

# Tie Line 649 Wood To Steel Pole Replacement Project

SDG&E Environmental Services

**CHAMBERS**  
GROUP

September 19, 2018

20775.01

Ms. Stacey Love  
Recovery Permit Coordinator  
U.S. Fish and Wildlife Service  
Carlsbad Fish and Wildlife Office  
2177 Salk Avenue, Ste. 250  
Carlsbad, CA 92008

**SUBJECT: RESULTS OF THE 2018 QUINO CHECKERSPOT BUTTERFLY (*EUPHYDRYAS EDITHA QUINO*) FOCUSED SURVEYS FOR THE PROPOSED TIE LINE 649 WOOD TO STEEL POLE REPLACEMENT PROJECT, SAN DIEGO COUNTY, CALIFORNIA**

Dear Ms. Love:

Chambers Group, Inc. (Chambers Group) was contracted by San Diego Gas and Electric Company (SDG&E) to conduct focused surveys for Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) during the spring season of 2018 for the proposed Tie Line (TL) 649 Wood-to-Steel Pole Replacement Project located in San Diego County, California (Attachment 1: Figure 1). The primary purpose of this effort was to identify QCB and habitat within the proposed work areas in accordance with SDG&E's Low-Effect Habitat Conservation Plan (LE HCP) for QCB (SDG&E 2007).

## Project Background

As part of continuing system upgrades, SDG&E is proposing the Tie Line (TL) 649 Wood-to-Steel Replacement Project (Proposed Project). The Proposed Project would replace wood poles with steel poles, supporting the power lines of an approximately 7-mile-long portion of an existing 69 kilovolt (kV) single-circuit power line (TL 649). The portion of TL 649 where existing poles would be replaced is in the southeastern portion of San Diego County, California, approximately 12 miles southeast of downtown San Diego and approximately 1.5 miles north of the United States–Mexico border, as shown in Attachment 1: Figure 1, Project Location Map. SDG&E proposes to replace wood poles with steel poles along approximately 7.0 miles of the existing 69-kilovolt (kV) single-circuit power line. The Proposed Project extends east from Black Coral Way and Sea Lavender Way in the City of San Diego for approximately 5.0 miles; then travels south for approximately 2.0 miles to just north of Otay Mesa Road in unincorporated San Diego County. Over this distance, TL 649 traverses private and public lands, including lands owned by the County of San Diego, the City of San Diego, the City of Chula Vista, the State of California, and SDG&E. Installation of steel poles will minimize damages to utilities in the event of a fire, thereby increasing system reliability, decreasing routine maintenance needs, and increasing the life span of both the poles and the entire line.

Within the SDG&E existing service area, the QCB LE HCP requires that QCB surveys be conducted within portions of a project that occur within the HCP Mapped Area (Attachment 1: Figure 2). According to the HCP, no QCB surveys or mitigation are required for activities covered under the HCP occurring outside the HCP Mapped Area. However, for this Proposed Project, SDG&E has taken a conservative approach and expanded the SDG&E QCB survey area to include all suitable within the USFWS Recommended Quino Survey Area as well, regardless of whether it occurs within the HCP Mapped Area.

## SDG&E Low Effect Habitat Conservation Plan for Quino Checkerspot Butterfly

The QCB received federal protection by the United States Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA) in 1997 (USFWS 2002). Although not covered under SDG&E's Natural Community



Conservation Plan (NCCP), an HCP was created by SDG&E and USFWS, and QCB is covered under the SDG&E QCB LE HCP. The LE HCP addresses potential impact to the QCB from the use, maintenance, and repair of existing gas and electric facilities and allows for typical expansions to those systems. Other than maintenance of existing access roads, SDG&E activities include, without limitation, all current and future actions arising out of, or in any way connected with, the siting, design, installation, construction, use, maintenance, operation, repair, and removal of facilities within SDG&E's service territory. Pole and tower replacement is one example of these covered activities.

The QCB LE HCP emphasizes protection of habitat through impact avoidance and use of operational protocols designed to avoid or minimize impacts to the QCB. The plan was prepared in consultation with the USFWS to fulfill the requirements of a FESA Section 10(a)(1)(B) permit application for SDG&E activities.

The QCB LE HCP for QCB established protocols for surveying, assessing, and, when appropriate, mitigating for impacts to QCB. These protocols can differ from other practices established by the USFWS for species management, such as a modified area that is required to be surveyed for QCB and the means by which occupied habitat areas are calculated. The QCB LE HCP also defines impacts and establishes mitigation ratios for both temporary and permanent impacts to QCB suitable occupied and unoccupied habitat as a result of SDG&E activities occurring within the HCP Mapped Area. Attachment 1: Figure 2 displays the location of QCB HCP Mapped Area in relation to the Proposed Project QCB Survey Area, from approximately Highway 52 to the southwestern terminus of the project alignment.

### QCB Natural History

*The following QCB background information was written by QCB-permitted biologist Ken Osborne (Chambers Group 2010) and updated per the 2014 Survey Guidelines:*

The QCB, a subspecies of Edith's checkerspot, is a small brush-footed butterfly (family Nymphalidae) that flies once a year. Like most *Euphydryas* sp., it has a small, approximately 2.5 to 4 cm wingspan and is checkered with black, red, and yellowish markings. This species is distributed in local colonies over much of western North America (Scott 1986, Parmesan 1996). Many subspecies have been described including at least 18 from California (Emmel 1998).

QCB colonies are primarily associated with low elevation (sea level to 3,000 feet) open grasslands, vernal pools, and sunny openings within chaparral, coastal-sage scrub, and juniper woodlands. Colonies are found frequently near clay soils and soils that possess cryptogamic crusts (soil infused with algae and lichen in the soil surface) (Osborne 1998). According to the 2014 Survey Guidelines, known QCB larval host plants include dot-seed plantain (*Plantago erecta*, Plantaginaceae) also known as dwarf plantain, woolly plantain (*Plantago patagonica*, Plantaginaceae), Coulter's snapdragon (*Antirrhinum coulterianum*, Plantaginaceae), bird's beak (*Cordylanthus rigidus*, Orobanchaceae), purple owls' clover (*Castilleja exserta*, Orobanchaceae) and southern Chinese houses (*Collinsia concolor*, Plantaginaceae). Dwarf plantain is the primary host plant of QCB. Larvae may use other plantain (*Plantago*) species (e.g. *P. ovata*, and *P. insularis*) as well (Pratt and Pierce 2010). Introduced Mediterranean plantain species such as *P. lanceolata* and *P. major* - common weeds of residential lawns and city lots - although suitable in the laboratory (Osborne 2009), and used by some wild *E. editha* populations in Oregon, are not likely used where they occur in habitats not frequented by QCB. Nevertheless, these exotic host plants may be of potential use to QCB where they occur in wild habitats proximal to QCB populations. Although QCB are oligophagous (feed upon a limited range of plant species) and feed primarily upon plants contained within the Orobanchaceae (formerly Scrophulariaceae) and Plantaginaceae families, most local populations tend to be monophagous (feed on only one plant species) (White 1974, Scott 1986).

QCB mating activity occurs in or near the meadows, clearings, and open areas on slopes and ridgelines inhabited by the host plants, where the larvae previously developed, and on open or sparsely vegetated hilltops, ridgelines, and occasionally rocky hilltops (with or without the host plant being present nearby). Inordinately large numbers of adult males are found on hilltops (usually only one or two per hilltop), where they exhibit "territorial behavior" – flying sorties from various perches to chase other butterflies, including conspecifics. QCB males often chase each other high into the



air, only to return to different parts of the hilltop. Hilltopping, where male butterflies await the arrival of unmated females in order to secure mates, is common in many species of butterflies and the behavior in QCB is well known among experienced southern California lepidopterists (Shields 1967). When QCB adult densities are relatively low, mating success derived from facultative hilltopping behavior may be critical to long term viability.

Females lay egg masses that contain approximately 20-75 eggs and may produce up to 1,200 eggs in several batches during their lifetime. The eggs hatch in about ten days under favorable conditions and the larvae immediately begin to feed. In coastal California, the early larval stages undergo an obligatory aestival diapause (dormant period from late spring through winter), which is broken after fall or winter rains (Murphy and White 1984, Osborne 1998). The larvae then quickly complete their development, usually on the native annual plant dot-seed plantain, and emerge as adults during the same spring (Emmel and Emmel 1973, White 1974, Orsak 1977, Murphy and White 1984). Adult flight typically occurs between late January and mid-May, with peak activity generally in March and April. The flight period varies from year to year, depending upon the annual rainfall and other weather conditions. The timing and abundance of rainfall are important factors affecting the timing of host seed germination, growth, maturity, and senescence of the host plant (Murphy and White 1984, Dobkin et al. 1987), which in turn affects the survivorship of the larvae (Ehrlich et al. 1980). Solar insolation on hillsides (determined in part by topography), where the larvae live, affects both the rate of host development and that of the larvae (White 1974, Weiss et al. 1988). In the race against host senescence, post-diapause larvae seek microclimates with high solar insolation in order to bask (Osborne 1998, Osborne and Redak 1999). This behavior increases their rate of development (Weiss et al. 1987). During periods of extended drought, the butterfly's populations decline and individual butterflies may become difficult to find. It is hypothesized that extended periods of diapause, lasting up to five or six years, occur during these droughts.

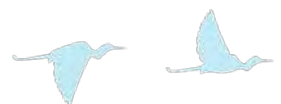
Populations of QCB, which were once distributed through much of lowland coastal southern California from northern Baja California, Mexico to Point Dume, Los Angeles County, have been declining since the late 1960's (Thorne 1970; Emmel and Emmel 1973; Orsak 1977, 1988). It has been hypothesized that this decline is primarily due to habitat loss by urban and agricultural expansion (Thorne 1970, Emmel and Emmel 1973, Orsak 1988), and possibly because of global warming and drought (Parmesan 1996), fire and overgrazing (Orsak 1977, 1988). After an extended drought in the late 1980's and early 1990's, only one known population of QCB remained. Populations are now known to exist only at a few sites, in small isolated colonies, in southwestern Riverside and southern San Diego counties. The decline of QCB may have started long before these modern observations after the early Spanish explorers and settlers introduced exotic grasses and forbs. These plants are highly competitive with the native QCB host plants. QCB received federal protection under the Endangered Species Act in 1997 (United States Federal Register, January 17, 1997) and is currently federal-listed as endangered.

## Methods

### Habitat Assessment

The QCB habitat assessment was conducted within the Proposed Project Biological Survey Area (BSA), consisting of a 150-foot buffer on either side of the power line (300 feet total width); a 50-foot buffer around substations and proposed work areas (if outside the 150-foot buffer); and a 20-foot buffer out from the edges of access roads. The habitat assessment was conducted in accordance with the *USFWS Quino Checkerspot Butterfly Survey Guidelines* (2014 Survey Guidelines; USFWS 2014) and consistent with SDG&E's LE HCP (SDG&E 2007). The assessment was used to identify suitable QCB habitat. "Suitable QCB Habitat" is defined in SDG&E's QCB LE HCP as:

*"shrub communities, such as coastal sage scrub, chaparral, and desert scrub, with 50 percent shrub cover or less, and the potential to support dot-seed plantain [Plantago erecta] and other larval host plants. Areas that meet the shrub cover standard are excluded if the ground cover vegetation is disturbed and/or covered by understory vegetation to the extent that larval host plants do not grow. Areas of solid rock substrate and the surfaces of solidly compacted access*



*roads which are not likely to support vegetation are also excluded. All areas of vernal pool complexes are included as Suitable QCB Habitat regardless of upland vegetation surrounding the vernal pools. Areas meeting the 50 percent shrub cover with QCB Host Plants, native herbaceous species, cryptobiotic crusts, or the potential to support any of these elements are included as Suitable QCB Habitat. Also included in Suitable QCB Habitat for this Plan are all native grasslands and non-native grasslands that show evidence of potential to support larval host plants. Evidence for a potential to support larval host plants included presence of native grasses, native wildflowers, and cryptobiotic crusts."*

Prior to entering the field, a literature search was performed of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB; CDFW 2018) and the USFWS Species Occurrences Database (USFWS 2018) for QCB records of occurrence within 5 miles of the BSA. In addition, Google Earth satellite images and results from the 2018 updated vegetation mapping effort for the BSA were reviewed to identify habitat potentially suitable for QCB, based on the suitable habitat definition above.

Permitted QCB biologists conducted a field habitat assessment to map all areas requiring QCB surveys (QCB Survey Area), which included all potentially suitable habitat within the Proposed Project BSA. The biologists recorded the location of all larval host plants electronically with the aid of hand-held GPS units and/or by hand onto high-resolution aerial field maps. Information characteristic of QCB suitable habitat, including locations of breaks in vegetation, rocky outcrops, and hilltops, were noted and mapped as the "QCB Survey Area". Areas that were developed or contained closed-canopy habitat were mapped and excluded from focused surveys as "QCB Excluded Habitat". The QCB Survey Area is identified in Attachment 2, Vegetation Communities and QCB Survey Area Map. The remaining habitat within the QCB Survey Area was deemed appropriate to survey, regardless of the presence of host plants, per the LE HCP definition above.

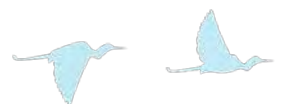
### Focused Surveys

Chambers Group biologists conducted QCB focused surveys within the QCB Survey Area according to the USFWS 2014 Survey Guidelines and SDG&E's QCB LE HCP. Surveys throughout all potentially suitable habitat (i.e., where no QCB excluded areas were mapped during the habitat assessment) were initiated at the beginning of the QCB flight season, following a 15-day survey notification submitted to USFWS on February 7, 2018. In order to maximize species detectability, surveys were continued up to twice per week, weather permitting, while maintaining a temporal spacing of at least 4 days apart.

Surveys were conducted for 5 continuous weeks at a minimum. In areas where no QCB were detected during the first 5 weeks of surveys, surveys continued until QCB were detected or until the end of the season, defined as the second Saturday in May (May 12, 2018). If a QCB was detected in the QCB Survey Area, the USFWS was notified within 24 hours by the permitted QCB biologist.

Surveys were conducted by walking survey routes that were roughly parallel to each other, spaced approximately 30 feet apart, and within 15 feet of the Survey Area boundary and/or the perimeter of excluded areas. Chambers Group biologists conducted the surveys at a rate of approximately 5 to 10 acres per person/hour and under suitable weather conditions defined as (a) no significant precipitation (e.g., fog, drizzle, or rain); (b) sustained or gusting winds averaging less than 15 miles per hour over a 30 second period at a height of 4 to 6 feet above ground level; and (c) temperatures of at least 60 degrees Fahrenheit (°F) in the shade at ground level on a clear, sunny day (i.e., less than 50 percent cloud cover), and temperatures of at least 70°F on cloudy days (i.e., greater than 50 percent cloud cover).

Chambers Group biologists recorded butterfly species observed and numbers of each species during each weekly survey. Butterflies observed during the surveys were identified by sight and with the aid of binoculars. Biologists also recorded and updated information on host plant populations, including revised numbers, densities, and new locations, as well as a list of potential nectar sources. Additional observations of larval host plant populations were mapped with the aid of hand-held Global Positioning System (GPS) units and/or hand-drawn onto high-resolution aerial field maps,





and potential nectar plant species were documented. Butterfly identification and nomenclature was based on field guides by Shiraiwa (2009) and Glassberg (2001).

Focused surveys of potential QCB habitat were conducted by the following USFWS-permitted QCB biologists (Table 1).

**Table 1: USFWS-Permitted QCB Biologists**

| USFWS-Permitted QCB Biologists |  |
|--------------------------------|--|
| <i>Biologist</i>               | <i>USFWS Permit Number</i>   |
| Laurie Gorman                  | TE-233367-3  |
| David Faulkner                 | TE-838743-5  |
| Kris Alberts                   | TE-039640-4  |
| Travis Cooper                  | TE-170389-6  |
| John Dicus                     | TE-839960-6  |
| Melanie Dicus                  | TE-049175-4  |
| Darin Busby                    | TE-115373-4 (working under<br>Melissa Busby's permit TE-080779-3<br>at time of survey) |
| Erik LaCoste                   | TE-027736-6  |

## Results

### Habitat Assessment

Based on the literature search, there have been nearly 400 historical records of occurrence for QCB documented within 5 miles of the BSA, the closest of which were in Brown's Field approximately 0.2 mile south of the BSA in 1977-1976 and 1997. Four recent occurrences were documented within approximately 0.5 mile northeast of the BSA, near the Otay Reservoir, in 2018. Other occurrences were documented from a variety of land use areas including landfills, residential development, preserves, mitigation sites, and designated open space (USFWS 2018, CDFW 2018).

A total of approximately 70 acres of suitable habitat for QCB was identified within the Proposed Project BSA and surveyed as the QCB Survey Area. A total of approximately 65.5 acres of QCB Survey Area occur within the SDG&E QCB LE HCP Mapped Area and the remaining 4.5 acres of the QCB Survey Area occur outside of the HCP Mapped Area, within the USFWS Recommended Quino Survey Area (Attachment 1: Figure 2). Habitats and land-cover types present within this QCB Survey Area include bare ground, Annual Brome Grassland, open Coast Prickly Pear Scrub, Purple Needlegrass Grassland, and low-density coastal sage scrub habitats with the potential to support host plants and nectar sources. These habitat types are displayed on aerial maps of the Proposed Project as Attachment 2, Vegetation Communities and QCB Survey Area Map.

Pursuant to the LE HCP's definition of Suitable QCB Habitat and the USFWS 2014 Survey Guidelines criteria for designating Excluded Areas, developed areas were excluded as suitable QCB habitat, including paved areas (including substations) and compacted portions of dirt access roads where vegetation does not grow. In addition, closed-canopy vegetation communities including dense chaparral and riparian forest habitats were excluded.

Potential QCB host plants mapped within the QCB Survey Area included dwarf plantain and purple owl's clover. Due to low rainfall in late 2017 and early 2018 compared to normal years, San Diego County is considered to be in a severe

drought (National Drought Mitigation Center 2018). Host plant patches that were lush and provided high-quality habitat for QCB during the previous round of QCB surveys in 2015 (Blackhawk Environmental 2015) were far less dense, dry, and stunted in growth in 2018. Furthermore, non-native grasses that are adapted to atypical environmental conditions have outcompeted QCB host plants, creating a dense, weedy mat across areas where host plants previously thrived.

Since QCB host plants are annuals, the seedbank for host plants is still present in areas mapped during the 2015 host plant mapping effort. Therefore, the 2018 host plant mapping effort was focused on identifying and mapping areas of host plants that were not previously mapped, and adding them to the 2015 data. Host plant density was recorded and categorized as low (approximately 1-10 individual plants per square meter), moderate (approximately 10 to 100 individual plants per square meter), and high (more than approximately 100 individual plants per square meter). The results of the combined 2015 and 2018 host plant mapping efforts are provided as Attachment 3<sup>1</sup>.

### Focused Surveys

Permitted biologists (Table 1) conducted a total of 16 QCB focused surveys within the QCB Survey Area from February 20, 2018 to May 9, 2018.

No QCB were detected during the 2018 surveys. A total of 30 butterfly species were identified. Butterflies were detected in lower quantities in 2018 than during the surveys of 2015. A complete list of butterfly species observed is provided as Attachment 5. A complete list of flowering plant species (as potential nectar sources) observed is provided as Attachment 6. Weather conditions during the QCB surveys are provided as Attachment 7. A Biologist Signature Page certifying these results are an accurate representation of the permitted biologists' findings is provided as Attachment 8. Field survey forms of the survey results are provided as Attachment 9; these forms contain notes on the quantity of each butterfly species observed, flowering plants observed, and habitat quality per survey.

### Discussion

No QCB were observed the BSA of the Proposed Project. Low rainfall and infiltration of non-native grasses contributed to low-quality habitat conditions, where host plant patches were low-density and stunted.

Please call me at (949) 933-9432 or email me at [lgorman@chambersgroupinc.com](mailto:lgorman@chambersgroupinc.com) if you have any questions or comments regarding this letter report.

Sincerely,

**CHAMBERS GROUP, INC.**



**Laurie Gorman**  
**Senior Biologist**

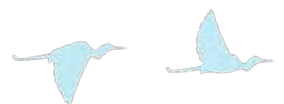
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<sup>1</sup> Host mapping efforts encompass roads which have been mitigated per the terms of SDG&E's Low- Effect QCB HCP and are maintained on a regular basis.



## Attachments

- Attachment 1 – Figures
- Attachment 2 – Vegetation Communities Maps
- Attachment 3 – QCB Host Plant Location and Survey Results Map
- Attachment 4 – Site Photographs
- Attachment 5 – Butterfly Species Detected
- Attachment 6 – Flowering Plant Species Observed
- Attachment 7 – Weather Conditions
- Attachment 8 – QCB Survey Project Biologists Signature Page
- Attachment 9 – Field Survey Forms



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## Tie Line 649 Wood To Steel Pole Replacement Project

SDG&E Environmental Services

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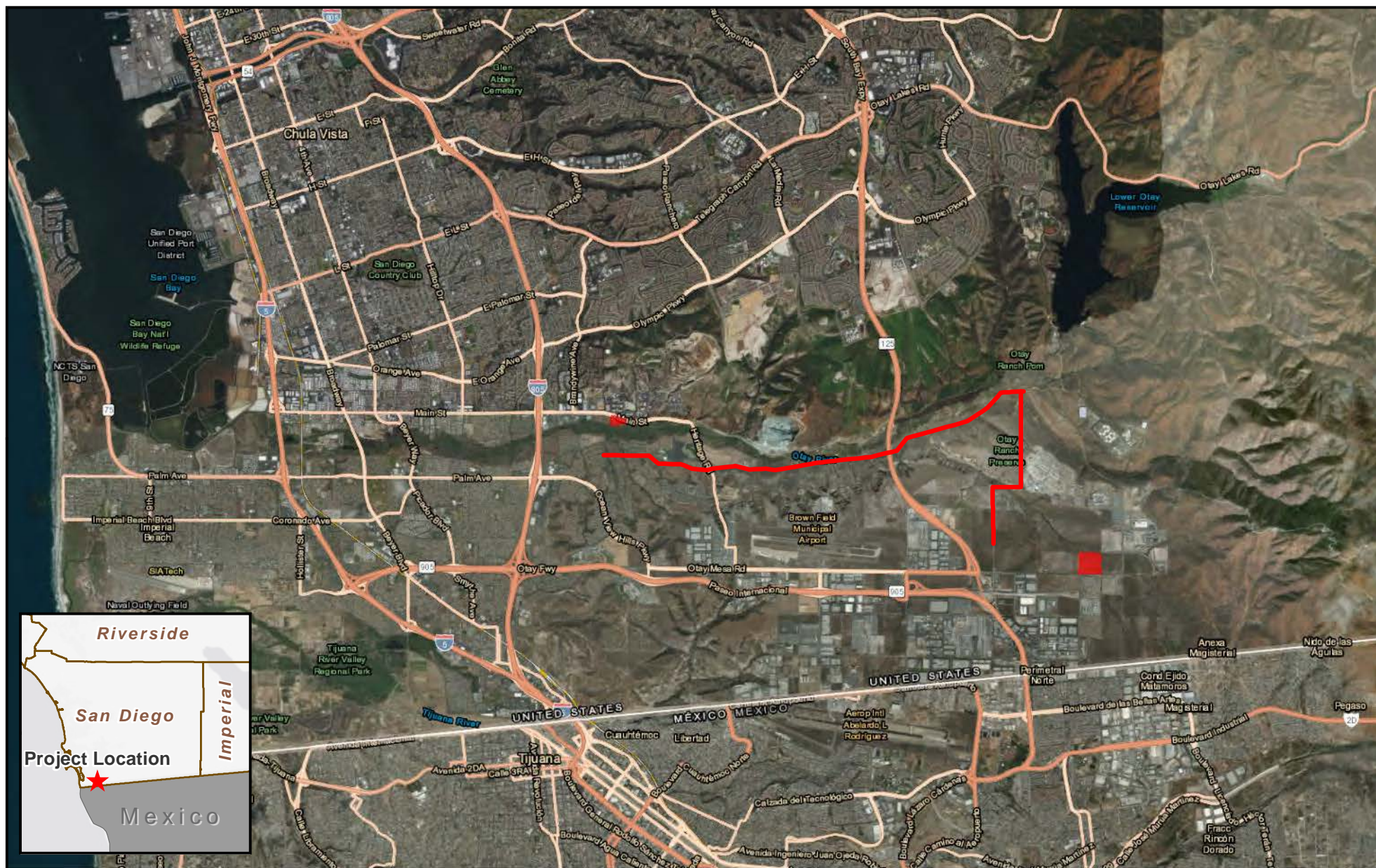
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## **ATTACHMENT 1 – PROJECT LOCATION AND VICINITY MAPS**





## Legend

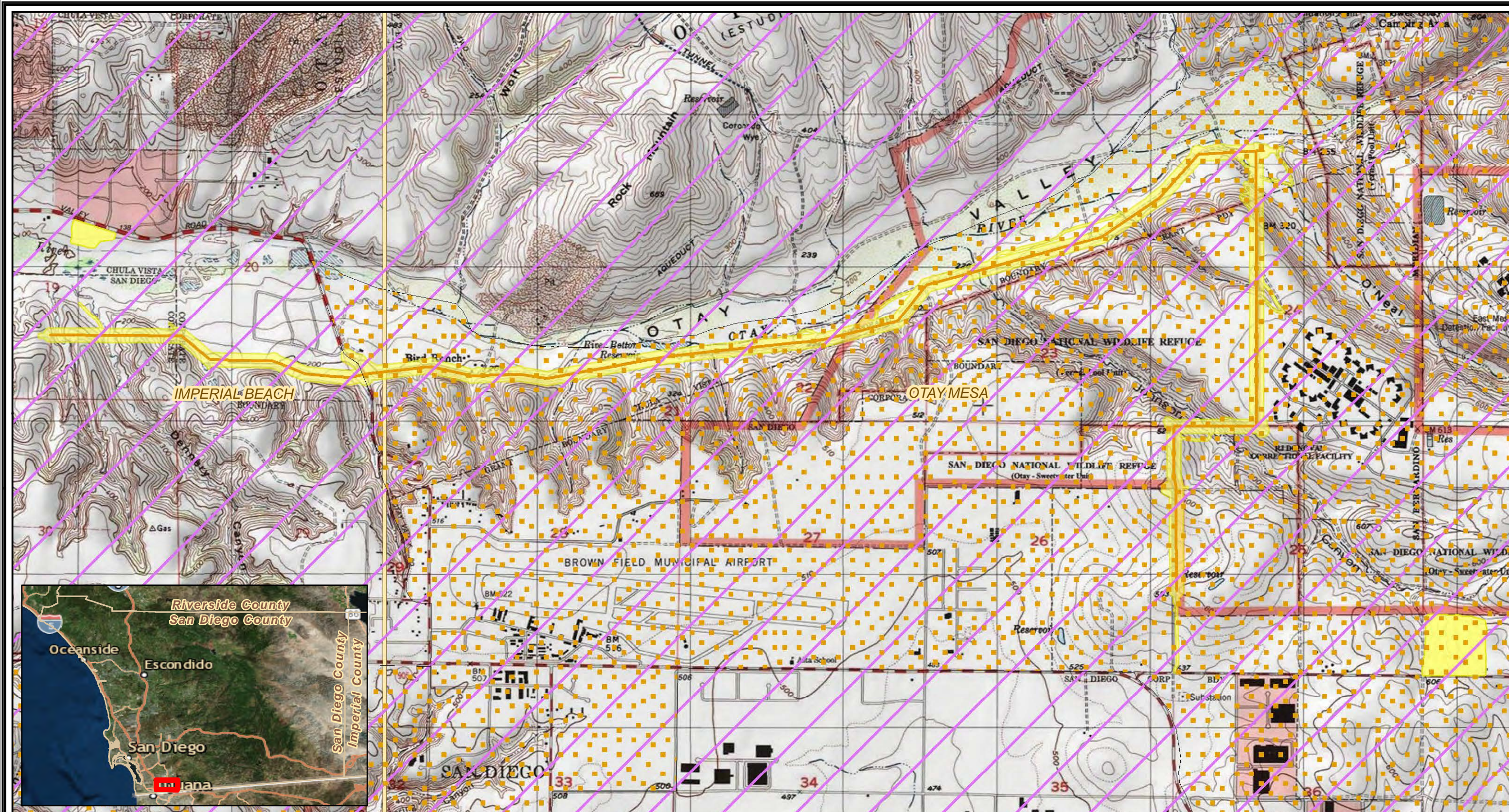
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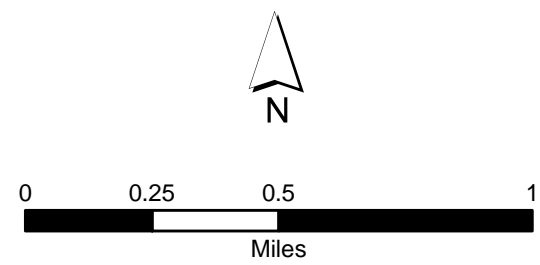
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**Figure 1**  
Project Location Map





- Legend**
- Survey Corridor
  - USGS 7.5-min Quadrangle
  - SDG&E QCB Mapped Areas
  - USFWS Recommended Quino Survey Area



**Figure 2**  
 QCB Survey Area on  
 USGS 7.5-Minute Quadrangle  
 Topographic Map

Scale = 1:24,000



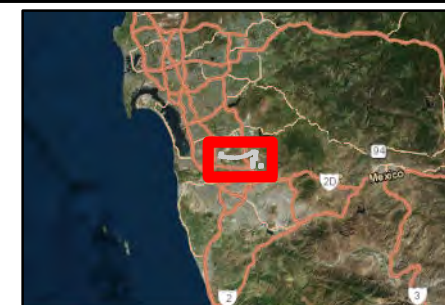
## **ATTACHMENT 2 –VEGETATION COMMUNITIES AND QCB SURVEY AREA MAP**







- Legend**
- Transmission Centerline
  - Map Page

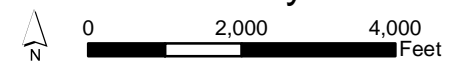


## Attachment 2

### TL649 Wood to Steel

### Vegetation Communities and

### QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
 Print Date: 9/19/2018, Author: msimmons







Map 1

### Legend

- |  |                        |
|--|------------------------|
| Biological Survey Area                             | 7. Urban and Developed |
| <b>Work Area Type</b>                              | 8. Disturbed           |
| Proposed Staging Yard                              |                        |
| QCB Excluded Habitat                               |                        |
| <b>Vegetation Community (MCV II)</b>               |                        |
| 3. California Sagebrush—California Buckwheat Scrub |                        |

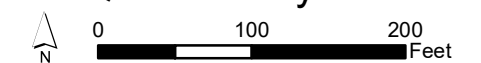


## Attachment 2

### TL649 Wood to Steel

### Vegetation Communities and

### QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons





## Legend

Biological Survey Area

Project Pole

Transmission Centerline

### Work Area Type

Proposed String Site

Proposed Turnaround

### Access Type

Existing Non-TCM Access Road

Access Road

QCB Survey Area

QCB Excluded Habitat

### Vegetation Community (MCV II)

1. Bare Ground

3. California Sagebrush—California Buckwheat Scrub

7. Urban and Developed

8. Disturbed

10. Annual Brome Grassland

12. Landscape/Ornamental

13. Coast Prickly Pear Scrub

13D. Disturbed Coast Prickly Pear Scrub

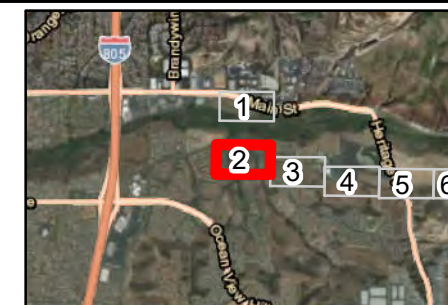
24. Arroyo Willow - Mulefat Woodland

54. Lemonade Berry Stand

56. California Bulrush Marsh

102D. Disturbed Broom Baccharis Scrub

103. Lemonade Berry—California Sagebrush—California Buckwheat Scrub



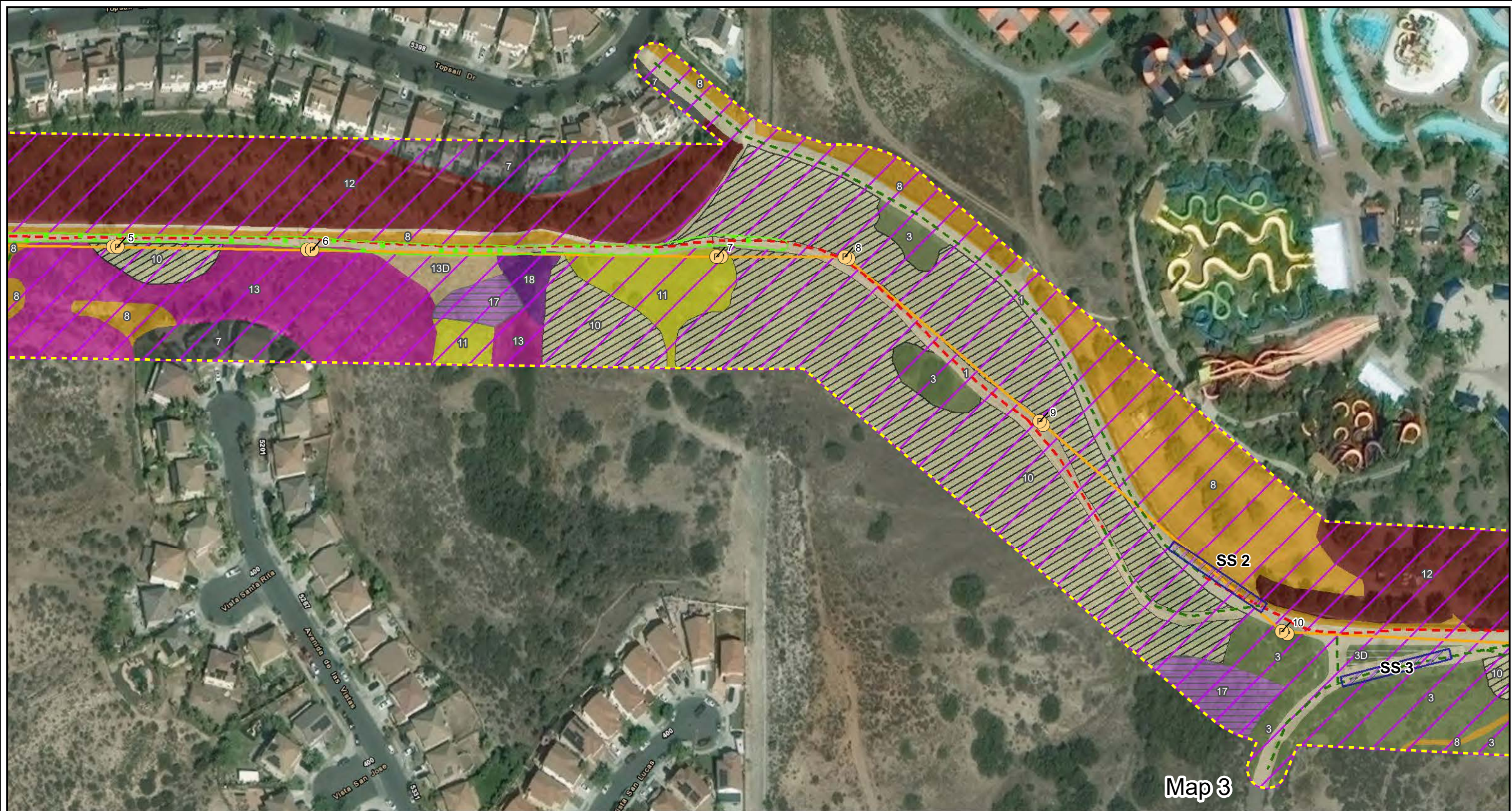
## Attachment 2 TL649 Wood to Steel Vegetation Communities and QCB Survey Area Map

0 100 200 Feet

Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







Map 3

## Legend

Biological Survey Area

Project Pole

Transmission Centerline

Work Area Type

Proposed String Site

## Access Type

Existing Non-TCM Access Road

Access Road

QCB Survey Area

QCB Excluded Habitat

## Vegetation Community (MCV II)

1. Bare Ground

3. California Sagebrush—California Buckwheat Scrub

3D. Disturbed California Sagebrush—California Buckwheat Scrub

7. Urban and Developed

8. Disturbed

10. Annual Brome Grassland

11. Purple Needlegrass Grassland

12. Landscape/Ornamental

13. Coast Prickly Pear Scrub

13D. Disturbed Coast Prickly Pear Scrub

17. Tamarisk Thickets

18. Mulefat Thickets



## Attachment 2 TL649 Wood to Steel Vegetation Communities and QCB Survey Area Map

0 100 200 Feet

Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







### Legend

Biological Survey Area

Project Pole

Transmission Centerline

#### Access Type

Existing Non-TCM Access Road

Access Road

QCB Survey Area

QCB Excluded Habitat

#### Vegetation Community (MCV II)

1. Bare Ground

3. California Sagebrush—California Buckwheat Scrub

7. Urban and Developed

8. Disturbed

10. Annual Brome Grassland

12. Landscape/Ornamental



## Attachment 2

### TL649 Wood to Steel

### Vegetation Communities and QCB Survey Area Map

0 100 200 Feet

Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







Map 5

**Legend**

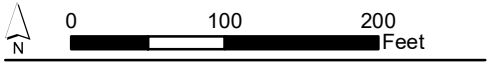
- |                         |                              |
|-------------------------|------------------------------|
| Biological Survey Area  | Proposed Turnaround          |
| Project Pole            | <b>Access Type</b>           |
| Transmission Centerline | Existing Non-TCM Access Road |
| Guard Structure         | Access Road                  |
| <b>Work Area Type</b>   | QCB Survey Area              |
| Proposed String Site    | QCB Excluded Habitat         |

