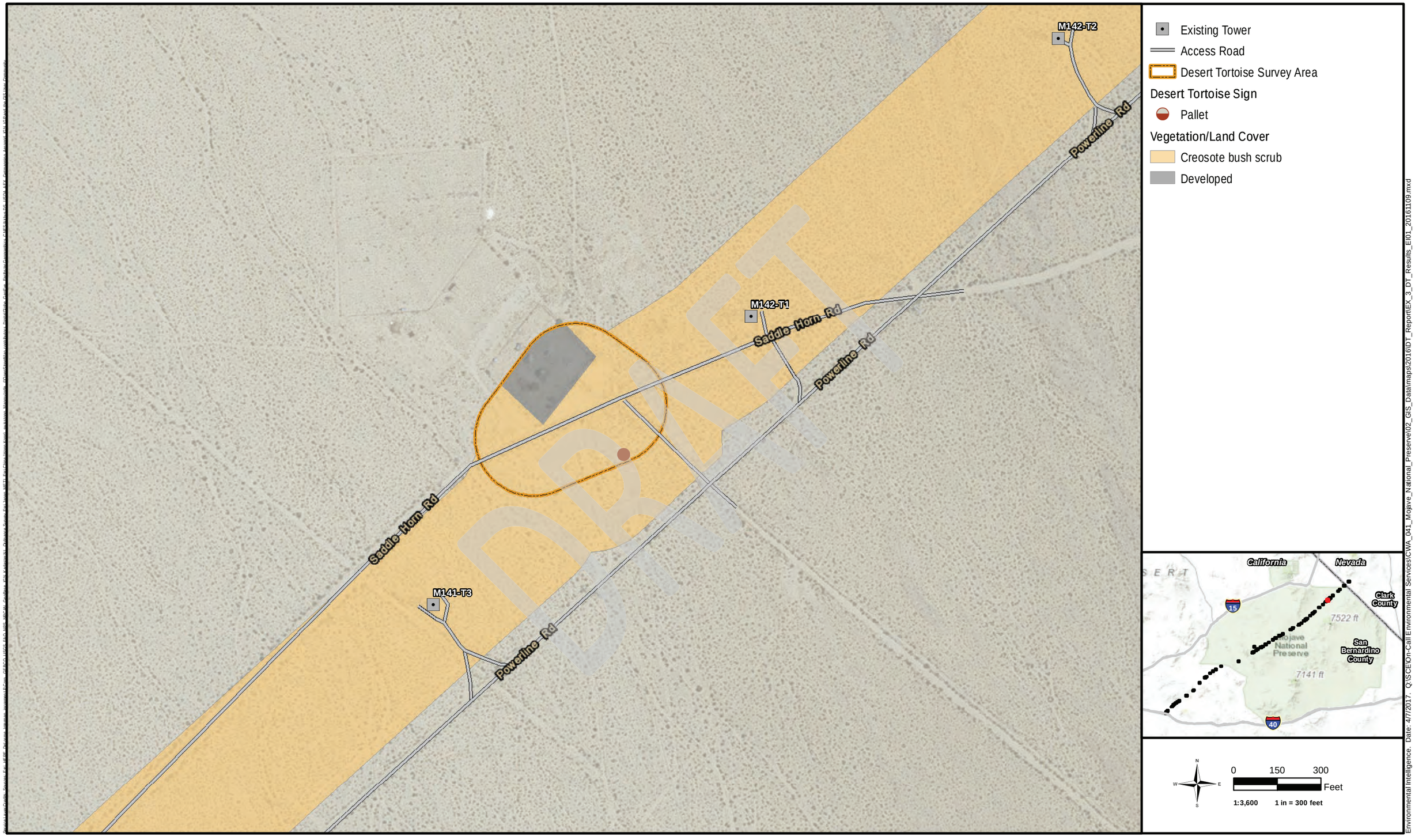
M142-T2
M142-T1
M141-T3
Saddle Horn Rd
Powerline Rd
Saddle Horn Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Pallet
Vegetation/Land Cover
Creosote bush scrub
Developed
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
15
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Feet
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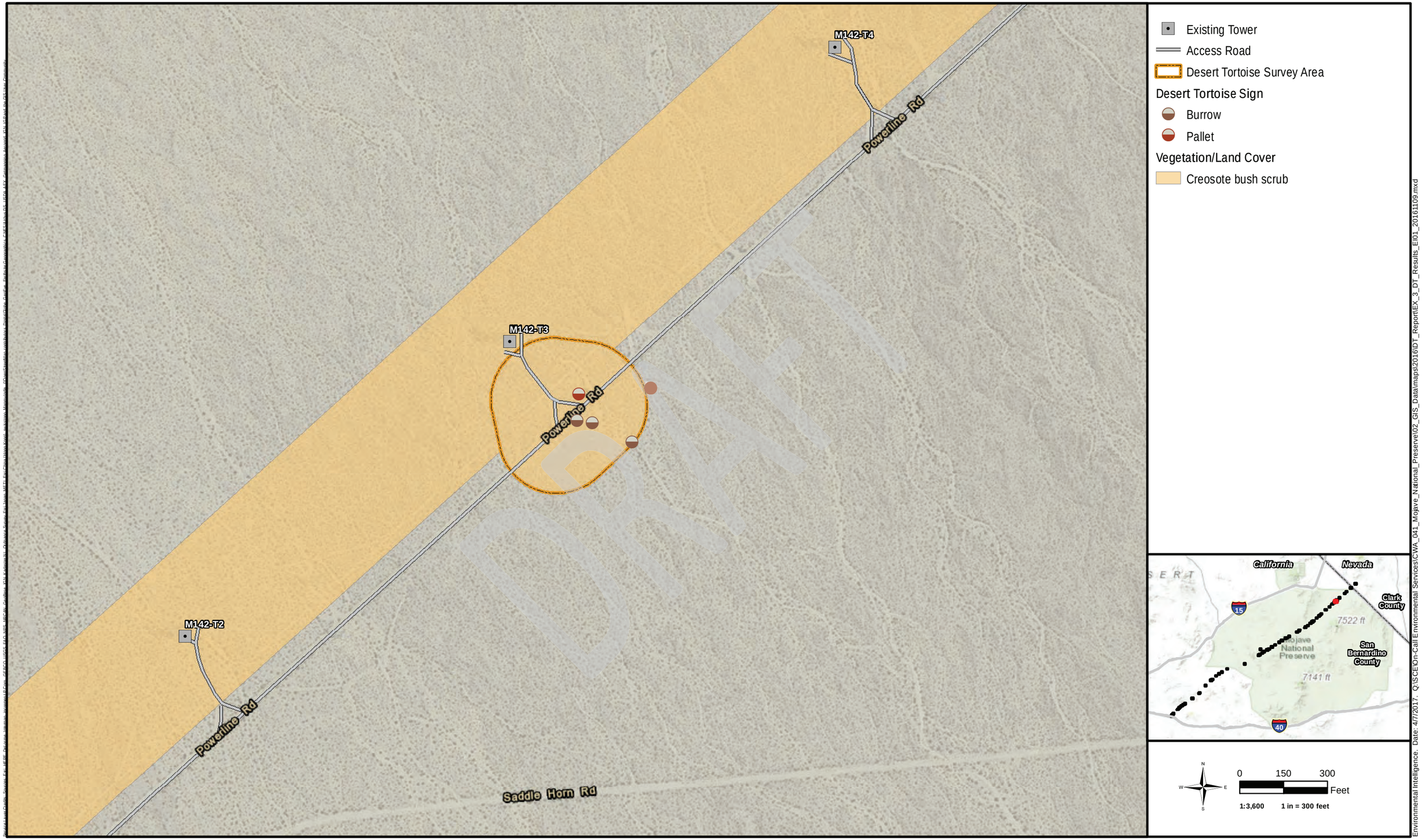
DRAFT
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call\Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_Ef01_20161109.mxd


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
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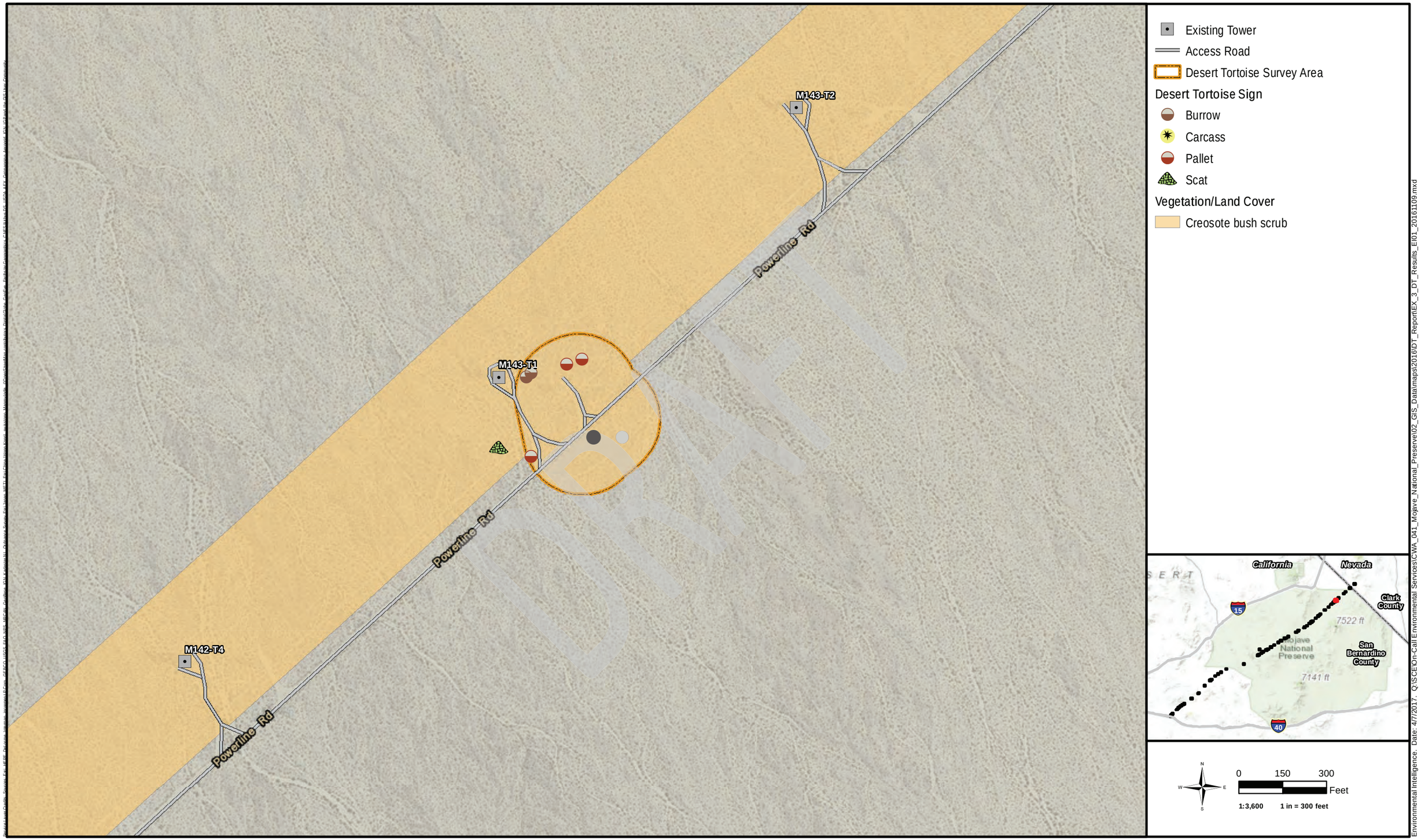
1 in = 300 feet
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M143-T2
M143-T1
M142-T4
Powerline Rd
Powerline Rd
Powerline Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Pallet
Scat
Vegetation/Land Cover
Creosote bush scrub
California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
7141 ft
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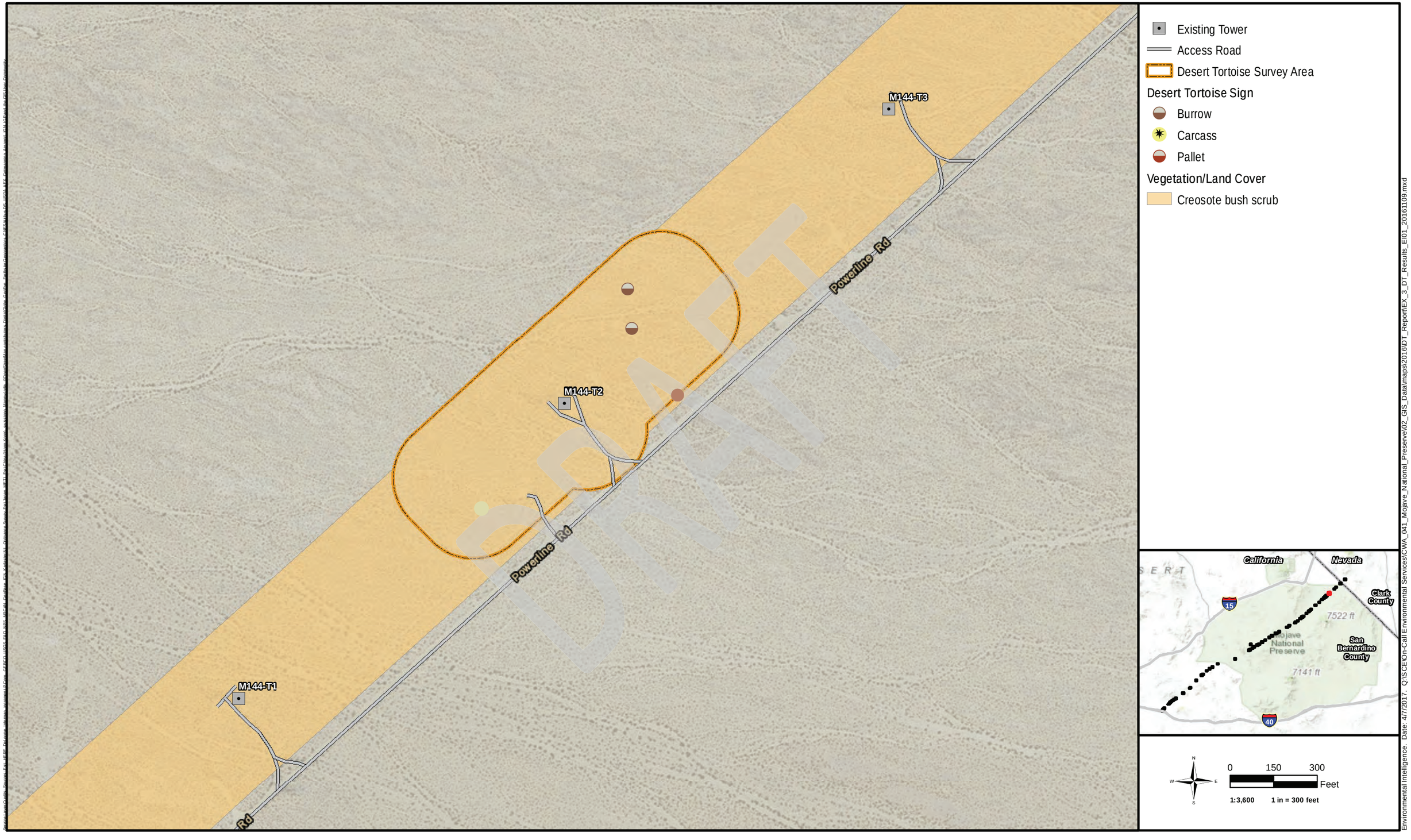
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


M144-T3
M144-T2
M144-T1
Powerline Rd
Powerline Rd
Rd
Existing Tower
Access Road
Desert Tortoise Survey Area
Desert Tortoise Sign
Burrow
Carcass
Pallet
Vegetation/Land Cover
Creosote bush scrub
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California
Nevada
Clark County
San Bernardino County
Mojave National Preserve
7522 ft
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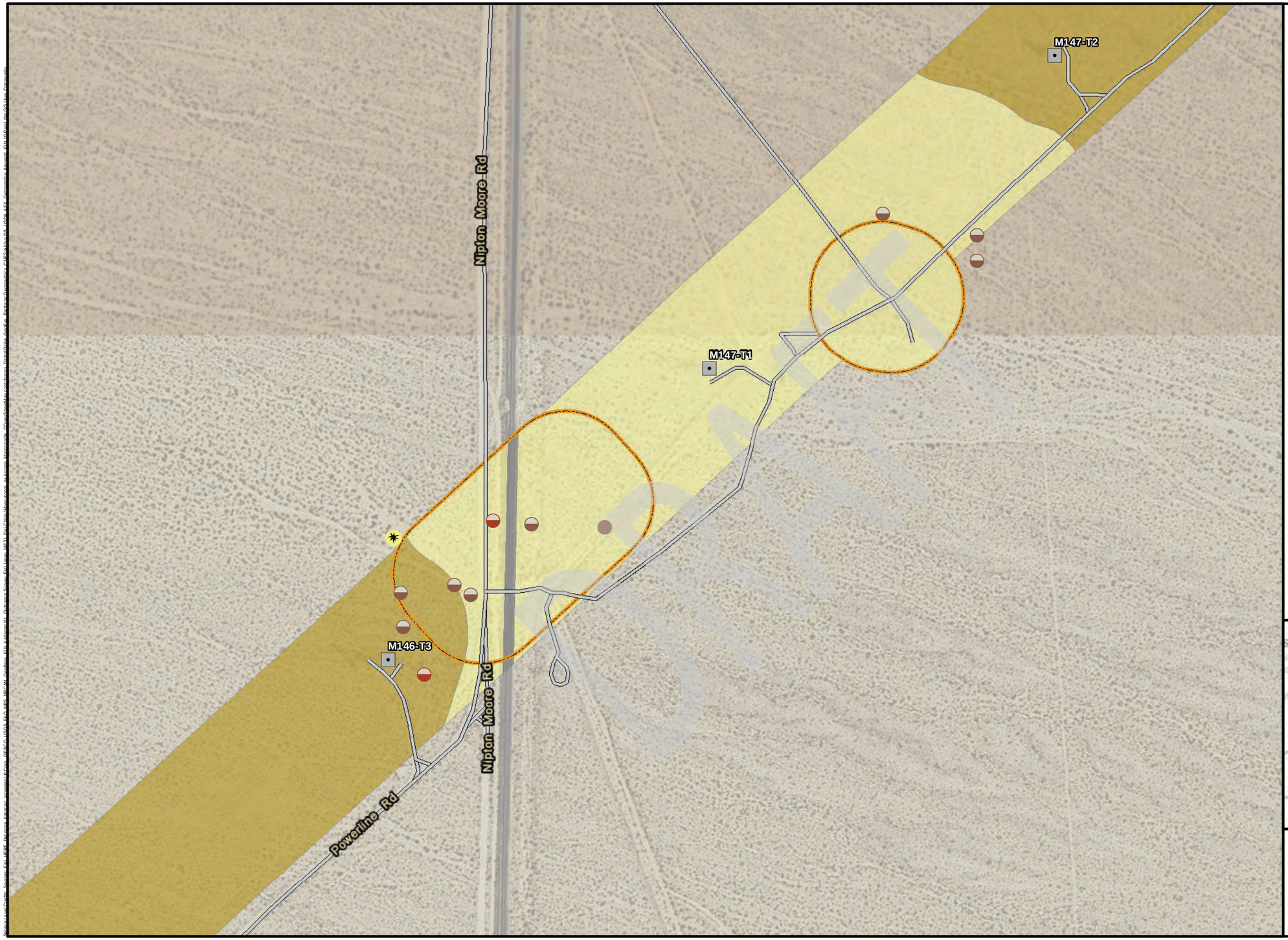

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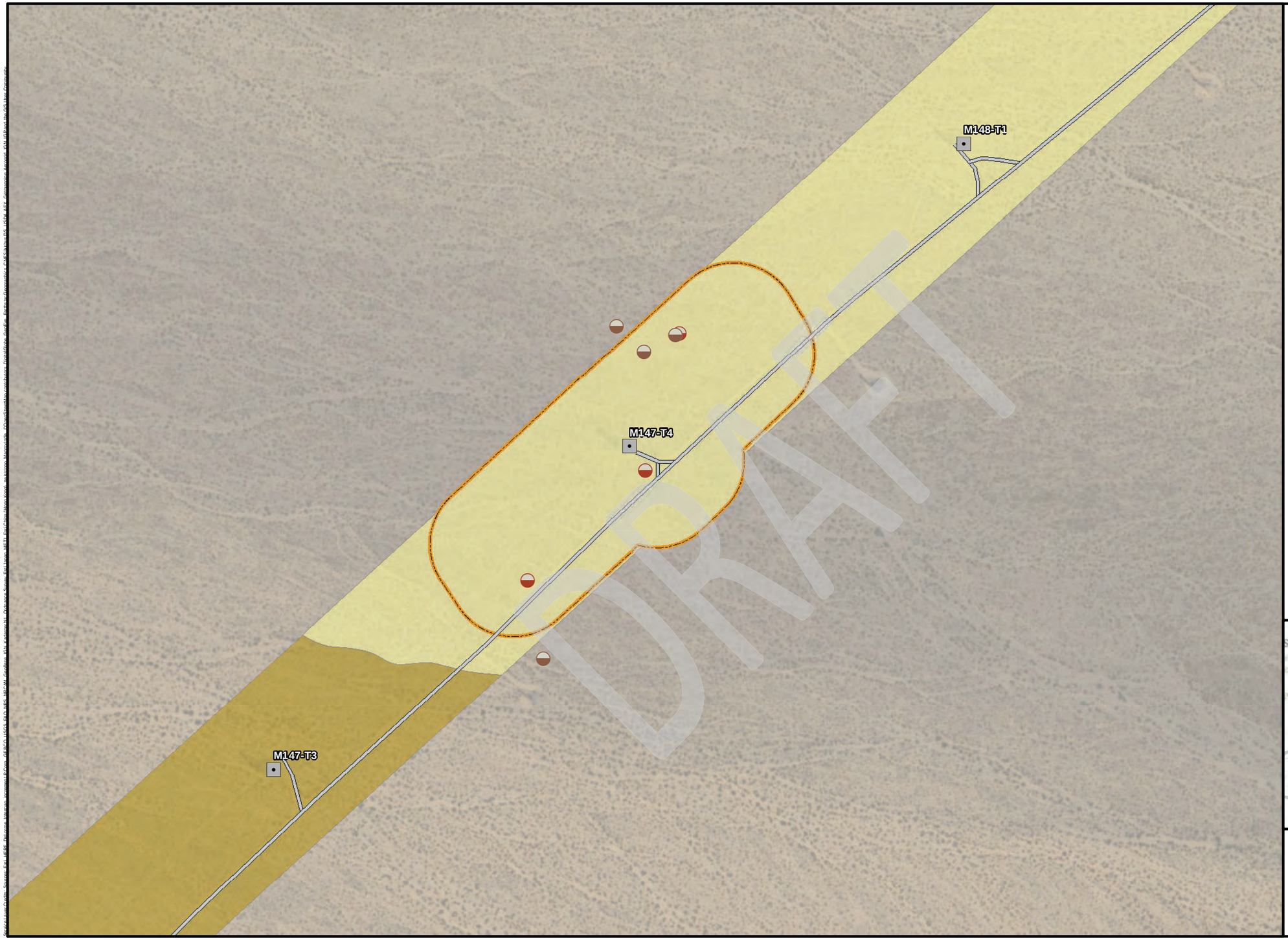
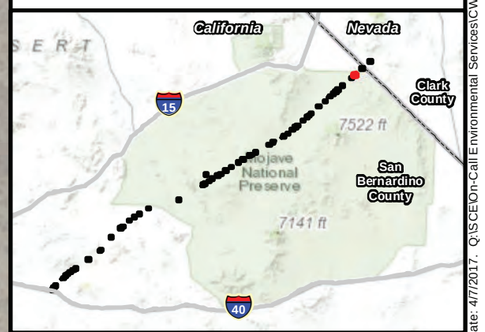


Existing Tower
Access Road
Desert Tortoise Survey Area

Desert Tortoise Sign
Burrow
Pallet

Vegetation/Land Cover
Creosote bush - white burr sage scrub
Mojave yucca scrub



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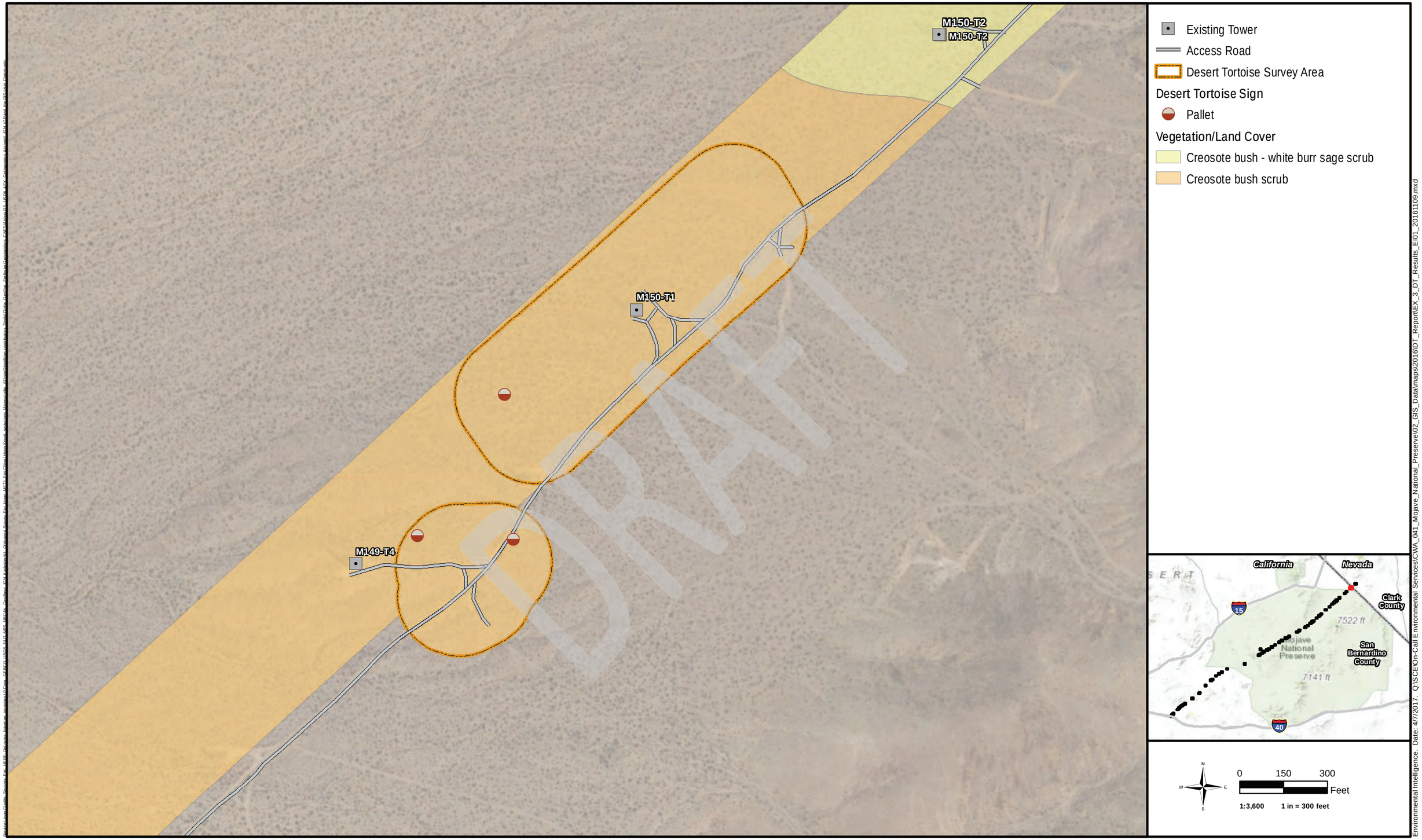
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call\Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd


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
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1 in = 300 feet
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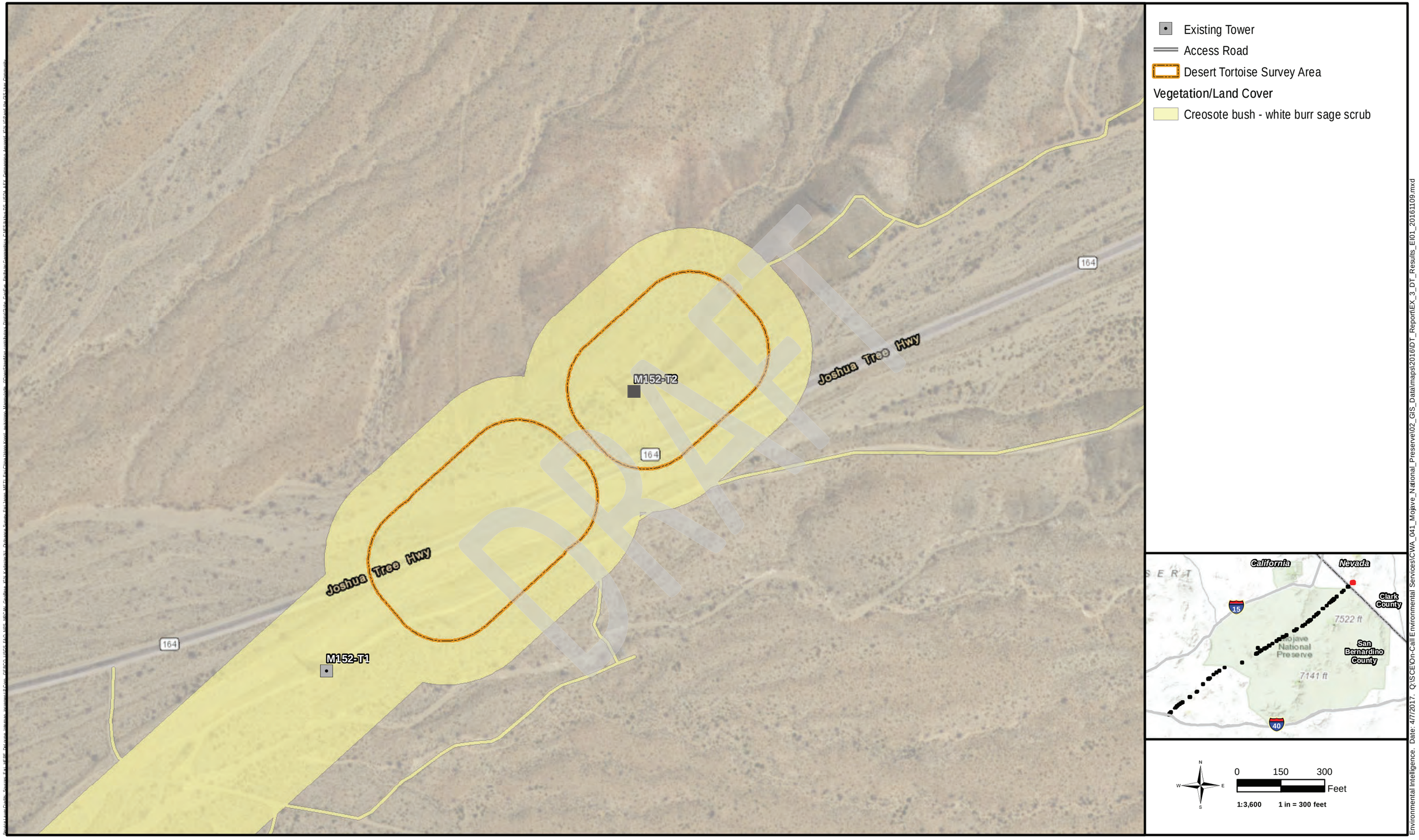
Environmental Intelligence. Date: 4/7/2017. Q:\SCE\On-Call\Environmental Services\CWA_041_Mojave_National_Preserve\02_GIS_Data\maps\2016\DT_Report\EX_3_DT_Results_EI01_20161109.mxd



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_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): Seville, Delaney, Flowers Negrete (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
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:

GPS End-point: 11S 0585650, 3874696 / 11S 0586371, 3875148 (easting, northing, elevation in meters) 1000 / 1100 am/pm

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

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

County: ______ Quad: ______ Location: MM98-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 Start time: 1445 am/pm End time:
(easting, northing, elevation in meters)

GPS End-point: 11S 0594471, 3878005 1600 am/pm
(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: 2016-10-14 Survey biologist(s): S. Seville C. Delancy
(year, month, day.) (name, email, and phone number)

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

County: San Bernardino Quad: ______ Location: M150-T1 & M154-T4 p. 68, M47-T4, 08
(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 0661374 3925446 Start time: 09:00 am/pm End time: 18:00 am/pm
(easting, northing, elevation in meters)

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

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	Pallett	
20161014-02-SS	0661399	3925574	Pallet	
20161014-03-BD	0661494	3925570	Pallet.	
20161014-04-SS	0658899	3923217	Burrow + tracks	C2, aspect 260° 340mm x 150mm
20161014-05-SS	0658884	3923290	Pallet.	
20161014-06-BD	658994	3923393	Pallet + tracks	
20161014-07-SS	0659026	3923520	Pallet	
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

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. 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

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. 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

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, 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

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 (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

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, 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*

Appendix D-9

Biological Assessment for Desert Tortoise

Environmental Intelligence, LLC

A Biological Assessment of Anticipated Impacts on the Desert Tortoise Associated with the Lugo-Victorville 500 kV Transmission Line Remedial Action Scheme Project

Located in San Bernardino County, California and Clark County, Nevada

Submitted in Support of a Section 7 Consultation
Between The Bureau of Land Management
And The U.S. Fish And Wildlife Service and Section 2081b of the Fish and Game Code

Prepared For:

Southern California Edison
2244 Walnut Grove
GO1 Quad 2C
Rosemead, CA 91770
Contact: Rey Gonzales

Prepared By:

Environmental Intelligence
1590 South Coast Highway, Suite 17
Laguna Beach, CA 92651
Contact: Travis Kegel
traviskegel@enviro-intel.com
(949) 497-0931

Date:

June 21, 2019
(Updated October 17, 2019)

TABLE OF CONTENTS

TABLES

APPENDICES

ACROYMNS

ACEC	Areas of Critical Environmental Concern
ADSS	All-Dielectric Self-Supporting
amsl	Above Mean See Level
APMs	Applicant Proposed Measures
BA	Biological Assessment
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe
BO	Biological Opinion
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CFWO	Carlsbad Fish and Wildlife Office
CHU	Critical Habitat Unit
CMA	Conservation and Management Action
CNDDB	California Natural Diversity Database
DOD	Department of Defense
DRECP	Desert Renewable Energy Conservation Plan
DWMAs	Desert Wildlife Management Areas
EI	Environmental Intelligence
GIS	Geographic Information Systems
I-	Interstate
kV	Kilovolt
LADWP	Los Angeles Department of Water and Power
LST	Lattice Steel Towers
LUPA	Land Use Plan Amendment
MCL	Maximum Carapace Length
MEER	Mechanical Electrical Equipment Room
mm	Millimeters
MNP	Mojave National Preserve
NIWMP	Noxious and Invasive Weed Management Plan
NMFS	National Marine Fisheries Service
NPS	National Park Service
OFNR	Optical Fiber Non-Conducting Riser
OHGW	Overhead Ground Wire
O&M	Operations and Maintenance
OPGW	Optical Ground Wire
Pa	Probability that a Tortoise is Above-Ground
PBO	Programmatic Biological Opinion
PCEs	Primary Constituent Elements
Project	Lugo-Victorville 500kV Transmission Line Remedial Action Scheme Project
Project Applicant	Southern California Edison
PVC	Polyvinyl Chloride
RMP	Raven Management Plan
ROW	Right of Way
SCE	Southern California Edison
SLC	State Lands Commission
SWPPP	Storm Water Pollution Prevention Plan
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY

This Biological Assessment (BA) evaluates the direct and indirect biological effects of construction associated with Southern California Edison's (SCE; the Project Applicant) proposed Lugo-Victorville 500 kilovolt (kV) Transmission Line Remedial Action Scheme Project (Project) located in San Bernardino County, California and Clark County, Nevada. The purpose of this BA is to provide biological information and review the proposed action in sufficient detail to support a Section 7 (a)(2) Consultation between the Bureau of Land Management (BLM; the lead agency) and U.S. Fish and Wildlife Service (USFWS), and has been prepared according to the guidelines recommended by the Final Section 7 Consultation Handbook (USFWS & National Marine Fisheries Service [NMFS] 1998). Specifically, this assessment evaluates the Project's anticipated direct and indirect effects on the federally threatened desert tortoise (*Gopherus agassizii*) and provides USFWS with requisite information for determining if the Project's proposed action meets the requirements for inclusion into three Biological Opinions: 1) Biological Opinion for Activities in the California Desert Conservation Area (USFWS 2017), as approved under the direction of the Desert Renewable Energy Conservation Plan (DRECP; BLM 2016); 2) Biological Opinion for the General Management Plan of the Mojave National Preserve (USFWS 2001); and 3) Programmatic Biological Opinion for Bureau of Land Management Activities Adversely Affecting 19 Listed Species and USFWS designated Critical Habitat (Critical Habitat; Nevada Fish and Wildlife Office 2013).

The Project includes two segments, Segment 1: Gale-Pisgah and Segment 2: Pisgah to Nipton. Segment 1 includes the installation of telecommunication all-dielectric self-supporting (ADSS) cable line from SCE's Gale Substation near Barstow, California to SCE's Pisgah Substation near Ludlow, California for approximately 29 miles within existing SCE right-of-way (ROW) along U.S. Route 66 and Interstate (I-) 40. The ADSS cable would be attached overhead to existing wood poles, and 1.3 miles would be placed in underground conduits. Segment 2 includes the removal of the existing overhead ground wire (OHGW) and replacement with Optical Ground Wire (OPGW) along approximately 84 miles within the existing SCE ROW starting at SCE's Pisgah Substation and ending at transmission tower M152-T2 within Clark County, Nevada (near Nipton Road/Joshua Tree Highway).

One federally listed wildlife species (the desert tortoise) has been detected during focused surveys. The Project crosses portions of the USFWS desert tortoise Western Mojave Recovery Unit, Eastern Mojave Recovery Unit, the Ord-Rodman Critical Habitat Unit (CHU), and the Ivanpah CHU. Direct loss of approximately 31.21 acres of occupied desert tortoise habitat, including 9.12 acres of critical habitat for desert tortoise will occur with the construction of the Project, Exhibit 2, *Desert Tortoise Conservation Areas* (Table ES-01, *Summary of Impacts to Desert Tortoise*). The Project impacts will be distributed across 29 locations and 113 miles of the Project alignment. Impacts average 1.076 acres for all locations with the maximum impact at one location totaling 3.81 acres. For the purposes of this discussion, both temporary and permanent impacts are considered permanent impacts to Critical Habitat due to the slow recovery of temporarily disturbed areas.

TABLE ES-01: SUMMARY OF IMPACTS TO DESERT TORTOISE

Recovery Unit	Impact to Areas Outside of Critical Habitat Units (acres)	Impact to Critical Habitat Units (acres)	Total Impacts (acres)
Eastern Mojave Recovery Unit	11.33	7.43	18.76
Western Mojave Recovery Unit	10.76	1.69	12.45
Total	**22.09**	**9.12**	**31.21**

Project associated impacts to Critical Habitat equates to approximately 1.69 acres (0.0007 percent) of the Ord-Rodman CHU, approximately 7.43 acres (0.001 percent) of the Ivanpah CHU. A total of approximately 9.12 acres (0.0001 percent) of the 6.4 million acres of total Critical Habitat for the Mojave population of the desert tortoise would be affected. Impacts from construction will occur within existing transmission alignments. Because of the relatively small collective impact to the CHUs in areas with an existing

transmission alignment, this impact will not likely appreciably diminish the value of the Primary Constituent Elements (PCE) essential to the species' conservation in the Western Mojave and Eastern Mojave Recovery Unit, or the Ord-Rodman and Ivanpah CHUs. The impact will not likely cause the local population of desert tortoise to become unviable or preclude movement, dispersal or gene flow within the population. Overall, these impacts will not likely result in significant adverse effects to the species throughout its range.

The Project includes conservation and avoidance/minimization measures consistent with the adopted measures to protect desert tortoises located in the Biological Opinion for Activities in the California Desert Conservation Area (USFWS 2017), as approved under the guidance of the DRECP Land Use Plan Amendment (BLM 2016), the Biological Opinion for the General Management Plan for the Mojave National Preserve (USFWS 2001), and the Programmatic Biological Opinion for Bureau of Land Management Activities Adversely Affecting 19 Listed Species and Critical Habitat (Nevada Fish and Wildlife Office 2013).

The three Biological Opinions include sections describing transmission/utility work occurring within the DRECP, Mojave National Preserve (MNP), and southern Nevada areas. These measures will be implemented during all phases of the Project. Since these measures have been approved by the USFWS for impacts to desert tortoise habitat within the DRECP, MNP, and southern Nevada area, the conservation measures are expected to be sufficient in protecting the desert tortoise and Critical Habitat within the Action Area. Conservation measures include environmental training, reduced speed limits, monitoring by qualified tortoise biologists, limiting the size and extent of the work area, fencing open trenches, and flagging all potentially active burrows for avoidance.

Due to the small impact acreage at each of the 29 specific locations, the impacts to individual tortoise home ranges will be minimal and include very little ground disturbance (the Project impacts approximately 31.21 acres of desert tortoise habitat spread across 113 miles of the Project alignment). Less than 4 acres shall be impacted at any given location with an average impact of 1.076 acres at 29 locations. In addition, potential tortoise mortality from vehicle and equipment strikes, entrapment, impacts to potentially occupied burrows, and other similar direct effects can be avoided through the proposed conservation measures. With the successful implementation of the various Project design features and avoidance, minimization, and mitigation measures described herein, this BA concludes that the Project *may affect, but is unlikely to adversely affect*, the Mojave population of tortoise. Additionally, the Project *may affect, but is unlikely to adversely affect*, critical habitat of the Mojave population of tortoise.

1.0 INTRODUCTION

Section 7 of the Endangered Species Act requires any federal agency that seeks to undertake an action, such as issuing a permit or undertaking a project that may impact an endangered species, to conduct a Biological Assessment (BA) to identify the likely impact of its action on a federally threatened or endangered species. This BA evaluates the direct and indirect biological effects of construction associated with Southern California Edison's (SCE; the Project Applicant) proposed Lugo-Victorville 500 kilovolt (kV) Transmission Line Remedial Action Scheme Project (Project). The Project alignment is located within San Bernardino County, California, and Clark County, Nevada, and extends for over 113 miles from SCE's Gale Substation (one mile east of Daggett, California) to SCE's Pisgah Substation near Ludlow, California, and ends at transmission tower M152-T2 in Nevada near Nipton Road/Joshua Tree Highway.

SCE requires the Project to reliably interconnect and integrate multiple renewable generation projects in the Eastern California/Southern Nevada area onto the electrical grid. The primary function of the Project would be to prevent thermal overloading on the Lugo-Victorville 500 kV transmission line, by tripping generation in the event of loss of the Eldorado-Lugo 500 kV transmission line or both this line and the Lugo-Mohave 500 kV transmission line.

