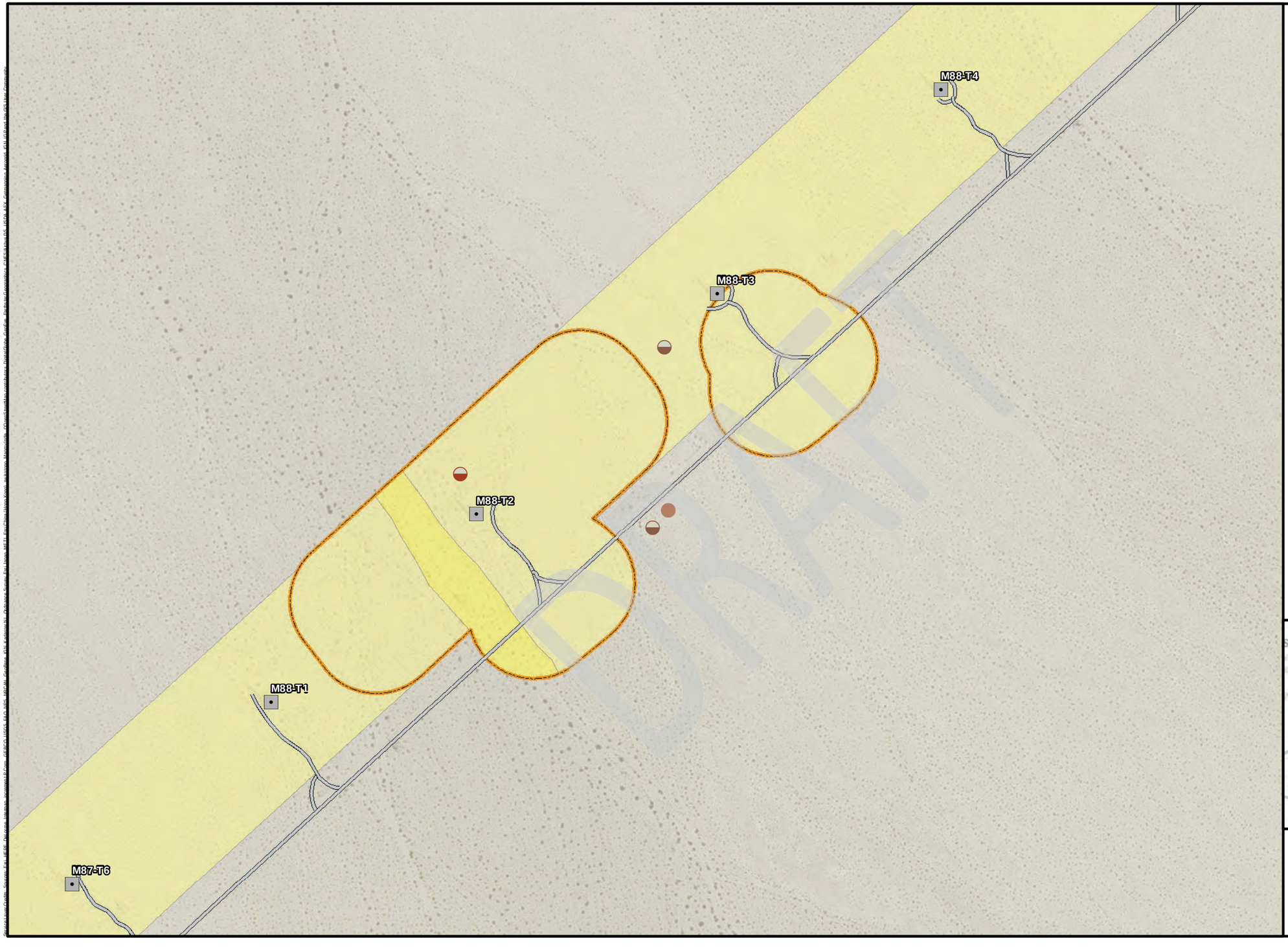


N
W
E
S

0 150 300
Feet

1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



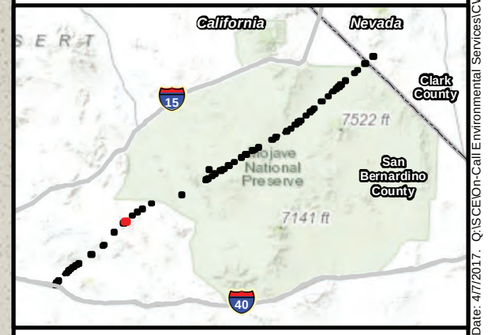
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Pallet

Vegetation/Land Cover

Creosote bush - white burr sage scrub
Smoke tree woodland



N
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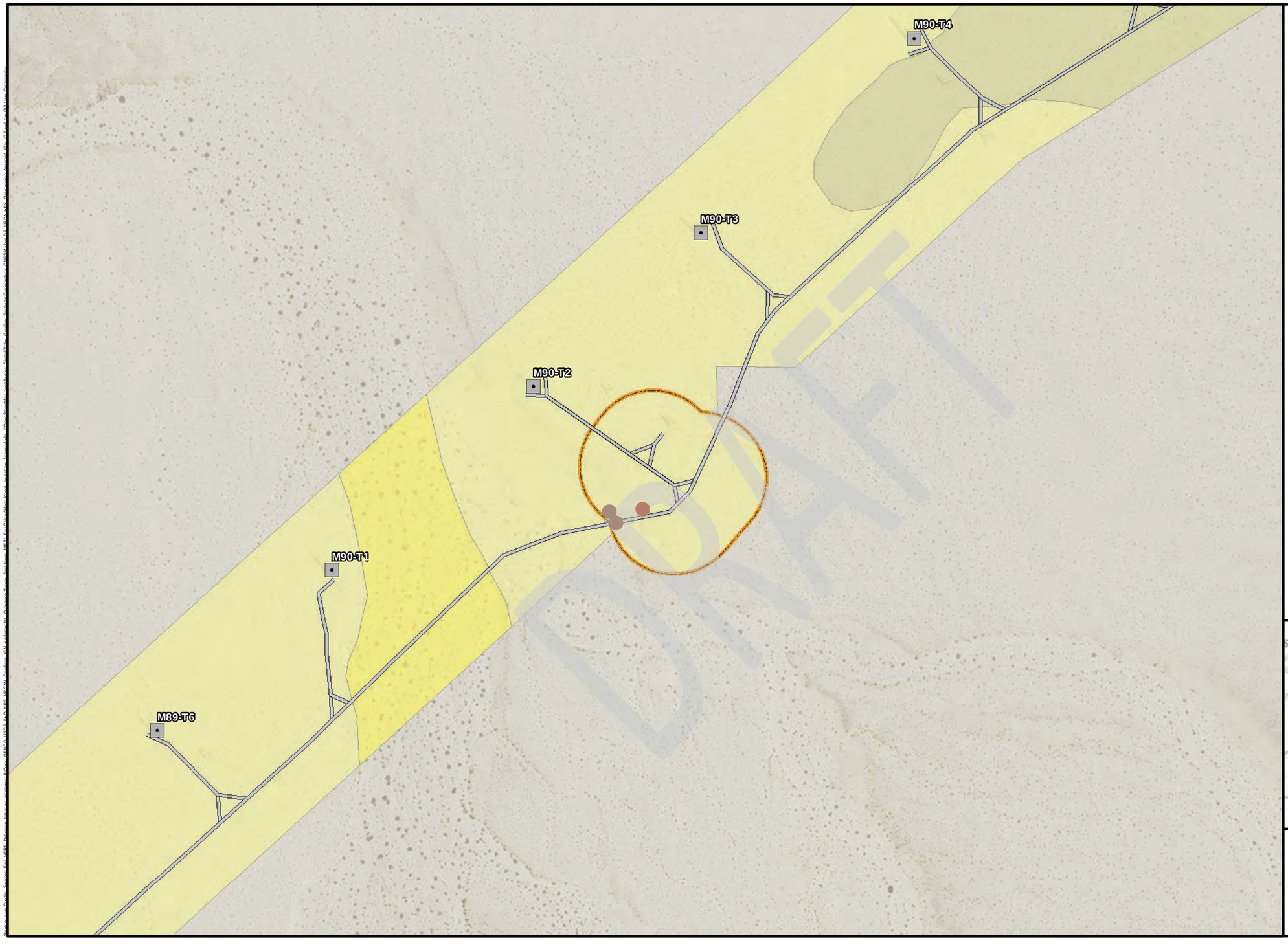
S

0 150 300
Feet

1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd



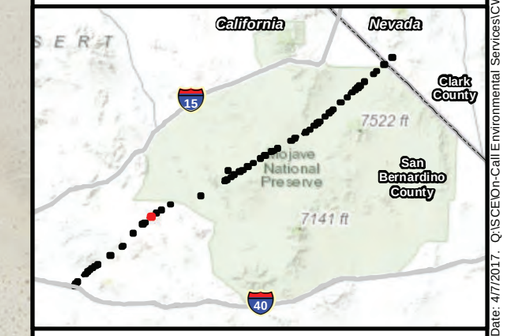
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Pallet

Vegetation/Land Cover

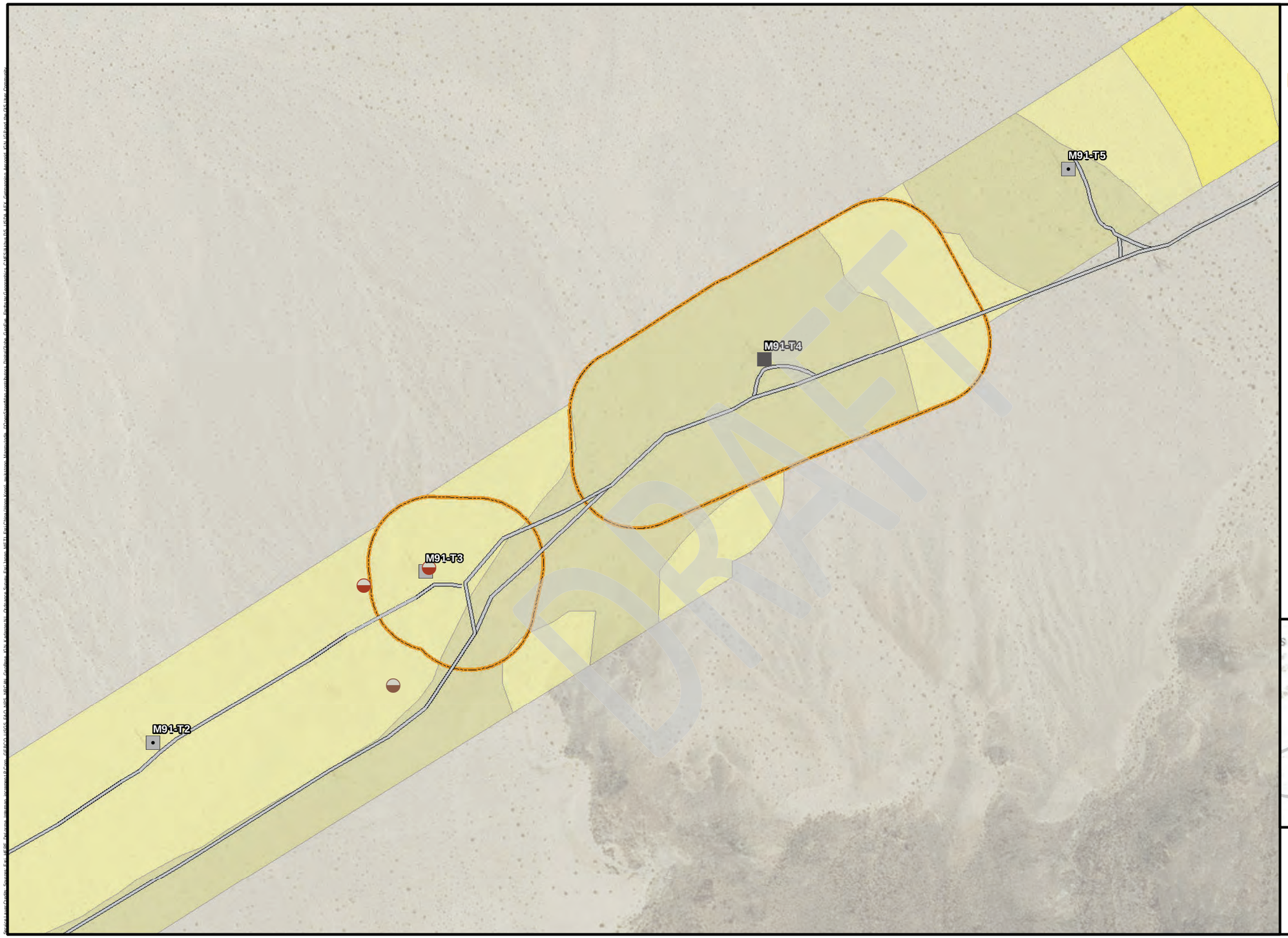
Big galleta shrub-steppe
Creosote bush - white burr sage scrub
Smoke tree woodland



0 150 300 Feet

1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



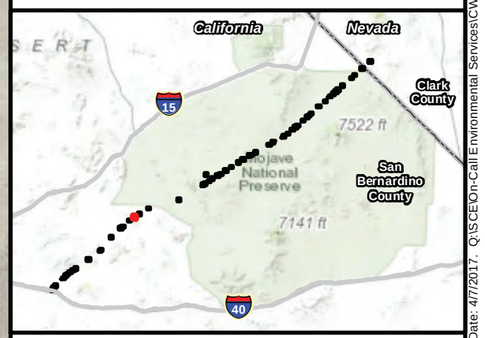
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Pallet

Vegetation/Land Cover

Big galleta shrub-steppe
Creosote bush - white burr sage scrub
Smoke tree woodland



N
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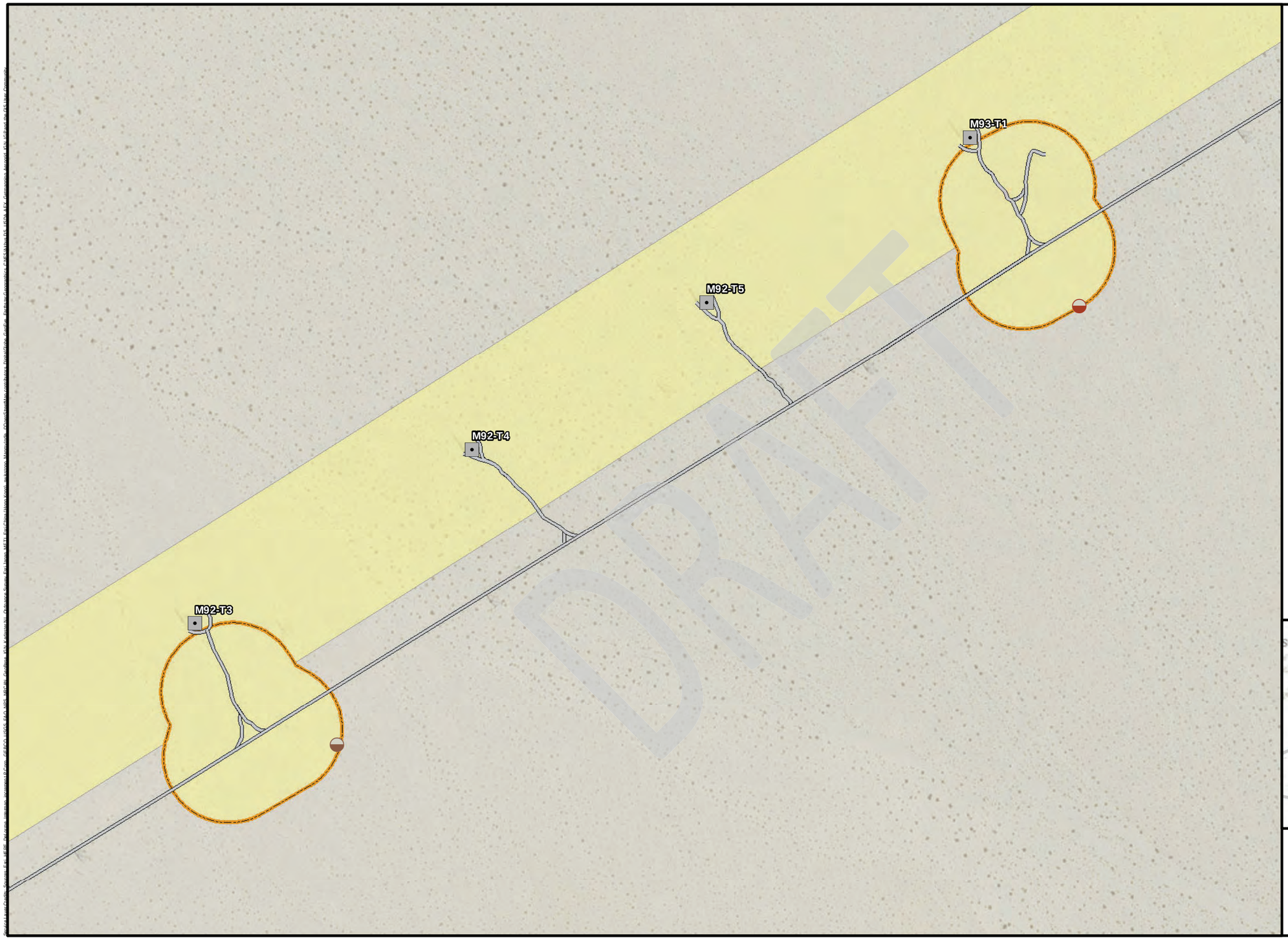
0 150 300
Feet
1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



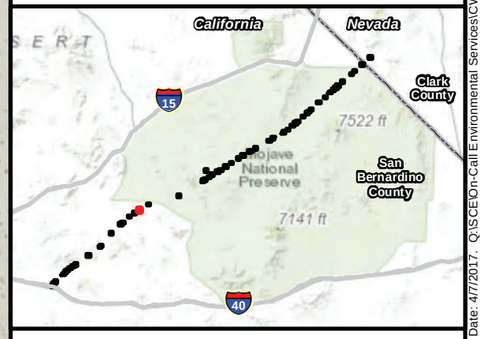
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Pallet

Vegetation/Land Cover

Creosote bush - white burr sage scrub



N
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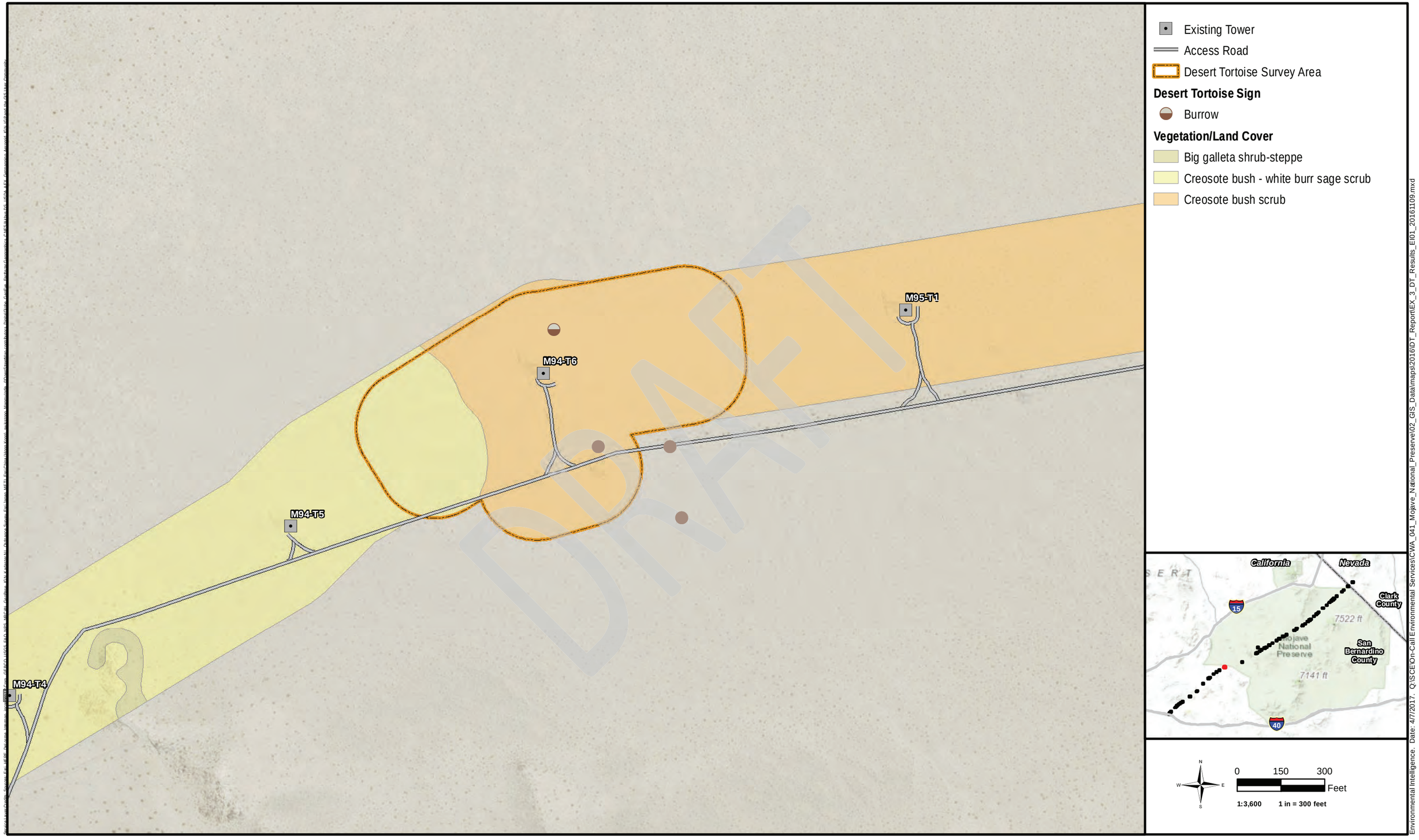
0 150 300
Feet