**Vegetation Community (MCV II)**

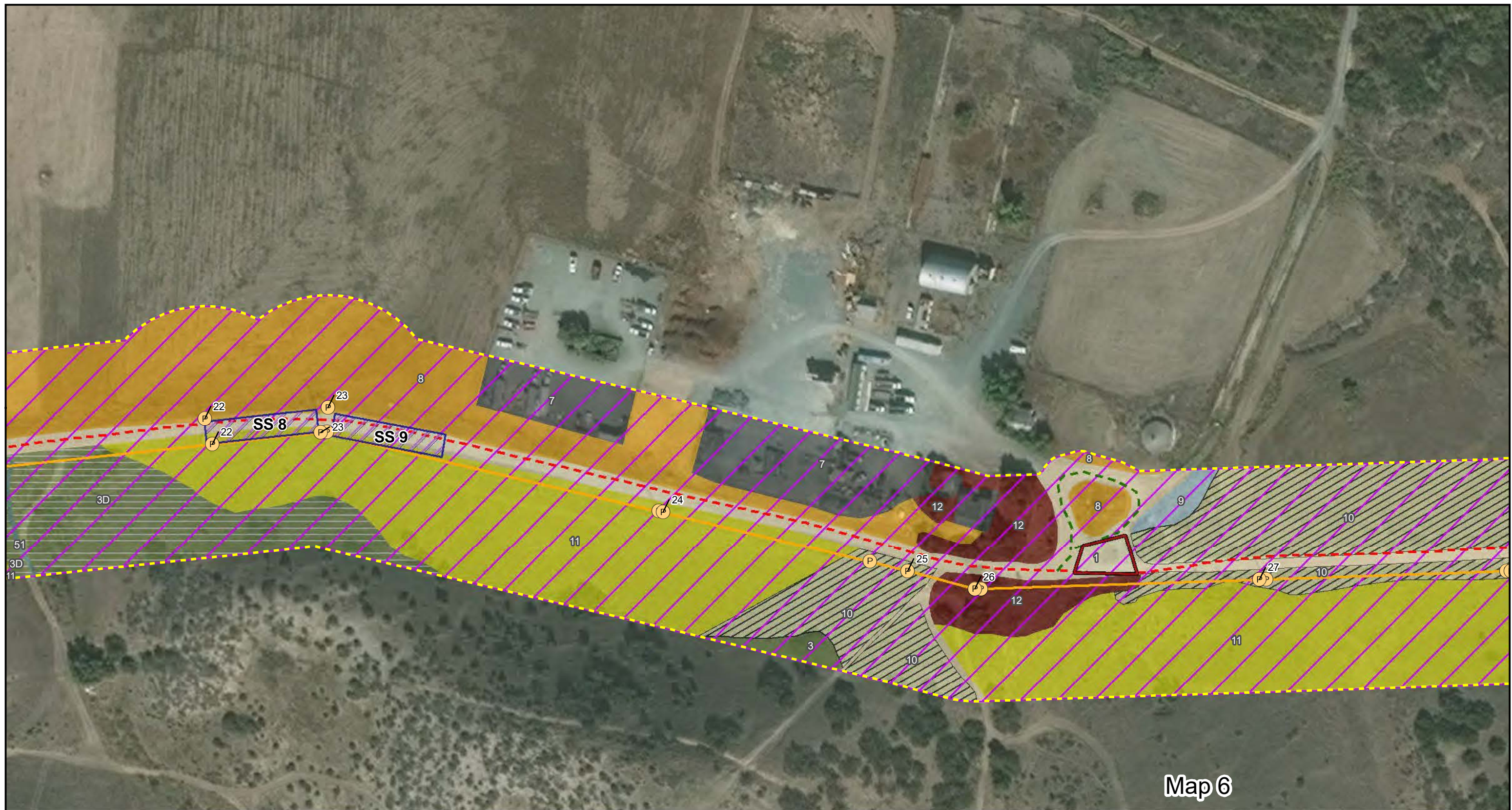
- |   |   |                               |
|---|---|-------------------------------|
| 1. Bare Ground  | 7. Urban and Developed                      | 12. Landscape/Ornamental      |
| 3. California Sagebrush—California Buckwheat Scrub            | 8. Disturbed                                | 50. Vegetated Rip-Rap Channel |
| 3D. Disturbed California Sagebrush—California Buckwheat Scrub | 10. Annual Brome Grassland                  | 51. Castor Bean Thickets      |
|   | 11. Purple Needlegrass Grassland            |                               |
|   | 11D. Disturbed Purple Needlegrass Grassland |                               |



**Attachment 2**  
**TL649 Wood to Steel**  
**Vegetation Communities and**  
**QCB Survey Area Map**







Map 6

### Legend

- Biological Survey Area
- P Project Pole
- Transmission Centerline
- Work Area Type**
- Proposed String Site
- Proposed Turnaround

### Access Type

- Existing Non-TCM Access Road
- Access Road
- QCB Excluded Habitat

### Vegetation Community (MCV II)

- 1. Bare Ground

- 3. California Sagebrush—California Buckwheat Scrub
- 3D. Disturbed California Sagebrush—California Buckwheat Scrub
- 7. Urban and Developed
- 8. Disturbed

- 9. Giant Reed Breaks
- 10. Annual Brome Grassland
- 11. Purple Needlegrass Grassland
- 12. Landscape/Ornamental
- 51. Castor Bean Thickets

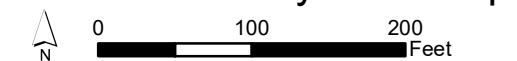


## Attachment 2

### TL649 Wood to Steel

### Vegetation Communities and

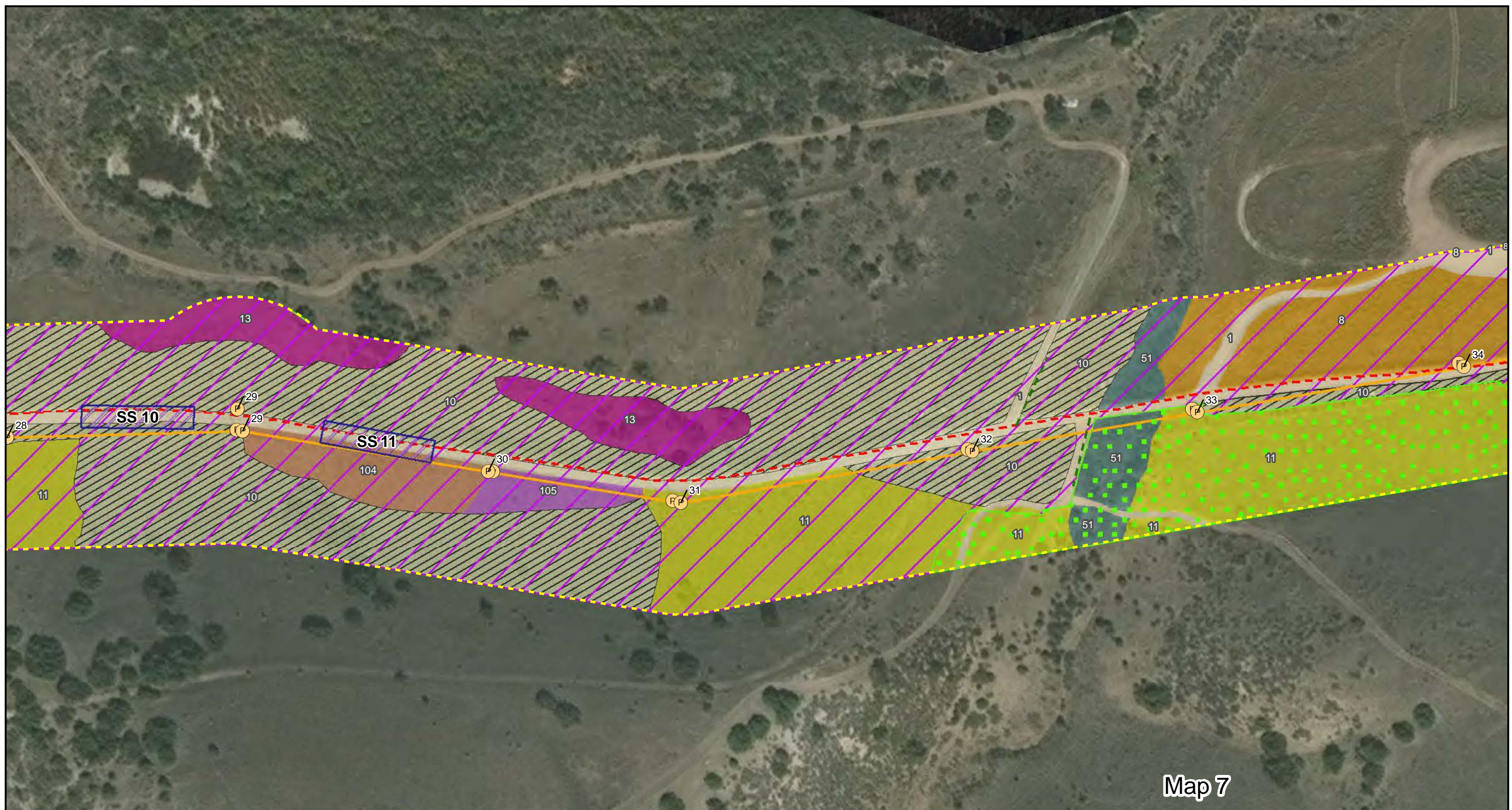
### QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







Map 7

## Legend

- Biological Survey Area
- Project Pole
- Transmission Centerline

### Work Area Type

- Proposed String Site

### Access Type

- Existing Non-TCM Access Road
- Access Road
- QCB Survey Area
- QCB Excluded Habitat

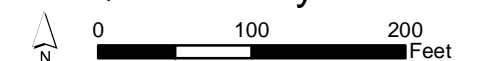
### Vegetation Community (MCV II)

- 1. Bare Ground
- 8. Disturbed
- 10. Annual Brome Grassland
- 11. Purple Needlegrass Grassland
- 13. Coast Prickly Pear Scrub

- 51. Castor Bean Thickets
- 104. Upland Mustards
- 105. Upland Mustard-Fennel Alliance



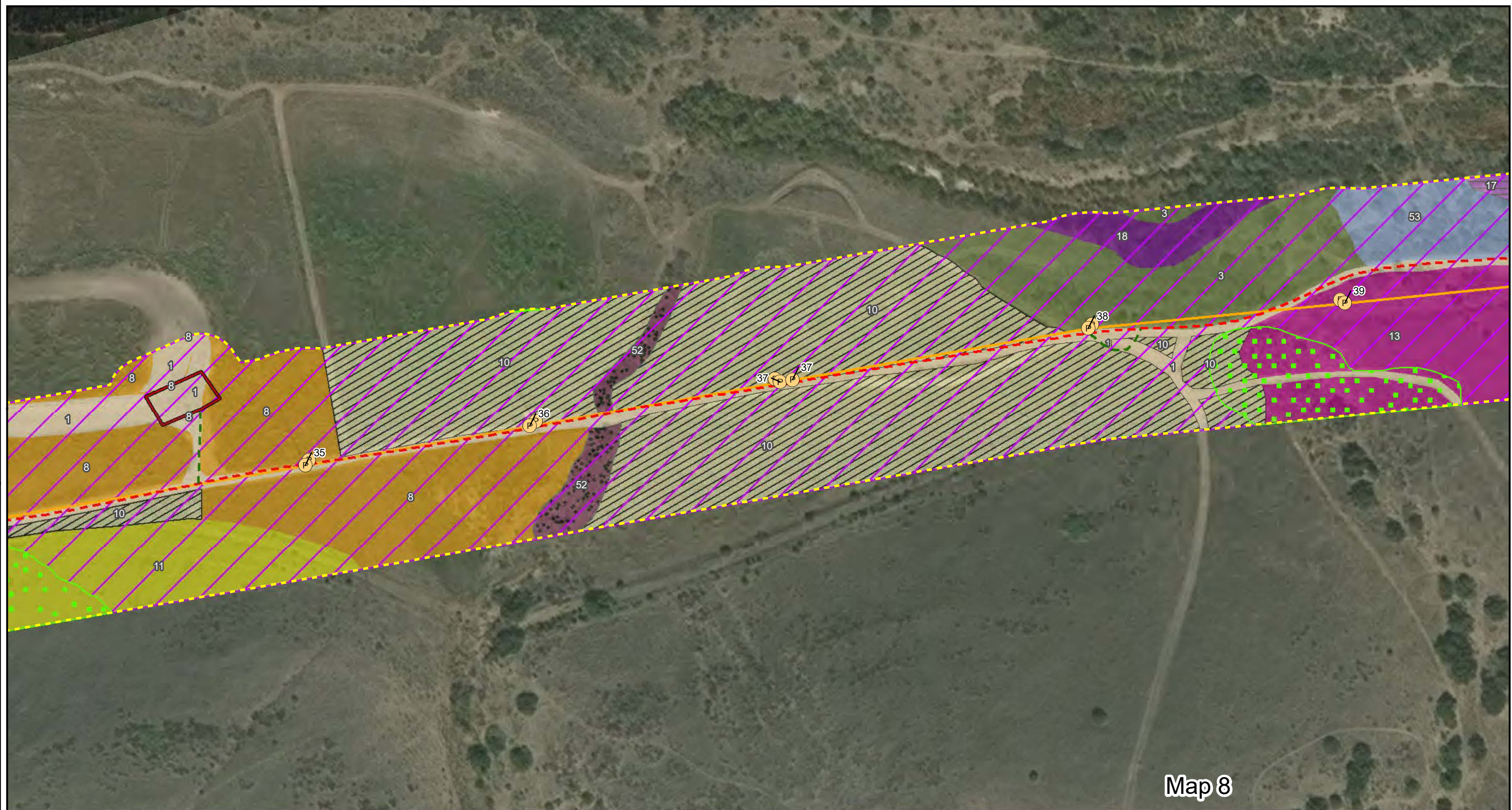
## Attachment 2 TL649 Wood to Steel Vegetation Communities and QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







## Legend

Biological Survey Area

Project Pole

Transmission Centerline

### Work Area Type

Proposed Turnaround

### Access Type

Existing Non-TCM Access Road

Access Road

QCB Survey Area

QCB Excluded Habitat

### Vegetation Community (MCV II)

1. Bare Ground

3. California Sagebrush—California Buckwheat Scrub

8. Disturbed

10. Annual Brome Grassland

11. Purple Needlegrass Grassland

13. Coast Prickly Pear Scrub

17. Tamarisk Thickets

18. Mulefat Thickets

52. Singlewhorl Burrobrush Scrub

53. Singlewhorl Burrobrush—Broom Baccharis Scrub



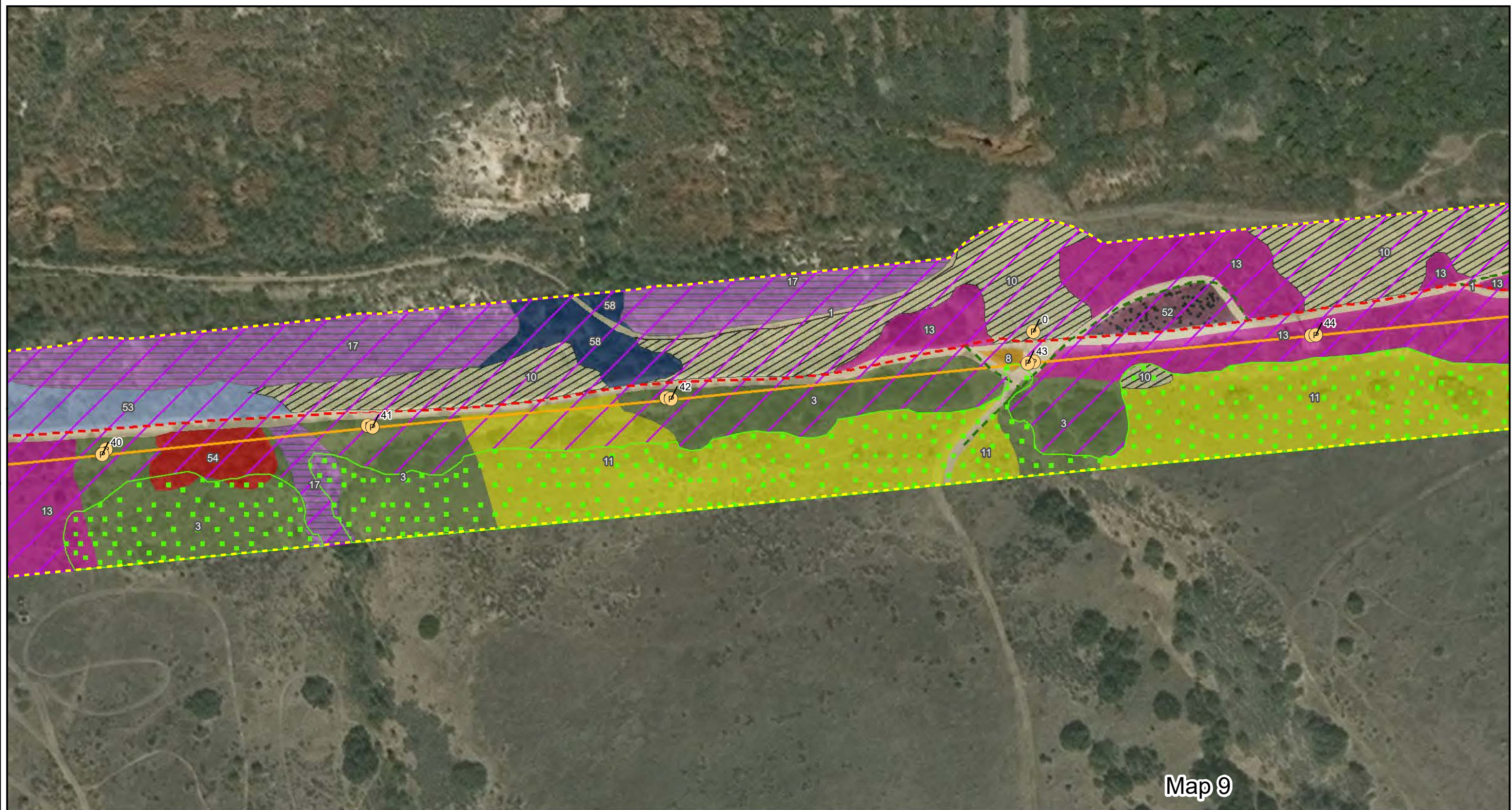
## Attachment 2 TL649 Wood to Steel Vegetation Communities and QCB Survey Area Map

0 100 200 Feet

Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







Map 9

### Legend

Biological Survey Area

Project Pole

Transmission Centerline

### Access Type

Existing Non-TCM Access Road

Access Road

QCB Survey Area

QCB Excluded Habitat

### Vegetation Community (MCV II)

1. Bare Ground

3. California Sagebrush—California Buckwheat Scrub

8. Disturbed

10. Annual Brome Grassland

11. Purple Needlegrass Grassland

13. Coast Prickly Pear Scrub

17. Tamarisk Thickets

52. Singlewhorl Burrobrush Scrub

53. Singlewhorl Burrobrush—Broom Baccharis Scrub

54. Lemonade Berry Stand

58. Black Willow Forest



## Attachment 2

### TL649 Wood to Steel

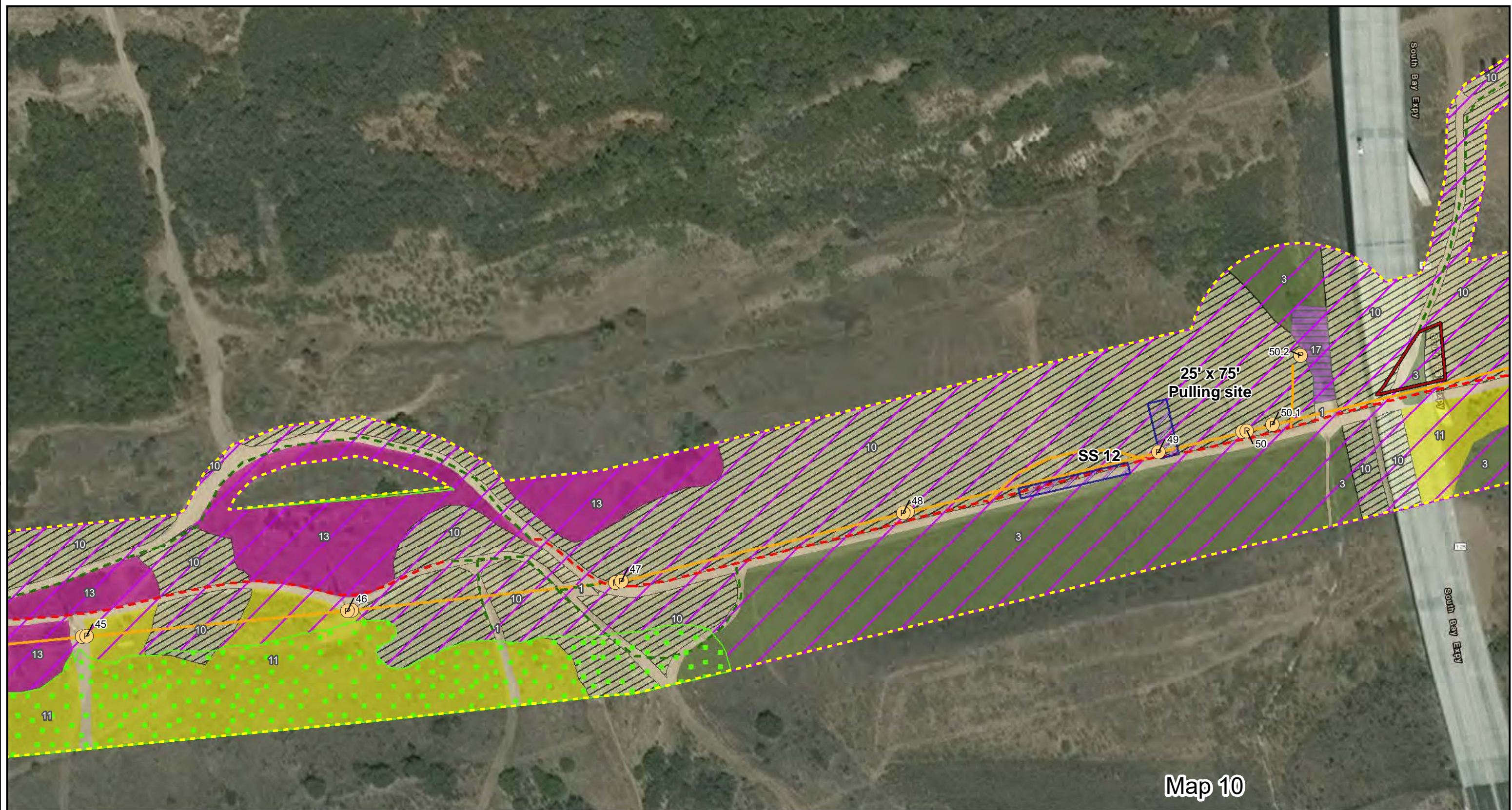
### Vegetation Communities and QCB Survey Area Map

0 100 200 Feet

Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







## Legend

- Biological Survey Area
- P Project Pole
- Transmission Centerline

## Work Area Type

- Proposed String Site
- Proposed Turnaround

## Access Type

- Existing Non-TCM Access Road
- Access Road
- Overland Travel
- QCB Survey Area
- QCB Excluded Habitat

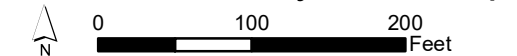
## Vegetation Community (MCV II)

- 1. Bare Ground
- 3. California Sagebrush—California Buckwheat Scrub
- 10. Annual Brome Grassland
- 11. Purple Needlegrass Grassland

- 13. Coast Prickly Pear Scrub
- 17. Tamarisk Thickets



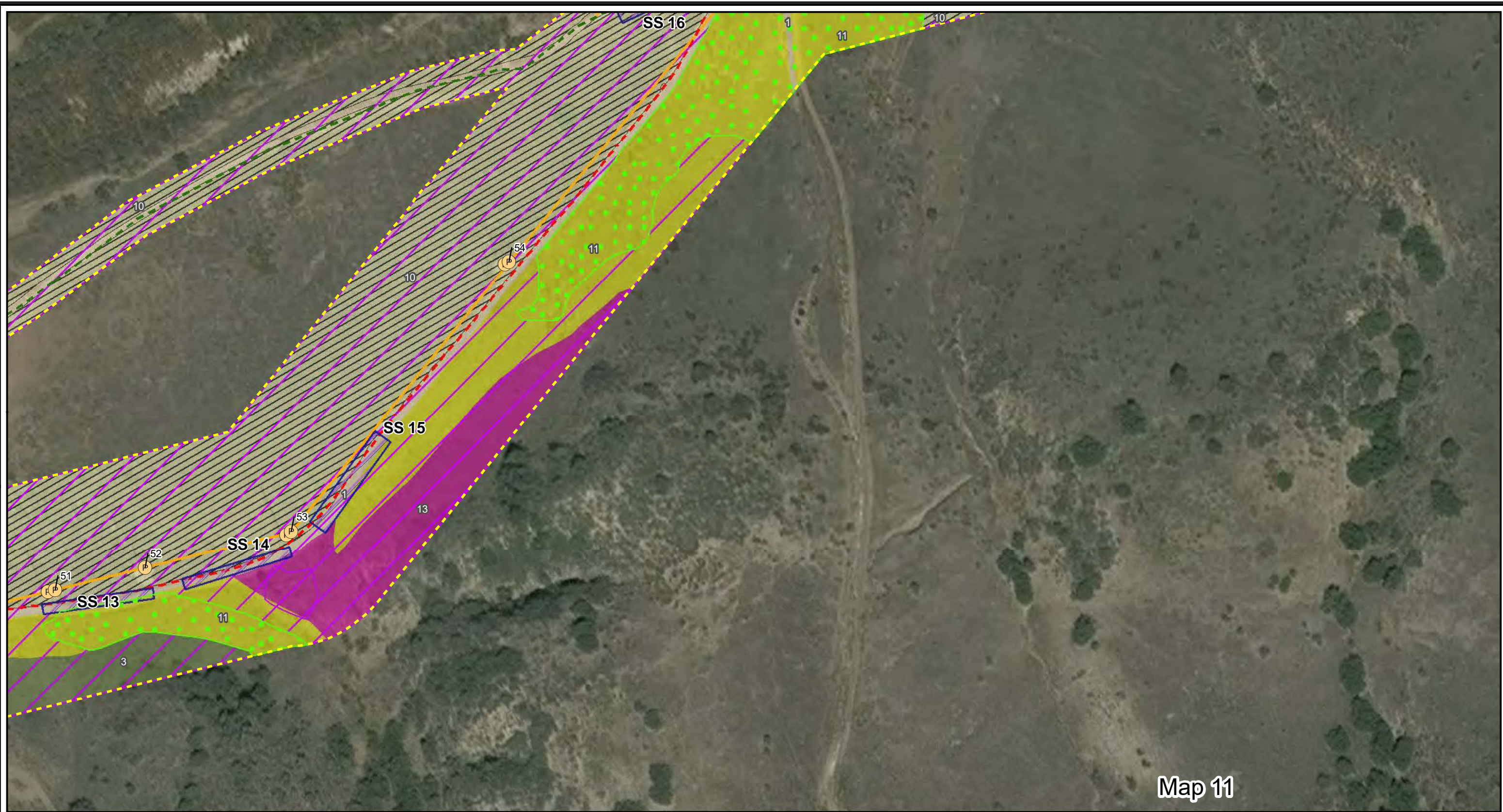
## Attachment 2 TL649 Wood to Steel Vegetation Communities and QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons





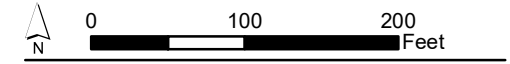


**Legend**

- |                         |                              |  |                              |
|-------------------------|------------------------------|--|------------------------------|
| Biological Survey Area  | <b>Access Type</b>           | <b>Vegetation Community (MCV II)</b>               | 13. Coast Prickly Pear Scrub |
| Project Pole            | Existing Non-TCM Access Road | 1. Bare Ground                                     |                              |
| Transmission Centerline | Access Road                  | 3. California Sagebrush—California Buckwheat Scrub |                              |
| <b>Work Area Type</b>   | Overland Travel              | 10. Annual Brome Grassland                         |                              |
| Proposed String Site    | QCB Survey Area              | 11. Purple Needlegrass Grassland                   |                              |
|                         | QCB Excluded Habitat         |  |                              |

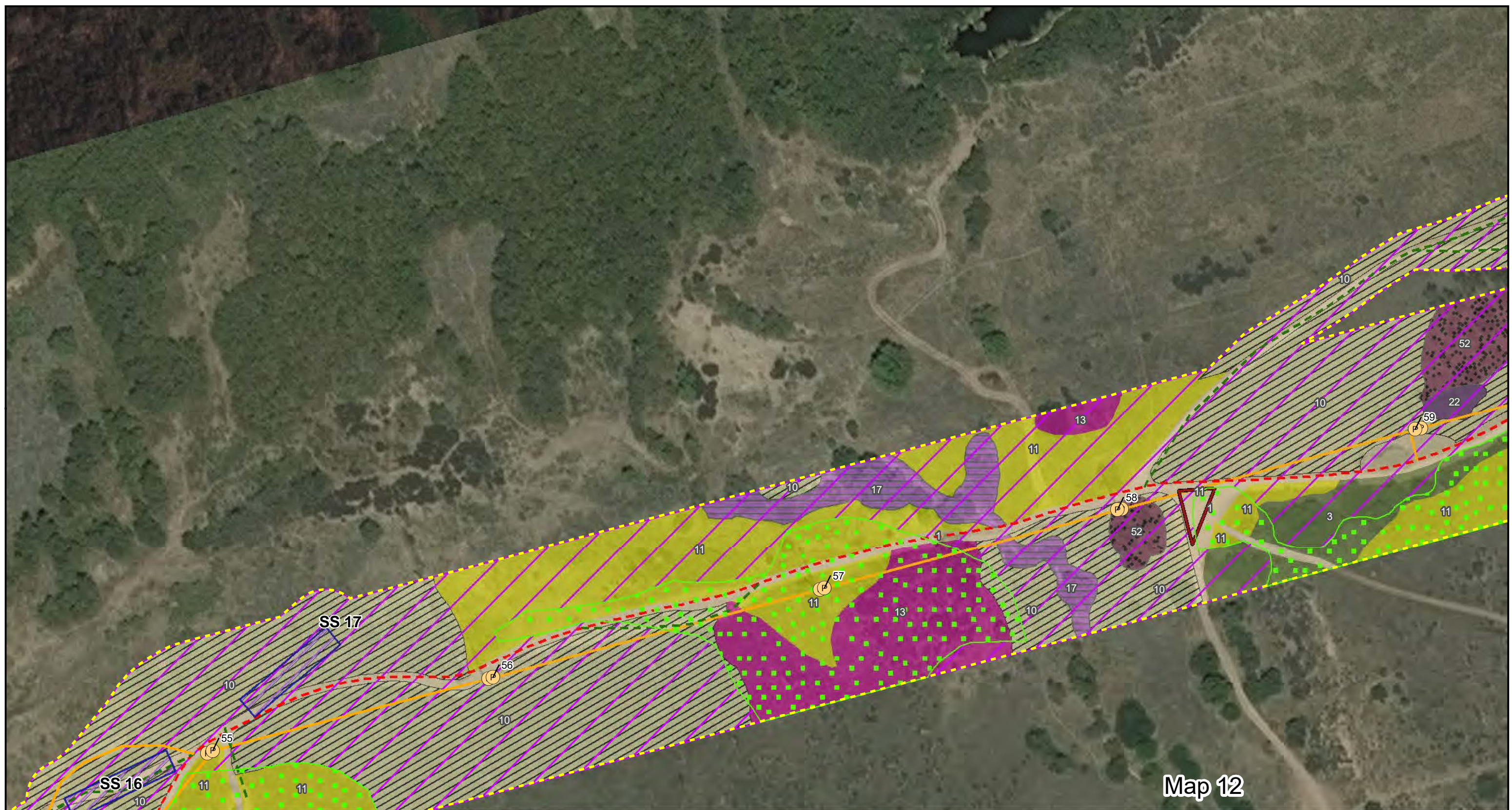


**Attachment 2**  
**TL649 Wood to Steel**  
**Vegetation Communities and**  
**QCB Survey Area Map**



Name: 20775 QCB Atch 2 VegComm.Mxd  
 Print Date: 9/19/2018, Author: msimmons





### Legend

- Biological Survey Area
- P Project Pole
- Transmission Centerline

### Work Area Type

- Proposed String Site
- Proposed Turnaround

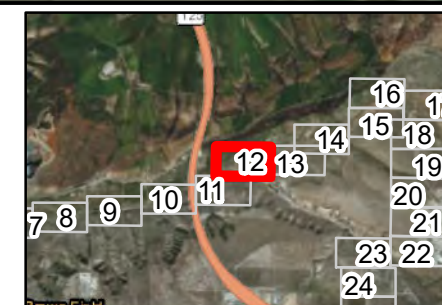
### Access Type

- Existing Non-TCM Access Road
- Access Road
- Overland Travel
- QCB Survey Area
- QCB Excluded Habitat

### Vegetation Community (MCV II)

- 1. Bare Ground
- 3. California Sagebrush—California Buckwheat Scrub
- 10. Annual Brome Grassland
- 11. Purple Needlegrass Grassland

- 13. Coast Prickly Pear Scrub
- 17. Tamarisk Thickets
- 22. Creeping Ryegrass Grassland
- 52. Singlewool Burrobrush Scrub

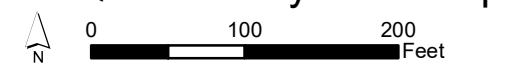


Map 12

## Attachment 2

### TL649 Wood to Steel

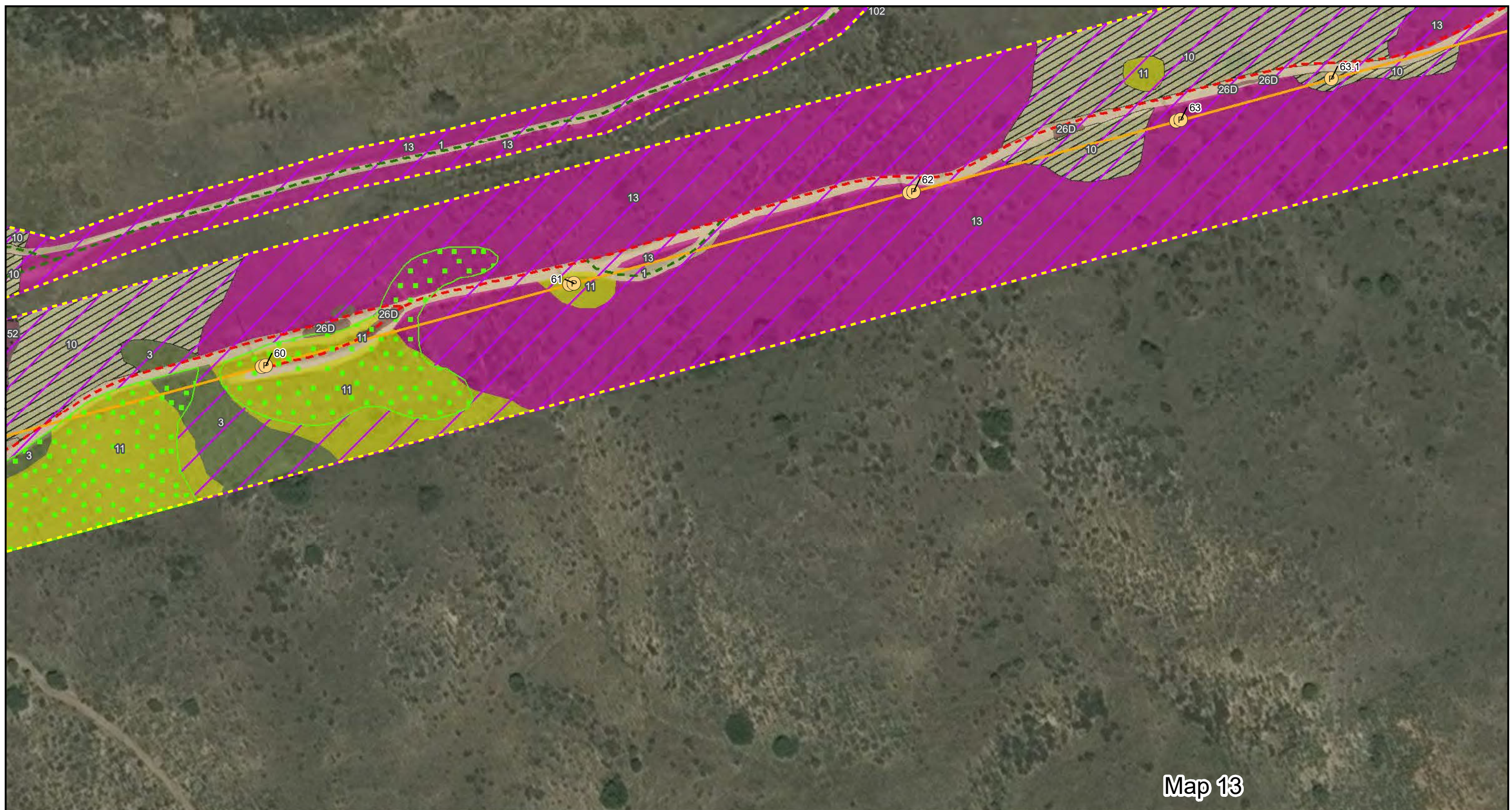
### Vegetation Communities and QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons



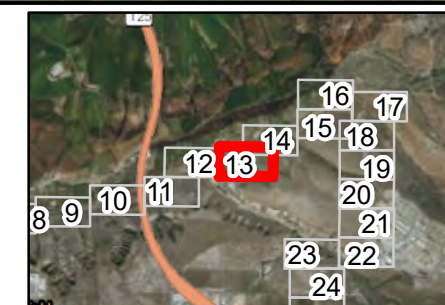




Map 13

### Legend

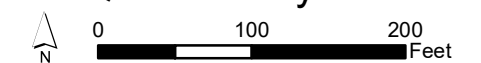
- |                              |  |  |                            |
|------------------------------|--|--|----------------------------|
| Biological Survey Area       | QCB Survey Area                                    | 10. Annual Brome Grassland                         | 102. Broom Baccharis Scrub |
| Project Pole                 | QCB Excluded Habitat                               | 11. Purple Needlegrass Grassland                   |                            |
| Transmission Centerline      | <b>Vegetation Community (MCV II)</b>               | 13. Coast Prickly Pear Scrub                       |                            |
| <b>Access Type</b>           | 1. Bare Ground                                     | 26D. Disturbed San Diego Mesa Claypan Vernal Pools |                            |
| Existing Non-TCM Access Road | 3. California Sagebrush—California Buckwheat Scrub | 52. Singlewhorl Burrobrush Scrub                   |                            |
| Access Road                  |  |  |                            |



## Attachment 2

### TL649 Wood to Steel

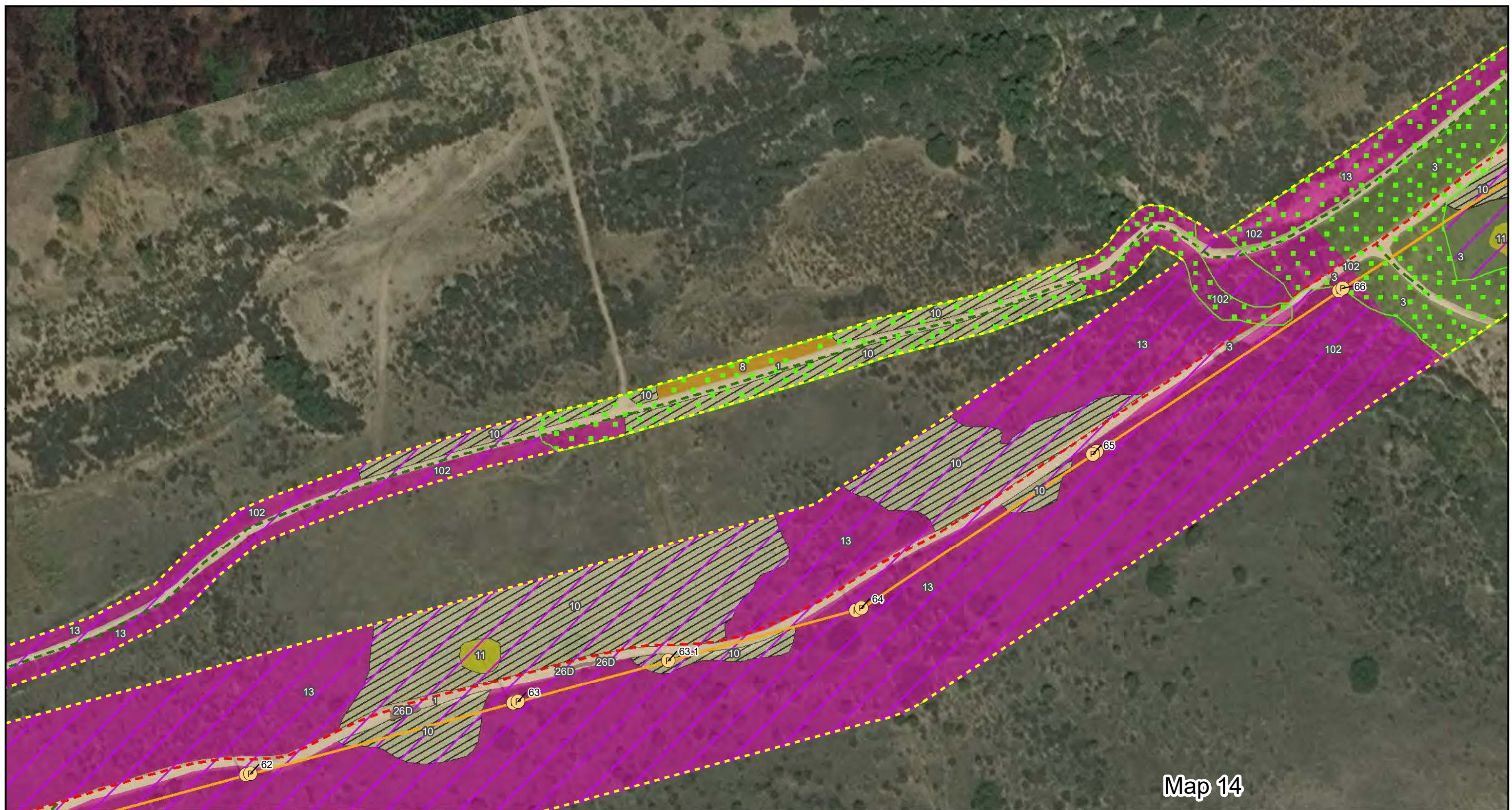
### Vegetation Communities and QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







### Legend

Biological Survey Area

Project Pole

Transmission Centerline

#### Access Type

Existing Non-TCM Access Road

Access Road

QCB Survey Area

QCB Excluded Habitat

#### Vegetation Community (MCV II)

1. Bare Ground

3. California Sagebrush—California Buckwheat Scrub

8. Disturbed

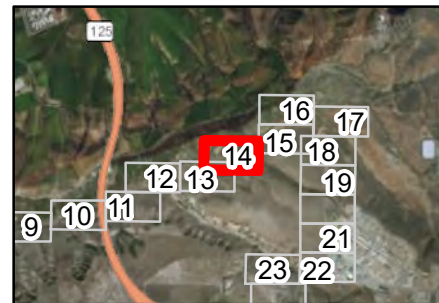
10. Annual Brome Grassland

11. Purple Needlegrass Grassland

13. Coast Prickly Pear Scrub

26D. Disturbed San Diego Mesa Claypan Vernal Pools

102. Broom Baccharis Scrub



## Attachment 2

### TL649 Wood to Steel

### Vegetation Communities and

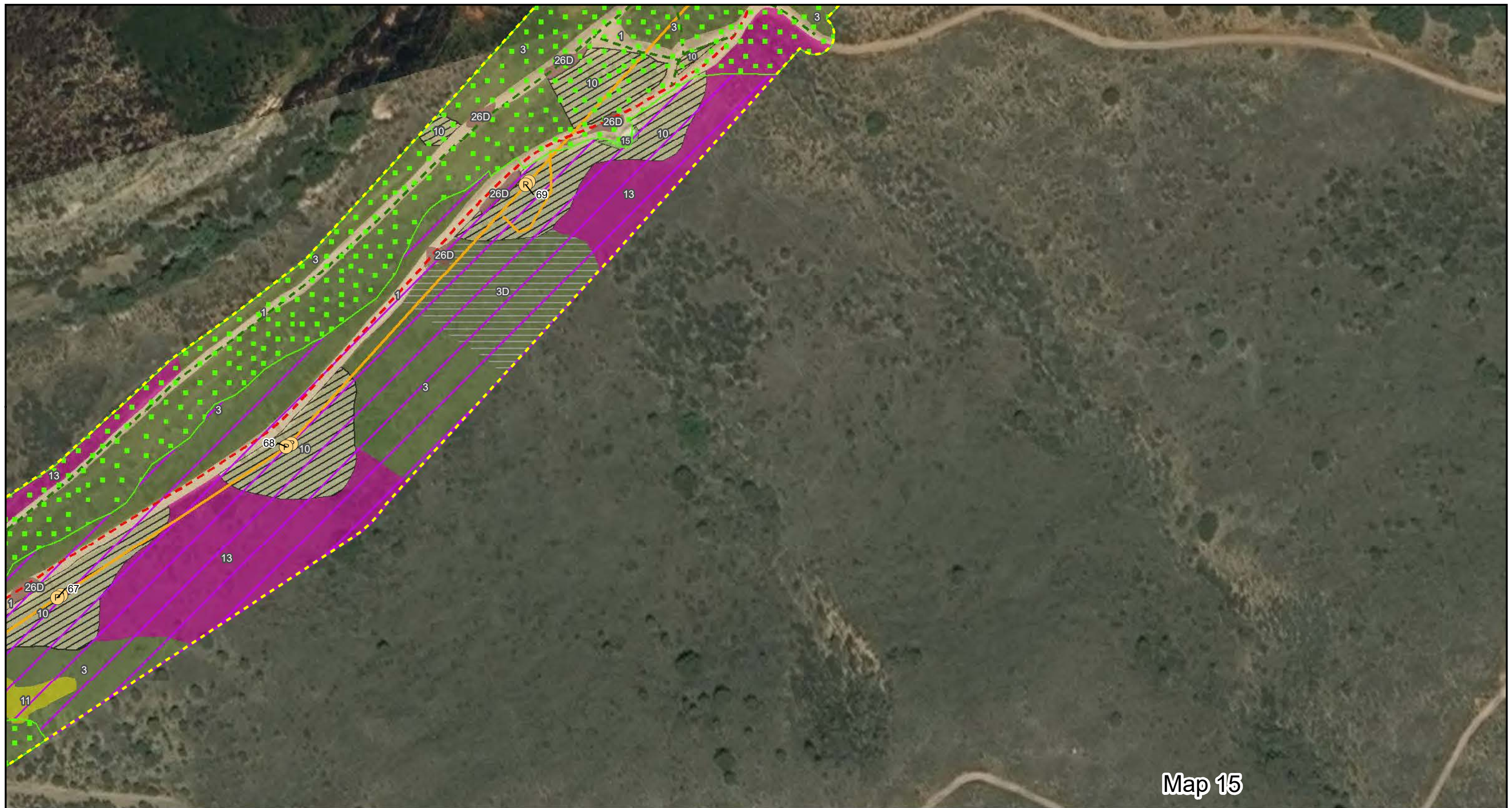
### QCB Survey Area Map

0 100 200 Feet

Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







## Legend

Biological Survey Area

Project Pole

Transmission Centerline

### Access Type

Existing Non-TCM Access Road

Access Road

Overland Travel

QCB Survey Area

QCB Excluded Habitat

### Vegetation Community (MCV II)

1. Bare Ground

3. California Sagebrush—California Buckwheat Scrub

3D. Disturbed California Sagebrush—California Buckwheat Scrub

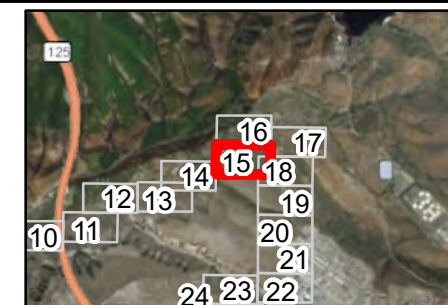
10. Annual Brome Grassland

11. Purple Needlegrass Grassland

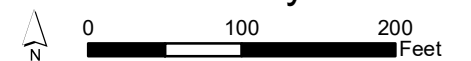
13. Coast Prickly Pear Scrub

15. Pale Spike Rush Marshes

26D. Disturbed San Diego Mesa Claypan Vernal Pools



## Attachment 2 TL649 Wood to Steel Vegetation Communities and QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







Map 16

### Legend

Biological Survey Area

Project Pole

Transmission Centerline

### Work Area Type

Proposed String Site

### Access Type

Existing Non-TCM Access Road

Access Road

QCB Survey Area

QCB Excluded Habitat

### Vegetation Community (MCV II)

1. Bare Ground

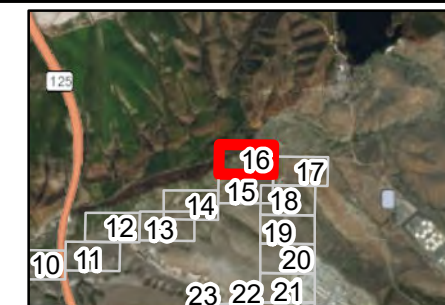
3. California Sagebrush—California Buckwheat Scrub

13. Coast Prickly Pear Scrub

17. Tamarisk Thickets

19. Tecate Cypress Stands

26D. Disturbed San Diego Mesa Claypan Vernal Pools

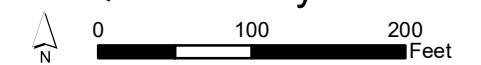


## Attachment 2

### TL649 Wood to Steel

### Vegetation Communities and

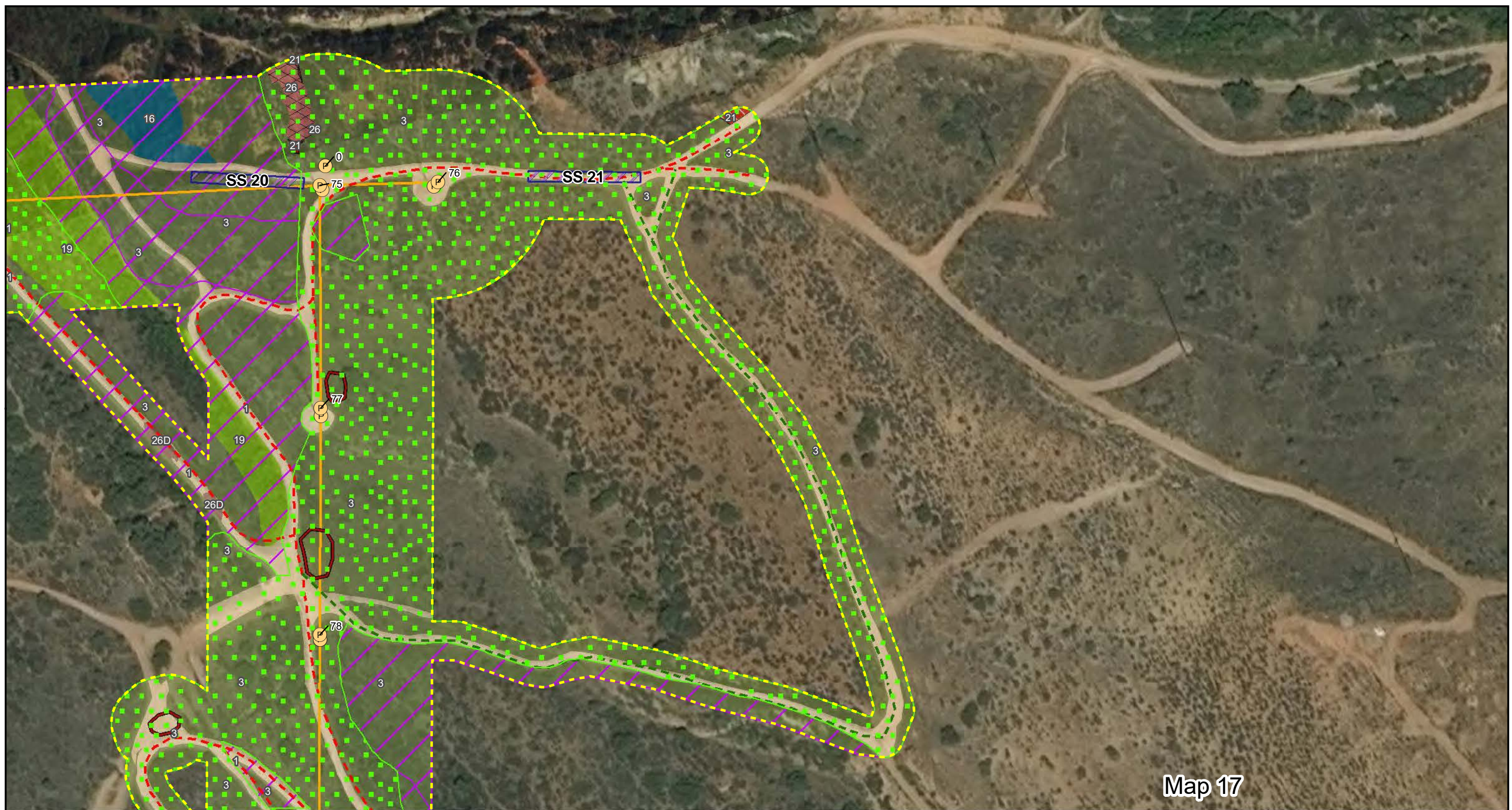
### QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







### Legend

- Biological Survey Area
- P Project Pole
- Transmission Centerline

### Work Area Type

- Proposed String Site
- Proposed Turnaround

### Access Type

- Existing Non-TCM Access Road
- Access Road
- QCB Survey Area
- QCB Excluded Habitat

### Vegetation Community (MCV II)

- 1. Bare Ground
- 3. California Sagebrush—California Buckwheat Scrub
- 16. Fremont Cottonwood Forest
- 19. Tecate Cypress Stands

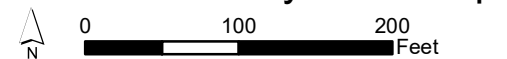
- 21. San Diego Mesa Claypan Vernal Pool Native Grassland Mix
- 26. San Diego Mesa Claypan Vernal Pool
- 26D. Disturbed San Diego Mesa Claypan Vernal Pools



## Attachment 2

### TL649 Wood to Steel

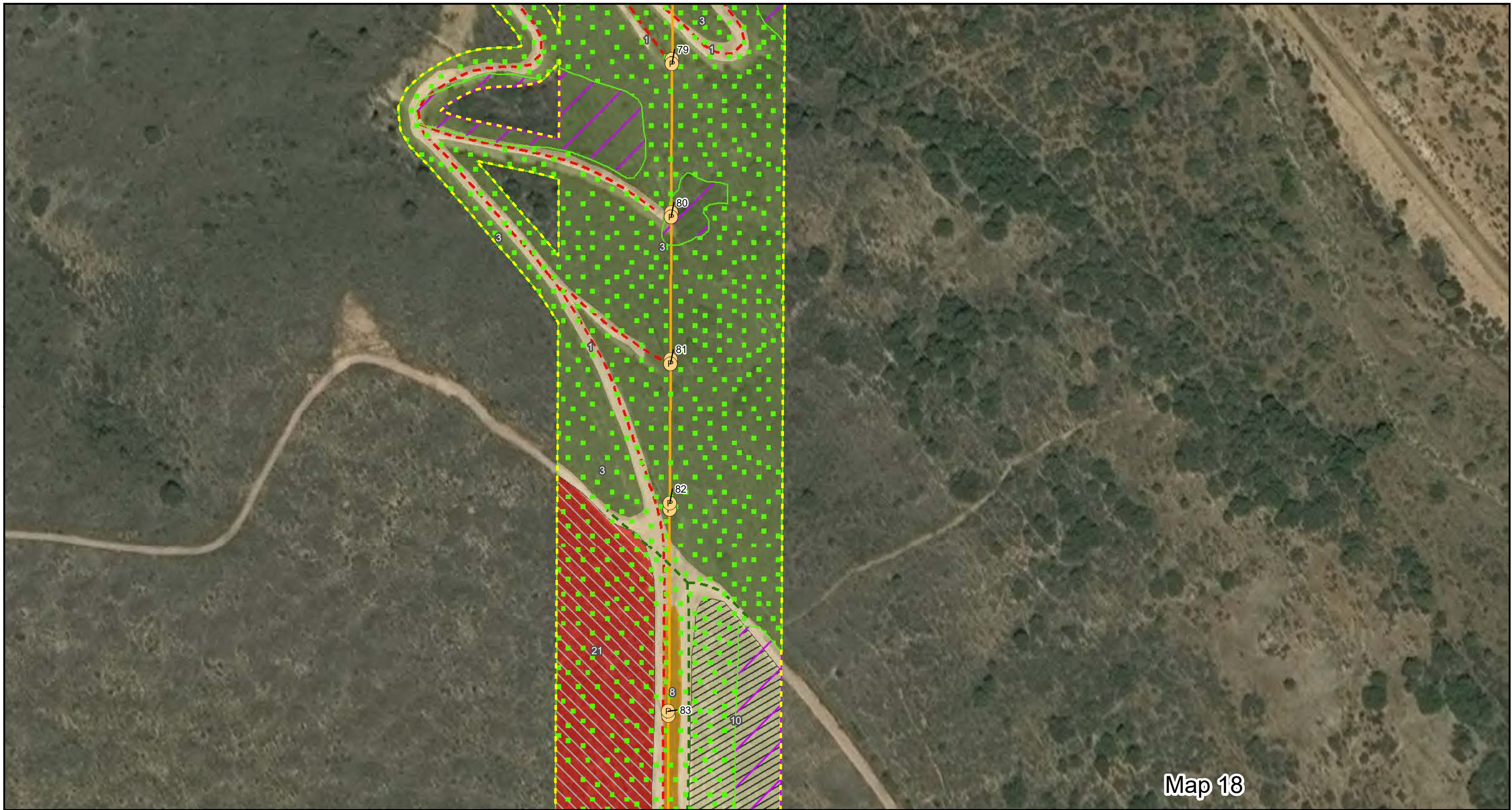
### Vegetation Communities and QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons



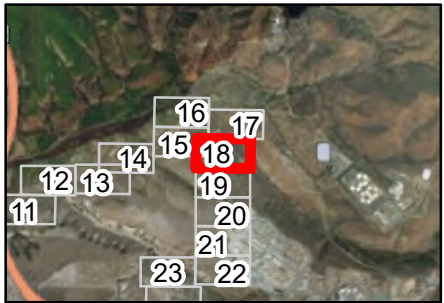




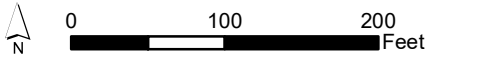
Map 18

**Legend**

- |                              |                                      |   |
|------------------------------|--------------------------------------|---|
| Biological Survey Area       | Overland Travel                      | 3. California Sagebrush—California Buckwheat Scrub          |
| Project Pole                 | QCB Survey Area                      | 8. Disturbed  |
| Transmission Centerline      | QCB Excluded Habitat                 | 10. Annual Brome Grassland                                  |
| <b>Access Type</b>           | <b>Vegetation Community (MCV II)</b> | 21. San Diego Mesa Claypan Vernal Pool Native Grassland Mix |
| Existing Non-TCM Access Road | 1. Bare Ground                       |   |
| Access Road                  |                                      |   |



**Attachment 2**  
**TL649 Wood to Steel**  
**Vegetation Communities and**  
**QCB Survey Area Map**







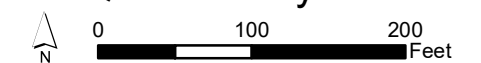
Map 19

# Legend

- |                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| Biological Survey Area       | Overland Travel                      | 3D. Disturbed California Sagebrush—California Buckwheat Scrub | 26. San Diego Mesa Claypan Vernal Pool |
| Project Pole                 | QCB Survey Area                      | 8. Disturbed  | 58. Black Willow Forest                |
| Transmission Centerline      | QCB Excluded Habitat                 | 10. Annual Brome Grassland                                    |  |
| <b>Access Type</b>           | <b>Vegetation Community (MCV II)</b> | 21. San Diego Mesa Claypan Vernal Pool Native Grassland Mix   |  |
| Existing Non-TCM Access Road | 1. Bare Ground                       |   |  |
| Access Road                  |                                      |   |  |



## **Attachment 2** **TL649 Wood to Steel** **Vegetation Communities and** **QCB Survey Area Map**



Name: 20775 QCB Atch 2 VegComm.Mxd  
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Map 20

## Legend

Biological Survey Area

Project Pole

Transmission Centerline

### Access Type

Existing Non-TCM Access Road

Access Road

Overland Travel

QCB Survey Area

QCB Excluded Habitat

### Vegetation Community (MCV II)

1. Bare Ground

3. California Sagebrush—California Buckwheat Scrub

8. Disturbed

10. Annual Brome Grassland

16. Fremont Cottonwood Forest

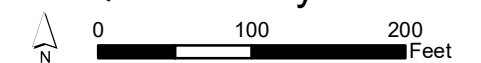
21. San Diego Mesa Claypan Vernal Pool Native Grassland Mix

26. San Diego Mesa Claypan Vernal Pool

58. Black Willow Forest



## Attachment 2 TL649 Wood to Steel Vegetation Communities and QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
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Map 21

### Legend

Biological Survey Area

Project Pole

Transmission Centerline

#### Access Type

Existing Non-TCM Access Road

Access Road

Overland Travel

QCB Survey Area

QCB Excluded Habitat

#### Vegetation Community (MCV II)

1. Bare Ground

8. Disturbed

10. Annual Brome Grassland

21. San Diego Mesa Claypan Vernal Pool Native Grassland Mix

26. San Diego Mesa Claypan Vernal Pool

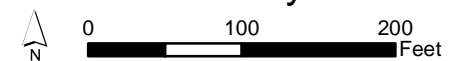


## Attachment 2

### TL649 Wood to Steel

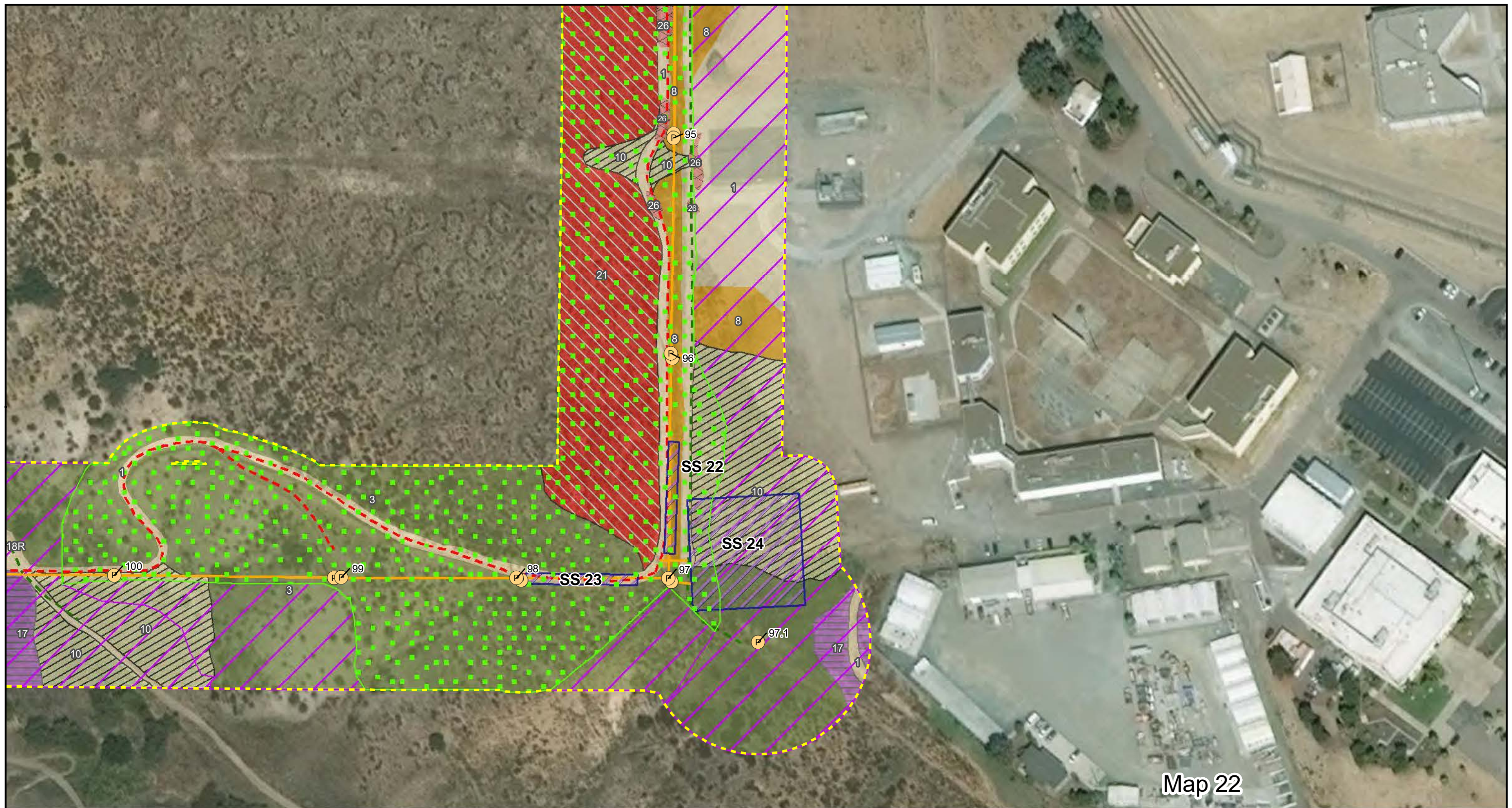
### Vegetation Communities and

### QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons





## Legend

Biological Survey Area

Project Pole

Transmission Centerline

### Work Area Type

Proposed String Site

### Access Type

Existing Non-TCM Access Road

Access Road

Overland Travel

QCB Survey Area

QCB Excluded Habitat

### Vegetation Community (MCV II)

1. Bare Ground

3. California Sagebrush—California Buckwheat Scrub

8. Disturbed

10. Annual Brome Grassland

17. Tamarisk Thickets

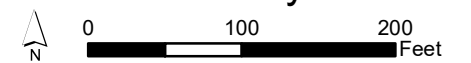
18R. Mulefat Thickets (Active Restoration)

21. San Diego Mesa Claypan Vernal Pool Native Grassland Mix

26. San Diego Mesa Claypan Vernal Pool



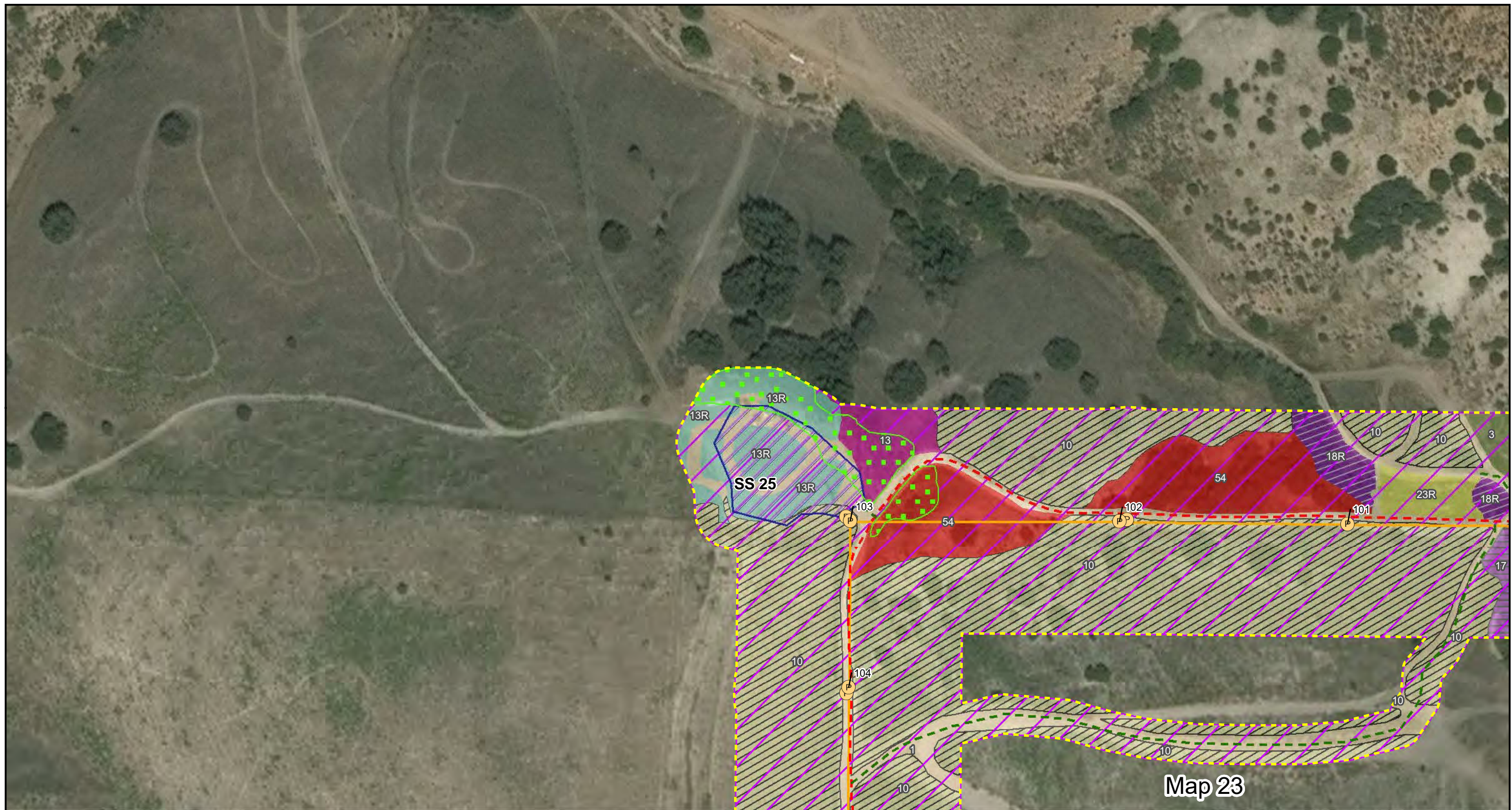
## Attachment 2 TL649 Wood to Steel Vegetation Communities and QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons







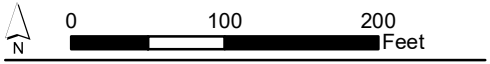
Map 23

**Legend**

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>Biological Survey Area</li> <li>Project Pole</li> <li>Transmission Centerline</li> <li><b>Work Area Type</b></li> <li>Proposed String Site</li> </ul> | <p><b>Access Type</b></p> <ul style="list-style-type: none"> <li>Existing Non-TCM Access Road</li> <li>Access Road</li> <li>QCB Survey Area</li> <li>QCB Excluded Habitat</li> </ul> | <p><b>Vegetation Community (MCV II)</b></p> <ul style="list-style-type: none"> <li>1. Bare Ground</li> <li>3. California Sagebrush—California Buckwheat Scrub</li> <li>10. Annual Brome Grassland</li> <li>13. Coast Prickly Pear Scrub</li> <li>13R. Coast Prickly Pear Scrub (Active Restoration)</li> <li>17. Tamarisk Thickets</li> <li>18R. Mulefat Thickets (Active Restoration)</li> <li>23R. Spiny Rush Marsh (Active Restoration)</li> <li>54. Lemonade Berry Stand</li> </ul> |
|--|--|---|



**Attachment 2**  
**TL649 Wood to Steel**  
**Vegetation Communities and**  
**QCB Survey Area Map**



Name: 20775 QCB Atch 2 VegComm.Mxd  
 Print Date: 9/19/2018, Author: msimmons







**Legend**

|                         |                              |                                      |
|-------------------------|------------------------------|--------------------------------------|
| Biological Survey Area  | <b>Access Type</b>           | <b>Vegetation Community (MCV II)</b> |
| Project Pole            | Existing Non-TCM Access Road | 1. Bare Ground                       |
| Transmission Centerline | Access Road                  | 8. Disturbed                         |
| <b>Work Area Type</b>   | Overland Travel              | 10. Annual Brome Grassland           |
| Proposed String Site    | QCB Excluded Habitat         |                                      |

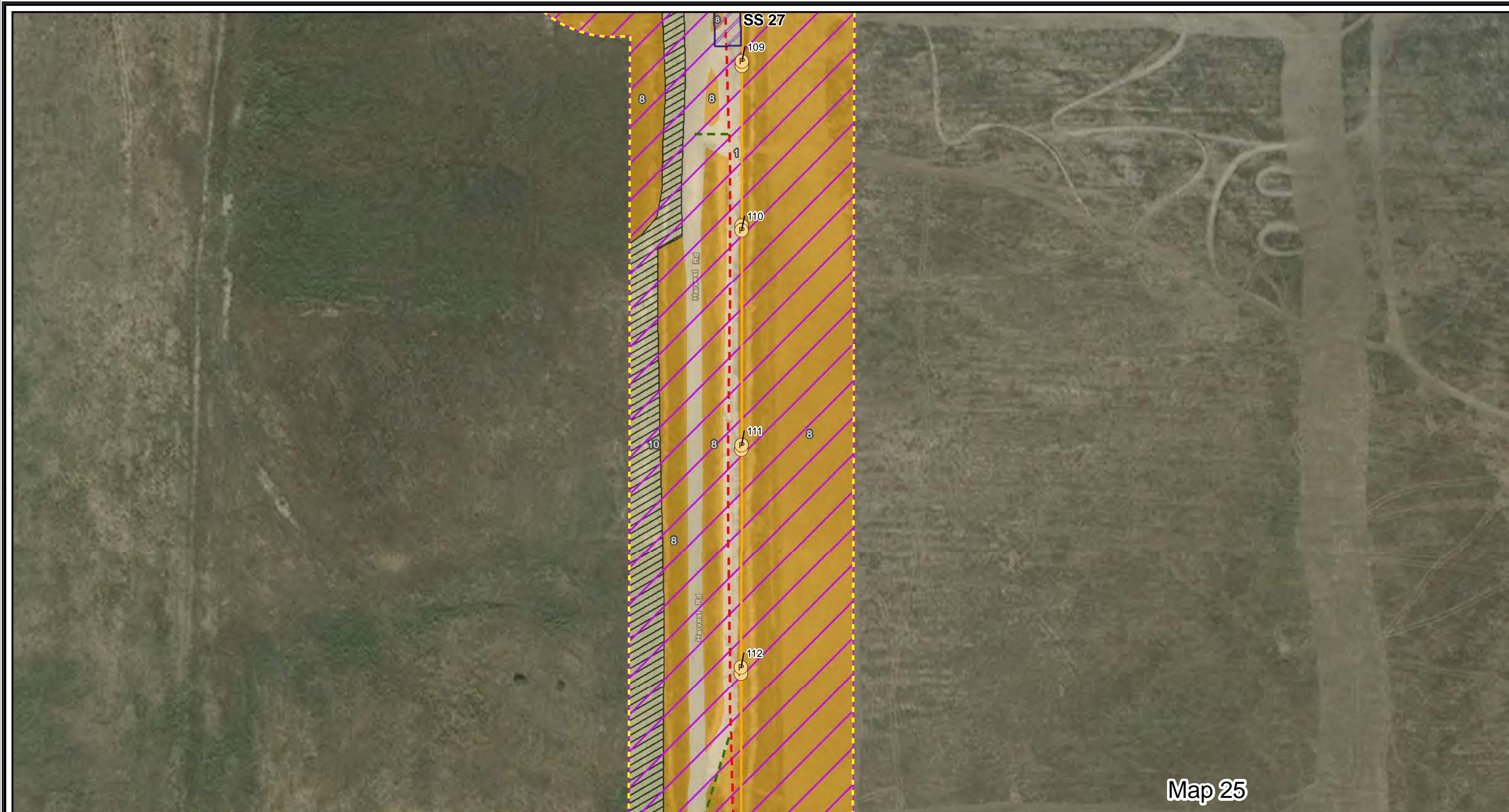


**Attachment 2**  
**TL649 Wood to Steel**  
**Vegetation Communities and**  
**QCB Survey Area Map**

0 100 200 Feet

Name: 20775 QCB Atch 2 VegComm.Mxd  
 Print Date: 9/19/2018, Author: msimmons





Map 25

**Legend**

Biological Survey Area

Project Pole

Transmission Centerline

**Work Area Type**

Proposed String Site

**Access Type**

Existing Non-TCM Access Road

Access Road

QCB Excluded Habitat

**Vegetation Community (MCV II)**

8. Disturbed

10. Annual Brome Grassland

1. Bare Ground



**Attachment 2**  
TL649 Wood to Steel  
Vegetation Communities and  
QCB Survey Area Map

0 100 200 Feet

Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons



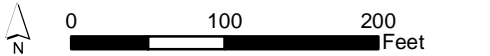


# Legend

- |                         |                                      |                            |
|-------------------------|--------------------------------------|----------------------------|
| Biological Survey Area  | <b>Access Type</b>                   | 8. Disturbed               |
| Project Pole            | Existing Non-TCM Access Road         | 10. Annual Brome Grassland |
| Transmission Centerline | Access Road                          |                            |
| <b>Work Area Type</b>   | QCB Excluded Habitat                 |                            |
| Proposed String Site    | <b>Vegetation Community (MCV II)</b> |                            |
|                         | 1. Bare Ground                       |                            |