1.1 Purpose of the Biological Assessment

The purpose of this BA is to provide biological information and to review the proposed action in sufficient detail to support a Section 7 Consultation between the Bureau of Land Management (BLM; the lead agency) and U.S. Fish and Wildlife Service (USFWS), and has been prepared according to the guidelines recommended by the Final Section 7 Consultation Handbook (USFWS & National Marine Fisheries Service [NMFS] 1998). This BA provides USFWS with requisite information for determining if the Project's proposed action meets the requirements for inclusion into three Biological Opinions: 1) Biological Opinion for Activities in the California Desert Conservation Area (USFWS 2017), as approved under the direction of the Desert Renewable Energy Conservation Plan (DRECP; BLM 2016); 2) Biological Opinion for the General Management Plan of the Mojave National Preserve (USFWS 2001); and 3) Programmatic Biological Opinion for Bureau of Land Management Activities Adversely Affecting 19 Listed Species and Critical Habitat (Nevada Fish and Wildlife Office 2013).

This BA will assist the USFWS in determining if construction of the Project will adversely affect the federally listed desert tortoise or adversely modify its Critical Habitat. To assist the USFWS in making this determination, this assessment provides the following information:

- A description of proposed actions on the site, including grading, construction, and avoidance and minimization of impacts to native vegetation communities;
- A description of the Action Area in physical and general biological terms, with sufficient background ecological data in acknowledgement of the USFWS ecosystem approach to conservation of endangered and threatened species;
- A description of all federally listed species and designated Critical Habitat occurring or potentially occurring on the site or on nearby lands; and
- A detailed study of potential direct and indirect impacts of the proposed actions on federally listed plant and wildlife species.

1.2 Species Considered

The Project has the potential to adversely affect one federally listed wildlife species, the desert tortoise (*Gopherus agassizii*). No federally threatened or endangered plant species will be adversely affected by the proposed actions. The Project is located within the Eastern and Western Mojave Recovery Units, and the Ord-Rodman and Ivanpah Critical Habitat Units (CHUs) for desert tortoise (Exhibit 2).

2.0 CONSULTATIONS TO DATE

Early coordination and pre-construction consultation with USFWS, BLM, and U.S. National Park Service (NPS) was conducted during a series of site visits, meetings, and phone consultations including:

September 2001	The NPS received a Biological Opinion (BO) from the USFWS for the General Management Plan of the Mojave National Preserve (USFWS 2001). The opinion included reasonable and prudent measures to avoid and minimize impacts to the desert tortoise.
January 2013	The BLM Southern Nevada District Office received a Programmatic Biological Opinion (PBO) from the Nevada Fish and Wildlife Office (2013) for Activities in southern Nevada. Through this PBO, the BLM and USFWS implemented a process to exempt proposed actions anticipated to result in less than 20 acres of impacts to desert tortoise habitat or less than 5 acres of impacts to desert tortoise critical habitat. The PBO describes the process by which the BLM and USFWS will consult on proposed activities and analyzes whether implementation of these activities is likely to jeopardize the continued existence of the desert tortoise or result in the destruction or adverse modification of its critical habitat.
September 2016	SCE representatives met with Mojave National Preserve (MNP) representatives Danette Woo (Environmental Compliance & Special Park Uses) and Neal Darby (Wildlife biologist) at one of the proposed pulling/ tensioning sites. The SCE team provided an overview of the construction activities to occur, and the level of disturbance. The MNP raised several questions and concerns regarding desert tortoise. The MNP stated protocol surveys were necessary, as well as a habitat assessment. At that time, the MNP stated informal consultation and a Categorical Exclusion may be possible, depending upon the results of the surveys. Following the meeting (9/19/16), Neal Darby sent a separate email stating a BA is required.
October 2016	SCE representatives Jack Goldfarb (Herpetologist/Senior Biologist), Alejandro Ramirez (Government Lands), and Lori Charpentier (Environmental Project Manager), spoke to Lorenzo Encinas (BLM Barstow). Encinas expressed concern about desert tortoise within the Project area, and SCE discussed the BLM Nevada operations and maintenance (O&M) authorization and MNP's strategy to issue a Categorical Exclusion and complete informal consultation (no take permit). Encinas generally seemed agreeable to taking a similar approach to the MNP, dependent upon the survey information. SCE agreed upon completing a habitat assessment and surveying a 100-foot buffer around all work sites of new disturbance areas (i.e., helicopter landing zones, pulling tensioning sites) to support the BA.
September 2017	The BLM received a BO from the USFWS (2017) for Activities in the California Desert Conservation Area. Through this BO, the BLM and USFWS implemented a process to expedite the review of certain future activities (including transmission and distributions line) the BLM will implement or authorize under the guidance of the DRECP Land Use Plan Amendment (BLM 2016). The BO describes the process by which the BLM and USFWS will consult on future activities and analyzes whether implementation of these activities is likely to jeopardize the continued existence of the desert tortoise or result in the destruction or adverse modification of its critical habitat.

3.0 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would support the SCE communication system for the addition of renewable energy generation. This communication system is part of the larger SCE system that provides safe and reliable electrical service consistent with the North American Electric Reliability Corporation, Federal Energy Regulatory Commission, the California Independent System Operators, and SCE's planning design guidelines and criteria.

The Project includes two segments: Segment 1 (Gale to Pisgah), which extends for approximately 29 miles between SCE's Gale Substation and SCE's Pisgah Substation and Segment 2 (Pisgah to Nipton), which continues from SCE's Pisgah Substation for 84 miles to transmission tower M152-T2. The Project is located within United States Geological Survey (USGS) Minneola, Yermo, Newberry Springs, Troy Lake, 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 7.5-minute topographic quadrangles; material laydown yards are located within the Minneola, Yermo and Nipton USGS 7.5-minute topographic quadrangles (Exhibit 1).

Segment 1: Gale to Pisgah

Segment 1 crosses approximately 29 miles of public and private lands within SCE's existing right-of-way (ROW). The Project will utilize existing structures on the Mineola 33 kV, Baroid 33 kV, Ludlow 12 kV, and Hector 12 kV distribution circuits. Approximately 5.7 miles of Segment 1 is located on Bureau of Land Management (BLM) lands, one mile on Department of Defense (DOD) lands, and 22 miles on private lands, of which 0.85 mile is adjacent to or near State lands. Of the 29 miles, approximately 1.3 miles of cable would be placed underground in five separate lengths, of which 0.45 mile is located on BLM and 0.85 miles on private lands.

Segment 1 of the Project would involve installation of telecommunication all-dielectric self-supporting (ADSS) cable line[1] from SCE's Gale Substation to SCE's Pisgah Substation. The ADSS cable would be attached overhead to existing wood poles with 1.3 miles placed in underground conduits. Nine new manholes and one existing manhole would provide access to the underground conduit. The Project includes 510 existing distribution pole sites, one existing material laydown yard (Daggett Laydown Yard), and two existing substations (Exhibit 3). The distribution lines that the cable would be attached to are the Mineola 33kV, Baroid 33kV, Ludlow 12kV, and Hector 12kV. Segment 1 is located in San Bernardino County, California, on BLM, DOD, and private lands, a portion of which is adjacent to state lands.

Segment 2: Pisgah to Nipton

Segment 2 crosses approximately 84 miles of public and private lands within SCE's existing ROW. The Project will utilize existing structures on the Hector 12 kV distribution line and the Lugo-Victorville 500 kV transmission line, which is jointly owned and a major power transfer path between SCE and the Los Angeles Department of Water and Power (LADWP). Approximately 26 miles of Segment 2 is located on BLM lands, 51 miles on NPS –MNP lands, and 7 miles on California State Lands Commission (SLC) and private lands.

Segment 2 of the Project includes installation of a new telecommunication path consisting of Optical Ground Wire (OPGW), Optical Fiber Non-Conducting Riser (OFNR) cable, and ADSS fiber optic cable. Specifically, the Project entails the removal of the existing OHGW and replacement with OPGW along approximately 84 miles within the existing SCE ROW between SCE's Pisgah Substation within San Bernardino County, California (near Ludlow, California) and transmission tower M152-T2 within Clark County, Nevada (near Nipton Road/Joshua Tree Highway). From Pisgah Substation, the ADSS/OFNR fiber

[1]The ADSS cable is a type of optical fiber cable that is strong enough to support itself between structures without using conductive metals. It is an alternative to Optical Ground Wire (OPGW) and optical attached cable (OPAC) with a lower installation cost. The ADSS is necessary to ensure adequate communication facilities are available to support multiple projects.

optic cable will run underground to reach the existing Hector 12 kV distribution line, where it will attach to existing poles and travel for approximately 0.4 miles north to a new interset pole. From the new interset pole, the fiber optic will again run underground in new conduit to tower M68-T3, where it will transition to OPGW, and continue overhead as OPGW along the Lugo-Victorville 500 kV transmission line route until it ends at M152-T2 near Nipton Road (Joshua Tree Highway) in Clark County, Nevada. Additionally, from transmission tower M127-T6, the OPGW would run underground to connect to SCE's Cima Substation. The Project includes truck work 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 mobilization activities at the Nipton Yard (Exhibit 3). To support OPGW installation, tower modifications would be required, which will include tower retrofitting at some of the existing towers identified for splicing locations as well as tower M141-T3.

3.1 Action Area

The Action Area is defined as all areas to be impacted directly or indirectly by the Project, and not merely the immediate area involved in the Project (50 Code of Federal Regulations [CFR] §402.02). The Action Area for the Project is composed of the following:

- Project Area, which is approximately 67.61 acres, includes all disturbance areas located along existing SCE ROW for Segments 1 and 2.
- Areas indirectly affected by the project, including access roads and an approximately 200-foot buffer off all Project Areas.

3.2 Project Area

This section describes the components and methods typically used for constructing and installing telecommunication systems as it relates to this Project. The primary construction activities and areas of potential impact will be confined to existing access roads, spur roads, structure locations, and stringing sites. Temporary construction activities will also take place at pulling sites. Details on structures and line components described are based on final engineering; identification of field conditions; availability of labor, material, and equipment; and environmental and permitting requirements. Approximate locations of the project components are illustrated in Exhibit 3, *Project Components*.

3.2.1 SEGMENT 1

3.2.1.2 ADSS Installation on Poles

Overhead ADSS stringing will include all activities associated with the installation of cables onto cross arms on existing wood pole structures. Vibration dampeners and suspension and dead-end hardware assemblies will be installed. Light disturbance (primarily overland vehicle travel and equipment staging) will occur within an approximately 20-foot radius around each pole, depending upon topography and location. Poles for Segment 1 are adjacent to Route 66 and no impacts are anticipated during ADSS installation.

3.2.1.3 Cable Pulling and Splicing

ADSS stringing includes all activities associated with the installation of cables onto the overhead wood pole structures. Although stringing fiber is typically accomplished from trucks and equipment parked on existing access roads and work areas, some pulling site locations may be required in previously undisturbed areas, and fiber optic cable may affect existing vegetation during installation. Typically, fiber optic cable pulling sites occur every 6,000 feet to 10,000 feet and at each line direction change on both flat and mountainous terrain. Fiber optic cable splices are required at the beginning and end of each cable pull. The dimensions of the area needed for stringing set-ups varies depending upon the terrain; however, a typical stringing set-up is 40 feet by 60 feet. Where necessary due to suitable space limitations, crews can work from within a substantially smaller area. SCE anticipates being able to complete most pulling and splicing from existing roads.

3.2.1.4 ADSS Installation Crossing Dry Washes

A standard cable installation for crossing of a dry wash will include a four-person crew. The activities will include guard sites on the existing poles adjacent to either side of the dry wash; the installation of vibration dampeners, suspension, and dead-end hardware assemblies; stringing sheaves (rollers or travelers); and attachment of 3/8-inch nylon rope. At the wood pole adjacent to the dry wash, the rope is placed through the roller which is attached to the wood cable arm and down the pole, a crew person walks through the existing dry wash with the rope to the other adjacent pole across the wash and installs this rope through the roller on the pole. This rope will be connected to the existing rope which has been placed during the framing process. Crew members stage themselves at the selected points on either end of the "Pull" and communicate with each other via two-way radios to start pulling cable with the installed 3/8-inch rope which is installed on cable pulling equipment at the designated staged areas.

If there is an existing bridge spanning a dry wash where the cable proposed to be installed underground, the cable will instead be attached to the bridge over the wash and no ground disturbance will occur within the wash itself.

3.2.1.5 ADSS Installation in Underground Systems

ADSS installation in new underground conduit and underground structures uses a high-density polyethylene smoothwall innerduct which provides protection and identification for the cable. The fiber optic cable will be installed in and throughout the length of the underground conduit structure (5-inch polyvinyl chloride [PVC]) and underground manhole structures (4-foot width by 4-foot length by 6-foot depth). Nine new manhole structures will be installed within the road shoulder of Route 66 to provide access to the underground cable. The cable will surface at the Pisgah Substation through an existing manhole. The trench for the underground conduit will be approximately 18 inches wide and 36 inches deep.

3.2.1 SEGMENT 2

3.2.1.2 Wood Pole Replacement or Installation

Distribution line poles will be replaced or interset poles will be installed if the pole does not meet wind load or ground clearance requirements with the addition of fiber cable. An approximate 30-foot by 40-foot work area is required for the work. A hole about 8 feet in depth will be drilled next to the existing pole, and a new pole will be erected. A conductor will be transferred from the existing pole to the new pole and the old pole will be cut or removed.

3.2.1.3 ADSS Installation on Poles

Installation of overhead ADSS fiber optic cable typically required pulling sites that occur every 10,000 feet to 20,000 feet over flat or mountainous terrain. Fiber optic cable splices are required at the ends of each cable pull. Fiber optic cable pulling sites are selected, where possible, based on availability of pulling equipment and designated dead-end structures at the ends of each pull, geometry of the line as affected by points of inflection, terrain, and suitability of fiber optic cable stringing and splicing equipment set ups. The dimensions of the area needed for stringing set ups varies depending upon the terrain; however, a typical stringing set up is 40 feet by 60 feet. Where necessary due to space limitations, crews can work from within a smaller area.

3.2.1.4 OPGW Installation on Towers

OPGW will be installed on the existing transmission lattice steel towers (LSTs). On the last tower at each end of a transmission line, the overhead fiber is spliced to another section of fiber cable that runs in underground conduit from the splice box into the communication room inside the adjacent substation. To support OPGW installation, tower modifications would be required, including tower retrofitting at M141-T3.

3.2.1.5 Cable Pulling and Splicing

Stringing includes all activities associated with the installation of the OPGW conductor onto the existing LSTs, including the installation of suspension and dead-end hardware assemblies. The dimensions of the area needed for the stringing setups associated with conductor installation will vary depending on structure height and terrain, but should not extend beyond the limits of the ROW and approved temporary construction areas. Vegetation may be removed where necessary to safely access the site and position the stringing equipment. The puller, tensioner, and splicing setup locations require level areas to allow for maneuvering of the equipment. When possible, existing level areas and existing roads will be used to minimize the need for grading and cleanup. The preferred areas needed for pulling, tensioning, and splicing equipment set-up sites are:

- 200 by 150 feet for tensioning equipment;
- 200 by 150 feet for pulling equipment; and
- 100 by 100 feet for splicing equipment.

Pulling and splicing equipment must be located at a ratio of 3:1 from structures, meaning that if the structure is 100 feet tall, equipment can be no closer than 300 feet to the structure. A typical structure on Segment 2 will be 150 feet tall so the work area will have to accommodate equipment 450 feet away from the structure.

3.2.1.6 OFNR Installation in Conduit

The OFNR cable will be installed between both ends of the tower structure splice box via riser conduit, manhole, and underground conduit. The 500 kV towers at both side of crossing will have a 5-inch riser conduit installed from the splice box to an underground manhole (4 feet by 4 feet by 6 feet) adjacent to the tower. Underground conduit will be installed to connect both tower end manholes. A trench, roughly 4 feet deep and 2 feet wide, will be dug from one tower structure to the other tower structure under the crossing area. Two 5-inch conduits will be placed inside the trench. A layer of slurry will be poured over the conduit for additional protection, and the excavated soils will be used to backfill the trench. Additional manholes will be installed if the underground path is longer than 1,000 feet or the underground path has angled section that will cause damage to fiber cable if directly pulled through. To install a precast manhole, a hole of approximately 5 feet by 5 feet by 6 feet will be excavated, the manhole will be lowered into place connected to the conduit, and then backfilled with excavated soil and compacted. A ground wire will be installed in the second conduit and connected to the structure's tower leg at both ends of crossing. An approximate 40 by 60 feet of work area will be required for pull and splice equipment, and a four-person crew will be required for the underground cable installation.

OFNR will be pulled from the substation Mechanical Electrical Equipment Room (MEER) through the substation trench/conduit and the last structure interface buried conduit and riser conduit to the splice box on the structure.

3.3 Construction Yards and Helicopter Landing Zone Locations

The crews would use portions of the existing, developed Daggett Construction Yard (181 acres) and Gale and Pisgah Substations (1 and 1.6 acres, respectively) as construction storage areas for all material for the proposed fiber optic cable. Material would be placed inside the perimeter of the fenced substations in designated areas during construction. All construction debris would be placed in appropriate onsite containers and periodically disposed of in accordance with all applicable local jurisdiction regulations.

It is anticipated that helicopters would be able to take off and land at all construction yards to move materials and crew members to the multiple work sites along the ROW. Each yard will be used as a reporting location for workers, vehicle and equipment parking, and material storage. The yards will have offices for supervisory and administrative personnel. Maintenance of construction equipment will be conducted at these yards.

Construction yards will range between 1 and 181 acres, depending on land availability and intended use. Temporary electrical and telephone connections at the construction yards would be arranged with local electrical and communication service providers, if available. Water would be provided by local vendors. During the peak construction period, approximately 30 private commuting vehicles and the construction vehicles/equipment will be parked at the construction yards. Crews will load materials onto work trucks and drive to the current construction location. At the end of each day, crews will return to the yard in their work vehicles and depart in their private vehicles. Final location of helicopter staging areas for Segment 2 will be determined with the input from the helicopter contractor and affected private landowners and land management agencies.

During stringing activities, preliminary helicopter operations/staging will be at construction yards, and on previously disturbed areas adjacent to construction areas (including existing ROW and spur roads). At night and during non-working days the helicopter(s) would be based at Hesperia Airport, Barstow-Daggett (DAG) Airport, Baker Airport, and Jean Airport and staged at the construction yards (including the Daggett Construction Yard and Nipton Construction Yard). Helicopter fueling will occur at staging areas, local airports, or landing zones determined during final engineering. Fueling will use the helicopter contractor's fuel truck, and will be supervised by the helicopter fuel service provider.

3.4 Additional Components

3.4.1 ACCESS ROADS

Access to facilities would use surface streets and existing unimproved (dirt) and two-track roads to the greatest extent possible. In locations where access roads are not available, trucks would travel overland to reach the poles. Creation of new access routes is not anticipated for Segment 1 construction.

Most of the poles and underground areas in the Segment 1 are immediately adjacent to Route 66. Where the existing distribution line is offset from the highway, existing service access or overland travel would be utilized to reach each pole for the installation of hardware and ADSS cable. At the conclusion of construction, all roads used for construction purposes would be left in a condition similar to existing conditions prior to the start of construction.

Installation of OPGW on existing transmission line structures will require access to each structure site for construction crews, materials, and equipment. Existing access roads will be used to the extent feasible for construction of the project; where needed, these roads will be improved to allow the safe use of construction equipment. In locations where access roads are not available, trucks would travel overland to reach the poles.

At the end of project construction, all roads utilized for construction purposes would be left in a condition similar as the condition that existed prior to the start of construction. Loose rock and slide material would be removed, as possible, from existing roads and used to construct road dikes, fill washouts, or flatten fill slopes. All washouts, ruts, and irregularities within the construction area would be filled or removed.

3.4.2 SUBSTATIONS

Cima 220/16 kV Substation

The existing Cima Substation is located on SCE-owned land approximately 15 miles south of Interstate (I-) 15, in the town of Cima, California. New telecommunication equipment will be installed in the existing communication room. No ground disturbance is required for this scope of work. *SCE is not seeking authorization for this portion of the Project; it is for informational purposes only.*

Pisgah 220 kV Substation

The existing Pisgah Substation is located on BLM land approximately 13 miles northwest of Ludlow, California. New telecommunication equipment will be installed in a new communication room. No ground disturbance is required for this scope of work. *SCE is not seeking authorization for this portion of the Project; it is for informational purposes only.*

3.5 Desert Tortoise Conservation Measures

All conservation measures outlined in Section 7 of this document will be implemented within the Action Area. USFWS-approved Authorized Biologist(s) and Desert Tortoise Monitor(s) will be present during all proposed construction activities to oversee the effective implementation of conservation measures to protect the tortoise.

3.6 Post Construction Activities

To the extent feasible, SCE will minimize temporary impacts and permanent loss to sensitive natural vegetation communities and special-status plants. Impacts will be minimized at construction sites by clearly demarcating work areas and flagging resources to be avoided. If unable to avoid impacts to sensitive natural vegetation communities and special-status plants, a revegetation plan would be prepared in coordination with the applicable agencies. The revegetation plan would describe, at a minimum, which vegetation restoration method (e.g., natural revegetation, planting, or reseeding with native seed stock in compliance with the Proposed Project's Storm Water Pollution Prevention Plans [SWPPPs]) would be implemented in the Project area. The revegetation plan would also include the plant species or habitats to be restored or revegetated, the replacement or restoration ratios (as appropriate), the restoration methods and techniques, and the monitoring periods and success criteria.

The following tables list the disturbance areas for the construction of the Project.

TABLE 1: DISTURBANCE TABLE TO DESERT TORTOISE HABITAT– SEGMENTS 1 AND 2

Project Feature	Estimated Acres Disturbed During Construction	Estimated Acres to be Restored	Estimated Acres Permanently Disturbed
Segment 1			
BLM, State, and Private Lands			
Anchor	0.00	0.00	0.00
ADSS Stringing Setup Area	0.57	0.57	0.00
Structure Work Area	1.12	1.12	0.00
Trench Installation	0.00	0.00	0.00
Sub-total Estimated	*1.69*	*1.69*	*0.00*
Total Estimated Segment 1	**1.69**	**1.69**	**0.00**

Project Feature	Estimated Acres Disturbed During Construction	Estimated Acres to be Restored	Estimated Acres Permanently Disturbed
Segment 2			
BLM, State, and Private Lands			
Guard Pole	2.14	2.14	0.00
OPGW Stringing Setup Area	12.70	12.70	0.00
Trench Installation (Fiber)	0.52	0.00	0.52
Helicopter Site	0.00	0.00	0.00
General Disturbance Area	0.61	0.61	0.00
Structure Work Area	0.14	0.14	0.00
Sub-total Estimated	*16.11*	*15.59*	*0.52*
MNP			

Guard Pole	0.40	0.40	0.00
OPGW Pulling / Stringing / Tensioning	12.17	12.17	0.00
Helicopter Site	0.00	0.00	0.00
General Disturbance Areas	0.67	0.67	0.00
Operations and Maintenance	0.17	0.00	0.17
Sub-total Estimated	*13.41*	*13.24*	*0.17*
Total Estimated Segment 2	**29.52**	**28.83**	**0.69**
Total Estimated Segments 1 and 2	**31.21**	**30.52**	**0.69**

4.0 BIOLOGICAL SETTING OF THE ACTION AREA

4.1 Vegetation Communities / Land Cover Types and Flora

Twenty-six (26) vegetation communities/land cover types, including eight (8) sensitive vegetation communities and 18 non-sensitive vegetation communities/land cover types, were previously identified and mapped during separate habitat and resource assessment surveys (Exhibit 3, *Project Components*). A list of the vegetation communities and their California Natural Community Codes are presented in Table 2. Descriptions of the communities can be found in the Manual of California Vegetation, 2nd Edition (Sawyer et al. 2009).

TABLE 2: VEGETATION COMMUNITY / LAND COVER TYPE

Vegetation Community / Land Cover Type[1]
Sensitive Vegetation Communities
Chilopsis linearis - Psorothamnus spinosus (Desert willow – smoketree wash woodland) Woodland Alliance G4 / S3
Dicoria canescens – Abronia villosa – Panicum urvilleanum (Mojave-Sonoran desert dunes) Sparsely Vegetated Alliance G4 / S3.2
Ericameria paniculata (Black-stem rabbitbrush scrub) Shrubland Alliance G4 / S3
Pleuraphis rigida (Big galleta shrub-steppe) Herbaceous Alliance G3 / S2.2
Prosopis glandulosa - Prosopis velutina - Prosopis pubescens (Mesquite thickets) Shrubland Alliance G5 / S3
Rhus trilobata – Crataegus rivularis – Forestiera pubescens (Basket brush – river hawthorn – desert olive patches) Shrubland Alliance G4 / S3.2
Suaeda moquinii (Bush seepweed scrub) Shrubland Alliance G4 / S3
Yucca brevifolia (Joshua tree woodland) Woodland Alliance G4 / S3.2
Non-sensitive Vegetation Communities
Ambrosia dumosa (White bursage scrub) Shrubland Alliance G5 / S5
Ambrosia salsola – Bebbia juncea (Cheesebush – sweetbush scrub) Shrubland Alliance G4 / S4
Atriplex canescens (Fourwing saltbush scrub) Shrubland Alliance G5 / S4
Atriplex confertifolia (Shadescale scrub) Shrubland Alliance G5 / S4.2
Atriplex hymenelytra (Desert holly scrub) Shrubland Alliance G5 / S4
Atriplex polycarpa (Allscale scrub) Shrubland Alliance G4 / S4
Bromus (*diandrus, hordeaceus*) – *Brachypodium distachyon* (Annual brome grasslands) Semi-Natural Alliance Non-Native / Invasive
Bromus rubens – Schismus (*arabicus, barbatus*) (Red brome or Mediterranean grass grasslands) Herbaceous Semi-Natural Stands Non-Native / Invasive
*Encelia farinosa (*Brittle bush scrub) Shrubland Alliance G5 / S4
Ephedra nevadensis - Lycium andersonii - Grayia spinosa (Nevada joint fir - Anderson's boxthorn - spiny hop sage scrub) Shrubland Alliance G5 / S4
Larrea tridentata (Creosote bush scrub) Shrubland Alliance G5 / S5
Larrea tridentata – Ambrosia dumosa (Creosote bush – white burr sage scrub) Shrubland Alliance G5 / S5
Prunus fasciculata - Salazaria mexicana (Desert almond - Mexican bladdersage) scrub G4 / S4
Senegalia greggii – Hyptis emoryi – Justicia californica (Catclaw acacia – desert lavender – chuparosa scrub) Shrubland Alliance G4 / S4
Tamarix spp. (Tamarisk thickets) Shrubland Semi-Natural Alliance Non-Native / Invasive
Yucca schidigera (Mojave yucca scrub) Shrubland Alliance G4 / S4
Land Cover Types
Barren – Not Developed
Developed

[1] Rankings follow CDFW's List of California Terrestrial Natural Communities (2018) and utilize NatureServe conservation status ranks. Under this system, status is assessed and documented at the global (G) and state/province (S) scales from critically imperiled (1) to demonstrable secure (5). A question mark denotes an inexact numeric rank. All vegetation types with a global or state rank of 3 or less is considered sensitive.

Barren-Not Developed

Barren/undeveloped 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.

4.2 Topography

For most of its alignment, Segment 1 is within an existing distribution line right of way adjacent existing transportation routes including Route 66, I-40, and train tracks. The area is characterized by open space public lands (BLM, DOD, and SLC), scattered residential development and commercial buildings, and utility corridors. Traffic on I-40 and trains on Burlington Northern Santa Fe (BNSF) Railway tracks, can be seen from the alignment, which is parallel to I-40 and the BNSF Railway along most of the alignment. Desert vegetation is sparse and trees are rare or completely absent. East of Newberry Springs, the alignment crosses Troy Lake, a dessert playa that is a sandy expanse with almost no vegetation. Further east, the alignment goes through a volcanic area where remains of dark dried lava can be observed from Route 66. The topography along the distribution line between the Gale and Pisgah Substations is mostly flat with gently, rolling hills ranging in elevation from approximately 1,800 to 2,100 feet above mean sea level (amsl).

Land use along Segment 2 is primarily undisturbed desert scrub habitat and sparsely-developed area characterized by scattered occupied and abandoned residences and commercial development, open space lands, and utility corridors. Topography consists of valleys, flats, alluvial fans, bajadas, rolling hills, and rocky slopes within the Proposed Project boundaries with elevations ranging from approximately 1,100 to 4,600 feet amsl. The Segment 2 alignment crosses lands owned by BLM, DOD, NPS - MNP, SLC, and private landowners.

5.0 SPECIES AND CRITICAL HABITAT POTENTIALLY AFFECTED BY PROPOSED ACTION

The analysis of existing biological data included examination of publicly available Geographic Information Systems (GIS) databases. Primary among these is a federal species occurrence database maintained by the Carlsbad Fish and Wildlife Office (CFWO 2016) and the California Natural Diversity Database (CNDDB) maintained by the California Department of Fish and Wildlife (CDFW 2016). Environmental Intelligence, LLC (EI) also mapped the relationship of the Action Area to existing Critical Habitat units (Exhibit 2, *Desert Tortoise Conservation Areas*).

No federally threatened or endangered plant species have the potential to occur along the Action Area. Searches for rare plants included records searches of USFWS and CNDDB data within the Minneola, Newberry Springs, Troy Lake, 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 USGS 7.5 minute quadrangles centered on the Action Area. The record searches also included the two material/laydown yards located in Minneola, Yermo and Nipton USGS quadrangles. Focused surveys for endangered plant species were not conducted based on the results of the literature search.

One federally listed wildlife species (the desert tortoise) has been detected within Segment 2 of the Action Area during focused surveys. The Project Action Area crosses portions of USFWS Recovery Units for desert tortoise. The Project crosses the Western Mojave and Eastern Mojave Recovery Units, and the Ord-Rodman and Ivanpah Critical Habitat Units.

5.1 Desert Tortoise Life History

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 are herbivores and eat numerous plant species, showing preference for native forbs and avoiding introduced exotics such as mustards (*Brassica* spp.), filaree (*Erodium* spp.), and Arabian grass (*Schismus* spp.; Van Devender et al. 2002). Tortoises are most active in spring following emergence from hibernation. Females also lay eggs in the spring when food sources are most abundant. 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 seven (7) to 12 burrows at any given time. Multiple tortoises are also known to occasionally share a single burrow (Bulova 1994).

The home range of the desert tortoise varies between sex. A 2001 study in the Ivanpah CHU found that female tortoises home range was generally between 18 and 9 hectares (44.4-22.2 acres). Male desert tortoise home ranges were larger, averaging 46-24 hectares (113-59 acres). In the West Mojave Desert, home ranges for females were estimated at 40 acres while males were estimated at 111 acres (Harless et al. 2009). In wetter years these ranges were expanded in both sexes (Franks et al. 2011).

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 (USFWS 2011).

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 relatively characterized by 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 in the Colorado Desert Recovery Unit than in other recovery units, with very few freezing days per year (USFWS 2011).

5.2 Desert Tortoise Listing Status/History

The Mojave population of the desert tortoise was listed as threatened by the CDFW on August 3, 1989 (CDFW 2019) 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. 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, invasion of exotic grasses and forbs, predation by an increasing common raven (*Corvus corax*) population, illegal collecting (poaching), 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.

Critical habitat for the desert tortoise was designated in 1994 (USFWS 1994b). Under the 1994 rule, and in the updated 2011 recovery plan, the Primary Constituent Elements (PCEs) essential to the conservation of the desert tortoise are those physical and biological habitat features that support nesting, foraging, sheltering, dispersal, and/or gene flow. The specific PCEs include:

1) Sufficient space to support viable populations within each of the six recovery units and provide for movements, dispersal, and gene flow;
2) Sufficient quantity and quality of forage species and the proper soil conditions to provide for growth of such species;
3) Suitable substrates for burrowing, nesting, and overwintering;
4) Burrows, caliche caves, and other shelter sites;
5) Sufficient vegetation for shelter from temperature extremes and predators; and
6) Habitat protected from disturbance and human-caused mortality.

The Critical Habitat boundaries are based on the Recovery Plan DWMAs. The designated Critical Habitat encompasses a large area in the Mojave and Colorado Deserts that contains both suitable habitat containing PCEs and also areas that may be unsuitable for the desert tortoise. The final rule designated 12 areas totaling 6.4 million acres, with California containing 4.8 million acres over eight CHUs. The Project is located within the Ord-Rodman and Ivanpah Valley CHUs. The Ord-Rodman CHU consists of 253,200 acres within the Western Mojave Recovery Unit and the Ivanpah Valley CHU consists of 632,400 acres within the Eastern Mojave Recovery Unit of the Recovery Plan.

5.3 Desert Tortoise Conservation Areas

Desert tortoise conservation areas include desert tortoise habitat within Critical Habitat, DWMAs, Areas of Critical Environmental Concern (ACEC), Desert National Wildlife Refuge, NPS lands, 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 Ord-Rodman CHU within the Western Mojave Recovery Unit and the Ivanpah Valley CHU within the Mojave National Preserve (Exhibit 2, *Desert Tortoise Conservation Areas*).

5.4 Desert Tortoise Populations in the Action Area

5.4.1 Recovery Unit Population Estimates

Desert tortoise population densities in the region have been declining since at least 1980. The Mojave National Preserve includes the Goffs Permanent Study Plot (a one square mile plot in southeastern Mojave National Preserve), established in 1977 and sampled for tortoises through 2000 (Berry 2000). Population density estimates across all size classes declined from 440 tortoises per square mile (95 percent confidence interval: 370-522) in 1980 to 88 tortoises per square mile (95 percent confidence interval: 34-230) in 2000; sub-adult and adult size class declined from 195 tortoises per square mile (95 percent confidence interval: 162-234) in 1980 to 18 tortoises per square mile (95 percent confidence interval: 6-54) in 2000 (USFWS 2011). The 2011 Recovery Plan estimated adult/sub-adult densities (per square mile) based on research from 2007 (McLuckie et al. 2007). The Recovery Plan estimated 12.2 per square mile in the Western Mojave Recovery Unit and 12.9 per square mile in the Eastern Mojave Recovery Unit. Additionally, while not crossed by the Project, the Northern Colorado Recovery Unit, located 10-20 miles southeast of the Project, estimated adult/sub-adult densities were 12.2 per square mile (USFWS 2011).

5.4.2 Project Surveys

Desert tortoise focused USFWS protocol surveys were conducted by qualified biologists for Segment 1 on May 18-19 and May 22-24, 2017 and for Segment 2 on October 10-15, 17-22 & 24-26, 2016 and May 4-5 2019. The surveys were conducted in accordance with the 2010 Field Season Survey Protocol (USFWS 2010). Species observations, burrows, and sign were all recorded and classified using the 2010 Field Season Survey Protocol. Ten-meter belt transects were utilized to survey 100 percent of the proposed disturbance areas as well as a 200-foot buffer.

5.4.2.1 Survey Results

No desert tortoises or sign were identified on Segment 1 during the 2017 protocol surveys and 13 live desert tortoises were observed on Segment 2 during the 2016 and 2019 protocol surveys (Table 3). The thirteen (13) live tortoises observed on Segment 2 included ten (10) adult/sub-adult tortoises with a maximum carapace length (MCL) greater than 160 mm and one (1) juvenile tortoise with a MCL less than or equal to 160 mm; 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 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).

In addition to live tortoises, other signs observed on Segment 2 included 215 tortoise burrows, 28 burrows with tortoise tracks, 185 pallet burrows, seven (7) pallet burrows with tortoise tracks, 140 tortoise scat, 35 tortoise carcasses, and five (5) locations with tortoise eggshell fragments (Table 3; Exhibit 4, *Desert Tortoise Survey Results*).

TABLE 3. DESERT TORTOISE SIGN OBSERVED

Segment 1							
Sign Type	**Class[1]**						**Totals**
	1	**2**	**3**	**4**	**5**	**Unclassified**	
Live Desert Tortoises	0	0	0	0	0	0	0
Burrows	0	0	0	0	0	0	0
Burrows with Tracks	0	0	0	0	0	0	0
Pallet Burrows	N/A						0
Pallet Burrows with Tracks	N/A						0
Scat	N/A						0
Tracks not associated with burrow	N/A						0
Carcasses/Shell Remains	0	0	0	0	0	0	0
Drinking Depressions with Tracks	N/A						0
Locations with Eggshell Fragments	N/A						0
Segment 2							
Sign Type	**Class[1]**						**Totals**
	1	**2**	**3**	**4**	**5**	**Unclassified**	
Live Desert Tortoises	8	2	1	0	0	2	13
Burrows	11	53	97	1	53	0	215
Burrows with Tracks	5	21	2	0	0	0	28
Pallet Burrows	N/A						185
Pallet Burrows with Tracks	N/A						7
Scat	N/A						140
Tracks not associated with burrow	N/A						0
Carcasses/Shell Remains	0	1	3	1	30	0	35
Drinking Depressions with Tracks	N/A						0
Locations with Eggshell Fragments	N/A						5

[1] Desert Tortoise Sign Classification (*sensu* USFWS 2010):

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 – Good condition (possibly tortoise)
Class 5 – Deteriorated condition (possibly tortoise)

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

5.4.2.2 Survey Estimated Desert Tortoise Population Size and Density

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 40 mm (~1.57 inches) of rainfall was recorded during the preceding winter months, the Pa is assigned a value of 0.64 percent with a variance of 0.08 percent. If greater than 40 mm (~1.57 inches) of rainfall was recorded during the preceding winter months, the Pa is assigned a value of 0.80 percent with a variance of 0.05 percent (USFWS 2010).

Segment 1

Within the Segment 1 alignment, the proposed Action Areas are directly adjacent to Route 66, railroad lines, and I-40. Habitat fragmentation resulting from roads and railroad tracks can greatly inhibit desert tortoise movements (Edwards *et al*. 2004), which has likely depressed desert tortoise populations within Segment 1. Desert tortoise populations may be depressed in a zone of at least 0.25 miles from roadways (Boarman and Sazaki 2006), and the amount of tortoise sign is consistently lower near paved roads (Hoff and Marlow 2002). During 2017 focused surveys along Segment 1, no desert tortoise live individuals or sign were identified. As such, desert tortoise is presumed to be extirpated from the majority of the alignment.

Segment 2

Using the calculations provided in the 2010 Field Season Protocol (USFWS 2010), desert tortoise abundance and confidence interval as well as densities were estimated for Segment 2. Due to the difference in annual rainfall across the Project, the Action Area was split into two sections based on the Recovery Unit boundaries. Precipitation preceding the surveys was less than 40 mm in the Western Mojave Recovery Unit and above 40 mm in the Eastern Recovery Unit.

In the Western Mojave Recovery Unit, four (4) adult/sub-adult desert tortoises were observed (Exhibit 4). Precipitation for the previous winter months (and summer months) was less than 40 mm (~1.57 inches), so the Pa was assigned a value of 0.64 percent with a variance of 0.08 percent. The estimated number of adult/sub-adult tortoises within the Action Area contained within the Western Mojave Recovery Unit is 8.9 (95 percent confidence interval is 2.7 – 28.8). 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, all within the Ivanpah CHU (Exhibit 2). Precipitation for the previous winter months (and summer months) was greater than 40 mm (~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 within the Action Area contained within the Eastern Mojave Recovery Unit is 14.5 (95 percent confidence interval is 6.1 – 34.6) tortoises. The population density is approximately 17.5 adult/sub-adult tortoises per square mile.

6.0 POTENTIAL EFFECTS OF THE PROPOSED ACTION

Two categories of impacts, direct and indirect, are considered here. Direct impacts are those caused by the proposed action that occur at the same time and place as the action. Thus, direct impacts are the primary effects of the proposed action. Direct impacts from proposed construction, operation, and maintenance may result from surface disturbance at pulling and splicing locations, and at other construction site locations including staging areas. Indirect impacts are those impacts caused by the proposed action but which occur later in time or are farther removed in distance. Indirect impacts are considered secondary effects and may include urban development and other impacts related to changes in the pattern of land use, human population density or growth rate, and related impacts on air, water, and other natural systems, including ecosystems. The duration of direct and indirect effects may be temporary and short-term or extended and long-term. The impacts discussed in this chapter include surface-disturbing effects and construction activities associated with the Project. Proposed mitigation measures were designed to reduce Project impacts and include avoidance and minimization activities during pre-construction, construction, and post-construction periods discussed in Section 7. With implementation of these conservation measures, the Project m*ay affect, but is unlikely to adversely affect the desert tortoise*.

6.1 Direct Effects

Direct effects are those that are caused by the Project and occur at the same time and place. The direct effects of the Proposed Action are the removal or disturbance of approximately 31.21 acres of desert tortoise habitat with construction of all project components. Actual construction impacts to desert tortoise habitat is expected to be less than 31.21 acres as specific work areas are refined during final engineering and construction. Potential direct effects to the desert tortoise could include:

- Tortoises could be harmed during clearing and grubbing of vegetation and trenching activities.
- Tortoises could become entrapped within open trenches and pipes.
- Tortoises could be disturbed (e.g., by noise and vibration) or even killed by vehicles or heavy equipment, whether on the Project site or from vehicles straying from existing roads or designated areas into adjacent habitat. The potential for the most severe impacts is along paved roads where vehicle frequency and speed is greatest, though tortoises on dirt roads could also be affected.
- Materials and equipment left behind following construction and maintenance activities that could entrap or entangle tortoises, or provide shelter for tortoises and, when materials and equipment are removed, could result in displacement or injury of the tortoise.
- Tortoises could become crushed or entombed in their burrows during construction.
- Tortoises could be collected or vandalized by Project personnel.
- Tortoises could be injured or killed by visitors' pets.

Direct impact to tortoise will be minimized to the greatest extent possible. Direct disturbance to tortoises may cause mortality, reduced plant food availability and vegetation shelter, lowered reproductive success, abandonment of nesting areas, and increased stress. Direct effects will be minimized to the greatest extent possible through the implementation of Conservation Measures as discussed in Section 7 (Conservation Measures) of this BA. Potential tortoise mortality from vehicle and equipment strikes, entrapment, impacts to potentially occupied burrows, and other similar direct effects can be avoided through proposed Conservation Measures such as environmental training, reduced speed limits, monitoring by qualified tortoise biologists, limiting the size and extent of the work area, fencing open trenches, and flagging all potentially active burrows for avoidance. Temporary removal of forage plants and vegetation cover/shelter within the 31.21 acres potentially disturbed is expected to be less than significant as the Project will only disturb vegetation within small areas scattered along the ROW. Each proposed disturbance area will only be a small portion of the home range of each tortoise.