1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


M95-T1
M94-T6
M94-T5
M94-T4
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Vegetation/Land Cover
Big galleta shrub-steppe
Creosote bush - white burr sage scrub
Creosote bush scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
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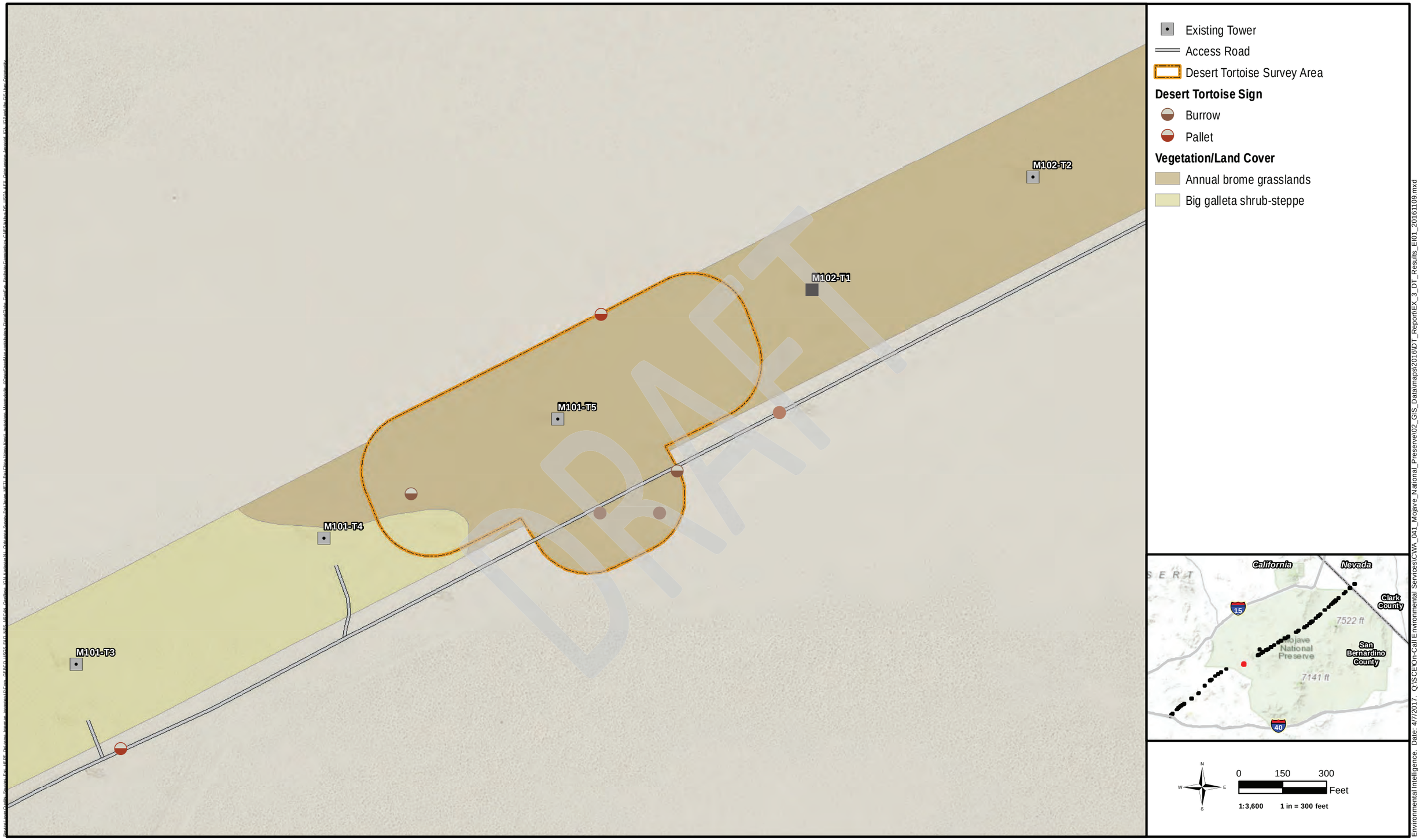
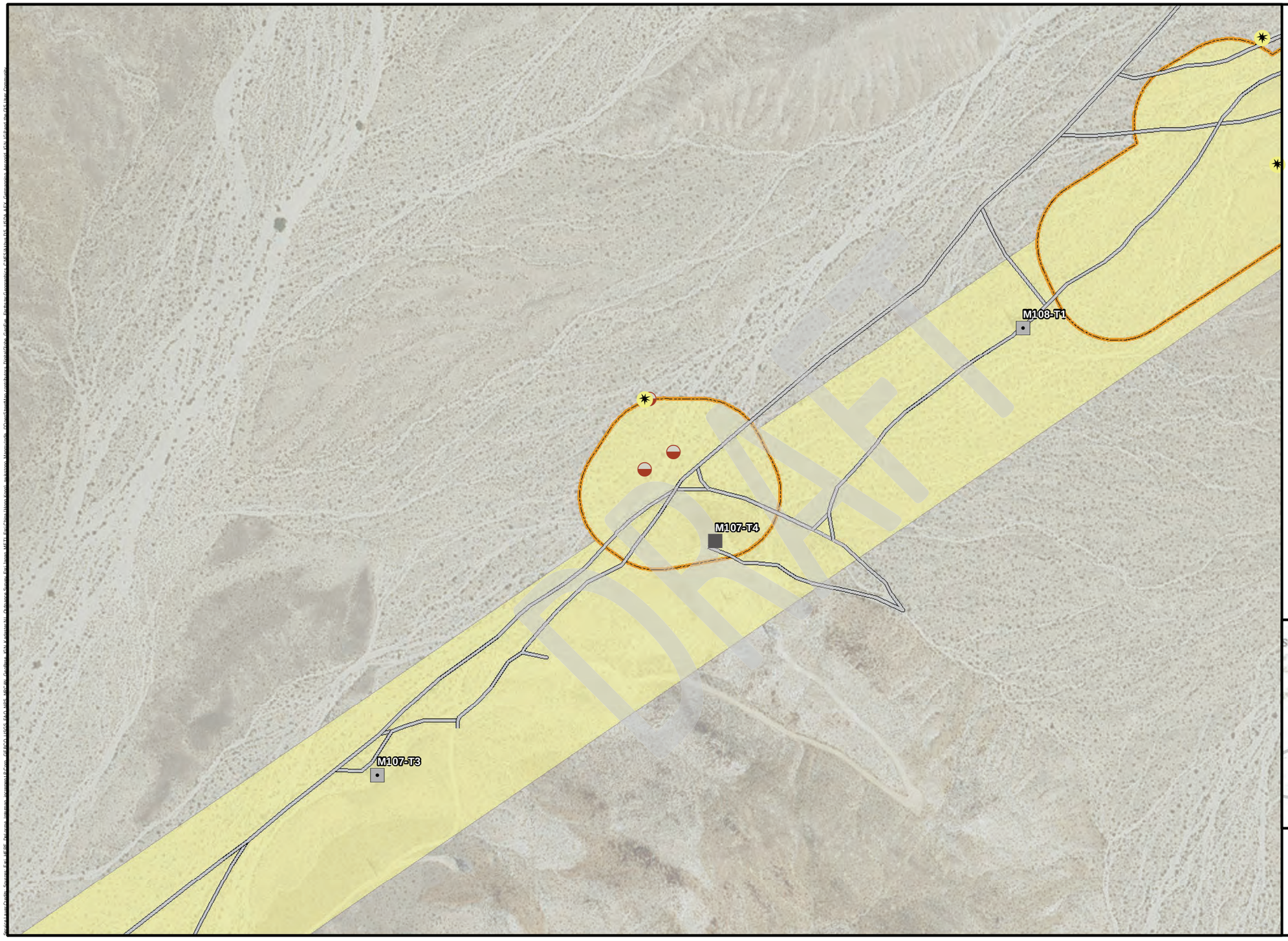
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


M102-T2
M102-T1
M101-T5
M101-T4
M101-T3
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Vegetation/Land Cover
Annual brome grasslands
Big galleta shrub-steppe
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



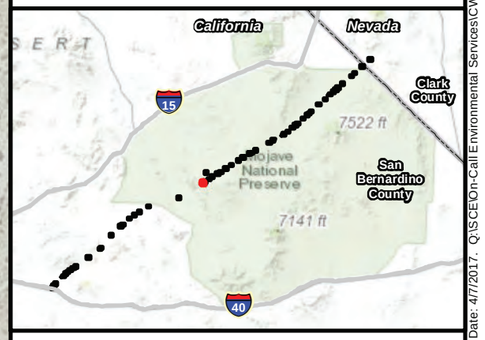
- Existing Tower
- Access Road
- Desert Tortoise Survey Area

Desert Tortoise Sign

- Carcass
- Pallet

Vegetation/Land Cover

- Creosote bush - white burr sage scrub

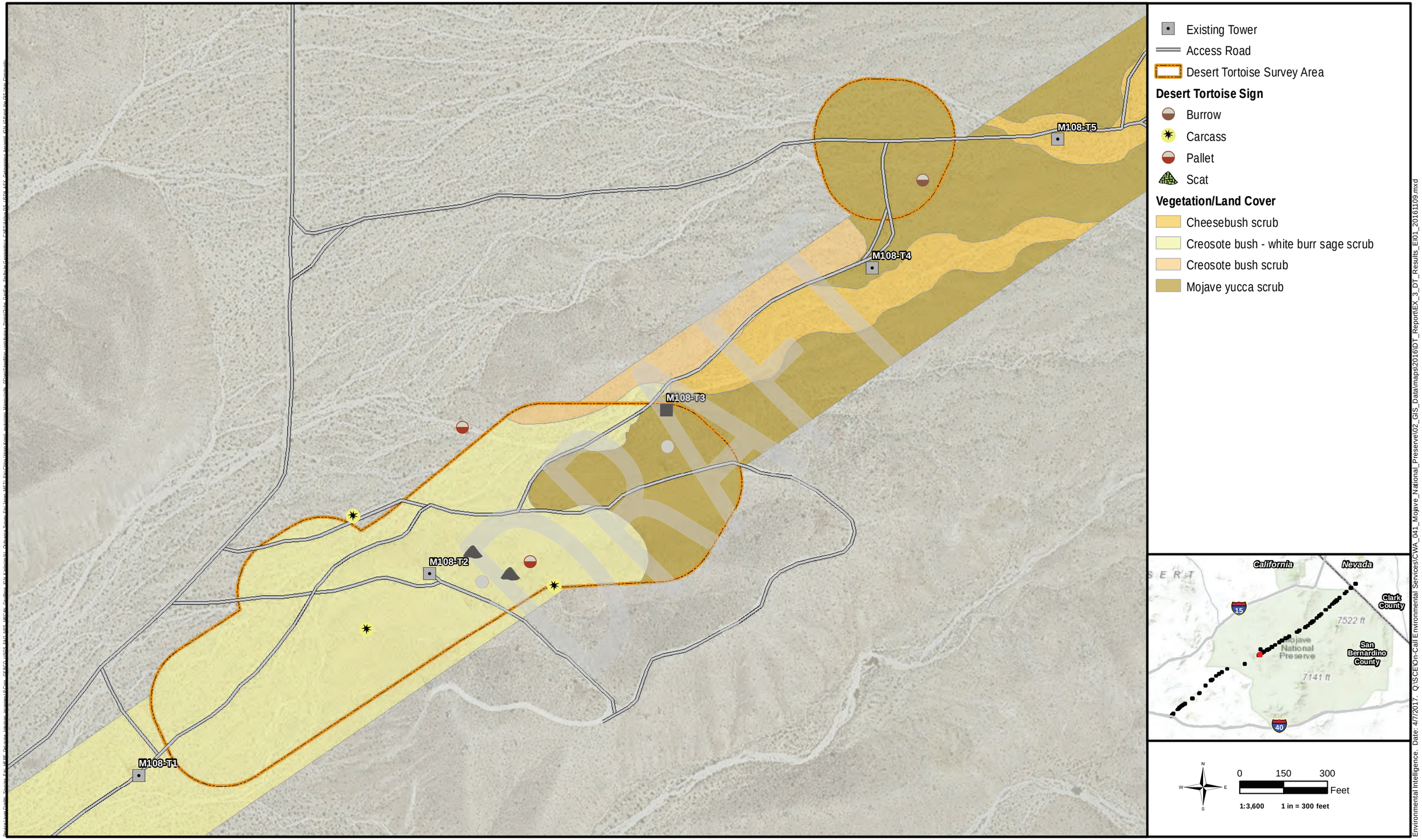


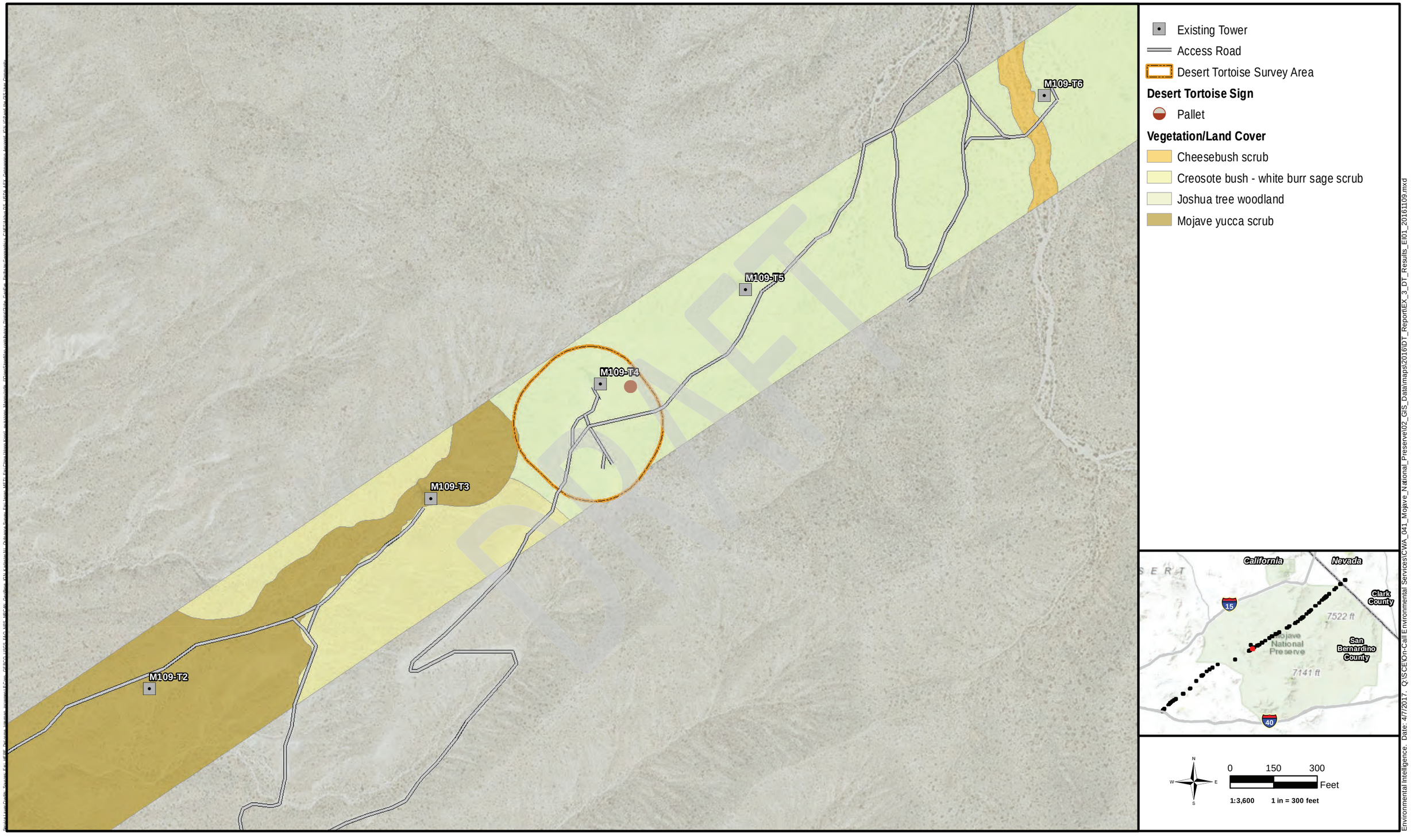
N W E S

0 150 300 Feet

1:3,600 1 in = 300 feet

Environmental Intelligence - Date: 4/7/2017 - Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


M108-T5
M108-T4
M108-T3
M108-T2
M108-T1
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Pallet
Scat
Vegetation/Land Cover
Cheesebush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
Mojave yucca scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