## Attachment 2 TL649 Wood to Steel Vegetation Communities and QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons



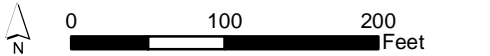


Map 27

- Legend**
- Biological Survey Area
  - Access Road
  - Project Pole
  - QCB Excluded Habitat
  - Work Area Type**
  - Proposed String Site
  - Vegetation Community (MCV II)**
  - 1. Bare Ground
  - 8. Disturbed
  - Access Type**
  - Existing Non-TCM Access Road



**Attachment 2**  
TL649 Wood to Steel  
Vegetation Communities and  
QCB Survey Area Map







Map 28

### Legend

Biological Survey Area

#### Access Type

Existing Non-TCM Access Road

Access Road

QCB Excluded Habitat

#### Vegetation Community (MCV II)

1. Bare Ground

8. Disturbed

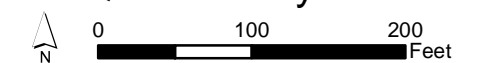


## Attachment 2

### TL649 Wood to Steel

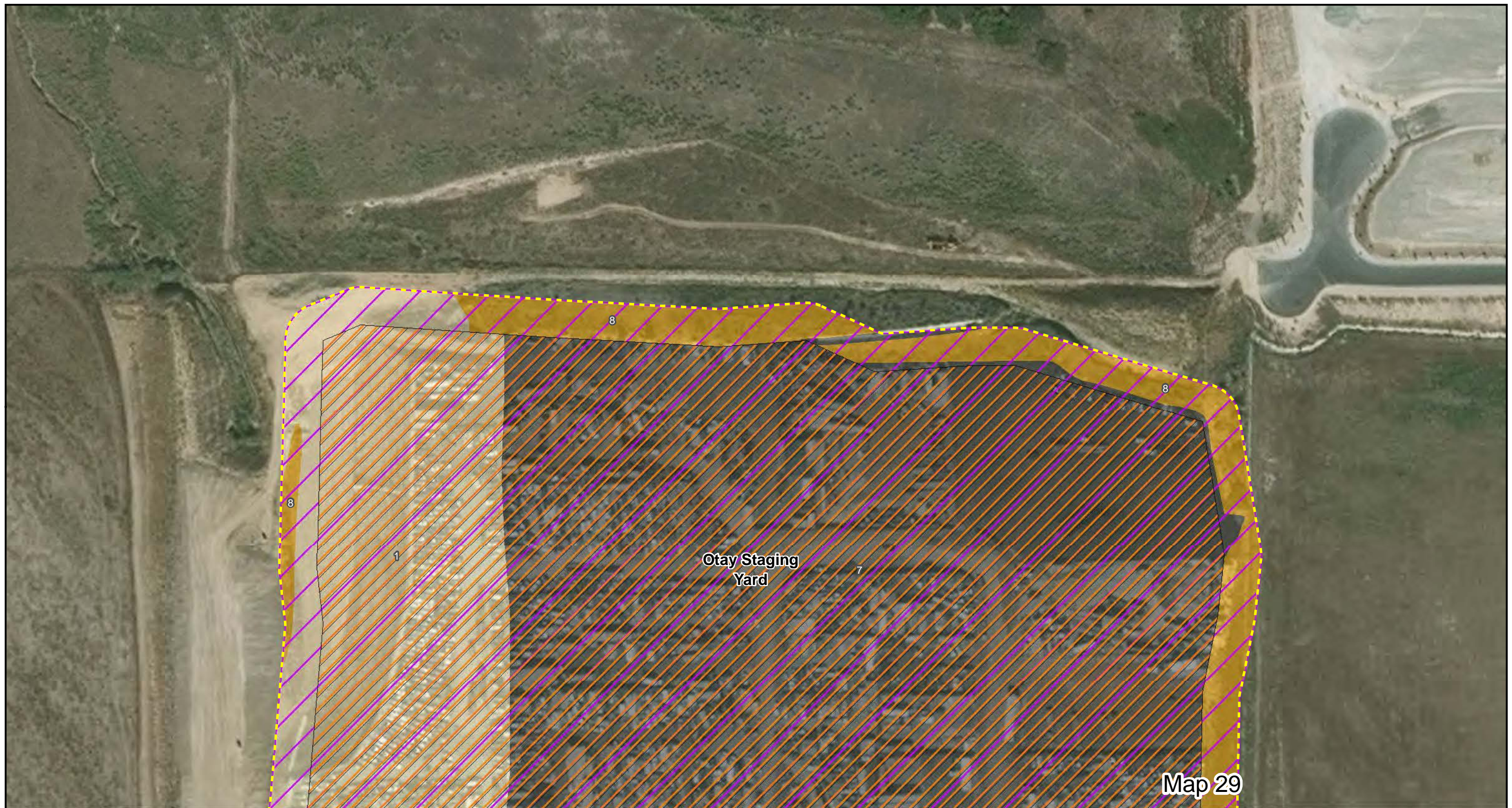
### Vegetation Communities and

### QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons





Map 29

- Legend**
- Biological Survey Area
  - 7. Urban and Developed
  - Work Area Type**
  - 8. Disturbed
  - Proposed Staging Yard
  - QCB Excluded Habitat
  - Vegetation Community (MCV II)**
  - 1. Bare Ground

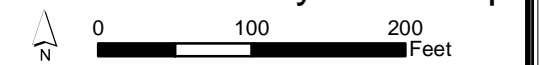


## Attachment 2

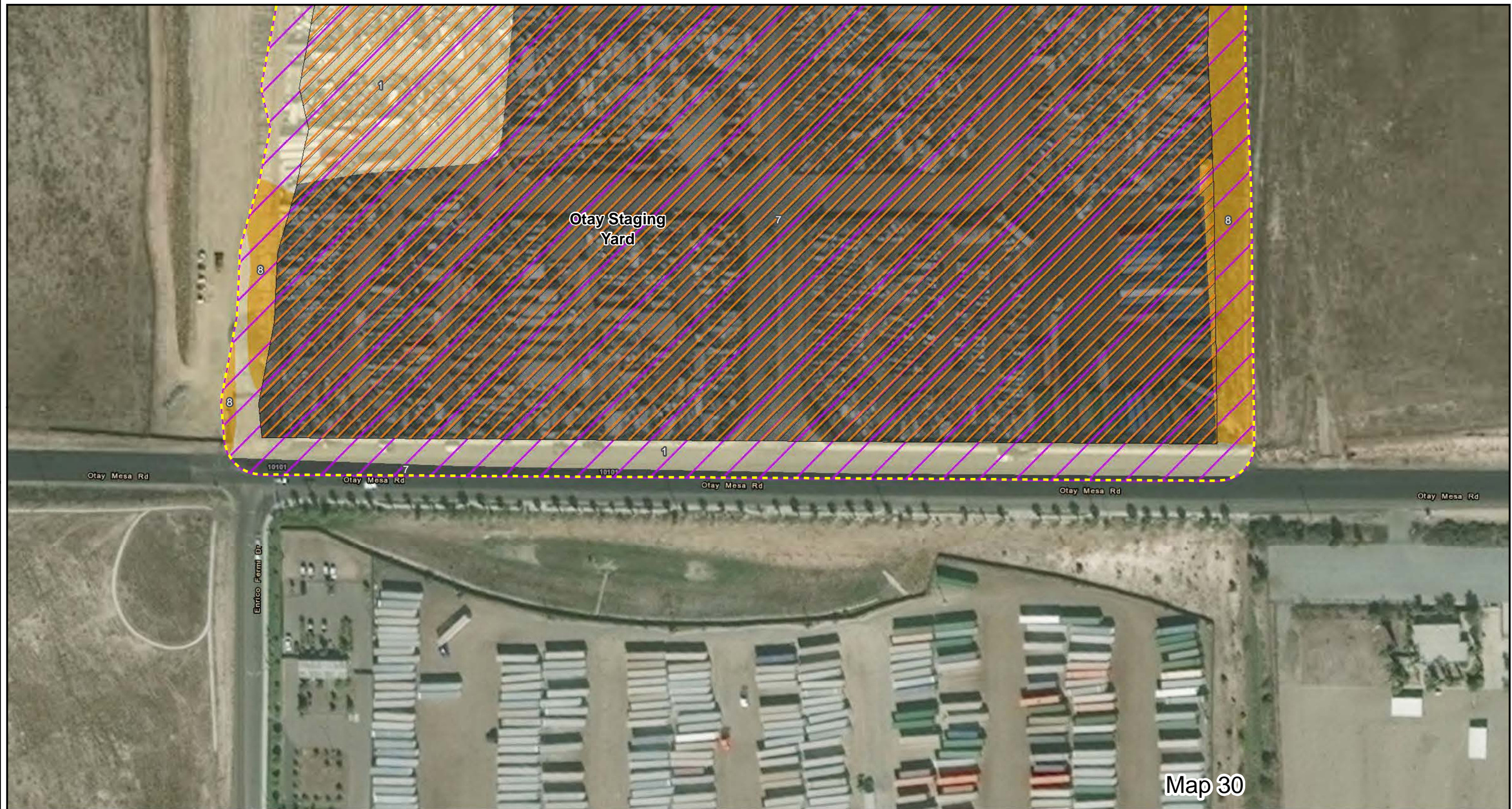
### TL649 Wood to Steel

### Vegetation Communities and

### QCB Survey Area Map







Map 30

## Legend

Biological Survey Area

### Work Area Type

Proposed Staging Yard

QCB Excluded Habitat

### Vegetation Community (MCV II)

1. Bare Ground

7. Urban and Developed

8. Disturbed

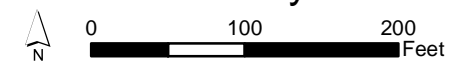


## Attachment 2

### TL649 Wood to Steel

### Vegetation Communities and

### QCB Survey Area Map



Name: 20775 QCB Atch 2 VegComm.Mxd  
Print Date: 9/19/2018, Author: msimmons



## **ATTACHMENT 3 – QCB HOST PLANT LOCATION AND SURVEY RESULTS MAP**

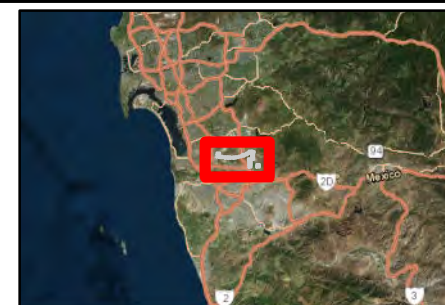
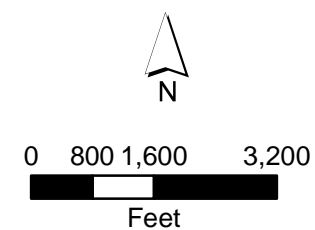






### Legend

- QCB Survey Area
- Transmission Centerline
- Map Page



## Attachment 3

### TL649 Wood to Steel QCB Host Plant Location and Results Map

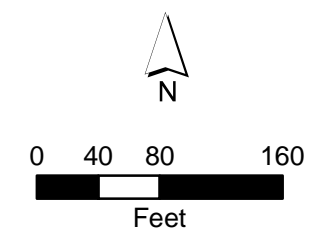
Overview Map

Name: 20775 QCB Attach 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





- Legend**
- Biological Survey Area
  - QCB Survey Area
- Work Area Type**
- Proposed Staging Yard




## Attachment 3

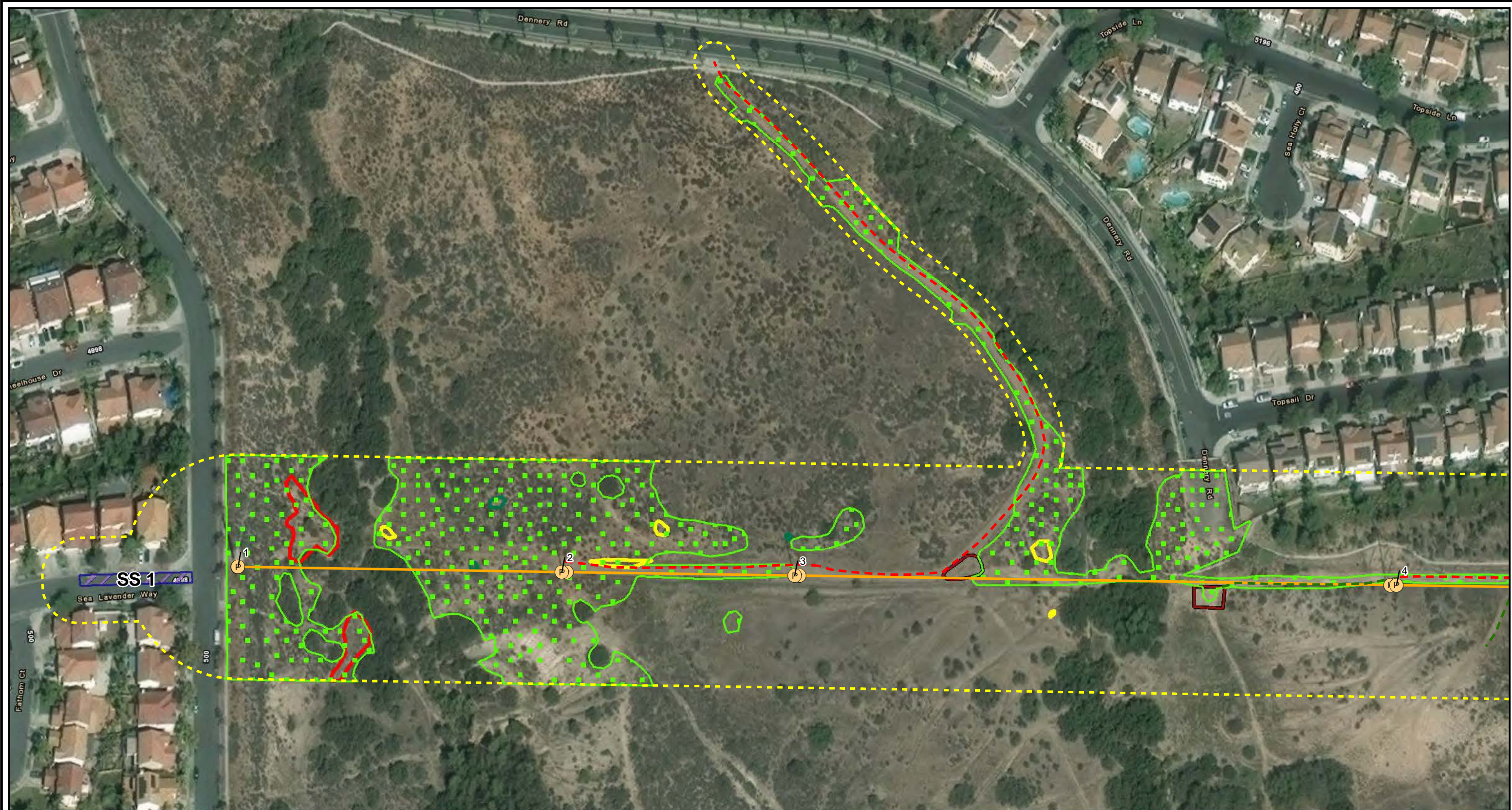
### TL649 Wood to Steel

### QCB Host Plant Location and Results Map











Map 1

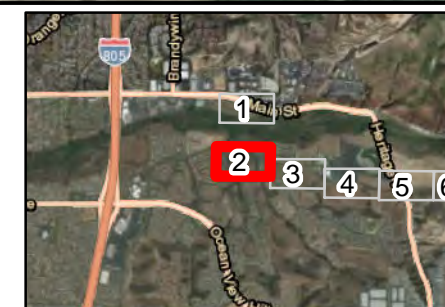
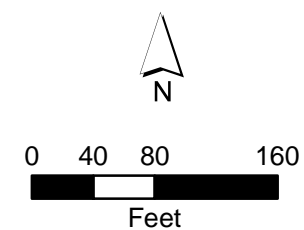
Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons 





### Legend

-  Biological Survey Area
  QCB Survey Area
  Low Density
  Project Pole
  Proposed Turnaround
- QCB Host Plant Patch**
 Transmission Centerline
 **Access Type**
 Existing Non-TCM Access Road
-  High Density
 **Work Area Type**
 Proposed String Site
  Access Road
-  Moderate Density



## Attachment 3

Map 2

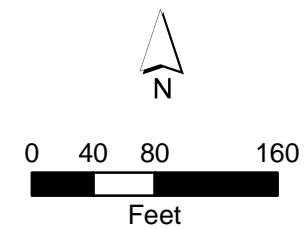
Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





### Legend

- |                         |                              |             |
|-------------------------|------------------------------|-------------|
| Biological Survey Area  | <b>Work Area Type</b>        | Access Road |
| QCB Survey Area         | Proposed String Site         |             |
| Project Pole            | <b>Access Type</b>           |             |
| Transmission Centerline | Existing Non-TCM Access Road |             |



## Attachment 3

### TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 3

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons

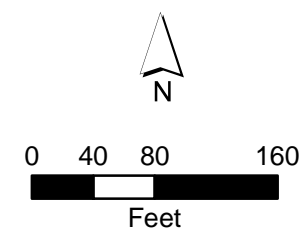






### Legend

- |                         |                              |
|-------------------------|------------------------------|
| Biological Survey Area  | <b>Access Type</b>           |
| QCB Survey Area         | Existing Non-TCM Access Road |
| Project Pole            | Access Road                  |
| Transmission Centerline |                              |



## Attachment 3

### TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 4

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





### Legend

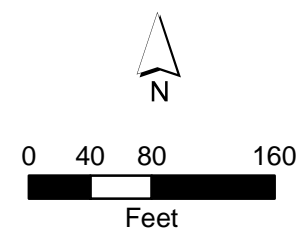
- Biological Survey Area
- QCB Survey Area
- P Project Pole
- Transmission Centerline
- T Guard Structure

### Work Area Type

- Proposed String Site
- Proposed Turnaround

### Access Type

- Existing Non-TCM Access Road
- Access Road



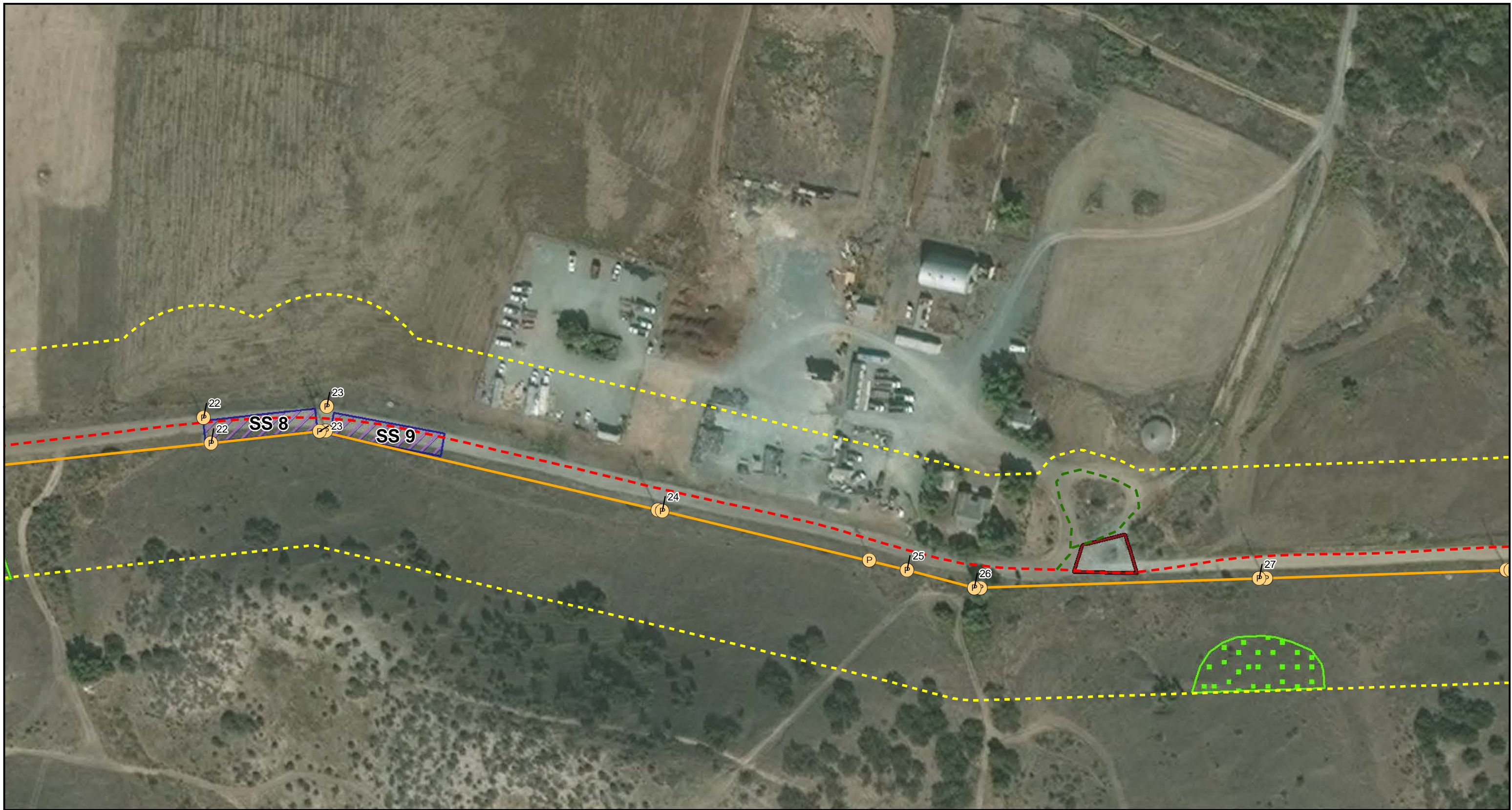
## Attachment 3

### TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 5

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





### Legend

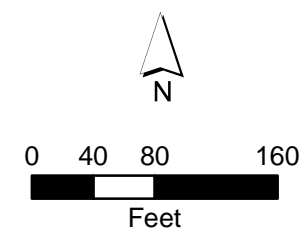
- Biological Survey Area
- QCB Survey Area
- P Project Pole
- Transmission Centerline

### Work Area Type

- Proposed String Site
- Proposed Turnaround

### Access Type

- Existing Non-TCM Access Road
- Access Road



## Attachment 3

### TL649 Wood to Steel

### QCB Host Plant Location and Results Map

Map 6

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons

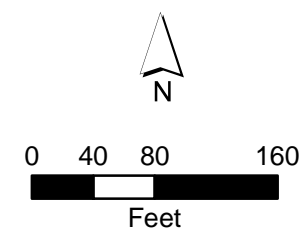






### Legend

- |                         |                              |             |
|-------------------------|------------------------------|-------------|
| Biological Survey Area  | <b>Work Area Type</b>        | Access Road |
| QCB Survey Area         | Proposed String Site         |             |
| Project Pole            | <b>Access Type</b>           |             |
| Transmission Centerline | Existing Non-TCM Access Road |             |



## Attachment 3

### TL649 Wood to Steel

### QCB Host Plant Location and Results Map

Map 7

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons

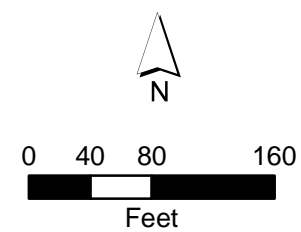






# Legend

- |                         |                              |             |
|-------------------------|------------------------------|-------------|
| Biological Survey Area  | <b>Work Area Type</b>        | Access Road |
| QCB Survey Area         | Proposed Turnaround          |             |
| Project Pole            | <b>Access Type</b>           |             |
| Transmission Centerline | Existing Non-TCM Access Road |             |

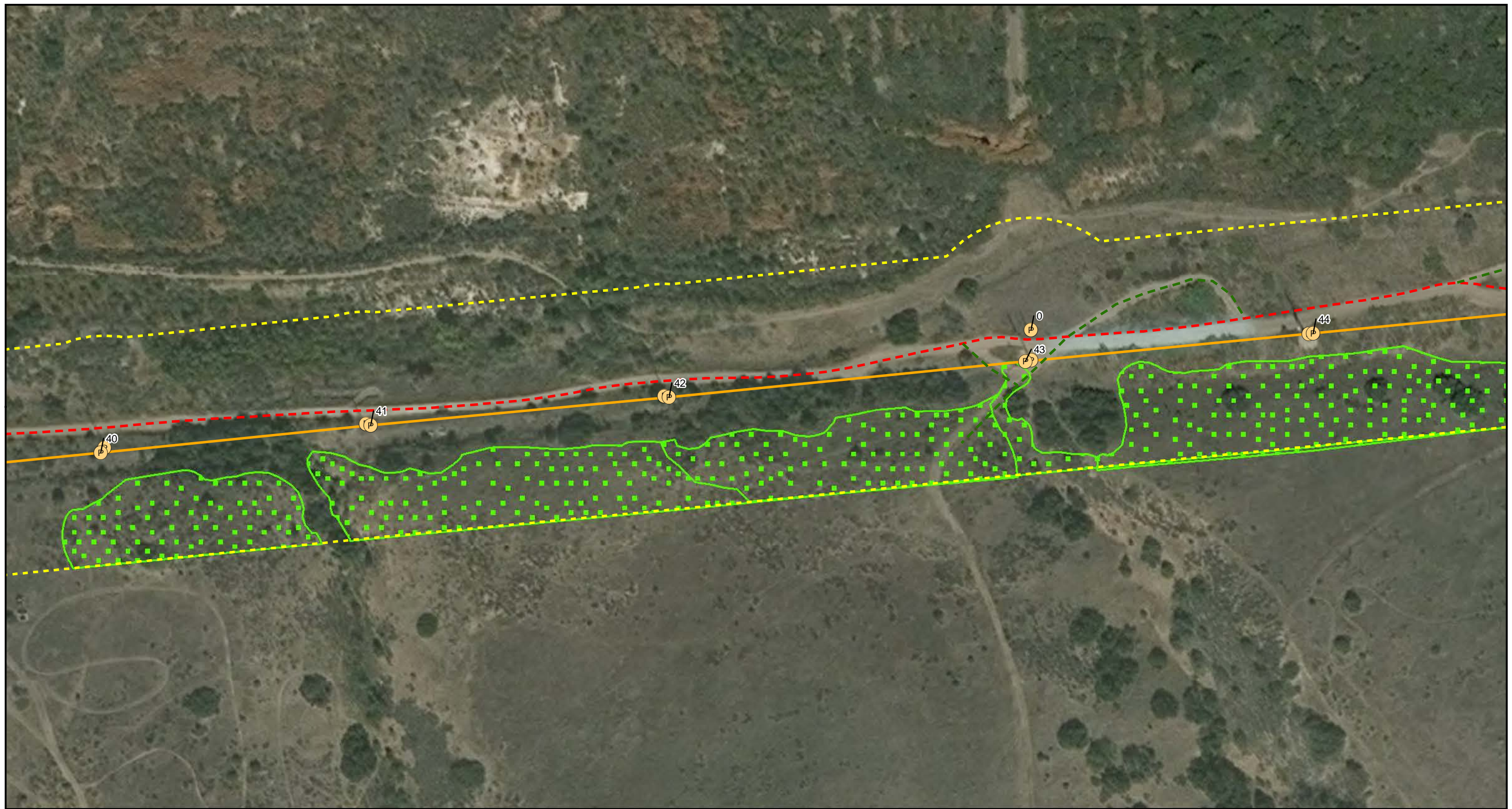


## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 8

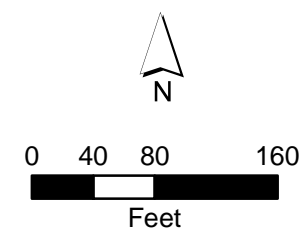
Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





# Legend

- |                         |                              |
|-------------------------|------------------------------|
| Biological Survey Area  | <b>Access Type</b>           |
| QCB Survey Area         | Existing Non-TCM Access Road |
| Project Pole            | Access Road                  |
| Transmission Centerline |                              |

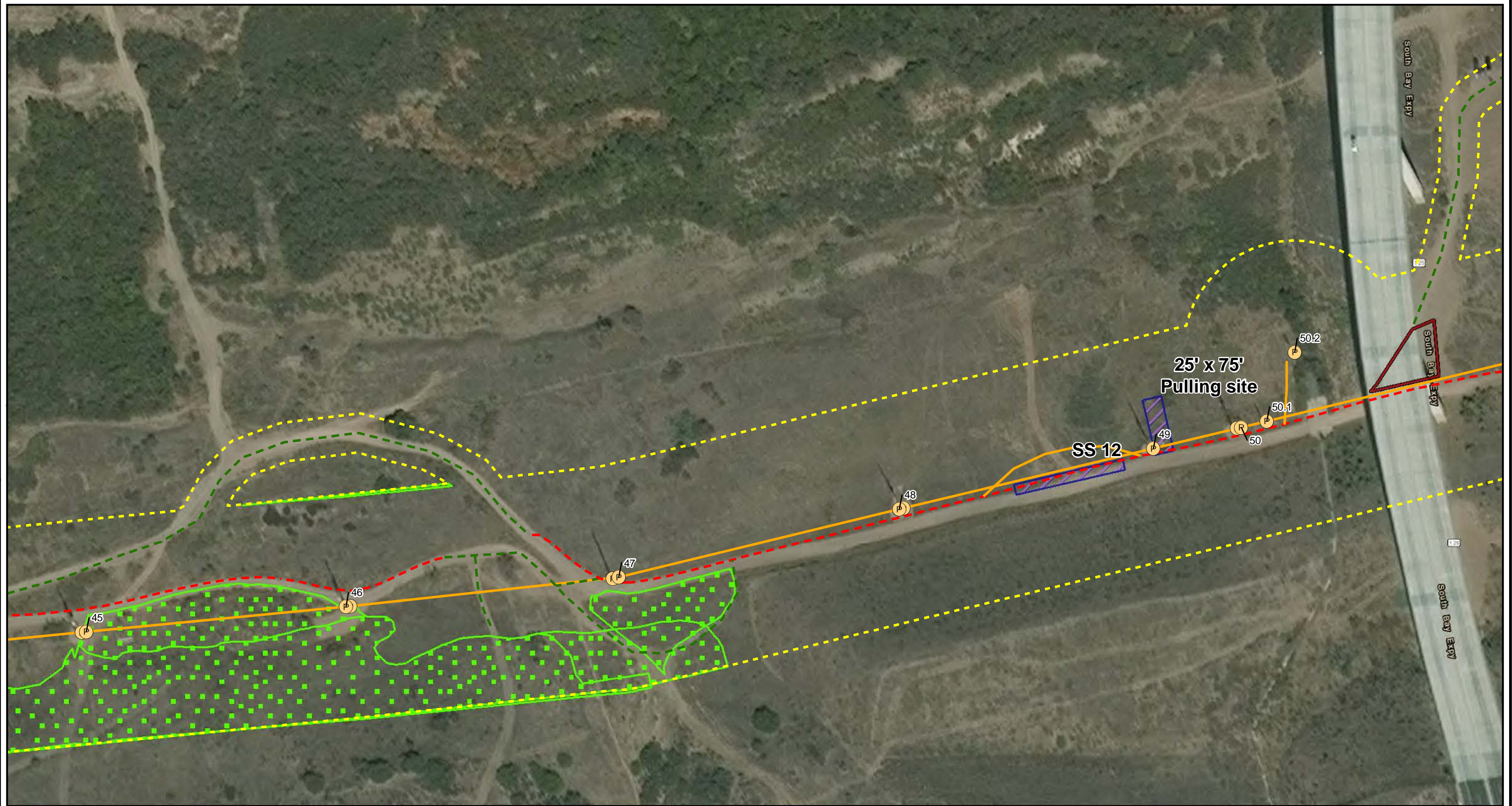


## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 9

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





### Legend

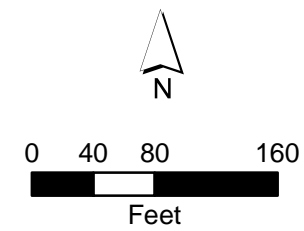
- Biological Survey Area
- QCB Survey Area
- P Project Pole
- Transmission Centerline

### Work Area Type

- Proposed String Site
- Proposed Turnaround

### Access Type

- Existing Non-TCM Access Road
- Access Road
- Overland Travel



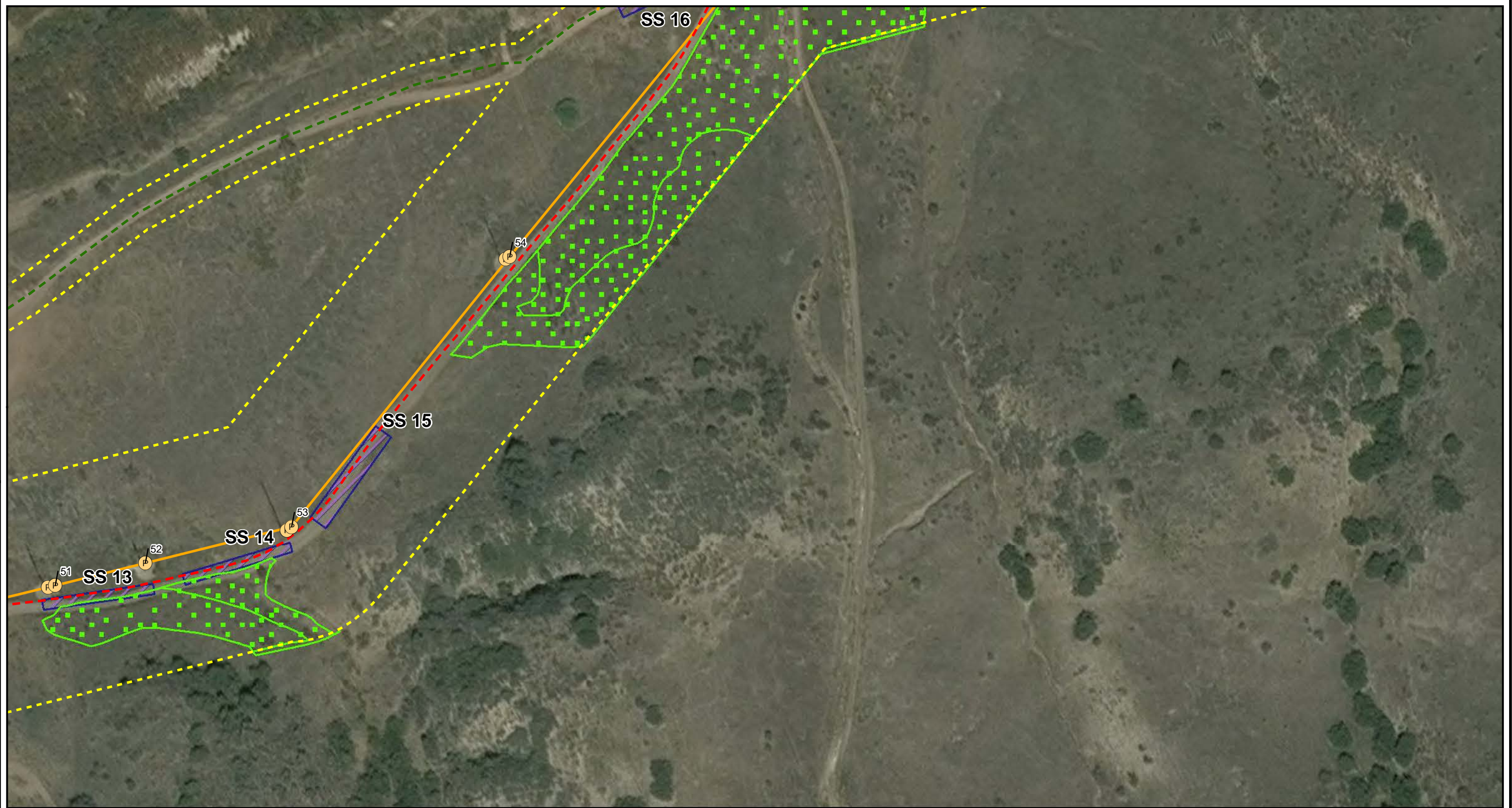
## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 10