Based on the population density estimates provided in Section 5.4, approximately 23 desert tortoises should occur within the Action Area along Segment 2 only; no desert tortoises are expected to occur along Segment

1. Female tortoise's home range vary and are generally between 18 and 9 hectares (44.4-22.2 acres) and male tortoise's home range are typically significantly larger. Impacts to each tortoise's home range will be diminished due to the linear nature and minimal disturbance of the Project; the impacts are spread across the alignment at 29 distinct locations and have an average temporary impact of approximately 1-acre. The maximum impact at a single location is approximately 3.81 acres. Due to the small impact acreage at specific locations, the adverse impacts to each tortoise and its home range may be avoided through implementation of conservation and avoidance/minimization measures.

6.2 Indirect Effects

Indirect effects are those that are caused by, or result from, the Project, but occur later in time and are reasonably certain to occur. Indirect effects can be both spatial and/or temporal in nature. In contrast to direct effects, indirect effects are more subtle, and may affect populations and habitat quality over an extended period of time, long after construction activities have been completed. Indirect effects are of particular concern for long-lived species such as the desert tortoise because project-related effects may not become evident in individuals or populations until years later.

Potential indirect effect may include:

- An increase of weedy plants, especially non-native grasses, in the action area could lead to increase fire frequency in desert habitat leading to habitat degradation and desert tortoise mortality.
- Raven activity in the action area could increase due to the creation of raven subsidies with human presence thereby leading to increased desert tortoise predation.
- Indirect effects could also occur from increased noise, lighting, and dust in areas outside the direct effects area.

Through the implementation of the avoidance, minimization and mitigation measures discussed in Section 7 of this BA, adverse indirect effects shall be avoided by the Project.

6.3 Effects to Mojave Desert Tortoise Critical Habitat

Temporary loss of approximately 9.12 acres of critical habitat for desert tortoise will occur with the construction of the SCE components of the Project (Table 4). Temporary impacts will be restored following Project completion, but for the purposes of this discussion both temporary and permanent impacts are considered an impact to critical habitat due to the slow recovery of temporarily disturbed areas.

TABLE 4. DIRECT IMPACT TO CONSERVATION AREAS

Recovery Unit	Impact to Areas Outside of Critical Habitat Units	Impact to Critical Habitat Units	Total
Eastern Mojave Recovery Unit	11.33	7.43	18.76
Western Mojave Recovery Unit	10.76	1.69	12.45
Total	**22.09**	**9.12**	**31.21**

Project associated impacts to Critical Habitat equates to approximately 1.69 acres (0.0007 percent) of the Ord-Rodman CHU, approximately 7.43 acres (0.001 percent) of the Ivanpah CHU, and approximately 9.12 acres (0.0001 percent) of the 6.4 million acres of total Critical Habitat that has been designated for the Mojave population of the desert tortoise that is included in all CHUs. Impacts from construction will occur in the existing transmission alignment ROW. Because of the relatively small impact to the CHUs in areas with an existing transmission alignment, this impact will not likely appreciably diminish the value of the PCEs essential to the species' conservation in Western Mojave or Eastern Mojave Recovery Unit, and the Ord-Rodman or Ivanpah CHUs. The impact will not likely cause the local population of desert tortoise to become unviable or preclude movement, dispersal, or gene flow within the population. Overall, these impacts will not likely result in significant adverse effects to the species throughout its range.

7.0 CONSERVATION MEASURES

All conservation measures outlined below will be implemented within the Action Area. These measures were adopted from the measures to protect desert tortoises in the Biological Opinion for Activities in the California Desert Conservation Area (USFWS 2017) as approved under the guidance of the DRECP Land Use Plan Amendment (BLM 2016), and are consistent with the Biological Opinion for the General Management Plan of the Mojave National Preserve (USFWS 2001) and the Programmatic Biological Opinion for Bureau of Land Management Activities Adversely Affecting 19 Listed Species and Critical Habitat (Nevada Fish and Wildlife Office 2013). Conservation measures may also be updated based on the forthcoming PBO for the MNP expected in mid-2019. Additional detail of the implementation for the described measures has been provided by SCE. These measures will be implemented during all phases of the Project. Since these measures meet or exceed the measures approved by the USFWS for impacts to desert tortoise habitat within the BOs, the conservation measures outlined below are expected to be sufficient in protecting the desert tortoise and its Critical Habitat within the Action Area.

7.1 Land Use Plan Amendment (LUPA) Measures

7.1.1 LUPA-BIO-5

All activities, as determined appropriate on an activity-by-activity basis, will implement a worker education program that meets the approval of the BLM. The program will be carried out during all phases of the project (site mobilization, ground disturbance, grading, construction, operation, closure/decommissioning or project abandonment, and restoration/reclamation activities). The worker education program will provide interpretation for non-English speaking workers, and provide the same instruction for new workers prior to their working on site. As appropriate based on the activity, the program will contain information about:

- Site-specific biological and nonbiological resources.
- Information on the legal protection for protected resources and penalties for violation of federal and state laws and administrative sanctions for failure to comply with Land Use Plan Amendment (LUPA) Conservation and Management Action (CMA) requirements intended to protect site-specific biological and nonbiological resources.
- The required LUPA and project-specific measures for avoiding and minimizing effects during all project phases, including but not limited to resource setbacks, trash, speed limits, etc.
- Reporting requirements and measures to follow if protected resources are encountered, including potential work stoppage and requirements for notification of the designated biologist.
- Measures that personnel can take to promote the conservation of biological and nonbiological resources.

7.1.2 LUPA-BIO-IFS-9

Vehicular traffic will not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.

7.1.3 LUPA-TRANS-BIO-1

Where feasible and appropriate for resource protection, site transmission activities along roads or other previously disturbed areas will minimize new surface disturbance, reduce perching opportunities for the Common Raven, and minimize collision risks for birds and bats.

7.2 Applicant Proposed Measures

The following applicant proposed measures (APMs) are designed to avoid and minimize impacts to the desert tortoise. The measures are consistent with the DRECP LUPA and would apply to all construction activities in areas with the potential to support desert tortoise.

7.2.1 COMPENSATION FOR IMPACTS TO DESERT TORTOISE CRITICAL HABITAT

Compensation for temporary and permanent impacts to desert tortoise habitat disturbance is proposed at the following ratios:

- A 5-to-1 ratio for impacts to desert tortoise critical habitat.
- A 1-to-1 ratio for impacts to desert tortoise habitat, excluding critical habitat.

No compensatory mitigation is required for disturbed areas (i.e., totally denuded, mostly denuded with scattered shrub-like vegetation, roadside shoulders, active agricultural, residential, and urban) that provide no habitat value to the species. Although much of the desert tortoise habitat disturbance resulting from Project activities would be temporary, compensatory mitigation would be provided at a permanent ratio due to the slow recovery time of habitats in desert ecosystems. No mitigation would occur for impacts to developed land within the Project area.

7.2.2 REVEGETATION PLAN

To the extent feasible, SCE would minimize temporary impacts and permanent loss to sensitive natural vegetation communities and special-status plants. Impacts would be minimized at construction sites by clearly demarcating work areas and flagging resources to be avoided. If unable to avoid impacts to sensitive natural vegetation communities and special-status plants, a revegetation plan would be prepared in coordination with the applicable agencies. The revegetation plan would describe, at a minimum, which vegetation restoration method (e.g., natural revegetation, planting, or reseeding with native seed stock in compliance with the Project's SWPPPs) would be implemented in the Project area. The revegetation plan would also include the plant species or habitats to be restored or revegetated, the replacement or restoration ratios (as appropriate), the restoration methods and techniques, and the monitoring periods and success criteria.

7.2.3 NOXIOUS AND INVASIVE WEED MANAGEMENT PLAN

Prior to construction, SCE would prepare a Noxious and Invasive Weed Management Plan (NIWMP) that is intended to minimize the spread of noxious and invasive weeds during construction. The NIWMP would include, but would not be limited to, ensuring that construction (earth-moving or ground-disturbing) vehicles arrive to work sites clean and weed-free prior to entering the ROW in cross-country areas, ensuring straw wattles used to contain storm water runoff are weed-free, and documenting the extent of noxious weeds within the construction areas prior to construction. Noxious weeds are defined as species rated as High on the California Invasive Plant Inventory Database, published by the California Invasive Plant Council. Construction within urban/developed areas and intensive agricultural areas would be exempt from the NIWMP requirements.

7.2.4 PRE-ACTIVITY SURVEYS

No more than seven (7) days prior to the onset of ground-disturbing activities, an agency-approved biologist (with experience monitoring and handling desert tortoise) would conduct a pre-activity survey in all work areas within potential desert tortoise habitat, plus an approximately 300-foot buffer. All desert tortoise burrows within the pre-activity survey area (including desert tortoise pallet burrows) would be prominently flagged at that time so that they may be avoided during work activities. Proposed actions would avoid disturbing desert tortoise burrows to the extent possible. However, burrows would be excavated if they would be impacted by construction activities. If a potential tortoise burrow must be excavated, the biologist would proceed according to the Desert Tortoise Council's Guidelines for Handling Desert Tortoise during Construction Projects.

7.2.5 MONITORING

The approved tortoise biologist would be available on site to monitor any work areas for desert tortoise, as needed. The approved tortoise biologist would be responsible for performing surveys prior to Project activities in suitable desert tortoise habitat. The approved tortoise biologist would have the authority to halt

all non-emergency actions (as soon as safely possible) that may result in harm to desert tortoise, and would assist in the overall implementation of APMs for the tortoise.

7.2.6 DESERT TORTOISE IN WORK AREA

In the event that a desert tortoise is encountered in the work area, all work would cease and the approved biologist would be contacted. Work would not commence until the animal has voluntarily moved to a safe distance away from the work area. Desert tortoises may be moved by an agency-approved biologist, if necessary, to move them out of harm's way. Encounters with desert tortoise would be reported to an approved biologist. Encounters with desert tortoise would be documented and provided to the CDFW, BLM, and USFWS. In the event that a dead or injured desert tortoise is observed, the approved biologist would be responsible for notifying SCE's herpetologist and reporting the incident to the CDFW, BLM, and USFWS.

7.2.7 UNDER VEHICLE CHECKS

Desert tortoises commonly seek shade during the hottest times of the day. Employees working within the geographic range of this species would be required to check under their equipment or vehicles before they are moved. If desert tortoises are encountered, the vehicle is not to be moved until the animals have voluntarily moved to a safe distance away from the parked vehicle. Desert tortoises may be moved by the approved biologist, if necessary, to move them out of harm's way.

7.2.8 HANDLING DESERT TORTOISE

Only an agency-approved biologist may move or handle desert tortoises. When a desert tortoise is moved, the approved biologist would be responsible for taking appropriate measures to ensure that the animal is not exposed to harmful temperature extremes. The approved biologist would follow the appropriate protocols outlined in the Desert Tortoise Council's Guidelines for Handling Desert Tortoises During Construction Projects when handling desert tortoises or excavating their burrows.

7.2.9 EXCAVATION OF DESERT TORTOISE BURROWS

Should it prove necessary to excavate a desert tortoise from its burrow to move it out of harm's way, excavation would be done using hand tools, either by or under the direct supervision of an approved biologist. Excavation of desert tortoise burrows would occur no more than seven (7) days before the onset of construction or O&M activities. All desert tortoises removed from burrows would be placed in an unoccupied burrow that is approximately the same size as the one from which it was removed. If an existing burrow is unavailable, the approved biologist would construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow. To ensure their safety, desert tortoises moved during inactive periods would be monitored for at least two (2) days after placement in the new burrows or until the end of the construction activity.

If desert tortoises need to be moved at a time of day when ambient temperatures could harm them (i.e., at temperatures lower than 40 degrees Fahrenheit (^{O}F) or higher than 90^{O}F), they would be held overnight in a clean cardboard box. These desert tortoises would be kept in the care of the approved biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes would be appropriately discarded after one (1) use.

7.2.10 DISPOSAL OF TRASH

Trash and food items would be contained in closed containers and removed daily to reduce attractiveness to opportunistic predators, such as common ravens (*Corvus corax*), coyotes (*Canis latrans*), and feral dogs (*Canis lupus familiaris*).

7.2.11 PETS PROHIBITED

Employees would not bring pets to the Project area.

7.2.12 VEHICLE TRAVEL

Motor vehicles would be limited to maintained roads and designated routes. If additional routes are needed, they would be surveyed by the approved biologist.

7.2.13 RAVEN MANAGEMENT

SCE would implement a Raven Management Plan (RMP) to minimize avian predation of desert tortoise for the Project. The purpose of the RMP is to utilize methods that deter raven depredation of juvenile desert tortoises, and other wildlife species. The RMP is not intended to eliminate or control raven populations, but would target offending ravens that have been found to prey upon desert tortoises. The RMP would incorporate an adaptive management strategy for immediate implementation following construction of the Project. The RMP would be evaluated after three years of implementation, or as needed, if avian predation becomes apparent. The following activities may be implemented as part of the RMP: 1) Common raven nest/power line monitoring, 2) Funding of offending raven control via contract with the U.S. Department of Agriculture, and 3) Alternative control strategies developed in coordination with USFWS (e.g., egg-oiling, laser deterrents, etc.). Mutual and timely cooperation between SCE and the BLM, USFWS, and CDFW is central to effective implementation of the RMP.

8.0 CONCLUSION

The Project impacts approximately 31.21 acres of desert tortoise habitat spread across 113 miles of the Project alignment. Less than 4-acres shall be impacted at any given location with an average impact of approximately 1-acre at 29 locations. Due to the small impact acreage at specific locations, the Project may avoid adverse effect to the desert tortoise through implementation of conservation and avoidance/minimization measures, consistent with the adopted measures to protect desert tortoises located in the Biological Opinion for Activities in the California Desert Conservation Area (USFWS 2017) as approved under the guidance of the DRECP Land Use Plan Amendment (BLM 2016), the Biological Opinion for the General Management Plan for the Mojave National Preserve (USFWS 2001), and the Programmatic Biological Opinion for Bureau of Land Management Activities Adversely Affecting 19 Listed Species and Critical Habitat (Nevada Fish and Wildlife Office 2013). With the successful implementation of the various Project design features and avoidance, minimization, and mitigation measures described herein, this BA concludes that the Project *may affect, but is unlikely to adversely affect*, the Mojave population of tortoise. Additionally, the Project *may affect, but is unlikely to adversely affect*, critical habitat of the Mojave population of tortoise.

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Appendix A:

PROJECT EXHIBITS

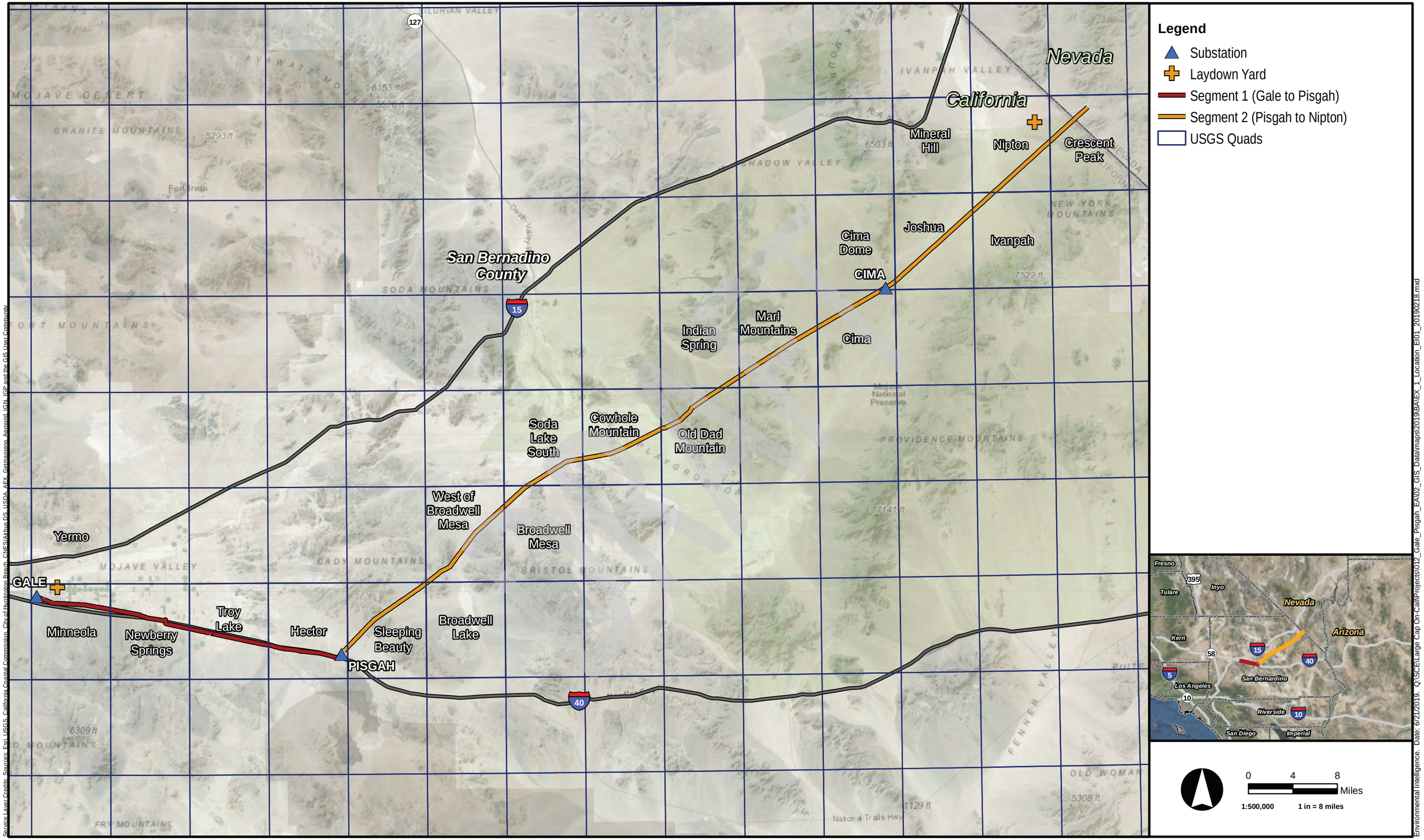

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Exhibit 1. Project Location

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

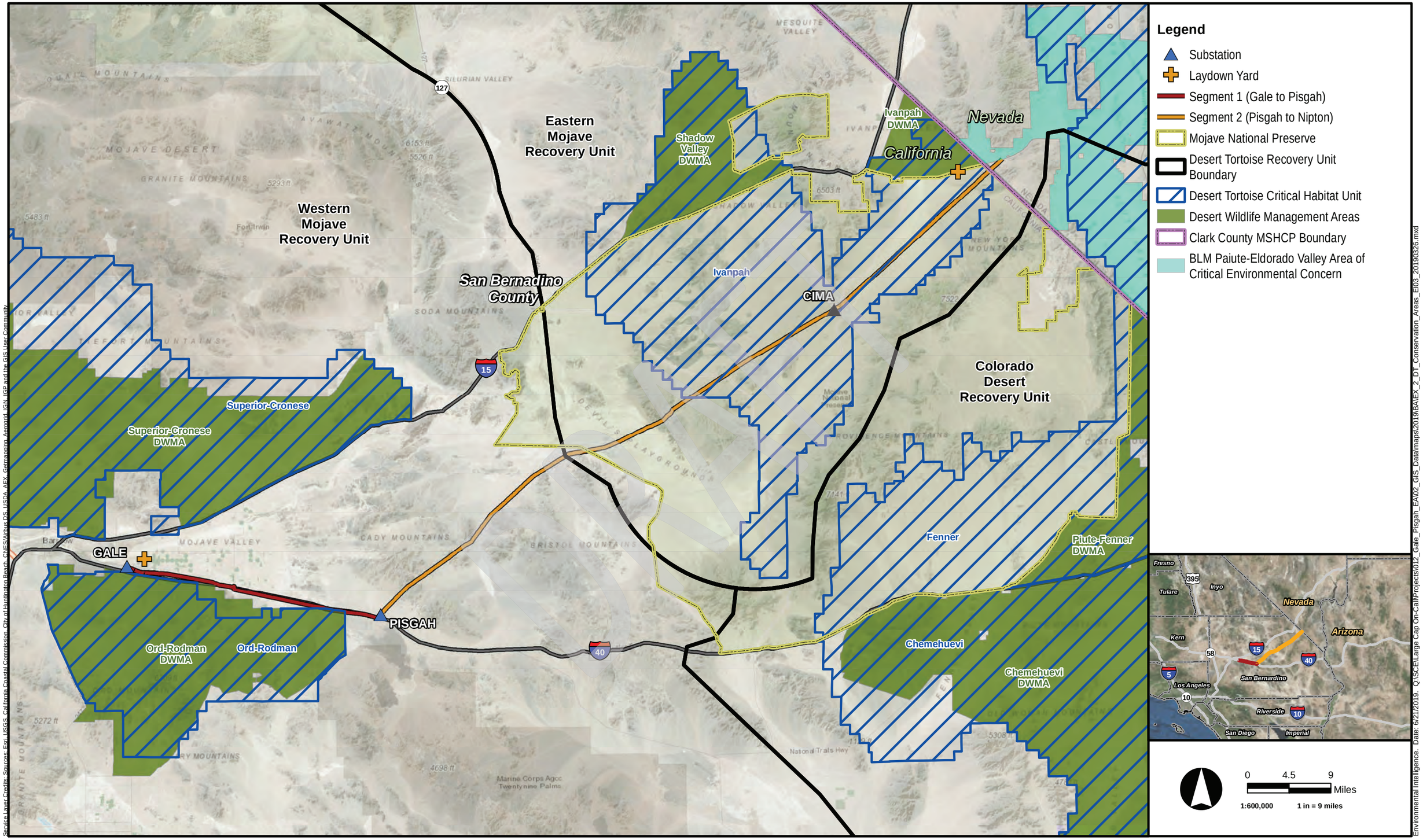

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Exhibit 2. Desert Tortoise Conservation Boundaries

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- New Manhole
- Proposed Manhole
- Proposed Underground
- Substation Boundary
- OPGW Pull Site
- UG Disturbance

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

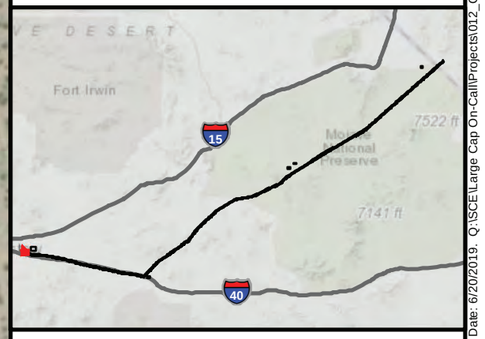

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Exhibit 3. Project Components (Page 1 of 260)

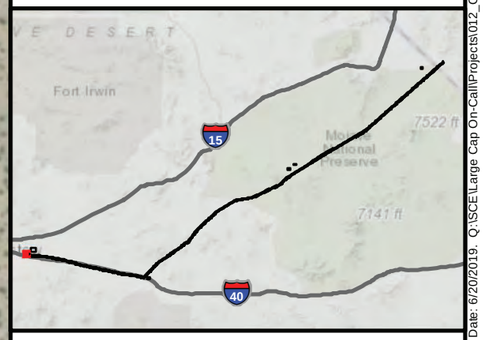
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- New Manhole
- Existing Pole
- Proposed Manhole
- Proposed Overhead ADSS/OFNR
- Proposed Underground
- OPGW Pull Site
- Structure Work Area
- UG Disturbance

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



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Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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Exhibit 3. Project Components (Page 3 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- New Manhole
- Existing Pole
- New Anchor
- Proposed Manhole
- Proposed Overhead ADSS/OFNR
- Proposed Underground
- Install Overhead Span Guy
- Anchor
- OPGW Pull Site
- Structure Work Area
- UG Disturbance

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

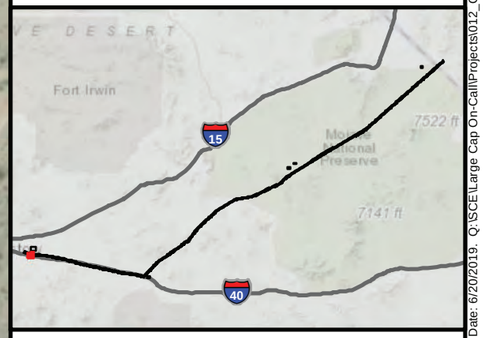

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Exhibit 3. Project Components (Page 4 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

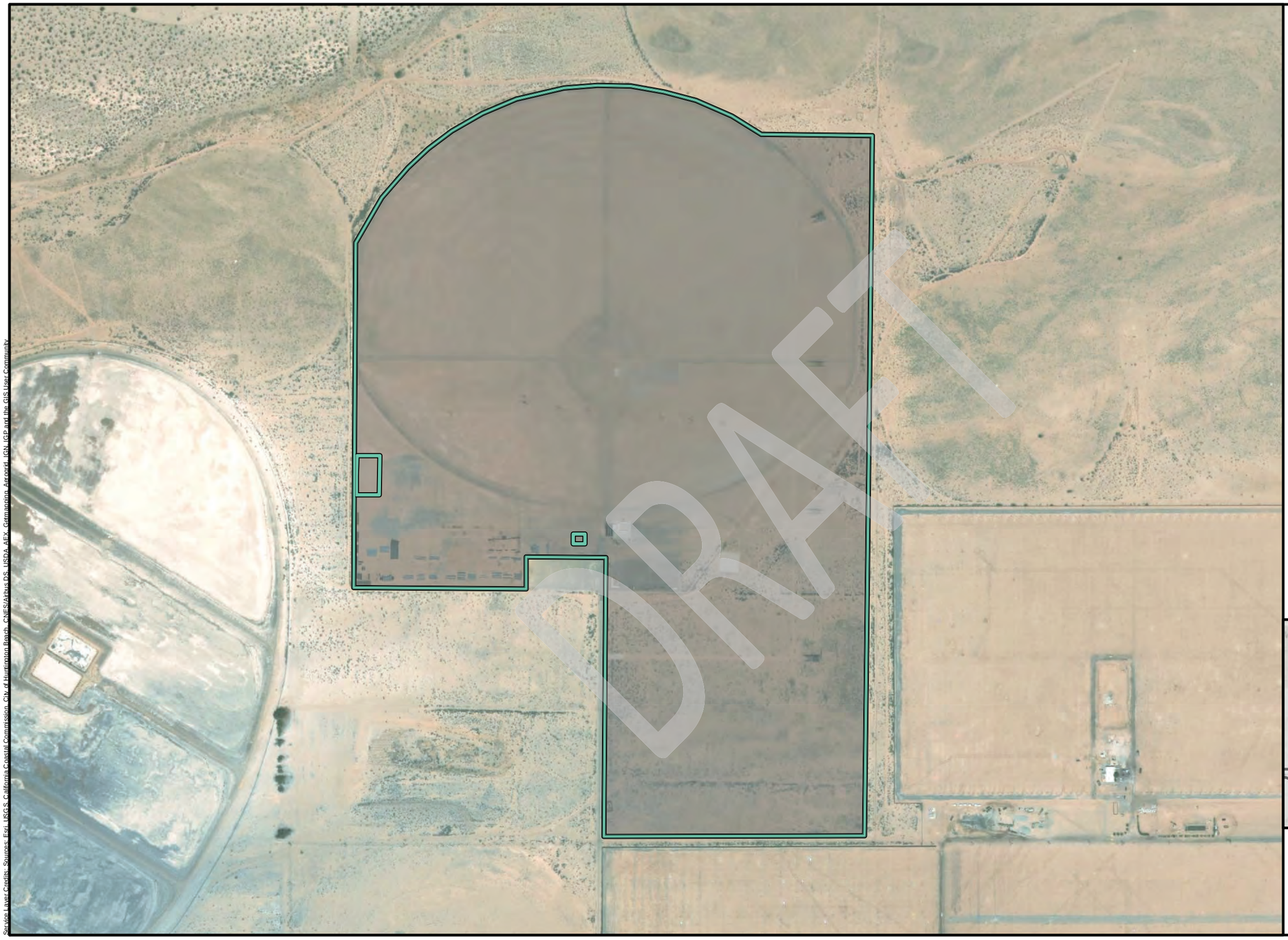

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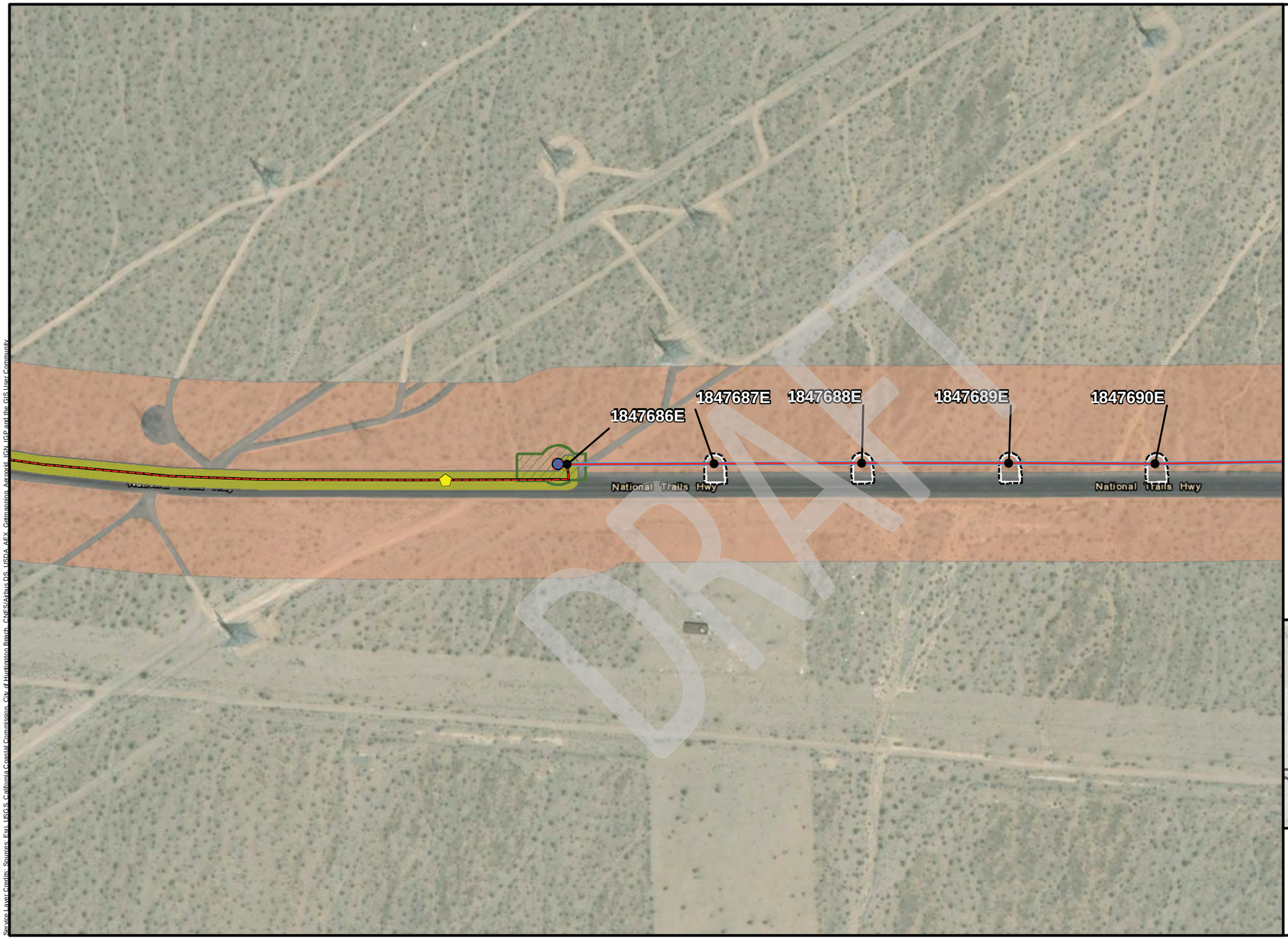
Exhibit 3. Project Components (Page 5 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- New Manhole
- Existing Pole
- New Anchor
- Proposed Manhole
- Proposed Overhead ADSS/OFNR
- Proposed Underground
- Install Overhead Span Guy
- Anchor
- OPGW Pull Site
- Structure Work Area
- UG Disturbance

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

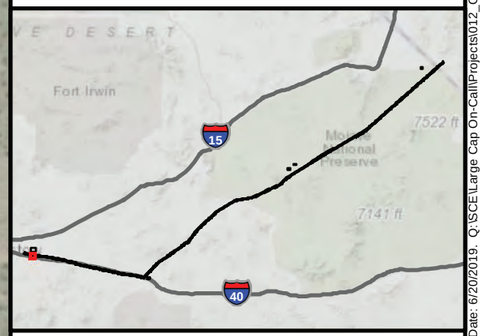


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Exhibit 3. Project Components (Page 6 of 260)

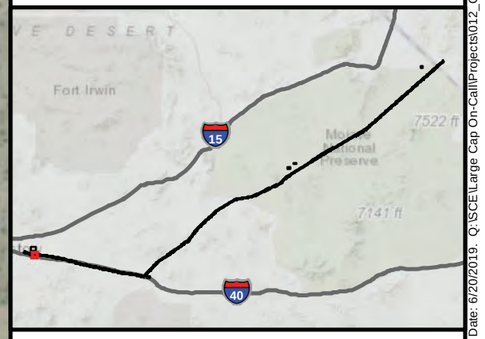
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



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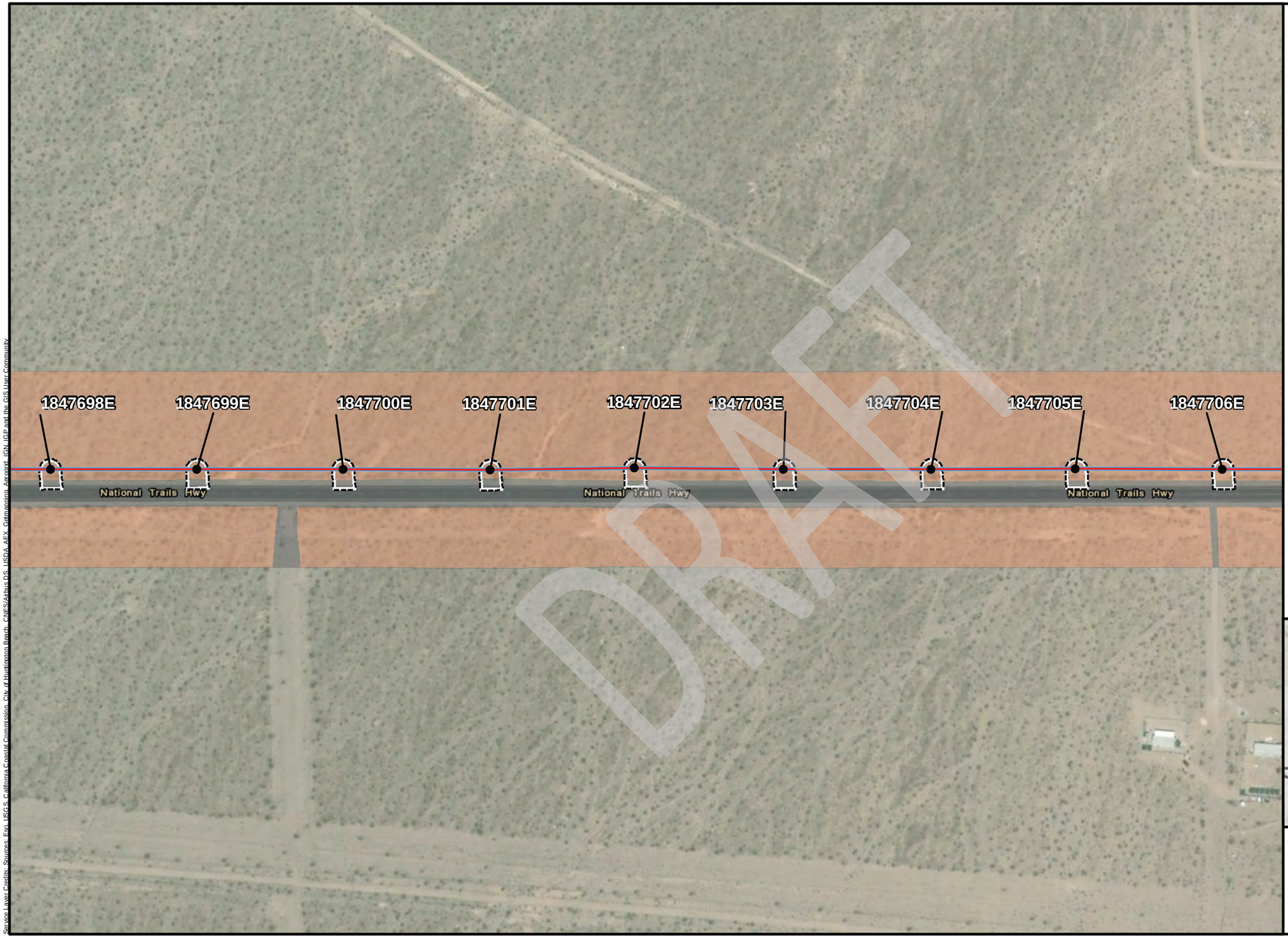

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

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- Developed

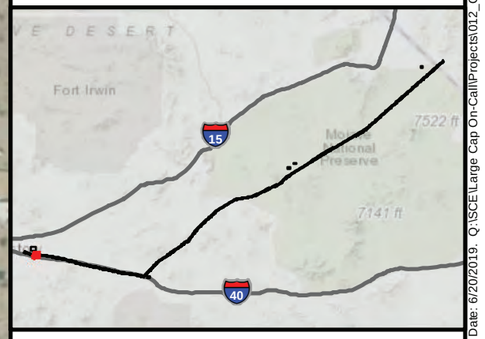

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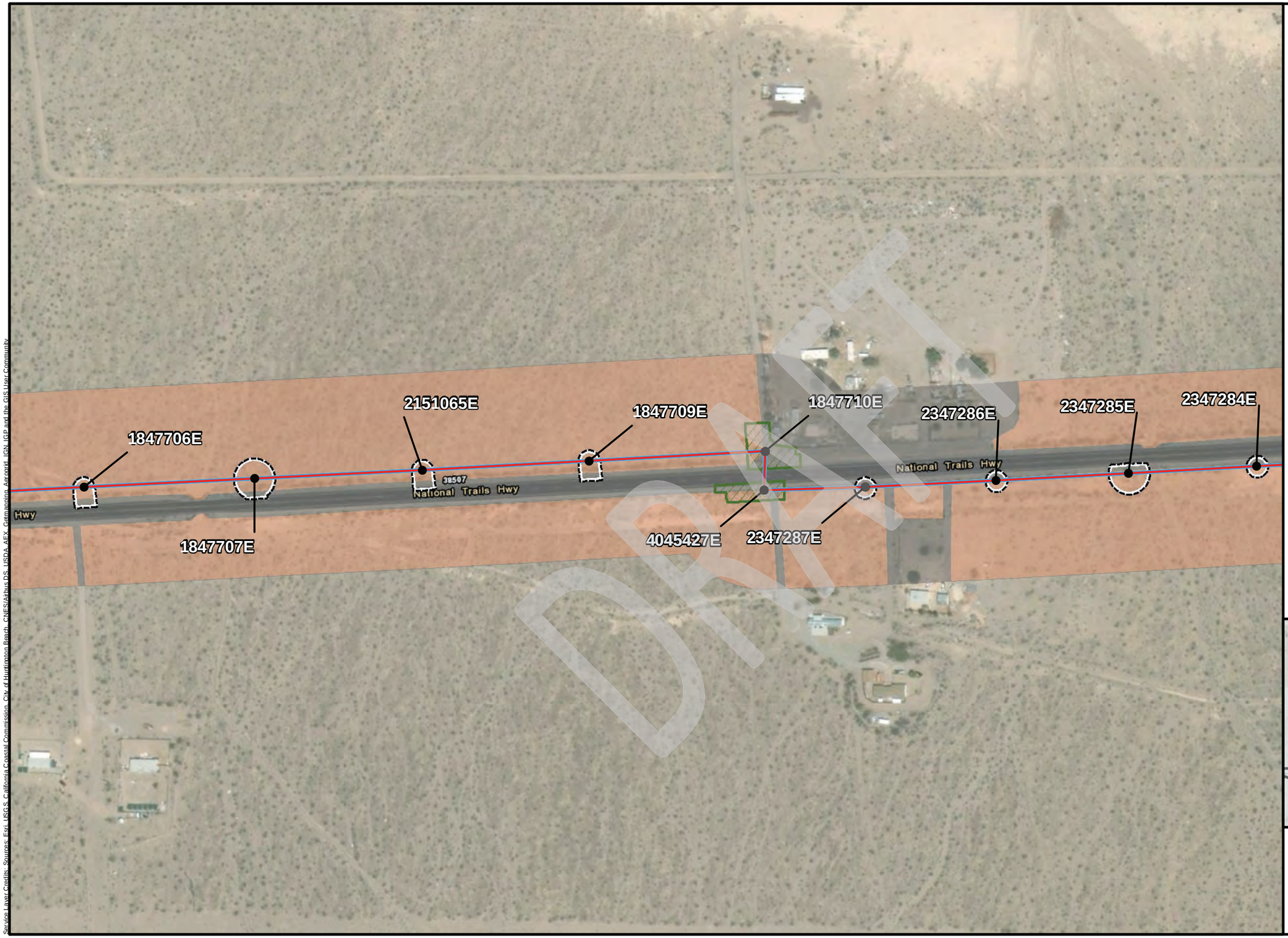
Exhibit 3. Project Components (Page 8 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- OPGW Pull Site
- Structure Work Area

Vegetation Communities (MCV)