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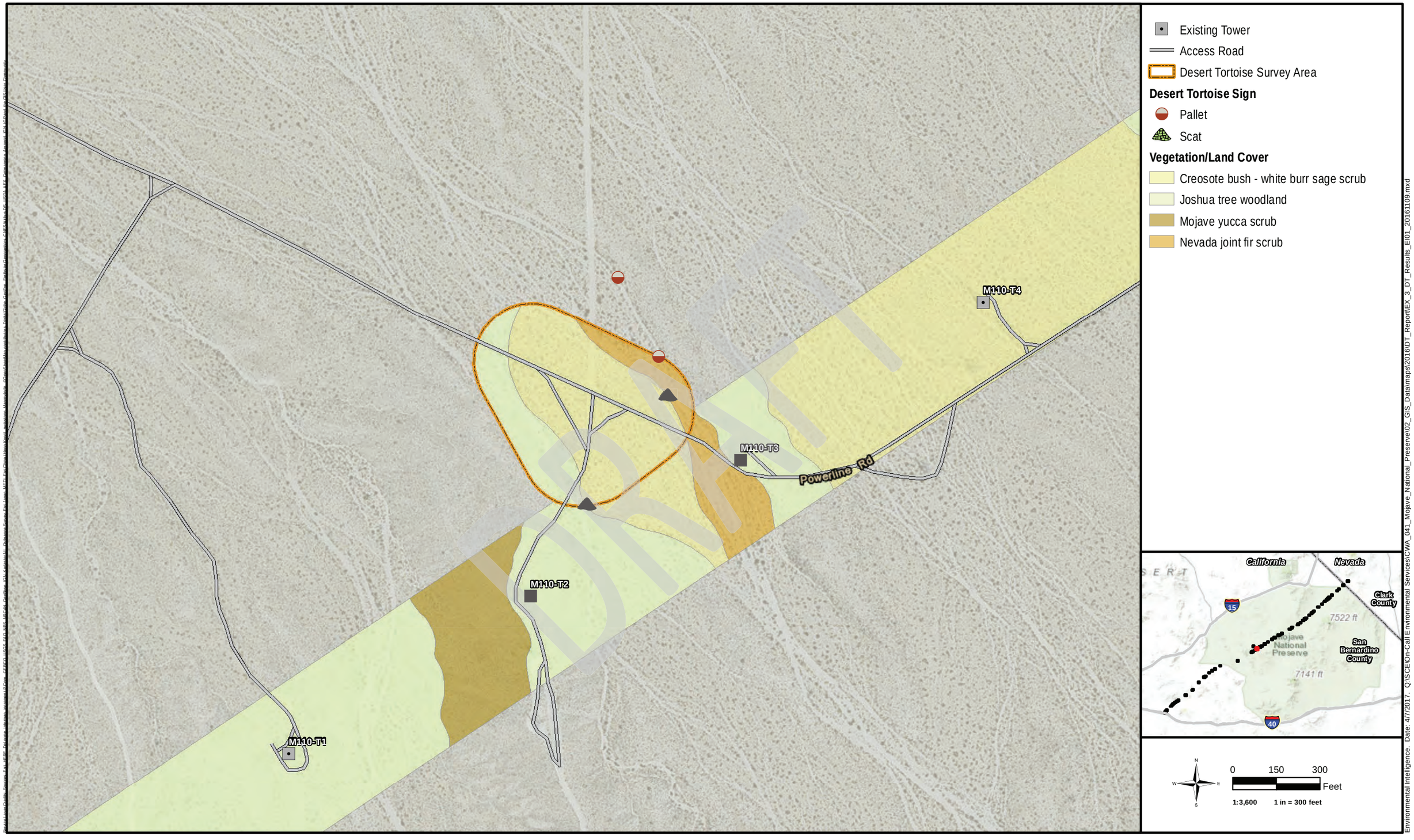
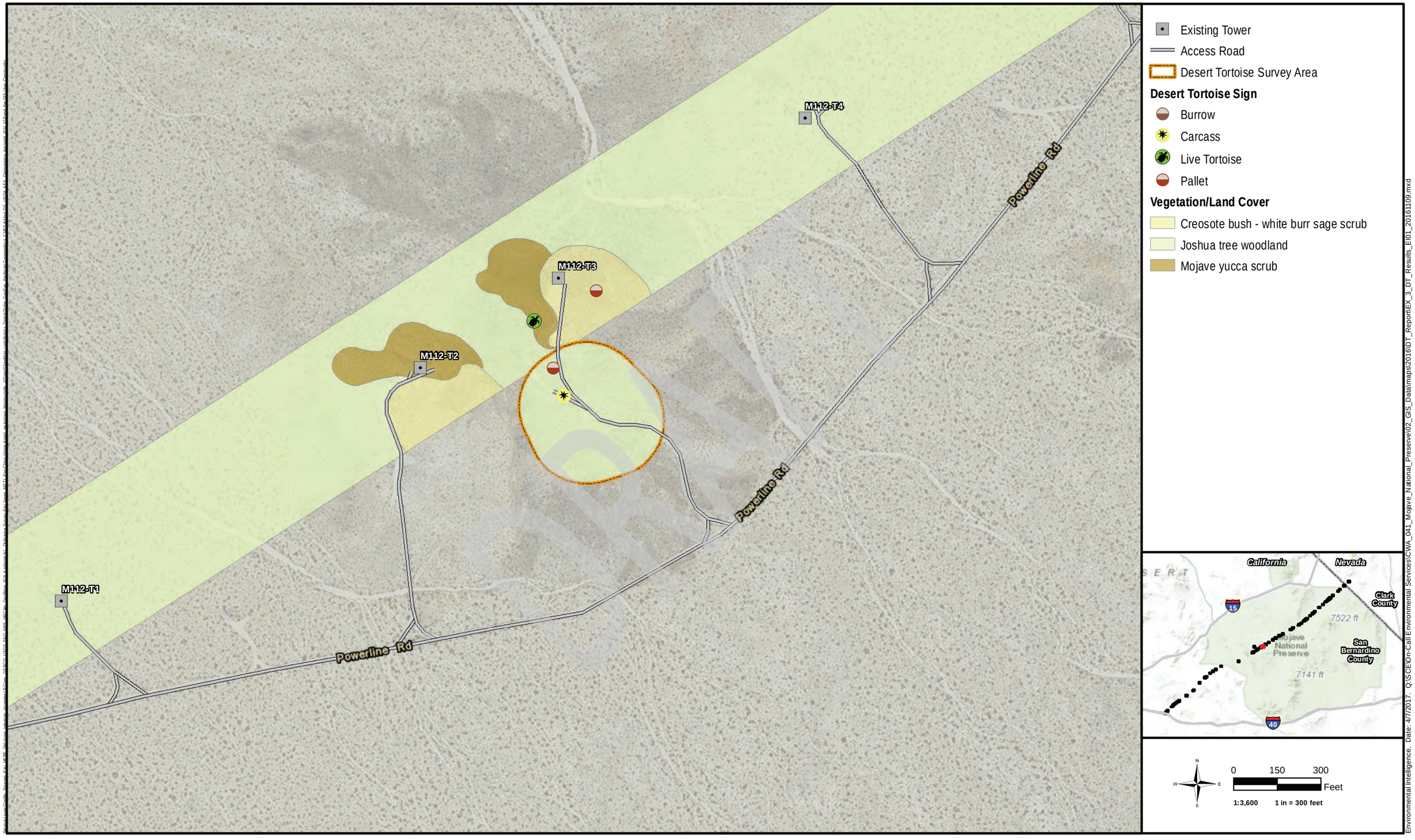
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Vegetation/Land Cover
Barren-Not Developed
Cheesebush scrub
Creosote bush - white burr sage scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
S
E
W
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call\Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M110-T4
M110-T3
M110-T2
M110-T1
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Pallet
Scat
Vegetation/Land Cover
Creosote bush - white burr sage scrub
Joshua tree woodland
Mojave yucca scrub
Nevada joint fir scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M112-T1
M111-T6
M111-T5
M111-T4
M111-T3
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Pallet
Vegetation/Land Cover
Joshua tree woodland
DRAFT
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd



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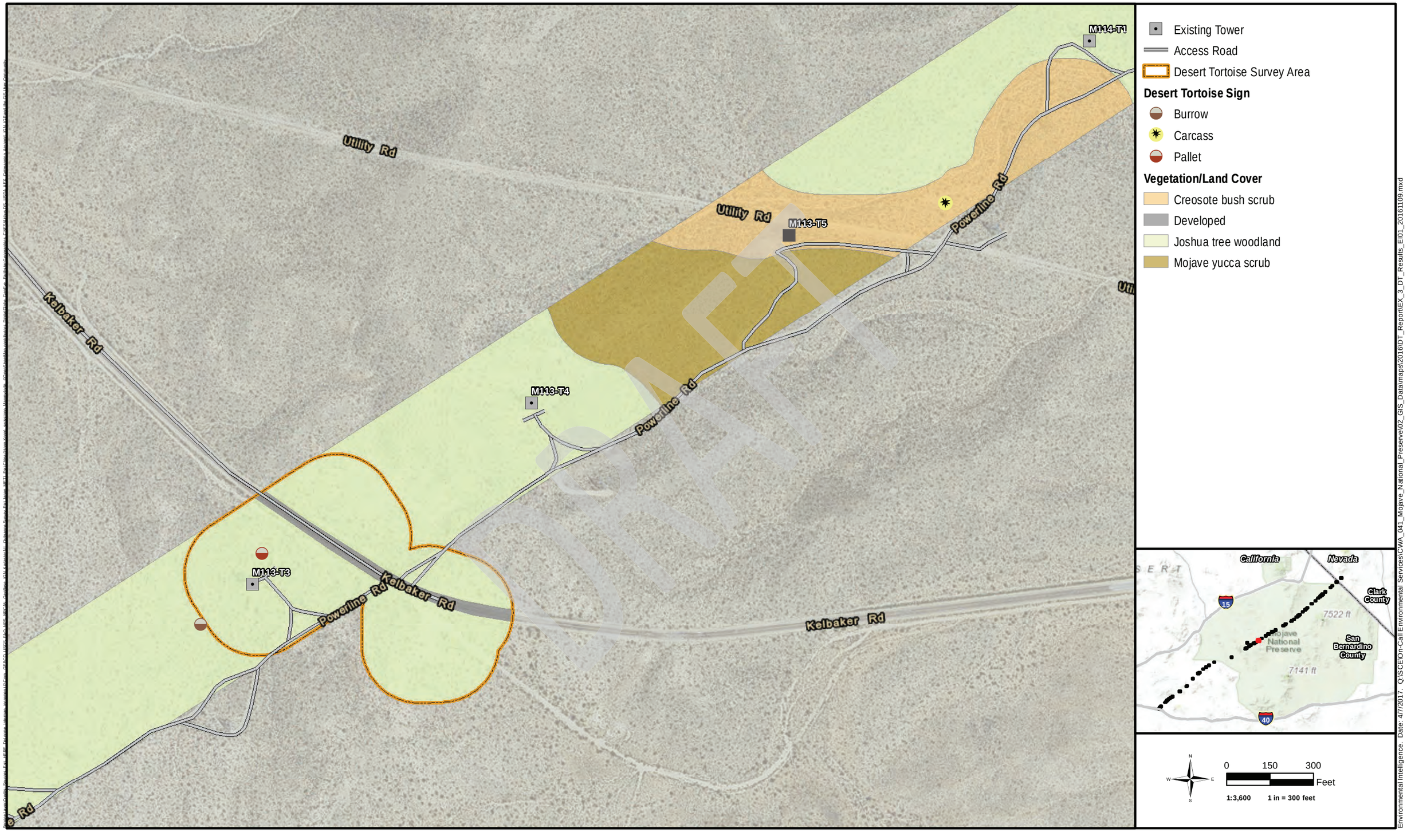
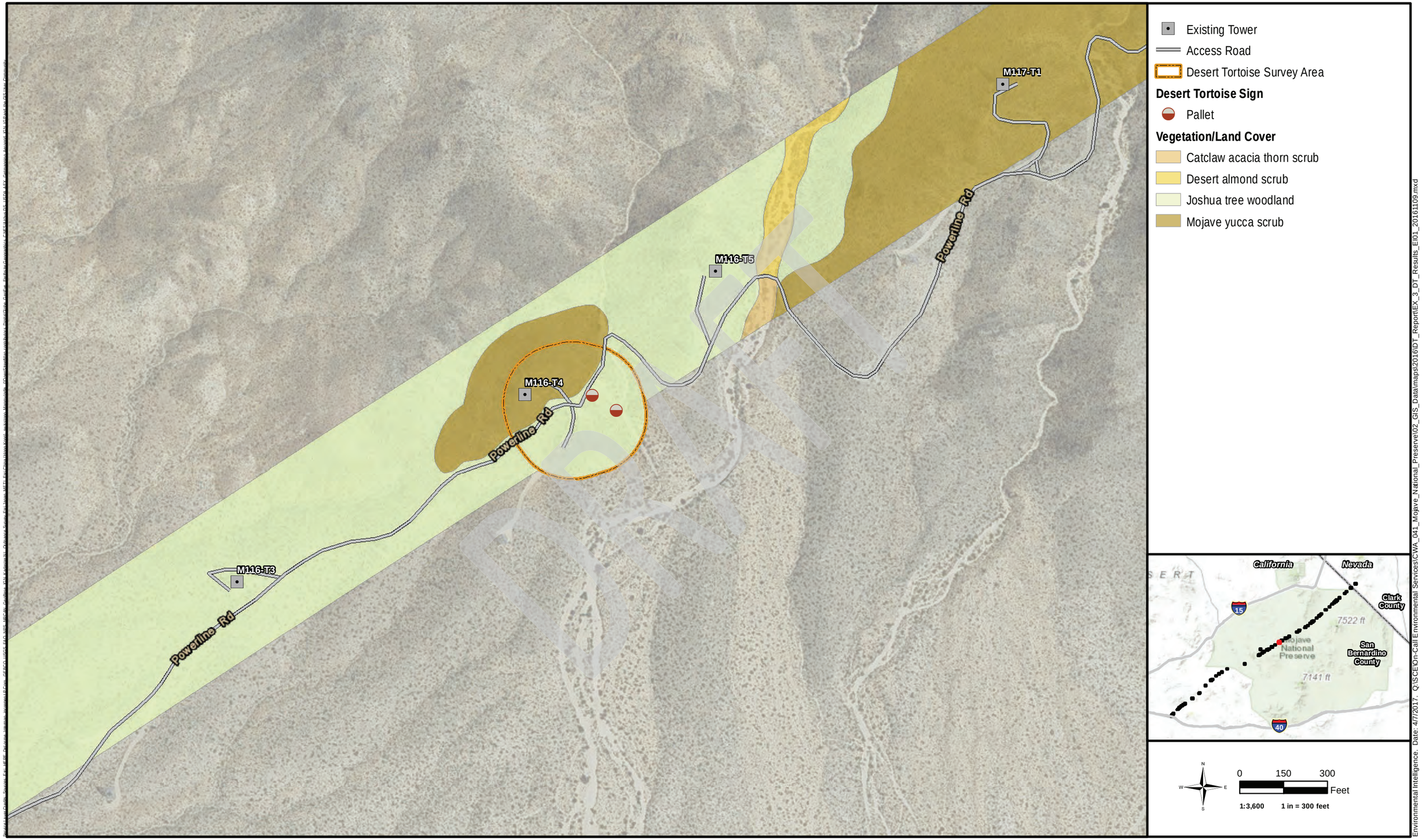

M114-T1
Utility Rd
Utility Rd
M113-T5
Powerline Rd
Kelbaker Rd
M113-T4
Powerline Rd
M113-T3
Powerline Rd
Kelbaker Rd
Kelbaker Rd
Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Pallet
Vegetation/Land Cover
Creosote bush scrub
Developed
Joshua tree woodland
Mojave yucca scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M115-T2
M115-T1
M114-T4
Powerline Rd
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Scat
Vegetation/Land Cover
Creosote bush - white burr sage scrub
Joshua tree woodland
Mojave yucca scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd



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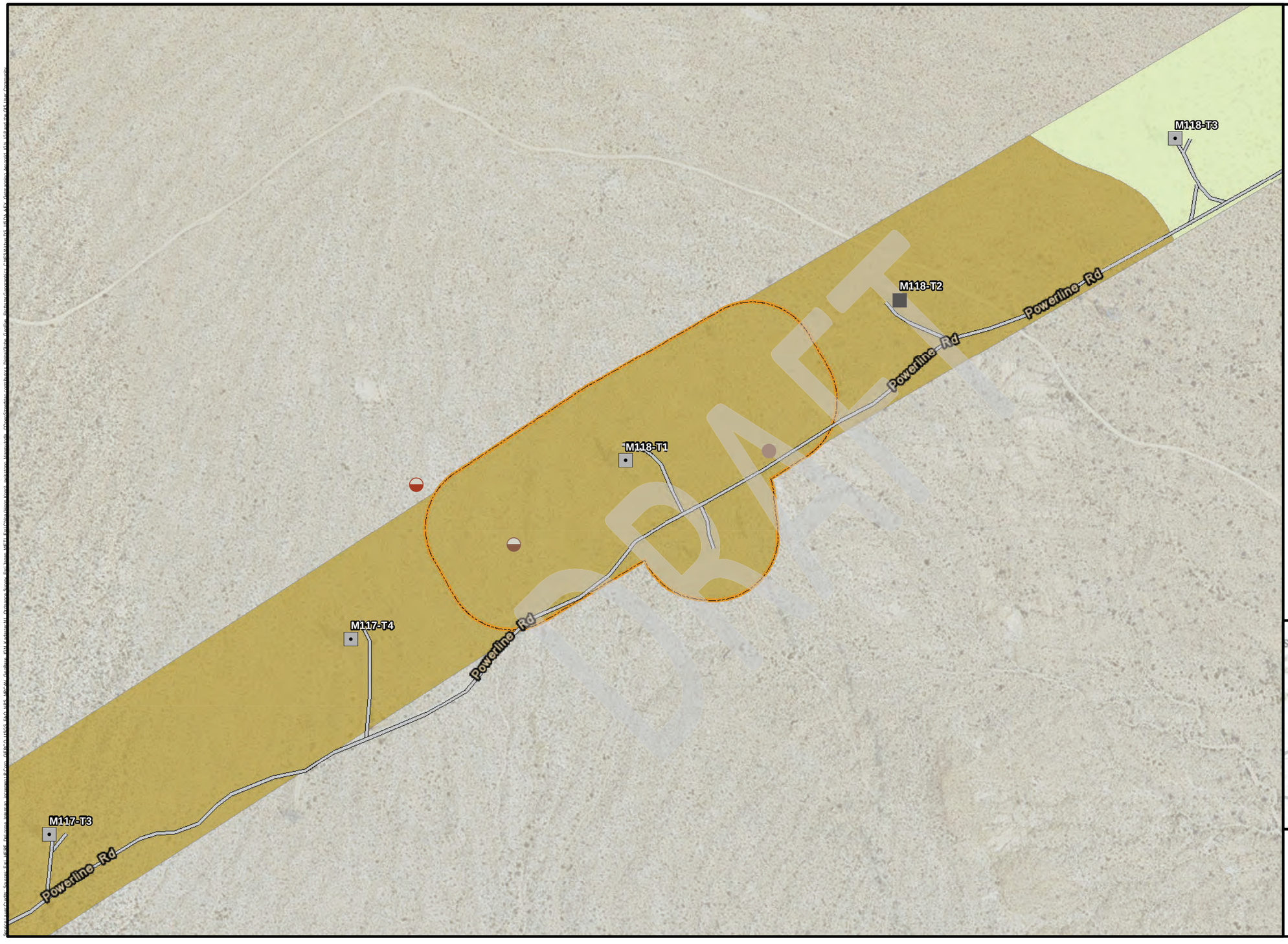


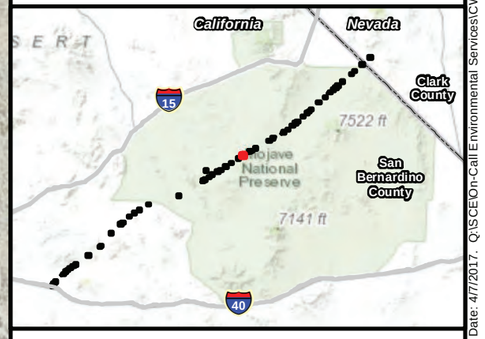
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Pallet