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons

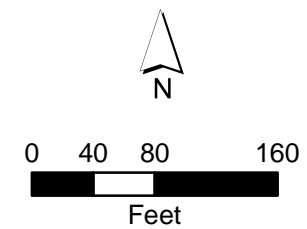






### Legend

- |                         |                              |                 |
|-------------------------|------------------------------|-----------------|
| Biological Survey Area  | <b>Work Area Type</b>        | Access Road     |
| QCB Survey Area         | Proposed String Site         | Overland Travel |
| Project Pole            | <b>Access Type</b>           |                 |
| Transmission Centerline | Existing Non-TCM Access Road |                 |



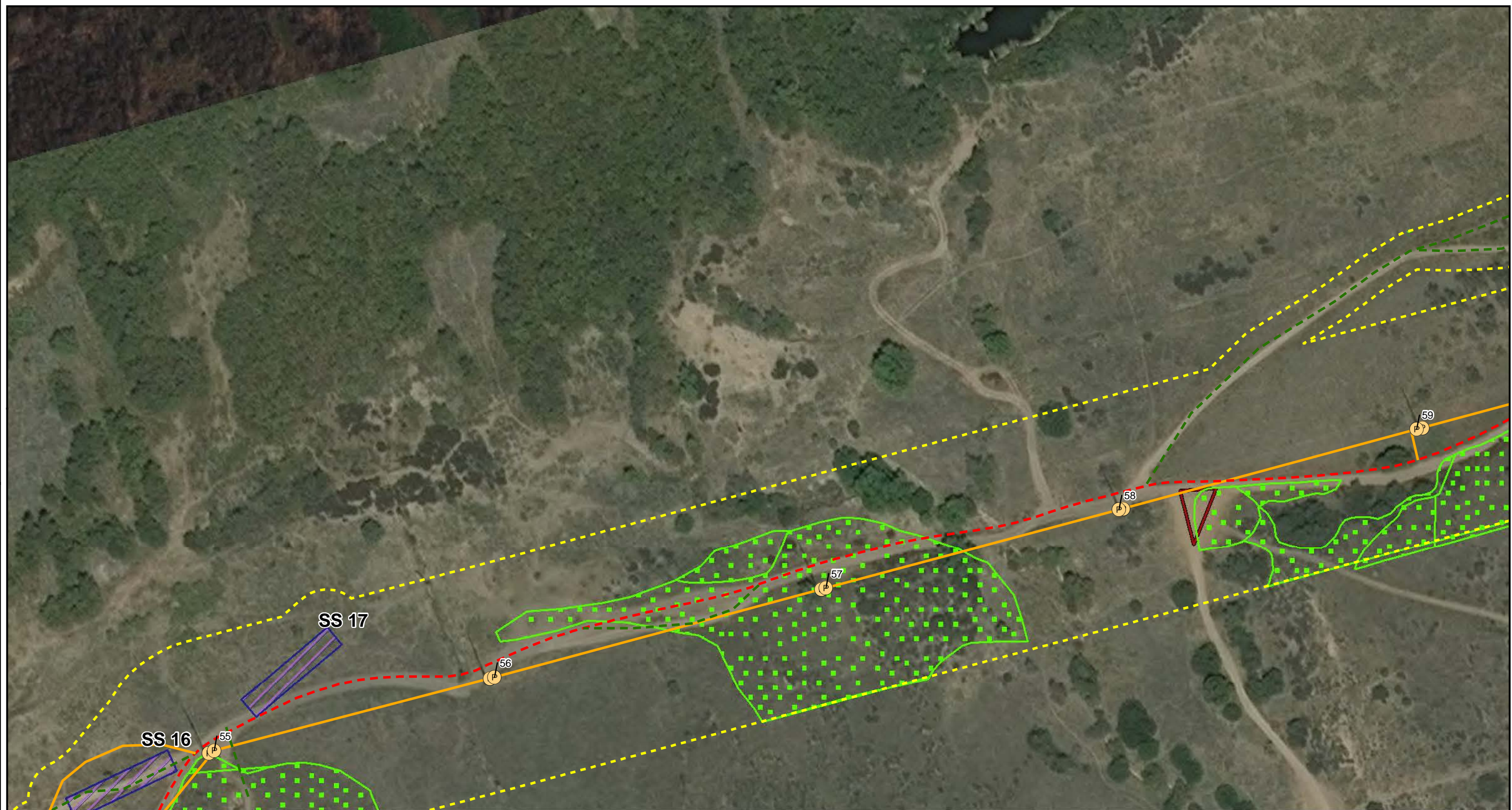
## Attachment 3

### TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 11

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





# Legend

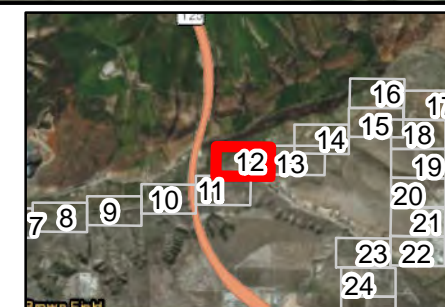
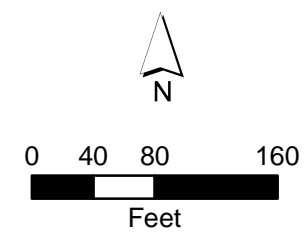
- Biological Survey Area
- QCB Survey Area
- P Project Pole
- Transmission Centerline

## Work Area Type

- Proposed String Site
- Proposed Turnaround

## Access Type

- Existing Non-TCM Access Road
- Access Road
- Overland Travel



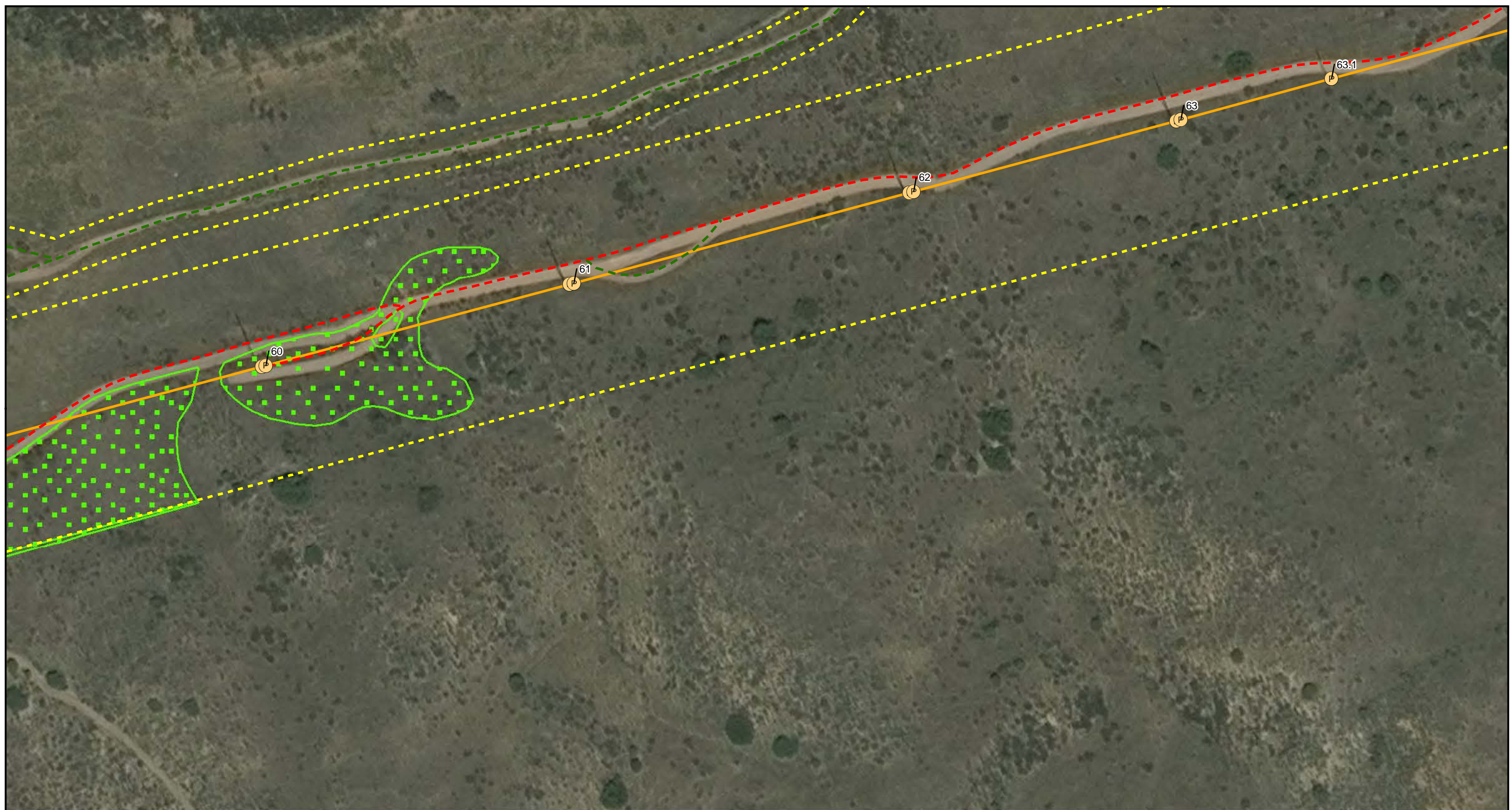
## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 12

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons

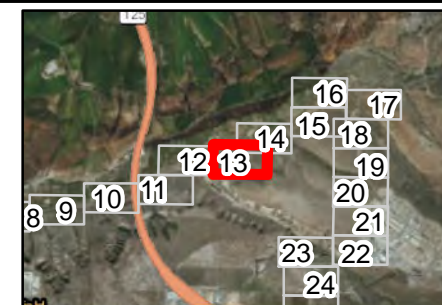
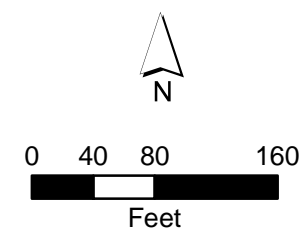






# Legend

- |                         |                              |
|-------------------------|------------------------------|
| Biological Survey Area  | <b>Access Type</b>           |
| QCB Survey Area         | Existing Non-TCM Access Road |
| Project Pole            | Access Road                  |
| Transmission Centerline |                              |

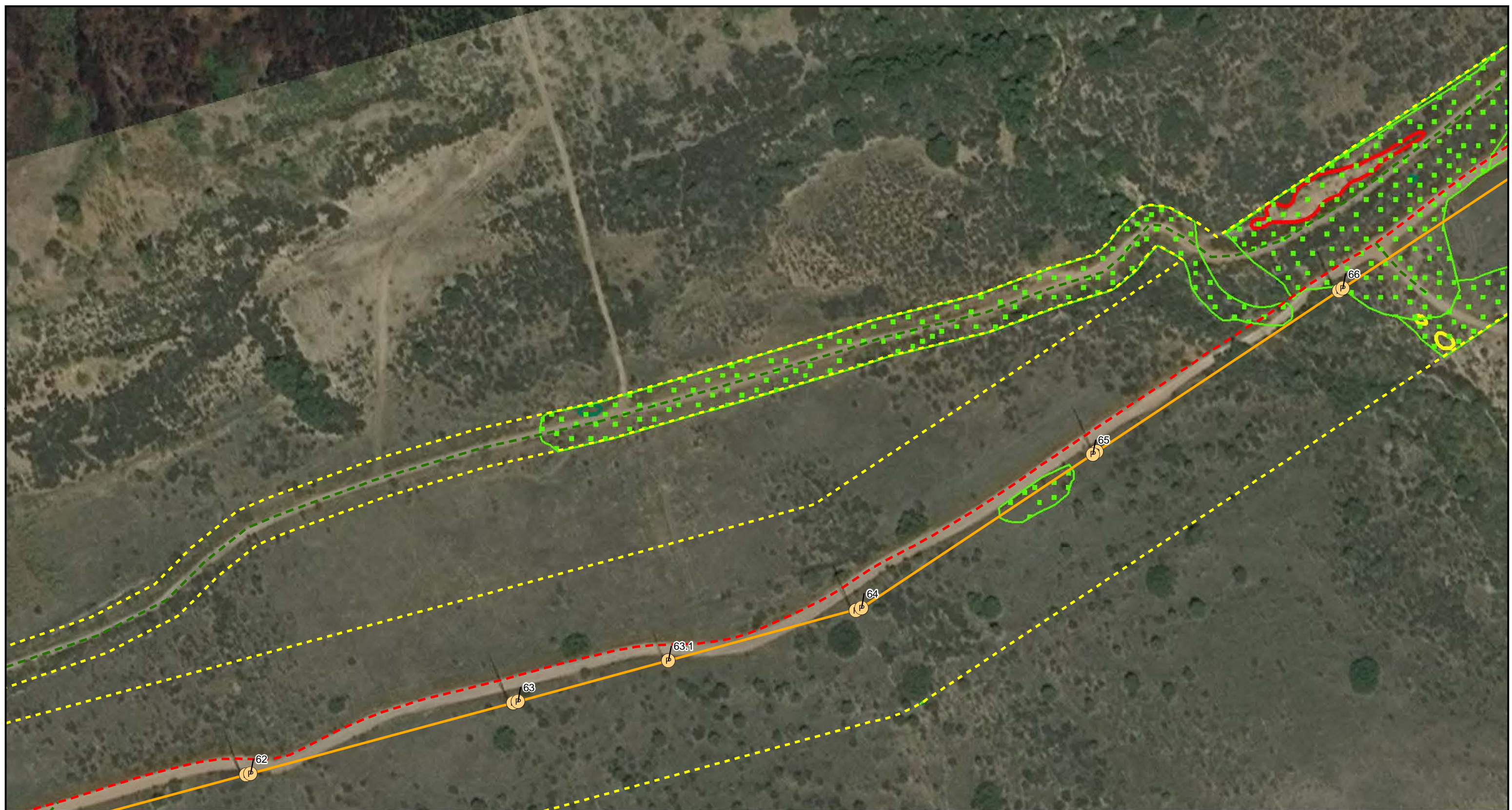


## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 13

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





### Legend

Biological Survey Area

QCB Survey Area

#### QCB Host Plant Patch

High Density

Moderate Density

Low Density

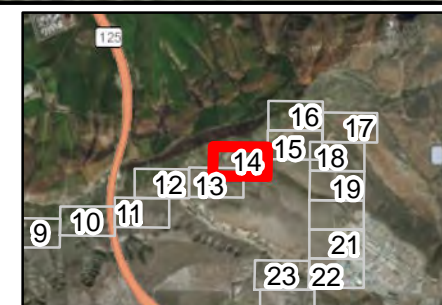
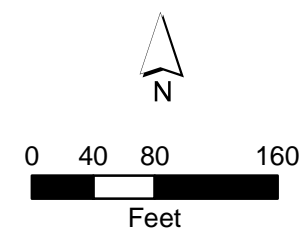
Project Pole

Transmission Centerline

#### Access Type

Existing Non-TCM Access Road

Access Road



## Attachment 3

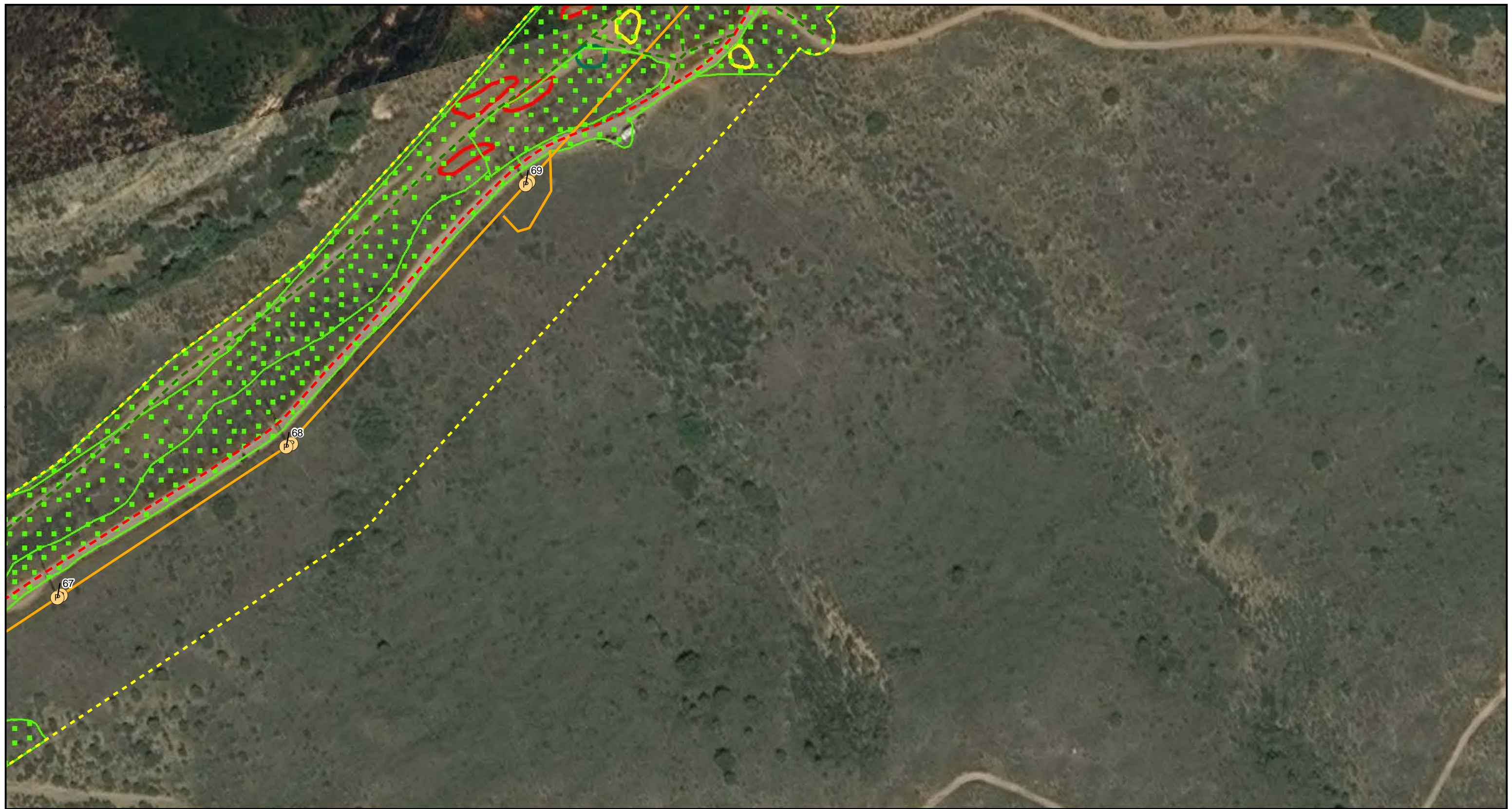
### TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 14

Name: 20775 QCB Attach 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons







### Legend

Biological Survey Area

QCB Survey Area

#### QCB Host Plant Patch

High Density

Moderate Density

Low Density

Project Pole

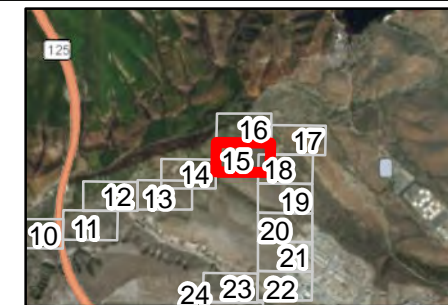
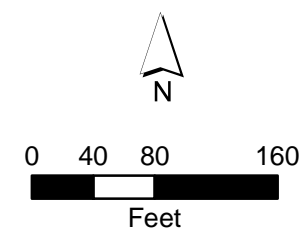
Transmission Centerline

#### Access Type

Existing Non-TCM Access Road

Access Road

Overland Travel



## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 15

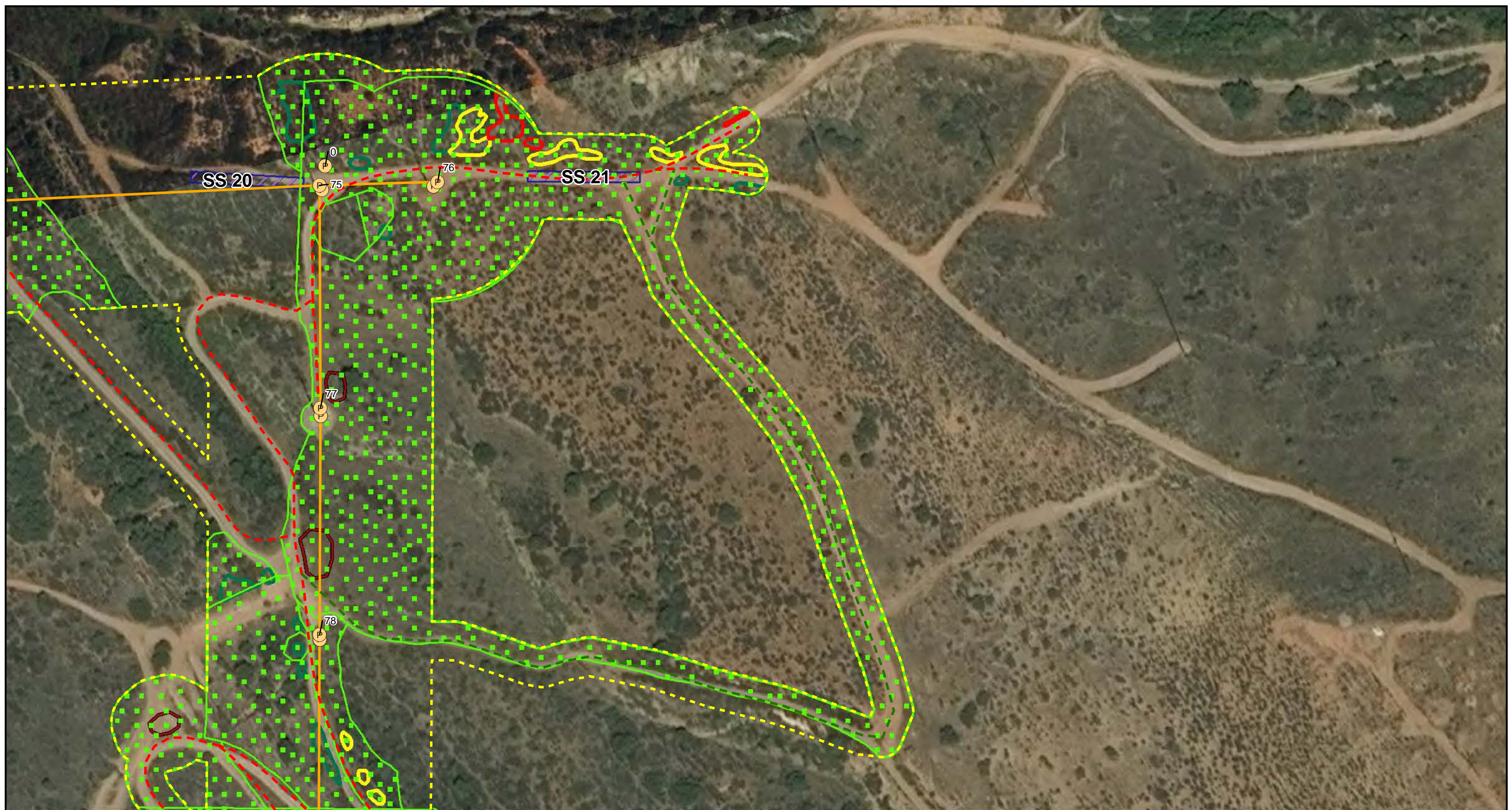
Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





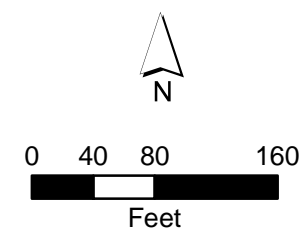






# Legend

- |                             |                         |                              |
|-----------------------------|-------------------------|------------------------------|
| Biological Survey Area      | Low Density             | Proposed Turnaround          |
| QCB Survey Area             | Project Pole            | <b>Access Type</b>           |
| <b>QCB Host Plant Patch</b> | Transmission Centerline | Existing Non-TCM Access Road |
| High Density                | <b>Work Area Type</b>   | Access Road                  |
| Moderate Density            | Proposed String Site    |                              |

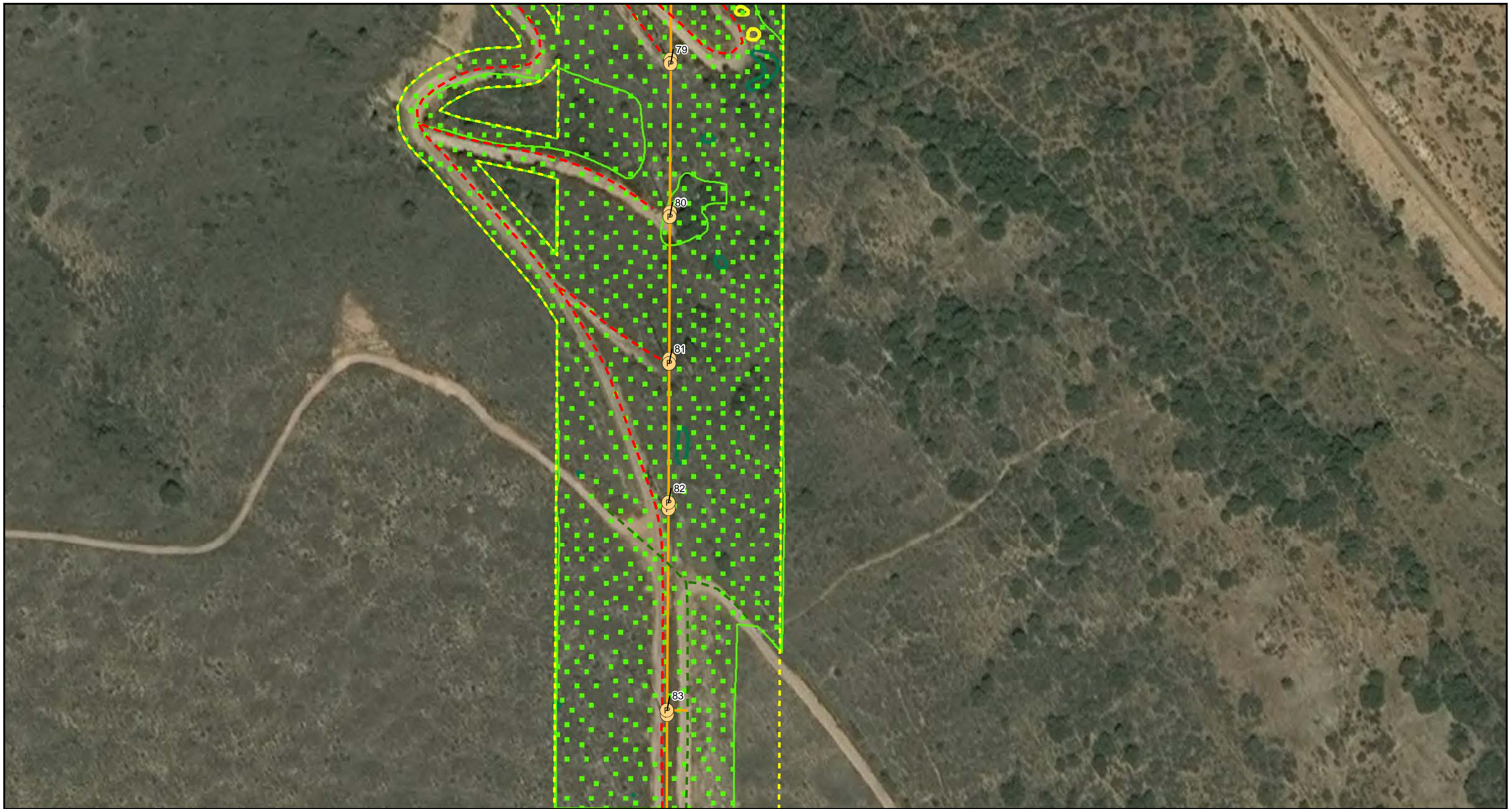


## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 17

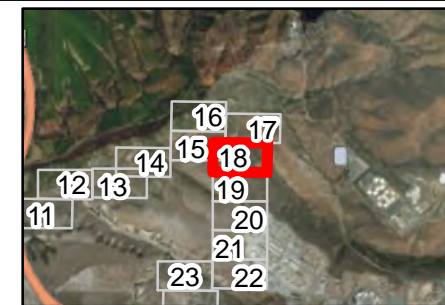
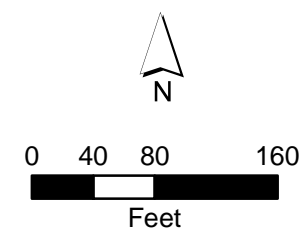
Name: 20775 QCB Attach 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





### Legend

- |                             |                              |                 |
|-----------------------------|------------------------------|-----------------|
| Biological Survey Area      | Project Pole                 | Access Road     |
| QCB Survey Area             | Transmission Centerline      | Overland Travel |
| <b>QCB Host Plant Patch</b> |                              |                 |
| Moderate Density            | <b>Access Type</b>           |                 |
| Low Density                 | Existing Non-TCM Access Road |                 |



## Attachment 3

### TL649 Wood to Steel

### QCB Host Plant Location and Results Map

Map 18

Name: 20775 QCB Attach 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





### Legend

  Biological Survey Area

  QCB Survey Area

#### QCB Host Plant Patch

  High Density

  Moderate Density

  Low Density

P Project Pole

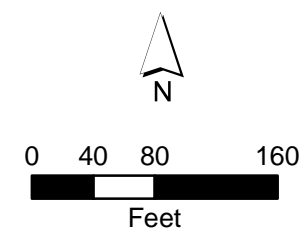
Transmission Centerline

#### Access Type

Existing Non-TCM Access Road

Access Road

Overland Travel



## Attachment 3

### TL649 Wood to Steel

### QCB Host Plant Location and Results Map

Map 19

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





# Legend

Biological Survey Area

QCB Survey Area

## QCB Host Plant Patch

High Density

Moderate Density

Low Density

Project Pole

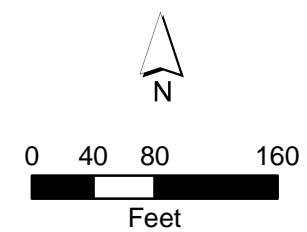
Transmission Centerline

## Access Type

Existing Non-TCM Access Road

Access Road

Overland Travel



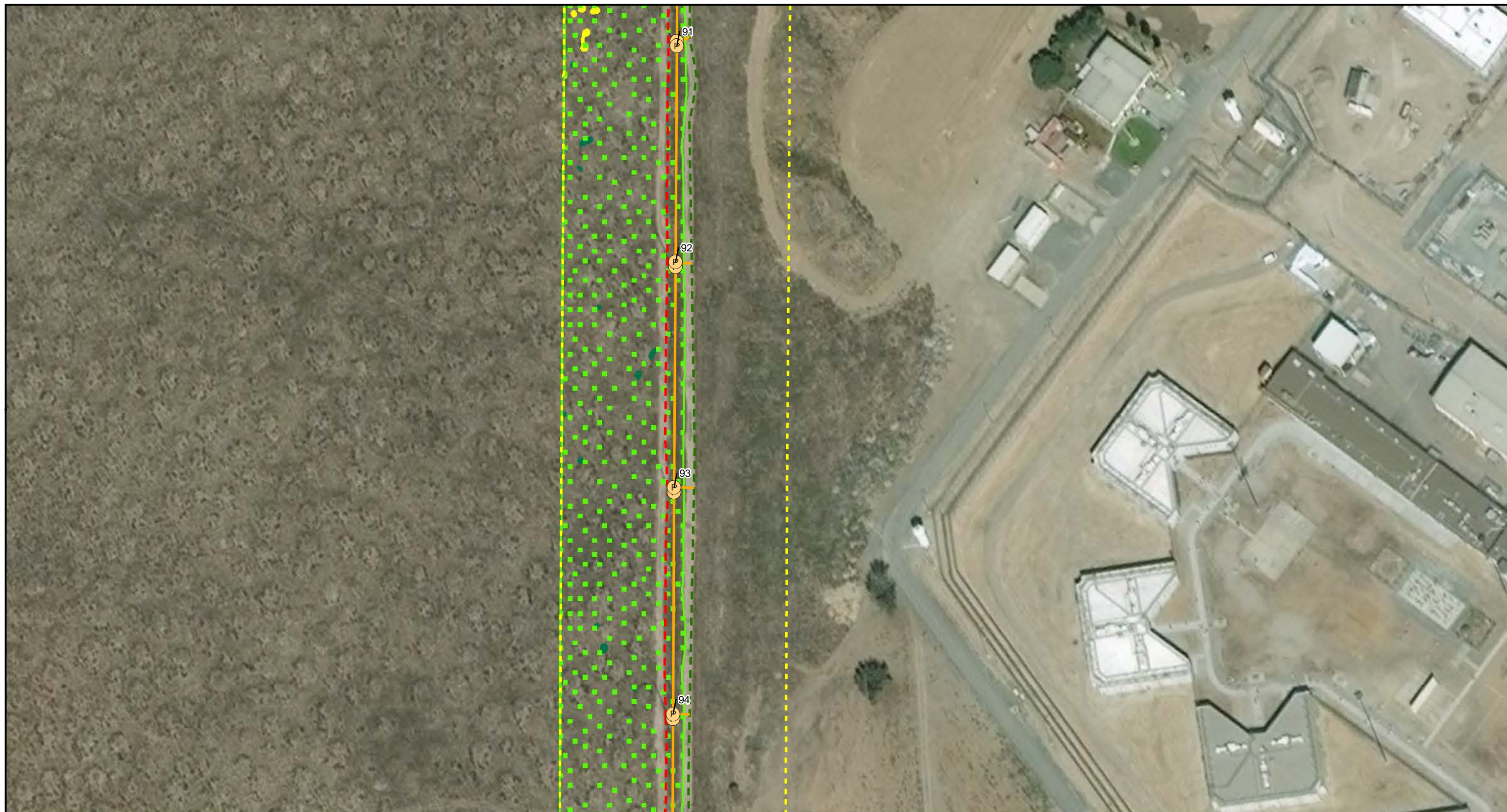
## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 20

Name: 20775 QCB Attach 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons

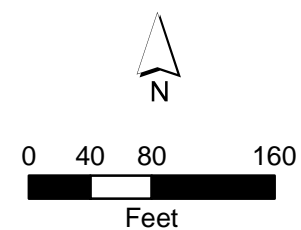






# Legend

- |  |   |   |
|--|---|---|
| <span style="border: 1px dashed yellow; padding: 2px;"> </span> Biological Survey Area | <span style="border: 1px solid orange; border-radius: 50%; padding: 2px;">P</span> Project Pole | <span style="color: red;">- - -</span> Access Road    |
| <span style="border: 1px dashed green; padding: 2px;"> </span> QCB Survey Area         | <span style="color: orange;">—</span> Transmission Centerline                                   | <span style="color: orange;">—</span> Overland Travel |
| <b>QCB Host Plant Patch</b>  |   |   |
| <span style="border: 1px solid yellow; padding: 2px;"> </span> Moderate Density        | <b>Access Type</b>  |   |
| <span style="border: 1px solid green; padding: 2px;"> </span> Low Density              | <span style="color: green;">- - -</span> Existing Non-TCM Access Road                           |   |