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- Developed

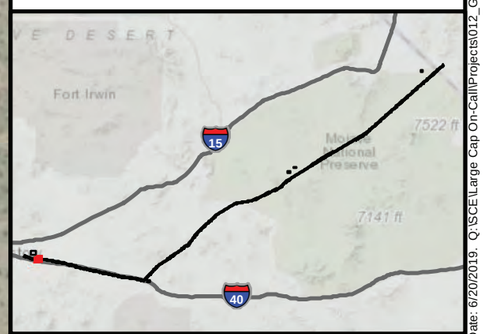

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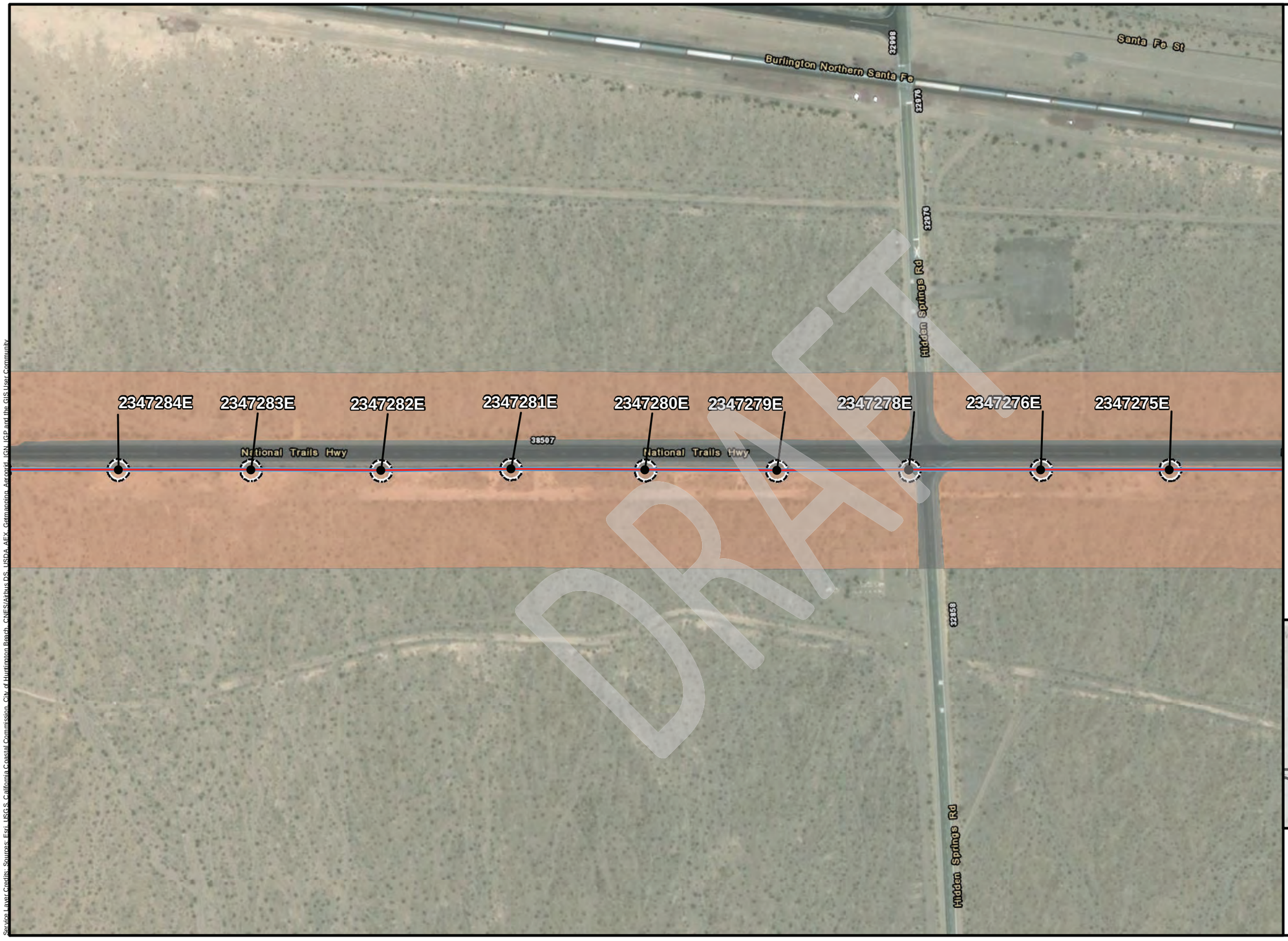
Exhibit 3. Project Components (Page 9 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

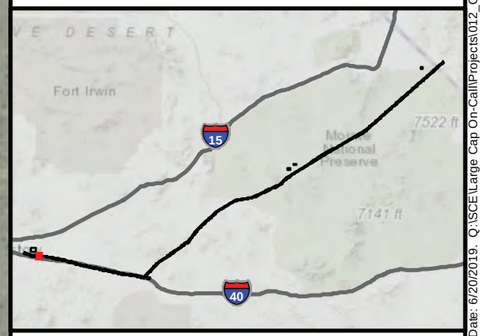


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Exhibit 3. Project Components (Page 10 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

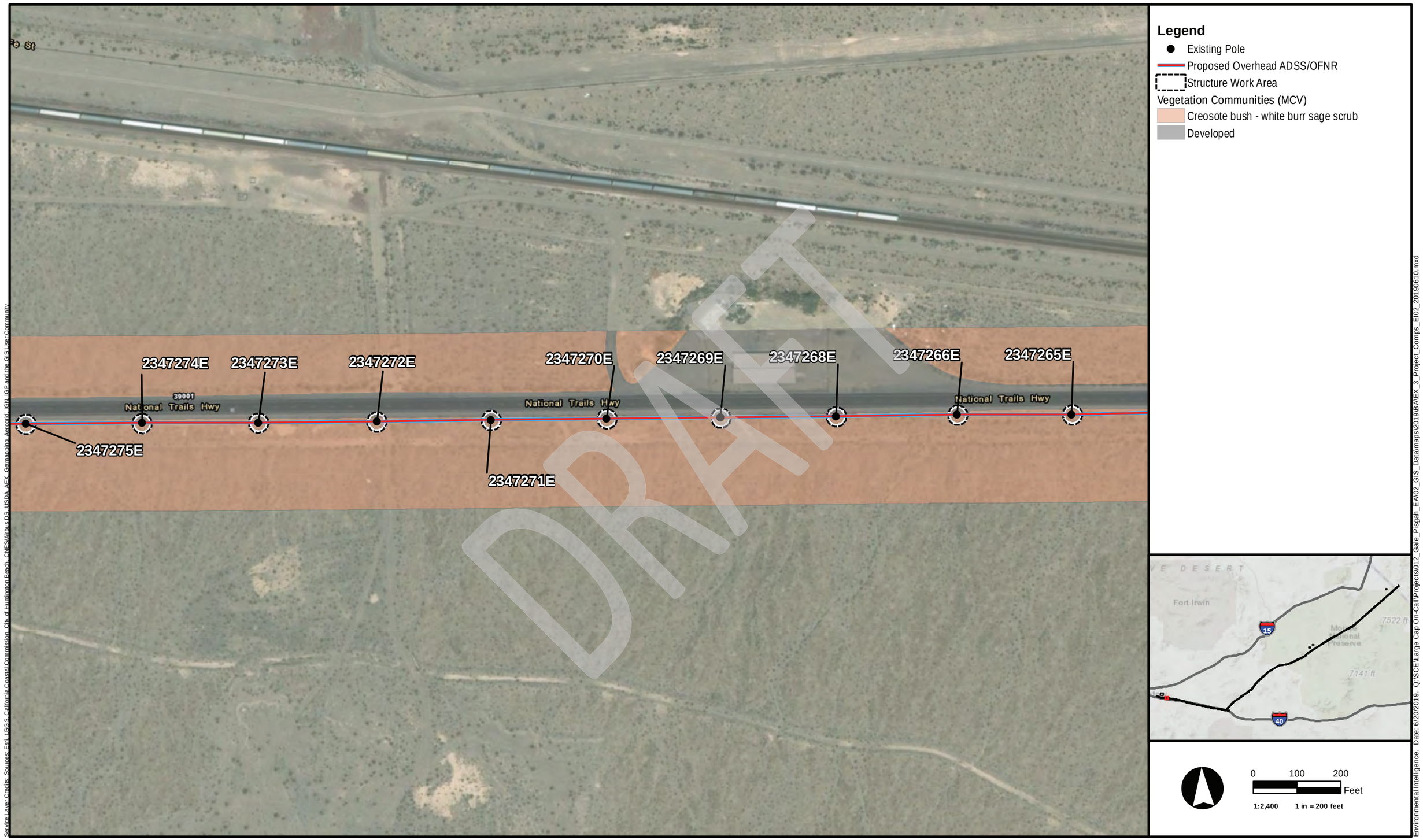
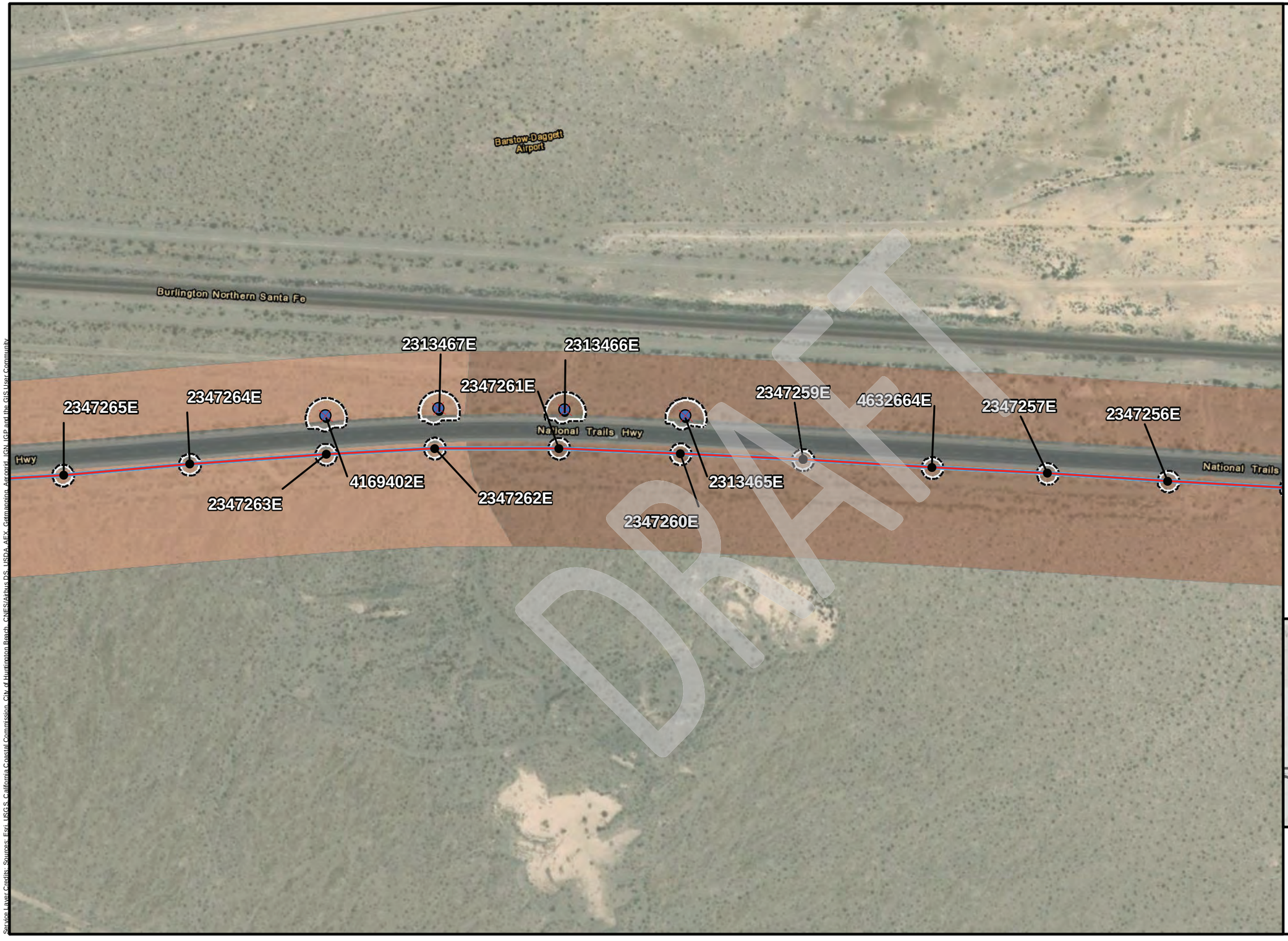


Exhibit 3. Project Components (Page 11 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

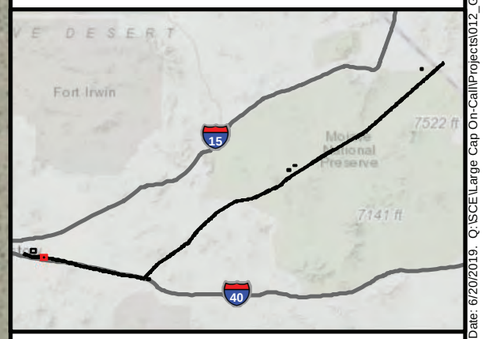


Legend

- Existing Pole
- New Anchor
- Proposed Overhead ADSS/OFNR
- Install Overhead Span Guy
- Anchor
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Developed



0 100 200 Feet

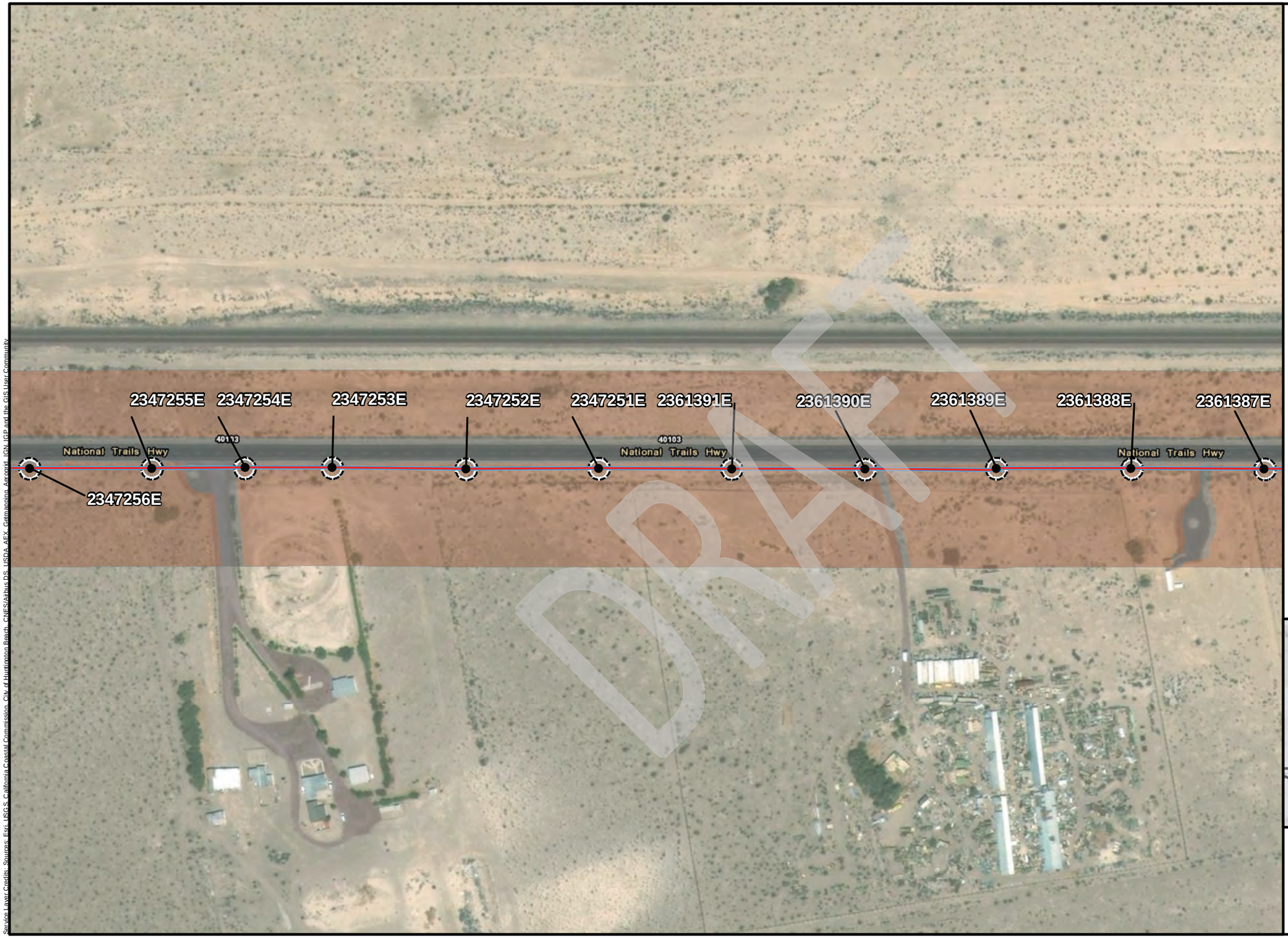
1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Geodetic Commission, City of Huntington Beach, CNES/Airbus DS, USDA,AEX, Getmapping,Aerogrid, IGN,IGP,and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 12 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

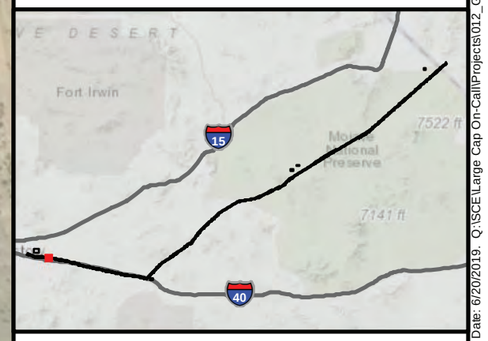


Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Sources: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Source Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNRS/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 13 of 260)

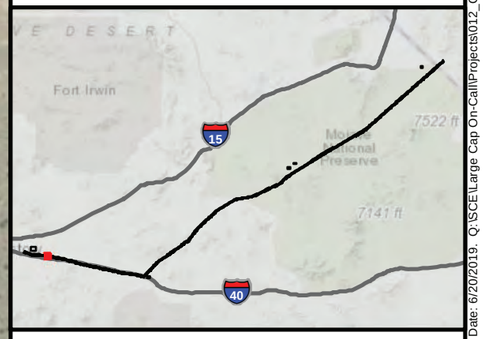
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Hurlington Branch, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019 Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_Ei02_20190610.mxd

Exhibit 3. Project Components (Page 14 of 260)

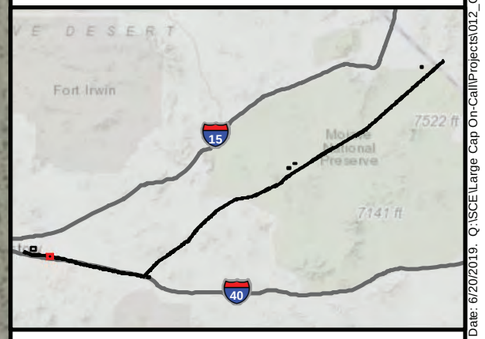
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- New Anchor
- Proposed Overhead ADSS/OFNR
- Install Overhead Span Guy
- Anchor
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA,AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Datalmaps\2019\BA\EX_3_Project_Comps_Ei02_20190610.mxd

Exhibit 3. Project Components (Page 15 of 260)

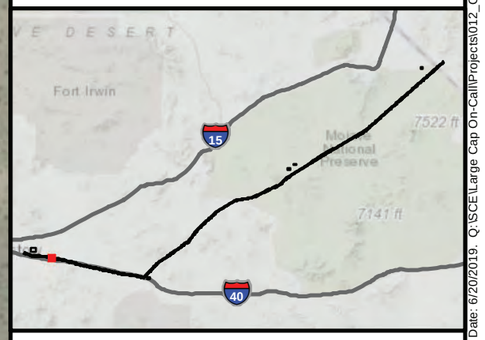
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 16 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend
Existing Pole
Proposed Overhead ADSS/OFNR
Structure Work Area
Vegetation Communities (MCV)
Creosote bush scrub
Developed
Tamarisk thickets
2361362E
2361361E
2361360E
2361358E
2361357E
2361356E
2361355E
2361354E
2361353E
2361352E
National Trails Hwy
Burlington Northern Santa Fe
Elkhorn St
Wildhorse Rd
DRAFT
Fort Irwin
15
40
0
100
200
Feet
1:2,400
1 in = 200 feet

Exhibit 3. Project Components (Page 17 of 260)

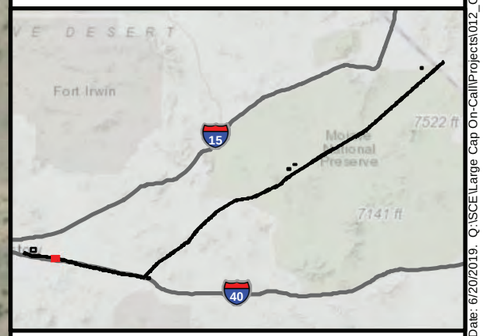
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Creosote bush scrub
- Developed
- Tamarisk thickets



0 100 200 Feet

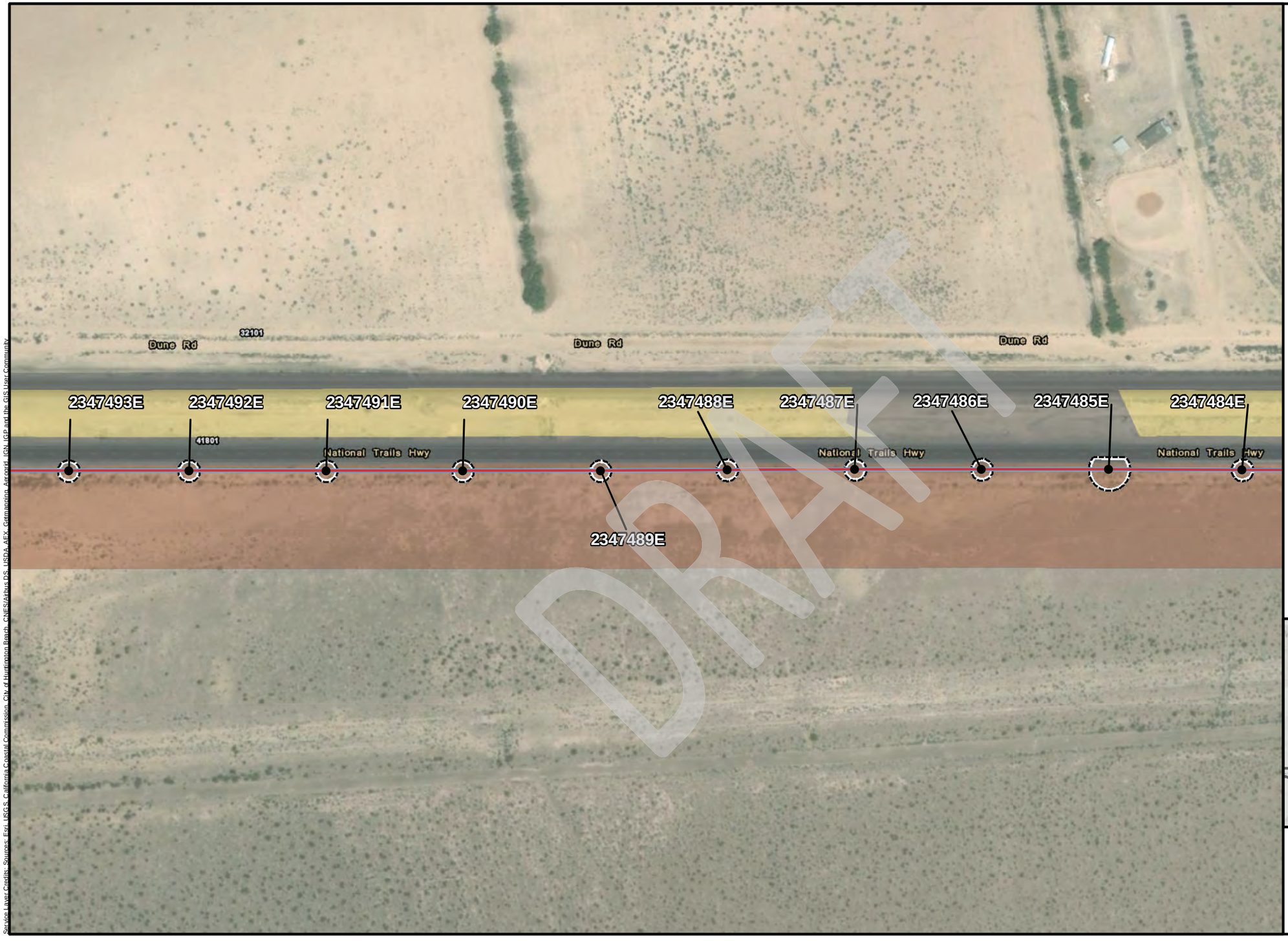
1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 18 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

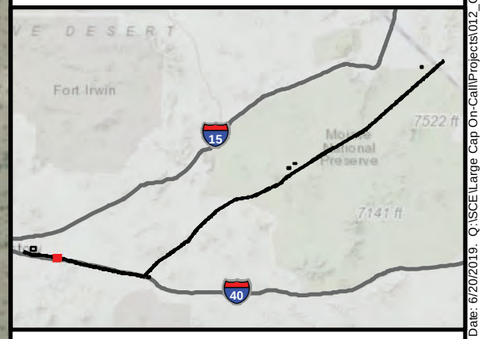


Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Creosote bush scrub
- Developed



0 100 200 Feet

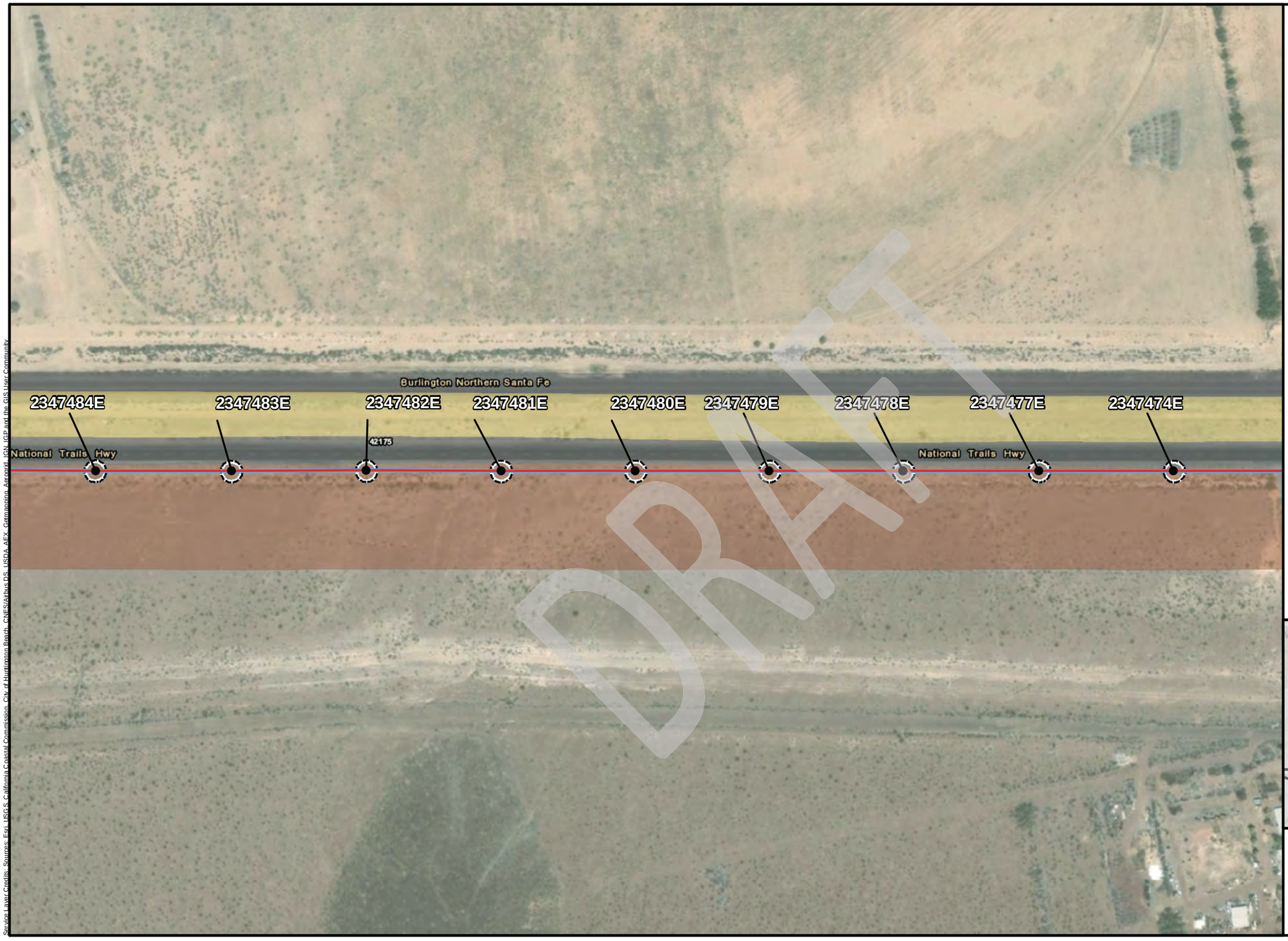
1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019 Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 19 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

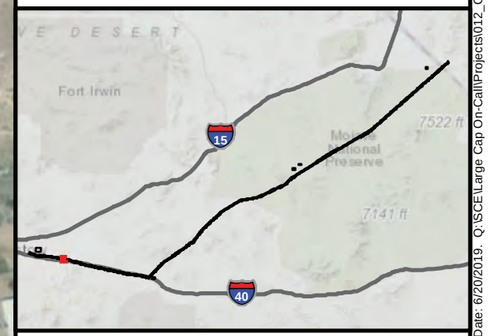


Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Creosote bush scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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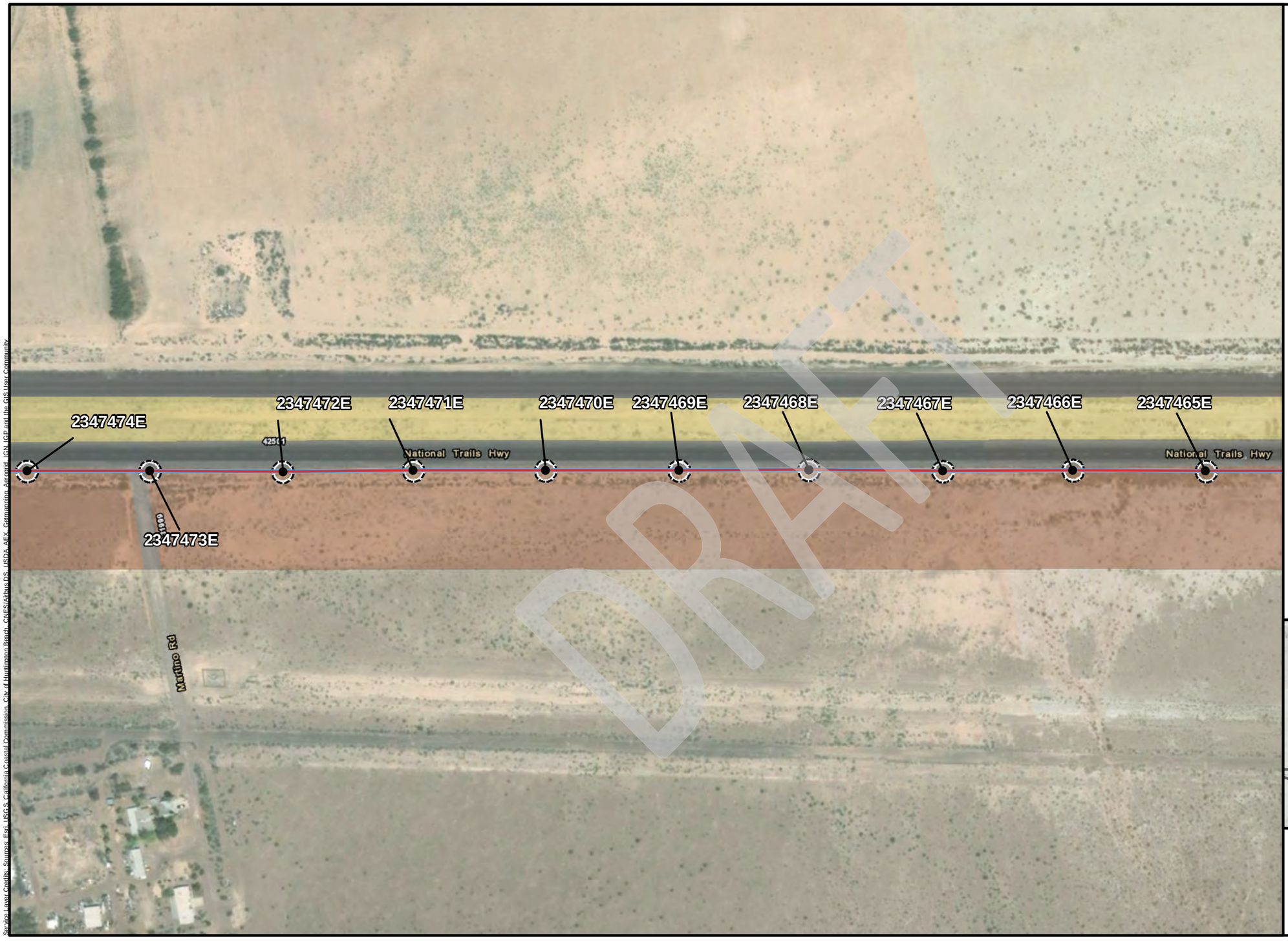
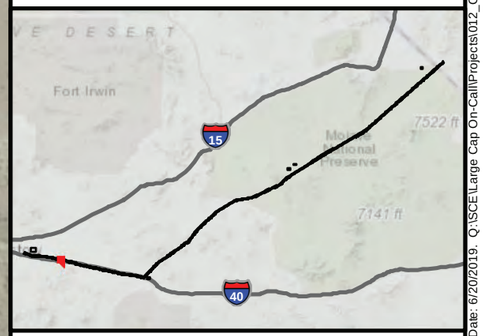


Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Creosote bush scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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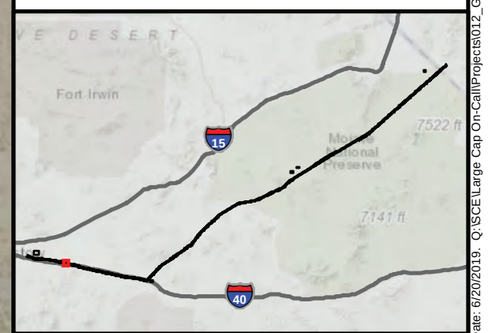
Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Creosote bush scrub
- Developed
- Mesquite thickets



0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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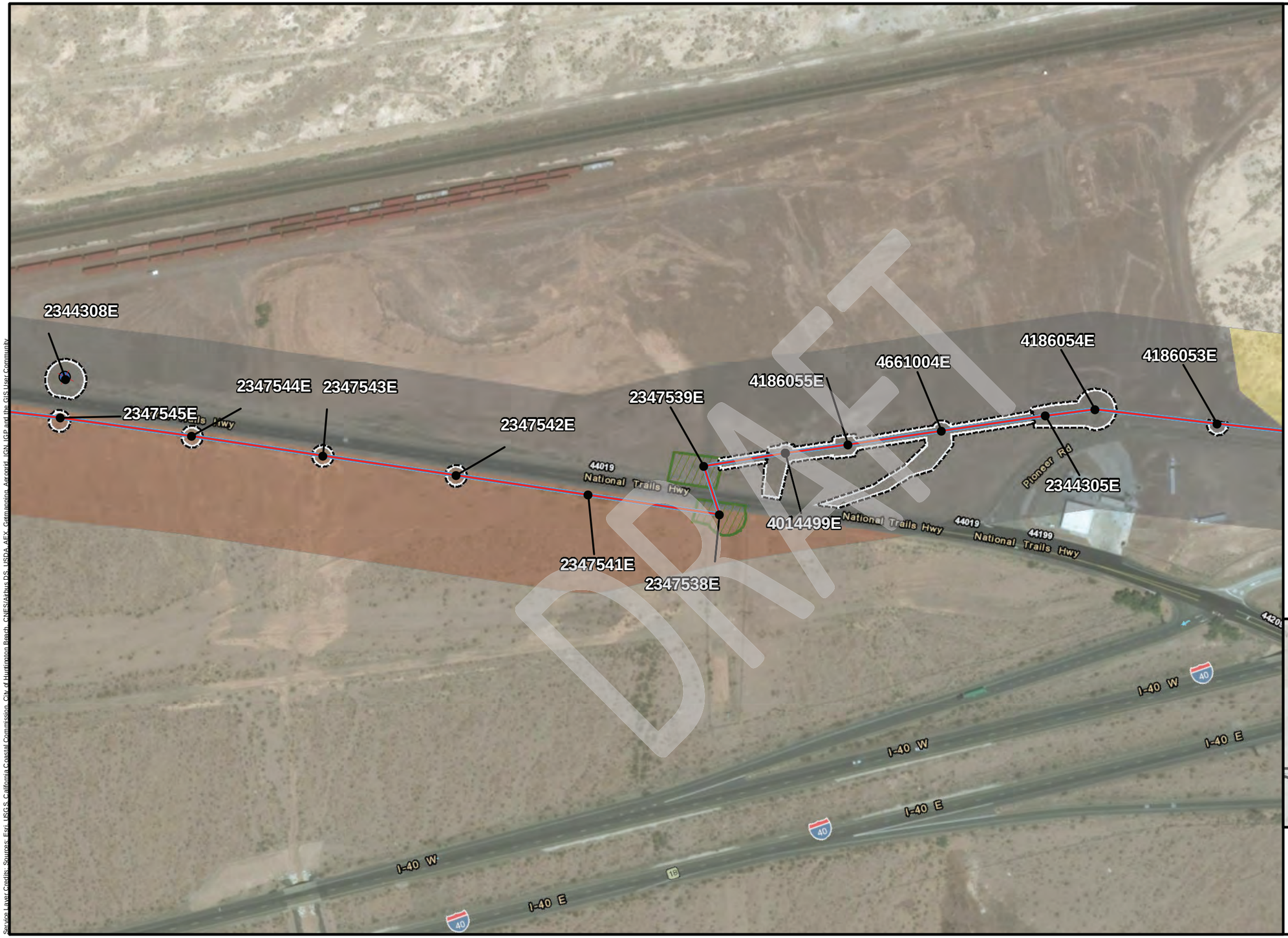
Legend
Existing Pole
New Anchor
Proposed Overhead ADSS/OFNR
Install Overhead Span Guy
Anchor
Structure Work Area
Vegetation Communities (MCV)
Creosote bush scrub
Developed
Burlington Northern Santa Fe
National Trails Hwy
National Trails Hwy
2347456E
2347455E
2347454E
2347453E
2344309E
2347452E
2347451E
2347550E
2347549E
2347548E
2347547E
2347546E
2347545E
2344308E
DRAFT
Fort Irwin
15
40
0
100
200
Feet
1:2,400
1 in = 200 feet

Exhibit 3. Project Components (Page 23 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Pole
- New Anchor
- Proposed Overhead ADSS/OFNR
- Install Overhead Span Guy
- Anchor
- OPGW Pull Site
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Creosote bush scrub
- Developed

0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA02_GIS_Datalmaps\2019\BA\EX_3_Project_Comps_Ei02_20190610.mxd

Exhibit 3. Project Components (Page 24 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

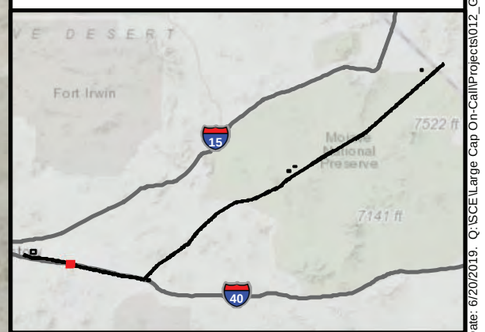

4186053E
4186052E
4186051E
4186050E
4185449E
4185447E
4185446E
4185445E
4185444E
4185448E
4185404E
CIT60116
Pioneer Rd
I-40 W
I-40 E
National Trails Hwy
Quarry Rd
Trails End St
Fort Irwin
7522 ft
7141 ft
Legend
Existing Pole
Proposed Overhead ADSS/OFNR
Structure Work Area
Vegetation Communities (MCV)
Allscale scrub
Developed
0
100
200
Feet
1:2,400
1 in = 200 feet
DRAFT
Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Hurlington Beach, CNES/Airbus DS, USDA, AEX, Community
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Datalmaps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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Exhibit 3. Project Components (Page 26 of 260)

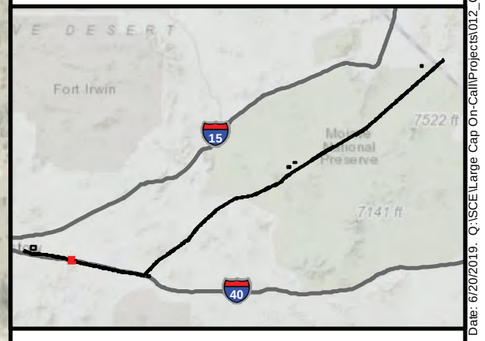
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed



0 100 200 Feet

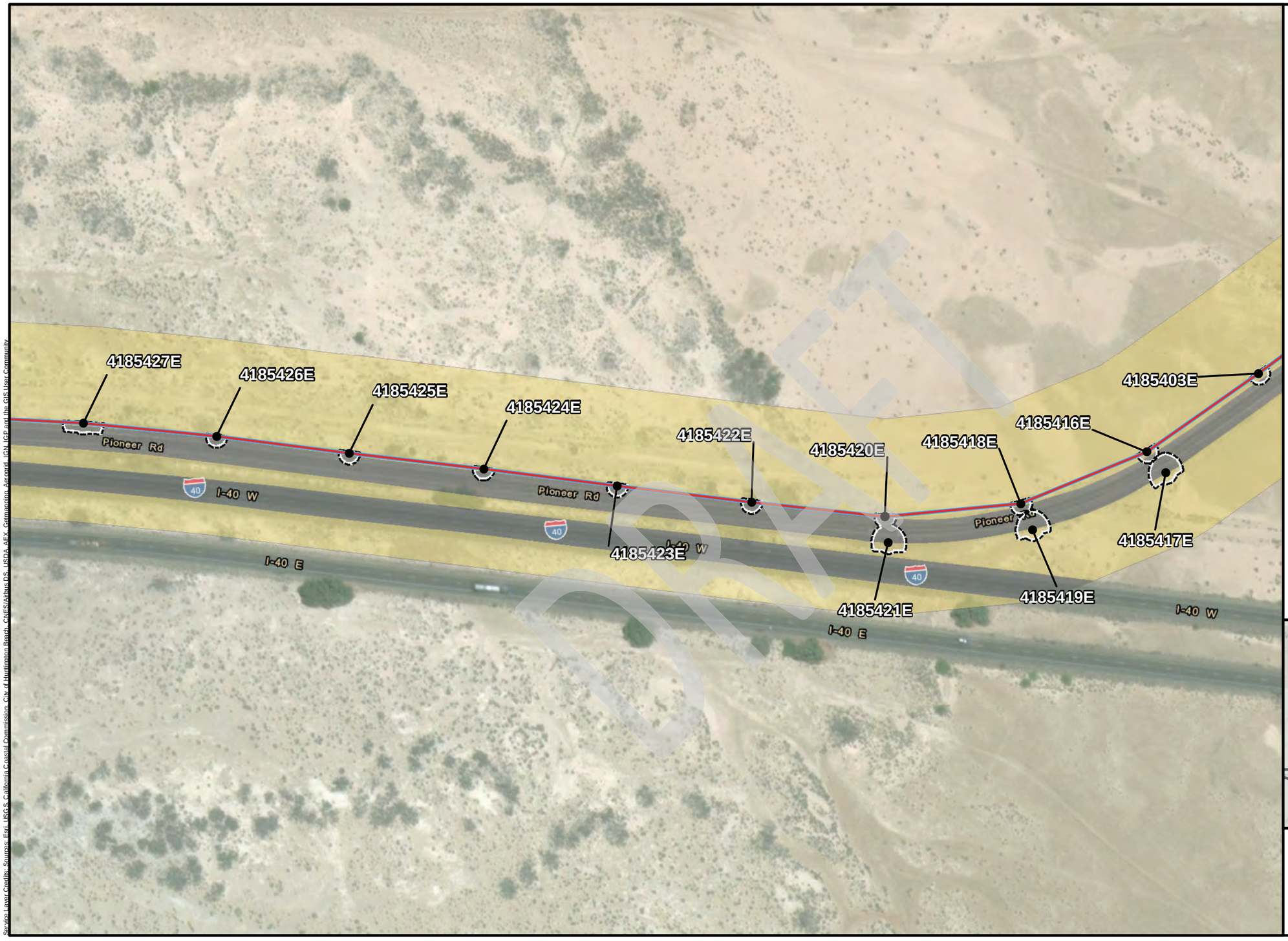
1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA,AEX, Getmapping Aerogrid, IGN, IGP and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BAIEX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 27 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed

0 100 200 Feet

1:2,400 1 in = 200 feet

Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BAIEX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 28 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

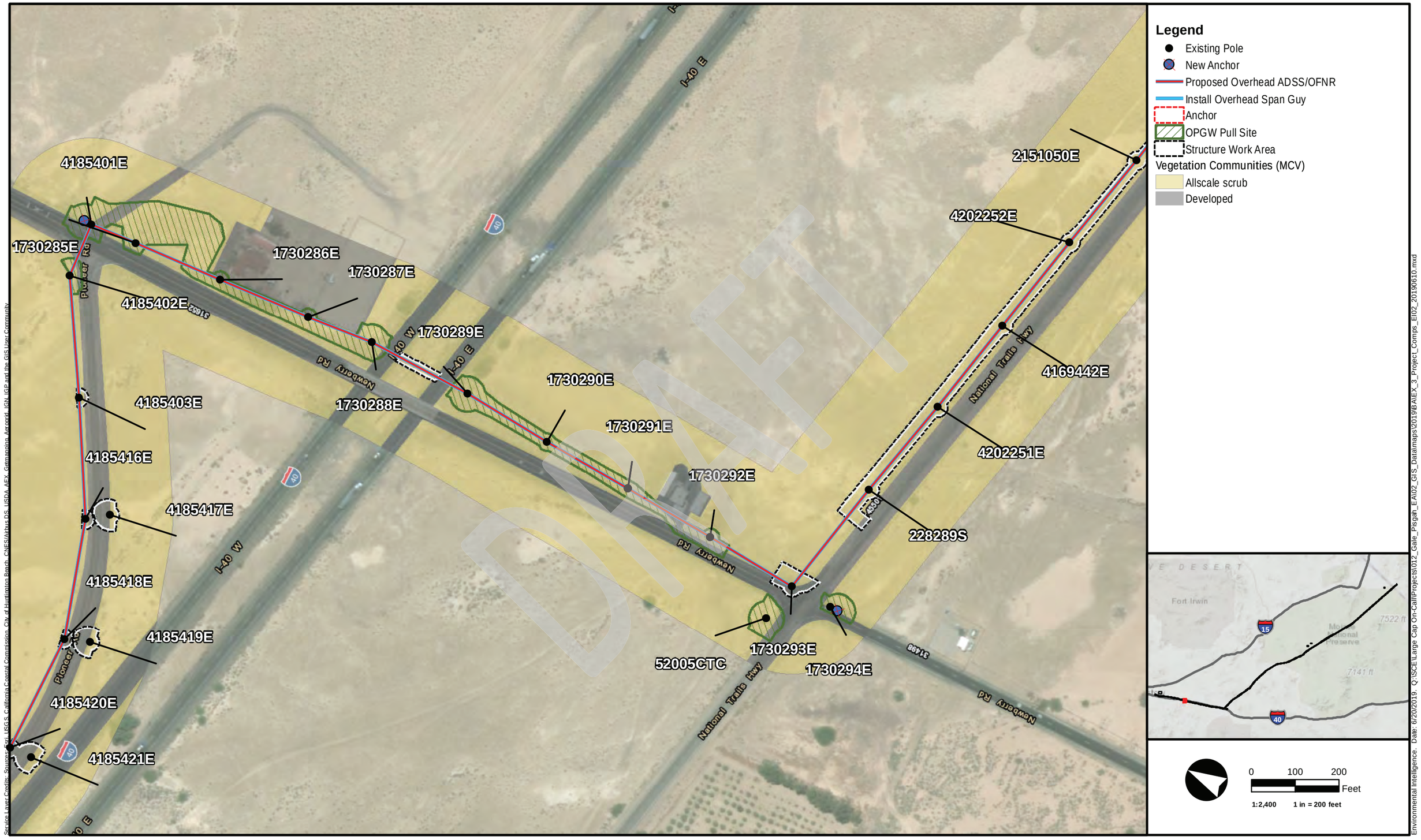
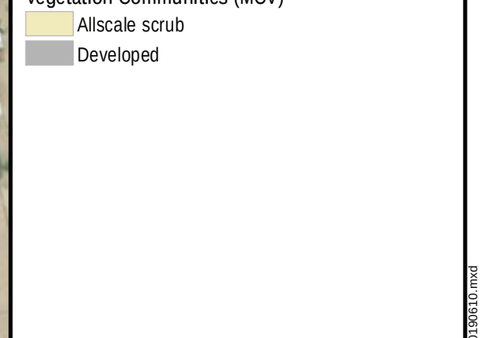


Exhibit 3. Project Components (Page 29 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed

0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BAIEX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 30 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed

0 100 200 Feet

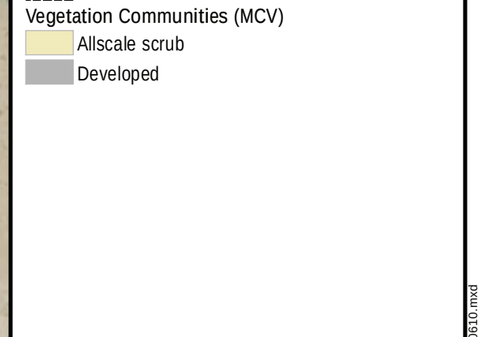
1:2,400 1 in = 200 feet

Source: Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BAIEX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 31 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

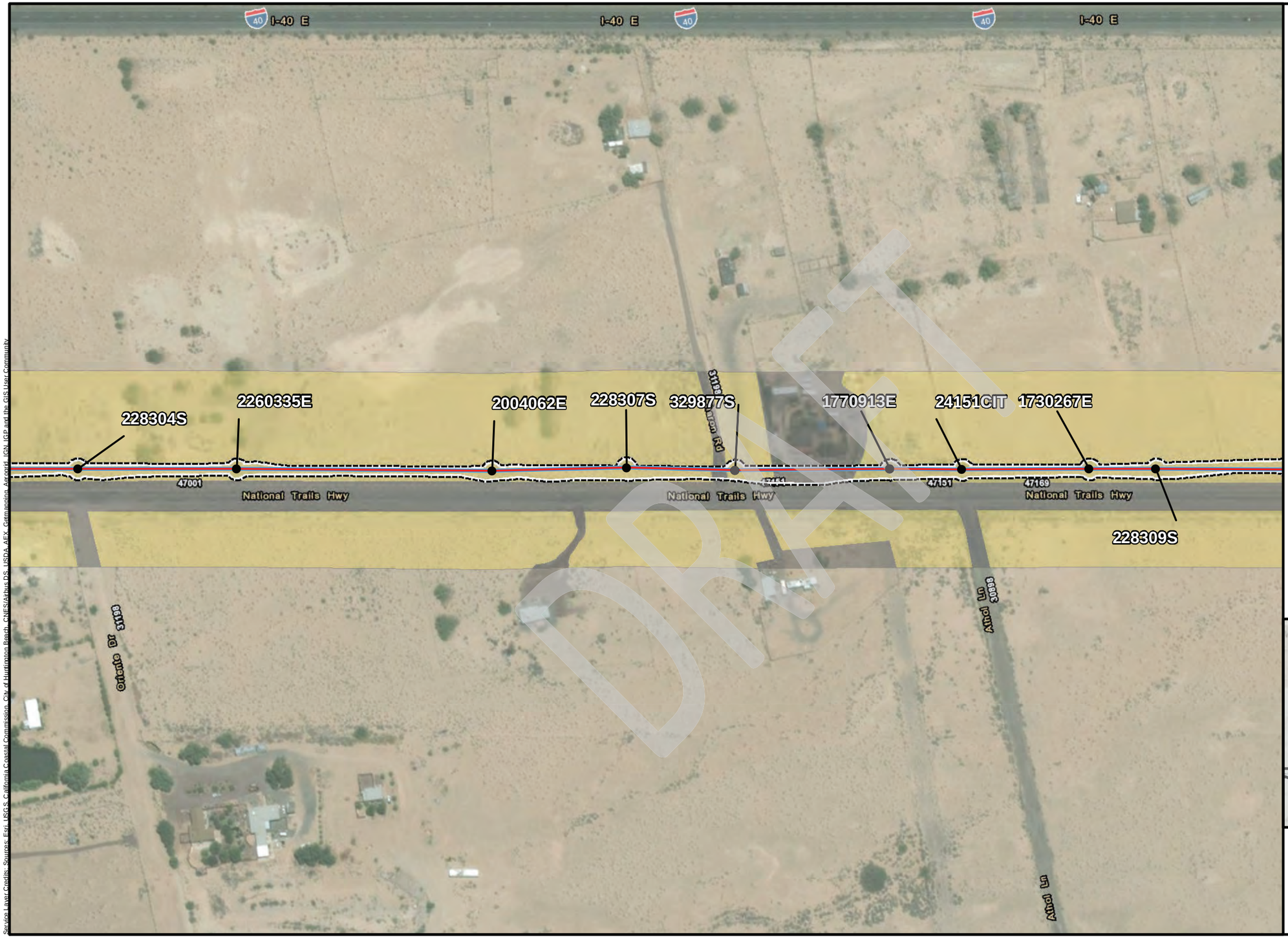
- Allscale scrub
- Developed

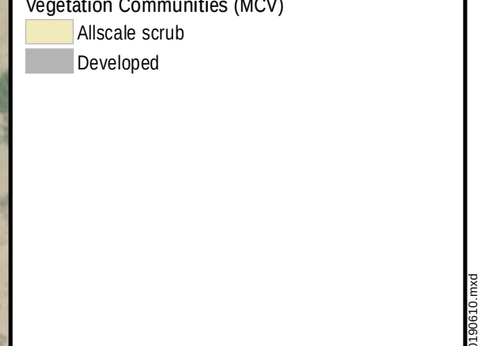
0 100 200 Feet

1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd





Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed

0 100 200 Feet

1:2,400 1 in = 200 feet

Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

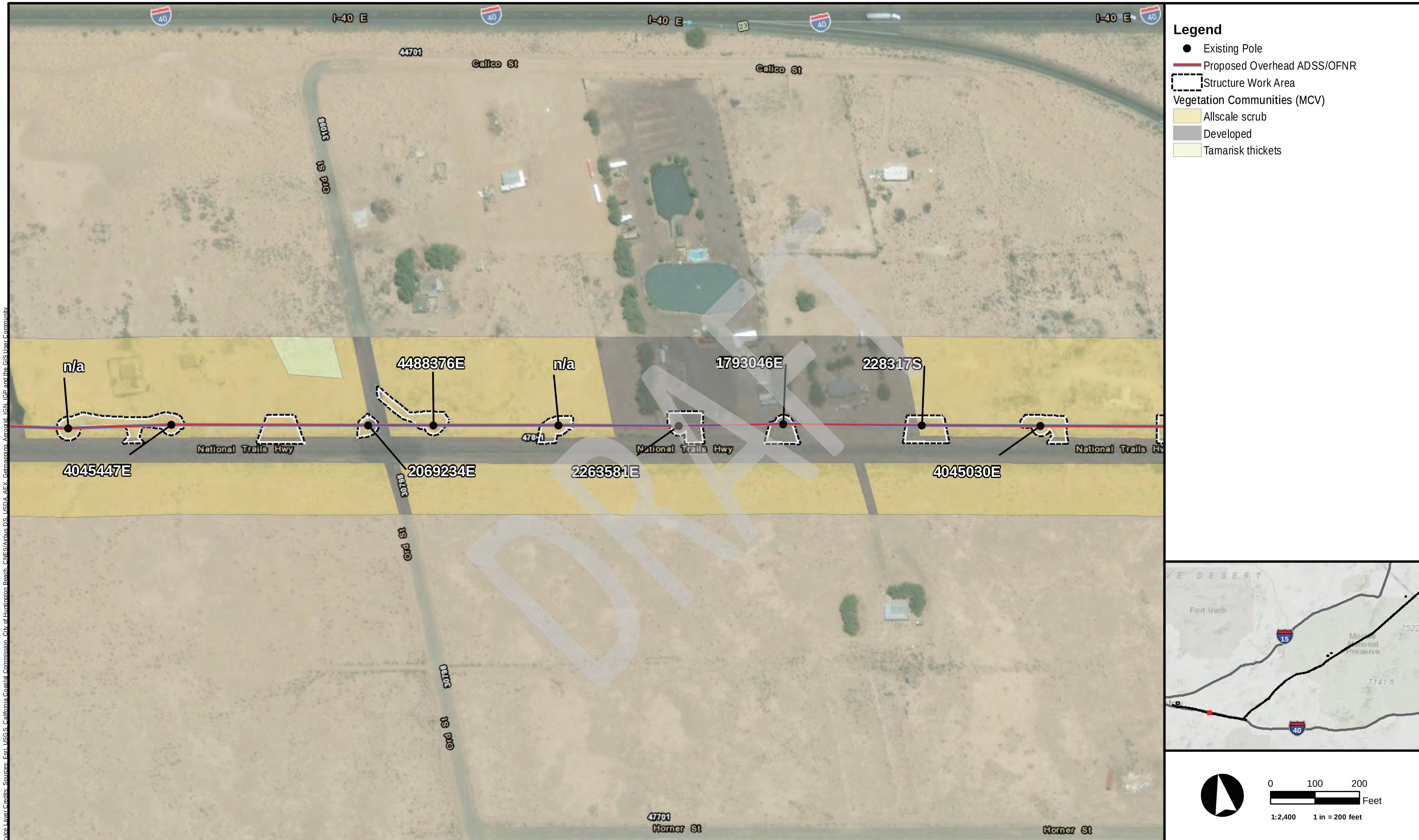
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA02_GIS_Data\maps\2019\BAIEX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 33 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Exhibit 3. Project Components (Page 34 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP and the GIS User Community

Exhibit 3. Project Components (Page 35 of 260)

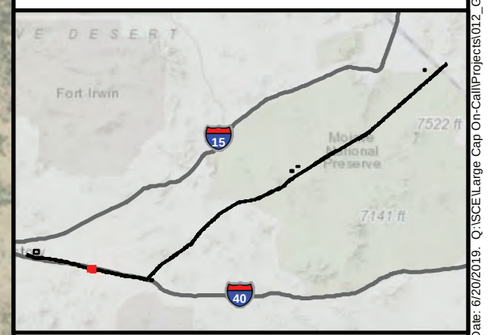
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Tamarisk thickets

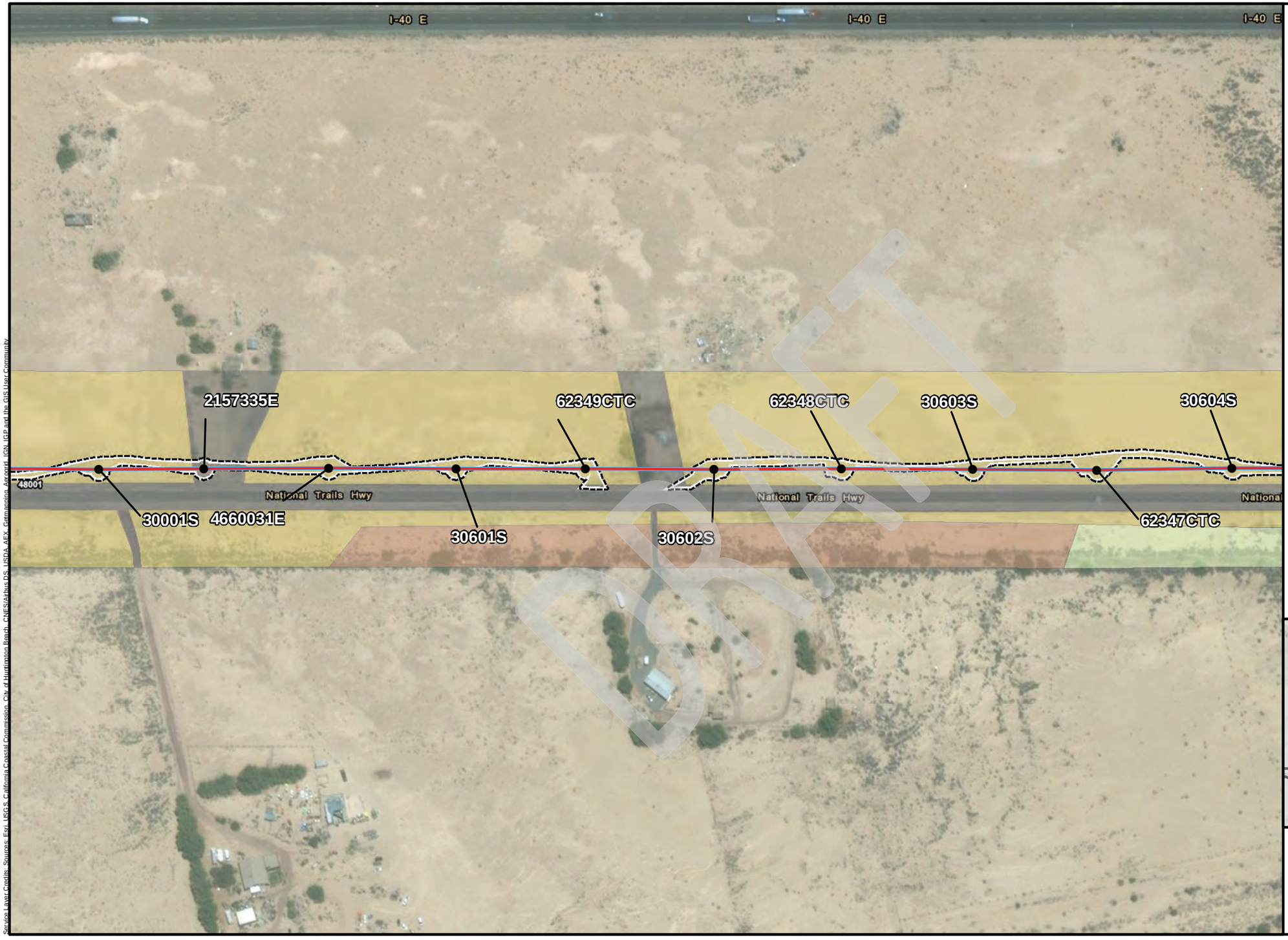


0 100 200 Feet

1:2,400 1 in = 200 feet

Sources/Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BAIEX_3_Project_Comps_EI02_20190610.mxd

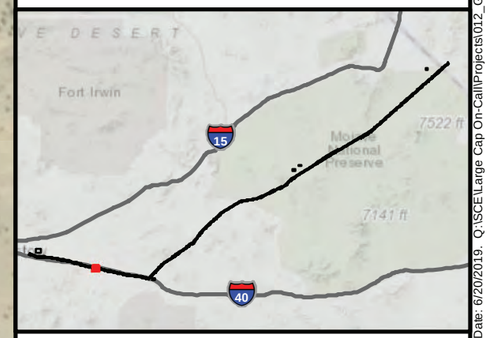


Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Mesquite thickets
- Tamarisk thickets

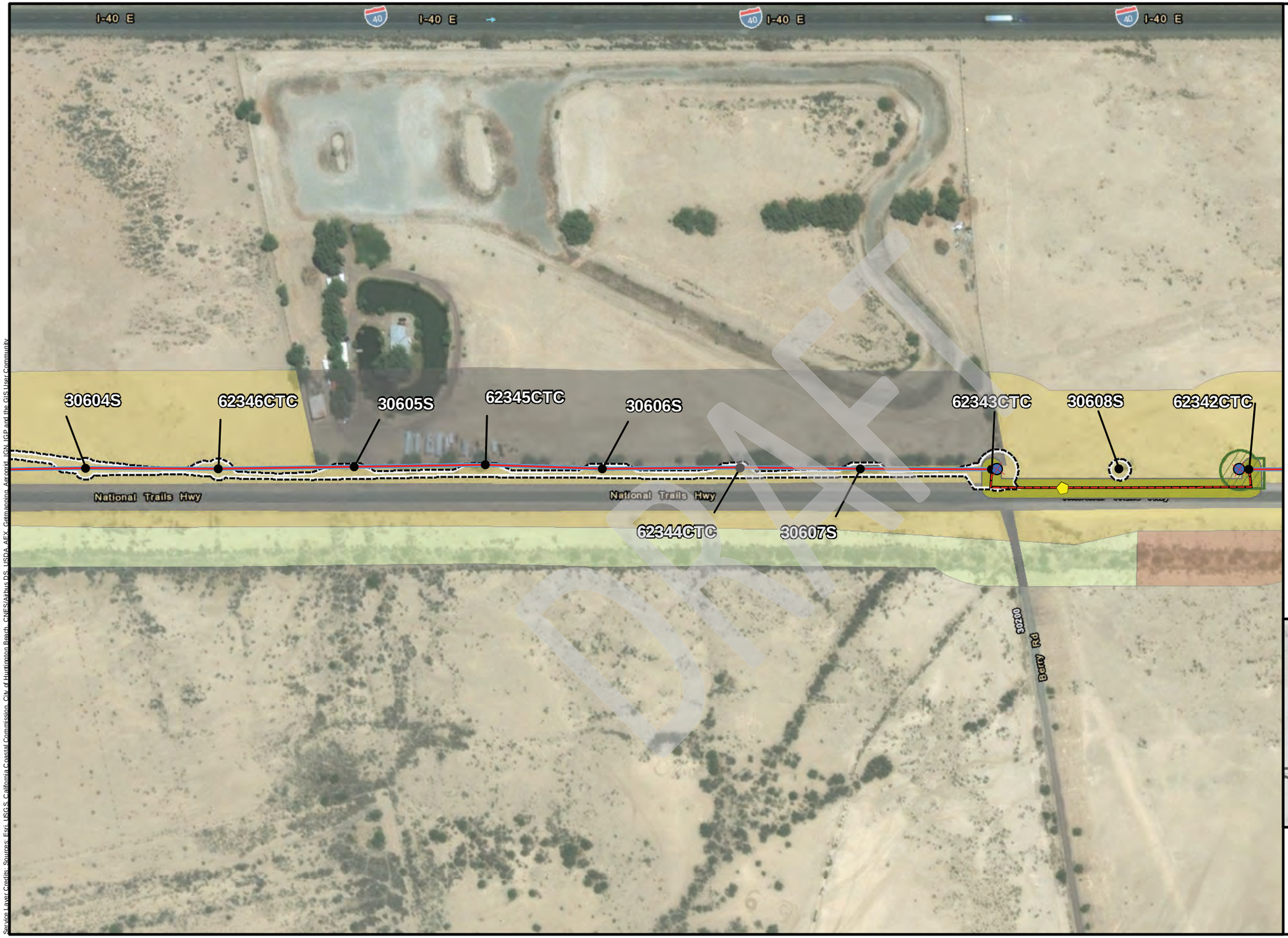


0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_Ei02_20190610.mxd

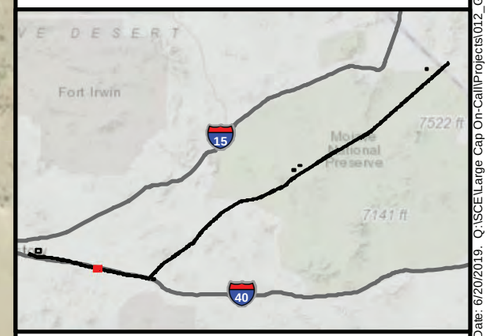


Legend

- New Manhole
- Existing Pole
- New Anchor
- Proposed Manhole
- Proposed Overhead ADSS/OFNR
- Proposed Underground
- Install Overhead Span Guy
- Anchor
- OPGW Pull Site
- Structure Work Area
- UG Disturbance

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Mesquite thickets
- Tamarisk thickets



0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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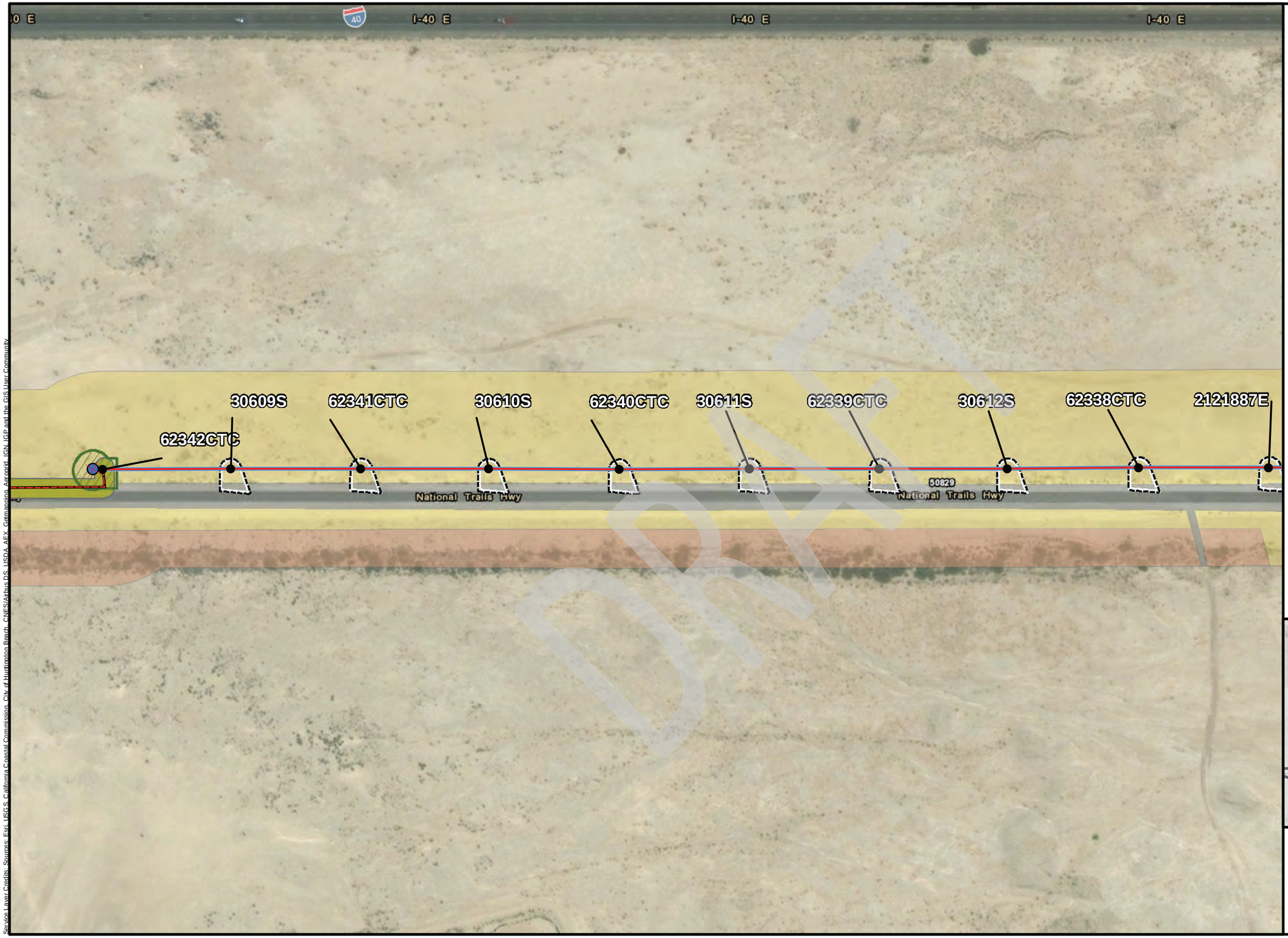
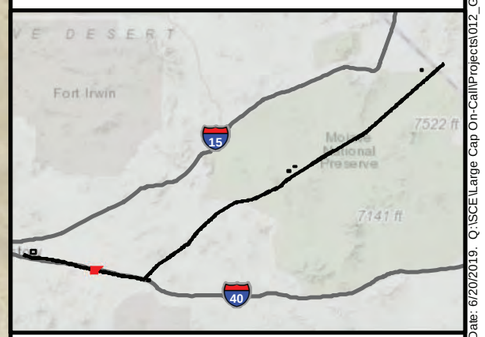
Exhibit 3. Project Components (Page 38 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV





Legend

- Existing Pole
- New Anchor
- Proposed Overhead ADSS/OFNR
- Proposed Underground
- Install Overhead Span Guy
- Anchor
- OPGW Pull Site
- Structure Work Area
- UG Disturbance

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Mesquite thickets

0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Hurlington Branch, CNES/Airbus DS, USDA,AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

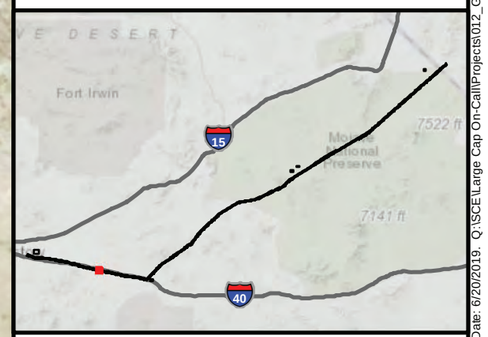
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Mesquite thickets
- Tamarisk thickets

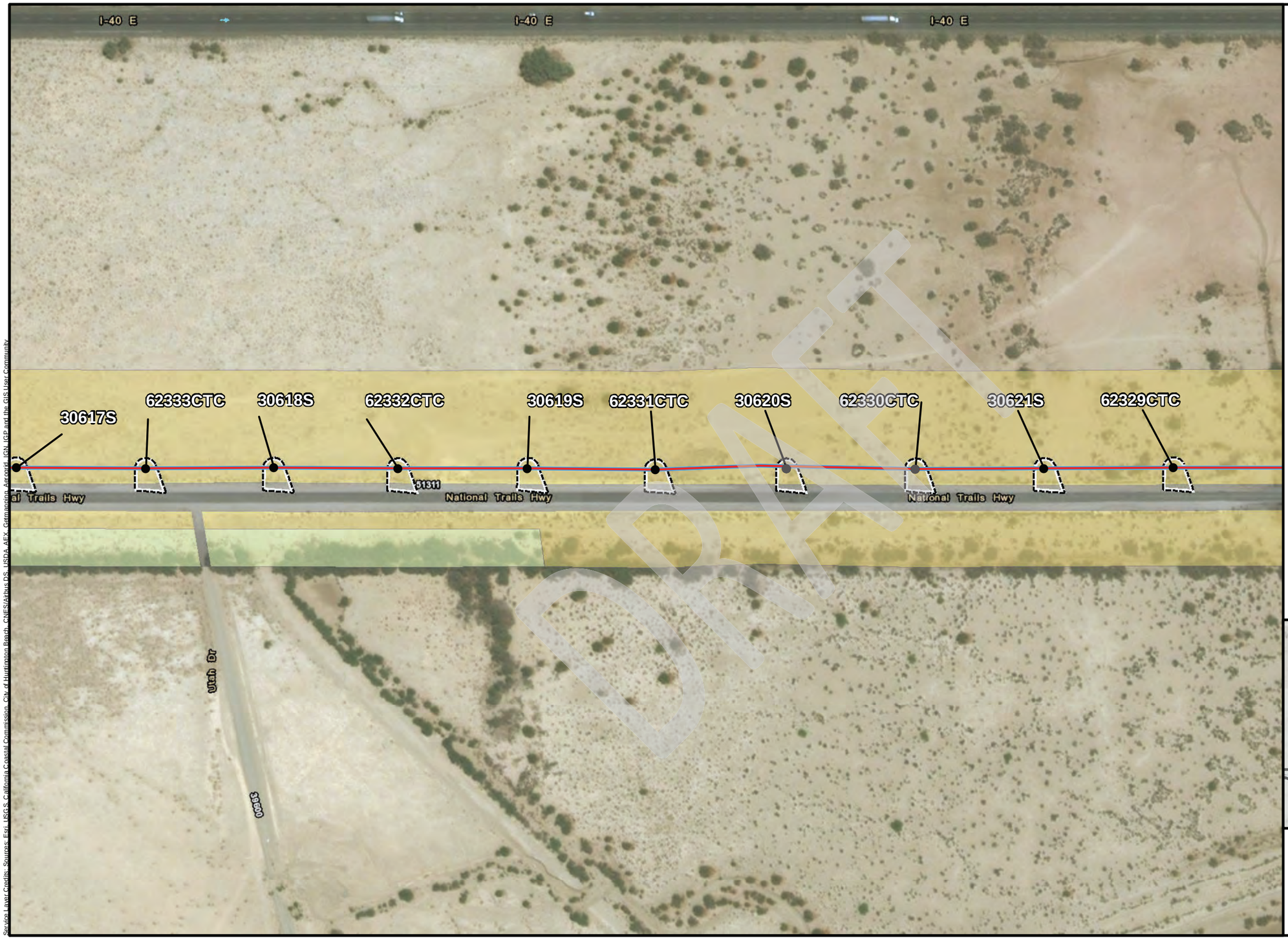


0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd



Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

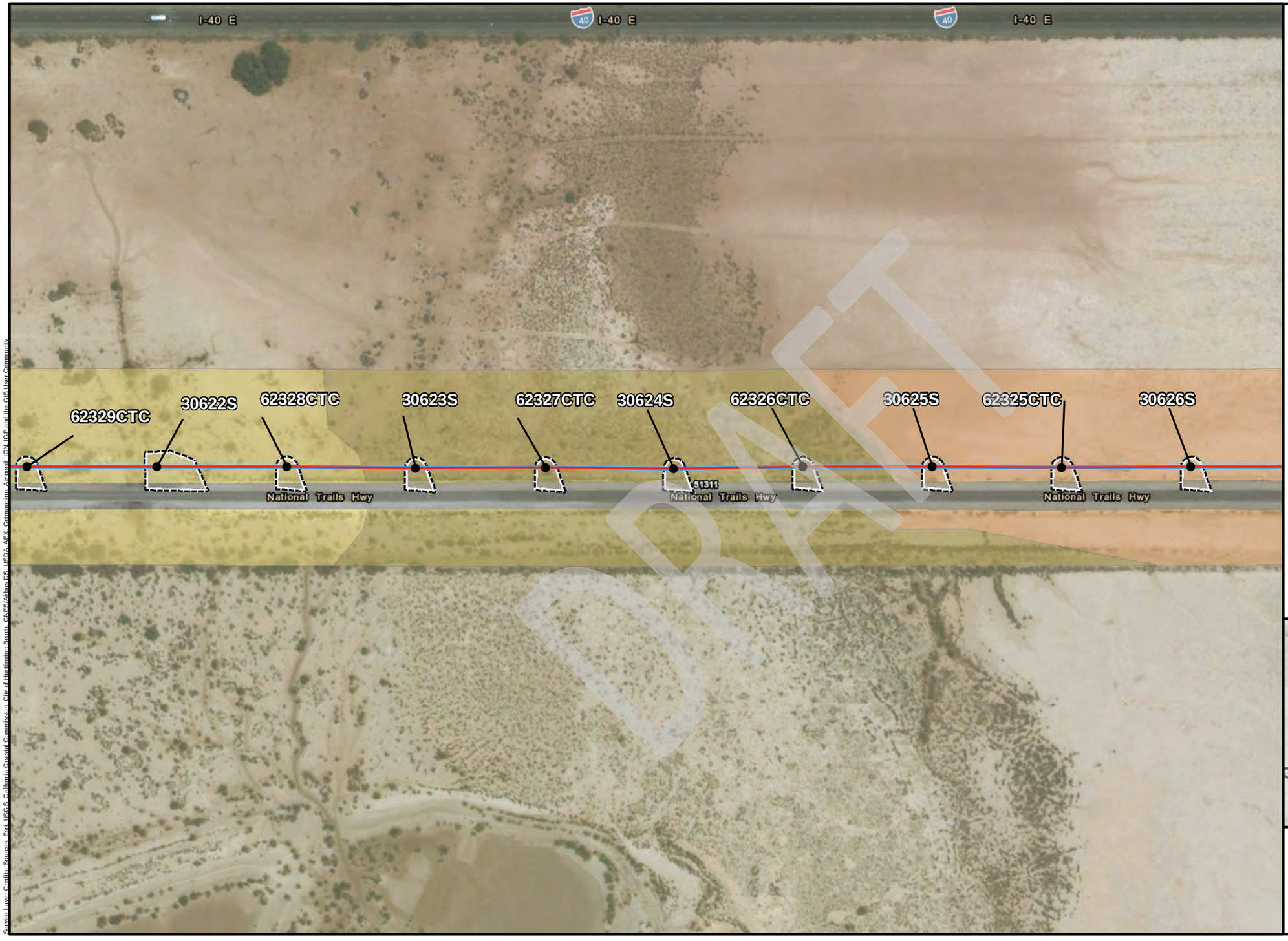
- Allscale scrub
- Developed
- Tamarisk thickets

0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Datalmaps\2019\BA\EX_3_Project_Comps_Ei02_20190610.mxd

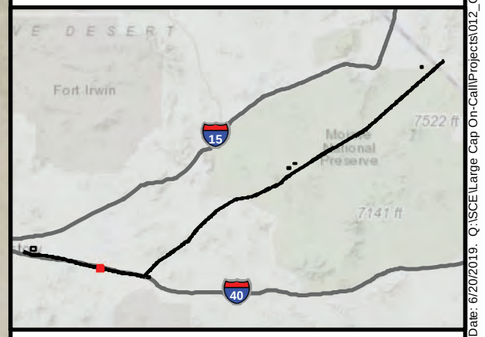


Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Bush seepweed scrub
- Developed
- Dry lake



0 100 200 Feet

1:2,400 1 in = 200 feet

Services Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Hurlington Branch, CNES/Airbus DS, USDA,AEX, Getmapping Aerogrid, IGN,IGP,and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_E\02_20190610.mxd

Exhibit 3. Project Components (Page 42 of 260)

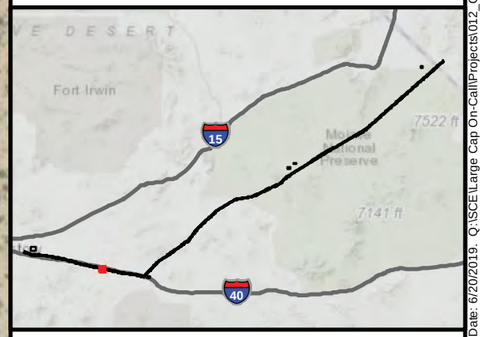
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Bush seepweed scrub
- Developed
- Dry lake
- Fourwing saltbush scrub
- Tamarisk thickets



0 100 200 Feet

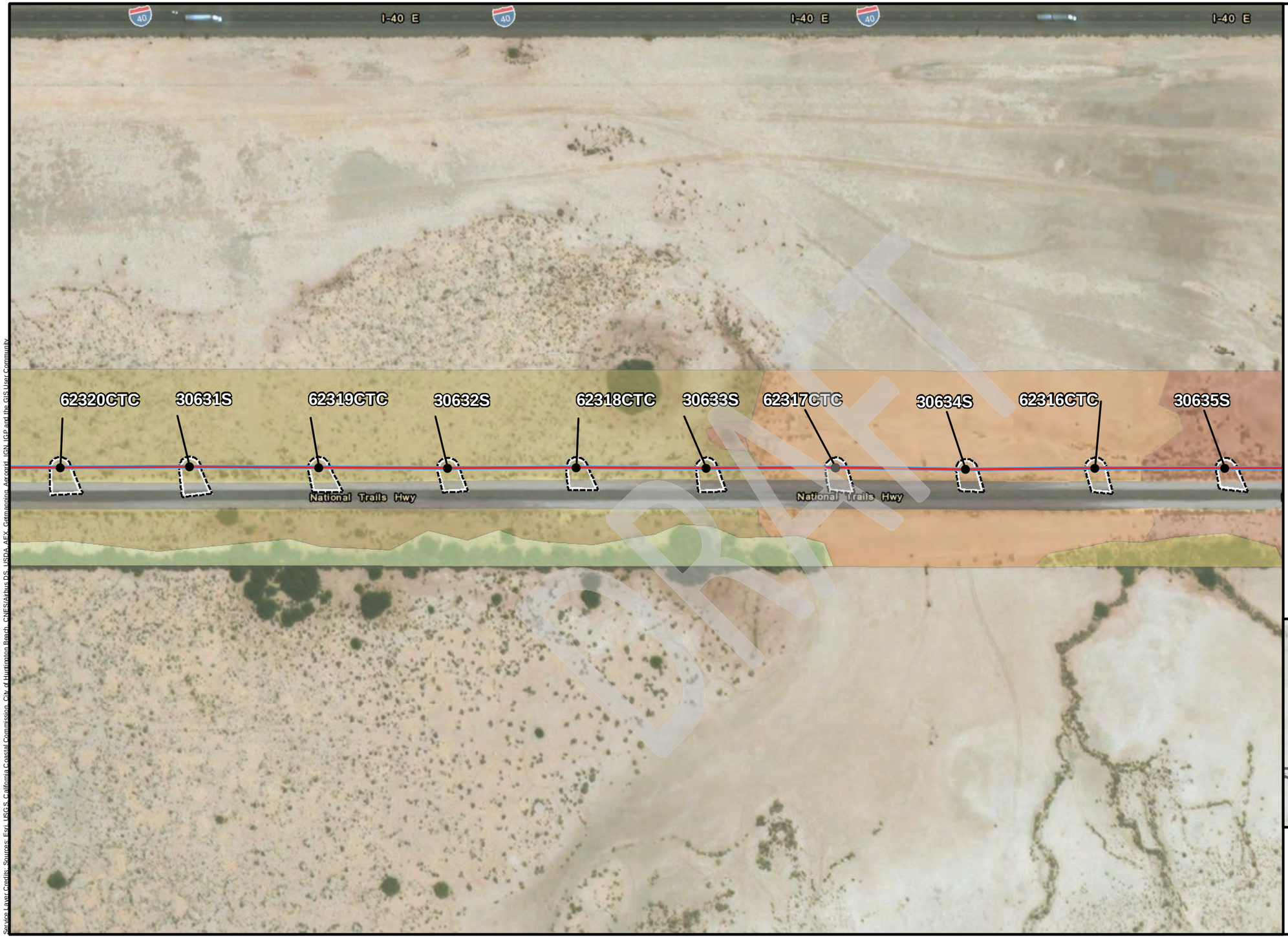
1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA,AEX, Getmapping Aerogrid, IGN,IGP,and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_Ei02_20190610.mxd

Exhibit 3. Project Components (Page 43 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