Vegetation/Land Cover

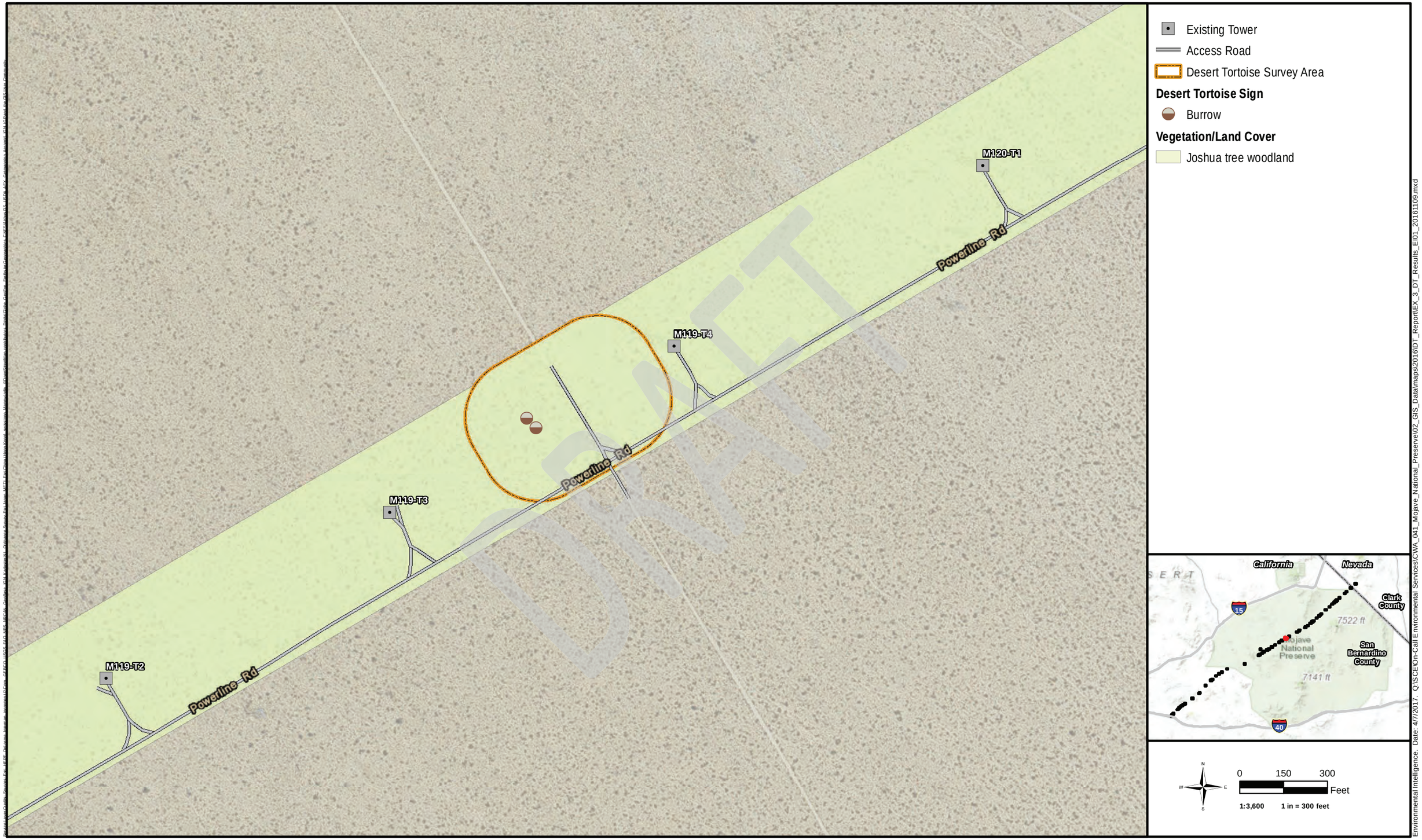
Joshua tree woodland
Mojave yucca scrub

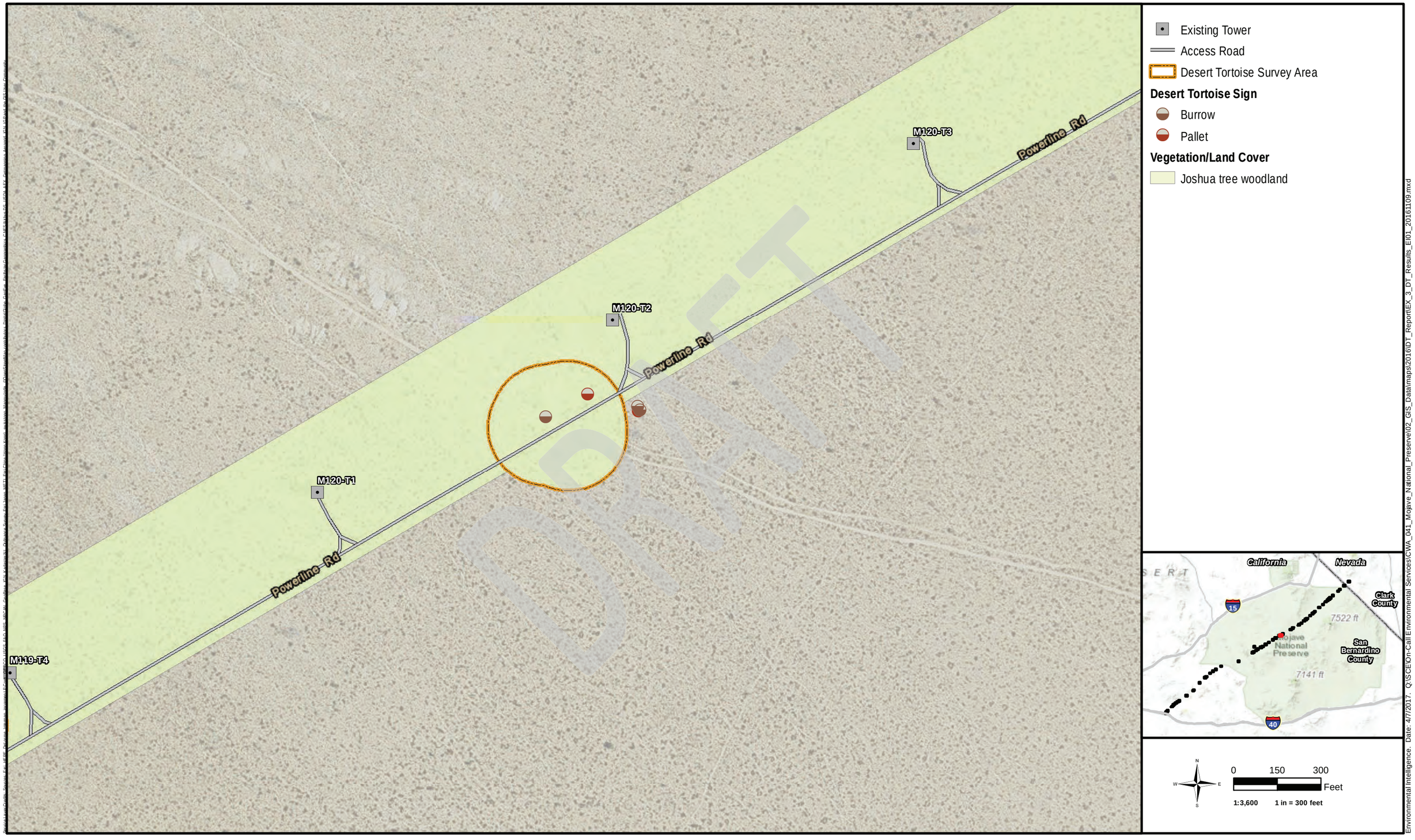


0 150 300 Feet

1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M120-T1
M119-T4
M119-T3
M119-T2
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Vegetation/Land Cover
Joshua tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


M120-T3
M120-T2
M120-T1
M119-T4
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Vegetation/Land Cover
Joshua tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
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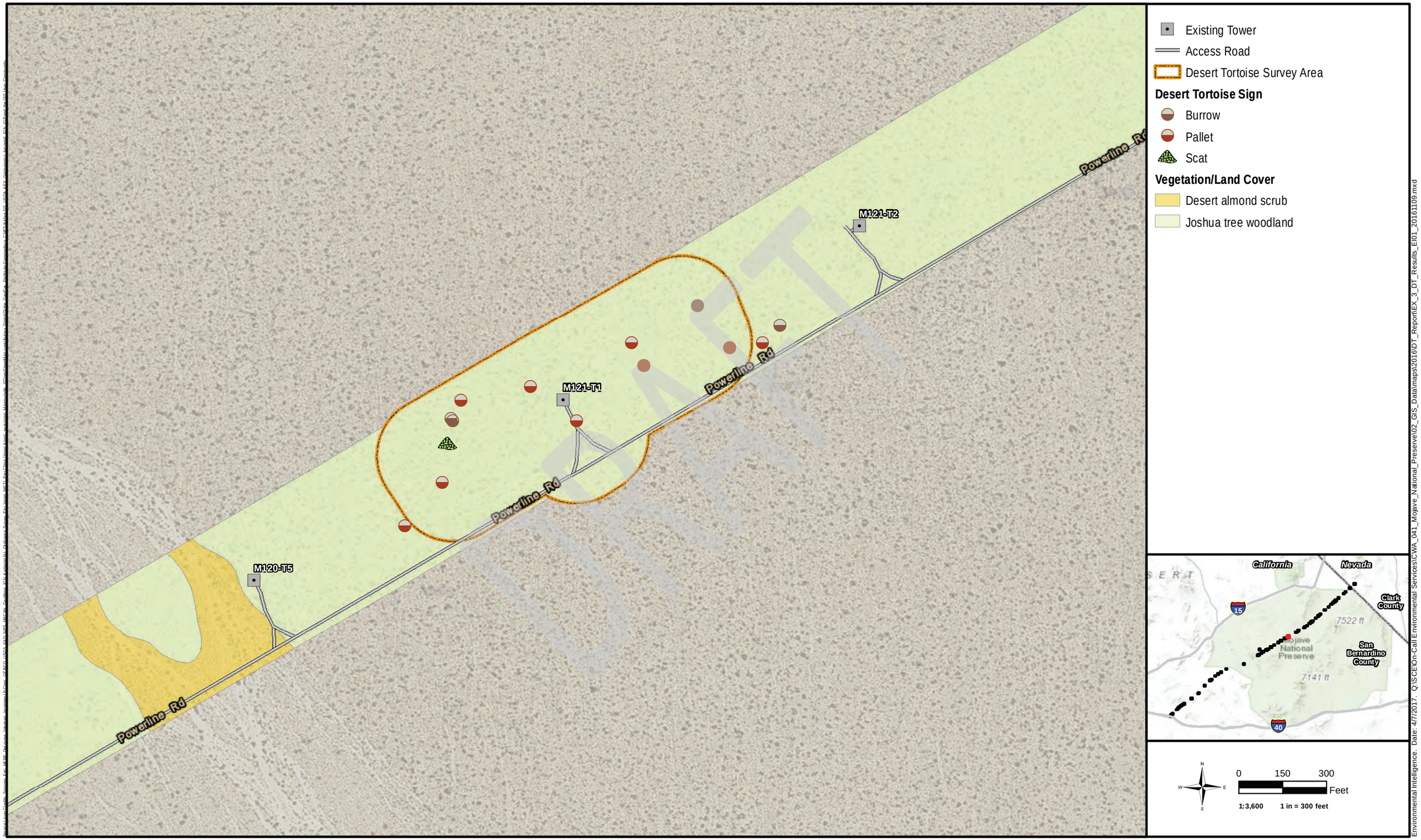
S
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M121-T2
M121-T1
M120-T5
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Scat
Vegetation/Land Cover
Desert almond scrub
Joshua tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M124-T4
M124-T3
M124-T2
M124-T1
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Vegetation/Land Cover
Bladder sage scrub
Joshua tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Scat
Vegetation/Land Cover
Joshua tree woodland
M125-T3
M125-T2
M125-T1
Powerline Rd
Powerline Rd
Powerline Rd
DRAFT
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
S
E
W
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call\Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Vegetation/Land Cover
Developed
Joshua tree woodland
M128-T2
M128-T1
M127-T6
M127-T5
M127-T4
Cima Rd
Powerline Rd
Western Rd
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
S
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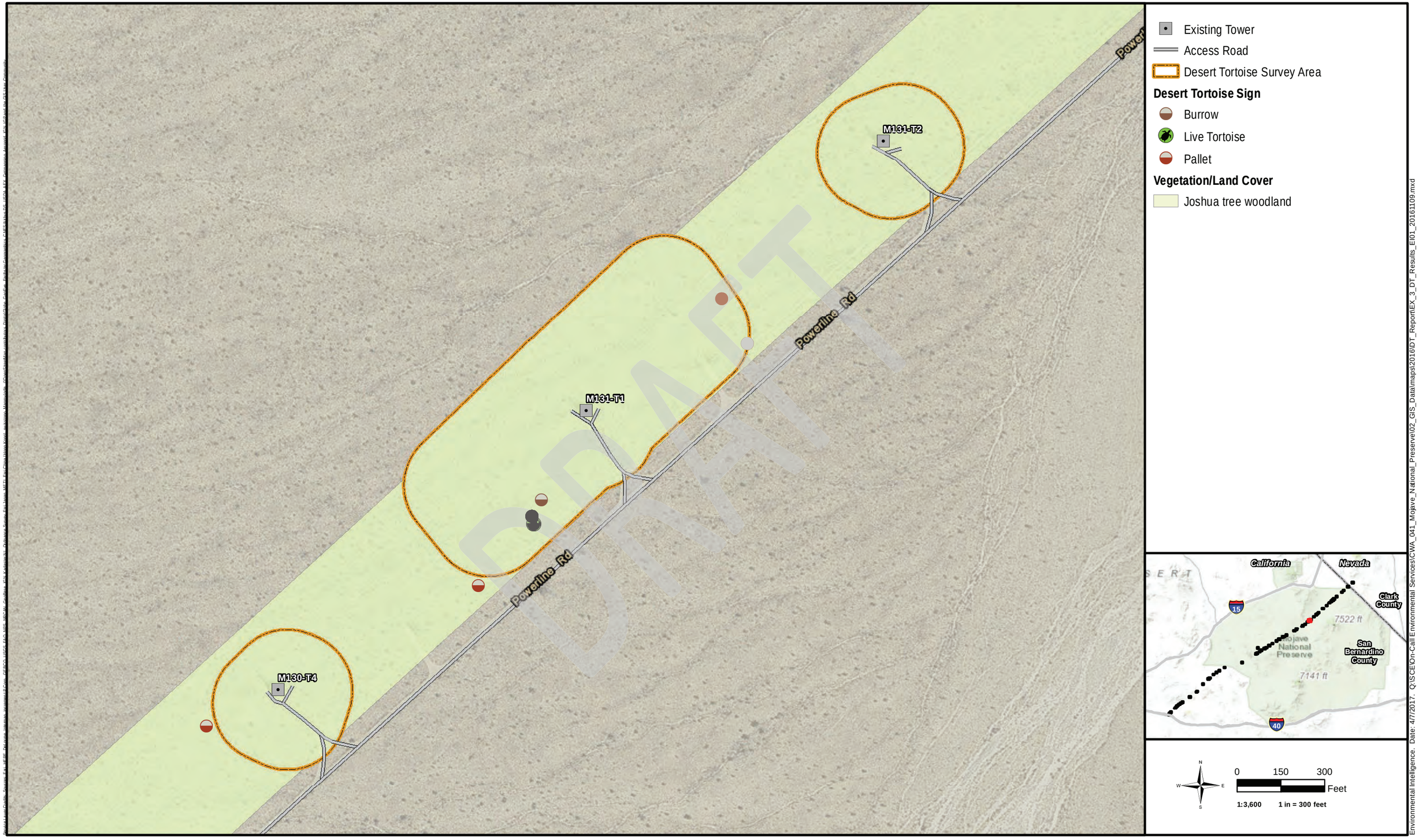
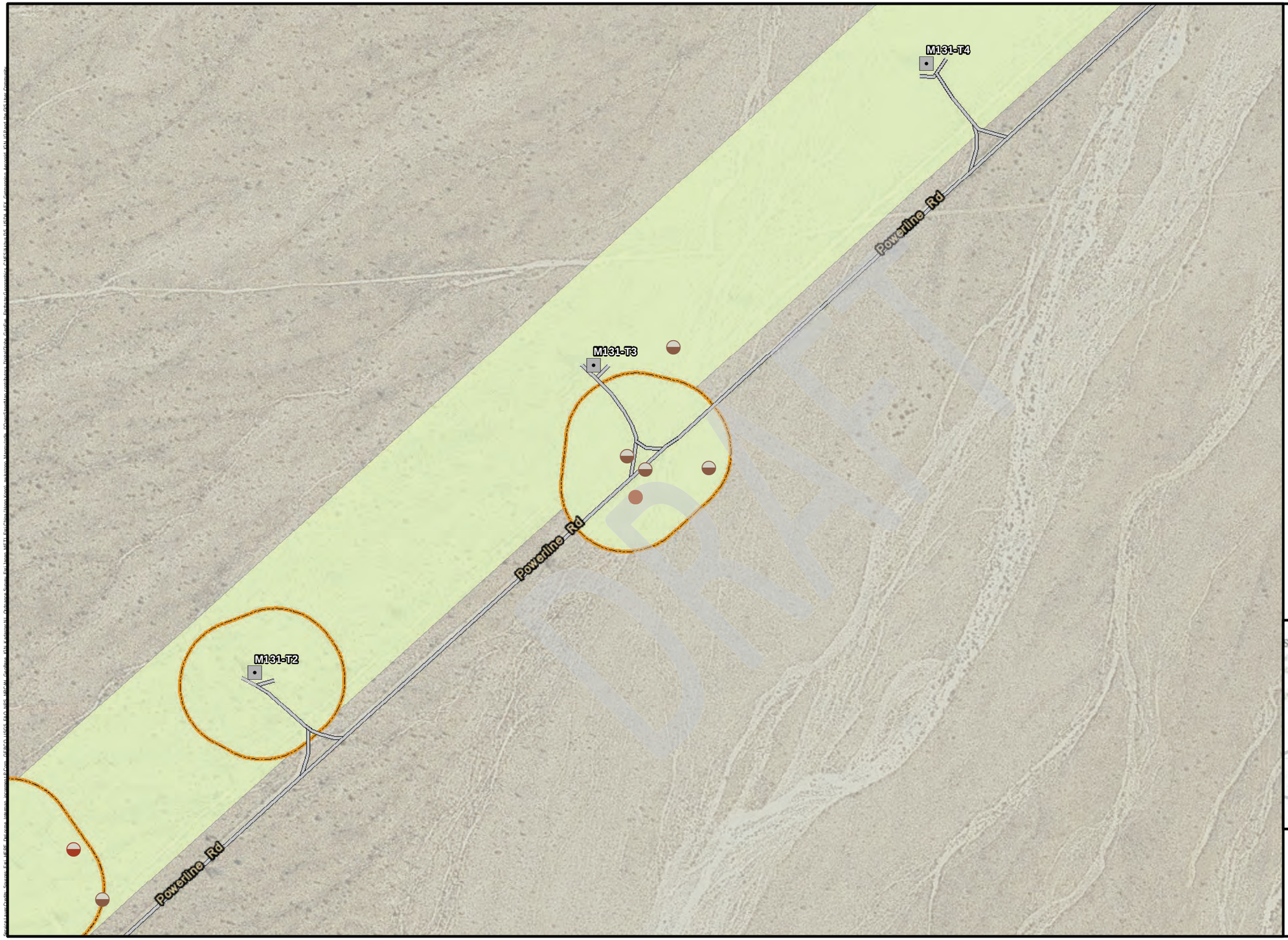
W
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


M129-T2
Powerline Rd
M129-T1
Powerline Rd
Morning Star Mine Rd
M128-T5
Powerline Rd
M128-T4
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Pallet
Vegetation/Land Cover
Developed
Joshua tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M131-T2
M131-T1
M130-T4
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Live Tortoise
Pallet
Vegetation/Land Cover
Joshua tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



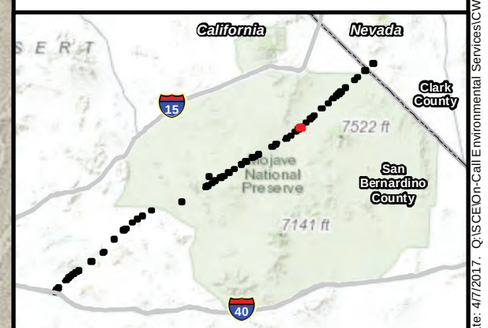
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Pallet

Vegetation/Land Cover

Joshua tree woodland



0 150 300 Feet

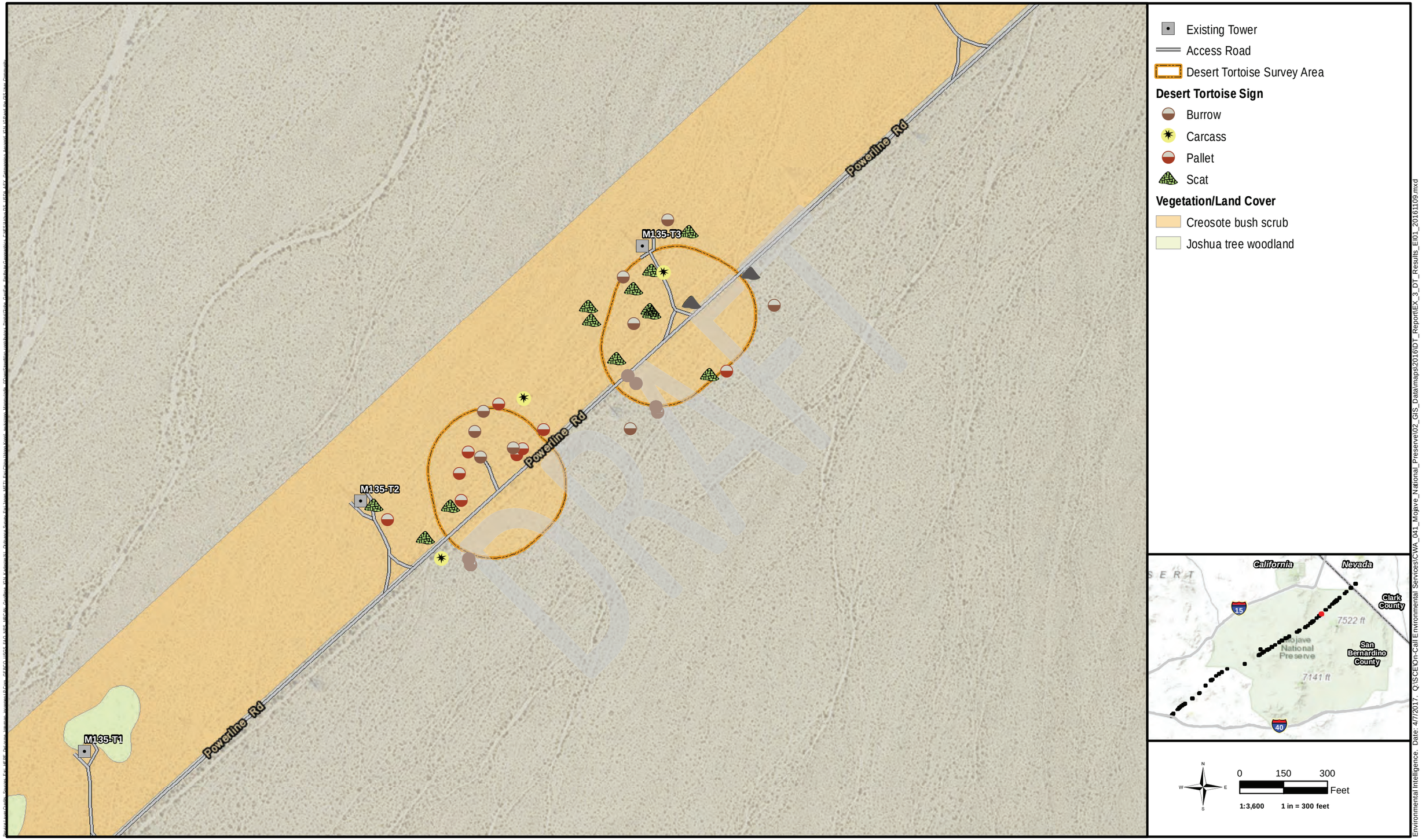
1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd

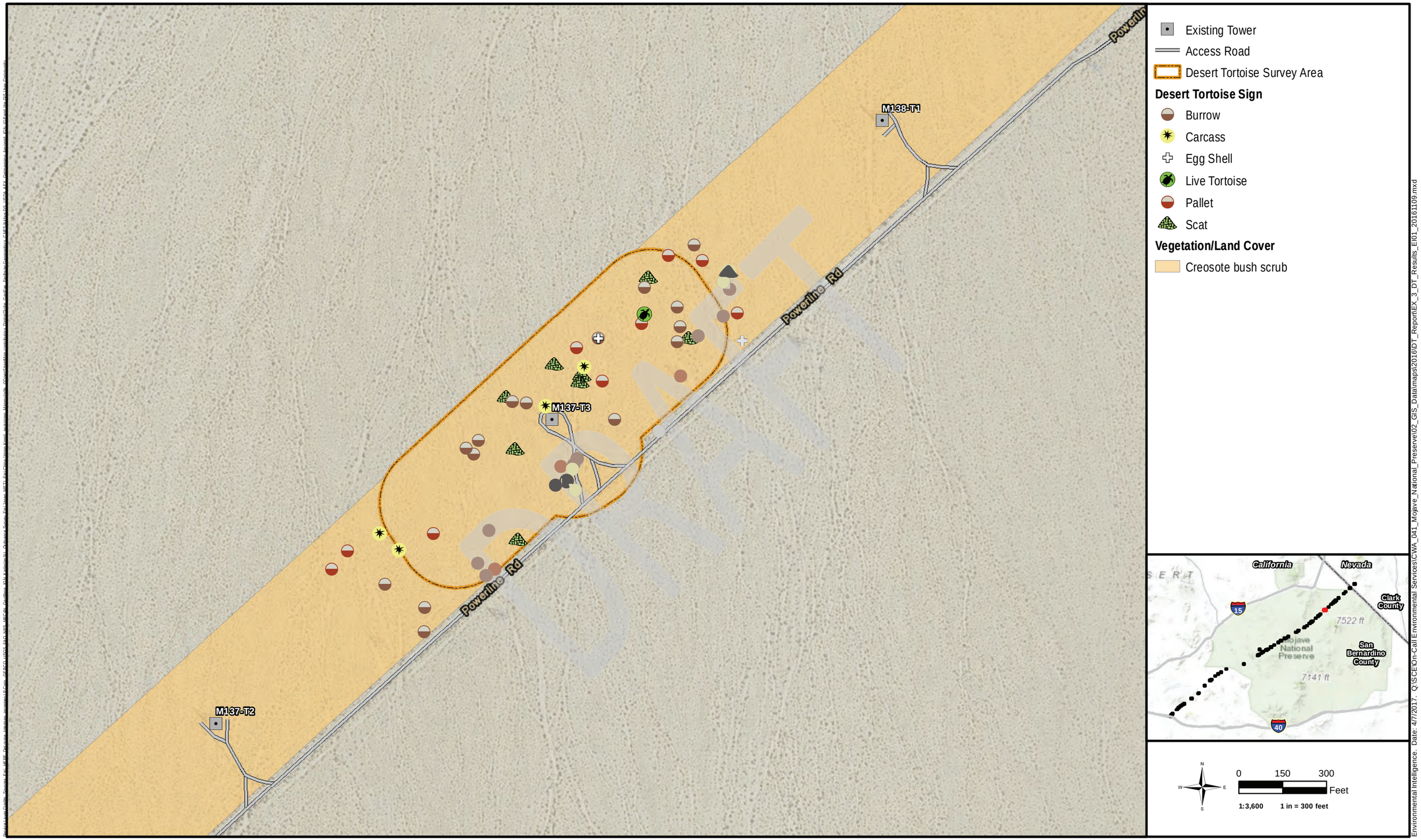

M133-T3
M133-T2
M133-T1
Powerline Rd
Powerline Rd
Powerline Rd
Powerlin
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Live Tortoise
Pallet
Scat
Vegetation/Land Cover
Big galleta shrub-steppe
Black-stem rabbitbrush scrub
Catclaw acacia thorn scrub
Cheesebush scrub
Creosote bush - white burr sage scrub
Joshua tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd

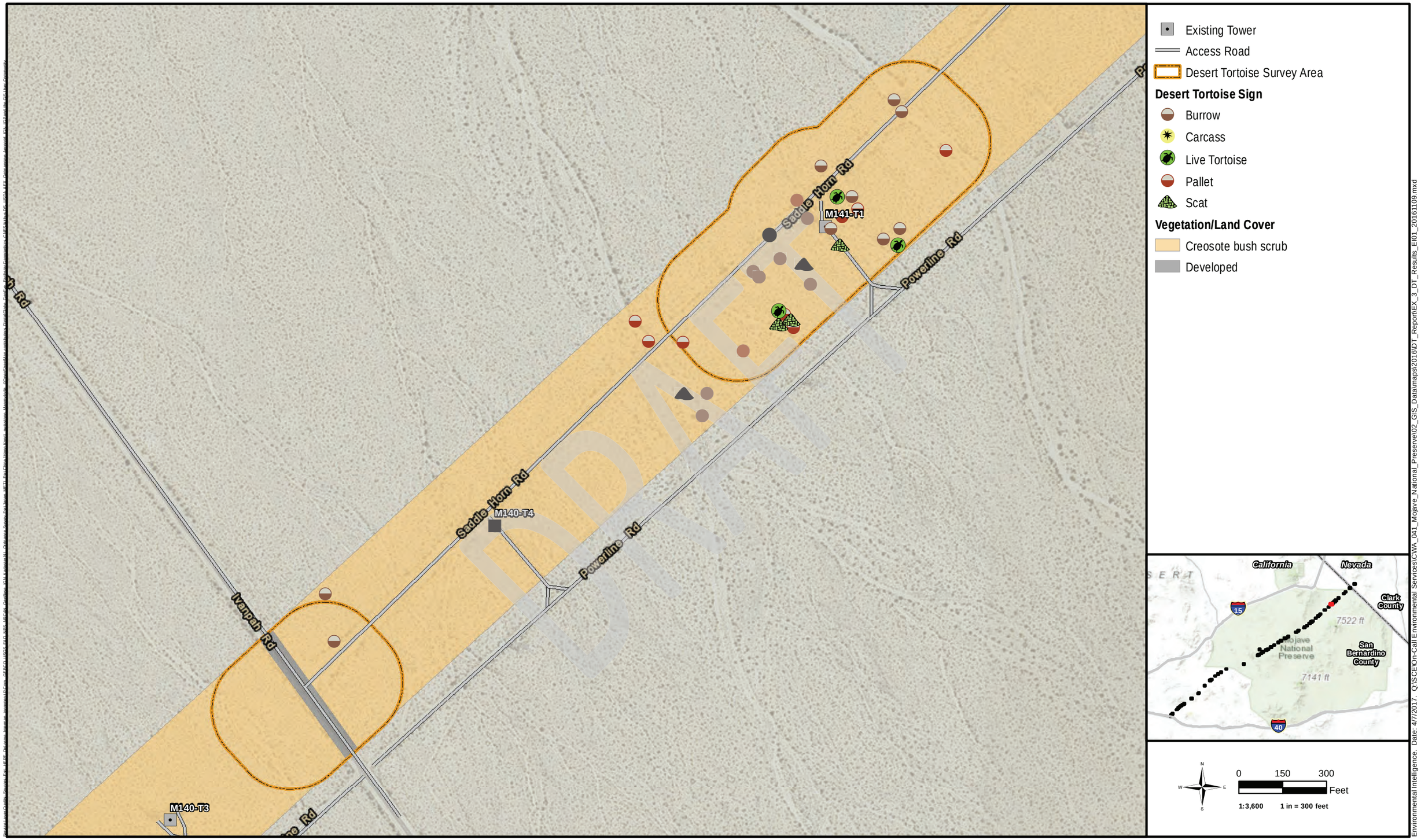

M135-T1
M134-T4
M134-T3
Powerline Rd
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Live Tortoise
Pallet
Scat
Vegetation/Land Cover
Catclaw acacia thorn scrub
Creosote bush scrub
Joshua tree woodland
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd

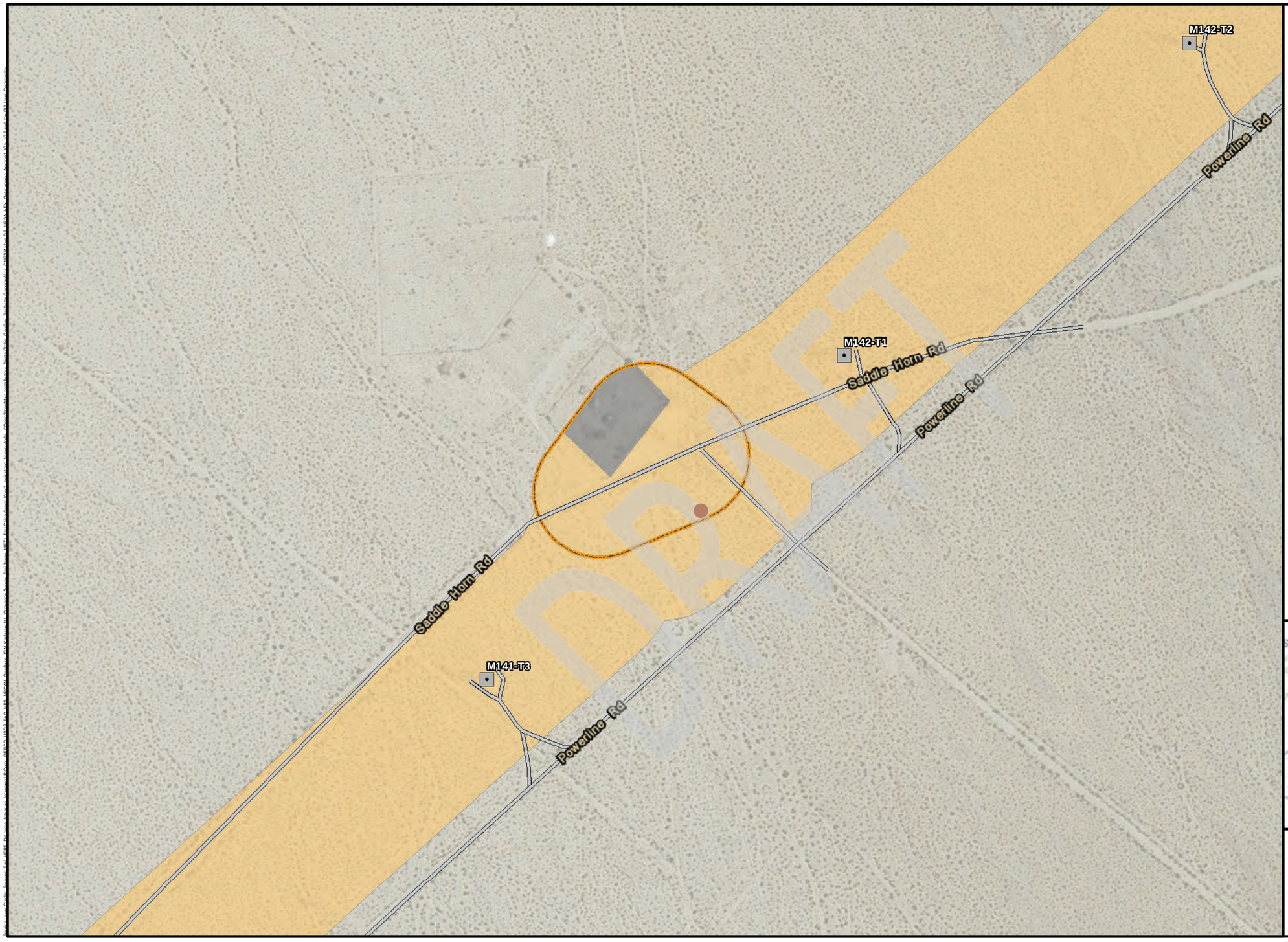


Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd

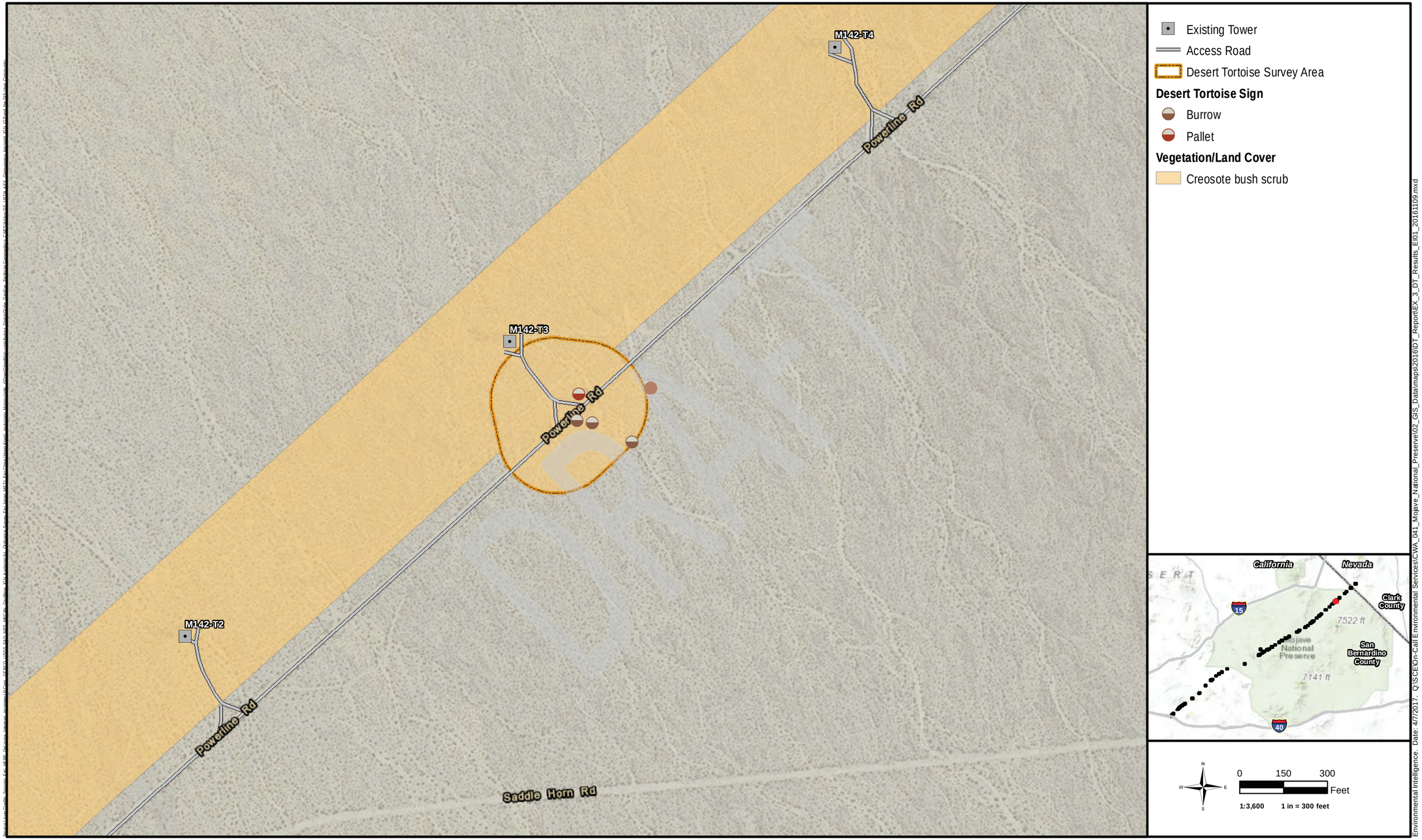

M138-T1
M137-T3
M137-T2
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Egg Shell
Live Tortoise
Pallet
Scat
Vegetation/Land Cover
Creosote bush scrub
DRAFT
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


Saddle Horn Rd
Powerline Rd
Wanpah Rd
M141-T1
M140-T4
M140-T3
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Live Tortoise
Pallet
Scat
Vegetation/Land Cover
Creosote bush scrub
Developed
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
S
E
W
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd



Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M142-T4
M142-T3
M142-T2
Powerline Rd
Powerline Rd
Powerline Rd
Saddle Horn Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Pallet
Vegetation/Land Cover
Creosote bush scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
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40
N
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150
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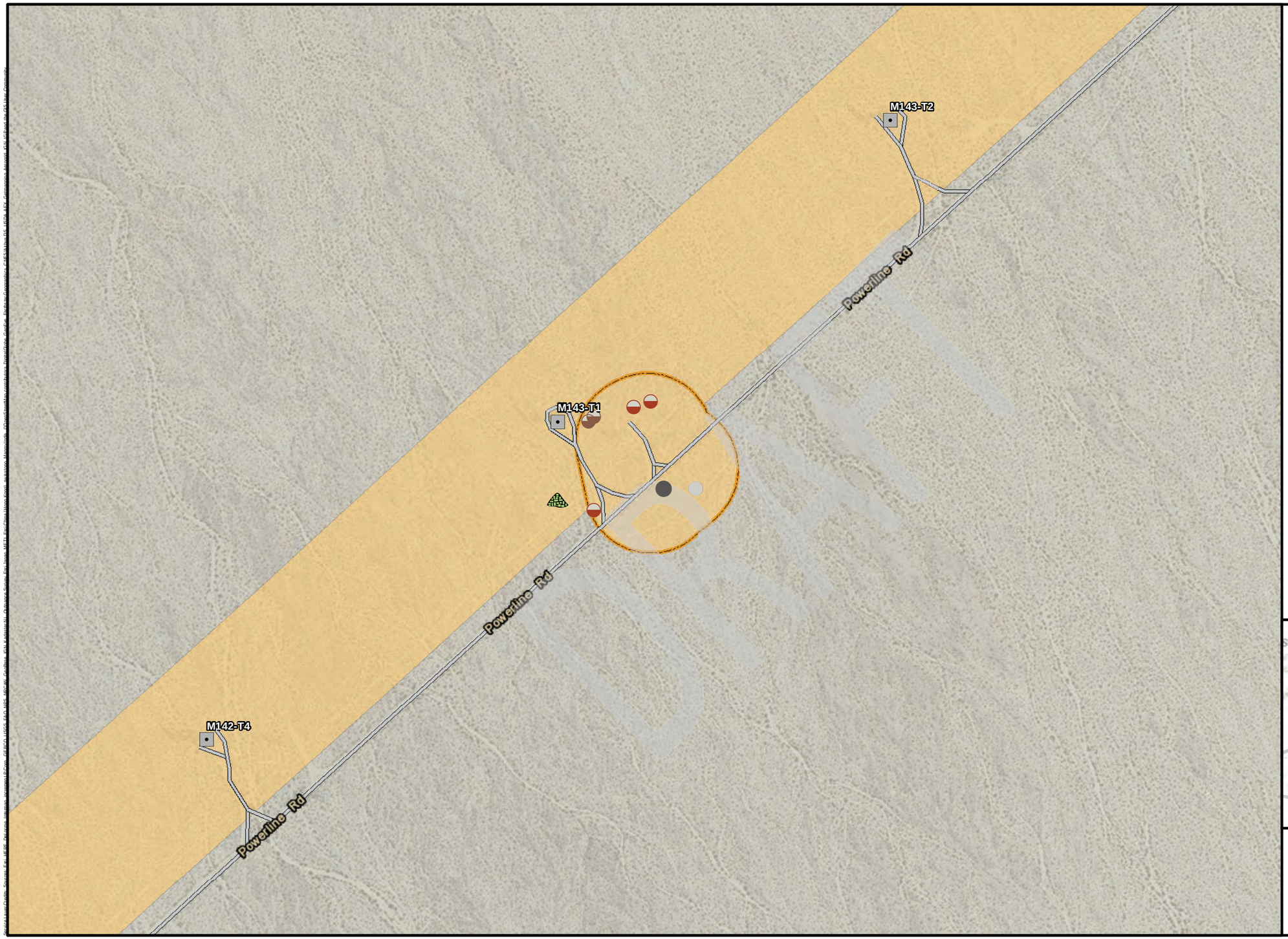
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



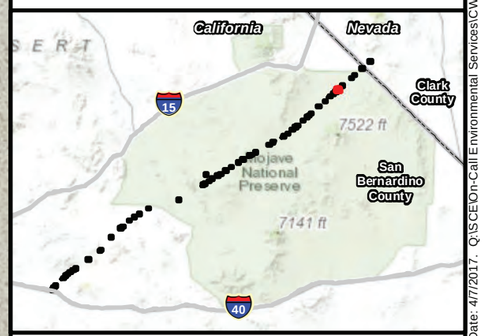
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Carcass
Pallet
Scat