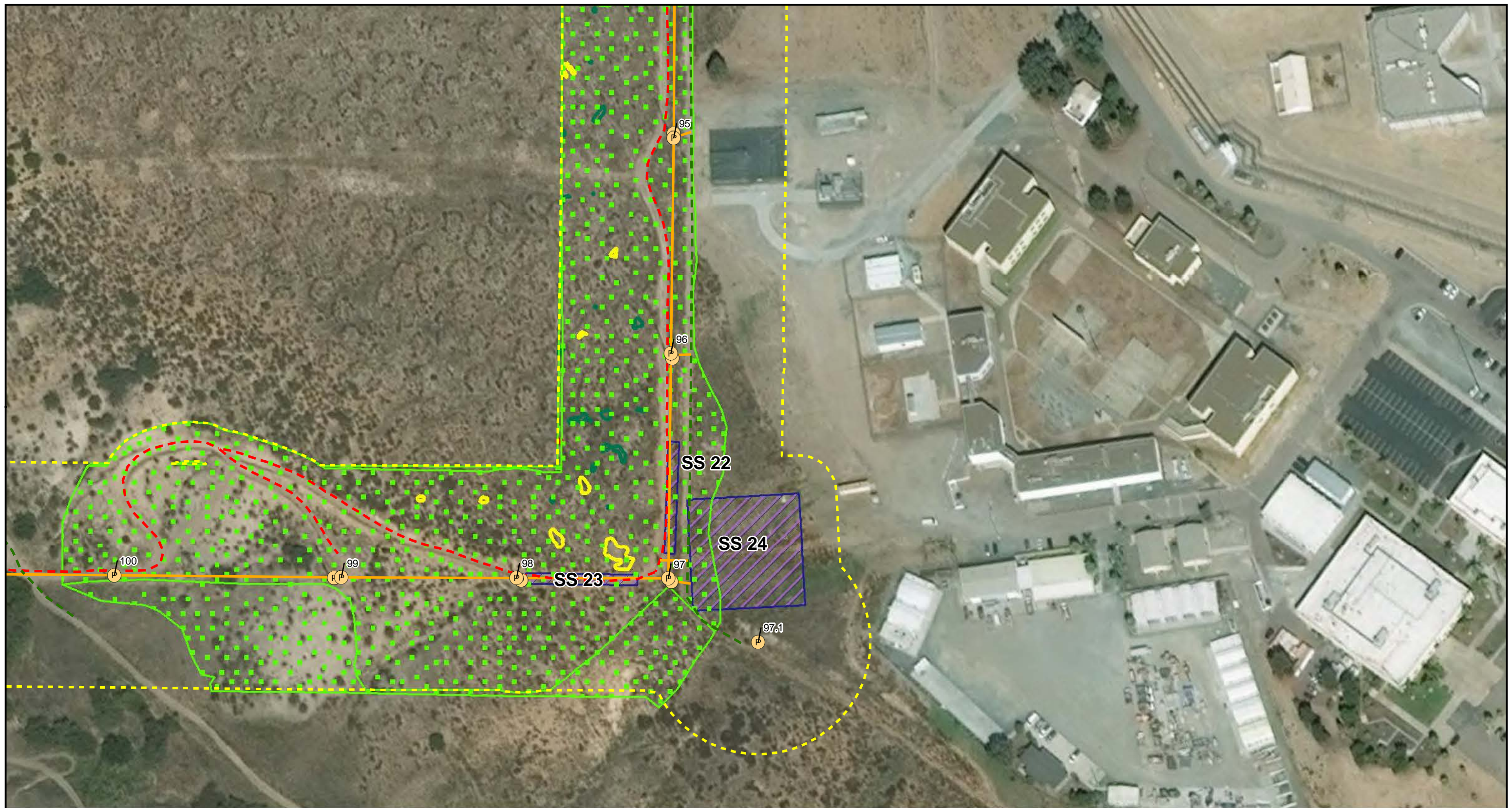


## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 21

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons



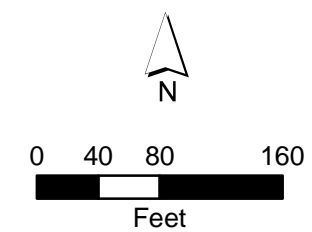


# Legend

- |  |  |
|--|--|
| <span style="border: 1px dashed yellow; padding: 2px;"> </span> Biological Survey Area | <span style="border: 1px solid green; padding: 2px;"> </span> Low Density              |
| <span style="border: 1px dashed green; padding: 2px;"> </span> QCB Survey Area         | <span style="border: 1px solid orange; padding: 2px;"> </span> Project Pole            |
| <b>QCB Host Plant Patch</b>  | <span style="border: 1px solid orange; padding: 2px;"> </span> Transmission Centerline |
| <span style="border: 1px solid red; padding: 2px;"> </span> High Density               | <b>Work Area Type</b>  |
| <span style="border: 1px solid yellow; padding: 2px;"> </span> Moderate Density        | <span style="border: 1px solid purple; padding: 2px;"> </span> Proposed String Site    |

## Access Type

- |   |
|---|
| <span style="border-bottom: 1px dashed green; width: 20px;"> </span> Existing Non-TCM Access Road |
| <span style="border-bottom: 1px dashed red; width: 20px;"> </span> Access Road                    |
| <span style="border-bottom: 1px solid orange; width: 20px;"> </span> Overland Travel              |



## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 22

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





# Legend

Biological Survey Area

QCB Survey Area

Project Pole

Transmission Centerline

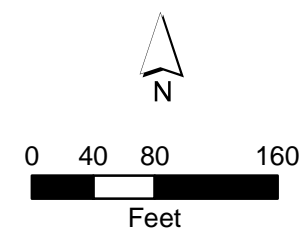
## Work Area Type

Proposed String Site

## Access Type

Existing Non-TCM Access Road

Access Road



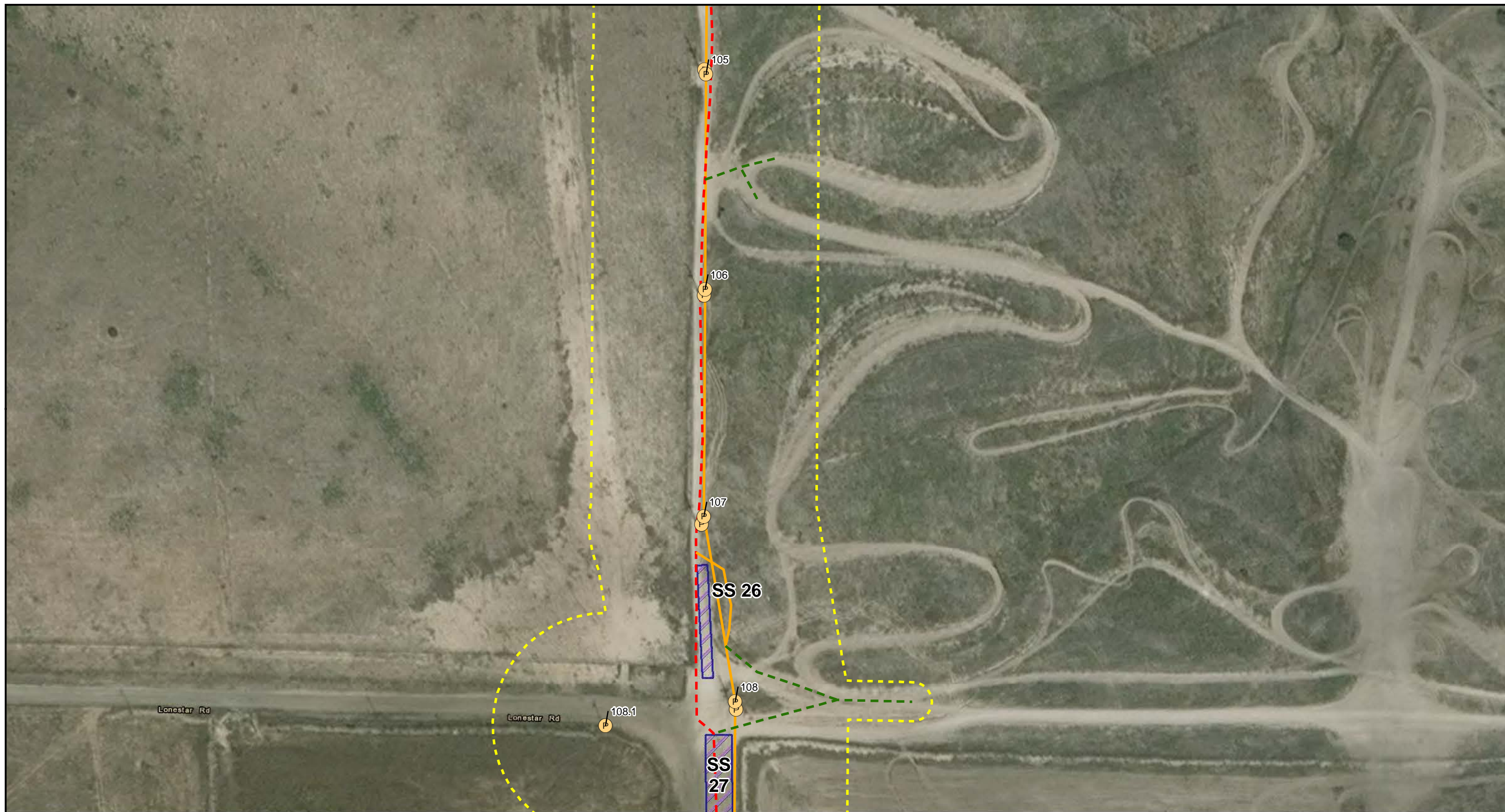
## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 23

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons

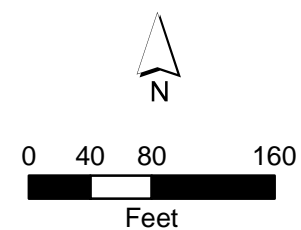






# Legend

- |                         |                              |                 |
|-------------------------|------------------------------|-----------------|
| Biological Survey Area  | <b>Work Area Type</b>        | Access Road     |
| QCB Survey Area         | Proposed String Site         | Overland Travel |
| Project Pole            | <b>Access Type</b>           |                 |
| Transmission Centerline | Existing Non-TCM Access Road |                 |



## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 24

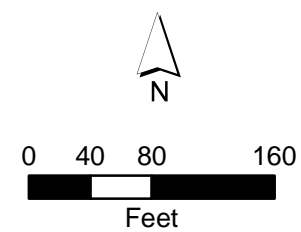
Name: 20775 QCB Attach 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





# Legend

- |                         |                              |             |
|-------------------------|------------------------------|-------------|
| Biological Survey Area  | <b>Work Area Type</b>        | Access Road |
| QCB Survey Area         | Proposed String Site         |             |
| Project Pole            | <b>Access Type</b>           |             |
| Transmission Centerline | Existing Non-TCM Access Road |             |



## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 25

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





# Legend

Biological Survey Area

QCB Survey Area

Project Pole

Transmission Centerline

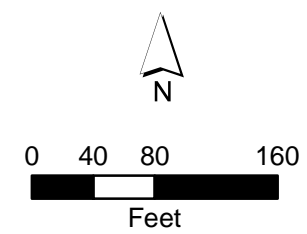
## Work Area Type

Proposed String Site

## Access Type

Existing Non-TCM Access Road

Access Road



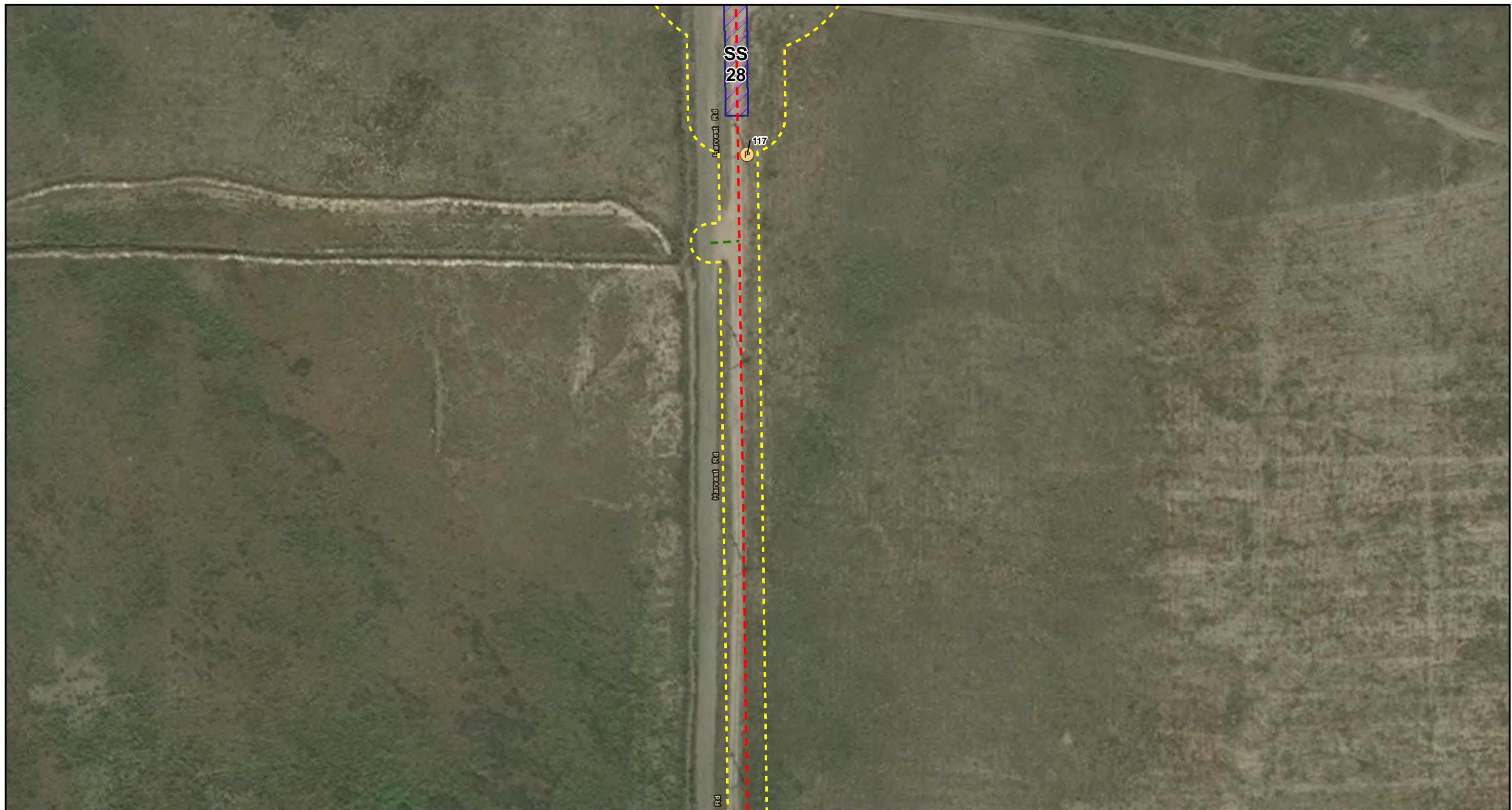
## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 26

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons

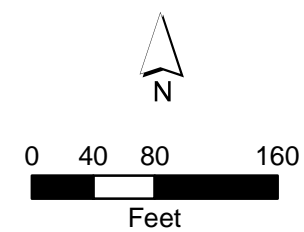






# Legend

- |   |  |
|---|--|
| <span style="border: 2px dashed yellow; padding: 2px;"> </span> Biological Survey Area                        | <b>Access Type</b>   |
| <span style="border: 2px dashed green; padding: 2px;"> </span> QCB Survey Area                                | <span style="border-bottom: 2px dashed green;"> </span> Existing Non-TCM Access Road |
| <span style="border: 1px solid yellow; border-radius: 50%; padding: 2px;">P</span> Project Pole               | <span style="border-bottom: 2px dashed red;"> </span> Access Road                    |
| <b>Work Area Type</b>   |  |
| <span style="background-color: #ccccff; border: 1px solid black; padding: 2px;"> </span> Proposed String Site |  |



## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 27

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons





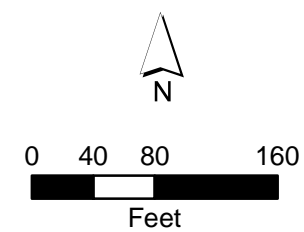
### Legend

  Biological Survey Area
  Access Road

  QCB Survey Area

### Access Type

Existing Non-TCM Access Road



## Attachment 3

### TL649 Wood to Steel

### QCB Host Plant Location and Results Map

Map 28

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
 Print Date: 9/14/2018, Author: msimmons









#### Legend

 Biological Survey Area

 QCB Survey Area

#### Work Area Type

 Proposed Staging Yard

Otay Staging  
Yard



0 40 80 160  
Feet



### Attachment 3

#### TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 29

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons 





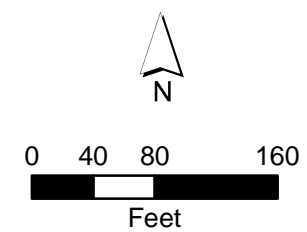
# Legend

  Biological Survey Area

  QCB Survey Area

## Work Area Type

  Proposed Staging Yard



## Attachment 3 TL649 Wood to Steel QCB Host Plant Location and Results Map

Map 30

Name: 20775 QCB Atch 3 Host Plant Results.Mxd  
Print Date: 9/14/2018, Author: msimmons



## **ATTACHMENT 4 – SITE PHOTOGRAPHS**





## ATTACHMENT 4 – SITE PHOTOGRAPHS



**Photo 1:**

Overview of project area taken just south of the Otay River and north of the Otay Ranch Preserve showing a mix of coastal sage scrub and chaparral habitat. Photo taken facing southwest on March 12, 2018.



**Photo 2:**

Project overview south of the Otay River and north of Otay Ranch Preserve. Photo taken facing north showing coastal sage scrub and chaparral habitats.



## ATTACHMENT 4 – SITE PHOTOGRAPHS



**Photo 3:**

Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) habitat South of the Otay River and east of Wiley Rd. The QCB host plant, dwarf plantain (*Plantago erecta*), is present and less than one centimeter tall. Photo taken facing northeast on March 12, 2018.



**Photo 4:**

South-facing QCB habitat featuring an open-canopy coastal sage scrub plant community with dwarf plantain growing in the foreground. Photo taken south of the Otay River and east of Wiley Rd. on March 12, 2018.



## ATTACHMENT 4 – SITE PHOTOGRAPHS



**Photo 5:**

Project overview of mesa over-taken by non-native grass. Photo taken on the eastern border of the Otay Ranch Preserve facing southeast on May 7, 2018.



**Photo 6:**

Pink flag marks area north of Johnson Canyon and on the eastern border of the Otay Ranch Preserve where previous populations of dwarf plantain were discovered but are now overgrown with non-native grass. Photo taken facing southwest on April 18, 2018.



## **ATTACHMENT 4 – SITE PHOTOGRAPHS**

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### **Photo 7:**

Overview of mesa and mima mounds north of Otay Ranch Preserve and south of the Otay River. Pink flag marks habitat in which a high-density population of dwarf plantain was recorded in 2015. Habitat is overgrown with non-native species and not nearly as many dwarf plantain plants were observed. Photo taken facing southwest on April 4, 2018.



## **ATTACHMENT 5 – BUTTERFLY SPECIES DETECTED**





## ATTACHMENT 5 – BUTTERFLY SPECIES DETECTED

| Scientific Name                        | Common Name                        |
|--|------------------------------------|
| <b>CLASS INSECTA</b>                   | <b>INSECTS</b>                     |
| <b>NYMPHALIDAE</b>                     | <b>BRUSH FOOTED BUTTERFLIES</b>    |
| <i>Chlosyne californica</i>            | California patch                   |
| <i>Nymphalis antiopa</i>               | mourning cloak                     |
| <i>Junonia coenia grisea</i>           | common buckeye                     |
| <i>Vanessa annabella</i>               | west coast lady                    |
| <i>Vanessa cardui</i>                  | painted lady                       |
| <i>Vanessa</i> sp.                     | N/A                                |
| <i>Speyeria callippe comstockii</i>    | Comstock's fritillary              |
| <b>DANAINAE</b>                        | <b>MILKWEED BUTTERFLIES</b>        |
| <i>Danaus plexippus</i>                | monarch                            |
| <b>SATYRINAE</b>                       | <b>SATYRS</b>                      |
| <i>Coenonympha tullia californica</i>  | California ringlet                 |
| <i>Coenonympha californica</i>         | common California ringlet          |
| <b>HESPERIDAE</b>                      | <b>SKIPPERS</b>                    |
| <i>Erynnis funeralis</i>               | funereal duskywing                 |
| <i>Erynnis</i> sp.                     | N/A                                |
| <i>Pyrgus albescens</i>                | white checkered-skipper            |
| <b>LYCAENIDAE</b>                      | <b>HAIRSTREAKS, COPPERS, BLUES</b> |
| <i>Callophrys augustinus</i>           | brown elfin                        |
| <i>Callophrys dumetorum affinis</i>    | bramble hairstreak                 |
| <i>Strymon melinus pudica</i>          | common gray hairstreak             |
| <i>Glaucopsyche lygdamus australis</i> | southern blue                      |
| <i>Plebejus acmon</i>                  | Acmon blue                         |
| <i>Euphilotes bernardino</i>           | Bernardino blue                    |
| <i>Leptotes marina</i>                 | marine blue                        |
| <i>Everes amyntula</i>                 | western tailed blue                |
| <i>Brephidium exilie</i>               | western pygmy-blue                 |
| <b>RIODINIDAE</b>                      | <b>METALMARKS</b>                  |
| <i>Apodemia mormo virgulti</i>         | Behr's metalmark                   |
| <b>PAPILIONIDAE</b>                    | <b>SWALLOWTAILS</b>                |
| <i>Papilio zelicaon</i>                | Anise swallowtail                  |
| <i>Papilio cresphontes</i>             | giant swallowtail                  |
| <i>Papilio rutulus</i>                 | western tiger swallowtail          |
| <b>PIERIDAE</b>                        | <b>WHITES AND SULPHURS</b>         |
| <i>Anthocharis sara sara</i>           | Sara's orangetip                   |
| <i>Pieris rapae</i>                    | cabbage white                      |



**ATTACHMENT 5 – BUTTERFLY SPECIES DETECTED**

| Scientific Name         | Common Name       |
|-------------------------|-------------------|
| <i>Pontia protodice</i> | checkered white   |
| <i>Colias harfordii</i> | Harford's sulphur |



## **ATTACHMENT 6 – FLOWERING PLANT SPECIES OBSERVED**



## ATTACHMENT 6 – FLOWERING PLANT SPECIES OBSERVED

| Scientific Name  | Common Name                   |
|--|-------------------------------|
| <b>ANGIOSPERMS (EUDICOTS)</b>                          |                               |
| <b>ANACARDIACEAE</b>                                   | <b>SUMAC OR CASHEW FAMILY</b> |
| <i>Rhus integrifolia</i>                               | lemonadeberry                 |
| <i>Rhus ovata</i>                                      | sugar bush                    |
| <b>APIACEAE</b>  | <b>CARROT FAMILY</b>          |
| <i>Sanicula bipinnatifida</i>                          | purple sanicle                |
| <i>Sanicula crassicaulis</i>                           | Pacific sanicle               |
| <b>APOCYNACEAE</b>                                     | <b>DOGBANE FAMILY</b>         |
| <i>Funastrum cynanchoides</i> var. <i>hartwegii</i>    | climbing milkweed             |
| <b>ASTERACEAE</b>                                      | <b>SUNFLOWER FAMILY</b>       |
| <i>Baccharis salicifolia</i> subsp. <i>salicifolia</i> | mule fat                      |
| <i>Bahiopsis laciniata</i>                             | San Diego County viguiera     |
| <i>Encelia californica</i>                             | California bush sunflower     |
| <i>Eriophyllum confertiflorum</i>                      | golden yarrow                 |
| <i>Glebionis coronaria</i>                             | garland daisy                 |
| <i>Gutierrezia californica</i>                         | california matchweed          |
| <i>Lasthenia gracilis</i>                              | common goldfields             |
| <i>Osmadenia tenella</i>                               | southern rosinweed            |
| <i>Pseudognaphalium californicum</i>                   | California everlasting        |
| <i>Sonchus asper</i> subsp. <i>asper</i> *             | prickly sow thistle           |
| <b>BORAGINACEAE</b>                                    | <b>BORAGE FAMILY</b>          |
| <i>Amsinckia menziesii</i>                             | common fiddleneck             |
| <i>Cryptantha</i> sp.                                  | cryptantha                    |
| <i>Harpagonella palmeri</i>                            | Palmer's grappling hook       |
| <i>Pectocarya linearis</i> subsp. <i>ferocula</i>      | slender pectocarya            |
| <i>Phacelia cicutaria</i> var. <i>hispida</i>          | caterpillar phacelia          |
| <i>Plagiobothrys arizonicus</i>                        | Arizona popcorn flower        |
| <i>Plagiobothrys collinus</i> var. <i>gracilis</i>     | San Diego popcornflower       |
| <b>BRASSICACEAE</b>                                    | <b>MUSTARD FAMILY</b>         |
| <i>Brassica nigra</i> *                                | black mustard                 |
| <i>Hirschfeldia incana</i> *                           | shortpod mustard              |
| <i>Lepidium nitidum</i>                                | shining peppergrass           |
| <b>CACTACEAE</b>                                       | <b>CACTUS FAMILY</b>          |
| <i>Bergerocactus emoryi</i>                            | velvet/golden-club cactus     |
| <i>Cylindropuntia prolifera</i>                        | coast cholla                  |
| <i>Ferocactus viridescens</i>                          | San Diego barrel cactus       |
| <i>Opuntia littoralis</i>                              | coastal prickly pear          |
| <b>CLEOMACEAE</b>                                      | <b>SPIDERFLOWER FAMILY</b>    |



## ATTACHMENT 6 – FLOWERING PLANT SPECIES OBSERVED

|  |                                |
|--|--------------------------------|
| <i>Peritoma arborea</i>                              | bladderpod                     |
| <b>CONVOLVULACEAE</b>                                | <b>MORNING-GLORY FAMILY</b>    |
| <i>Calystegia macrostegia</i>                        | western bindweed               |
| <i>Convolvulus arvensis</i> *                        | bindweed                       |
| <b>CUCURBITACEAE</b>                                 | <b>GOURD FAMILY</b>            |
| <i>Marah macrocarpa</i>                              | wild cucumber                  |
| <b>ERICACEAE</b>                                     | <b>HEATH FAMILY</b>            |
| <i>Arctostaphylos otayensis</i>                      | Otay manzanita                 |
| <b>EUPHORBIACEAE</b>                                 | <b>SPURGE FAMILY</b>           |
| <i>Euphorbia misera</i>                              | cliff spurge                   |
| <i>Euphorbia</i> sp.*                                | euphorbia                      |
| <i>Ricinus communis</i> *                            | castor-bean                    |
| <b>FABACEAE</b>                                      | <b>LEGUME FAMILY</b>           |
| <i>Acmispon glaber</i>                               | deerweed                       |
| <i>Astragalus trichopodus</i>                        | Santa Barbara locoweed         |
| <i>Vachellia farnesiana</i> var. <i>farnesiana</i> * | sweet acacia                   |
| <b>GERANIACEAE</b>                                   | <b>GERANIUM FAMILY</b>         |
| <i>Erodium botrys</i> *                              | broad-lobed filaree            |
| <i>Erodium cicutarium</i> *                          | red-stemmed filaree            |
| <i>Erodium</i> sp.                                   | erodium                        |
| <b>GROSSULARIACEAE</b>                               | <b>GOOSEBERRY FAMILY</b>       |
| <i>Ribes speciosum</i>                               | fuchsia-flowered gooseberry    |
| <b>LAMIACEAE</b>                                     | <b>MINT FAMILY</b>             |
| <i>Salvia apiana</i>                                 | white sage                     |
| <i>Salvia mellifera</i>                              | black sage                     |
| <i>Salvia munzii</i>                                 | Munz's sage                    |
| <b>MALVACEAE</b>                                     | <b>MALLOW FAMILY</b>           |
| <i>Malva parviflora</i> *                            | cheeseweed                     |
| <i>Sidalcea sparsifolia</i>                          | checker mallow                 |
| <b>MONTIACEAE</b>                                    | <b>MINER'S LETTUCE FAMILY</b>  |
| <i>Claytonia perfoliata</i>                          | Miner's lettuce                |
| <b>MYRSINACEAE</b>                                   | <b>MYRSINE FAMILY</b>          |
| <i>Anagallis arvensis</i> *                          | scarlet pimpernel              |
| <b>NYCTAGINACEAE</b>                                 | <b>FOUR O'CLOCK FAMILY</b>     |
| <i>Mirabilis laevis</i> var. <i>crassifolia</i>      | California wishbone bush       |
| <b>ONAGRACEAE</b>                                    | <b>EVENING PRIMROSE FAMILY</b> |
| <i>Clarkia purpurea</i> subsp. <i>quadrivulnera</i>  | four spot                      |
| <b>OROBANCHACEAE</b>                                 | <b>BROOM-RAPE FAMILY</b>       |
| <i>Castilleja exserta</i> subsp. <i>exserta</i>      | purple owl's-clover            |
| <b>OXALIDACEAE</b>                                   | <b>OXALIS FAMILY</b>           |



## ATTACHMENT 6 – FLOWERING PLANT SPECIES OBSERVED

|  |                               |
|--|-------------------------------|
| <i>Oxalis californica</i>                          | California wood-sorrel        |
| <b>PHRYMACEAE</b>                                  | <b>LOPSEED FAMILY</b>         |
| <i>Mimulus aurantiacus</i> var. <i>puniceus</i>    | red monkey-flower             |
| <b>PLANTAGINACEAE</b>                              | <b>PLANTAIN FAMILY</b>        |
| <i>Plantago erecta</i>                             | dwarf plantain                |
| <b>POLEMONIACEAE</b>                               | <b>PHLOX FAMILY</b>           |
| <i>Linanthus dianthiflorus</i>                     | ground-pink                   |
| <b>POLYGONACEAE</b>                                | <b>BUCKWHEAT FAMILY</b>       |
| <i>Eriogonum fasciculatum</i>                      | California buckwheat          |
| <b>RANUNCULACEAE</b>                               | <b>BUTTERCUP FAMILY</b>       |
| <i>Ranunculus californicus</i>                     | California buttercup          |
| <b>RHAMNACEAE</b>                                  | <b>BUCKTHORN FAMILY</b>       |
| <i>Ceanothus tomentosus</i>                        | woolly-leaved ceanothus       |
| <i>Rhamnus crocea</i>                              | spiny redberry                |
| <b>SOLANACEAE</b>                                  | <b>NIGHTSHADE FAMILY</b>      |
| <i>Nicotiana glauca</i> *                          | tree tobacco                  |
| <i>Solanum douglasii</i>                           | Douglas' nightshade           |
| <b>VERBENACEAE</b>                                 | <b>VERVAIN FAMILY</b>         |
| <i>Verbena menthifolia</i>                         | mint-leaved verben            |
| <b>VIOLACEAE</b>                                   | <b>VIOLET FAMILY</b>          |
| <i>Viola pedunculata</i>                           | johnny-jump-up                |
| <b>ANGIOSPERMS (MONOCOTS)</b>                      |                               |
| <b>ALLIACEAE</b>                                   | <b>ONION FAMILY</b>           |
| <i>Allium praecox</i>                              | early onion                   |
| <b>IRIDACEAE</b>                                   | <b>IRIS FAMILY</b>            |
| <i>Sisyrinchium bellum</i>                         | blue-eyed grass               |
| <b>MELANTHIACEAE</b>                               | <b>FALSE-HELLEBORE FAMILY</b> |
| <i>Toxicoscordion fremontii</i>                    | Fremont's star-lily           |
| <b>THEMIDACEAE</b>                                 | <b>BRODIAEA FAMILY</b>        |
| <i>Bloomeria clevelandii</i>                       | San Diego goldenstar          |
| <i>Bloomeria crocea</i> var. <i>crocea</i>         | common goldenstar             |
| <i>Brodiaea terrestris</i> subsp. <i>kernensis</i> | dwarf brodiaea                |
| <i>Dichelostemma capitatum</i>                     | blue dicks                    |
| *Non-Native Species                                |                               |



## **ATTACHMENT 7 – WEATHER CONDITIONS**





### ATTACHMENT 7 – WEATHER CONDITIONS

| Survey # | Date     | Surveyor (s)   | Time (military)                           |      | Temperature (degrees Fahrenheit) |     | Wind (miles per hour) |      | Cloud Cover (%) |     | Precipitation |     |
|----------|----------|--|---|------|----------------------------------|-----|-----------------------|------|-----------------|-----|---------------|-----|
|          |          |  | Start                                     | End  | Start                            | End | Start                 | End  | Start           | End | Start         | End |
| HA*      | 02/15/18 | Kris Alberts<br>David Faulkner                                 | N/A                                       |      |                                  |     |                       |      |                 |     |               |     |
| 1        | 02/20/18 | Kris Alberts<br>Heather Franklin*                              | 1110                                      | 1430 | 60                               | 59  | 2-8                   | 4-12 | 0               | 0   | 0             | 0   |
|          | 02/21/18 | Laurie Gorman<br>Corinne Klein*                                | 1240                                      | 1515 | 63                               | 59  | 2-5                   | 2-5  | 60              | 50  | 0             | 0   |
| 2        | 02/24/18 | John Dicus<br>Melanie Dicus                                    | 0930                                      | 1540 | 60                               | 61  | 0-3                   | 5-10 | 0               | 0   | 0             | 0   |
| 3        | 02/28/18 | John Dicus<br>Melanie Dicus<br>Clark Austin*                   | 0940                                      | 1600 | 60                               | 60  | 0-3                   | 2-9  | 1               | 10  | 0             | 0   |
| 4        | 03/05/18 | Travis Cooper<br>Colin Durkin*                                 | 0805                                      | 1430 | 60                               | 76  | 0                     | 6-9  | 0               | 25  | 0             | 0   |
|          | 03/06/18 | Laurie Gorman<br>Colin Durkin*                                 | 0749                                      | 1325 | 61                               | 79  | 0-1                   | 3-9  | 15              | 7   | 0             | 0   |
| 5        | 03/12/18 | Laurie Gorman  | 0935                                      | 1515 | 65                               | 73  | 1-3                   | 3-8  | 0               | 25  | 0             | 0   |
|          | 03/13/18 | Laurie Gorman<br>Heather Franklin*<br>Tamara Kramer*           | Survey canceled due to inclement weather. |      |                                  |     |                       |      |                 |     |               |     |
| 6        | 03/19/18 | John Dicus<br>Melanie Dicus<br>Tamara Kramer*<br>Colin Durkin* | 0930                                      | 1730 | 62                               | 65  | 3-8                   | 3-7  | 20              | 0   | 0             | 0   |
| 7        | 03/26/18 | John Dicus<br>Melanie Dicus                                    | 0915                                      | 1230 | 60                               | 61  | 0-1                   | 5-11 | 35              | 25  | 0             | 0   |
|          | 03/27/18 | David Faulkner   | 0930                                      | 1600 | 62                               | 64  | 2-3                   | 6-7  | 0               | 0   | 0             | 0   |
| 8        | 03/30/18 | David Faulkner<br>Clark Austin*                                | 0900                                      | 1600 | 65                               | 71  | 1-2                   | 2-3  | 0               | 10  | 0             | 0   |
|          | 03/31/18 | David Faulkner<br>Justin Lepore*                               | 0900                                      | 1400 | 65                               | 71  | 0                     | 2-3  | fog             | 30  | 0             | 0   |
| 9        | 04/04/18 | Laurie Gorman  | 1130                                      | 1500 | 73                               | 72  | 0-1                   | 3-7  | 60              | 75  | 0             | 0   |
|          | 04/04/18 | John Dicus<br>Melanie Dicus<br>Justin Lepore*                  | 1030                                      | 1700 | 63                               | 65  | 0-2                   | 3-7  | 45              | 0   | 0             | 0   |
| 10       | 04/08/18 | David Faulkner<br>Justin Lepore*                               | 0900                                      | 1600 | 66                               | 71  | 1-2                   | 8-10 | 20              | 0   | 0             | 0   |



### ATTACHMENT 7 – WEATHER CONDITIONS

| Survey # | Date     | Surveyor (s)                                     | Time (military) |      | Temperature (degrees Fahrenheit) |     | Wind (miles per hour) |      | Cloud Cover (%) |     | Precipitation |     |
|----------|----------|--|-----------------|------|----------------------------------|-----|-----------------------|------|-----------------|-----|---------------|-----|
|          |          |  | Start           | End  | Start                            | End | Start                 | End  | Start           | End | Start         | End |
|          | 04/09/18 | Travis Cooper<br>April Hillman*                  | 0800            | 1425 | 62                               | 84  | 0                     | 2-4  | 0               | 0   | 0             | 0   |
| 11       | 04/13/18 | John Dicus<br>Melanie Dicus<br>Clark Austin*     | 0900            | 1715 | 64                               | 74  | 0-1                   | 4-7  | 0               | 0   | 0             | 0   |
| 12       | 04/17/18 | Laurie Gorman<br>Corinne Klein*<br>Colin Durkin* | 0930            | 1605 | 64                               | 64  | 2-5                   | 4-9  | 1               | 0   | 0             | 0   |
|          | 04/18/18 | Laurie Gorman                                    | 0910            | 1245 | 71                               | 74  | 1-3                   | 4-9  | 0               | 0   | 0             | 0   |
| 13       | 04/22/18 | David Faulkner<br>Colin Durkin*                  | 0845            | 1400 | 71                               | 82  | 1-2                   | 3-4  | 0               | 0   | 0             | 0   |
|          | 04/22/18 | John Dicus<br>Melanie Dicus                      | 0815            | 1600 | 64                               | 71  | 0-1                   | 2-6  | 5               | 0   | 0             | 0   |
| 14       | 04/26/18 | Darin Busby<br>Erik LaCoste                      | 0930            | 1530 | 70                               | 76  | 1-3                   | 3-7  | light haze      | 0   | 0             | 0   |
| 15       | 05/03/18 | David Faulkner<br>Justin Lepore*                 | 0845            | 1400 | 67                               | 77  | 2-3                   | 6-7  | 0               | 0   | 0             | 0   |
|          | 05/04/18 | David Faulkner<br>Clark Austin*                  | 0845            | 1400 | 73                               | 81  | 1-2                   | 8-10 | 0               | 0   | 0             | 0   |
| 16       | 05/07/18 | Laurie Gorman                                    | 0800            | 1245 | 62                               | 72  | 0-2                   | 1-4  | 5               | 0   | 0             | 0   |
|          | 05/09/18 | Laurie Gorman                                    | 1000            | 1530 | 69                               | 75  | 1-4                   | 2-7  | 5               | 8   | 0             | 0   |

\*Non-permitted biologist as an assistant















## ATTACHMENT 8 – QCB SURVEY PROJECT BIOLOGIST SIGNATURE PAGE

All biologists performing focused, protocol-level surveys for Quino checkerspot butterfly (*Euphydryas editha quino*) during the flight season of 2018 for proposed Tie Line (TL) 649 Wood to Steel Pole Replacement project (Proposed Project) located in San Diego County, California were permitted to survey for this species under Section 10(a)(1)(A) of the Endangered Species Act (ESA). The undersigned project biologists certify this report to be a complete and accurate account of the findings and conclusions of surveys for Quino checkerspot butterfly conducted for the Proposed Project during the 2018 flight season.

|  |   |
|--|---|
| <br>Laurie Gorman<br>USFWS Permit Number TE-233367-3    | <br>Melanie Dicus<br>USFWS Permit Number TE-049175-4  |
| <br>Travis Cooper<br>USFWS Permit Number TE-170389-6    | <br>John Dicus<br>USFWS Permit Number TE-839960-6   |
| <br>David Faulkner<br>USFWS Permit Number TE-838743-5 | <br>Erik LaCoste<br>USFWS Permit Number TE-027736-6   |
| <br>Kris Alberts<br>USFWS Permit Number TE-039640-4   | <br>USFWS Permit Number TE-115373-4 (Working under Melissa Busby's USFWS Permit Number TE-080779-3) |



## **ATTACHMENT 9 – FIELD SURVEY FORMS**





## 2018 Quino Checkerspot Butterfly Survey Form

**Surveyor:** Kris Alberts **Date:** 2-20-18  
**Site Name:** TL 649 (Locations 82 to 103) **Site Visit No:** 1  
**Other Surveyors Present:** Heather Franklin **QCB Observed?** No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| <b>Start</b>     | 1110         | 60               | 2-8              | 0           |
| <b>End</b>       | 1430         | 59               | 4-12             | 0           |
| <b>Start</b>     | -            | -                | -                | -           |
| <b>End</b>       | -            | -                | -                | -           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants                           | Obs. |
|--|------|---|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |      | San Diego viguiera ( <i>Bahiopsis laciniata</i> ) | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              |      |   |      |
| goldenstar ( <i>Muilla</i> spp.)                                 |      |   |      |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |      |   |      |
| onion ( <i>Allium</i> spp.)                                      |      |   |      |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | X    |   |      |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      |   |      |
| sugar bush ( <i>Rhus ovata</i> )                                 | X    |   |      |
| everlasting ( <i>Pseudognaphalium californicum</i> )             | X    |   |      |
| filaree ( <i>Erodium cicutarium</i> )                            | X    |   |      |
| wild cucumber ( <i>Marah macrocarpa</i> )                        | X    |   |      |
| California encelia ( <i>Encelia californica</i> )                | X    |   |      |

| Butterfly Species  | No. | Butterfly Species   | No.      |
|--|-----|---|----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |          |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |          |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |          |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |          |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |          |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |          |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |          |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |          |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 5   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |          |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |          |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | 1   | California sister ( <i>Adelpha bredowii californica</i> )       |          |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |          |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |          |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |          |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |          |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |          |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              |     | unidentified lady ( <i>Vanessa</i> sp.)                         |          |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |          |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |          |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |          |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |          |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |          |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |          |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |          |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          |     | fiery skipper ( <i>Hylephila phyleus</i> )                      |          |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |          |
| <b>Sulphurs</b>  |     | <b>Other</b>  |          |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |          |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |          |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |          |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>6</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants | Obs. | Nectar/Flowering Plants | Obs. |
|-------------------------|------|-------------------------|------|
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### Notes (habitat quality, condition of host plants, etc.):

- Generally, there is way more annual grass, Australian saltbush and tumbleweed than in 2015, especially on the mesa top, likely as a result of all that rain last year.
- What host plant there was, was very obscure, and in some cases totally hidden by this new NNG vegetation. Plantago was also mostly senesced already and didn't look like it ever flowered or set seed, for the most part.
- Saw 5 pygmy blues and 1 southern blue - all day. Weak.
- There were barely any flowers at all – of anything. I mean, like a wasteland of dry vegetation. Essentially flowerless. Real weak.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: Laurie Gorman

Date: 2-21-18

Site Name: TL 649

Site Visit No: 1

Other Surveyors Present: Corinne Klein

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 1240         | 63               | 2-5              | 60          |
| End              | 1515         | 59               | 2-5              | 50          |
| Start            | -            | -                | -                | -           |
| End              | -            | -                | -                | -           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants | Obs. |
|--|------|-------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |      |                         |      |
| goldfields ( <i>Lasthenia</i> spp.)                              |      |                         |      |
| goldenstar ( <i>Muilla</i> spp.)                                 |      |                         |      |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |      |                         |      |
| onion ( <i>Allium</i> spp.)                                      |      |                         |      |
| California buckwheat ( <i>Eriogonum fasciculatum</i> )           | X    |                         |      |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      |                         |      |
| shortpod mustard ( <i>Hirschfeldia incana</i> )                  | X    |                         |      |
| lemonadeberry ( <i>Rhus integrifolia</i> )                       | X    |                         |      |
| wild cucumber ( <i>Marah macrocarpa</i> )                        | X    |                         |      |
| coyote brush ( <i>Baccharis pilularis</i> )                      | X    |                         |      |
| San Diego County viguiera ( <i>Bahiopsis laciniata</i> )         | X    |                         |      |

| Butterfly Species  | No. | Butterfly Species   | No.      |
|--|-----|---|----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |          |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |          |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |          |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |          |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |          |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |          |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |          |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |          |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 2   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |          |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |          |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |          |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |          |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |          |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |          |
| unidentified blue  | 1   | painted lady ( <i>V. cardui</i> )                               |          |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |          |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              |     | unidentified lady ( <i>Vanessa</i> sp.)                         |          |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |          |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |          |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |          |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |          |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |          |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |          |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |          |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          |     | fiery skipper ( <i>Hylephila phyleus</i> )                      |          |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |          |
| <b>Sulphurs</b>  |     | <b>Other</b>  |          |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |          |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |          |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |          |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>3</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants | Obs. | Nectar/Flowering Plants | Obs. |
|-------------------------|------|-------------------------|------|
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Notes (habitat quality, condition of host plants, etc.):

- Very few butterflies out today. Host plant is very small/stunted. Non-native grasses are overgrown, taking over suitable QCB habitat. Host plant areas on the mesa are barely visible within all the non-native grasses.