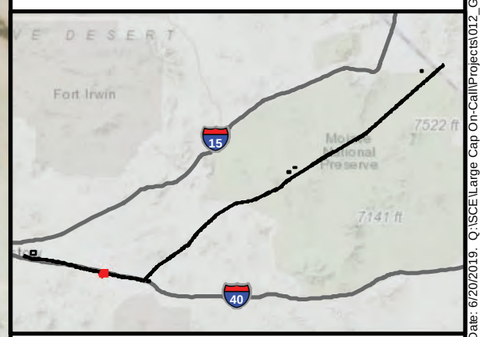


Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Dry lake
- Fourwing saltbush scrub
- Mesquite thickets
- Shadscale scrub
- Tamarisk thickets



0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

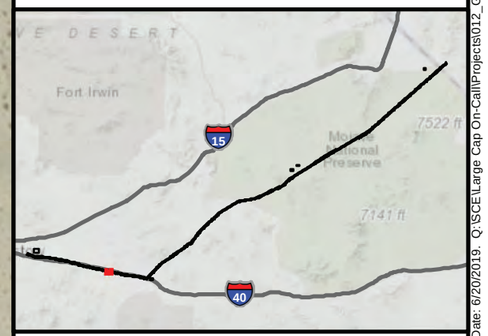
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BAIEX_3_Project_Comps_EI02_20190610.mxd

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Dry lake
- Mesquite thickets
- Shadscale scrub



0 100 200 Feet

1:2,400 1 in = 200 feet

Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 45 of 260)

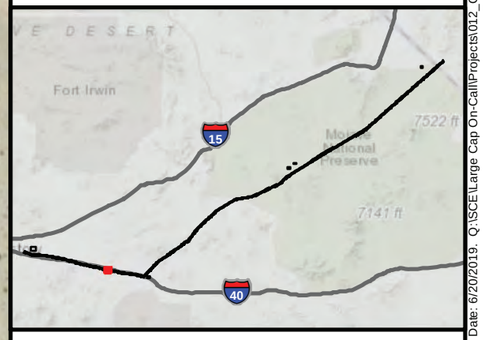
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Mesquite thickets
- Shadscale scrub
- Tamarisk thickets

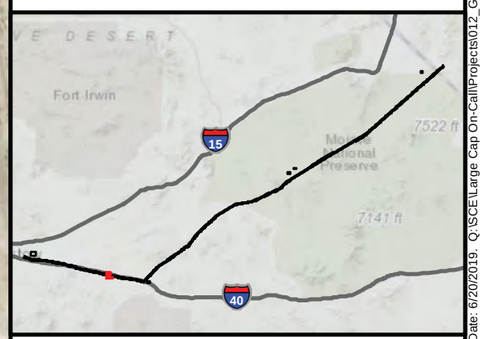


0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd



Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Shadscale scrub

0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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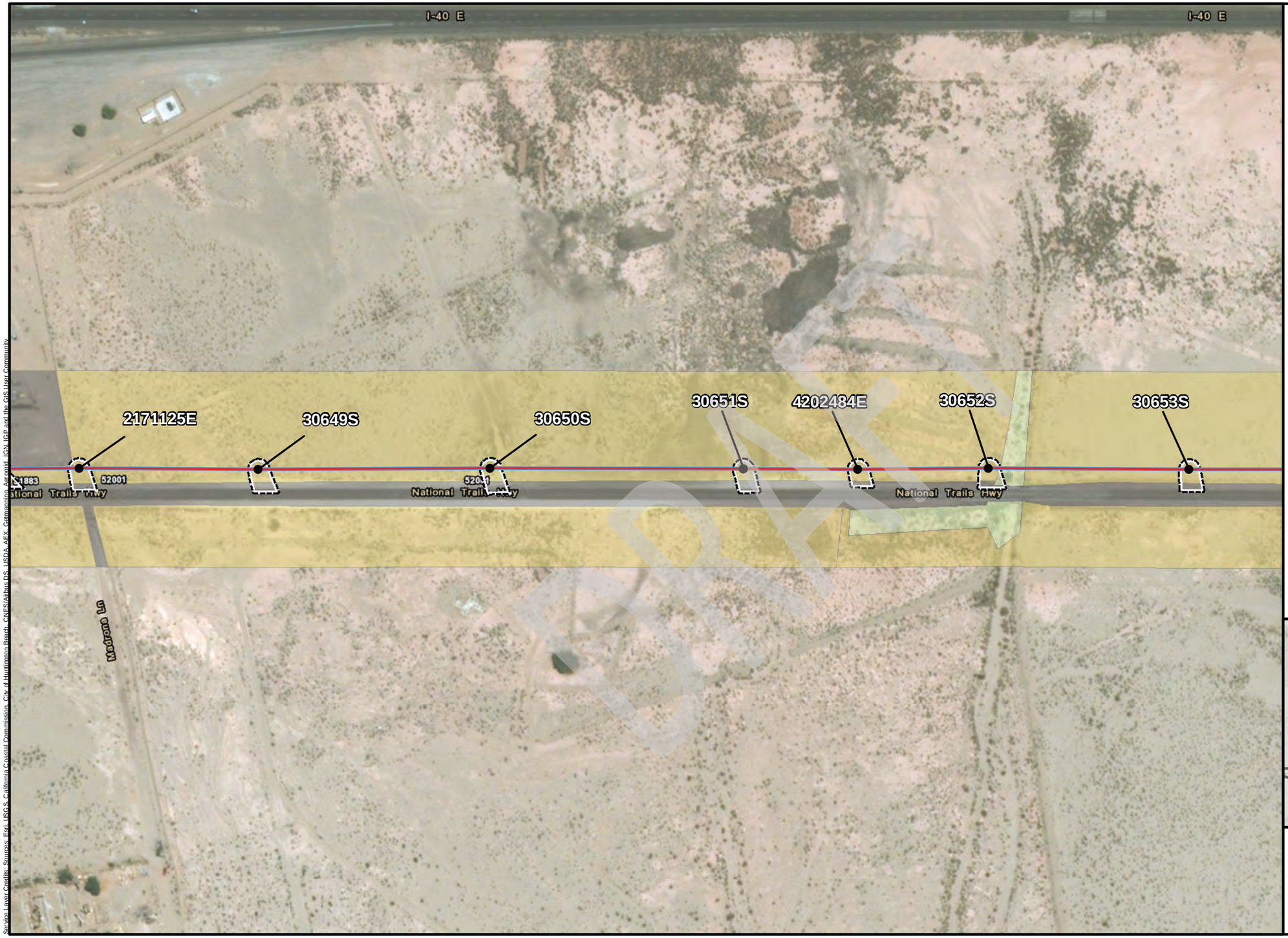


Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Developed
- Tamarisk thickets

0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA102_GIS_Datalmaps\2019\BA\EX_3_Project_Comps_E\02_20190610.mxd

Exhibit 3. Project Components (Page 48 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV


I-40 E
I-40 E
I-40 E
I-40 W
30653S
30654S
30655S
30656S
30657S
30658S
30870S
National Trails Hwy
National Trails Hwy
National Trails Hwy
National Trails Hwy
Legend
Existing Pole
Proposed Overhead ADSS/OFNR
OPGW Pull Site
Structure Work Area
Vegetation Communities (MCV)
Allscale scrub
Developed
Fort Irwin
7522 ft
7141 ft
15
40
0
100
200
Feet
1:2,400
1 in = 200 feet
DRAFT
Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_E\02_20190610.mxd

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- OPGW Pull Site
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Creosote bush - white burr sage scrub
- Developed

0 100 200 Feet

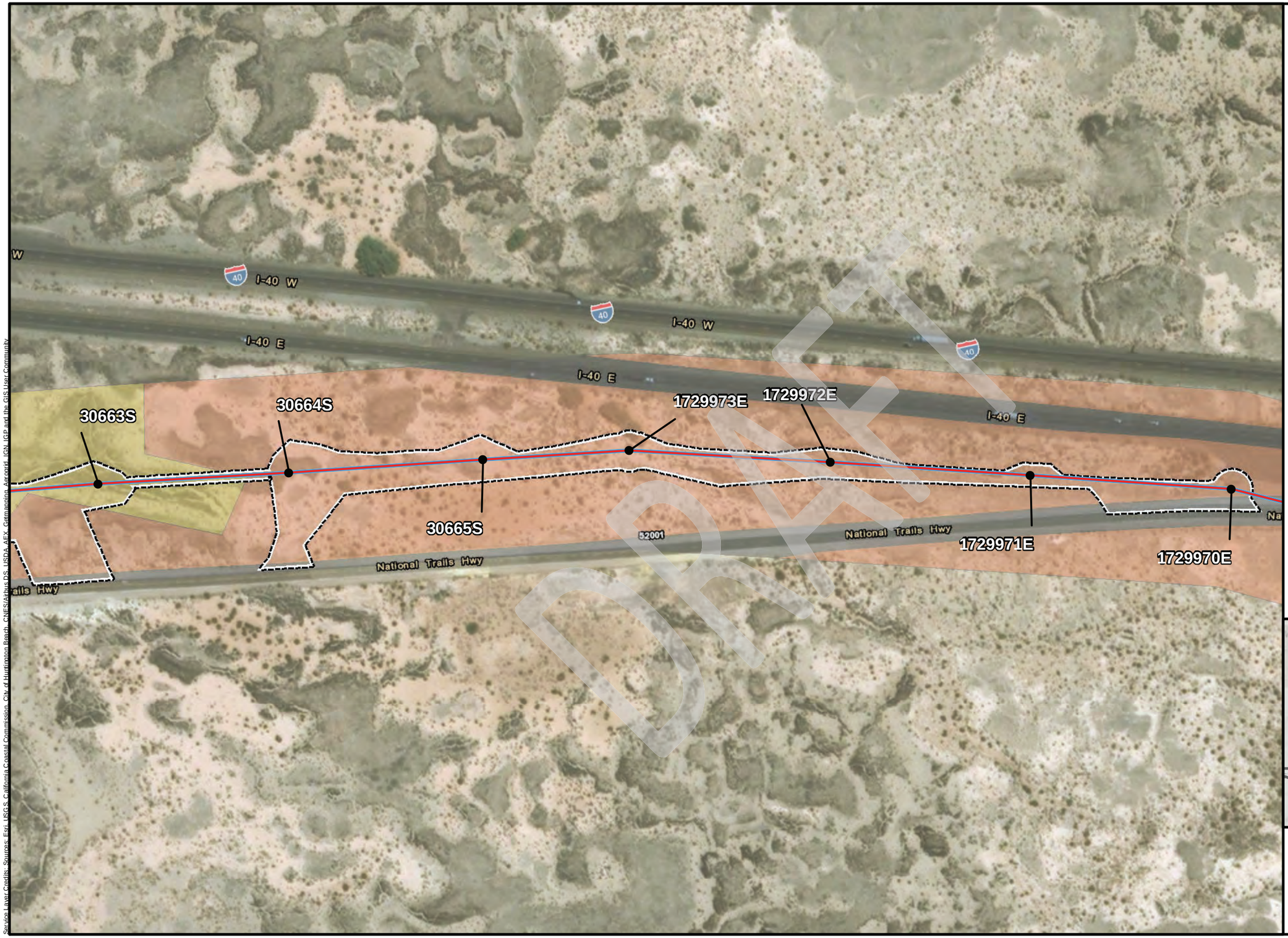
1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_E\02_20190610.mxd

Exhibit 3. Project Components (Page 50 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Allscale scrub
- Creosote bush - white burr sage scrub
- Developed

0 100 200 Feet

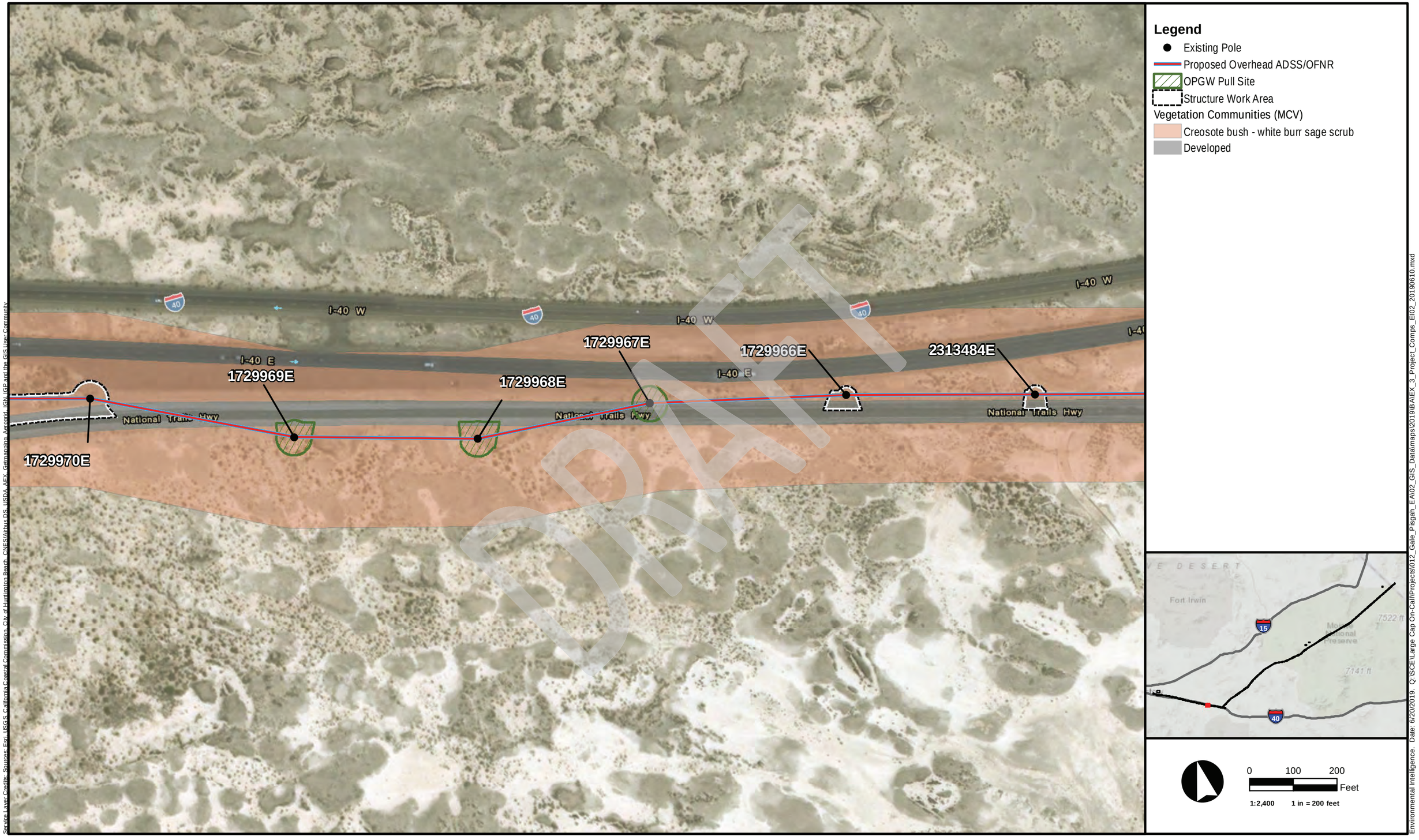
1:2,400 1 in = 200 feet

Sources: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 51 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV


I-40 W
I-40 E
National Trails Hwy
1729970E
1729969E
1729968E
1729967E
1729966E
2313484E
Legend
Existing Pole
Proposed Overhead ADSS/OFNR
OPGW Pull Site
Structure Work Area
Vegetation Communities (MCV)
Creosote bush - white burr sage scrub
Developed
Fort Irwin
7522 ft
7141 ft
0
100
200
Feet
1:2,400
1 in = 200 feet
DRAFT
Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

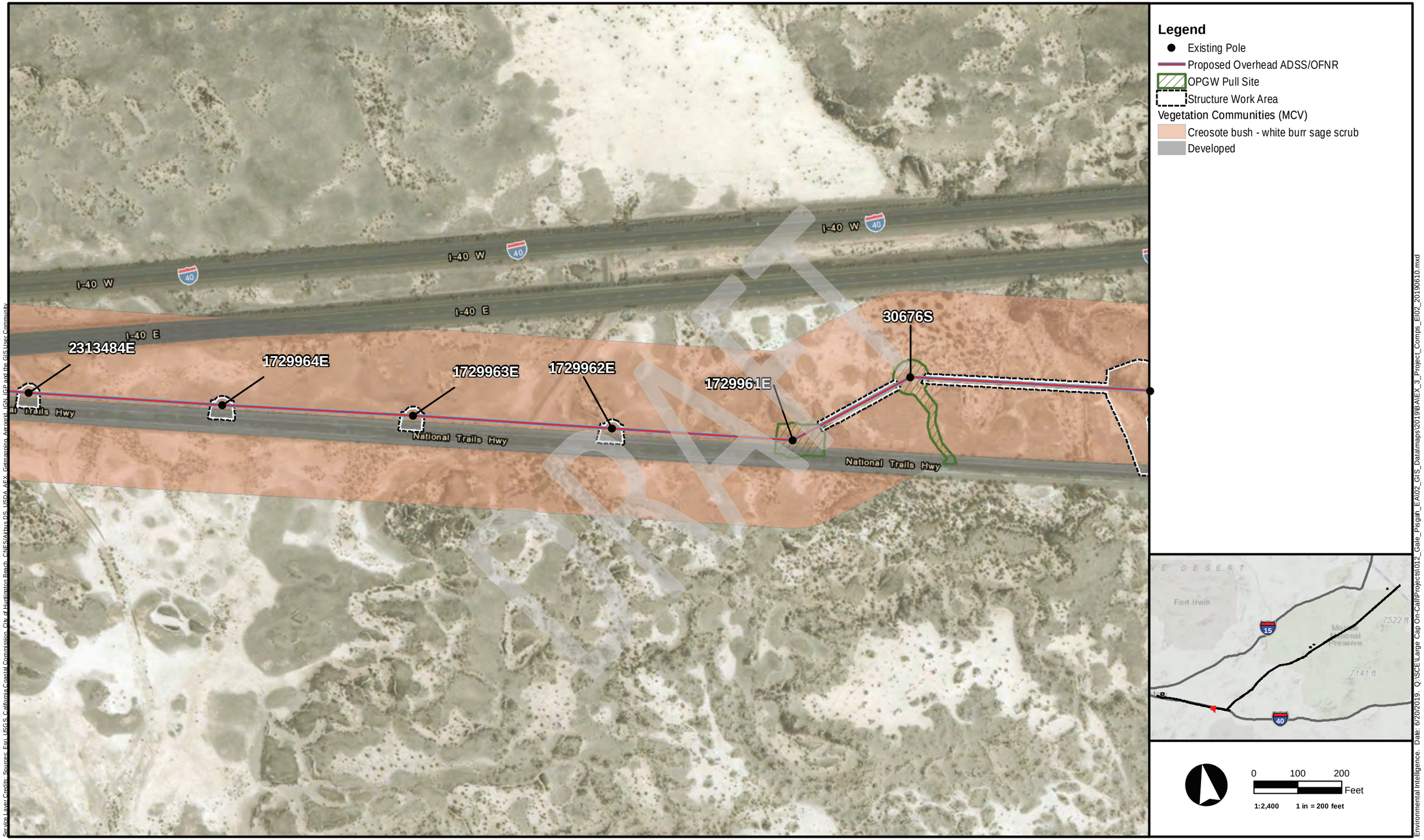


Exhibit 3. Project Components (Page 53 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Exhibit 3. Project Components (Page 54 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

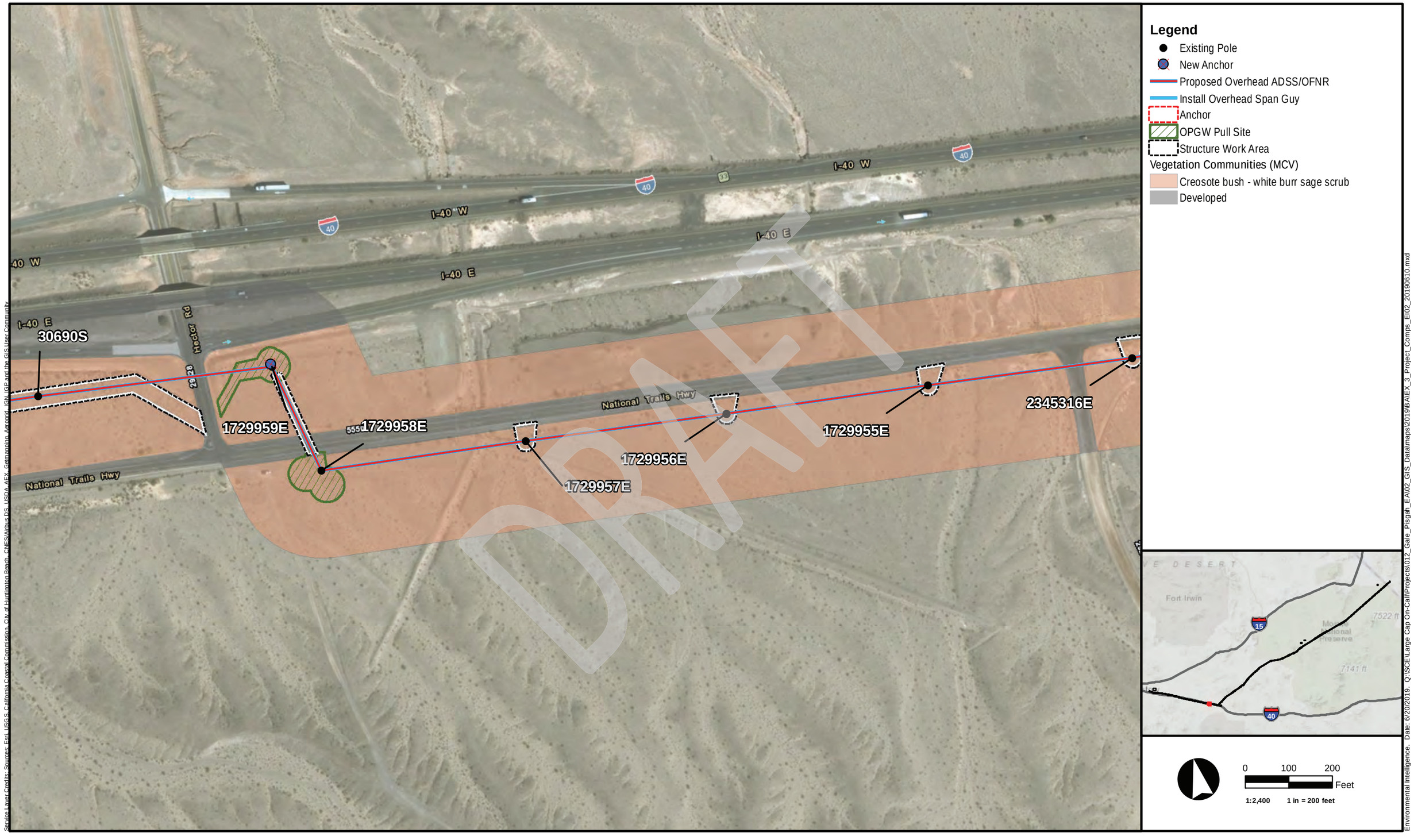
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BAIEX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 55 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Exhibit 3. Project Components (Page 56 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

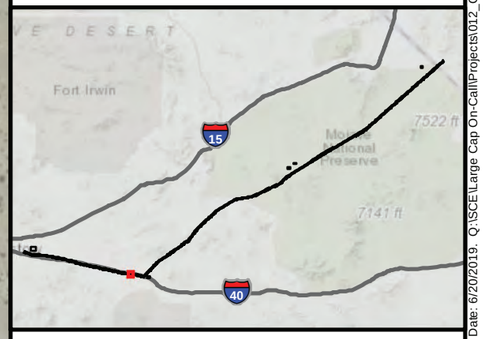
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_Ei02_20190610.mxd

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Geospatial Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

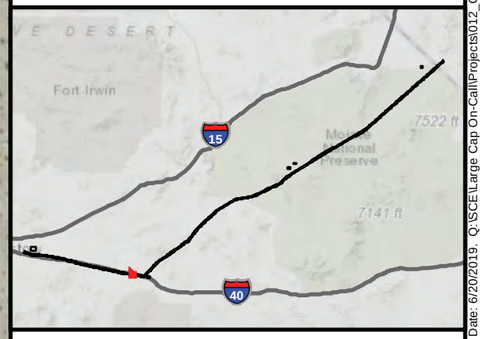
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_E\02_20190610.mxd

Exhibit 3. Project Components (Page 59 of 260)

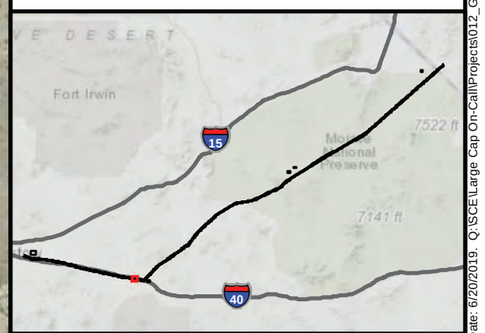
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



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1:2,400 1 in = 200 feet

Source: Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

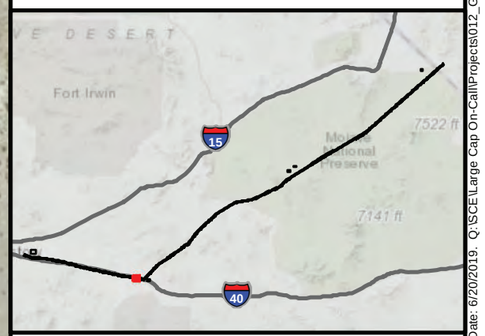
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Datalmaps\2019\BA\EX_3_Project_Comps_E\02_20190610.mxd

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



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Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, Chad Huntington Branch, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

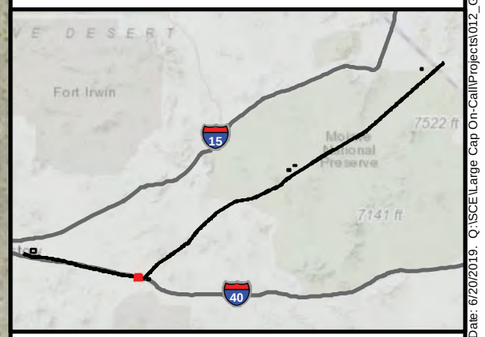
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

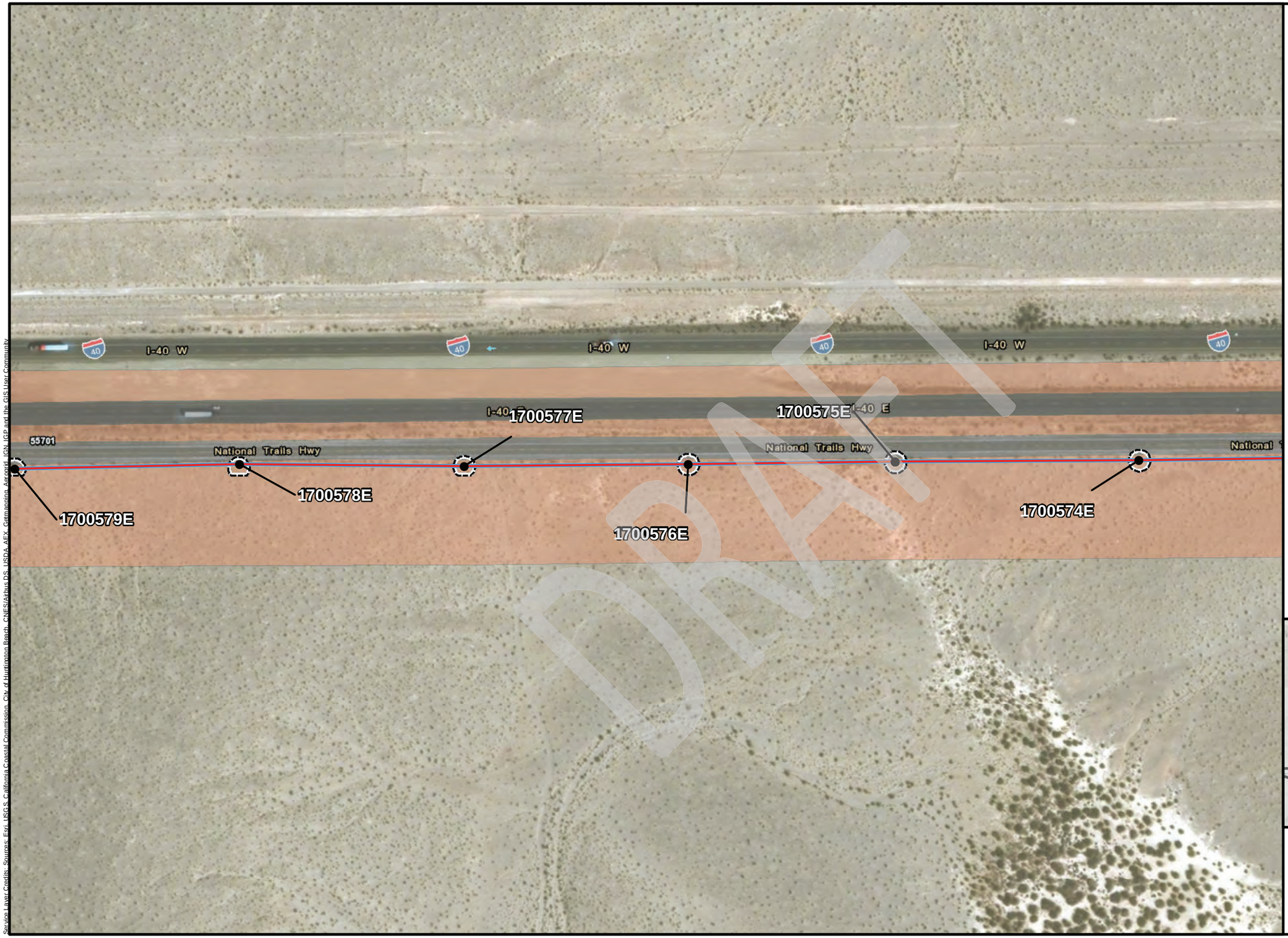


0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Esri Community Maps Contributors, Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd



Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

0 100 200 Feet

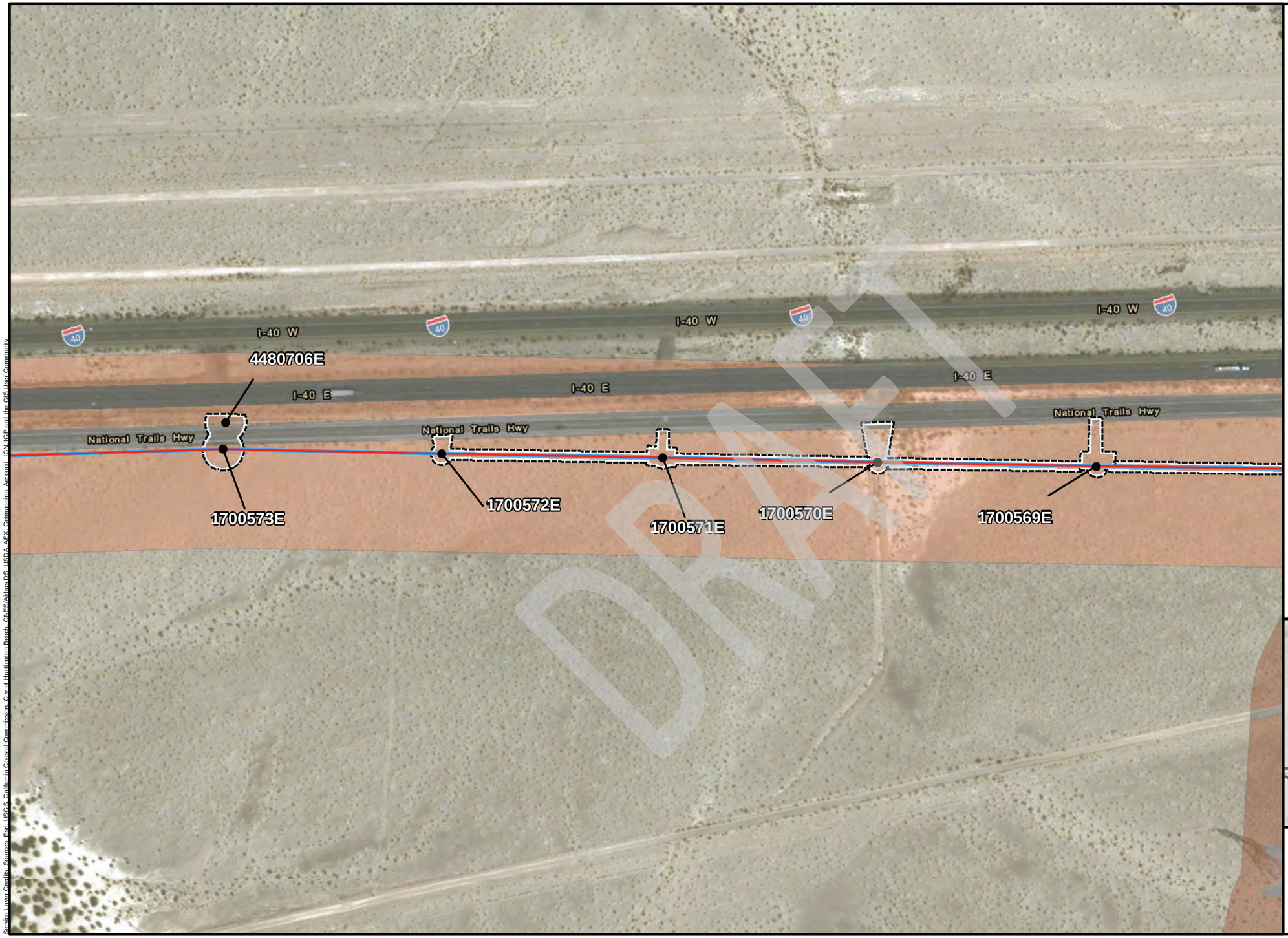
1:2,400 1 in = 200 feet

Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 63 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

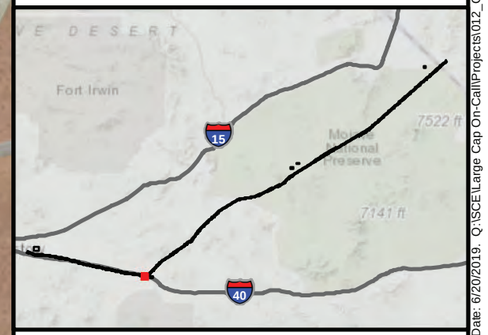


Legend

- Existing Pole
- Proposed Overhead ADSS/OFNR
- Structure Work Area

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA102_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 64 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

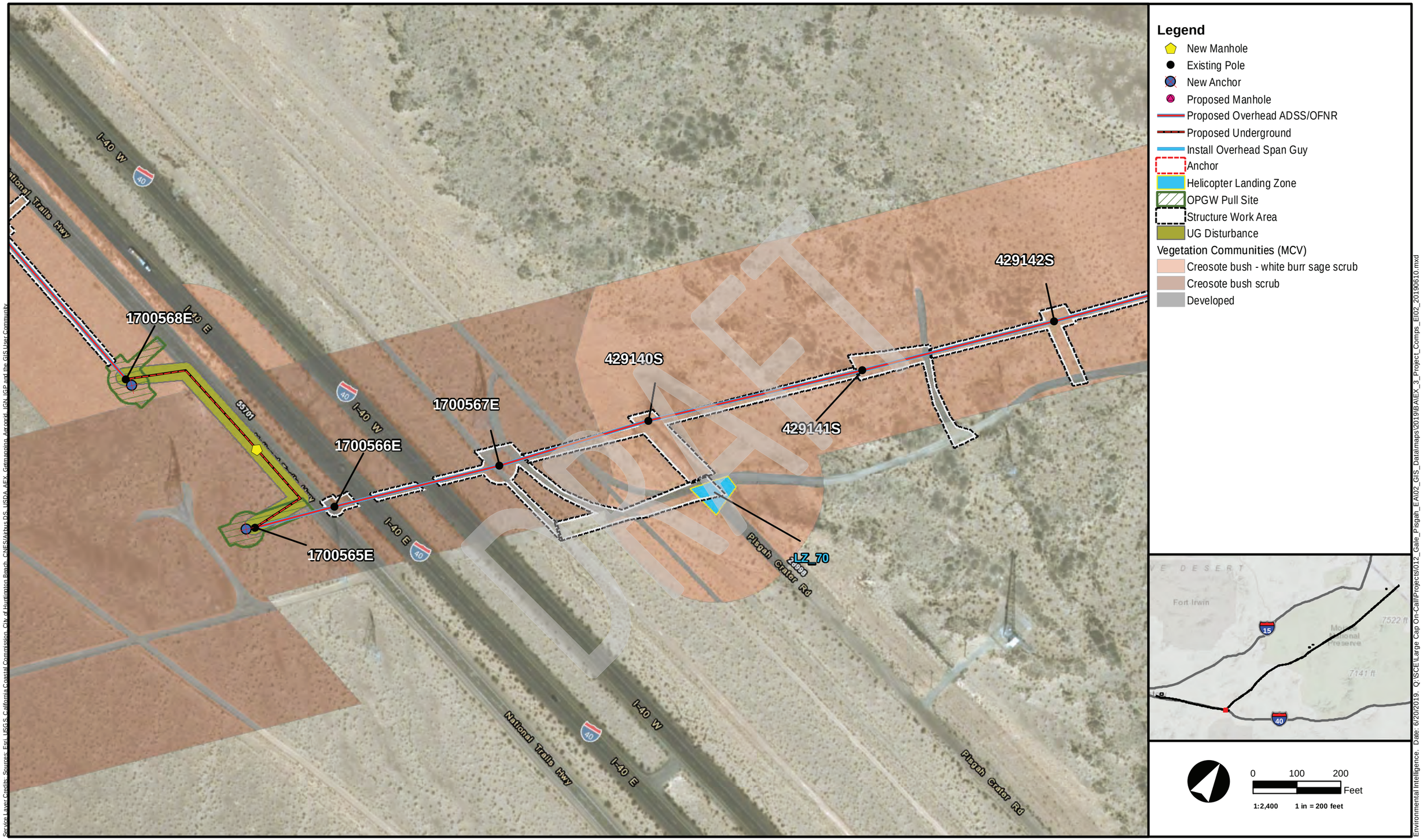


Exhibit 3. Project Components (Page 65 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

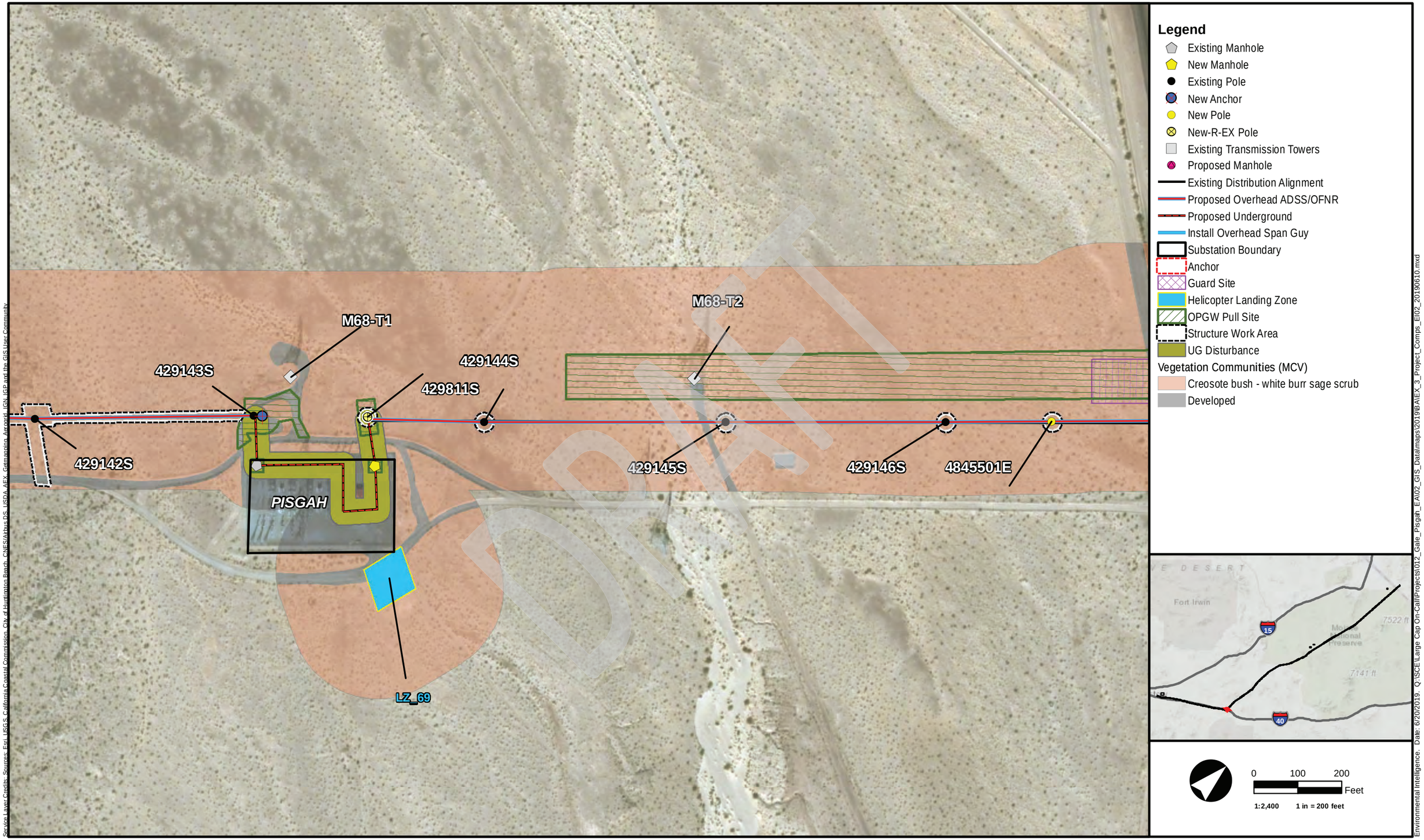


Exhibit 3. Project Components (Page 66 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Helicopter Landing Zone

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA02_GIS_Datalmaps\2019\BAIEX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 67 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