Vegetation/Land Cover

Creosote bush scrub



N
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E
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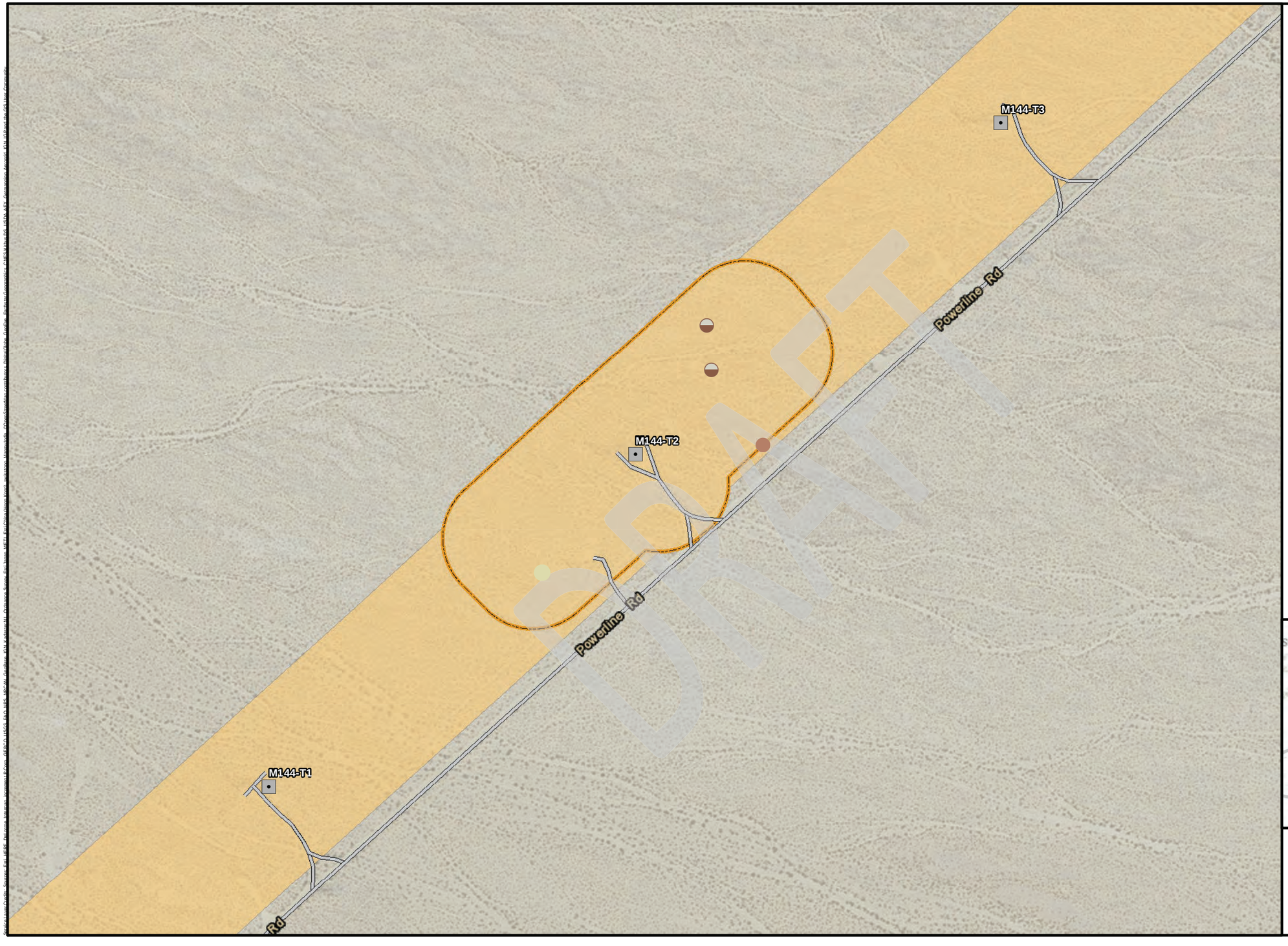
0 150 300 Feet

1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



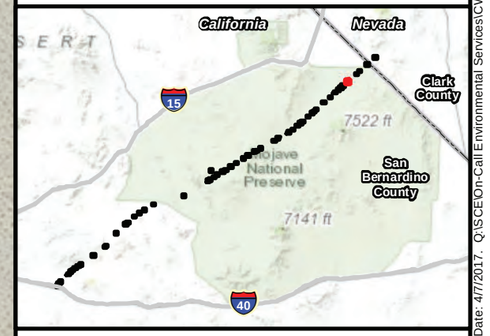
- Existing Tower
- Access Road
- Desert Tortoise Survey Area

Desert Tortoise Sign

- Burrow
- Carcass
- Pallet

Vegetation/Land Cover

- Creosote bush scrub

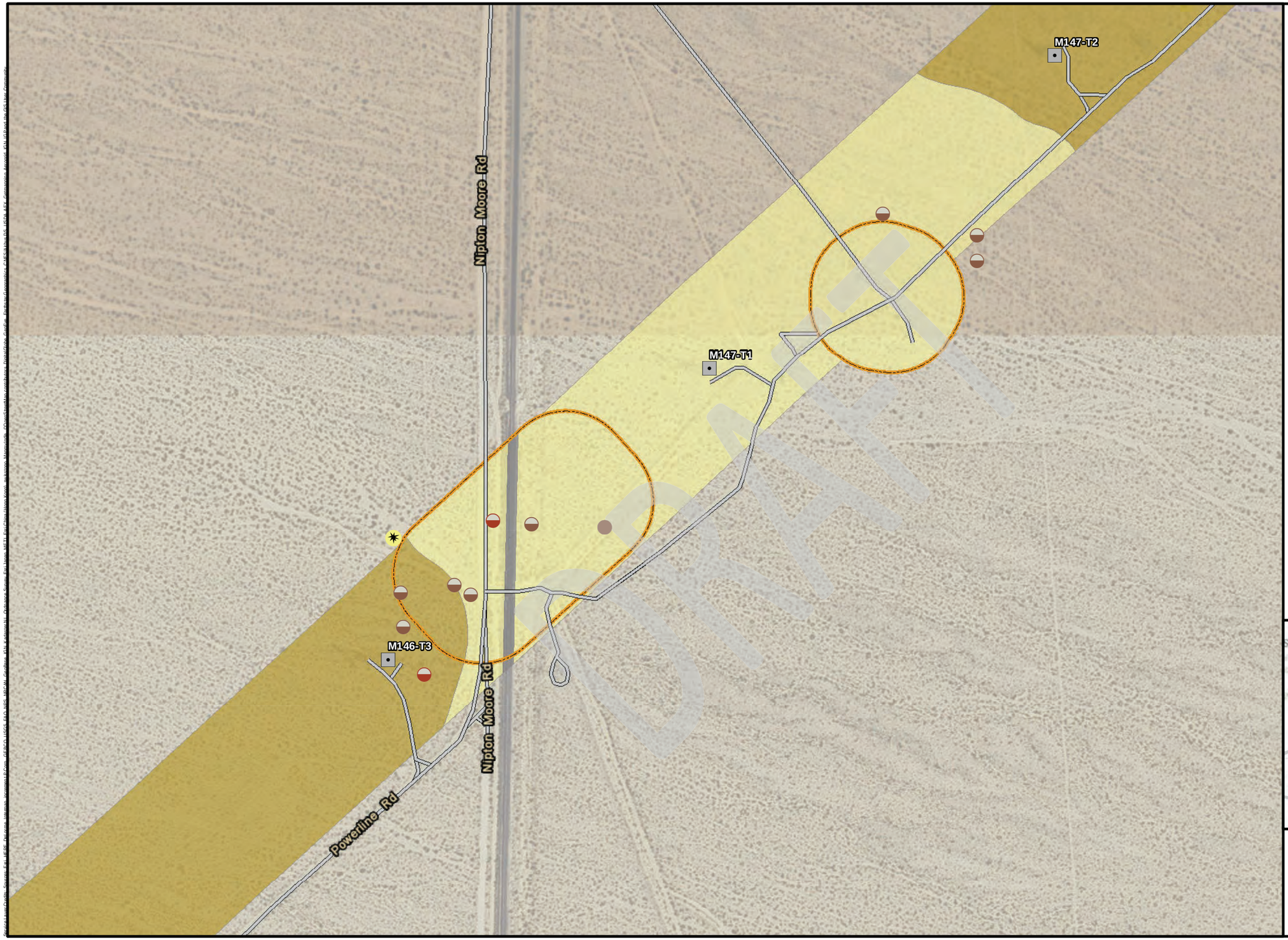


N W E S

0 150 300 Feet

1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



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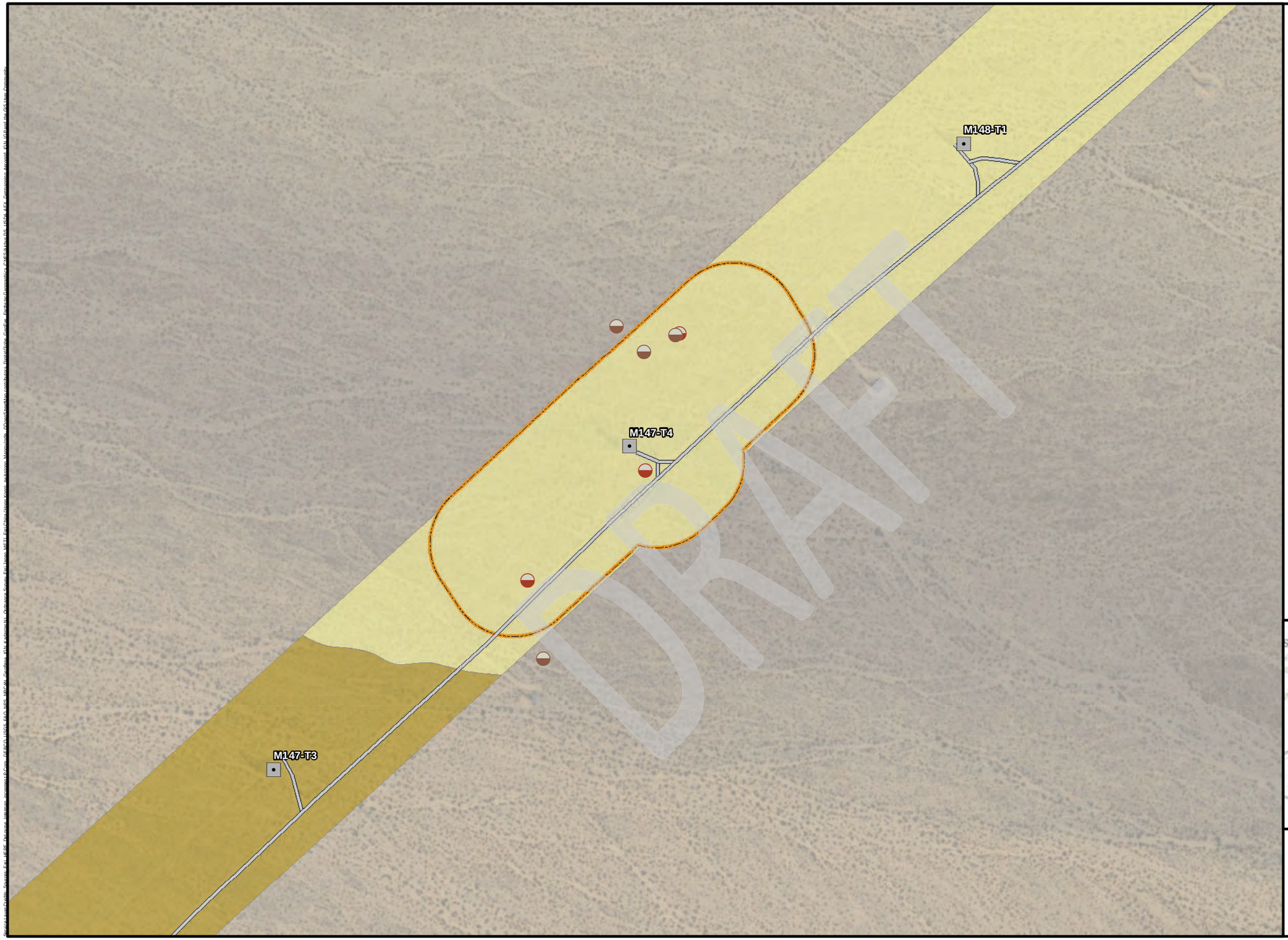


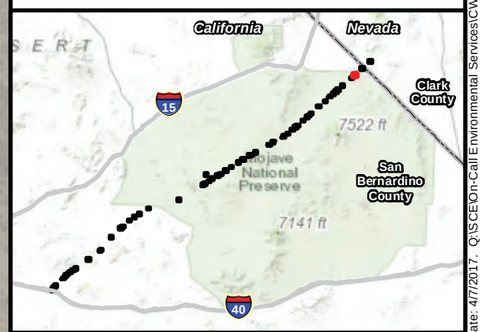
Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign

Burrow
Pallet

Vegetation/Land Cover

Creosote bush - white burr sage scrub
Mojave yucca scrub



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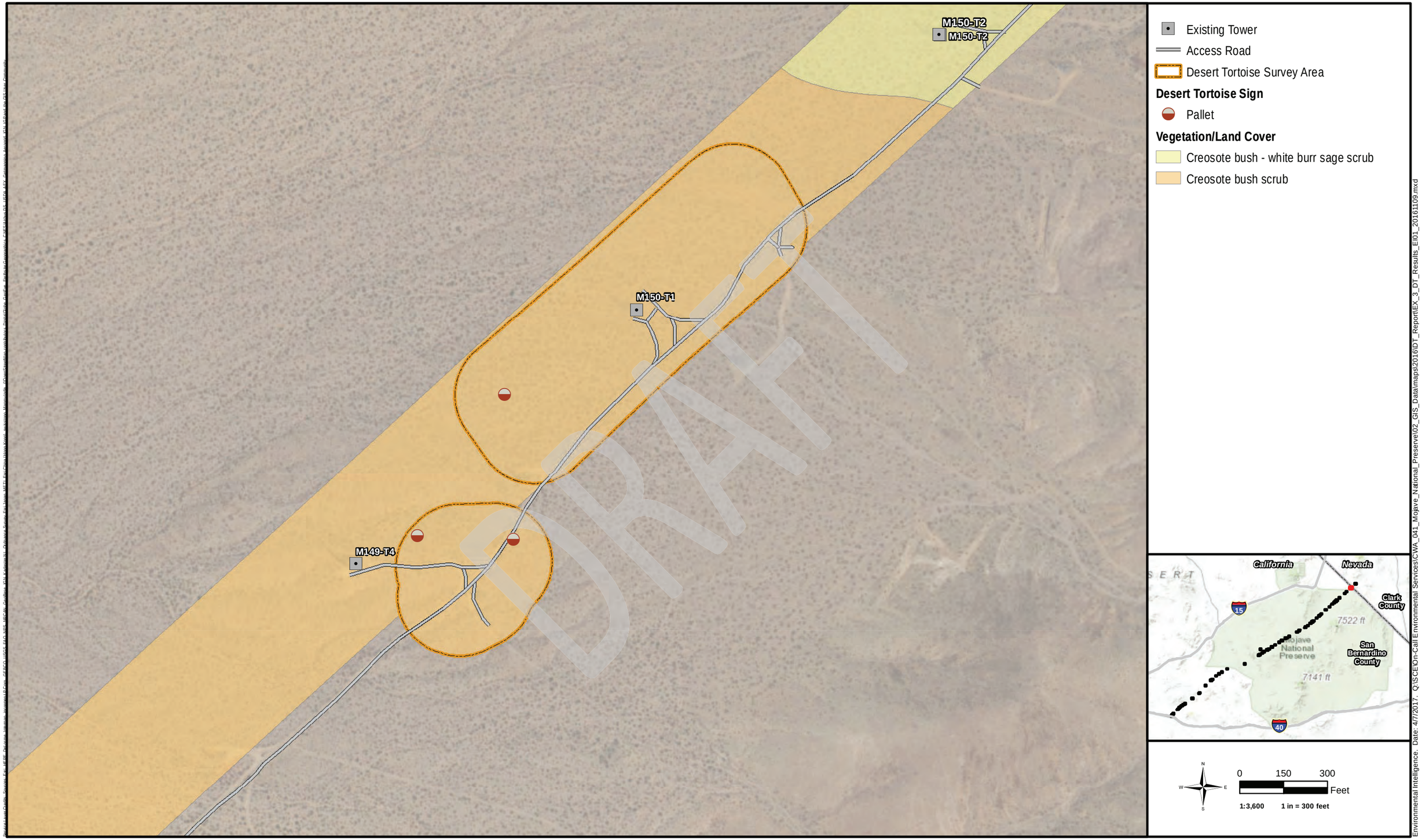
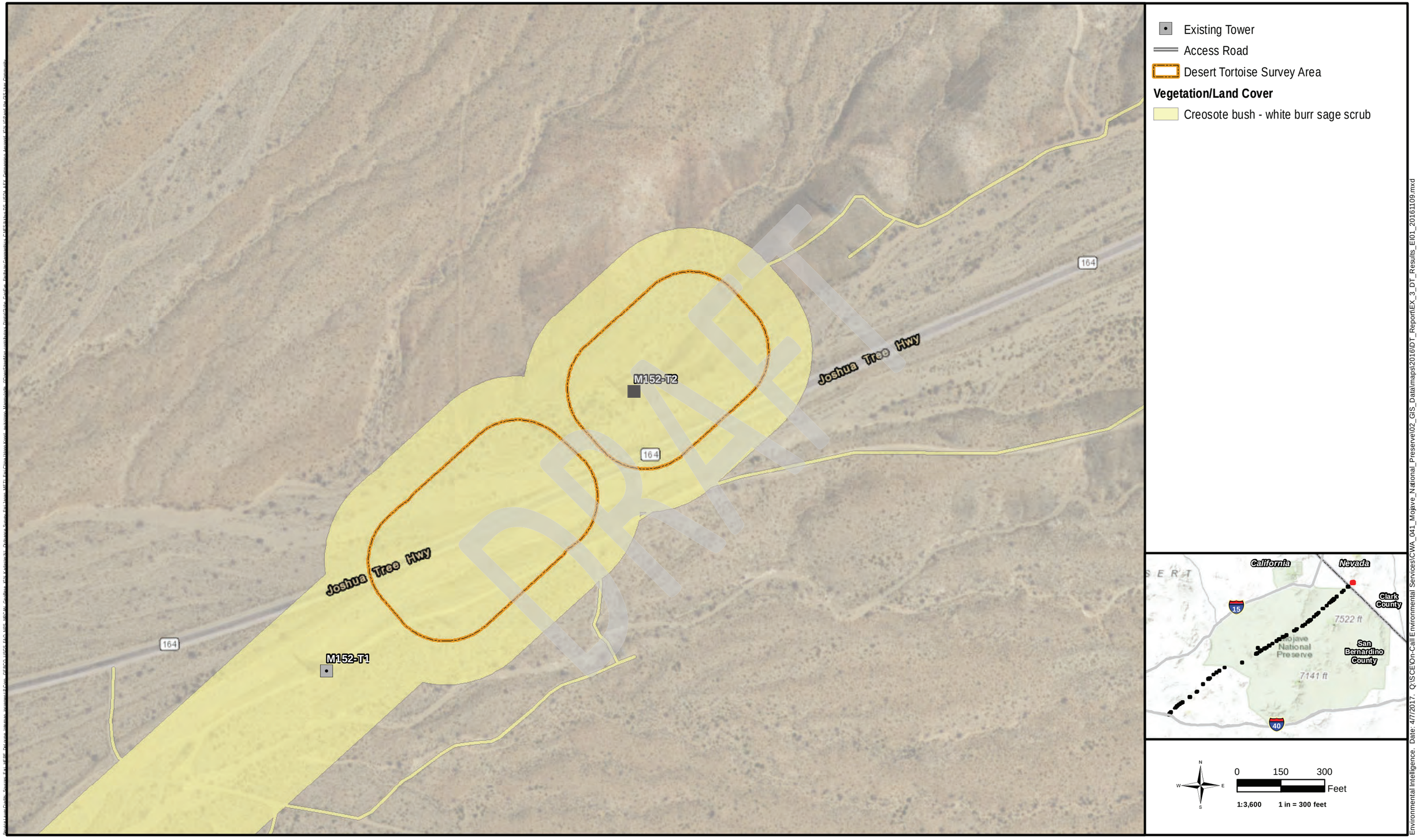
Feet
1:3,600 1 in = 300 feet

Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call\Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M150-T2
M150-T2
M150-T1
M149-T4
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Pallet
Vegetation/Land Cover
Creosote bush - white burr sage scrub
Creosote bush scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
W
E
S
0
150
300
Feet
1:3,600
1 in = 300 feet
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call\Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


Existing Tower
Access Road
Desert Tortoise Survey Area
Vegetation/Land Cover
Creosote bush - white burr sage scrub
M152-T2
M152-T1
Joshua Tree Hwy
164
DRAFT
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
40
N
S
E
W
0
150
300
Feet
1:3,600
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd

Appendix B:

USFWS DESERT TORTOISE PRE-PROJECT SURVEY DATASHEETS

USFWS 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: 2016-10-10 (year, month, day) Survey biologist(s): Susan Seville, Ben Delaney, Mikaila Negrete, Paul Flou (name, email, and phone number)

Site description: Creosote scrub (project name and size; general location)

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

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

GPS Start-point: 11 S 0557566, 3848276 (easting, northing, elevation in meters) Start time: 09:26 am/pm End time: 16:2

GPS End-point: 11 S 0557355, 3850095 (easting, northing, elevation in meters) _____ am/pm

Start/End Temp: 79°F / 99°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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161010-01-BD	0556021	3848658	burrow	Class 4, aspect 150° 215mm x 175mm, unk Depth
20161010-02-PF	0555984	3848653	burrow	class 4, aspect 190° 150 mm x 190 mm, unk Depth
20161010-03-PF	0556211	3849018	burrow	class 4, aspect 230° [illegible]
20161010-04-PF	0556211	3849018	burrow	Class 4, aspect 215° [illegible]
20161010-05-PF	0556088	3849555	Pellet	Pellet
20161010-06-BD	0556592	3849477	burrow	Class 4, aspect 215° [illegible]
20161010-07-PF	0556531	3849409	burrow	[illegible]
20161010-08-SS	0556628	3849268	burrow	[illegible]

USFWS 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: 2016-10-10 (year, month, day.) Survey biologist(s): Seville, Delaney, Nerete, Nares (name, email, and phone number)

Site description: Private security/desert sand (project name and size, general location)

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

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

GPS Start-point: 11 S 0557566 3848276 (easting, northing, elevation in meters) Start time: 09:26 am/pm End time: 16:36

GPS End-point: 11 S 0557855, 3850995 (easting, northing, elevation in meters) _____ am/pm

Start/End Temp: 79°F / 99°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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161010-09-SS	0557095	3849826	Pallet	on road side
20161010-10-MN	0557037	3849785	Burrow	class 4, aspect 120° 140mm x 80mm, unk depth
20161010-11-SS	0557332	3850231	Burrow	class 4, aspect 70° 130mm x 140mm, unk depth
20161010-12-CD	0557440	3850165	Burrow	class 4, aspect 310° 150mm x 150mm, unk depth

Page: ____ of ____

USFWS 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: 10/11/16 (year, month, day.) Survey biologist(s): Scott Dulf (name, email, and phone number)

Site description: HBA; Pisgih Rd./SCE row/North of Pisgih Rd. & Hwy 40 (project name and size, general location)

County: San Bernardino Quad: _____ Location: South part of Saddle (UTM coordinates, lat-long, and/or TRS, map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: ½ acre Transect #: N/A Transect length: N/A

GPS Start-point: ~~-116.33709~~ -116.33717, 34.82196 (easting, northing, elevation in meters) Start time: 1045 @AM/pm End time:

GPS End-point: -116.33762, 34.82315 (easting, northing, elevation in meters) 1120 @AM/pm

Start/End Temp: 83° - 83°

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (e.g. 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			10:45		>160mm	N/A

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161011-01-SD	-116.33767	34.82185	Carcass	83°F, ~~[illegible]~~, male, 285mm Carcass found in broad rocky wash, ½ bleached
20161011-02-SD	-116.33776	34.82307	Carcass	83°F, ~~[illegible]~~, male, 235mm Found in large rocky wash, 10% bleached. Cause of death unk Damaged skull, Single fragment
20161011-03-SD	11503605773853500 -116.33762	34.82315	Carcass	
20161011-04-SD			Burrow	Class: 3, 1000mm x 150mm entrance aspect 180°, unk depth
20161011-05-SD	-116.33717	34.82196	Burrow	Class: 3, unk depth, 90° aspect, Entrance: 300mm x 140mm

Page: 1 of 1

USFWS 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: 20161011 (year, month, day.) Survey biologist(s): Susan Seville, Ben Delancey, Paul Flores, Mikaila Negrete (name, email, and phone number)

Site description: Desert UM m71-T3 (project name and size; general location)

County: San Bernardino Quad: _____ Location: Tower m71-T3 (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 0559878, 3852838 (easting, northing, elevation in meters) Start time: 0900 am/pm

GPS End-point: _____ (easting, northing, elevation in meters) End time: 1000 am/pm

Start/End Temp: 67°F, 2-3mph, Clear

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
20161011_05_PF	0560048	3852918	0915	in burrow at curve	unknown	—

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
2016_1011_01_SS	0559916	3852979	Pallet	2 photos
20161011_02_BD	0559879	3852838	Pallet	1 photo
20161011_03_MN	0559887	3852821	Carcass	2ft x 5 photos - in a wash over 10 pieces 4ft. scatter of broken plastron over 5yrs
20161011_04_PF	0560140	3852992	Burrow ! Scat	400x150mm Packrat has closed off burrow C3, Active burrow w/ 8 pieces of scat in wash
20161011_05_PF (see above)	0560048	3852918	Tortoise	110 x 270 unknown sex / size C1, Active burrow, Tort in burrow at turn 1 photo
20161011_06_PF	0560048	3852918	Burrow	110x270 Aspect 280 C1 Active burrow 40 m from road 1 photo

USFWS 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: 2016/10/11 (year, month, day) Survey biologist(s): Seville, Delaney, Flores, Nogreta (name, email, and phone number)

Site description: Desert M71-T6 (project name and size; general location)

County: San Bernardino Quad: Location: M71-T6 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage / Sampling Area size to be surveyed: Transect #: Transect length:

GPS Start-point: 0560660 3853667 (easting, northing, elevation in meters,) Start time: 1026 am/pm

GPS End-point: 0560665 3853663 (easting, northing, elevation in meters) End time: 1230 am/pm

Start/End Temp: 85°F/1-2 mph/clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161011_07_MN	0560719	3853664	Burrow/scat/shell fragments	C2, 460mm x 300mm Aspect 340 1 photo
20161011_08_MN	0560715	3853774	Scat	Completely dried / bleached 1 photo
20161011_09_BD	0560711	3853683	Scat	Completely dried / bleached
20161011_10_BD	0560660	3853667	Burrow / scat	C2, 450x130mm, Aspect 130,
20161011_11_PF	0560665	3853663	Scat	Completely dried

USFWS 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: 2016, 10, 11 (year, month, day) Survey biologist(s): Seville, Delaney, Flores, Negrete (name, email, and phone number)

Site description: Desert M72-T2 (project name and size, general location)

County: San Bernardino Quad: _____ Location: M72-T2 (UTM coordinates, lat-long, and/or TRS, map datum)

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

GPS Start-point: 0561194, 3853968 (easting, northing, elevation in meters) Start time: 1255 am/pm

GPS End-point: 0561242, 3853934 (easting, northing, elevation in meters) End time: 1316 am/pm

Start/End Temp: 89°F / 2mph / Clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
0				

USFWS 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: 2016/10/11 (year, month, day.) Survey biologist(s): Seville, Delarco, Flores, Negrete (name, email, and phone number)

Site description: Desert M71-T4 (project name and size, general location)

County: San Bernardino Quad: _____ Location: M71-T4 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Aree size to be surveyed: _____ Transect #: _____ Transect length: _____

GPS Start-point: 0561472 3854225 (easting, northing, elevation in meters) Start time: 1325 am/pm

GPS End-point: 0561496 3854380 (easting, northing, elevation in meters) End time: 1430 am/pm

Start/End Temp: 94°F, 1-2 mph, clear / 93°F 3-4 mph Clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161011_12_MW	0561284	3854299	Burrow	C2, 500mm x 170mm Aspect 160
20161011_13_BD	0561373	3854294	Pallet	
20161011_14_BD	0561369	3854356	Scat	Deteriorated
20161011_15_BD	0561374	3854355	Burrow	C3 w/ scat 370mm x 230mm Aspect 40
20161011_16_SB	0561386	3854361	Burrow	C4 260mm x 90mm Aspect 170
20161011_17_SB	0561389	3854359	Carcass Fragment	small fragment
20161011_18_PF	0561382	3854352	Pallet	

USFWS 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: 10.12.2016 (year, month, day) Survey biologist(s): Sevilla, Delancy, Flowers, Nograde (name, email, and phone number)

Site description: ______ (project name and size; general location)

County: San Bernardino Quad: ______ Location: M74-T4 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: ______ Transect #: ______ Transect length: ______

GPS Start-point: 11S 0564096 3856066 (easting, northing, elevation in meters) Start time: 0922 (am)/pm End time: 1034 (am)/pm

GPS End-point: 11S 0564387 3856496 (easting, northing, elevation in meters)

Start/End Temp: 77F, 1-3mph, Clear / 81, 1-3mph Clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161012.06.SV	0564318	3856330	Pallet	410mm Depth 200 · Aspect
20161012.07.SV	0564312	3856330	Burrow ; Scat ; Tracks	C2, 300mm x 130mm, Scat within Wee[illegible]
20161012.08MN	0564244	3856369	Burrow	C3, 240mm x 160mm 330 Aspect
20161012.09.BD	0564251	3856366	Burrow	C3, 140mm x 100m 40 Aspect

USFWS 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: 2016.10.12 (year, month, day.) Survey biologist(s): Seville, Negrete, Delaney, Flores (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bernardino Quad: _____ Location: M24-T1 (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 11S 0563454, 3855579 (easting, northing, elevation in meters) Start time: 0850 am/pm End time:

GPS End-point: 11S 0563562 3855702 (easting, northing, elevation in meters) 0917 am/pm

Start/End Temp: 70°F 1-3 Clear, 71°F 1-4 Cl

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, it present

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161012_05_BD	0563300	3855649	Pallet	120mm Depth

USFWS 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

Dete of survey: 2016.10.18 (year, month, day.) Survey biologist(s): Seville Negrete, Flores, Delancy (name, email, and phone number)

Site description: Hilly creosote scrub, Desert washes, Rocky (project name and size; general location)

County: San Bernardino (UTM coordinates, lat-long, and/or TRS, map datum) Quad: Location: M73-2

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

GPS Start-point: 15 0562378, 3855112 (easting, northing, elevation in meters) Start time: 07:30 am am/pm End time:

GPS End-point: 115 0562455, 3854980 (easting, northing, elevation in meters) 8:29 am am/pm

Start/End Temp: 70° 1-3mph Clear / 70, 1-3, Clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, end comments
20161012_01_MN	0562293	3855061	Pallet	680mm Depth
20161012_02_BD	0562283	3855045	Pallet	330 mm Depth
20161012_03_PF	0562292	3855013	Pallet	460 mm Depth
20161012_04_PF	0562321	3854911	Pallet	550mm Depth

USFWS 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: 2016.10.12 (year, month, day.) Survey biologist(s): Sevilla, Negrete, Flores, Delancy (name, email, and phone number)

Site description: (project name and size; general location)

County: San Bernardino (UTM coordinates, lat-long, and/or TRS; map datum) Quad: Location: M78-71

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

GPS Start-point: 113 0568814 3859407 (easting, northing, elevation in meters) Start time: 1111 am/pm End time:

GPS End-point: 1428 am/pm (easting, northing, elevation in meters)

Start/End Temp: 86°F, 1-4mph, Clear / 90°F 5mph Clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161012_10_SV	0568715	3859403	Burrow ; Scat	C3, Scat older than week 330mm x 140mm
20161012_11_PF	0568780	3859364	Pallet	800mm Depth
20161012_12_PF	0564243	3856366	Pallet	140mm Depth
20161012_13_MN	0568703	3859357	Burrow ; Scat	160mm x 90mm C3 Scat older week
20161012_14_BD	0568710	3859344	Pallet	130mm Depth
20161012_15_BD	0568709	3859341	Pallet	100mm Depth
20161012_16_SV	0568673	3859357	Burrow	C3, 205mm x 110mm Asp. 210
20161012_17_PF	0568589	3859228	Burrow ; Scat	C2, 180mm x 140mm Asp. 230 Scat older than 3 yrs

Cont.

USFWS 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: 2016,10,12 (year, month, day.) Survey biologist(s): Seville, Delaney, Noyola, Flores (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bernardino (UTM coordinates, lat-long, and/or TRS; map datum) Quad: _____ Location: M78-T1

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

GPS Start-point: 11 S 0568814 3859407 (easting, northing, elevation in meters) Start time: 11:11 am/pm ~~End time:~~

GPS End-point: _____ (easting, northing, elevation in meters) end time: 14:28 am/pm

Start/End Temp: _____

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
161012_18_PF	0568585	3859228	Pallet	150 mm Depth
161012_19_PF	0568559	3859196	Burrow	C2, 620mm x 360 350 Aspect
161012_20_BD	0568564	3859195	Burrow; w/ Shell	C2 290mm x 190mm 320 Aspect
161012_21_PF	0568534	3859193	Carcass	Fragment
161012_22_BD	0568490	3859197	Burrow; Scoot	C1 Fresh tracks into burrow 200x100 Aspect SC Scoot associated w/ burrow
161012_23_PF	0568469	3859203	Pallet w/ tracks	430mm Depth
161012_24_MW	0568474	3859201	Pallet w/ tracks	340mm Depth
161012_25_PF	0568488	3859147	Burrow; Shells; Scat	C2, 530mm x 180mm 270 Aspect

cont.

USFWS DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

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

Date of survey: 2016.10.12 (year, month, day.) Survey biologist(s): Seville, Delancey, Negrete, Flores (name, email, and phone number)

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

County: San Bernardino Quad: _____ Location: M78T1 (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 11S 0568814 3859407 (easting, northing, elevation in meters) Start time: 11:11 am/pm

GPS End-point: _____ (easting, northing, elevation in meters) End time: 14:28 am/pm

Start/End Temp: ~~85°F~~ 86°F, 1-4 mph, clear / 90°F, 5 mph, clear

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
20161012_34.SV	568719	3859398	1319	Associated with 20161012_10.SV Burrow	215mm	N/A

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161012_26.SV	0568426	3859167	Burrow, scat, tracks	C2, 330mm x 200mm Aspect 240
20161012_27.MN	0568430	3859147	Carcas	Fragment, juv.
20161012_28.PF	0568414	3859184	Pallet	610mm Depth
20161012_29.PF	0568476	3859239	Burrow, Scat, Egg Shells	C2 640x110m. Scat appears old.
20161012_30.BD	0568681	3859409	Scat	scat from this yr.
20161012_31.BD	0568713	3859439	Scat	Scat older than yr
20161012_32.BD	0568723	3859457	Scat	Scat older than yr.
20161012_33.PF	0568728	3859466	Scat	Scat older than week

Cont

USFWS 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: 2016,10,12 (year, month, day.) Survey biologist(s): // (name, email, and phone number)

Site description: (project name and size; general location)

County: San Bernardino (UTM coordinates, lat-long, and/or TRS; map datum) Quad: Location: M78-T1

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

GPS Start-point: 11 S 0568814 3859407 (easting, northing, elevation in meters) Start time: 11:11 am/pm End time:

GPS End-point: (easting, northing, elevation in meters) 14:28 am/pm

Start/End Temp: 86°F, 1-4mph/clear / 90°F 5mph clear

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
20161012-41-BD	0568644	3859470		in burrow 20161012-40-BD	245mm	NA

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161012_35_MN	0568636	3859214	Pallet w/ tracks	180mm Depth
20161012_36_MN	0568643	3859222	Pallet w/ tracks	300mm Depth
20161012_37_MN	0568628	3859199	Carcass	Fragment
20161012_38_BD	0568623	3859162	Burrow	C3, 310x180 Aspect 270
20161012_39-BD	0568671	3859455	scat	A w/ sheen
20161012-40-BD	0568644	3859470	Burrow	C1 230x240 mm aspect 340°
20161012-42-PF	0568663	3859499	Burrow	C2, depth unknown, track in burrow 210mm x 280mm, aspect 20°
20161012-43-PF	0568731	3859546	Burrow	C2, 300x180mm, aspect 80° 270° BT with scat

USFWS 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: 2016-10-12 (year, month, day.) Survey biologist(s): Seville, Delancy, Negrete, Flores (name, email, and phone number)

Site description: Creosote scrub, major Desert washes, multiple soil types, (project name and size; general location)

County: San Bernardino (UTM coordinates, lat-long, and/or TRS; map datum) Quad: Location: M78-T1

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

GPS Start-point: 11S 0568814 3859407 (easting, northing, elevation in meters) Start time: 11:11 am/pm ~~End time:~~

GPS End-point: (easting, northing, elevation in meters) end time 14:28 am/pm

Start/End Temp: 86° F, 1-4 mpH, clear / 90°F, 5MPH, clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161012-44-PF	0568734	3859648	Burrow	C2, aspect 360° unk Depth 320mm x 220mm
20161012-45-BO	0568696	3859545	Burrow	C3, aspect 80° w/ old tracks 300 x 180mm
20161012-46-SS	0572588	3862278	Burrow	C2, aspect 110° 260mm x 120mm off access road to Next site

Page: 5 of 5

USFWS 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: 2016.10.13 (year, month, day.) Survey biologist(s): Flores, Negrete (name, email, and phone number)

Site description: Creosote Scrub Flats (project name and size; general location)

County: _____ Quad: _____ Location: M81-T1 / M81-T3 (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 11S 0572523 3862334 / 11S 0572749 3862583 (easting, northing, elevation in meters) Start time: 0820/0930 am/pm End time:

GPS End-point: 11S 0572407, 3862213 / 11S 0572816, 3862611 (easting, northing, elevation in meters) 0850/1000 am/pm

Start/End Temp: 62°F, 1-2 mph, Clear / 80°F 1mph Clear

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
20161013_4_MN	0572733	3862601	0920	in burrow opening 200mm x 150mm burrow	200mm	N/A

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161013_1_PF	0572531	3862304	Pallet	
20161013_2_MN	0572475	3862342	Burrow w Scat	CL 220mm x 110mm Aspect 180
20161013_3_PF	0572482	3862717	Scat	This year
20161013_5_MN	0572810	3862702	Carcas	
20161013_6_PF	0572884	3862766	Pallet	Next to road.
20161013_7_MN	0572812	3862781	Burrow	CL 280mm x 170mm Aspect 300
20161013_8_MN	0572821	3862637	Pallet	

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sheet 11

USFWS 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: 2016.10.13 (year, month, day.) Survey biologist(s): Flores Negrete (name, email, and phone number)

Site description: Desert Wash (project name and size; general location)

County: Riverside Quad: _____ Location: M87-T5 / M88-T2; M88-T3 (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 11S0579751, 3870101 / 11S0579944, 3870583 (easting, northing, elevation in meters) Start time: 1100 / 1140 am/pm End time:

GPS End-point: 11S 0579642, 3870219 / 11S 0580535, 3870842 (easting, northing, elevation in meters) 1130 / 1315 am/pm

Start/End Temp: 80°F, 1-2 mph Clear / 94°F, 0-1 mph, Clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161013_09_PF	0579612	3870011	Burrow	C4, 160mm x 100mm 115 Aspect
20161013_10_MN	0579604	3870072	Pallet	
20161013_11_MN	0580141	3870738	Pallet	
20161013_12_PF	0580331	3870856	Burrow	C4 170mm x 120mm 260° Aspect
20161013_13_MN	0580335	3870704	Pallet	
20161013_14_MN	0580320	3870688	Burrow	C4 80mm x 90mm 270 Aspect

Page: ___ of ___

USFWS 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: 201310.13 (year, month, day) Survey biologist(s): Flores, Negrete (name, email, and phone number)

Site description: Crosote Scrub, Wash (project name and size; general location)

County: _____ Quad: _____ Location: M90-T2 (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 11S 0582558 3872646 (easting, northing, elevation in meters) Start time: 1345 am/pm End time:

GPS End-point: 11S 0582630 3872849 (easting, northing, elevation in meters) 1500 am/pm

Start/End Temp: 95°F 1-2 MPH / 95°F 1-2 MPH Clear

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
~~20161013.14.PF~~						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161013.14.PF	0582576	3872706	Pallet	
20161013.15.MN	0582551	3872693	Pallet	
20161013.16.MN	0582545	3872703	Burrow	CL, 180mm x 130mm Aspect 200

Page: ___ of ___

USFWS 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: 10·13·2016 (year, month, day.) Survey biologist(s): Seville, Delancy (name, email, and phone number)

Site description: Blow Sand w/ creosote (project name and size; general location)

County: San Bernardino (UTM coordinates, lat-long, and/or TRS; map datum) Quad: Location: page 14, M84-T6 thru Pg 18

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

GPS Start-point: (easting, northing, elevation in meters) Start time: 08:00 am/pm End time:

GPS End-point: (easting, northing, elevation in meters) -16:00 am/pm

Start/End Temp: 71°F / 88°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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161013-01-BD	0576201	3867051	burrow	C.3. aspect 220° 1 230mm x 110mm, 400mm Deep
20161013-02-SS	0576105	3866906	burrow	C3. aspect 130° 2 390mm x 110mm, unknown depth
20161013-03-SS	0583968	3873882	Pallet burrow	
20161013-04-BD	0584029	3873899	Pallet	C.3 aspect 250° 3 220mm x 100mm, unk depth
20161013-05-BD	0583995	3873789	Burrow	

USFWS 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: 2016,10,14 (year, month, day) Survey biologist(s): Flores, Negrete (name, email, and phone number)

Site description: Creosote Scrub Flat (project name and size; general location)

County:____ Quad:____ Location: M92-T3 / M93-T1 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed:____ Transect #:____ Transect length:____

GPS Start-point: 11S 0585533, 3874828 / 11S 0586252, 3875294 (easting, northing, elevation in meters) Start time: 0900 / 1010 (am)/pm End time: 1000 / 1100 am/pm

GPS End-point: 11S 0585650, 3874696 / 11S 0586371, 3875148 (easting, northing, elevation in meters)

Start/End Temp: 75°F, 1-2 mph, Clear / 78°F, 1-2, Clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161014_1_PF	0585720	3874761	Burrow	C4, 100mm x 80mm for juvenile. 60 Aspect
20161014_2_PF	0586413	3875170	Pallet	

Page:___of___

USFWS 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: 2016.10.14 (year, month, day.) Survey biologist(s): Flores, Negrete (name, email, and phone number)

Site description: Creosote Scrub (project name and size; general location)

County: _____ Quad: _____ Location: M94-T6 / M97-T1/T2 (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 11S 0588751, 3876886 / 11S 0592381 3877499 (easting, northing, elevation in meters) Start time: 1130 / 1315 am/pm End time:

GPS End-point: 11S 0589151, 3876824 / 11S 0592079 3877516 (easting, northing, elevation in meters) 1300 / 1430 am/pm

Start/End Temp: 79°F, 0-1, clear / 86°F 0mph clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161014_03_PF	0588969	3876995	Burrow	CH, 190mm x 110mm, 290 Aspect
20161014_04_MN	0589090	3876948	Burrow	CH, 210mm x 140mm, 210 Aspect
20161014_05_PF	0589015	3876872	Burrow	CH, 170mm x 80mm, 70 Aspect
20161014_06_PF	0589102	3876798	Burrow	CH, 180mm x 100mm, 260 Aspect

re:

Page: ___ of ___

USFWS 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: 2016.10.14 (year, month, day) Survey biologist(s): Flores, Negrete (name, email, and phone number)

Site description: Creosote Scrub flood plain (project name and size; general location)

County: ____ Quad: ____ Location: MP98-T2

(UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: ____ Transect #: ____ Transect length: ____

GPS Start-point: 11S 0594249, 387 7824 (easting, northing, elevation in meters) Start time: 1445 am/pm End time: 1600 am/pm

GPS End-point: 11S 0594471, 3878005 (easting, northing, elevation in meters)

Start/End Temp: 95F, 0-1, Clear / 95°F 0-1 Clear

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments

Page: ____ of ____

USFWS 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 (year, month, day): 2016-10-14 Survey biologist(s) (name, email, and phone number): S.Seville C.Delancy

Site description (project name and size; general location): Creosote Scrub w/ Cactus Yucca Mojave

County (UTM coordinates, lat-long, and/or TRS; map datum): San Bernardino Quad: ______ Location: M150-T1 & M154-T4 p.68, M47-T4, pg

Circle one: 100% coverage or Sampling Area size to be surveyed: ______ Transect #: ______ Transect length: ______

GPS Start-point (easting, northing, elevation in meters): 11 S 0661374 3925446 Start time: 09:00 am/pm End time: 18:00 am/pm

GPS End-point (easting, northing, elevation in meters): 11 S 0657989 3922342

Start/End Temp: 70°F / 84°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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161014-01-SS	0661485	3925721	Pellet	
20161014-02-SS	0661399	3925574	Pellet	
20161014-03-BD	0661494	3925570	Pellet.	
20161014-04-SS	0658899	3923217	Burrow + tracks	C2, aspect 260° 340mm x 180mm
20161014-05-SS	0658884	3923290	Pellet.	
20161014-06-BD	658994	3923393	Pellet + tracks	
20161014-07-SS	0659026	3923520	Pellet	
20161014-08-SS	0659022	3923519	Burrow + scat	C3, aspect 280° 330 mm x 140 mm

USFWS 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: 10·14·2016 (year, month, day.) Survey biologist(s): Seville, Delancy (name, email, and phone number)

Site description: Creosote scrub w/ interspersed washes + Yucca (project name and size; general location)

County: _____ Quad: _____ Location: M47-T4, M47-T1 p.67+66 (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: _____ (easting, northing, elevation in meters) Start time: _____ am/pm End time: _____ am/pm

GPS End-point: _____ (easting, northing, elevation in meters)

Start/End Temp: _____

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161014-09-S	0658993	3923503	C3 Burrow	C3, aspect 230° 370mm x 140 mm
20161014-10-S	0658967	3923527	Burrow	C3, aspect 270° 340mm x 120 mm
20161014-11-S	0658242	3922621	Burrow	C3, aspect 300° 190mm x 50 mm
20161014-12-BO	0658242	3922645	Burrow	C3, aspect 300° 290mm x 110mm
20161014-13-S	0658154	3922665	Burrow	C2, aspect 270° 320mm x 185mm

USFWS 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

Data of survey: 2016.10.15 (year, month, day.) Survey biologist(s): Sieville Delaney (name, email, and phone number)

Site description: Creosote scrub, Wash sandy loam (project name and size; general location)

County: San Bernardino (UTM coordinates, lat-long, and/or TRS; map datum) Quad: _____ Location: 147-1,0,16,9

Circle one: 100% coverage of Sampling Area size to be surveyed: _____ Transect #: _____ Transect length: _____

GPS Start-point: 11 S 0657964 3922393 (easting, northing, elevation in meters) Start time: 08:30 am/pm End time:

GPS End-point: 11 S 0657710 3916975 (easting, northing, elevation in meters) 17:30 am/pm

Start/End Temp: 71° F / 82° 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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161015-01-BD	0657895	3922373	Burrow + Scat	C2, aspect 120° 450mm x 200mm.
20161015-02-SS	0657770	3922310	Burrows tracks	C2, aspect 20° 208mm x 110 mm
20161015-03-BD	657755	3922319	Burrow	C3, aspect 20° 310mm x 170mm
20161015-04-SS	657791	3922379	Pallet	
20161015-05-SS	0657705	3922312	Burrow	C3, aspect 280° 310mm x 135mm
20161015-06-BD	0657727	3922236	Pallet	
20161015-07-SS	0657707	3922280	Burrow tracks	C2, aspect 235° 320mm x 180mm.
20161015-08-SS	0657698	3922363	Carcass Fragment	

USFWS 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: 2016.10.15 (year, month, day.) Survey biologist(s): S. Seville C. Delmay (name, email, and phone number)

Site description: Creosote scrub w/ washes (project name and size; general location)

County: San Bernardino Quad: 11 Location: Mojave Preserve (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage of Sampling Area size to be surveyed: _____ Transect #: _____ Transect length: _____

GPS Start-point: 11S 0657964 3922393 (easting, northing, elevation in meters) Start time: 08:30 am/pm End time:

GPS End-point: 11S 0651710 3916975 (easting, northing, elevation in meters) 17:30 am/pm

Start/End Temp: 71°F / 82°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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161015-09-BD	0657827	3928376	Burrow	C1. Aspect 110° 200mm x 145mm
20161015-10-SS	0655130	3919829	Pallet	
20161015-11-SS	0654924	3919710	Carcass	Female, COD-UNK, over 1yr old No scats remaining Scatter 360mm x 380mm
20161015-12-BD	0655082	3919899	Burrow	C2, aspect 300° 120mm x 47mm
20161015-13-SS	0655078	3919940	Burrow	C2, 360° 239mm x 110mm
20161015-14-SF	0653450	3918254	Carcass Fragments	COD-UNK - Predation has occured on carcass But not a Full carcass, 12Ft scatter around area
20161015-15-BD	0653480	3918254	Burrow	C2 Aspect 260 280mm x 135mm
20161015-16-BD	0655385	3918234	Pallet	

USFWS Desert Tortoise Pre-Project Survey Data Sheet

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Date of survey: 2016 · 10. 15 (year, month, day.) Survey biologist(s): S. Seville, C. Delaney (name, email, and phone number)

Site description: Creosote scrub (project name and size; general location)

County: San Bernardino (UTM coordinates, lat-long, and/or TRS; map datum) Quad: 11 Location: Mojave Preserve

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

GPS Start-point: 11 S 0657964 3922393 (easting, northing, elevation in meters) Start time: 08:30 am/pm End time:

GPS End-point: 11 S 0651710 3916975 (easting, northing, elevation in meters) 17:30 am/pm

Start/End Temp: 71°F / 82°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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161015-17-SD	0653438	3918335	Pellet	
20161015-18-SD	0653351	3918243	Scat	
20161015-19-SS	0653380	3918317	Burrow + tracks	C2. aspect 330° 350mm x 810mm
20161015-20-SS	0653385	3918321	Burrow	C3. aspect 320° 360mm x 160mm
20161015-21-SS	0653922	3918330	Pellet	
20161015-22-SS	0652755	3917631	Burrow	C3, aspect 280° 480mm x 180mm
20161015-23-SS	0652757	3917658	Pellet	
20161015-24-SD	0652771	3917628	Burrow	C2, aspect 270° 260mm x 120mm

USFWS Desert Tortoise Pre-Project Survey Data Sheet

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Date of survey: 2016-10-15 (year, month, day) Survey biologist(s): S. Seville C. Delancy (name, email, and phone number)

Site description: Creosote scrub w/ washes (project name and size; general location)

County: San Bernardino Quad: 11 Location: Mojave Preserve (UTM coordinates, lat-long, and/or TRS, map datum)

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

GPS Start-point: 11S 0657964 3922393 (easting, northing, elevation in meters) Start time: 08:30 am/pm End time:

GPS End-point: 11S 0659710 3916975 (easting, northing, elevation in meters) 17:30 am/pm

Start/End Temp: 71°F / 82°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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161015-25	0652832	3917661	Pallet-juve	
20161015-26-B	0652818	3917608	Burrow	C3. 48 feet 300° 227 max 160mm
20161015-27-S	0651891	3916970	Pallet	

USFWS Desert Tortoise Pre-Project Survey Data Sheet

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Date of survey: 2016 · 10 · 17 (year, month, day.) Survey biologist(s): Seville, Flores, Delancy (name, email, and phone number)

Site description: Creosote Scrub (project name and size; general location)

County: San Bernardino Quad: 11 Location: Mojave Preserve (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 11S 0651099 3916392 (easting, northing, elevation in meters) Start time: 8:00 am/pm End time:

GPS End-point: 11S 0647077 3912739 (easting, northing, elevation in meters) 17:15 am/pm

Start/End Temp: 72°F, 14mph, partly cloudy / 72°F, 5mph, partly Cloudy

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
07-SS	0651021	3916225	09:23	In Burrow: all of tort beneath Plane of opening	~230	No

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161017-01-SS	0650824	3916074	Pallet	
20161017-02-SS	0650810	3916095	Pallet	
20161017-03-PF	0650950	3916185	Carcass	COD: unknown - width 175mm Female
20161017-04-BD	0651004	3916257	Burrow	C2, aspect 350°. 230mm x 90mm
20161017-05-PF	0651088	3916314	Burrow	C3, aspect 350° 320 mm x 130mm
20161017-06-BD	0651080	3916226	Burrow	C2, 340° aspect 390 mm x 190mm
20161017-08-SS	0651021	3916225	Burrow	C1, aspect 10° 290mm x 140mm
20161017-09-BD	0651036	3916225	Burrow	C2, aspect 30° 270 mm x 120 mm

USFWS Desert Tortoise Pre-Project Survey Data Sheet

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Date of survey: 2016.10.17 (year, month, day) Survey biologist(s): Seville, Flores, Delaney (name, email, and phone number)

Site description: Creosote Scrub (project name and size, general location)

County: San Bernardino (UTM coordinates, lat-long, and/or TRS; map datum) Quad: 11 Location: Mojave Preserve

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

GPS Start-point: 11 S 0651099 3916392 (easting, northing, elevation in meters) Start time: 8:00 (am)/pm End time:

GPS End-point: 11 S 0647077 3912739 (easting, northing, elevation in meters) 17:15 am/(pm)

Start/End Temp: 72°F, 14mph, P.C / 72°F, 5mph, P.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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (burrows, scats, carcass, etc)	Class, Description, and comments
20161017-10-PF	0651042	3916212	Pallet	
20161017-11-PF	0651026	3916204	Pallet.	
20161017-12-BD	0651014	3916192	Burrow- collapsed	C2, aspect 80° 230mm x 130mm - Backfilled possible activity
20161017-13-SS	0650990	3916202	Burrow	C3, aspect 20° 190mm x 80mm
20161017-14-PF	0650986	3916154	Scat	
20161017-15-SS	0650939	3916141	Burrow Scat 5'W	C3, aspect 280° 200mm x 60mm
20161017-16-SS	0650933	3916147	Burrow	C3, aspect 230° 180mm x 85mm
20161017-17-PF	0650860	3916073	Pallet	

USFWS Desert Tortoise Pre-Project Survey Data Sheet

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Date of survey: 2016.10.17 (year, month, day.) Survey biologist(s): Seville, Floures, Delaney (name, email, and phone number)

Site description: Creosote Scrub (project name and size; general location)

County: San Bernardino Quad: 11 Location: Mojave Preserve (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 11 S 0651099 3916392 (easting, northing, elevation in meters) Start time: 8:00 am/pm End time:

GPS End-point: 11 S 0647077 3912739 (easting, northing, elevation in meters) 17:15 am/pm

Start/End Temp: 72°F, 14mph, P.C / 72°F, 5mph, P.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
23-SS	0650960	3916106	10:04	Not in burrow	~250mm	Nb. N9043

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161017-18-PF	0650861	3916019	Scat	
20161017-19-PF	0650880	3915996	Burrow+tracks	C2, aspect 250°. 380mm x 120mm
20161017-20-BD	0650885	3916020	Burrow+tracks	C2, aspect 270° 330mm x 135mm
20161017-21-SS	0650923	3916064	Pallet	
20161017-22-SS	0650961	3916160	Burrow Pallet	C1, aspect 220° 290mm x 120mm
20161017-24-CD	0650966	3916102	Pallet + scat	
20161017-25-PF	0650975	3916088	Pallet + scat	
20161017-26-BD	0650973	3916096	Scat	

USFWS 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: 2016.10.17 (year, month, day.) Survey biologist(s): Seville, Flores, Delaney (name, email, and phone number)

Site description: Creosote Scrub (project name and size; general location)

County: San Bernardino Quad: 11 Location: Mojave Preserve (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 11S 0651099 3916398 (easting, northing, elevation in meters) Start time: 08:00 am/pm End time:

GPS End-point: 11S 0647077 3912799 (easting, northing, elevation in meters) 17:15 am/pm

Start/End Temp: 72°F, 14mpH, partly Cloudy / 72°F, 5mph, P.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
20-PF	0651084	3916174	10:26	tort, in burrow at turn	unknown >210mm	unknown

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Class, Description, and comments
20161017-27-SS	0650993	3916133	burrow + Tracks	C1, Fresh tracks aspect 10° 330mm x 130 mm
20161017-28-BO	0651069	3916181	burrow + tracks	C2, aspect 80°. 240mm x 120mm
20161017-29-PF	0651084	3916174	Burrow + tracks + tort	C1, aspect 260°. 210mm x 130mm
20161017-31-BO	0651086	3916192	Burrow	C1, aspect 260° 200mm x 95mm
20161017-32-SS	0651134	3916273	Pallet	
20161017-33-PF	0651024	3916174	Scat	
20161017-34-BO	0650960	3916091	Scat	
20161017-35-BO	0650979	3916221	~~Burrow~~ Pallet	

Appendix C:

SITE PHOTOGRAPHS

PHOTO 1:
Tagged desert tortoise – N92043.

PHOTO 2:
Desert tortoise in open.

PHOTO 3:
Desert tortoise in open.

PHOTO 4:
Desert tortoise in burrow.

PHOTO 5:
Desert tortoise in burrow.

PHOTO 6:
Burrow with desert tortoise tracks.

PHOTO 7:
Burrow with desert tortoise scat.

PHOTO 8:
Juvenile desert tortoise carcass.

Photo 9:
Desert tortoise carcass.

Photo 10:
Desert tortoise carcass.

Photo 11:
Desert tortoise carcass.

Photo 12:
Burrow with desert tortoise eggshell remains.

Appendix D:

FAUNAL COMPENDIUM

REPTILES	**REPTILIA**
SCALED REPTILES (SNAKES)	**SQUAMATA**
Harmless Egg-laying Snakes	**Colubridae**
Mohave Patch-nosed Snake	*Salvadora hexalepis mojavensis*
SCALED REPTILES (LIZARDS)	**SQUAMATA**
Zebra-tailed, Earless, Fringe-toed, Spiny, Tree, Side-blotched, and Horned Lizards	**Phrynosomatidae**
Southern Desert Horned Lizard	*Phrynosoma platyrhinos calidiarum*
Mohave Fringe-toed Lizard	*Uma scoparia*
TURTLES	**TESTUDINES**
Tortoises	**Testudinidae**
Desert Tortoise	*Gopherus agassizii*
BIRDS	**AVES**
GALLINACEOUS BIRDS	**GALLIFORMES**
New World Quail	**Odontophoridae**
Gambel's Quail	*Callipepla gambelii*
PIGEONS AND DOVES	**COLUMBIFORMES**
Pigeons and Doves	**Columbidae**
Mourning Dove	*Zenaida macroura*
CUCKOOS AND ALLIES	**CUCULIFORMES**
Cuckoos, Roadrunners, and Anis	**Cuculidae**
Greater Roadrunner	*Geococcyx californianus*
NIGHTJARS	**CAPRIMULGIFORMES**
Nightjars	**Caprimulgidae**
Lesser Nighthawk	*Chordeiles acutipennis*
Common Poorwill	*Phalaenoptilus nuttallii*
NEW WORLD VULTURES	**CATHARTIFORMES**
New World Vultures	**Cathartidae**
Turkey Vulture	*Cathartes aura*
HAWKS, KITES, EAGLES, AND ALLIES	**ACCIPITRIFORMES**
Hawks, Kites, Eagles, and Allies	**Accipitridae**
Red-tailed Hawk	*Buteo jamaicensis*
PUFFBIRDS, JACAMARS, TOUCANS, WOODPECKERS, AND ALLIES	**PICIFORMES**
Woodpeckers and Allies	**Picidae**
Gilded Flicker	*Colaptes chrysoides*
PASSERINE BIRDS	**PASSERIFORMES**
Tyrant Flycatchers	**Tyrannidae**
Say's Phoebe	*Sayornis saya*
Shrikes	**Laniidae**
Loggerhead Shrike	*Lanius ludovicianus*
Crows and Jays	**Corvidae**
Common Raven	*Corvus corax*

Larks	**Alaudidae**
Horned Lark	*Eremophila alpestris*
Penduline Tits and Verdins	**Remizidae**
Verdin	*Auriparus flaviceps*
Wrens	**Troglodytidae**
Rock Wren	*Salpinctes obsoletus*
Cactus Wren	*Campylorhynchus brunneicapillus*
Gnatcatchers and Gnatwrens	**Polioptilidae**
Blue-gray Gnatcatcher	*Polioptila caerulea*
Black-tailed Gnatcatcher	*Polioptila melanura*
Fringilline and Cardueline Finches and Allies	**Fringillidae**
House Finch	*Haemorhous mexicanus*
Wood-Warblers	**Parulidae**
Yellow-rumped Warbler	*Setophaga coronata*
Emberizids	**Emberizidae**
Bell's Sparrow	*Artemisiospiza belli*
White-crowned Sparrow	*Zonotrichia leucophrys*
MAMMALS	**MAMMALIA**
RODENTS	**RODENTIA**
Pocket Mice and Kangaroo Rats	**Heteromyidae**
Desert Kangaroo Rat	*Dipodomys deserti*
Merriam's Kangaroo Rat	*Dipodomys merriami*
Rats And Mice	**Muridae**
Desert Woodrat (middens)	*Neotoma lepida*
CARNIVORES	**CARNIVORA**
Wolves, Foxes, and the Coyote	**Canidae**
Coyote	*Canis latrans*
Desert Kit Fox (den)	*Vulpes macrotis arsipus*
Weasels, Skunks, and their Kin	**Mustelidae**
American Badger (den)	*Taxidea taxus*
Cats	**Felidae**
Mountain Lion (scat)	*Puma concolor*
EVEN-TOED HOOFED MAMMALS	**ARTIODACTYLA**
Deer and their Kin	**Cervidae**
Mule Deer	*Odocoileus hemionus*