# 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: MELANIE DICUS, JOHN DICUS

Date: 02-24-2018

Site Name: TL 649

Site Visit No: WEEK 1

Other Surveyors Present: —

QCB Observed? NO

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0930         | 60               | 0-3              | Ø           |
| End              | 1540         | 61               | 5-10             | Ø           |
| Start            |              |                  |                  |             |
| End              |              |                  |                  |             |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants       | Obs. |
|--|------|-------------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |      | <i>ADUS INTELIFOLIA</i>       | x    |
| goldfields ( <i>Lasthenia</i> spp.)                              |      | <i>PERITOMA ARBOREA</i>       | x    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | <i>DICHELOSTEMMA CAPITATA</i> | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |      | <i>ACHILLEA GLABER</i>        | x    |
| onion ( <i>Allium</i> spp.)                                      |      | <i>ENCELA CALIFORNICA</i>     | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x    | <i>SANICOPSIS LACINIATA</i>   | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | <i>HIRSCHFELDIA INCANA</i>    | x    |
|  |      | <i>MARITIMELLA</i>            | x    |
|  |      |                               |      |
|  |      |                               |      |
|  |      |                               |      |
|  |      |                               |      |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcid checkerspot ( <i>E. chalcidona chalcidona</i> )      |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atides halesus corcorani</i> )     |     |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exila</i> )               |     | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Evers amyntula</i> )                |     | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | /   | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 3   | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 2   |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 6   | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |     |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |     |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |     |
| unidentified sulphur   |     |   |     |
|  |     | Total of all Butterflies Observed: / 2                          |     |



2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants | Obs. | Nectar/Flowering Plants | Obs. |
|-------------------------|------|-------------------------|------|
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Notes (habitat quality, condition of host plants, etc.):

LOW RAINFALL THIS WINTER APPEARS TO HAVE ADVERSELY AFFECTED BLOOM; HARDLY ANY NECTAR PLANTS WITHIN THE SURVEY AREA. BUTTERFLY NUMBERS ARE VERY LOW.



# 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: JOHN DICUS, MELANIE DICUS

Date: 02-28-2018

Site Name: TZ 649

Site Visit No: WEEK 2

Other Surveyors Present: —

QCB Observed? NO

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0940         | 60               | 0-3              | 10%         |
| End              | 1600         | 60               | 2-9              | 10%         |
| Start            |              |                  |                  |             |
| End              |              |                  |                  |             |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants       | Obs. |
|--|------|-------------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |      | <i>RHUS INTEGRIFOLIA</i>      | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              |      | <i>HIRSCHFELDIA INCANA</i>    | X    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | <i>GACCHARUS SALICIFOLIA</i>  | X    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |      | <i>ENCELIA CALIFORNICA</i>    | X    |
| onion ( <i>Allium</i> spp.)                                      |      | <i>BAHOPSIS LAUNATA</i>       | X    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | X    | <i>MAAST MACROCARPA</i>       | X    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | <i>ACMISPON GLABER</i>        | X    |
|  |      | <i>DICHELOSTEMMA CAPITATA</i> | X    |
|  |      | <i>MIRABILIS LAEVLIS</i>      | X    |
|  |      |                               |      |
|  |      |                               |      |
|  |      |                               |      |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcodon checkerspot ( <i>E. chalcodona chalcodona</i> )    |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exila</i> )               | X 1 | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | /   | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | /   | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |     |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 5   | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |     |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |     |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |     |
| unidentified sulphur   |     |   |     |
|  |     | Total of all Butterflies Observed: <b>8</b>                     |     |



2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants | Obs. | Nectar/Flowering Plants | Obs. |
|-------------------------|------|-------------------------|------|
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Notes (habitat quality, condition of host plants, etc.):

RHUS INTERMEDIATA REPRESENTS A <sup>(WIDESPREAD)</sup> COMMON AND QUALITY  
NECTAR RESOURCE, BUT OTHER FLOWERING PLANTS ARE  
SPARSE. BUTTERFLY NUMBERS ARE EXTREMELY LOW  
FOR THIS TIME OF YEAR.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: Laurie Gorman

Date: 03-06-18

Site Name: TL 649

Site Visit No: 4

Other Surveyors Present: Colin Durkin

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0749         | 61               | 0-1              | 15          |
| End              | 1325         | 79               | 3-9              | 7           |
| Start            | -            | -                | -                | -           |
| End              | -            | -                | -                | -           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants   | Obs. |
|--|------|---|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |      | San Diego County viguiera ( <i>Bahiopsis laciniata</i> )        | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              |      | coyote brush ( <i>Baccharis pilularis</i> )                     | X    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | tree tobacco ( <i>Nicotiana glauca</i> )                        | X    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |      | Erodium sp. ( <i>Erodium</i> sp.)                               | X    |
| onion ( <i>Allium</i> spp.)                                      |      | bladderpod ( <i>Peritoma arborea</i> )                          | X    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | X    | California everlasting ( <i>Pseudognaphalium californicum</i> ) | X    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | California bush sunflower ( <i>Encelia californica</i> )        | X    |
| California buckwheat ( <i>Eriogonum fasciculatum</i> )           | X    |   |      |
| shortpod mustard ( <i>Hirschfeldia incana</i> )                  | X    |   |      |
| lemonadeberry ( <i>Rhus integrifolia</i> )                       | X    |   |      |
| wild cucumber ( <i>Marah macrocarpa</i> )                        | X    |   |      |
| Otay manzanita ( <i>Arctostaphylos otayensis</i> )               | X    |   |      |

| Butterfly Species  | No. | Butterfly Species   | No.      |
|--|-----|---|----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |          |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |          |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |          |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |          |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |          |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |          |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |          |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) | 2        |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 3   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |          |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |          |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | 1   | California sister ( <i>Adelpha bredowii californica</i> )       |          |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |          |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |          |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |          |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |          |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |          |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 2   | unidentified lady ( <i>Vanessa</i> sp.)                         |          |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |          |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |          |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |          |
| checkered (common) white ( <i>Pontia protodice</i> )         | 1   | mourning cloak ( <i>Nymphalis antiopa</i> )                     |          |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |          |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |          |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |          |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          |     | fiery skipper ( <i>Hylephila phyleus</i> )                      |          |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |          |
| <b>Sulphurs</b>  |     | <b>Other</b>  |          |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |          |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |          |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |          |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>9</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants | Obs. | Nectar/Flowering Plants | Obs. |
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Notes (habitat quality, condition of host plants, etc.):

- Again, very few butterflies out today. Host plant is very small/stunted. Non-native grasses are overgrown, taking over suitable QCB habitat. Host plant areas on the mesa are barely visible within all the non-native grasses. Not many nectar sources blooming yet.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: Laurie Gorman

Date: 03-12-18

Site Name: TL 649

Site Visit No: 5

Other Surveyors Present: None

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0935         | 65               | 1-3              | 50          |
| End              | 1515         | 73               | 3-8              | 25          |
| Start            | -            | -                | -                | -           |
| End              | -            | -                | -                | -           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants   | Obs. |
|--|------|---|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | X    | San Diego County viguiera ( <i>Bahiopsis laciniata</i> )        | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              |      | coyote brush ( <i>Baccharis pilularis</i> )                     | X    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | tree tobacco ( <i>Nicotiana glauca</i> )                        | X    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | X    | Erodium sp. ( <i>Erodium</i> sp.)                               | X    |
| onion ( <i>Allium</i> spp.)                                      |      | bladderpod ( <i>Peritoma arborea</i> )                          | X    |
| California buckwheat ( <i>Eriogonum fasciculatum</i> )           | X    | California everlasting ( <i>Pseudognaphalium californicum</i> ) | X    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | California bush sunflower ( <i>Encelia californica</i> )        | X    |
| spiny redberry ( <i>Rhamnus crocea</i> )                         | X    | velvet/golden-club cactus ( <i>Bergerocactus emoryi</i> )       | X    |
| shortpod mustard ( <i>Hirschfeldia incana</i> )                  | X    | shining peppergrass ( <i>Lepidium nitidum</i> )                 | X    |
| lemonadeberry ( <i>Rhus integrifolia</i> )                       | X    | California wood-sorrel ( <i>Oxalis californica</i> )            | X    |
| wild cucumber ( <i>Marah macrocarpa</i> )                        | X    | euphorbia ( <i>Euphorbia</i> sp.)                               | X    |
| Otay manzanita ( <i>Arctostaphylos otayensis</i> )               | X    |   |      |

| Butterfly Species  | No. | Butterfly Species   | No.       |
|--|-----|---|-----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |           |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |           |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |           |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |           |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |           |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |           |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |           |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |           |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 2   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |           |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |           |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | 4   | California sister ( <i>Adelpha bredowii californica</i> )       |           |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |           |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |           |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |           |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |           |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |           |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 5   | unidentified lady ( <i>Vanessa</i> sp.)                         |           |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |           |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |           |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |           |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |           |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |           |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |           |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |           |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          |     | fiery skipper ( <i>Hylephila phyleus</i> )                      |           |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |           |
| <b>Sulphurs</b>  |     | <b>Other</b>  |           |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |           |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |           |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |           |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>11</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants | Obs. | Nectar/Flowering Plants | Obs. |
|-------------------------|------|-------------------------|------|
|                         |      |                         |      |
|                         |      |                         |      |
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|                         |      |                         |      |
|                         |      |                         |      |
|                         |      |                         |      |

Notes (habitat quality, condition of host plants, etc.):

- Slightly more butterflies than last survey, but not by much. More nectar sources beginning to bloom. Host plant is very dry and stunted.



# 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: JOHN DICUS, MELANIE DICUS

Date: 03-19-2018

Site Name: TL649

Site Visit No: WEEKS

Other Surveyors Present: —

QCB Observed? NO

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0930         | 62               | 0                | 20%         |
| End              | 1300         | 74               | 3-8              | 5%          |
| Start            |              |                  |                  |             |
| End              | 1730         | 65               | 3-7              | 0           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snappedragon ( <i>Antirrhinum coulterianum</i> )  |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants                 | Obs. |
|--|------|---|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | x    | <i>RUTIS WIEGANDII</i>                  | x    |
| goldfields ( <i>Lasthenia</i> spp.) <i>GRACILIS</i>              | x    | <i>BRASSICA NIGRA</i>                   | x    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | <i>DICHELISPERMA CAPITATA</i>           | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | x    | <i>SISYRINCHION BEUWII</i>              | x    |
| onion ( <i>Allium</i> spp.) <i>PRAECOX</i>                       | x    | <i>BACCHARIS SALICIFOLIA</i>            | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x    | <i>PEUTONIA ARBOREA</i>                 | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | <i>ENCELIA CALIFORNICA</i>              | x    |
| <i>SAMBUCUS NIGRA</i> SP. <i>CAERULEA</i>                        | x    | <i>VIOLA PEDUNCULATA</i>                | x    |
| <i>MAIVA PARVIFLORA</i>  | x    | <i>ACMISPON GLABER</i> V. <i>GLABER</i> | x    |
| <i>GUTIERREZIA CALIFORNICA</i>                                   | x    | <i>MIRABILIS LAEVLIS</i>                | x    |
| <i>GARTOPSIS LAGNIATA</i>  | x    | <i>PSEUDOGNAPHALUM CALIFORNIUM</i>      | x    |
| <i>SANICULA</i> SPP.   | x    | <i>PRIMULA CLEVELANDII</i>              | x    |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             | 2   | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        | 1   |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    | 1   |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 5   | gray hairstreak ( <i>Strymon melinus pudica</i> )               | 1   |
| western tailed blue ( <i>Everes amyntula</i> )               | 5   | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | 14  | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiarctus ceraunus gyas</i> )            |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               | 2   |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 15  | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 3   |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 5   | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | <i>PAPILIO CRESPHONTES</i>                                      | 1   |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |     |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |     |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | 50  |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

[illegible]

Notes (habitat quality, condition of host plants, etc.):



# 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: JOHN DICUS, MELANIE DICUS

Date: 03-26-2018

Site Name: TL 649

Site Visit No: WEEK 16

Other Surveyors Present: NONE

QCB Observed? NO

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0915         | 60               | 0-1              | 35%         |
| Mid              | 1230         | 64               | 1-3              | 40%         |
| End              | 1645         | 61               | 5-11             | 25%         |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants              | Obs. |
|--|------|--------------------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | x    | <i>ASTRAGALUS MICHOTODUS LONGUS</i>  | x    |
| goldfields ( <i>Lasthenia</i> spp.) <i>GRACIOS</i>               | x    | <i>LEPTANDRUS ERODIUM</i> spp.       | x    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | <i>SIDALCEA SPARSIFOLIA</i>          | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | x    | <i>CLAYTONIA PARVIFLORA</i>          | x    |
| onion ( <i>Allium</i> spp.) <i>PRAECOX</i>                       | x    | <i>SISYRINCHIUM BELLUM</i>           | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x    | <i>VIOLA PEDUNCULATA</i>             | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   | x    | <i>MIRABILIS LAEVIS</i>              | x    |
| <i>ACACIA SMALLII / FARNESIANA</i>                               | x    | <i>PHACELIA CUCUTARIA V. NISPIDA</i> | x    |
| <i>BRASSICA NUBRA</i>  | x    | <i>DICHELOSTEMMA CAPITATA</i>        | x    |
| <i>ACMOSPON GLABER</i>   | x    | <i>DODECATHEON CLEVELANDII</i>       | x    |
| <i>RHUS INTELLIGENS</i>  | x    | <i>BADIANOPSIS LACINIATA</i>         | x    |
| <i>PELITOMA ARBOREA</i>  | x    | <i>SALVIA MUNZII</i>                 | x    |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) | /   |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 2   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               | 3   | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               | /   |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              |     | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) | 36  | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 | /   |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 7   | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |     |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |     |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |     |
| unidentified sulphur   |     |   |     |
|  |     | Total of all Butterflies Observed: 64                           |     |



2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants | Obs. |
|--------------------------|------|-------------------------|------|
| SAMBUCUS NIGRA AERULEA   | x    |                         |      |
| GLEDITSIA CORONARIA      | x    |                         |      |
| SONCHUS ASPER            | x    |                         |      |
| SANICULA ARBorea         | x    |                         |      |
| SANICULA BIPINNATIFIDA   | x    |                         |      |
| EUPHORBIA MISERA         | x    |                         |      |
| BERGROCACTUS EMORYI      | x    |                         |      |
| ENCELIA CALIFORNICA      | x    |                         |      |
| VERBENA MENTHIFOLIA      | x    |                         |      |
| ESCHSCHOLZIA CALIFORNICA | x    |                         |      |
|                          |      |                         |      |
|                          |      |                         |      |
|                          |      |                         |      |
|                          |      |                         |      |
|                          |      |                         |      |
|                          |      |                         |      |

Notes (habitat quality, condition of host plants, etc.):

BUTTERFLY DIVERSITY AND NUMBERS HAVE IMPROVED SINCE THE FIRST SURVEYS. THERE IS A MARKED INCREASE IN THE NUMBER OF FLOWERING PLANTS & NECTAR SOURCES.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: David K. Faulkner

Date: 27 March 2018

Site Name: Otay Mesa, Wood to Steel Project, SDG&E

Site Visit No: 1

Other Surveyors Present: None

QCB Observed? No

| Field Conditions |              |                   |                  |             |
|------------------|--------------|-------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F)  | Wind Speed (mph) | Cloud Cover |
| Start            | 0930         | 62°               | 2-3              |             |
| End              | 1600         | 64° (high of 73°) | 6-7              |             |
| Start            |              |                   |                  |             |
| End              |              |                   |                  |             |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants    | Obs. |
|--|------|----------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | x    | Sage                       | x    |
| goldfields ( <i>Lasthenia</i> spp.)                              | x    | Blue dicks                 | x    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | Violets (yellow)           | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | x    | <i>Rhamnus crocea</i>      | x    |
| onion ( <i>Allium</i> spp.)                                      |      | California everlasting     | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x    | Blue eyed grass            | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | <i>Oxalis californicus</i> | x    |
|  |      | Composite                  | x    |
| <i>Erodium</i> sp.   | x    |                            |      |
| <i>Brassica nigra</i>  | x    |                            |      |
| <i>Euphorbia</i> sp.   | x    |                            |      |
| Deer weed  | x    |                            |      |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    | 1   |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 1   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | 3   | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   | 1   | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 4   | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 1   |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 8   | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | California ringlet ( <i>Coenonympha tullia californica</i> )    | 10+ |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |     |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |     |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | 29  |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

[illegible]

Notes (habitat quality, condition of host plants, etc.): *Plantago erecta* dry in some areas, but recovering in other locations. Still limited nectar sources for insects. Expected butterfly abundance and diversity lower than would be expected for this time of year.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: David K. Faulkner

Date: 30 March 2018

Site Name: Otay Mesa, Wood to Steel Project, SDG&E

Site Visit No: 2

Other Surveyors Present: Clark Austin

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0900         | 65°              | 1-2              | 0%          |
| End              | 1600         | 71° (high: 78°)  | 2-3              | 10%         |
| Start            |              |                  |                  |             |
| End              |              |                  |                  |             |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants    | Obs. |
|--|------|----------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | x    | Sage                       | x    |
| goldfields ( <i>Lasthenia</i> spp.)                              | x    | Blue dicks                 | x    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | Violets (yellow)           | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | x    | <i>Rhamnus crocea</i>      | x    |
| onion ( <i>Allium</i> spp.)                                      | x    | California everlasting     | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x    | Blue eyed grass            | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | <i>Oxalis californicus</i> |      |
|  |      | Composites                 | x    |
| <i>Erodium</i> sp.   | x    |                            |      |
| <i>Brassica nigra</i>  | x    |                            |      |
| <i>Euphorbia</i> sp.   | x    |                            |      |
| Deer weed  | x    |                            |      |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exila</i> )               |     | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 10+ | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |     |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 5   | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | California ringlet ( <i>Coenonympha tullia californica</i> )    | 10+ |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |     |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |     |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       |     |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

[illegible]

Notes (habitat quality, condition of host plants, etc.): Starting to dry out again. More annuals in flower than previous visit. Very low butterfly diversity and abundance.  
Clark Austin has a more complete list of the flowering plants.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: David K. Faulkner

Date: 31 March 2018

Site Name: Otay Mesa, Wood to Steel Project, SDG&E

Site Visit No: 3

Other Surveyors Present: Justin Lepore

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0900         | 65°              | 0                | fog         |
| End              | 1400         | 71° (high: 73°)  | 2-3              | 30%         |
| Start            |              |                  |                  |             |
| End              |              |                  |                  |             |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants    | Obs. |
|--|------|----------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | x    | Sage                       | x    |
| goldfields ( <i>Lasthenia</i> spp.)                              | x    | Blue dicks                 | x    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | Violets (yellow)           | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | x    | <i>Rhamnus crocea</i>      | x    |
| onion ( <i>Allium</i> spp.)                                      | x    | California everlasting     | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x    | Blue eyed grass            | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | <i>Oxalis californicus</i> |      |
|  |      | Composites                 | x    |
| <i>Erodium</i> sp.   | x    | Loco weed                  | x    |
| <i>Brassica nigra</i>  | x    | Velvet cactus              | x    |
| <i>Euphorbia misera</i>  | x    | Shooting star              | x    |
| Deer weed  | x    |                            |      |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        | 1   |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exile</i> )               | 10+ | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 3   | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 2   |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 4   | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | California ringlet ( <i>Coenonympha tullia californica</i> )    | 10+ |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |     |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |     |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       |     |



2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants | Obs. | Nectar/Flowering Plants | Obs. |
|-------------------------|------|-------------------------|------|
|                         |      |                         |      |
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|                         |      |                         |      |

Notes (habitat quality, condition of host plants, etc.): Plantago starting to dry out in many locations on the mesa. Lepidoptera abundance and diversity still very low. Many more annuals in flower than early in the week.



# 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: MELANIE DICUS, JOHN DICUS

Date: 04-04-2018

Site Name: TL 649

Site Visit No: WEEK 7

Other Surveyors Present: —

QCB Observed? NO

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| START            | 1030         | 63               | 0-2              | 45%         |
| MID              | 1300         | 73               | 1-8              | 20%         |
| END              | 1700         | 65               | 3-7              | 0           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants      | Obs. |
|--|------|------------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | x    | ASTRALIUS MUCROPODUS LONGIUS | x    |
| goldfields ( <i>Lasthenia</i> spp.) GRACILIS                     | x    | GLEBIONIS CORONARIA          | x    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | ENCELIA CALIFORNICA          | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | x    | SALVIA MELIFERA, S. MUNZII   | x    |
| onion ( <i>Allium</i> spp.) PRACOX                               | x    | BACCHARIS SALICIFOLIA        | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x    | SONCHUS ASPER                | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | CALISTEGIA MACROSTEGIA       | x    |
| PERITOMA ARBOREA   | x    | SISYRINCHIUM BELLUM          | x    |
| RAUSINTEGRIFOLIA   | x    | ZANUNCULUS CALIFORNICUS      | x    |
| BRASSICA NIGRA   | x    | SALICULA BIPINNATIFIDA       | x    |
| ERIOPHYLLUM CONFERTIFLORUM                                       | x    | DODECATHEON CLEVELANDII      | x    |
| DICHELOSTEMA CAPITATA  | x    | SAMBUCUS NIGRA CAERULEA      | x    |

| Butterfly Species  | No.  | Butterfly Species   | No. |
|--|------|---|-----|
| <b>Checkerspots</b>  |      | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |      | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |      | western tiger swallowtail ( <i>P. rutulus</i> )                 | 1   |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |      | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |      | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |      | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Myiitta crescent ( <i>Phyciodes myiitta</i> )                |      | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |      | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 2    | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               | 1    | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | 4    | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiarctus ceraunus gyas</i> )            |      | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |      | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       | 1    | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |      | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |      | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 26   | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |      | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) | 200+ | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        |      | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |      | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |      | <b>Skippers</b>   |     |
| unidentified white   |      | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 1   |
| <b>Metalmarks</b>  |      | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 10   | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |      | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |      | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |      | HESPERIA JUBA   | 1   |
| sleepy orange ( <i>Eurema nicippe</i> )                      |      |   |     |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |      |   |     |
| unidentified sulphur   |      |   |     |
|  |      | Total of all Butterflies Observed: 247+                         |     |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants             | Obs. | Nectar/Flowering Plants | Obs. |
|-------------------------------------|------|-------------------------|------|
| <del>SARCOSTEMMA</del> CYNANCHOIDES | x    |                         |      |
| CONVOLVULUS ARVENSIS                | x    |                         |      |
| VIOLA PEDUNCULATA                   | x    |                         |      |
| MIRABILIS LAEVIS                    | x    |                         |      |
| MIRAH MACROCARPA                    | x    |                         |      |
| Oxalis CALIFORNICA                  | x    |                         |      |
| ACMISPON GILABEE V. GILABEE         | x    |                         |      |
| HARPAIONELLA PALMERI                | x    |                         |      |
| ANAGALLIS ARVENSIS                  | x    |                         |      |
| RAMNUS CROCEA                       | x    |                         |      |
| SIDALCEA SPARGIFOLIA                | x    |                         |      |
| CEANDITHUS TOMENTOSUS               | x    |                         |      |
| PECTOCARYA LINEARIS                 | x    |                         |      |
| HIRSCHFELDIA INCANA                 |      |                         |      |
|                                     |      |                         |      |
|                                     |      |                         |      |

Notes (habitat quality, condition of host plants, etc.):

HOST PLANT PATCHES STARTING TO DRY OUT IN OPEN AREAS; STILL FRESH IN ~~PA~~ AREAS AROUND SHRUBS.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: Laurie Gorman

Date: 04-04-18

Site Name: TL 649

Site Visit No: 9

Other Surveyors Present: None.

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 1130         | 73               | 0-1              | 60          |
| End              | 1500         | 72               | 3-7              | 75          |
| Start            | -            | -                | -                | -           |
| End              | -            | -                | -                | -           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) | X    | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants   | Obs. |
|--|------|---|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | X    | San Diego County viguiera ( <i>Bahiopsis laciniata</i> )        | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              | X    | coyote brush ( <i>Baccharis pilularis</i> )                     | X    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | tree tobacco ( <i>Nicotiana glauca</i> )                        | X    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | X    | Erodium sp. ( <i>Erodium</i> sp.)                               | X    |
| onion ( <i>Allium</i> spp.)                                      |      | bladderpod ( <i>Peritoma arborea</i> )                          | X    |
| California buckwheat ( <i>Eriogonum fasciculatum</i> )           | X    | California everlasting ( <i>Pseudognaphalium californicum</i> ) | X    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | California bush sunflower ( <i>Encelia californica</i> )        | X    |
| spiny redberry ( <i>Rhamnus crocea</i> )                         | X    | velvet/golden-club cactus ( <i>Bergerocactus emoryi</i> )       | X    |
| shortpod mustard ( <i>Hirschfeldia incana</i> )                  | X    | shining peppergrass ( <i>Lepidium nitidum</i> )                 | X    |
| lemonadeberry ( <i>Rhus integrifolia</i> )                       | X    | California wood-sorrel ( <i>Oxalis californica</i> )            | X    |
| wild cucumber ( <i>Marah macrocarpa</i> )                        | X    | euphorbia ( <i>Euphorbia</i> sp.)                               | X    |
| Otay manzanita ( <i>Arctostaphylos otayensis</i> )               | X    |   |      |

| Butterfly Species  | No. | Butterfly Species   | No.       |
|--|-----|---|-----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |           |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |           |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 | 1         |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |           |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |           |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |           |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |           |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |           |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 1   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |           |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |           |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | 4   | California sister ( <i>Adelpha bredowii californica</i> )       |           |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |           |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |           |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |           |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |           |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |           |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 11  | unidentified lady ( <i>Vanessa</i> sp.)                         |           |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |           |
| common California ringlet ( <i>Coenonympha californica</i> ) | 16  | monarch ( <i>Danaus plexippus</i> )                             |           |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |           |
| checkered (common) white ( <i>Pontia protodice</i> )         | 5   | mourning cloak ( <i>Nymphalis antiopa</i> )                     |           |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |           |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |           |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |           |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 5   | fiery skipper ( <i>Hylephila phyleus</i> )                      |           |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |           |
| <b>Sulphurs</b>  |     | <b>Other</b>  |           |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |           |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |           |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |           |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>43</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants                       | Obs. | Nectar/Flowering Plants | Obs. |
|---|------|-------------------------|------|
| blue dicks ( <i>Dichelostemma capitatum</i> ) | X    |                         |      |
|   |      |                         |      |
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Notes (habitat quality, condition of host plants, etc.):

- Comparatively more butterflies out this round. Lots of CA ringlets. Diversity and numbers still lower than expected for this time of year. A good amount of nectar sources available, although not much of the typical goldfields, ground pink, red maids, etc. Host plant is very dry and stunted.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: David K. Faulkner

Date: 8 April 2018

Site Name: Otay Mesa, Wood to Steel Project, SDG&E

Site Visit No: 4

Other Surveyors Present: Justin Lepore

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0900         | 66°              | 1-2              | 20%         |
| End              | 1600         | 71° (high: 77°)  | 8-10             | 0%          |
| Start            |              |                  |                  |             |
| End              |              |                  |                  |             |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) | x    | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants    | Obs. |
|--|------|----------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | x    | Sage                       | x    |
| goldfields ( <i>Lasthenia</i> spp.)                              | x    | Blue dicks                 | x    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | Violets (yellow)           | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | x    | <i>Rhamnus crocea</i>      | x    |
| onion ( <i>Allium</i> spp.)                                      | x    | California everlasting     | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x    | Blue eyed grass            | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | <i>Oxalis californicus</i> |      |
|  |      | Composites                 | x    |
| <i>Erodium</i> sp.   | x    | <i>Rhus integrifolia</i>   | x    |
| <i>Brassica nigra</i>  | x    | <i>Phacelia</i>            | x    |
| <i>Dandelion</i> , common  | x    | Shooting star              | x    |
| <i>Acmispon glaber</i>   | x    |                            |      |

| Butterfly Species  | No. | Butterfly Species   | No.  |
|--|-----|---|------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |      |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |      |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |      |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        | 1    |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |      |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |      |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |      |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |      |
| western pygmy-blue ( <i>Brephidium exile</i> )               | 10+ | gray hairstreak ( <i>Strymon melinus pudica</i> )               |      |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |      |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |      |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |      |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |      |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |      |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |      |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |      |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 10+ | unidentified lady ( <i>Vanessa</i> sp.)                         | 1    |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |      |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             | 1    |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |      |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |      |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |      |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |      |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |      |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 20+ | fiery skipper ( <i>Hylephila phyleus</i> )                      |      |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |      |
| <b>Sulphurs</b>  |     | <b>Other</b>  |      |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | California ringlet ( <i>Coenonympha tullia californica</i> )    | 100+ |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |      |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |      |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       |      |



# 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants     | Obs. | Nectar/Flowering Plants | Obs. |
|-----------------------------|------|-------------------------|------|
| <i>Peritoma arborea</i>     | x    |                         |      |
| <i>Lomatium</i>             | x    |                         |      |
| <i>Mirabilis</i>            | x    |                         |      |
| <i>Salvia apiana</i>        | x    |                         |      |
| <i>Salvia munzii</i>        | x    |                         |      |
| <i>Sidalcea sparsifolia</i> | x    |                         |      |
| <i>Convolvulus arvensis</i> | x    |                         |      |
| <i>Verbena lasiostachys</i> | x    |                         |      |
|                             |      |                         |      |
|                             |      |                         |      |
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|                             |      |                         |      |
|                             |      |                         |      |
|                             |      |                         |      |

Notes (habitat quality, condition of host plants, etc.): In general, habitat is still good in many places, but ground is very dry and many annuals are either dying back or are stunted. Butterfly diversity remains low, but a few species are common. *Plantago* remains healthy at a few sites, but is still rather sparse with most smaller and exposed patches drying out with the leaves turning red. No QCB adults encountered.



# 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: MELANIE OLINS, JOHN OLINS

Date: 04-13-2018

Site Name: TL649

Site Visit No: WEEK 8

Other Surveyors Present: CLARK AUSTIN (TRAINEE)

QCB Observed? NO

## Field Conditions

|       | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
|-------|--------------|------------------|------------------|-------------|
| Start | 0900         | 64               | 0-1              | 0           |
| End   | 1300         | 79               | 3-9              | 0           |
| Start | 1715         | 74               | 4-7              | 0           |
| End   |              |                  |                  |             |

START  
MIDMY  
END

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snaptagon ( <i>Antirrhinum coulterianum</i> )     |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants   | Obs. | Nectar/Flowering Plants              | Obs. |
|---|------|--------------------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)            | x    | <i>BLOOMERIA CLEVELANDII</i>         | x    |
| goldfields ( <i>Lasthenia</i> spp.)                               | x    | <i>CALOPHYLLUS SPLENDENS</i>         | x    |
| goldenstar ( <i>Mullea</i> spp.) ( <i>BLOOMERIA CLEVELANDII</i> ) | x    | <i>BRODIAEA TERRESTRIS KERNENSIS</i> | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> )  | x    | <i>BATHIOPSIS LACINIATA</i>          | x    |
| onion ( <i>Allium</i> spp.) <i>PRAECOX</i>                        | x    | <i>DICHELOSTEMMA CAPITATA</i>        | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                       | x    | <i>BACCHARIS SALICIFOLIA</i>         | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                    |      | <i>CEANOTHUS TOMENTOSUS</i>          | x    |
| <i>ENCELIA CALIFORNICA</i>  | x    | <i>ACACIA</i> spp.                   | x    |
| <i>SALVIA MELLIFERA</i>   | x    | <i>MIRABILIS LAEVIS</i>              | x    |
| <i>BRASSICA NUBRA</i>   | x    | <i>EROPHYLLUM CONFERTIFLORUM</i>     | x    |
| <i>HIRSCHFELDIA INCANA</i>  | x    | <i>RHUS INTERFOLIA</i>               | x    |
| <i>RIBES SPECIOSUM</i>  | x    | <i>ERODIUM CICUTARUM</i>             | x    |

| Butterfly Species  | No.  | Butterfly Species   | No. |
|--|------|---|-----|
| <b>Checkerspots</b>  |      | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |      | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |      | western tiger swallowtail ( <i>P. rutulus</i> )                 | 2   |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |      | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |      | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |      | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |      | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |      | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 12   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               | 3    | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     | 4    | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |      | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |      | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |      | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |      | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |      | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 28   | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |      | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) | 250+ | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        | 2    | common buckeye ( <i>Junonia coenia grisea</i> )                 | 3   |
| checkered (common) white ( <i>Pontia protodice</i> )         |      | mourning cloak ( <i>Nymphalis antiopa</i> )                     | 1   |
| spring white ( <i>P. sisymbrii</i> )                         |      | <b>Skippers</b>   |     |
| unidentified white   |      | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 2   |
| <b>Metalmarks</b>  |      | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 45   | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |      | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |      | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |      |   |     |
| sleepy orange ( <i>Eurema nicippe</i> )                      |      |   |     |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |      |   |     |
| unidentified sulphur   |      |   |     |
|  |      | Total of all Butterflies Observed: 352+                         |     |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants      | Obs. | Nectar/Flowering Plants          | Obs. |
|------------------------------|------|----------------------------------|------|
| ANAGALLIS ARVENSIS           | X    | EUPHORBIA MISERA                 | X    |
| ACMISPON GLABER V. GLABER    | X    | ERODIUM CICUTARUM                | X    |
| ASTRAGALUS MICROPODUS LONGUS | X    | PSEUDOGNAPHALUM CALIFORNICUM     | X    |
| CONVOLVULUS ARVENSIS         | X    | PSEUDOGNAPHALUM BLOTTII          | X    |
| PERITOMA ARBOREA             | X    | VERBENA MENTHIFOLIA              | X    |
| GLEBIONIS CORONARIA          | X    | VIOLA PEDUNCULATA                | X    |
| MEDICAGO POLYMORPHA          | X    | SILVEA SPARSIFOLIA               | X    |
| RAJUNCULUS CALIFORNICUS      | X    | FEROCACTUS VIRIDESCENS           | X    |
| CALYSTEGIA MACROSTEGIA       | X    | ERODIUM MICROCALYX V. MICROCALYX | X    |
| HELYOPSIS CRETICUS           | X    | NELOPUS INDICUS                  | X    |
| SONCHUS ASPER                | X    | PIGUS COMMUNIS                   | X    |
| SONCHUS OLERACEUS            | X    | GUMMOSIA CYNENSIS                | X    |
| SANICULA BIPINNATIFIDA       | X    | ONCOSIPHON PULIFERUM             | X    |
| SALVIA APIANA                | X    | OXALIS CALIFORNICA               | X    |
| SALVIA MUNZII                | X    | GISTYRANCHIUM BELLUM             | X    |
| FUNASTRUM CYNANCHOIDES H.    | X    | DIPACUS PUNICEUS                 | X    |

SAMBUCUS NIGRA SSP. CAERULEA X

Notes (habitat quality, condition of host plants, etc.):

MOST OF THE HOST PLANT PATCHES ARE CRISPY. NECTAR ~~PLANTS~~ PLANTS ARE ABUNDANT. BUTTERFLIES ARE IMPROVING IN DIVERSITY AND NUMBER OF INDIVIDUALS.



# 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: Laurie Gorman

Date: 04-17-18

Site Name: TL 649

Site Visit No: 12

Other Surveyors Present: Corinne Klein, Colin Durkin

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0930         | 64               | 2-5              | 1           |
| End              | 1605         | 64               | 4-9              | 0           |
| Start            | -            | -                | -                | -           |
| End              | -            | -                | -                | -           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants   | Obs. |
|--|------|---|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | X    | San Diego County viguiera ( <i>Bahiopsis laciniata</i> )        | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              |      | coyote brush ( <i>Baccharis pilularis</i> )                     | X    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | tree tobacco ( <i>Nicotiana glauca</i> )                        | X    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | X    | Erodium sp. ( <i>Erodium</i> sp.)                               | X    |
| onion ( <i>Allium</i> spp.)                                      |      | bladderpod ( <i>Peritoma arborea</i> )                          | X    |
| California buckwheat ( <i>Eriogonum fasciculatum</i> )           | X    | California everlasting ( <i>Pseudognaphalium californicum</i> ) | X    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | California bush sunflower ( <i>Encelia californica</i> )        | X    |
| scarlet pimpernel ( <i>Anagallis arvensis</i> )                  | X    | velvet/golden-club cactus ( <i>Bergerocactus emoryi</i> )       | X    |
| shortpod mustard ( <i>Hirschfeldia incana</i> )                  | X    | shining peppergrass ( <i>Lepidium nitidum</i> )                 | X    |
| lemonadeberry ( <i>Rhus integrifolia</i> )                       | X    | California wood-sorrel ( <i>Oxalis californica</i> )            | X    |
| wild cucumber ( <i>Marah macrocarpa</i> )                        | X    | euphorbia ( <i>Euphorbia</i> sp.)                               | X    |
| Otay manzanita ( <i>Arctostaphylos otayensis</i> )               | X    | spiny redberry ( <i>Rhamnus crocea</i> )                        | X    |

| Butterfly Species  | No. | Butterfly Species   | No.       |
|--|-----|---|-----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |           |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |           |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |           |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |           |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |           |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |           |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |           |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |           |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 1   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |           |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |           |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |           |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |           |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    | 1         |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |           |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |           |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |           |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 5   | unidentified lady ( <i>Vanessa</i> sp.)                         |           |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |           |
| common California ringlet ( <i>Coenonympha californica</i> ) | 51  | monarch ( <i>Danaus plexippus</i> )                             |           |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |           |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |           |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |           |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |           |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |           |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 28  | fiery skipper ( <i>Hylephila phyleus</i> )                      |           |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |           |
| <b>Sulphurs</b>  |     | <b>Other</b>  |           |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |           |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |           |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |           |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>81</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants   | Obs. | Nectar/Flowering Plants | Obs. |
|---|------|-------------------------|------|
| blue dicks ( <i>Dichelostemma capitatum</i> )                         | X    |                         |      |
| blue-eyed grass ( <i>Sisyrinchium bellum</i> )                        | X    |                         |      |
| red monkey-flower ( <i>Mimulus aurantiacus</i> var. <i>puniceus</i> ) | X    |                         |      |
| western bindweed ( <i>Calystegia macrostegia</i> )                    | X    |                         |      |
| blue elderberry ( <i>Sambucus nigra</i> ssp. <i>cerulea</i> )         | X    |                         |      |
|   | X    |                         |      |
|   |      |                         |      |
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|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |

Notes (habitat quality, condition of host plants, etc.):

- High number of butterflies but not much species diversity. A good amount of nectar sources available, although not much of the typical goldfields, ground pink, red maids, etc. Host plant is very dry and stunted.



# 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: Laurie Gorman

Date: 04-18-18

Site Name: TL 649

Site Visit No: 12

Other Surveyors Present: None.

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0910         | 71               | 1-3              | 0           |
| End              | 1245         | 74               | 4-9              | 0           |
| Start            | -            | -                | -                | -           |
| End              | -            | -                | -                | -           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants   | Obs. |
|--|------|---|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | X    | San Diego County viguiera ( <i>Bahiopsis laciniata</i> )        | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              | X    | coyote brush ( <i>Baccharis pilularis</i> )                     | X    |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | tree tobacco ( <i>Nicotiana glauca</i> )                        | X    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |      | Erodium sp. ( <i>Erodium</i> sp.)                               |      |
| onion ( <i>Allium</i> spp.)                                      |      | bladderpod ( <i>Peritoma arborea</i> )                          |      |
| California buckwheat ( <i>Eriogonum fasciculatum</i> )           | X    | California everlasting ( <i>Pseudognaphalium californicum</i> ) | X    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | California bush sunflower ( <i>Encelia californica</i> )        |      |
| scarlet pimpernel ( <i>Anagallis arvensis</i> )                  | X    | velvet/golden-club cactus ( <i>Bergerocactus emoryi</i> )       |      |
| shortpod mustard ( <i>Hirschfeldia incana</i> )                  | X    | shining peppergrass ( <i>Lepidium nitidum</i> )                 | X    |
| lemonadeberry ( <i>Rhus integrifolia</i> )                       | X    | California wood-sorrel ( <i>Oxalis californica</i> )            |      |
| wild cucumber ( <i>Marah macrocarpa</i> )                        |      | euphorbia ( <i>Euphorbia</i> sp.)                               |      |
| Otay manzanita ( <i>Arctostaphylos otayensis</i> )               |      | spiny redberry ( <i>Rhamnus crocea</i> )                        |      |

| Butterfly Species  | No. | Butterfly Species   | No.       |
|--|-----|---|-----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |           |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |           |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      | 1   | western tiger swallowtail ( <i>P. rutulus</i> )                 |           |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |           |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |           |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |           |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |           |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |           |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 5   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |           |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |           |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |           |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |           |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    | 1         |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |           |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |           |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |           |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              |     | unidentified lady ( <i>Vanessa</i> sp.)                         |           |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |           |
| common California ringlet ( <i>Coenonympha californica</i> ) | 7   | monarch ( <i>Danaus plexippus</i> )                             |           |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |           |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |           |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |           |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |           |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |           |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 7   | fiery skipper ( <i>Hylephila phyleus</i> )                      |           |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |           |
| <b>Sulphurs</b>  |     | <b>Other</b>  |           |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     |   |           |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |           |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |           |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>21</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants   | Obs. | Nectar/Flowering Plants | Obs. |
|---|------|-------------------------|------|
| blue dicks ( <i>Dichelostemma capitatum</i> )                         |      |                         |      |
| blue-eyed grass ( <i>Sisyrinchium bellum</i> )                        |      |                         |      |
| red monkey-flower ( <i>Mimulus aurantiacus</i> var. <i>puniceus</i> ) |      |                         |      |
| western bindweed ( <i>Calystegia macrostegia</i> )                    |      |                         |      |
| blue elderberry ( <i>Sambucus nigra</i> ssp. <i>cerulea</i> )         |      |                         |      |
| goldenstar ( <i>Bloomeria</i> sp.)                                    | X    |                         |      |
| deerweed ( <i>Acmispon glaber</i> )                                   | X    |                         |      |
| Mariposa lily ( <i>Calochortus</i> sp.)                               | X    |                         |      |
| prickly sow thistle ( <i>Sonchus asper</i> subsp. <i>asper</i> )      | X    |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |

Notes (habitat quality, condition of host plants, etc.):

- High number of butterflies but not much species diversity. A good amount of nectar sources available, although not much of the typical goldfields, ground pink, red maids, etc. Host plant is very dry and stunted.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: David K. Faulkner

Date: 22 April 2018

Site Name: Otay Mesa, Wood to Steel Project, SDG&E

Site Visit No: 5

Other Surveyors Present: Colin Durkin

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0845         | 71°              | 1-2              | 0%          |
| End              | 1400         | 82°              | 3-4              | 0%          |
| Start            |              |                  |                  |             |
| End              |              |                  |                  |             |

| Host Plants                                       | Obs.    | Host Plants                                    | Obs. |
|---|---------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x (dry) | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) | x       | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |         | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants    | Obs. |
|--|------|----------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           | x    | Sage                       | x    |
| goldfields ( <i>Lasthenia</i> spp.)                              | x    | Blue dicks                 | x    |
| goldenstar ( <i>Muilla</i> spp.)                                 | x    | Violets (yellow)           | x    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) | x    | <i>Rhamnus crocea</i>      | x    |
| onion ( <i>Allium</i> spp.)                                      | x    | California everlasting     | x    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x    | Blue eyed grass            | x    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | <i>Oxalis californicus</i> | x    |
|  |      | Composites                 | x    |
| <i>Erodium</i> sp.   | x    | <i>Rhus integrifolia</i>   | x    |
| <i>Brassica nigra</i>  | x    | <i>Phacelia</i>            | x    |
| <i>Dandelion</i> , common  | x    | Shooting star              | x    |
| <i>Acmispon glaber</i>   | x    |                            |      |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Myliatta crescent ( <i>Phyciodes myliatta</i> )              |     | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exile</i> )               | 20+ | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   | 1   | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              | 1   | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        | 1   | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 1   |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 20+ | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    | 1   |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | California ringlet ( <i>Coenonympha tullia californica</i> )    | 30+ |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     | Comstock's fritillary ( <i>Speyeria callippe comstocki</i> )    | 3   |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     | Bernardino blue ( <i>Euphilotes bernardino</i> )                | 1   |



# 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: MELANIE DICUS Date: 04-22-2018  
 Site Name: TL 649, WEST HALF (WEST OF THE 125) Site Visit No: WEEK 10  
 Other Surveyors Present: DAVID FALKNER (EAST/SOUTH HALF) QCB Observed? NO

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0815         | 64               | 0-1              | 5%          |
| Midday           | 1215         | 77               | 1-6              | 0           |
| End              | 1600         | 71               | 2-6              | 0           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants           | Obs. |
|--|------|-----------------------------------|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |      | <i>DICHELOSTEMMA CAPITATA</i>     | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              |      | <i>CALOCHORTUS SPLENDENS</i>      | X    |
| goldenstar ( <i>Mullea</i> spp.) <i>BLONDERA CROCEA</i>          | X    | <i>HEDYSAEDES CRETICA</i>         | X    |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |      | <i>PSEUDOGNAPHALIA BLOTTII</i>    | X    |
| onion ( <i>Allium</i> spp.)                                      |      | <i>CONVOLVULUS ARVENSIS</i>       | X    |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | X    | <i>CALYSTROGYNIA MACROSTACHYA</i> | X    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | <i>ISOMERIS ARGOREA</i>           | X    |
| <i>BRASSICA NIGRA</i>  | X    | <i>CYLINDROPUNTIA PROLIFERA</i>   | X    |
| <i>OLEBUNUS CORONARIA</i>  | X    | <i>AMMOPHILA GRABER</i>           | X    |
| <i>SAMBUNUS NIGRA</i> ssp. <i>CAERULEA</i>                       | X    | <i>EUPHRAZIA CONFERTIFLORA</i>    | X    |
| <i>SISYRINCHION BELLUM</i>                                       | X    | <i>ANAGALLIS ARVENSIS</i>         | X    |
| <i>SONCHUS OLERACEUS</i>   | X    | <i>ESCHOLIA CALIFORNICA</i>       | X    |

| Butterfly Species  | No. | Butterfly Species   | No.       |
|--|-----|---|-----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |           |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |           |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |           |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |           |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |           |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |           |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |           |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |           |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 1   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |           |
| western tailed blue ( <i>Everes amyntula</i> )               | 2   | <b>Ladies/Admirals</b>  |           |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |           |
| Edward's blue ( <i>Hemiarctus ceraunus gyas</i> )            |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |           |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |           |
| marine blue ( <i>Leptotes marina</i> )                       | 6   | red admiral ( <i>V. atalanta rubria</i> )                       |           |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |           |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |           |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              |     | unidentified lady ( <i>Vanessa</i> sp.)                         |           |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |           |
| common California ringlet ( <i>Coenonympha californica</i> ) | 53  | monarch ( <i>Danaus plexippus</i> )                             |           |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |           |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |           |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |           |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 2         |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |           |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          |     | fiery skipper ( <i>Hylephila phyleus</i> )                      |           |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |           |
| <b>Sulphurs</b>  |     | <b>Other</b>  |           |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | <i>COLIAS HARTWIGII</i>   | 1         |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     | <i>EUPHILOTES BARNIDES BERNARDINO</i>                           | 7         |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |           |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>72</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants            | Obs. | Nectar/Flowering Plants | Obs. |
|------------------------------------|------|-------------------------|------|
| <i>PRODRUM CUCUTARUM</i>           | x    |                         |      |
| <i>PSUDOGNAPHALUM CALIFORNICUM</i> | x    |                         |      |
| <i>SAHODPSIS LACINATA</i>          | x    |                         |      |
| <i>SALVIA APIANA</i>               | x    |                         |      |
| <i>MELOTUS INOICUS</i>             | x    |                         |      |
| <i>EUPHORBIA MUSELA</i>            | x    |                         |      |
| <i>MYOPORUM</i>                    | x    |                         |      |
| <i>BERBEROCACUS ENARYI</i>         | x    |                         |      |
| <i>ALACIA FARNESIANA</i>           | x    |                         |      |
| <i>VERBENA MENTRIFOLIA</i>         | x    |                         |      |
| <i>PEROCACUS VIRIDESCENS</i>       | x    |                         |      |
| <i>RICINUS COMMUNIS</i>            |      |                         |      |
| <i>HIASCHELDIA INCANI</i>          |      |                         |      |
| <i>MORWILLUM VULGARE</i>           |      |                         |      |
| <i>BAUMERUS SAUCIFOLIA</i>         |      |                         |      |

Notes (habitat quality, condition of host plants, etc.):

PLANTAGO IN WEST HALF OF SURVEY AREA HAS COMPLETELY  
SENESCED. POTENTIAL NECTAR SOURCES, ESPECIALLY GLEBONIS  
+ BRASSICA, ARE STILL PLentiful & WIDESPREAD



|                      |  |   |    |
|----------------------|--|---|----|
| unidentified sulphur |  | <b>Total of all Butterflies Observed:</b> | 79 |
|----------------------|--|---|----|

2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants       | Obs. | Nectar/Flowering Plants | Obs. |
|-------------------------------|------|-------------------------|------|
| <i>Peritoma arborea</i>       | x    |                         |      |
| <i>Lomatium</i>               |      |                         |      |
| <i>Mirabilis</i> sp.          | x    |                         |      |
| <i>Salvia apiana</i>          | x    |                         |      |
| <i>Salvia munzii</i>          | x    |                         |      |
| <i>Sidalcea sparsifolia</i>   | x    |                         |      |
| <i>Convolvulus arvensis</i>   | x    |                         |      |
| <i>Verbena lasiostachys</i>   | x    |                         |      |
| Coast cholla                  | x    |                         |      |
| <i>Ferocactus viridescens</i> | x    |                         |      |
| <i>Opuntia</i> sp.            | x    |                         |      |
|                               |      |                         |      |
|                               |      |                         |      |
|                               |      |                         |      |
|                               |      |                         |      |
|                               |      |                         |      |

Notes (habitat quality, condition of host plants, etc.): Most of the *Plantago* observed was dried out. There was a higher diversity of butterflies, but abundance was still very low except for ringlets and metalmarks. It has been my experience that when Bernardino blues and Comstock fritillaries start appearing it is the end of the quino season. If QCB are seen at this point in their flight season, they will be dispersing in search of nectar sources and larval host plants (that will probably not be readily available). No QCB adults encountered during this survey.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: David K. Faulkner

Date: 3 May 2018

Site Name: Otay Mesa, Wood to Steel Project, SDG&E

Site Visit No: 6

Other Surveyors Present: Justin Lepore

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0845         | 67°              | 2-3              | 0%          |
| End              | 1400         | 77°              | 6-7              | 0%          |
| Start            |              |                  |                  |             |
| End              |              |                  |                  |             |

| Host Plants                                       | Obs.    | Host Plants                                    | Obs. |
|---|---------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x (dry) | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |         | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |         | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs.    | Nectar/Flowering Plants    | Obs.    |
|--|---------|----------------------------|---------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |         | Sage                       | x       |
| goldfields ( <i>Lasthenia</i> spp.)                              | X (dry) | Blue dicks                 | x (dry) |
| goldenstar ( <i>Muilla</i> spp.)                                 | x       | Violets (yellow)           |         |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |         | <i>Rhamnus crocea</i>      |         |
| onion ( <i>Allium</i> spp.)                                      | x       | California everlasting     | x       |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x       | Blue eyed grass            | x       |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |         | <i>Oxalis californicus</i> |         |
|  |         | Composites                 | x       |
| <i>Erodium</i> sp.   | x       | <i>Rhus integrifolia</i>   | x       |
| <i>Brassica nigra</i>  | x       | <i>Phacelia</i>            |         |
| <i>Dandelion</i> , common  | x       | Shooting star              | x       |
| <i>Acmispon glaber</i>   | x       |                            |         |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Myliatta crescent ( <i>Phyciodes myliatta</i> )              |     | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exile</i> )               | 4   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              |     | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        | 1   | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 1   |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 12  | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | California ringlet ( <i>Coenonympha tullia californica</i> )    | 7   |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     | Comstock's fritillary ( <i>Speyeria callippe comstocki</i> )    | 11  |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     | Bernardino blue ( <i>Euphilotes bernardino</i> )                | 3   |



|                      |  |   |    |
|----------------------|--|---|----|
| unidentified sulphur |  | <b>Total of all Butterflies Observed:</b> | 39 |
|----------------------|--|---|----|

2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants       | Obs. | Nectar/Flowering Plants | Obs. |
|-------------------------------|------|-------------------------|------|
| <i>Peritoma arborea</i>       | x    |                         |      |
| <i>Lomatium</i>               |      |                         |      |
| <i>Mirabilis</i> sp.          | x    |                         |      |
| <i>Salvia apiana</i>          | x    |                         |      |
| <i>Euphorbia misera</i>       | x    |                         |      |
| <i>Sidalcea sparsifolia</i>   | x    |                         |      |
| <i>Convolvulus arvensis</i>   | x    |                         |      |
| <i>Verbena lasiostachys</i>   | x    |                         |      |
| Coast cholla                  | x    |                         |      |
| <i>Ferocactus viridescens</i> | x    |                         |      |
| <i>Opuntia</i> sp.            | x    |                         |      |
|                               |      |                         |      |
|                               |      |                         |      |
|                               |      |                         |      |
|                               |      |                         |      |
|                               |      |                         |      |

Notes (habitat quality, condition of host plants, etc.): Plantago observed was dry. There was a low diversity and abundance of butterflies. Bernardino blues and Comstock fritillaries were more common. No QCB were observed and only dispersing individuals would even be expected this late in the season.

I was unable to get my vehicle to reach the Mesa from either the north out of the Otay River Valley, or from the south. We finished the western section of the route and will complete the mesa section tomorrow.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: David K. Faulkner

Date: 4 May 2018

Site Name: Otay Mesa, Wood to Steel Project, SDG&E

Site Visit No: 7

Other Surveyors Present: Clark Austin

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0845         | 73°              | 1-2              | 0%          |
| End              | 1400         | 81° (85°@1130)   | 8-10 (on mesa)   | 0%          |
| Start            |              |                  |                  |             |
| End              |              |                  |                  |             |

| Host Plants                                       | Obs.    | Host Plants                                    | Obs. |
|---|---------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | x (dry) | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |         | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |         | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs.    | Nectar/Flowering Plants    | Obs.    |
|--|---------|----------------------------|---------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |         | Sage                       |         |
| goldfields ( <i>Lasthenia</i> spp.)                              | X (dry) | Blue dicks                 | x (dry) |
| goldenstar ( <i>Muilla</i> spp.)                                 | x       | Violets (yellow)           |         |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |         | <i>Rhamnus crocea</i>      |         |
| onion ( <i>Allium</i> spp.)                                      | x       | California everlasting     | x       |
| buckwheat ( <i>Eriogonum fasciculatum</i> )                      | x       | Blue eyed grass            |         |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |         | <i>Oxalis californicus</i> |         |
|  |         | Composites                 | x       |
| <i>Erodium</i> sp.   | x       | <i>Rhus integrifolia</i>   |         |
| <i>Brassica nigra</i>  | x       | <i>Phacelia</i>            |         |
| <i>Dandelion</i> , common  | x       | Shooting star              |         |
| <i>Acmispon glaber</i>   | x       |                            |         |

| Butterfly Species  | No. | Butterfly Species   | No. |
|--|-----|---|-----|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |     |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |     |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |     |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |     |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |     |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |     |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |     |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |     |
| western pygmy-blue ( <i>Brephidium exile</i> )               | 15+ | gray hairstreak ( <i>Strymon melinus pudica</i> )               |     |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |     |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |     |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |     |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   |     | west coast lady ( <i>Vanessa annabella</i> )                    |     |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |     |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |     |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |     |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              |     | unidentified lady ( <i>Vanessa</i> sp.)                         |     |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |     |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |     |
| cabbage white ( <i>Pieris rapae</i> )                        | 1   | common buckeye ( <i>Junonia coenia grisea</i> )                 |     |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |     |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |     |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |     |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |     |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 11  | fiery skipper ( <i>Hylephila phyleus</i> )                      |     |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |     |
| <b>Sulphurs</b>  |     | <b>Other</b>  |     |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | California ringlet ( <i>Coenonympha tullia californica</i> )    | 6   |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     | Comstock's fritillary ( <i>Speyeria callippe comstocki</i> )    | 17  |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     | Bernardino blue ( <i>Euphilotes bernardino</i> )                | 6   |



|                      |  |   |    |
|----------------------|--|---|----|
| unidentified sulphur |  | <b>Total of all Butterflies Observed:</b> | 56 |
|----------------------|--|---|----|

2018 Quino Checkerspot Butterfly Survey Form (continued)

| <b>Nectar/Flowering Plants</b> | <b>Obs.</b> | <b>Nectar/Flowering Plants</b> | <b>Obs.</b> |
|--------------------------------|-------------|--------------------------------|-------------|
| <i>Peritoma arborea</i>        | x           |                                |             |
| <i>Lomatium</i>                |             |                                |             |
| <i>Mirabilis</i> sp.           | x           |                                |             |
| <i>Salvia apiana</i>           | x           |                                |             |
| <i>Euphorbia misera</i>        |             |                                |             |
| <i>Sidalcea sparsifolia</i>    | x           |                                |             |
| <i>Convolvulus arvensis</i>    | x           |                                |             |
| <i>Verbena lasiostachys</i>    | x           |                                |             |
| Coast cholla                   |             |                                |             |
| <i>Ferocactus viridescens</i>  | x           |                                |             |
| Opuntia sp.                    | x           |                                |             |
| Gum plant                      | x           |                                |             |
| Golden yarrow                  | x           |                                |             |
| San Diego viguera (composite)  | x           |                                |             |
|                                |             |                                |             |
|                                |             |                                |             |

Notes (habitat quality, condition of host plants, etc.): Only dried Plantago observed. Today's route covered the section from Heritage Road to the 125 bridge followed by the mesa section. As before, low Lepidoptera abundance and diversity recorded. Clark Austin was able to identify a few additional flowering plants. No QCB butterflies were encountered.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: Laurie Gorman

Date: 05-07-18

Site Name: TL 649

Site Visit No: 16

Other Surveyors Present: None.

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 0800         | 62               | 0-2              | 5           |
| End              | 1245         | 72               | 1-4              | 0           |
| Start            | -            | -                | -                | -           |
| End              | -            | -                | -                | -           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants   | Obs. |
|--|------|---|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |      | San Diego County viguiera ( <i>Bahiopsis laciniata</i> )        | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              |      | coyote brush ( <i>Baccharis pilularis</i> )                     |      |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | tree tobacco ( <i>Nicotiana glauca</i> )                        |      |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |      | Erodium sp. ( <i>Erodium</i> sp.)                               | X    |
| onion ( <i>Allium</i> spp.)                                      |      | bladderpod ( <i>Peritoma arborea</i> )                          |      |
| California buckwheat ( <i>Eriogonum fasciculatum</i> )           | X    | California everlasting ( <i>Pseudognaphalium californicum</i> ) | X    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | California bush sunflower ( <i>Encelia californica</i> )        |      |
| scarlet pimpernel ( <i>Anagallis arvensis</i> )                  |      | velvet/golden-club cactus ( <i>Bergerocactus emoryi</i> )       |      |
| shortpod mustard ( <i>Hirschfeldia incana</i> )                  | X    | shining peppergrass ( <i>Lepidium nitidum</i> )                 |      |
| lemonadeberry ( <i>Rhus integrifolia</i> )                       |      | California wood-sorrel ( <i>Oxalis californica</i> )            |      |
| wild cucumber ( <i>Marah macrocarpa</i> )                        |      | euphorbia ( <i>Euphorbia</i> sp.)                               |      |
| Otay manzanita ( <i>Arctostaphylos otayensis</i> )               |      | spiny redberry ( <i>Rhamnus crocea</i> )                        |      |

| Butterfly Species  | No. | Butterfly Species   | No.       |
|--|-----|---|-----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |           |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |           |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      | 1   | western tiger swallowtail ( <i>P. rutulus</i> )                 |           |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |           |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |           |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |           |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |           |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |           |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 3   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |           |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |           |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |           |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |           |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   | 12  | west coast lady ( <i>Vanessa annabella</i> )                    |           |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |           |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |           |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |           |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              |     | unidentified lady ( <i>Vanessa</i> sp.)                         |           |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |           |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |           |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |           |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |           |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |           |
| unidentified white   |     | funereal duskywing ( <i>Erynnis funeralis</i> )                 |           |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |           |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 22  | fiery skipper ( <i>Hylephila phyleus</i> )                      |           |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |           |
| <b>Sulphurs</b>  |     | <b>Other</b>  |           |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | Comstock's fritillary ( <i>Speyeria callippe comstocki</i> )    | 12        |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     |   |           |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |           |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>50</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants   | Obs. | Nectar/Flowering Plants | Obs. |
|---|------|-------------------------|------|
| blue dicks ( <i>Dichelostemma capitatum</i> )                         |      |                         |      |
| blue-eyed grass ( <i>Sisyrinchium bellum</i> )                        |      |                         |      |
| red monkey-flower ( <i>Mimulus aurantiacus</i> var. <i>puniceus</i> ) | X    |                         |      |
| western bindweed ( <i>Calystegia macrostegia</i> )                    | X    |                         |      |
| blue elderberry ( <i>Sambucus nigra</i> ssp. <i>cerulea</i> )         |      |                         |      |
| goldenstar ( <i>Bloomeria</i> sp.)                                    |      |                         |      |
| deerweed ( <i>Acmispon glaber</i> )                                   |      |                         |      |
| Mariposa lily ( <i>Calochortus</i> sp.)                               |      |                         |      |
| prickly sow thistle ( <i>Sonchus asper</i> subsp. <i>asper</i> )      |      |                         |      |
| four spot ( <i>Clarkia purpurea</i> subsp. <i>quadrivulnera</i> )     | X    |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |

Notes (habitat quality, condition of host plants, etc.):

- Low species diversity. Still a decent amount of nectar sources, but not the typical goldfields, ground pink, red maids, etc. Host plant is very crispy.



## 2018 Quino Checkerspot Butterfly Survey Form

Surveyor: Laurie Gorman

Date: 05-09-18

Site Name: TL 649

Site Visit No: 16

Other Surveyors Present: None.

QCB Observed? No

| Field Conditions |              |                  |                  |             |
|------------------|--------------|------------------|------------------|-------------|
|                  | Time (24 hr) | Temperature (°F) | Wind Speed (mph) | Cloud Cover |
| Start            | 1000         | 69               | 1-4              | 5           |
| End              | 1530         | 75               | 2-7              | 8           |
| Start            | -            | -                | -                | -           |
| End              | -            | -                | -                | -           |

| Host Plants                                       | Obs. | Host Plants                                    | Obs. |
|---|------|--|------|
| dwarf plantain ( <i>Plantago erecta</i> )         | X    | birds-beak ( <i>Cordylanthus rigidus</i> )     |      |
| purple owl's clover ( <i>Castilleja exserta</i> ) |      | woolly plantain ( <i>Plantago patagonica</i> ) |      |
| snapdragon ( <i>Antirrhinum coulterianum</i> )    |      | Chinese houses ( <i>Collinsia</i> spp.)        |      |

| Nectar/Flowering Plants  | Obs. | Nectar/Flowering Plants   | Obs. |
|--|------|---|------|
| popcorn flower ( <i>Cryptantha/Plagiobothrys</i> spp.)           |      | San Diego County viguiera ( <i>Bahiopsis laciniata</i> )        | X    |
| goldfields ( <i>Lasthenia</i> spp.)                              |      | coyote brush ( <i>Baccharis pilularis</i> )                     |      |
| goldenstar ( <i>Muilla</i> spp.)                                 |      | tree tobacco ( <i>Nicotiana glauca</i> )                        |      |
| fiddleneck ( <i>Amsinckia menziesii</i> var. <i>intermedia</i> ) |      | Erodium sp. ( <i>Erodium</i> sp.)                               | X    |
| onion ( <i>Allium</i> spp.)                                      |      | bladderpod ( <i>Peritoma arborea</i> )                          |      |
| California buckwheat ( <i>Eriogonum fasciculatum</i> )           | X    | California everlasting ( <i>Pseudognaphalium californicum</i> ) | X    |
| ground pink ( <i>Linanthus dianthiflorus</i> )                   |      | California bush sunflower ( <i>Encelia californica</i> )        | X    |
| scarlet pimpernel ( <i>Anagallis arvensis</i> )                  |      | velvet/golden-club cactus ( <i>Bergerocactus emoryi</i> )       |      |
| shortpod mustard ( <i>Hirschfeldia incana</i> )                  | X    | shining peppergrass ( <i>Lepidium nitidum</i> )                 |      |
| lemonadeberry ( <i>Rhus integrifolia</i> )                       |      | California wood-sorrel ( <i>Oxalis californica</i> )            |      |
| wild cucumber ( <i>Marah macrocarpa</i> )                        |      | euphorbia ( <i>Euphorbia</i> sp.)                               |      |
| Otay manzanita ( <i>Arctostaphylos otayensis</i> )               |      | spiny redberry ( <i>Rhamnus crocea</i> )                        |      |

| Butterfly Species  | No. | Butterfly Species   | No.       |
|--|-----|---|-----------|
| <b>Checkerspots</b>  |     | <b>Swallowtails</b>   |           |
| California patch ( <i>Chlosyne californica</i> )             |     | pale swallowtail ( <i>Papilio eurymedon</i> )                   |           |
| Gabb's checkerspot ( <i>C. gabbii</i> )                      |     | western tiger swallowtail ( <i>P. rutulus</i> )                 |           |
| Quino checkerspot ( <i>Euphydryas editha quino</i> )         |     | anise swallowtail ( <i>P. zelicaon</i> )                        |           |
| chalcedon checkerspot ( <i>E. chalcedona chalcedona</i> )    |     | <b>Hairstreaks</b>  |           |
| Leanira checkerspot ( <i>Thessalia leanira wrighti</i> )     |     | great purple hairstreak ( <i>Atlides halesus corcorani</i> )    |           |
| Mylitta crescent ( <i>Phyciodes mylitta</i> )                |     | brown elfin ( <i>Callophrys augustinus</i> )                    |           |
| <b>Blues</b>   |     | bramble (perplexing) hairstreak ( <i>C. dumetorum affinis</i> ) |           |
| western pygmy-blue ( <i>Brephidium exila</i> )               | 3   | gray hairstreak ( <i>Strymon melinus pudica</i> )               |           |
| western tailed blue ( <i>Everes amyntula</i> )               |     | <b>Ladies/Admirals</b>  |           |
| southern blue ( <i>Glaucopsyche lygdamus australis</i> )     |     | California sister ( <i>Adelpha bredowii californica</i> )       |           |
| Edward's blue ( <i>Hemiargus ceraunus gyas</i> )             |     | Lorquin's admiral ( <i>Limenitis lorquini</i> )                 |           |
| Acmon blue ( <i>Icaricia acmon acmon</i> )                   | 12  | west coast lady ( <i>Vanessa annabella</i> )                    |           |
| marine blue ( <i>Leptotes marina</i> )                       |     | red admiral ( <i>V. atalanta rubria</i> )                       |           |
| unidentified blue  |     | painted lady ( <i>V. cardui</i> )                               |           |
| <b>Whites</b>  |     | American (Virginia) lady ( <i>V. virginensis</i> )              |           |
| Sara orangetip ( <i>Anthocharis sara sara</i> )              |     | unidentified lady ( <i>Vanessa</i> sp.)                         |           |
| desert (Felder's) orangetip ( <i>A. cethura</i> )            |     | <b>Miscellaneous</b>  |           |
| common California ringlet ( <i>Coenonympha californica</i> ) |     | monarch ( <i>Danaus plexippus</i> )                             |           |
| cabbage white ( <i>Pieris rapae</i> )                        |     | common buckeye ( <i>Junonia coenia grisea</i> )                 |           |
| checkered (common) white ( <i>Pontia protodice</i> )         |     | mourning cloak ( <i>Nymphalis antiopa</i> )                     |           |
| spring white ( <i>P. sisymbrii</i> )                         |     | <b>Skippers</b>   |           |
| unidentified white   | 2   | funereal duskywing ( <i>Erynnis funeralis</i> )                 | 1         |
| <b>Metalmarks</b>  |     | mournful duskywing ( <i>Erynnis tristis</i> )                   |           |
| Behr's metalmark ( <i>Apodemia mormo virgulti</i> )          | 17  | fiery skipper ( <i>Hylephila phyleus</i> )                      |           |
| Wright's metalmark ( <i>Calephelis wrighti</i> )             |     | white (common) checkered-skipper ( <i>Pyrgus albescens</i> )    |           |
| <b>Sulphurs</b>  |     | <b>Other</b>  |           |
| orange sulphur ( <i>Colias eurytheme</i> )                   |     | Comstock's fritillary ( <i>Speyeria callippe comstocki</i> )    | 11        |
| sleepy orange ( <i>Eurema nicippe</i> )                      |     | skipper sp.   | 1         |
| cloudless sulfur ( <i>Phoebus sennae marcellina</i> )        |     |   |           |
| unidentified sulphur   |     | <b>Total of all Butterflies Observed:</b>                       | <b>47</b> |



## 2018 Quino Checkerspot Butterfly Survey Form (continued)

| Nectar/Flowering Plants   | Obs. | Nectar/Flowering Plants | Obs. |
|---|------|-------------------------|------|
| blue dicks ( <i>Dichelostemma capitatum</i> )                         |      |                         |      |
| blue-eyed grass ( <i>Sisyrinchium bellum</i> )                        |      |                         |      |
| red monkey-flower ( <i>Mimulus aurantiacus</i> var. <i>puniceus</i> ) |      |                         |      |
| western bindweed ( <i>Calystegia macrostegia</i> )                    | X    |                         |      |
| blue elderberry ( <i>Sambucus nigra</i> ssp. <i>cerulea</i> )         |      |                         |      |
| goldenstar ( <i>Bloomeria</i> sp.)                                    |      |                         |      |
| deerweed ( <i>Acmispon glaber</i> )                                   |      |                         |      |
| Mariposa lily ( <i>Calochortus</i> sp.)                               |      |                         |      |
| prickly sow thistle ( <i>Sonchus asper</i> subsp. <i>asper</i> )      |      |                         |      |
| California matchweed ( <i>Gutierrezia californica</i> )               | X    |                         |      |
| garland daisy ( <i>Glebionis coronaria</i> )                          | X    |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |
|   |      |                         |      |

Notes (habitat quality, condition of host plants, etc.):

- Low species diversity. Still a decent amount of nectar sources, but not the typical goldfields, ground pink, red maids, etc. Host plant is very crispy.