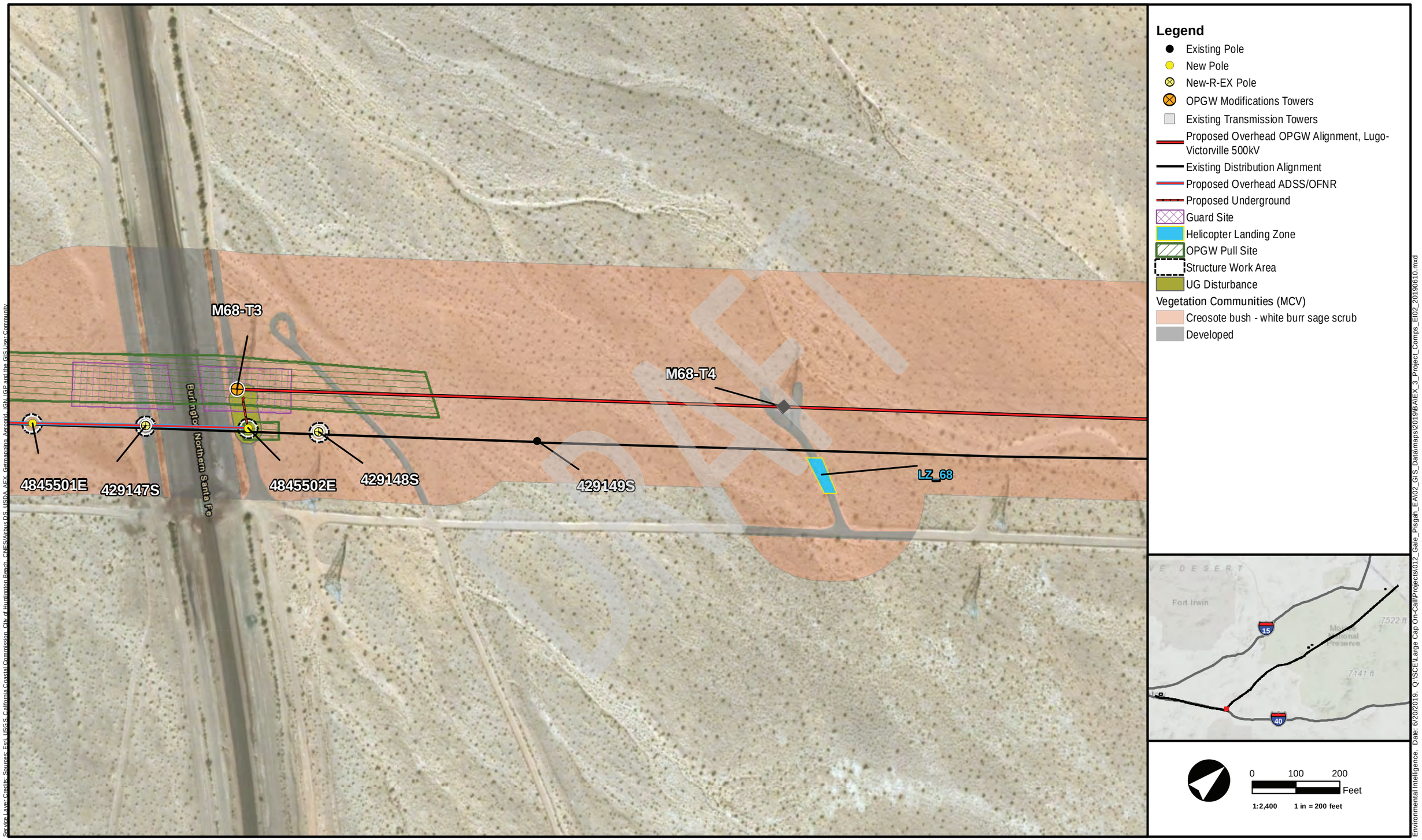
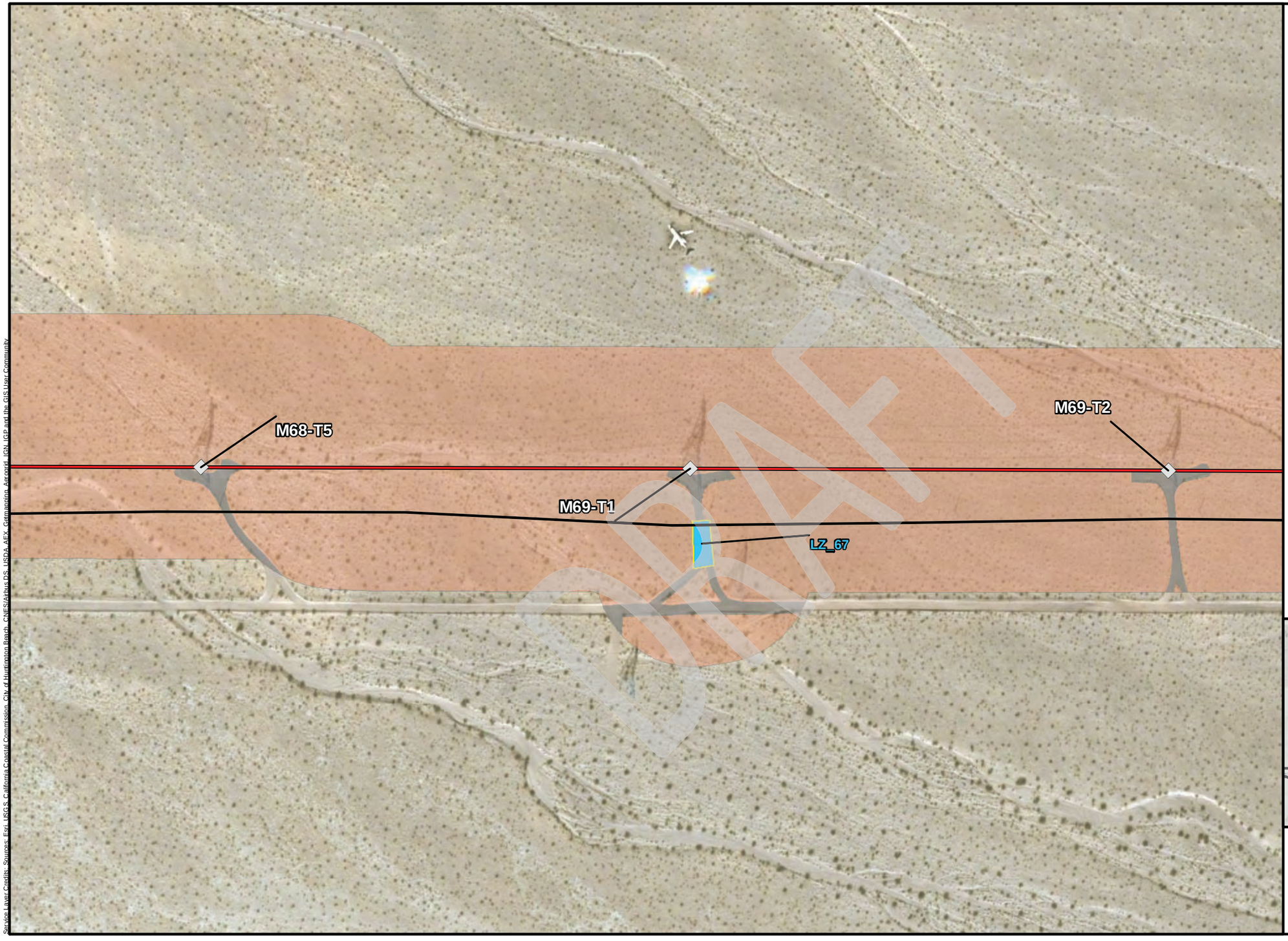


Exhibit 3. Project Components (Page 68 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

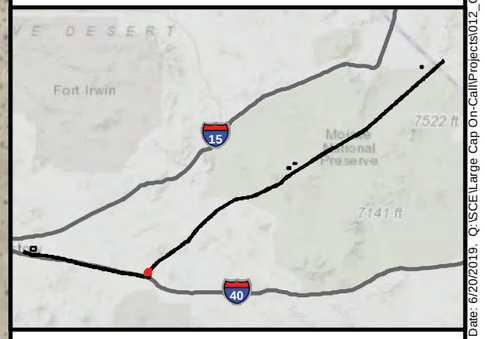


Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- Existing Distribution Alignment
- Helicopter Landing Zone

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Sources: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

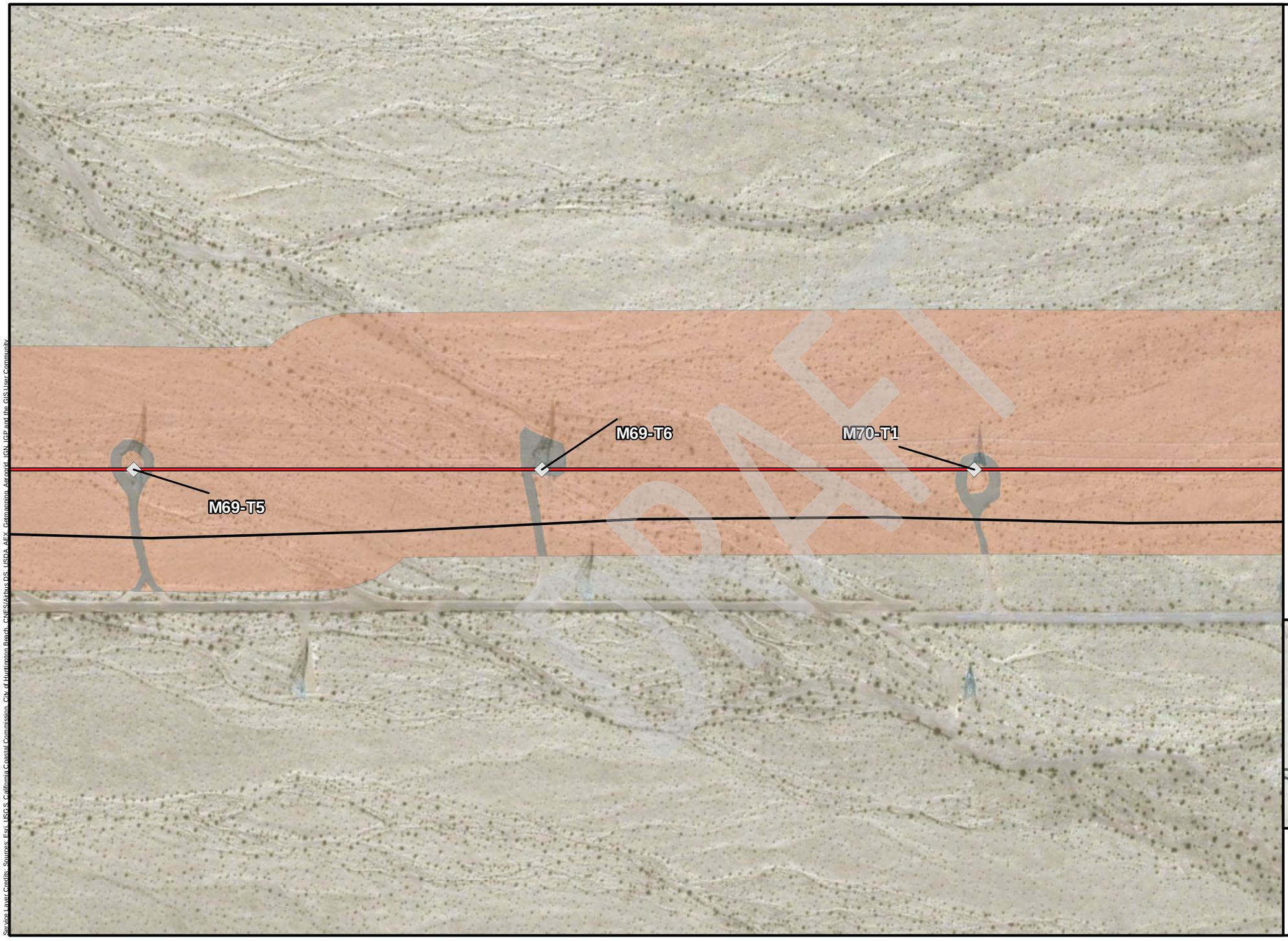
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 69 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Exhibit 3. Project Components (Page 70 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

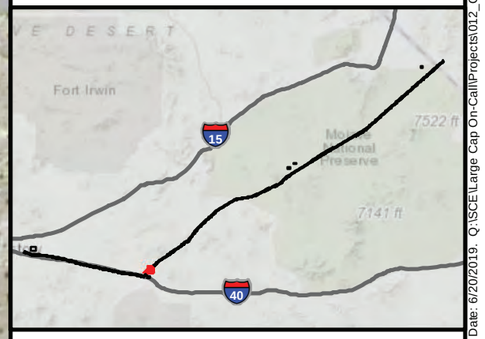


Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- Existing Distribution Alignment

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

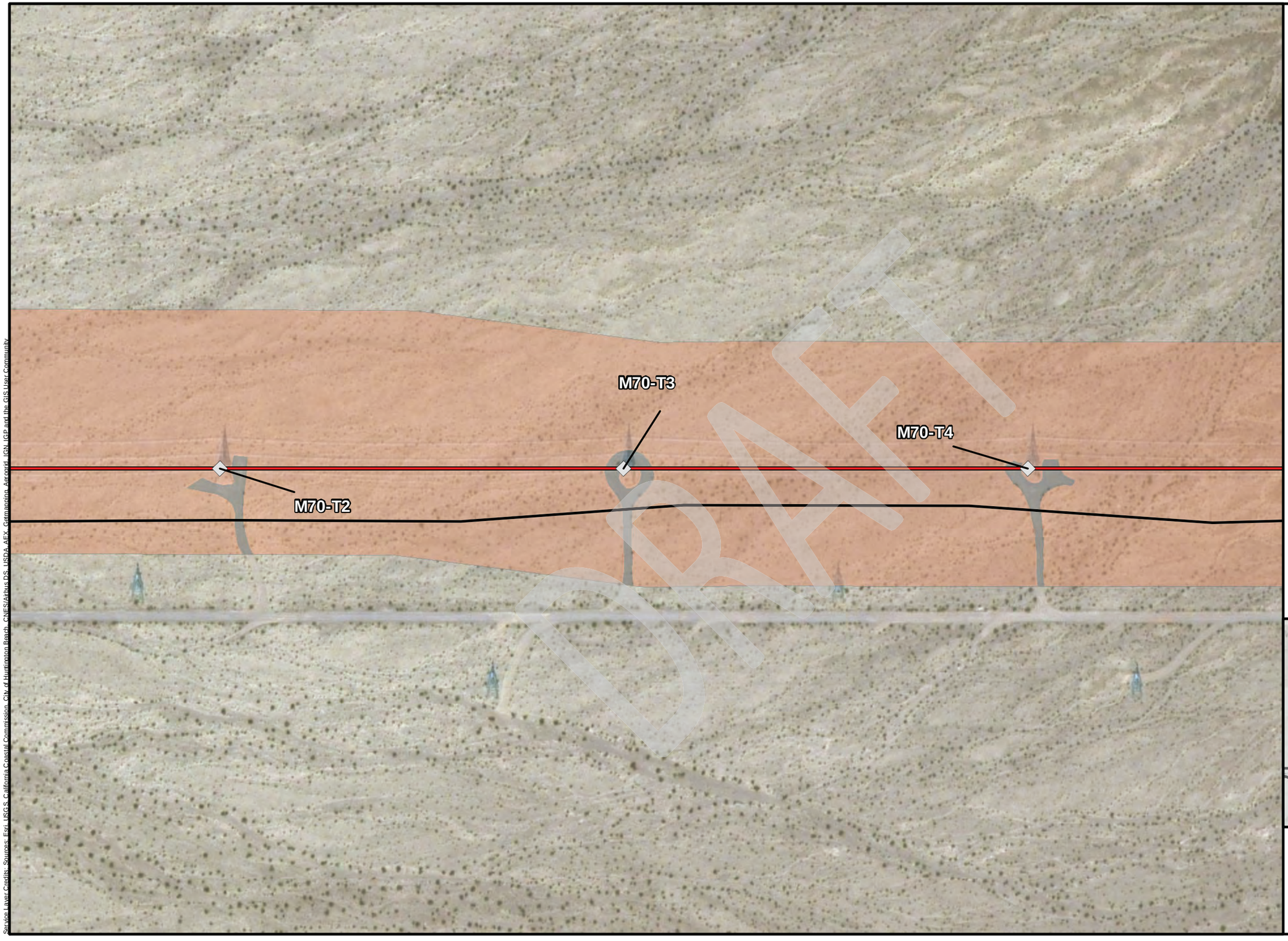
1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNIES/Airbus DS, USDA AEX, Getmapping Aerogrid, IGN, IGP and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 71 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

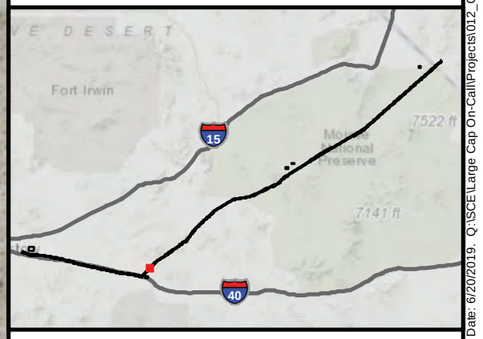


Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- Existing Distribution Alignment

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

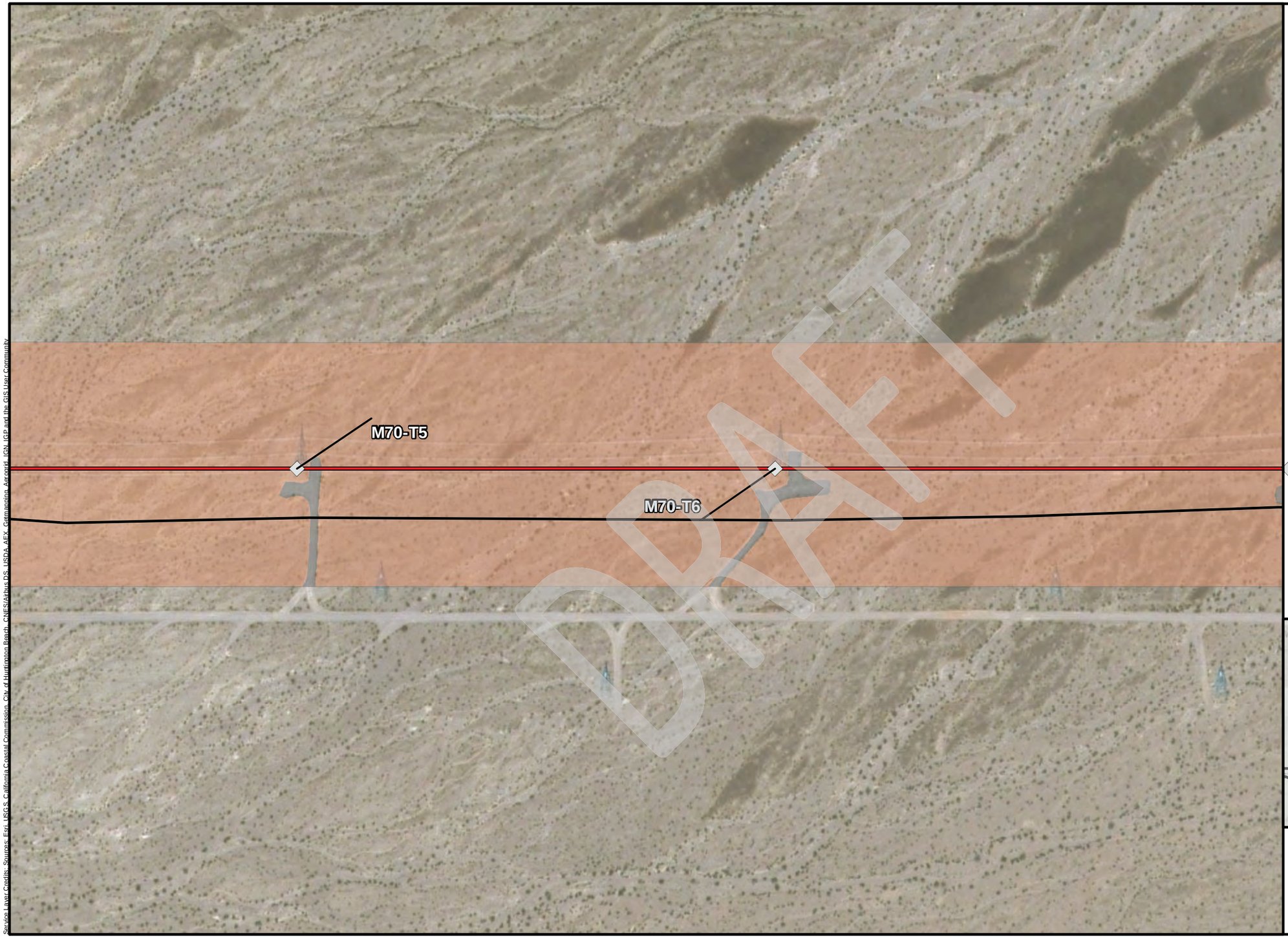
1:2,400 1 in = 200 feet

Service Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019 Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 72 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- Existing Distribution Alignment

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 73 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

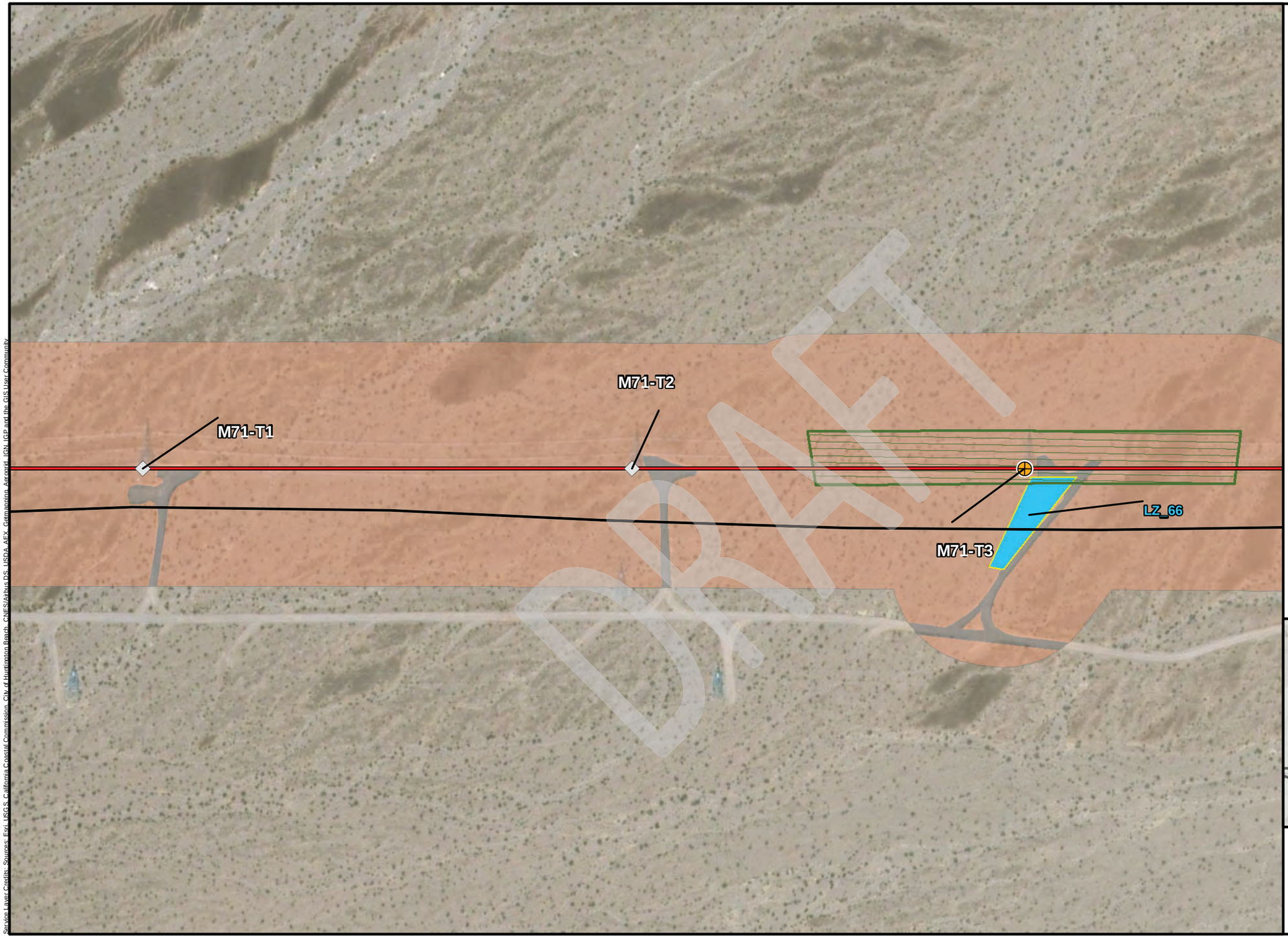
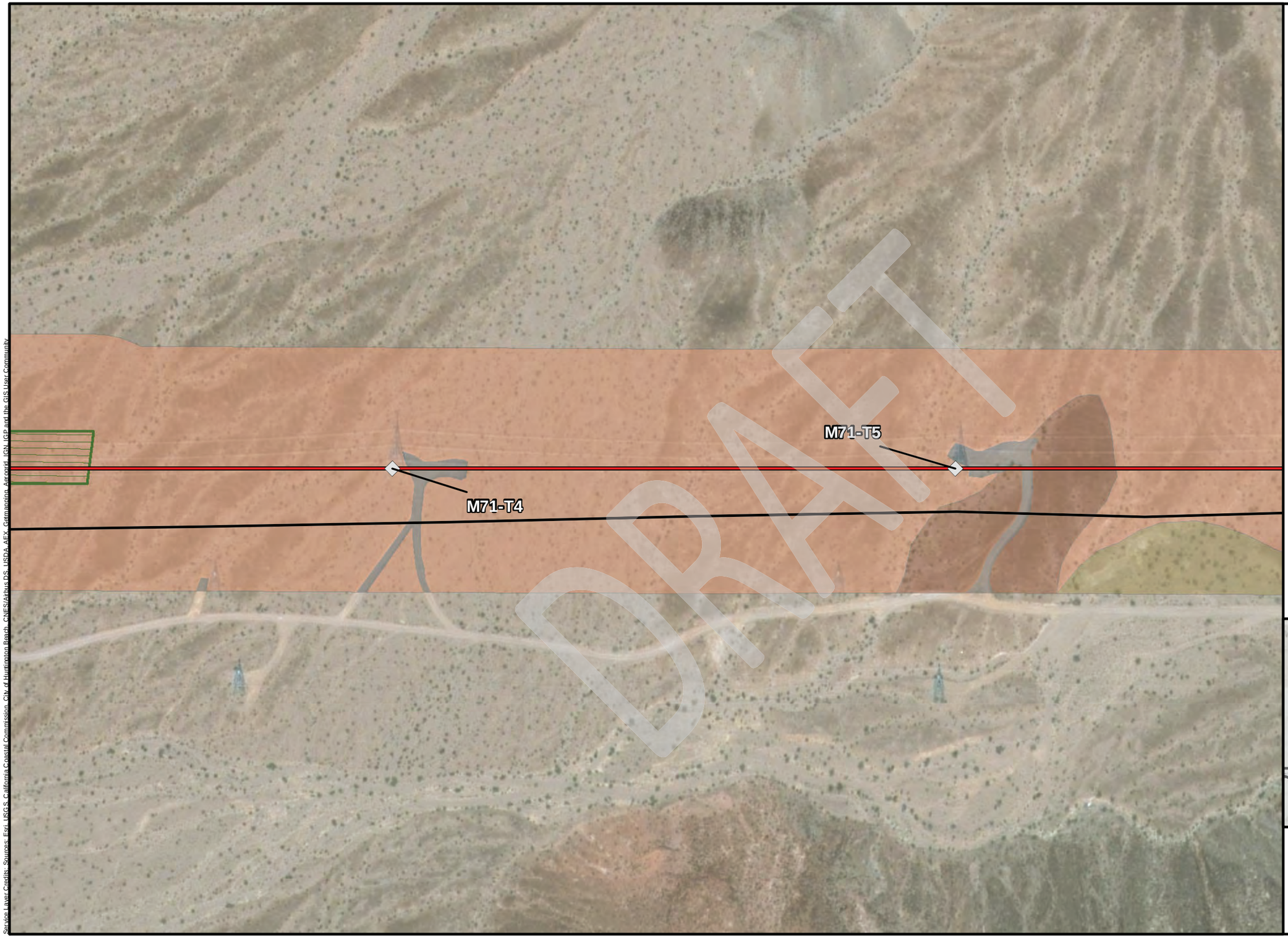


Exhibit 3. Project Components (Page 74 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

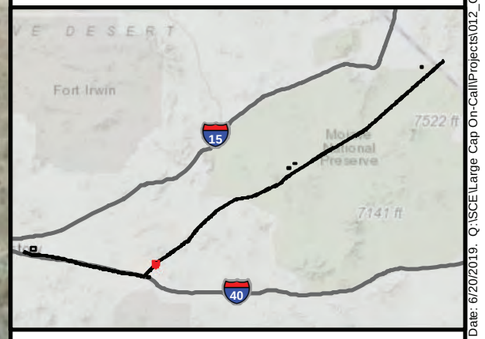


Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- Existing Distribution Alignment
- OPGW Pull Site

Vegetation Communities (MCV)

- Cheesebush - sweetbush scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Developed



0 100 200 Feet

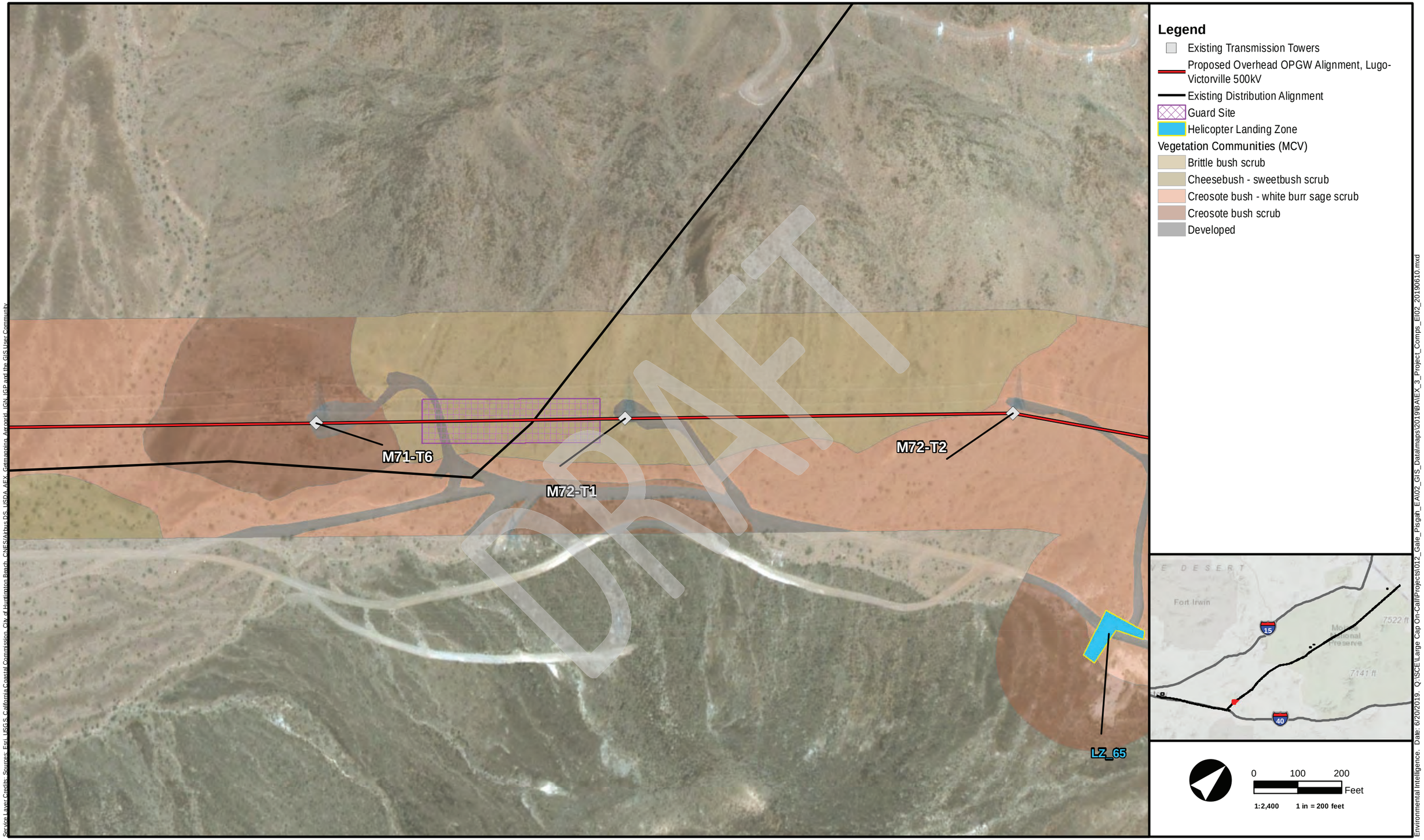
1:2,400 1 in = 200 feet

Service Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA AEX, Getmapping Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_Ei02_20190610.mxd

Exhibit 3. Project Components (Page 75 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV


M71-T6
M72-T1
M72-T2
LZ_65
DRAFT
Legend
Existing Transmission Towers
Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
Existing Distribution Alignment
Guard Site
Helicopter Landing Zone
Vegetation Communities (MCV)
Brittle bush scrub
Cheesebush - sweetbush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
Developed
Fort Irwin
7522 ft
7141 ft
15
40
0 100 200
Feet
1:2,400 1 in = 200 feet
Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_E\02_20190610.mxd


LZ_64
M72-T3
M72-T4
M72-T5
LZ_65
Legend
Existing Transmission Towers
Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
Helicopter Landing Zone
Vegetation Communities (MCV)
Brittle bush scrub
Creosote bush - white burr sage scrub
Creosote bush scrub
Developed
Fort Irwin
7522 ft
7141 ft
15
40
0
100
200
Feet
1:2,400
1 in = 200 feet
DRAFT
Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
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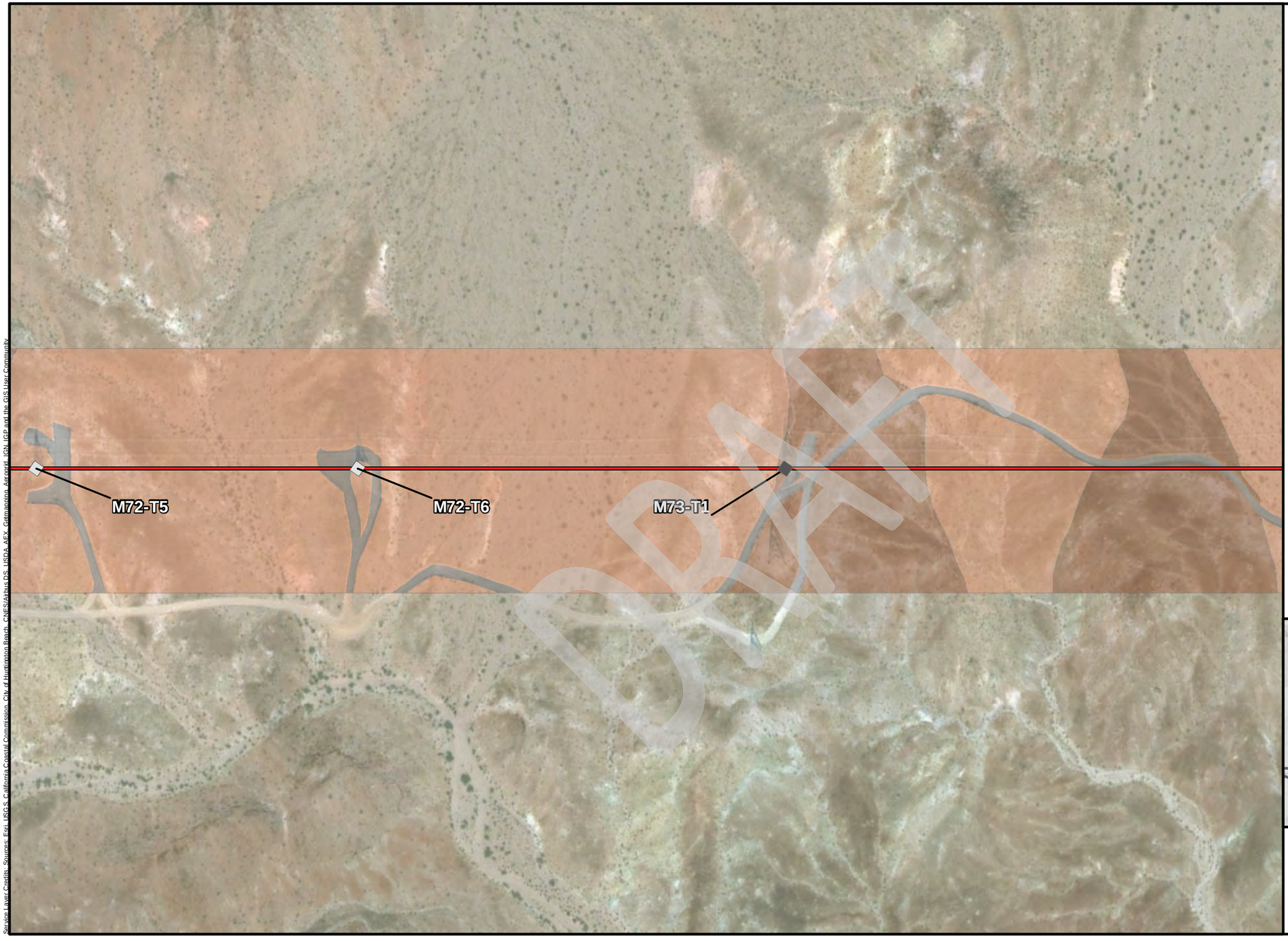
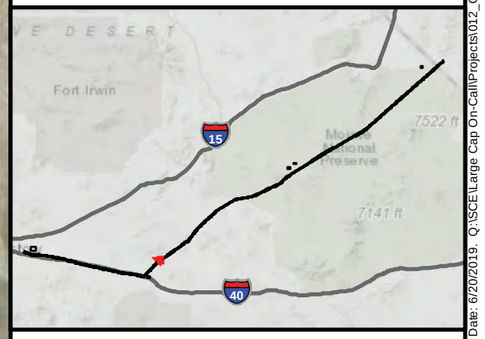


Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Developed



0 100 200 Feet

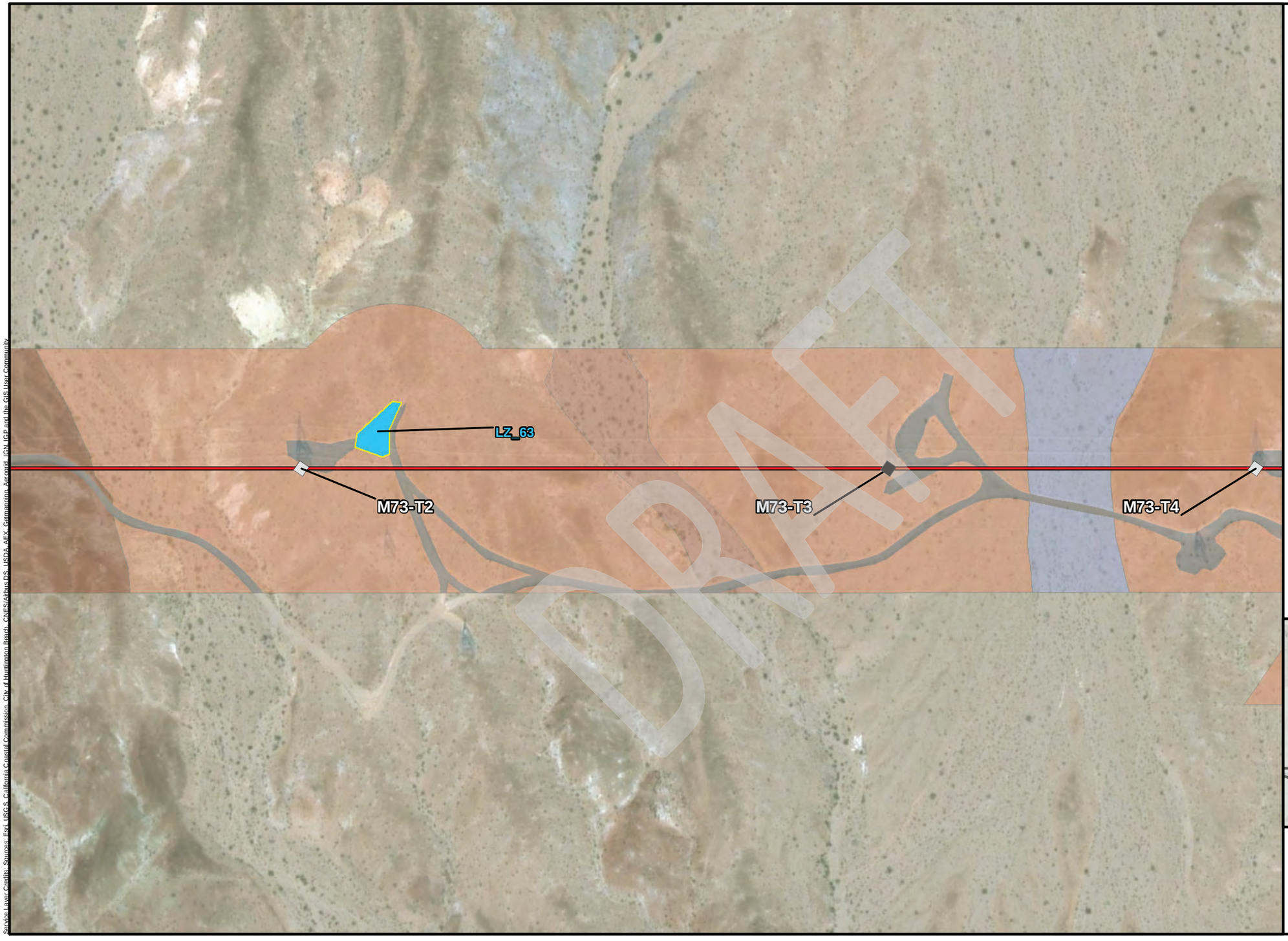
1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Hurlington Branch, CNES/Airbus DS, USDA,AEX, Getmapping Aerogrid, IGN, IGP and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Datalmaps\2019\BA\EX_3_Project_Comps_Ei02_20190610.mxd

Exhibit 3. Project Components (Page 78 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

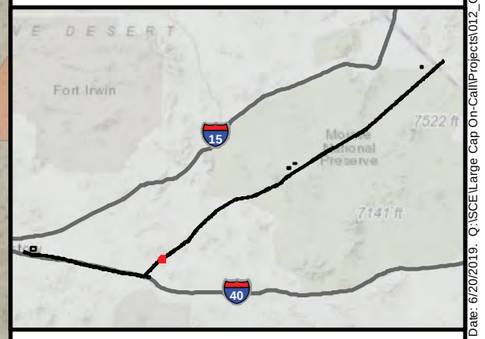


Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- Helicopter Landing Zone

Vegetation Communities (MCV)

- Catclaw acacia - desert lavender chuparos scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Developed
- Smoke tree woodland



0 100 200 Feet

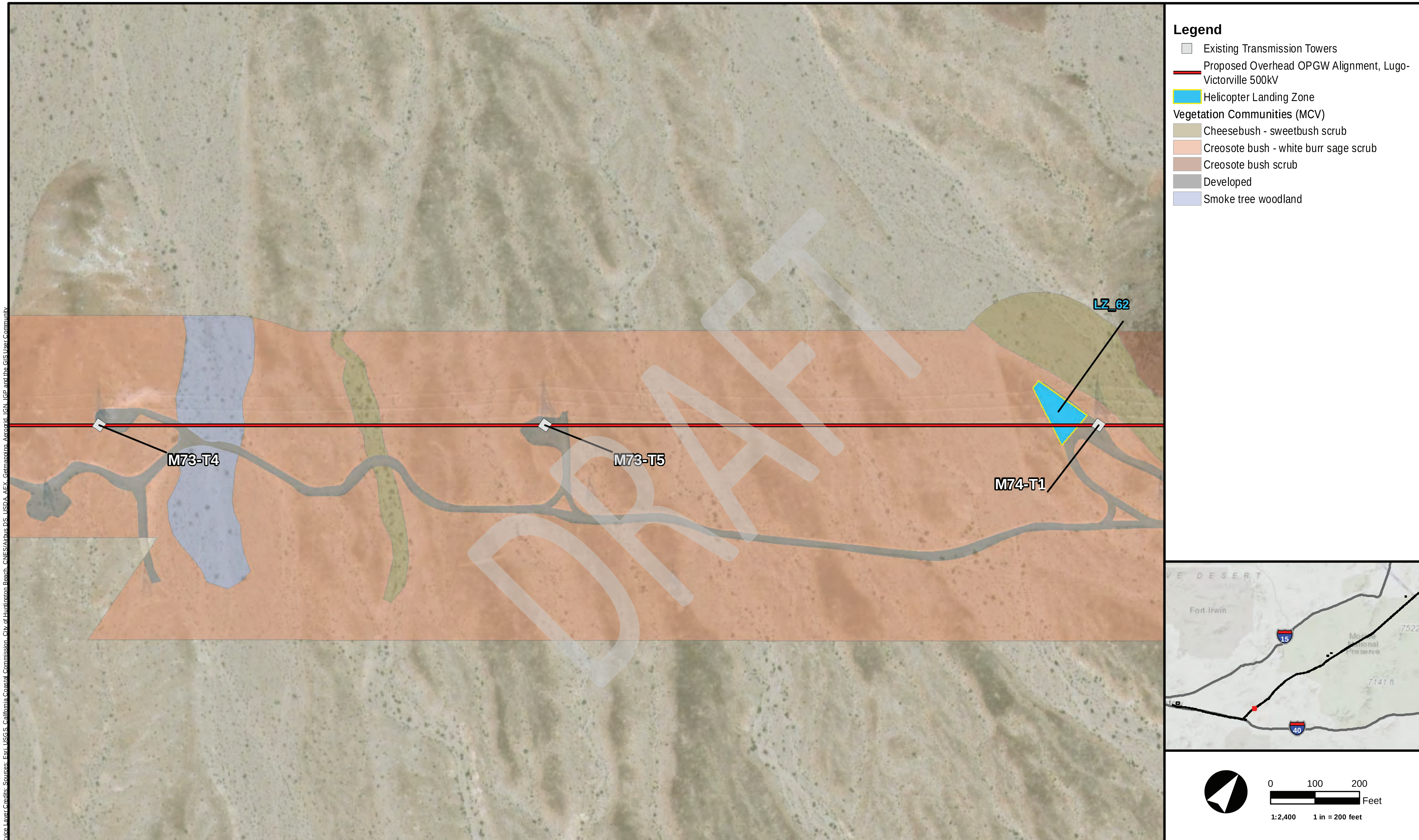
1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA,AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019 Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 79 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

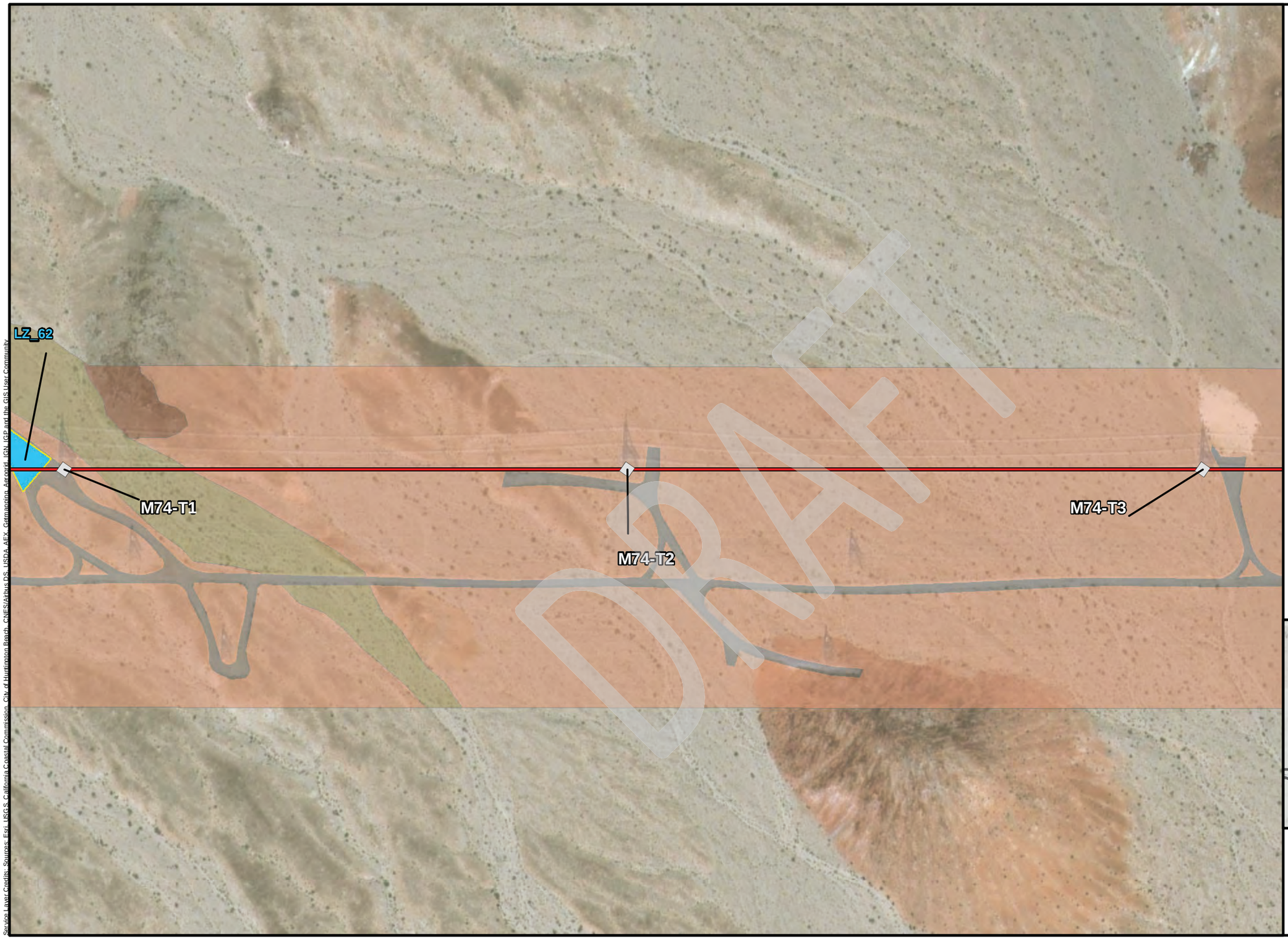


Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Datamaps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 80 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- Helicopter Landing Zone

Vegetation Communities (MCV)

- Cheesebush - sweetbush scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Developed

0 100 200 Feet

1:2,400 1 in = 200 feet

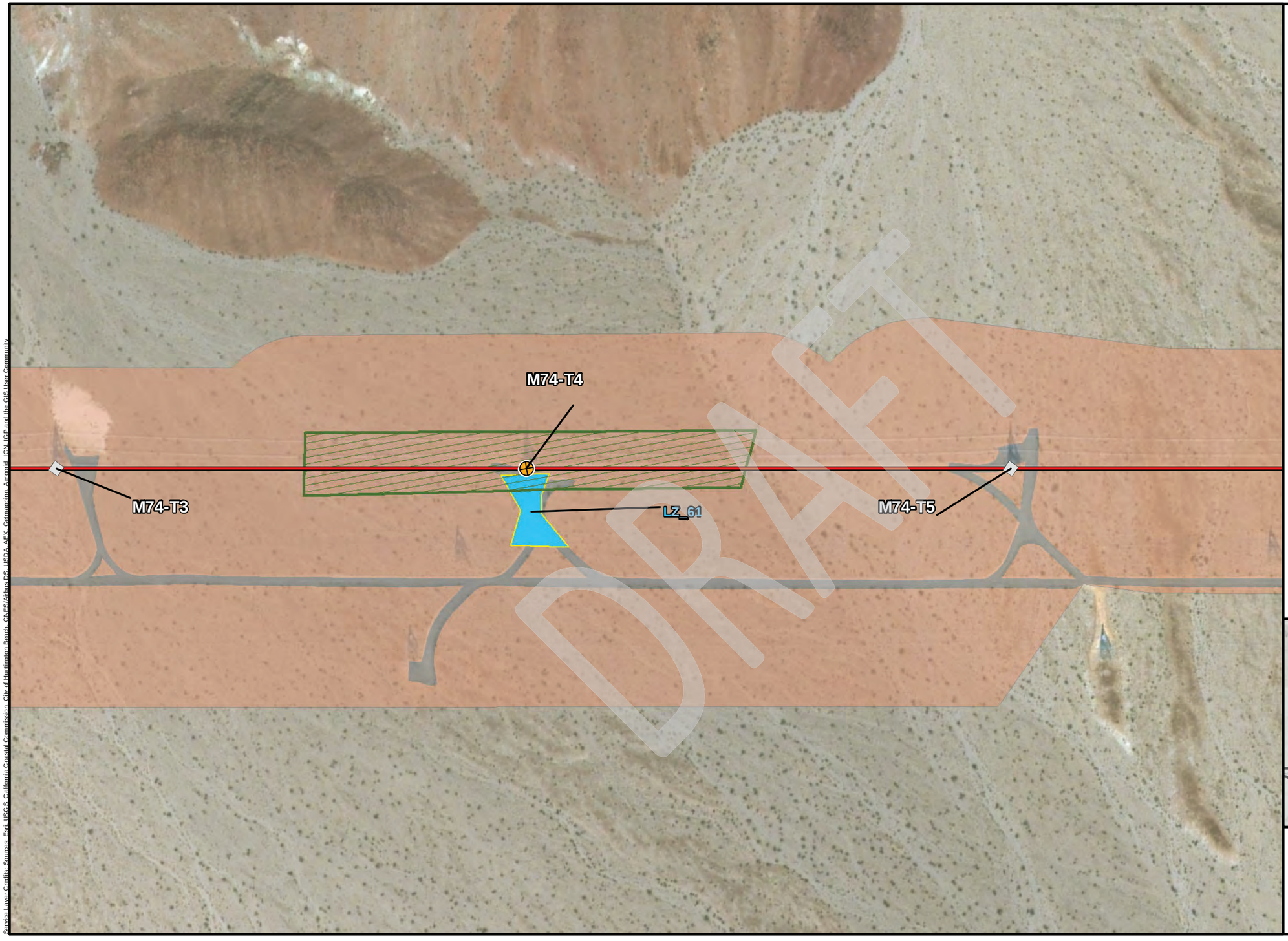
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, and the GIS User Community

Source: Esri, USGS, California Coastal Commission, City of Hurtington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019. Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\EA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 81 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

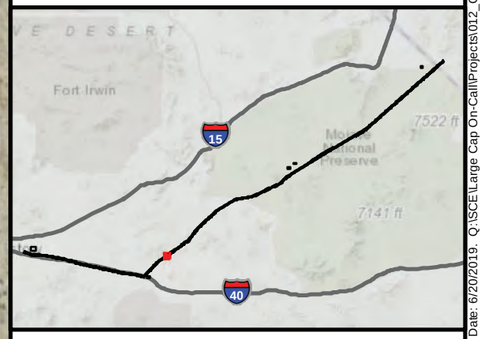


Legend

- OPGW Modifications Towers
- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- Helicopter Landing Zone
- OPGW Pull Site

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

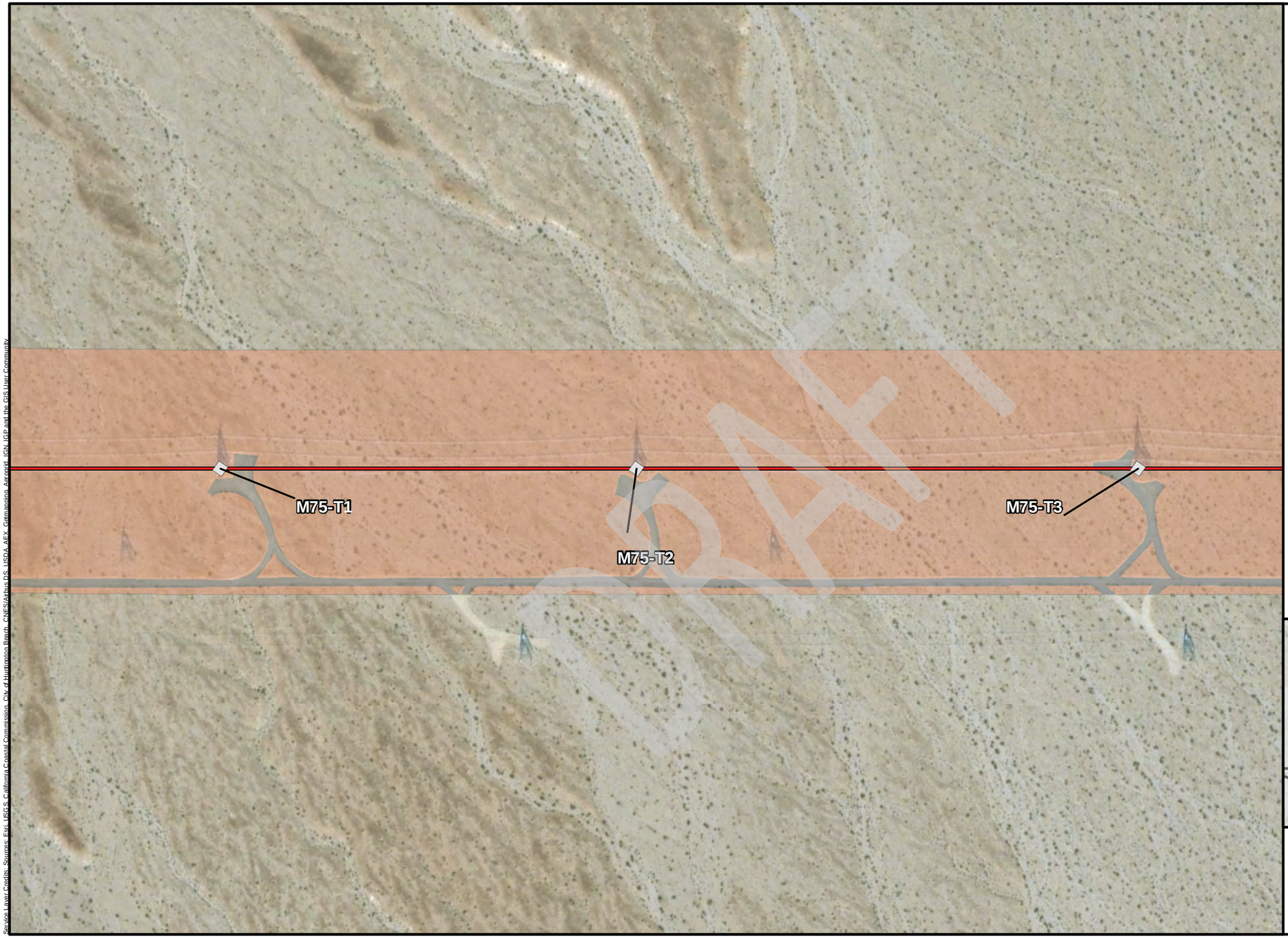
1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 6/20/2019 Q:\SCE\Large Cap On-Call\Projects\012_Gale_Pisgah_EA\02_GIS_Data\maps\2019\BA\EX_3_Project_Comps_EI02_20190610.mxd

Exhibit 3. Project Components (Page 82 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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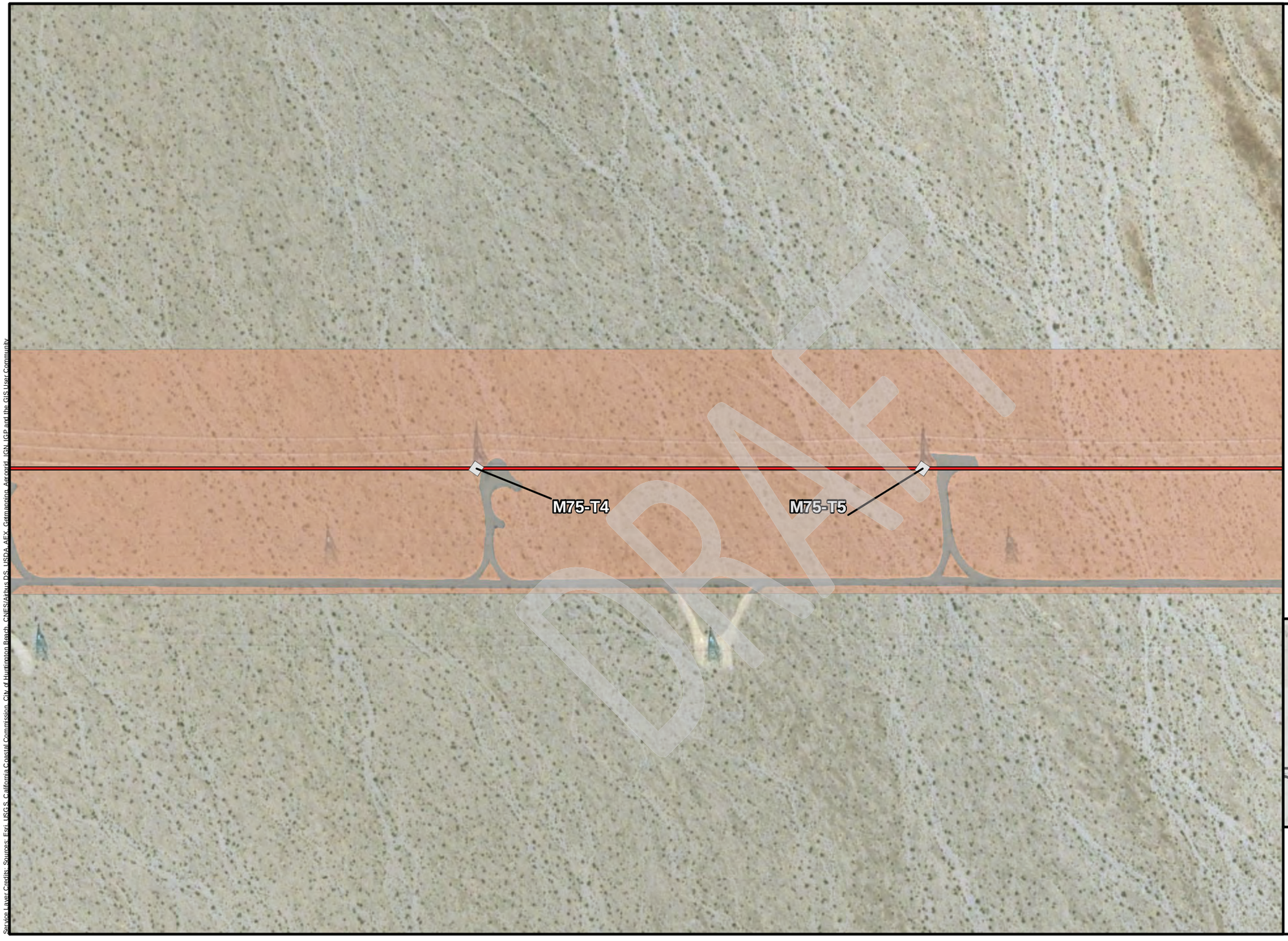
Exhibit 3. Project Components (Page 83 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

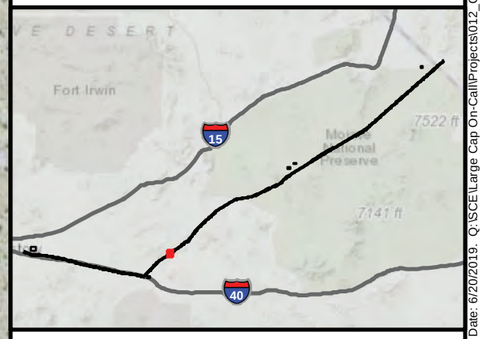


Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Services Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA AEX, Getmapping Aerogrid, IGN, IGP, and the GIS User Community

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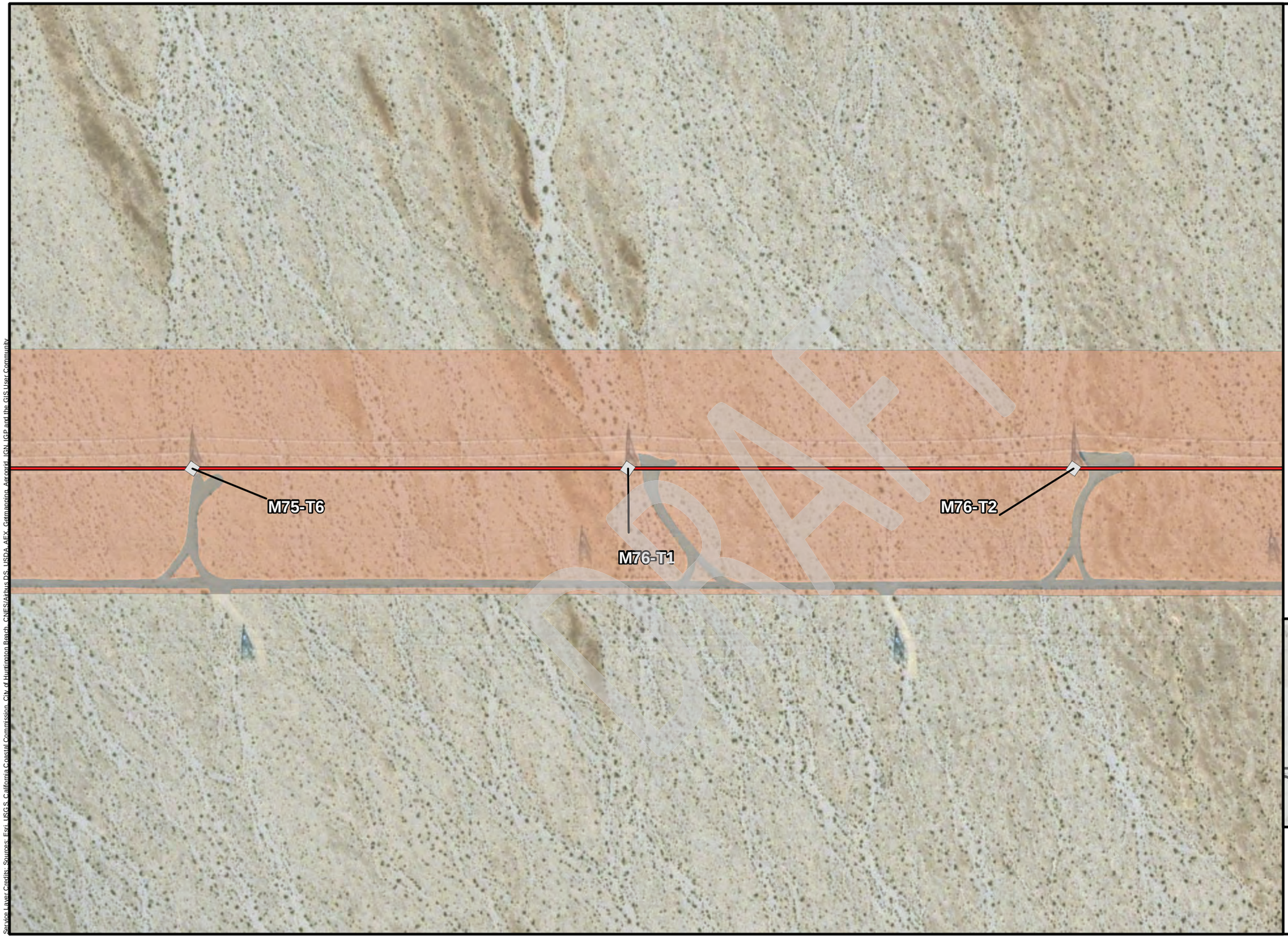
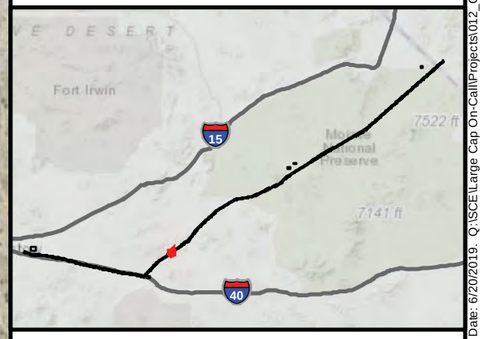


Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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Exhibit 3. Project Components (Page 85 of 260)

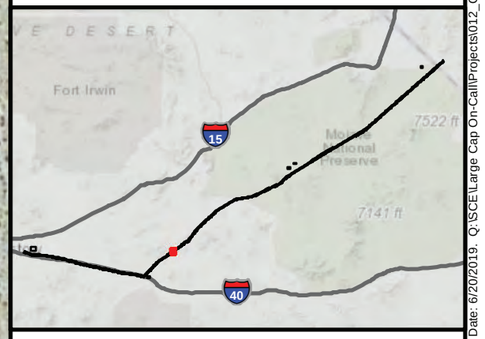
Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA,AEX, Getmapping Aerogrid, IGN, IGP and the GIS User Community

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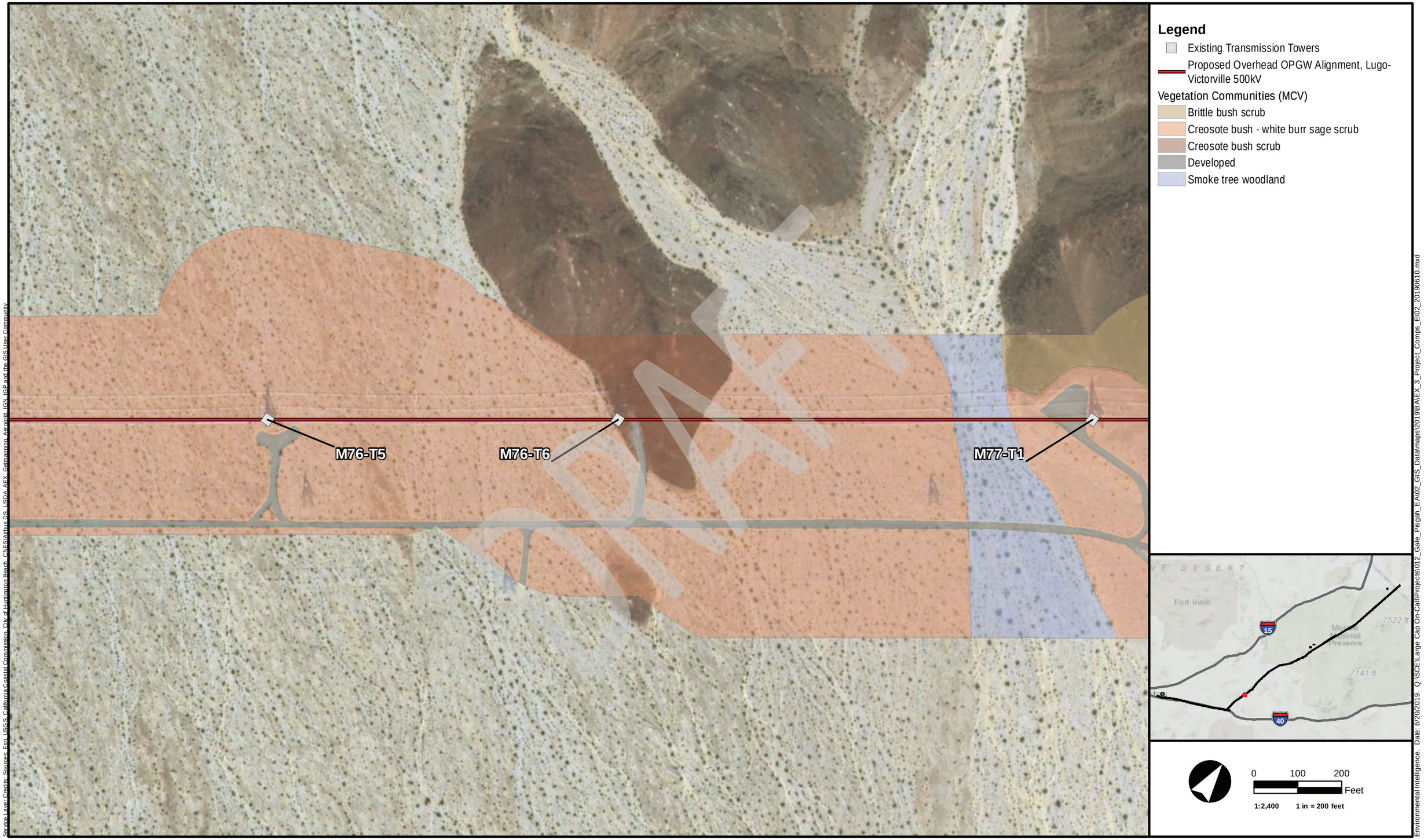


Exhibit 3. Project Components (Page 87 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

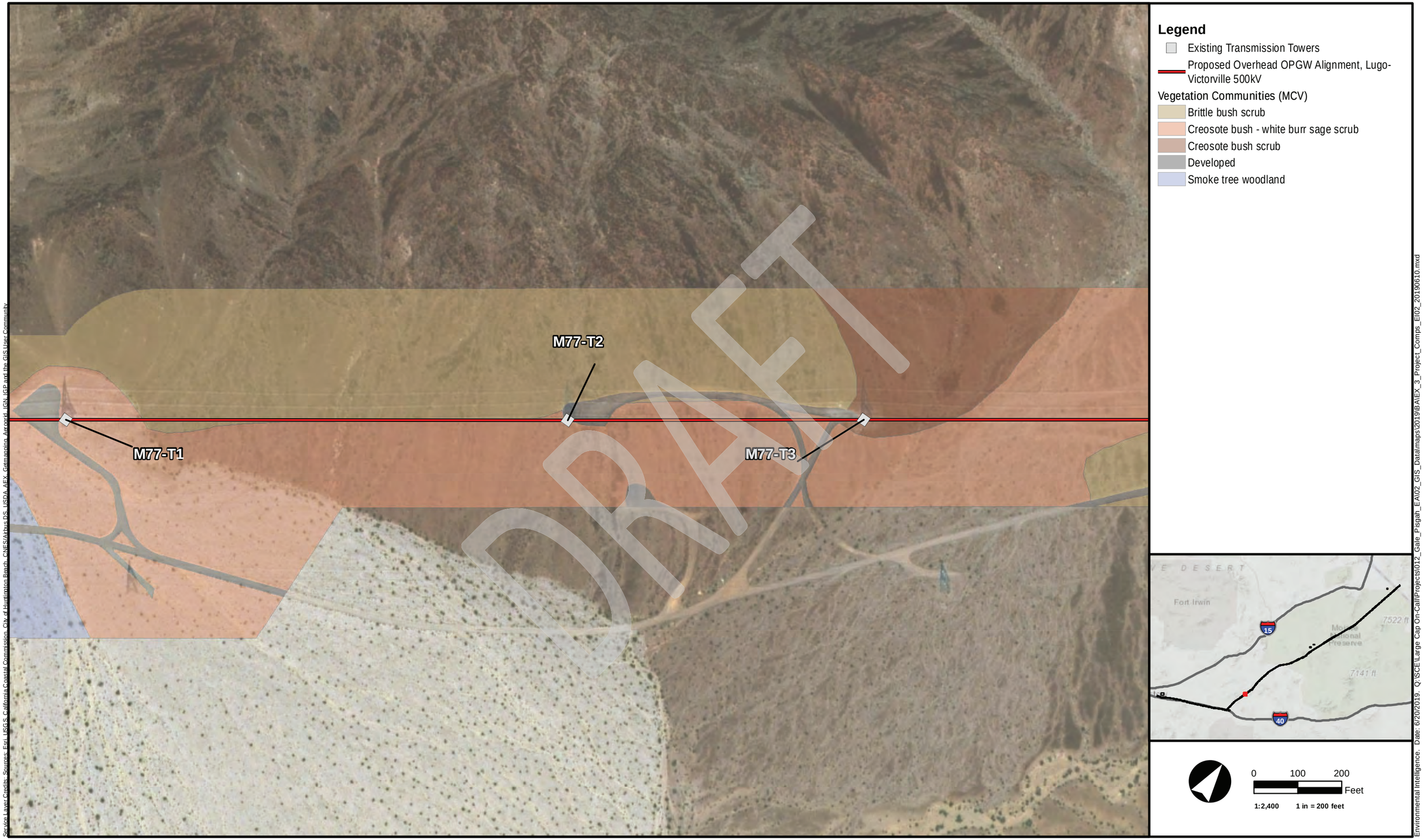
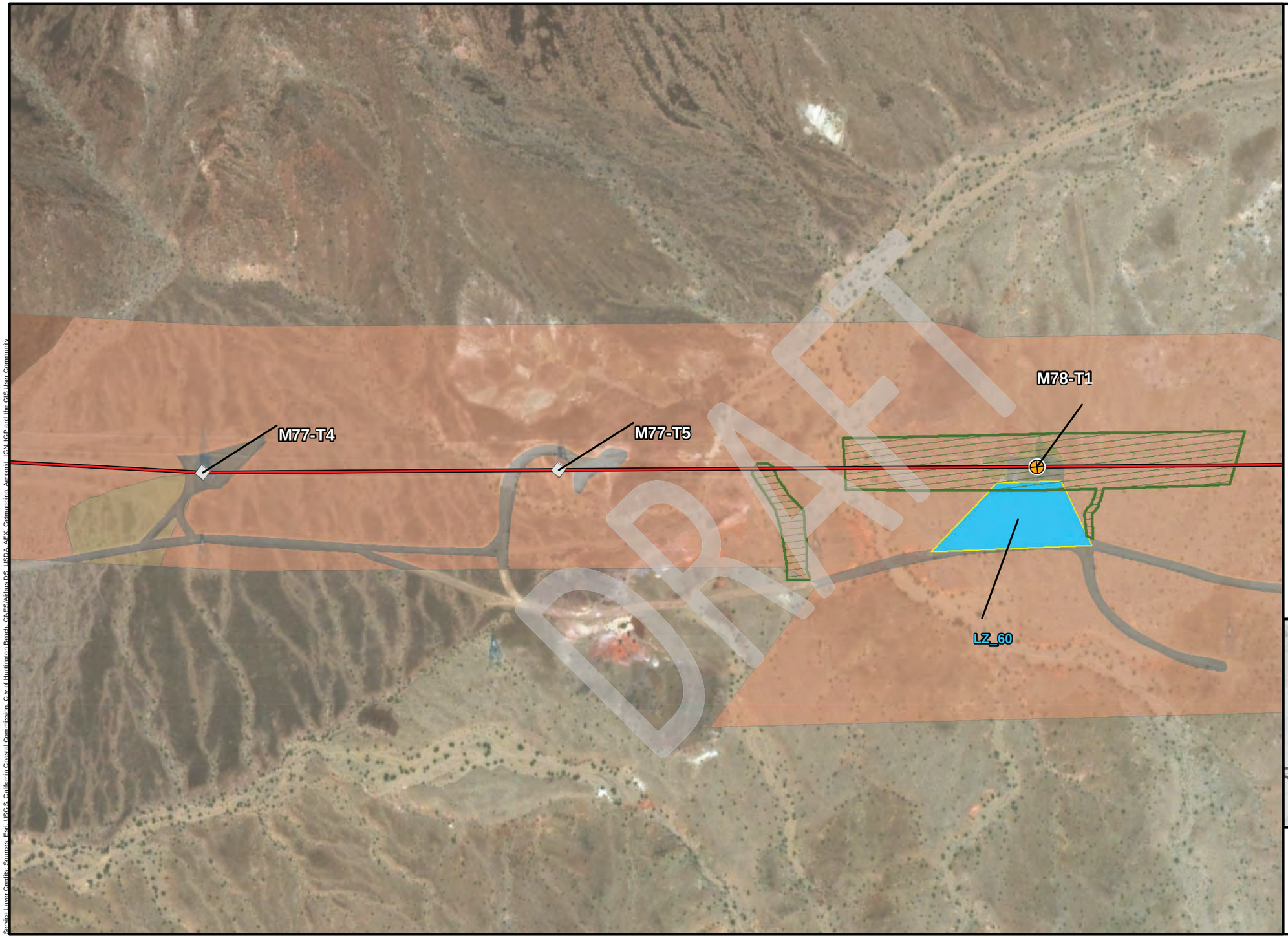


Exhibit 3. Project Components (Page 88 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

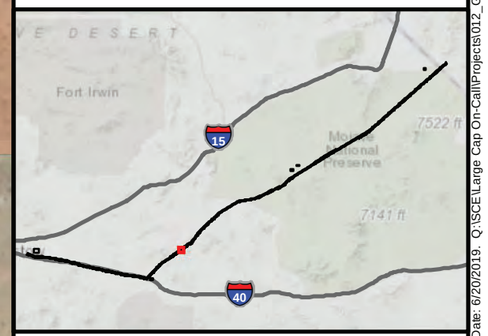


Legend

- OPGW Modifications Towers
- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- Helicopter Landing Zone
- OPGW Pull Site

Vegetation Communities (MCV)

- Brittle bush scrub
- Creosote bush - white burr sage scrub
- Creosote bush scrub
- Developed
- White bursage scrub



0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNRS/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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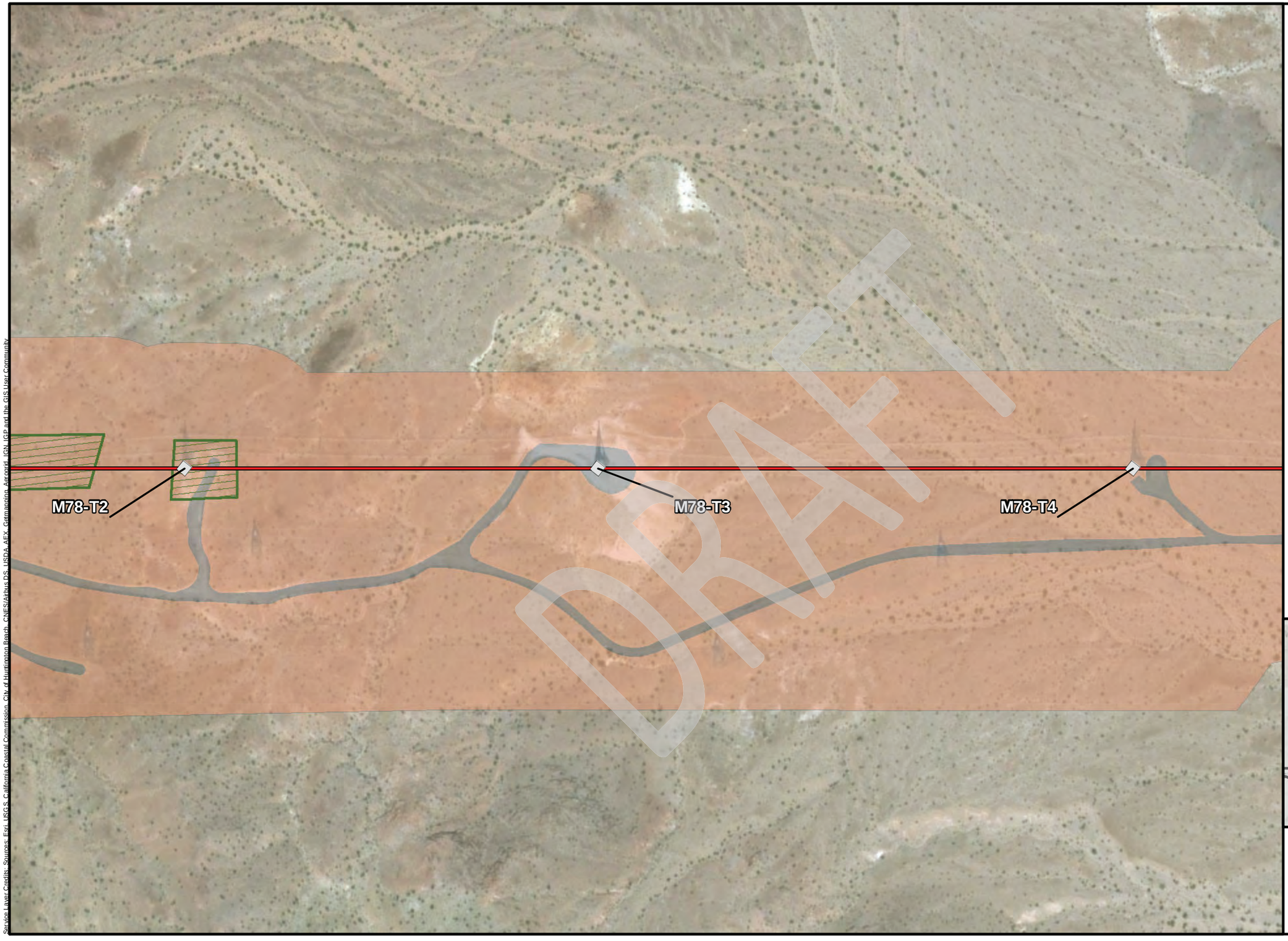
Exhibit 3. Project Components (Page 89 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

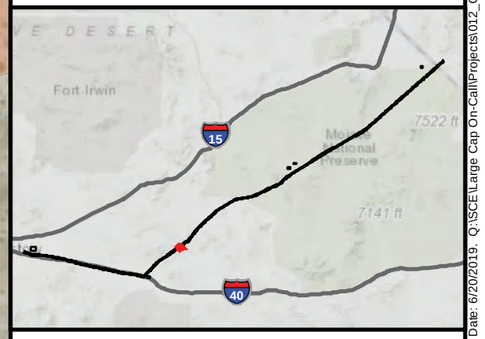


Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV
- OPGW Pull Site

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed



0 100 200 Feet

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Services Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA,AEX, Getmapping Aerogrid, IGN, IGP and the GIS User Community

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Exhibit 3. Project Components (Page 90 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

Legend

- Existing Transmission Towers
- Proposed Overhead OPGW Alignment, Lugo-Victorville 500kV

Vegetation Communities (MCV)

- Creosote bush - white burr sage scrub
- Developed

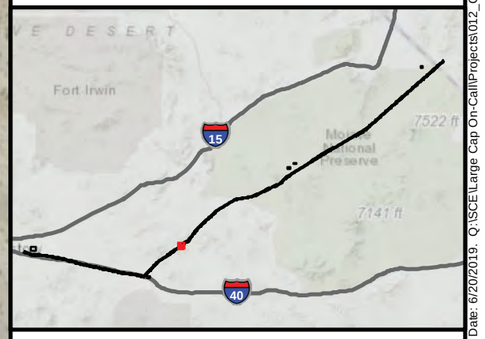

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Exhibit 3. Project Components (Page 91 of 260)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV