INDIAN WELLS VALLEY WATER DISTRICT
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INDIAN WELLS VALLEY WATER DISTRICT
INITIAL STUDY AND
DRAFT MITIGATED NEGATIVE DECLARATION
FOR THE
SOLAR PROJECT

MARCH 2016

Prepared by

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SIGNATURE _____

DATE 3/8/16

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178-143
(REPORTS/CEQA/178-143-IS)
VEM/DFS/blt

TABLE OF CONTENTS

TABLE OF CONTENTS

PAGE

PART 1
PROJECT INFORMATION

PART 1 - PROJECT INFORMATION

A. INDIAN WELLS VALLEY WATER DISTRICT

Indian Wells Valley Water District (IWVWD or the District) is the primary supplier of water service for domestic consumption, landscape irrigation, and fire protection for the City of Ridgecrest and surrounding areas in Kern County and San Bernardino County, California. IWVWD was formed in 1953 for the purpose of providing public potable water service to the residents of its service area.

IWVWD's service area comprises approximately 38 square miles, with a population of approximately 31,000 people, served through approximately 12,500 service connections. The sole source of supply for IWVWD is groundwater pumped from the Indian Wells Valley Groundwater Basin. This is also the case for all other water users in the Indian Wells Valley, including agricultural users, industry, and the federal government.

B. PROJECT DESCRIPTION

1. Proposed Project

The Indian Wells Valley Water District Solar Project (the Project) consists of construction and operation of fixed-tilt solar panel arrays at the sites of six existing District facilities, as follows:

- Wells 9A/10 and Arsenic Treatment Plant No. 2 Site
- Well 30 Site
- Well 31 Site
- Well 33/18 Site
- Well 34 Site
- District Office Site

Each site will include construction and operation of a fixed-tilt photovoltaic solar panel array and alternating current (AC) wire and conduit that will serve to provide solar-generated electrical power to the facilities thereon. Project locations and proposed facilities are depicted on **Figures 1 through 8** herein. A diagram of a typical solar panel unit is shown on **Figure 9** herein.

2. Project Construction

Construction of the Project consists of the following:

Wells 9A/10 and Arsenic Treatment Plant No. 2 Site (Refer to **Figure 3** herein)

- Grading an area of approximately 350 feet by 200 feet;
- Installation of a fixed-tilt solar panel array consisting of approximately 1,100 photovoltaic (PV) panels (modules) within the graded area;
- Installation of a fence, approximately six feet in height, around the perimeter of the graded area; and
- Trenching, installation of approximately 350 linear feet of conduit and AC wire between the solar panel array and the existing main electrical switchgear on the site, and backfilling the trenched areas.

Well 30 Site (Refer to **Figure 4** herein)

- Grading an area of approximately 350 feet by 425 feet;
- Installation of a fixed-tilt solar panel array consisting of approximately 2,900 PV modules within the graded area;
- Installation of a fence, approximately six feet in height, around the perimeter of the graded area;
- Upgrading the existing transformer to a pad-mounted transformer, and upgrading the existing switchgear to accommodate the ampacity of the system; and
- Trenching, installation of approximately 100 linear feet of conduit and AC wire between the solar panel array and the existing main electrical switchgear on the site, and backfilling the trenched areas.

Well 31 Site (Refer to **Figure 5** herein)

- Grading an area of approximately 350 feet by 150 feet;
- Installation of a fixed-tilt solar panel array consisting of approximately 900 PV modules within the graded area;
- Installation of a fence, approximately six feet in height, around the perimeter of the graded area; and

- Trenching, installation of approximately 150 linear feet of conduit and AC wire between the solar panel array and the existing main electrical switchgear on the site, and backfilling the trenched areas.

Well 33 Site (Refer to **Figure 6** herein)

- Grading an area of approximately 350 feet by 200 feet;
- Installation of a fixed-tilt solar panel array consisting of approximately 1,100 PV modules within the graded area;
- Installation of a fence, approximately six feet in height, around the perimeter of the graded area; and
- Trenching, installation of approximately 200 linear feet of conduit and AC wire between the solar panel array and the existing main electrical switchgear on the site, and backfilling the trenched areas.

Well 34 Site (Refer to **Figure 7** herein)

- Grading an area of approximately 325 feet by 125 feet;
- Installation of a fixed-tilt solar panel array consisting of approximately 500 PV modules within the graded area;
- Installation of a fence, approximately six feet in height, around the perimeter of the graded area; and
- Trenching, installation of approximately 225 linear feet of conduit and AC wire between the solar panel array and the existing main electrical switchgear on the site, and backfilling the trenched areas.

IWVWD Office Site (Refer to **Figure 8** herein)

- Preparing an existing asphalt-paved area of approximately 75 feet by 50 feet;
- Construction of a parking shade structure within the prepared area;
- Installation of a fixed-tilt solar panel array consisting of approximately 150 PV modules atop the parking shade structure, just north of the District's main office building;
- Painting the parking shade structure with one coat of rust-inhibitive primer and one coat of either alkyd enamel or water-based topcoat; and
- Trenching, installation of approximately 175 linear feet of conduit and AC wire between the solar panel array and the existing main electrical switchgear on the

site, and returning the trenched areas to preconstruction conditions by backfilling and repaving as necessary.

During Project construction, the construction contractor will set up a staging area, including a trailer, at the Wells 9A/10 and Arsenic Treatment Plant No. 2 site. The trailer will be placed on land that has been previously disturbed and will connect to existing onsite electrical power. The staging area is temporary and will be vacated upon completion of construction.

3. Project Operation

Operation of the Project consists of operating the solar panel arrays and AC wires to generate electrical power and provide power to the District facilities at each site. Maintenance activities consist of washing the photovoltaic (PV) modules as needed in order to maintain optimal power production at the facility and annual inspection and testing of the PV modules, combiner boxes, inverters, transformers, and support structures.

Anticipated power generation at each site is set forth in **Table 1** below:

Table 1
IWVWD Solar Project
Anticipated Power Generation
(In Kilowatts, kW)

Site	Number of PV Modules	Power (kW)
Wells 9A/10 and Arsenic Treatment Plant No. 2	1,100	343
Well 30	2,900	915
Well 31	900	286
Well 33	1,100	343
Well 34	500	150
IWVWD Office	150	43

Note: Based on information provided by OpTerra Energy Services

Solar facilities proposed at the Well 30 site are intended to provide power to Well 30, and will be on a Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program rate schedule. With this rate schedule, any power generated at this solar facility in excess of power needed to serve Well 30 will be transferred to Southern California Edison (SCE), and the District will receive a credit transfer for said excess power generated. The credit transfer may be used toward

the District's costs associated with providing power to Wells 11, 13, and 17; Arsenic Treatment Plant No. 1; and the Gateway, Salisbury, C-Zone, and RCH Boosters.

The solar facilities proposed at the Well 33 site are intended to provide power to Well 33 and Well 18 and will be on a Net Energy Metering (NEM) rate schedule. With a NEM rate schedule, power generated by the solar facilities at the Well 33 site is dedicated to operation of District facilities at Wells 33 and 18, and no credit transfer is available. Solar facilities proposed at the Wells 9A/10 and Arsenic Treatment Plant No. 2 site, the Well 31 site, the Well 34 site, and the IWVWD Office site will also be on the NEM rate schedule, meaning that they will provide power only to the facilities on the site on which they are located, and no credit transfer is available.

4. Project Purpose

The Project is intended to generate electrical energy from a renewable source (solar) to partially or completely offset power purchases needed to operate existing District facilities at the Project sites. Solar power produces less air pollution than that produced by traditionally-generated electricity and costs less overall than purchasing electricity from traditional sources.

C. ENVIRONMENTAL SETTING

1. Location

Project facilities would be located at the sites of the following existing District facilities:

- Wells 9A/10 and Arsenic Treatment Plant No. 2
- Well 30
- Well 31
- Well 33
- Well 34
- IWVWD Office

Locations of the Project sites are described below and are depicted on **Figures 1 through 8** herein. Project facilities would be located within the existing boundaries of the District-owned sites listed above and described below.

The Wells 9A/10 and Arsenic Treatment Plant No. 2 site is located at 2051 Ward Avenue, Ridgecrest CA 93555, on a parcel designated by Assessor's Parcel Number (APN) 454-090-20, located northeasterly of the intersection of North Primavera Street and Sydnor Avenue and southerly of West Ward Avenue in Section 30, Township 26 South, Range 40 East, Mount Diablo Meridian (MDM), in Kern County, California.

The Well 30 site is located at 204 Plant F3, Ridgecrest CA 93555, on a parcel designated by APN 352-095-35, located southeasterly of the intersection of West Inyokern Road and North Victor Street and north of Graaf Avenue in Section 27, Township 26 South, Range 39 East, MDM, in Kern County, California.

The Well 31 site is located at 205 Plant F5 W31, Ridgecrest CA 93555, on a parcel designated by APN 352-201-35, located northwesterly of the intersection of Drummond Avenue and North Victor Street, in Section 28, Township 26 South, Range 39 East, MDM, in Kern County, California.

The Well 33 site is located at 6201 W. Dolphin Avenue, Ridgecrest CA 93555, on a parcel designated by APN 341-082-18, located southwesterly of the intersection of View Avenue and Oriole Street and approximately 1,900 feet westerly of Brown Road, in Section 8, Township 27 South, Range 39 East, MDM, in Kern County, California.

The Well 34 site is located at 5805 Bowman Road, Inyokern CA 93527, on a parcel designated by 341-251-02, located east of Brown Road, south of Bowman Road, west of Sun Place, and north of Calsilco Avenue, in Section 8, Township 27 South, Range 39 East, MDM, in Kern County, California. Solar panels proposed at the Well 34 site would be located on the parcel designated by APN 341-251-04, while the proposed AC wire and conduit will extend within the parcels designated by APNs 341-251-02, 341-251-04, and 341-251-05.

The District Office site is located at 500 West Ridgecrest Boulevard, Ridgecrest CA 93555, on a parcel designated by APN 067-050-17, located northwesterly of the intersection of Ridgecrest Boulevard and Norma Street, in Section 33, Township 26 South, Range 40 East, MDM, in Kern County, California.

2. Land Use

The Wells 9A/10 and Arsenic Treatment Plant No. 2 site is a fenced, District-owned site surrounded by open space to the west and by open space and single-family residences to the north, east, and south. Project facilities at this site will be located entirely within the disturbed, fenced area of the site.

The Well 30 site is a fenced, District-owned site surrounded by open space on all sides and residential development beyond the open space.

The Well 31 site is a fenced, District-owned site surrounded by open space and existing roads, with some single-family residences located a short distance beyond the open space to the southeast. The site is bordered by North Victor Street to the east and by Drummond Avenue to the south.

The Well 33 site is a fenced, District-owned site surrounded by open space and existing roads. Parcels surrounding the Well 33 site on all sides are vacant land.

The Well 34 site is a fenced, District-owned site surrounded by open space and existing roads. Parcels surrounding the Well 34 site on all sides are vacant land.

The District Office site is located at 500 West Ridgecrest Boulevard in Ridgecrest, California. The site is located within a developed area and is surrounded by single-family residences to the north and single-family residences and commercial development to the east, west, and south. Project facilities at this site will be located entirely within disturbed, paved areas of the site.

3. Climate

Climate in IWVWD's service area and the surrounding Indian Wells Valley is typical of the high desert of Southern California. The area is characterized by periodic high winds, high temperatures often exceeding 100 degrees Fahrenheit (°F) during summer months, and winter lows around 30°F. Rainfall is infrequent, averaging about 4 inches per year. Most rainfall in the area occurs between November and March, although there are occasional thunder showers during the summer months.

D. COMPLIANCE WITH CEQA

This document has been prepared in compliance with the provisions of the California Environmental Quality Act, codified in California Public Resources Code, Division 13, Section 21000 *et seq* (CEQA) and the State CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 *et seq*). Pursuant to CEQA and the State CEQA Guidelines, this Initial Study has been prepared to determine whether the Indian Wells Valley Water District's Solar Project may have a significant effect on the environment.

This Initial Study for the Indian Wells Valley Water District's Solar Project has been prepared by Krieger & Stewart, Incorporated under contract with the District to comply with the provisions of CEQA.

E. LEAD AGENCY

IWVWD is lead agency for the Solar Project, as it is the public agency with the primary responsibility for preparing environmental documents and for approving, constructing, and operating the project.

IWVWD is organized in accordance with the provisions of the County Water District Law (California Water Code Section 30000 *et seq*) for the purpose of providing domestic water supplies. IWVWD is empowered to plan, construct, operate, maintain, repair, and replace water system facilities as needed to provide water service in compliance with applicable standards and regulations. Additionally, pursuant to California Water Code Section 31149.7, IWVWD is empowered to "provide, generate, and deliver electric power and may construct, operate, and maintain any and all works, facilities, improvements, and property, or portions thereof necessary or convenient for that generation and delivery." IWVWD routinely plans and constructs new facilities, maintains them, and replaces them as necessary to maintain adequate, reliable, and safe water service for its customers. The Project is a continuation of the authority that IWVWD has exercised in the past.

F. PUBLIC INFORMATION DOCUMENT

This is a public information document prepared in accordance with CEQA and the State CEQA Guidelines. The purposes of this Initial Study are to provide IWVWD with information to use as a basis for identifying the potential environmental impacts of the Project, for determining the appropriate CEQA document to prepare for the Project, to facilitate environmental assessment of the Project, and to provide documentation of the factual basis for the finding in the Project's Mitigated Negative Declaration. Additionally, this document identifies mitigation measures intended to avoid, or reduce to levels less than significant, any adverse environmental impacts of the Project.

PART 2
ENVIRONMENTAL EFFECTS AND CHECKLIST

PART 2 - ENVIRONMENTAL EFFECTS AND CHECKLIST

A. PROJECT INFORMATION

1. Project Title

Solar Project

2. Lead Agency Name and Address

Indian Wells Valley Water District
500 West Ridgecrest Boulevard
Ridgecrest, CA 93555

3. Contact Person and Phone Number

Renée Morquecho, Chief Engineer
(760) 375-5086
reneem@iwvwd.com

4. Project Location

Project facilities would be located at the sites of the following existing District facilities:

- Wells 9A/10 and Arsenic Treatment Plant No. 2
  2051 Ward Avenue, Ridgecrest CA 93555
- Well 30
  204 Plant F3, Ridgecrest CA 93555
- Well 31
  205 Plant F5 W31, Ridgecrest CA 93555
- Well 33
  6201 W. Dolphin Avenue, Ridgecrest CA 93555
- Well 34
  5805 Bowman Road, Inyokern CA 93527
- IWVWD Office
  500 W. Ridgecrest Boulevard, Ridgecrest CA 93555

Locations of the Project sites are described in **Part 1.C(1)** herein and are depicted on **Figures 1 through 8** herein.

5. Project Sponsor's Name and Address

Indian Wells Valley Water District
500 West Ridgecrest Boulevard
Ridgecrest, CA 93555

6. General Plan Land Use Designation

Wells 9A/10 and Arsenic Treatment Plant No. 2: 5.6 Residential (minimum 2.5 acres per gross unit)

Well 30: 5.5 Residential (maximum 1 unit per net acre)

Well 31: 5.7 Residential (minimum 5 gross acres per unit)

Well 33: 4.1 Accepted County Plan Areas (located within the Specific Plan for South Inyokern, 1973)

Well 34: 4.1 Accepted County Plan Areas (located within the Specific Plan for South Inyokern, 1973)

IWVWD Office: Commercial (C)

Pursuant to Government Code Section 53091(d), the Project is not subject to County or City building ordinances.

7. Zoning

Wells 9A/10 and Arsenic Treatment Plant No. 2: E(2½) MH

Well 30: E(1) RS MH

Well 31: E(10) RS

Well 33: E(20) RS

Well 34: E(2½) RS MH

IWVWD Office: Service Commercial (CS)

E = Estate (#) = Minimum number of acres per parcel MH = Mobilehome Combining RS = Residential Suburban Combining

Pursuant to California Government Code Section 53091(e), the Project is not subject to County or City zoning ordinances.

8. Description of Project

See **Pages 1 through 5** herein.

9. Surrounding Land Uses and Setting

See **Pages 5 through 7** herein.

10. Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement)

- California Department of Fish and Wildlife (Section 2081 Incidental Take Permit)
- United States Fish and Wildlife Service (Technical Assistance and possible Section 10 Incidental Take Permit)
- State Water Resources Control Board (Waste Discharge Identification Number)

B. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- ❑ Aesthetics
- ❑ Agriculture Resources
- ❑ Air Quality
- ❑ Biological Resources
- ❑ Cultural Resources
- ❑ Geology/Soils
- ❑ Hazards & Hazardous Materials
- ❑ Greenhouse Gas Emissions
- ❑ Land Use/Planning
- ❑ Hydrology/Water Quality
- ❑ Noise
- ❑ Mineral Resources
- ❑ Public Services
- ❑ Population/Housing
- ❑ Recreation
- ❑ Transportation/Traffic
- ❑ Mandatory Findings of Significance
- ❑ Utilities/Service Systems
- ☒ None Anticipated

C. DETERMINATION (To be completed by the Lead Agency):

On the basis of this initial evaluation:

❑ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

❑ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

❑ I find that the proposed project MAY have a "potentially significant" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

❑ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

3/8/16

David F. Scriven
KRIEGER & STEWART, INCORPORATED
District Consulting Engineer
INDIAN WELLS VALLEY WATER DISTRICT

Date

D. EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses", as described in paragraph 5 below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a. Earlier Analyses Used. Identify and state where they are available for review.

   b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document

pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated", describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources. A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

a. The significance criteria or threshold, if any, used to evaluate each question; and

b. The mitigation measure identified, if any, to reduce the impact to less than significant.

E. ENVIRONMENTAL CHECKLIST

Issue I. Aesthetics

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project have a substantial adverse effect on a scenic vista?	❑	❑	☒	❑

Project facilities would be located within existing District-owned properties on which existing District facilities are located. The solar panels at the IWVWD Office site would be mounted atop a parking shade structure that will extend approximately ten to twelve feet above the ground surface, and the solar panels at each of the other Project sites would not exceed a height of eight feet above the ground surface. Therefore, the Project would not have a substantial adverse effect on a scenic vista.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	❑	❑	❑	☒

Although there are Eligible State Scenic Highways in Kern County, there are no Officially Designated State Scenic Highways in Kern County at this time. The Eligible State Scenic Highways nearest the Project sites are U.S. Highway 395 and State Highway 14, which extend from the Kern County boundary with Inyo County on the north, southerly to State Highway 58 on the south. Project facilities are all located within existing sites containing existing District facilities. The Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?	❑	❑	☒	❑

*The Project sites consist of existing District sites with District facilities that are currently operating. For the reasons described in **Issues I.a and I.b** herein, the Project would not substantially degrade the existing visual character or quality of the site and its surroundings.*

Issue I. Aesthetics (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	❑	❑	☒	❑

The fixed-tilt solar panels included in the Project are photovoltaic (PV) and are not mirrors. As such, the PV panels are designed to absorb light and not reflect it. Additionally, the surface of the panels is covered with an anti-reflective coating. Therefore, no significant glare visible to humans on the ground or in aircraft is anticipated.

The Project may include new sources of light for the purposes of security and safety at the Project sites; however, said sources of light would be minimal and directed downward and would not adversely affect daytime or nighttime views in the area. Impacts would be less than significant.

Issue II. Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in forest protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	❑	❑	❑	☒

Based on the map entitled Kern County Important Farmland 2012, Sheet 3 of 3, (published August 2014 by the State of California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program [FMMP]), the Project sites are within land defined as "Nonagricultural and Natural Vegetation" and "Urban and Built-Up Land" .

These categories are defined as follows:

Nonagricultural and Natural Vegetation: "Nonagricultural and Natural Vegetation includes heavily wooded, rocky or barren areas, riparian and wetland areas, grassland areas which do not qualify for grazing land due to their size or land management restrictions, small water bodies and regulation and recreational water ski lakes. Constructed wetlands are also included in this category."

Urban and Built-Up Land: "Urban and Built-Up Land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures."

Additionally, none of the land on which the Project sites are located is currently being used for agricultural purposes. The Project would not convert any Farmland to non-agricultural use.

Issue II. Agriculture and Forest Resources (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	❑	❑	❑	☒

Based on the map, Kern County Williamson Act FY 2013/2014, Sheet 3 of 3, published in 2013 by the California Department of Conservation, Division of Land Resource Protection, the Project sites are within land defined as "Non-Williamson Act Land", which comprises three categories: Non-Enrolled Land, Urban and Built-Up Land, and Water. The IWVWD Office site is located within land designated as Urban and Built-Up Land, while all of the other Project sites are located within land designated as Non-Enrolled Land. These categories are defined as follows:

Non-Enrolled Land: "Land not enrolled in a Williamson Act contract and not mapped by Farmland Mapping & Monitoring Program (FMMP) as Urban and Built-Up Land or Water."

Urban and Built-Up Land: "Urban and Built-Up Land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures. This definition

and extent of mapping is derived from the latest Farmland Mapping and Monitoring Program Important Farmland Maps."

Further, none of the Project sites are zoned for agricultural use. Therefore, the Project would not conflict with existing zoning for agricultural use or with a Williamson Act contract.

Issue II. Agriculture and Forest Resources (continued)

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project sites are located in an area that is primarily desert and does not contain any areas zoned for forest land or timberland. Further, there are no areas of forest land or timberland located in the surrounding vicinity. For these reasons, the Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned as Timberland Production.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project would not result in the loss of forest land or the conversion of forest land to non-forest use. Refer also to ***Issue II.c*** *herein.*

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project does not involve changes in the environment that would result in the conversion of Farmland to non-agricultural use or the conversion of forest land to non-forest use. Refer also to ***Issues II.a through II.d*** *herein.*

Issue III. Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with or obstruct implementation of the applicable air quality plan?	❑	❑	❑	☒

The Project is located within the Mojave Desert Air Basin (MDAB), which extends within portions of Kern, San Bernardino, Riverside, and Los Angeles Counties. The Project is located within the portion of the MDAB that is within Kern County, which is under the jurisdiction of the Eastern Kern Air Pollution Control District (EKAPCD).

A project is considered to conflict with or obstruct implementation of the applicable air quality plan if it would result in population or employment growth that would exceed the estimates for such growth that are set forth in the applicable air quality plan.

Project facilities are proposed in order to provide an alternative source of power for existing District facilities, and the Project would not result in population or employment growth in the area. For these reasons, the Project would not conflict with or obstruct any applicable air quality plan.

Potential impacts related to greenhouse gases are described in ***Issue VII*** *herein.*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?	❑	❑	☒	❑

State and federal designations based on the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS) for MDAB are listed below. An Attainment area is defined as a geographic area which is in compliance with the CAAQS, NAAQS, or both. A Non-Attainment area is an area which does not meet said standards.

Under the CAAQS, the Project area is classified as Non-Attainment for ozone (O_3) and for particulate matter measuring 10 microns or less in diameter (PM_{10}). The area is classified as Attainment for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead, and sulfates (SO_4). The area is

Unclassified for particulate matter measuring 2.5 microns or less in diameter ($PM_{2.5}$) and carbon monoxide (CO). Additional information about each of these pollutants and the CAAQS is available at the California Air Resources Board website at www.arb.ca.gov.

Under the NAAQS, the Project area is not classified as Non-Attainment for any of the pollutants. The area is classified as Attainment for PM_{10} and is classified as Unclassified/Attainment for O_3, $PM_{2.5}$, CO, lead, and NO_2. Additional information about these pollutants and the NAAQS is available on the United States Environmental Protection Agency's (USEPA's) website at www.epa.gov/air/criteria.html.

The Project will generate air pollutant emissions during construction and operation of Project facilities. Air pollutant emissions generated during Project construction are anticipated to result from operation of construction vehicles and equipment and from vehicles commuting to and from the Project sites. Air pollutant emissions generated during Project operation are anticipated to result from vehicle trips to the Project sites for annual inspection and testing of the PV modules and appurtenances. Vehicle trips will also be made to the sites for washing the PV modules as needed in order to maintain optimal energy production. For this analysis, it has been assumed that vehicle trips for washing the PV modules will be made on a quarterly basis, which, combined with the vehicle trip for annual inspection and maintenance, results in a total of five annual vehicle trips to each Project site.

*Quantities of air pollutant emissions estimated to be generated during Project construction are set forth in **Table 2** below, and estimated quantities of air pollutant emissions anticipated to be generated during Project operation are set forth in **Table 3** below. Significance thresholds established by EKAPCD are reflected in **Tables 2 and 3**.*

Table 2 Quantities of Air Pollutant Emissions Estimated to be Generated by Solar Project Construction[1]						
	Pollutant (tons/year)					
Project Site	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Wells 9A/10 + Arsenic Treatment Plant No. 2	0.0441	0.4848	0.2709	0.0006	0.0247	0.0198
Well 30	0.0557	0.6126	0.3395	0.0008	0.0311	0.0248
Well 31	0.0362	0.4090	0.2068	0.0005	0.4960	0.0636
Well 33	0.0433	0.4844	0.2506	0.0006	0.9995	0.0185
Well 34	0.0284	0.3149	0.1677	0.0004	0.0138	0.0123
IWVWD Office	0.0129	0.1185	0.1083	0.0002	0.4276	0.0498
Total Construction Emissions	**0.2206**	**2.4242**	**1.3438**	**0.0031**	**1.9927**	**0.1888**
EKAPCD Annual Significance Threshold	25	25	N/A[2]	27	15	N/A[2]
Does Total Exceed Threshold?	NO	NO	N/A	NO	NO	N/A

[1] Based on reports generated by CalEEMod, Version 2013.2.2, copies of which are included in **Appendix D** herein.
[2] No significance threshold has been established by EKAPCD for CO or $PM_{2.5}$.

Table 3 Quantities of Air Pollutant Emissions Estimated to be Generated by Solar Project Operation[1]						
	Pollutant (tons/year)					
Project Site	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Wells 9A/10 + Arsenic Treatment Plant No. 2	0.0009	0.0106	0.0077	0.0001 [3]	0.0005	0.0005
Well 30	0.0022	0.0247	0.0118	0.0001 [4]	0.0009	0.0008
Well 31	0.0027	0.0316	0.0140	0.0001 [4]	0.0012	0.0011
Well 33	0.0009	0.0106	0.0077	0.0001 [4]	0.0005	0.0005
Well 34	0.0022	0.0247	0.0118	0.0001 [4]	0.0009	0.0008
IWVWD Office	0.0024	0.0271	0.0126	0.0001 [4]	0.0010	0.0009
Total Operation Emissions	**0.0113**	**0.1293**	**0.0656**	**0.0006**	**0.0050**	**0.0046**
EKAPCD Annual Significance Threshold	25	25	N/A[2]	27	15	N/A[2]
Does Total Exceed Threshold?	NO	NO	N/A	NO	NO	N/A

[1] Based on reports generated by CalEEMod, Version 2013.2.2, copies of which are included in **Appendix D** herein.
[2] No significance threshold has been established by EKAPCD for CO or $PM_{2.5}$.
[3] Rounded up from 0.00001.
[4] Rounded up from 0.00003.

*As set forth in **Table 2**, emissions estimated to be generated by Project construction would not exceed the annual thresholds established by EKAPCD, even if Project facilities at all Project sites were constructed simultaneously during a single calendar year; although it is unlikely that said facilities will be constructed simultaneously. Similarly, the Project's operation emissions, would remain far below the annual significance thresholds established by EKAPCD, as set forth in **Table 3**.*

For the reasons described above, the Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Issue III. Air Quality (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	❑	❑	☒	❑

*The Project would not result in a cumulatively considerable net increase in O_3, or PM_{10}, for which the region is designated non-attainment under the CAAQS. Refer also to **Issue III.b** herein.*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project expose sensitive receptors to substantial pollutant concentrations?	❑	❑	☒	❑

*As described in **Issues III.a and III.b** herein, the Project would not result in substantial air pollutant concentrations during construction or operation. Quantities of estimated air pollutant emissions are expected to increase during Project construction and to a lesser extent during Project operation; however, said increase would not exceed the annual emissions thresholds established by the EKAPCD and are considered less than significant.*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project create objectionable odors affecting a substantial number of people?	❑	❑	☒	❑

The Project may create objectionable odors during placement of pavement at the IWVWD Office site during construction to return the ground surface at the site to pre-construction conditions. This placement of asphalt pavement would be short-term, and any odors created would not affect a substantial number of people. The Project would not create objectionable odors during operation. For these reasons, the Project would not create objectionable odors affecting a substantial number of people.

Issue IV. Biological Resources

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ☒	Less Than Significant Impact ❑	No Impact ❑

Certain species of plants and animals have low populations, limited distributions, or both. Such species are vulnerable to further declines in population and distribution and may be subject to extirpation as the human population grows and the habitats these species occupy are converted to urban or other uses. State and federal laws, particularly the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA) provide the California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Service (USFWS) with mechanisms for conserving and protecting native plant and animal species. Many plants and animals have been formally listed as "Threatened" or "Endangered" under FESA, CESA, or both, while many others have been designated as candidates for such listing. Additionally, others have been designated as "Species of Special Concern" by CDFW, as "Species of Concern" by USFWS, or are on lists of rare, threatened or endangered plants developed by the California Native Plant Society (CNPS). Collectively, all of these listed and designated species are referred to as "special status species".

The Federal Migratory Bird Treaty Act (MBTA), codified in 50 CFR Section 10.13, makes it unlawful to "take" (i.e. harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) migratory birds or their nests, eggs, feathers, or any part thereof. With few exceptions, all native bird species are protected by the MBTA. Birds protected under the MBTA are also referred to as "special status species".

To determine whether the Project would result in adverse effects upon any special status species, IWVWD contracted with Circle Mountain Biological Consultants, Inc. (CMBC) to conduct a general biological resources assessment, as well as habitat assessments for burrowing owl and Mohave ground squirrel and a focused survey for desert tortoise, at the Project sites. The methods, results, and recommendations of said assessments and focused survey are set forth in the report titled Focused Survey for Agassiz's Desert Tortoise, Habitat Assessments for Burrowing Owl and Mohave Ground Squirrel, and General Biological Resource Assessment for Six Solar Sites in the City of Ridgecrest and Kern County, California, dated January 2016 (CMBC Report), a copy of which is included in ***Appendix B*** *herein.*

Based on the CMBC Report, the following special status species or their sign have been identified on or near one or more of the Project sites: Agassiz's desert tortoise (Gopherus agassizii), Mohave ground squirrel (Spermophilus mohavensis), burrowing owl (Athene cunicularia), LeConte's thrasher (Toxostoma lecontei), and silver cholla (Cylindropuntia echinocarpa).

Agassiz's Desert Tortoise. *Agassiz's desert tortoise (also referred to as desert tortoise) is listed as Threatened under both FESA and CESA. Based on the CMBC Report, desert tortoise sign was found approximately 310 feet westerly of the Well 33 site, with said sign consisting of scat that is estimated to have been deposited by a relatively small tortoise during the fall of 2015. Additionally, some older scat was found nearby that is estimated to have been deposited before that, perhaps even prior to 2015. There is no suitable desert tortoise habitat on the Wells 9A/10 and Arsenic Treatment Plant No. 2 site and the IWVWD Office site, and there are suitable but unoccupied habitats on the Well 30 and Well 31 sites.*

CMBC concluded that desert tortoise is absent at the Wells 9A/10 and Arsenic Treatment Plant No. 2 site, the Well 30 site, the Well 31 site, and the IWVWD Office site. There is potential for tortoises to occur and be impacted during Project construction at the Well 33 site and Well 34 site.

At this time, IWVWD has contracted with CMBC to prepare a Section 2081 incidental take permit from CDFW to authorize potential take of desert tortoise at all Project sites except the IWVWD Office site. Additionally, IWVWD will seek technical assistance from a USFWS biologist to confirm that protective measures for desert tortoise can be implemented in lieu of a federal Section 10 incidental take permit.

*IWVWD will incorporate mitigation measure **BIO-1** in order to reduce the potential for Project impacts upon desert tortoise to the extent possible. With incorporation of mitigation measure **BIO-1**, summarized below and set forth in the Mitigation Monitoring and Reporting Program attached to the draft Mitigated Negative Declaration included in **Appendix A** herein, the Project would not result in a significant adverse impact upon desert tortoise.*

BIO-1: Desert Tortoise

Prior to commencement of ground disturbance at the Wells 9A/10 and Arsenic Treatment Plant No. 2, Well 30, Well 31, Well 33, and Well 34 Project sites, IWVWD will acquire from CDFW a Section 2081 incidental take permit to authorize potential take of desert tortoise.

Preconstruction surveys will be conducted at each of the following Project sites: Wells 9A/10 and Arsenic Treatment Plant No. 2, Well 30, Well 31, Well 33, and Well 34 prior to ground disturbance. At each site, if no tortoise sign is found during the preconstruction survey, then a metal mesh fence, extending two feet below ground and two feet above ground, will be placed around the construction area to preclude tortoises from entering the construction zone. IWVWD will also perform any mitigation that may be required by the Section 2081 incidental take permit.

Additionally, IWVWD will seek Technical Assistance from USFWS to confirm that protective measures can be implemented in lieu of a federal Section 10 incidental take permit.

Mohave Ground Squirrel. *Mohave ground squirrel is listed as Threatened under CESA. Based on the CMBC Report, there is potential for Mohave ground squirrel to occur at the Well 30 site, the Well 31 site, the Well 33 site, and the Well 34 site. Mohave ground squirrel is not expected to be present at the Wells 9A/10 and Arsenic Treatment Plant No. 2 site or the IWVWD Office site.*

IWVWD has contracted with CMBC to prepare a Section 2081 incidental take permit to authorize potential take of Mohave ground squirrel at all Project sites except the IWVWD Office site.

Based on information presented in the CMBC Report, compensable habitat for potential impacts to Mohave ground squirrel are found at the Well 30 site (2.83 acres), the Well 31 site (1.15 acres), the Well 33 site (1.26 acres), and the Well 34 site (0.83 acres), for a total of approximately 6.07 acres of Mohave ground squirrel habitat expected to be taken by the Project. Based on a compensation ratio of 3:1, it is estimated that IWVWD will likely be required to dedicate approximately 19.5 to 21.0 acres of compensatory habitat. IWVWD has land available at its mitigation bank that has been previously accepted by CDFW as appropriate compensatory habitat.

IWVWD will incorporate mitigation measure ***BIO-2*** *in order to reduce the potential for Project impacts upon Mohave ground squirrel to the extent possible. With incorporation of mitigation measure* ***BIO-2****, summarized below and set forth in the Mitigation Monitoring and Reporting Program attached to the draft Mitigated Negative Declaration included in* ***Appendix A*** *herein, the Project would not result in a significant adverse impact upon Mohave ground squirrel.*

BIO-2: Mohave Ground Squirrel

Prior to commencement of ground disturbance at the Wells 9A/10 and Arsenic Treatment Plant No. 2, Well 30, Well 31, Well 33, and Well 34 sites, IWVWD will acquire from CDFW a Section 2081 incidental take permit to authorize potential take of Mohave ground squirrel.

IWVWD anticipates that the Section 2081 incidental take permit will require dedication of habitat at a ratio of 3:1 for Mohave ground squirrel habitat taken as a result of the Project at the Well 30, Well 31, Well 33, and Well 34 sites; therefore, IWVWD would dedicate compensatory habitat ranging from approximately 19.5 to 21.0 acres in a nearby mitigation bank that has been accepted by CDFW as appropriate compensatory habitat.

Burrowing Owl. *Burrowing owl is designated by the CDFW as a California Species of Special Concern. Burrowing owls were identified in January 2016 at the Well 31, Well 33, and Well 34 Project sites, and were previously observed at the Well 30 site in November 2015.*

IWVWD will incorporate mitigation measure ***BIO-3*** *in order to reduce the potential for Project impacts upon burrowing owl to the extent possible. With incorporation of mitigation measure* ***BIO-3****, summarized below and set forth in the Mitigation Monitoring and Reporting Program attached to the draft Mitigated Negative Declaration included in* ***Appendix A*** *herein, the Project would not result in a significant adverse impact upon burrowing owl.*

BIO-3: Burrowing Owl

Within ten (10) calendar days prior to commencement of construction at the Well 30, Well 31, Well 33, and Well 34 Project sites, a qualified biologist will conduct a preconstruction survey for burrowing owls. If no burrowing owls are identified during the preconstruction surveys at each site, then ground-disturbing activities may commence without further mitigation for burrowing owls. If construction does not commence within ten (10) calendar days after the preconstruction survey, then an additional preconstruction survey will be conducted within ten (10) calendar days prior to commencement of construction.

If preconstruction surveys detect burrowing owls on or within 250 feet of the Project site during the breeding season of February 1 through August 31, then a construction buffer area of approximately 250 feet will be established and demarcated around the perimeter of each burrow. If it is not practicable to avoid the established buffer area during construction, and construction cannot be delayed until after the breeding season or until all young burrowing owls have fledged, then IWVWD will permanently dedicate a minimum of 6.5 acres of suitable foraging habitat for each pair of breeding burrowing owls (with or without dependent young) and each single unpaired resident bird.

If preconstruction surveys detect burrowing owls on or within 160 feet of the Project site during the nonbreeding season of September 1 through January 31, then a construction buffer area of approximately 160 feet will be established and demarcated around the perimeter of each burrow.

If it is not practicable to avoid the established buffer area during construction, then the burrowing owls may be passively relocated by a qualified biologist. Once the qualified biologist has determined that all burrowing owls have vacated the Project site, then construction may proceed at that site.

LeConte's Thrasher. *LeConte's thrasher is designated by the CDFW as a California Species of Special Concern. LeConte's thrasher was observed approximately two miles southwest of the Well 33 site. While it is unlikely that any LeConte's thrashers will be present at any of the Project sites, there is a limited chance that they may occur at one or more of the following Project sites: Well 30, Well 31, Well 33, or Well 34. Measures implemented to avoid or reduce adverse impacts upon birds protected under the Migratory Bird Treaty Act (MBTA) would serve to avoid adverse impacts to LeConte's thrashers that have the potential to occur at the Project sites.*

IWVWD will incorporate mitigation measure ***BIO-4*** *in order to reduce the potential for Project impacts upon nesting birds (including LeConte's thrasher) to the extent possible. With incorporation of mitigation measures* ***BIO-4****, summarized below and set forth in the Mitigation Monitoring and Reporting Program attached to the draft Mitigated Negative Declaration included in* ***Appendix A*** *herein, the Project would not result in a significant adverse impact upon LeConte's thrasher or other nesting birds.*

BIO-4: LeConte's Thrasher and Other Nesting Bird Species

If practicable, vegetation removal and grading activities will not be conducted during the bird breeding season of March 15 through September 15. If said construction activities will take place during the breeding season, then a qualified biologist will conduct a preconstruction nesting bird survey during the appropriate time of day, with the surveys ending no more than three days prior to site clearing or grading. If no nesting birds are found during the surveys, then construction activities may commence. If an active bird nest is located, then the plant in which it occurs will be left in place until the birds leave the nest. No construction will be allowed near the active bird nests of threatened or endangered species.

Silver Cholla. *Silver cholla is protected under Section 80073 of the California Food and Agriculture Code. There are four or five silver chollas on the Well 33 site, and there are lesser numbers of silver chollas present on the Wells 30 and 34 sites. To reduce impacts upon silver chollas, the individuals located on the Project sites will be transplanted to lands owned by IWVWD that are contiguous to said Project sites. In accordance with mitigation measure* ***BIO-5****, as summarized below and set forth in the Mitigation Monitoring and Reporting Program attached to the draft Mitigated Negative Declaration included in* ***Appendix A*** *herein, the Project would not result in a significant adverse impact upon silver cholla.*

BIO-5: Silver Chollas

Prior to commencement of ground disturbing activities at the Well 30, Well 33, and Well 34 sites, all silver chollas shall be transplanted onto adjacent lands owned by IWVWD.

With incorporation of the mitigation measures summarized herein and set forth in the Mitigation Monitoring and Reporting Program attached to the draft Mitigated Negative Declaration included in ***Appendix A*** *herein, Project impacts upon sensitive or special status species would be less than significant.*

Issue IV. Biological Resources (continued)

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ☒	No Impact ❑

Besides the habitat for the special status species described in ***Issue IV.b*** *herein, there is no riparian habitat or other sensitive natural community on the Project sites. Therefore, the Project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community.*

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

Based on the California Aquatic Resource Inventory (CARI) statewide map of wetlands, streams, and riparian areas (available at www.ecoatlas.org/regions/ecoregion/mojave) there are no

wetlands present on or adjacent to any of the Project sites. Therefore, the Project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act.

Issue IV. Biological Resources (continued)

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ☒	No Impact ❑

*The Project would not interfere with the movement of any native resident or migratory fish or wildlife species, with any wildlife corridors, or with the use of native wildlife nursery sites. The potential for impacts would be further reduced by the mitigation measures summarized in **Issue IV.a** and set forth in the Mitigation Monitoring and Reporting Program attached to the draft Mitigated Negative Declaration included in **Appendix A** herein.*

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project would not conflict with any local policies or ordinances protecting biological resources.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project sites are not located within an area covered by an adopted Habitat Conservation Plan, a Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan; therefore, the Project would not conflict with the provisions of any such plan.

Issue V. Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	❑	❑	❑	☒

The area proposed for Project facilities at the Wells 9A/10 and Arsenic Treatment Plant No. 2 site has been previously disturbed during construction, operation, and maintenance of the existing District facilities onsite. There are no surface features onsite other than the constructed District facilities; therefore, the potential for Project impacts to significant historical or archaeological resources on the Wells 9A/10 and Arsenic Treatment Plant No. 2 site is negligible.

The area proposed for Project facilities at the IWVWD Office site consists of paved areas and a strip of landscaped area. Based on previous site disturbance and the existing site conditions, the potential for Project impacts to significant historical or archaeological resources on the IWVWD Office site is negligible.

In order to determine the potential for the presence of historical and archaeological resources at the Project sites, IWVWD contracted with CRM TECH to conduct a historical and archaeological resources study of the Wells 30, 31, 33, and 34 Project sites. The methods, results, and recommendations of said study are described in the report titled Historical/Archaeological Resources Survey Report Indian Wells Valley Water District PV Layouts Project, dated January 31, 2016 (CRM TECH Report), a copy of which is included in ***Appendix C*** *herein. During the field surveys, CRM TECH observed Site 15-012543 along its previously recorded course across the Well 31 Project site. Site 15-012543 is a historic-period site, representing the possible remnants of a late 19th-century wagon trail; however, the site was previously determined not to qualify as a historical resource under the provisions of CEQA. Based on its study, CRM TECH reported the Project would not impact historical or archaeological resources on the Wells 30, 31, 33, and 34 sites.*

For the reasons described above, the Project would not cause a substantial adverse change in the significance of a historical or archaeological resource on any of the Project sites.

Issue V. Cultural Resources (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	❑	❑	❑	☒

*Based on the CRM TECH Report cited in **Issue V.a** herein, there are no known archaeological or historical resources present on the Wells 30, 31, 33, and 34 Project sites. For the reasons described in **Issue V.a**, the Project would not result in a substantial adverse change in the significance of a historical or archaeological resource.*

In the unlikely event that any unknown potential historical or archaeological resource is uncovered during Project construction, construction activities in the vicinity of the potential resource will be halted or diverted until a qualified archaeologist evaluates the nature and significance of the Find. If the archaeologist determines that the potential resource is not significant, then construction activities may resume. If the archaeologist determines that the find is a significant archaeological resource, then construction in the vicinity of the find will remain halted until a qualified archaeologist determines the appropriate mitigation and said mitigation is carried out. By employing this standard practice, the Project would not cause a substantial adverse change in the significance of an archaeological resource.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	❑	❑	❑	☒

Due to the existing development of the Project sites, no paleontological resources are expected to be present on said sites; however, if any paleontological resources are discovered during Project construction, all construction activities in the vicinity of the find will be halted or diverted until a qualified paleontologist can determine the nature and significance of the find. For these reasons, the Project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Issue V. Cultural Resources (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project disturb any human remains, including those interred outside of formal cemeteries?	❑	❑	❑	☒

There are no known cemeteries or burial grounds located within the vicinities of the Project sites; however, if human remains are encountered during construction at any of the Project sites, then the County Coroner will be notified immediately, and all work in the vicinity of the find will be halted or diverted until a qualified archaeologist evaluates the nature and significance of the find. The Project is not expected to encounter any human remains, including those interred outside of formal cemeteries. The Project will comply with Section 15064.5 of the State CEQA Guidelines.

Issue VI. Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	❑	❑	❑	☒
ii) Strong seismic ground shaking?	❑	❑	☒	❑
iii) Seismic-related ground failure, including liquefaction?	❑	❑	❑	☒
iv) Landslides?	❑	❑	❑	☒

i) Based on the earthquake fault zone maps (for the Ridgecrest North, Ridgecrest South, and Inyokern Quadrangles) available on the California Department of Conservation website (accessed on January 19, 2016), the earthquake fault nearest the Project is located approximately ½ mile easterly of the IWVWD Office site. The Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault.

*ii) As stated in **Issue VI.a.i** herein, the nearest earthquake fault is located approximately ½ mile easterly of the IWVWD Office site. Additionally, there are several faults located*

within the Indian Wells Valley; therefore, the Project sites are subject to strong seismic ground shaking. The Project does not include structures intended for human occupancy, and the Project would not expose people or structures to a substantial risk of loss, injury, or death as a result of strong seismic ground shaking.

iii) *The Project sites are not located on expansive soils, and, due to a lack of shallow groundwater in the area, the Project sites are not subject to liquefaction. For these reasons, the Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction or other seismic-related ground failure.*

iv) *The Project sites are located in an area with relatively flat topography. Based on Figure 12 "Overlay Constraints: Seismic, Landslides, and Steep Slope Hazards" of the Kern County General Plan (2009), the Project sites are not located in areas that are at risk for landslides or other steep slope hazards. For these reasons, the Project would not expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving landslides.*

Issue VI. <u>Geology and Soils</u> (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in substantial soil erosion or the loss of topsoil?	❑	❑	☒	❑

The Project sites are located in an area with relatively flat topography. IWVWD's standard construction contract documents require construction contractors to use dust palliatives (such as water) to prevent wind erosion and to return soil conditions at construction sites to near preconstruction conditions (e.g. through soil compaction) to prevent any changes in topography and soil instability. At completion of construction at each Project site, the ground surface will be finish graded to approximate preconstruction conditions.

Because site grading will be conducted as part of the Project, the Project is expected to result in the loss of topsoil where grading takes place. Additionally, soil erosion may result during Project construction as a result of disturbed soils or stockpiles that may be present during construction. Soil erosion will be mitigated to the extent practicable by implementation of Best Management Practices (BMPs) in accordance with the <u>National Pollutant Discharge Elimination</u>

System NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-009-DWQ NPDES No. CAS000002 (Construction General Permit), adopted by the State Water Resources Control Board, as currently revised and as applicable. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared for each of the Project sites.

For the reasons described above, the Project would not result in substantial soil erosion or the loss of topsoil.

Issue VI. Geology and Soils (Continued)

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project sites consist of the District's existing office site and existing District well sites, and said sites do not contain soils that are unstable or would become unstable as a result of the Project. Therefore, the Project would not result in landslide, lateral spreading, subsidence, liquefaction, or collapse. Refer also to ***Issue VI.a*** *herein.*

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project sites are not underlain by expansive soils and Project facilities are not intended for human occupancy; therefore, the Project would not create substantial risks to life or property.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project does not include septic tanks or alternative wastewater disposal systems.

Issue VII. Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	❑	❑	☒	❑

Gases that trap heat in the Earth's atmosphere are referred to as greenhouse gases (GHGs). The GHGs that are most commonly emitted due to human activities, primarily from the combustion of fossil fuels (e.g. gasoline in motor vehicles), are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). The most common GHG that results from human activities is CO_2, followed by CH_4 and N_2O respectively.

To quantify and combine these three GHGs into a single figure, each gas is converted to "carbon dioxide equivalent" (CO_2e) units. CO_2e is defined by the USEPA as, "A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP)…The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP." The GWPs for carbon dioxide, methane, and nitrous oxide are 1, 21, and 310, respectively.

The Project is expected to generate GHGs during construction and operation. GHGs emitted during construction would result from operating construction vehicles and equipment and from workers' vehicles commuting to and from the Project sites. Estimated quantities of GHGs that would be generated during Project construction at all sites combined total approximately 285 metric tons of CO_2e, as determined by reports generated using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2, which are summarized on Tables 4 and 5 herein. Copies of the CalEEMod reports are included in ***Appendix D*** *herein.*

GHGs emitted during operation would result from vehicle trips to and from the sites for annual inspection and testing of the PV modules and appurtenances. Vehicle trips will also be made to the sites for washing the PV modules as needed in order to maintain energy production. For this analysis, it has been assumed that vehicle trips for washing the PV modules will be made on a quarterly basis, which, combined with the vehicle trip for annual inspection and maintenance, results in a total of five annual vehicle trips to each Project site. Based on this, the Project is estimated to generate approximately 15 metric tons of GHGs per year, as summarized in ***Table 5*** *herein.*

Since operation of the Project will offset the use of fossil fuels used for power generation, operation of the Project will result in a reduction of greenhouse gases commensurate with the reduction in fossil fuel usage. This reduction has not been included in this analysis.

Table 4
Quantities of Greenhouse Gases
Estimated to be Generated by Solar Project Construction

Project Site	Greenhouse Gases (metric tons/year)		
	CO_2	CH_4	CO_2^e
Wells 9A/10 + Arsenic Treatment Plant No. 2	56.9960	0.0162	57.3366
Well 30	72.5751	0.0206	73.0080
Well 31	44.8873	0.0135	45.1713
Well 33	55.6128	0.0169	55.9674
Well 34	37.0994	0.0114	37.3381
IWVWD Office	15.7041	0.0037	15.7814
Total Construction GHGs	**282.8747**	**0.0823**	**284.6028**

Table 5
Quantities of Greenhouse Gases
Estimated to be Generated by Solar Project Operation

Project Site	Greenhouse Gases (metric tons/year)		
	CO_2	CH_4	CO_2^e
Wells 9A/10 + Arsenic Treatment Plant No. 2	1.0788	0.0003	1.0857
Well 30	3.0640	0.0009	3.0837
Well 31	3.1839	0.0009	3.2036
Well 33	1.0788	0.0003	1.0857
Well 34	3.0640	0.0009	3.0837
IWVWD Office	3.1000	0.0009	3.1196
Total Operation GHGs	**14.5695**	**0.0042**	**14.6620**

In accordance with the Eastern Kern Air Pollution Control District Policy Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving As Lead CEQA Agency, adopted by the EKAPCD Board on March 8, 2012, EKAPCD considers projects that emit less than 25,000 metric tons of CO_2e per year to have a less than significant impact with regard to GHG emissions. This threshold is used herein to determine Project significance.

Because total Project GHG emissions (construction and operation) do not exceed 25,000 metric tons CO_2e per year, the Project would not generate greenhouse gas emissions that would, either directly or indirectly, have a significant impact on their environment.

Issue VII. Greenhouse Gas Emissions (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of greenhouse gases?	❑	❑	☒	❑

*As described in **Issue VII.a**, greenhouse gas emissions estimated to be generated by construction and operation of the Project are minimal (approximately 285 metric tons of CO_2e during construction and approximately 15 metric tons of CO_2e per year during Project operation) when compared to the significance threshold of 25,000 metric tons of CO_2e per year set forth by EKAPCD. The Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

Issue VIII. Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	❑	❑	☒	❑

During Project construction, small quantities of lubricants, fuel, paint, and adhesives will be used. Said use will be short-term and strictly controlled, and any waste materials will be properly disposed of. Such materials will not be allowed to enter any drainage. Project operation does not include the transport, use, or disposal of hazardous materials. For these reasons, the Project would not create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials.

Issue VIII. Hazards and Hazardous Materials (Continued)

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	❑	❑	☒	❑

The Project does not have the potential to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Refer also to ***Issue VIII.a*** *above.*

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	❑	❑	❑	☒

James Monroe Middle School and St. Ann Catholic School are located next to each other and are both approximately 950 feet (0.18 mile) southeasterly of the IWVWD Office. There are no schools in close proximity of the other Project sites. The Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. Refer also to ***Issue VIII.a*** *above. For these reasons, the Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.*

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	❑	❑	☒	❑

Based on a query of the California Department of Toxic Substances Control (DTSC) publicly-accessible database, EnviroStor, online at http://www.envirostor.dtsc.ca.gov/public (accessed on January 20, 2016), the Wells 9A/10 and Arsenic Treatment Plant No. 2 site has a tiered permit; however, implementation of the Project on said site would not create a significant hazard to the public or the environment. None of the other Project sites are included on the list of sites compiled pursuant to Government Code Section 65962.5.

Issue VIII. Hazards and Hazardous Materials (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	❑	❑	❑	☒

Based on Figure 9, "Circulation Element Kern Region Airports" of the Kern County General Plan (2009), there are two airports located in the Project region. Inyokern Airport is located approximately 2.5 miles west of the Well 30 site, and the runways at China Lake Naval Air Weapons Station (China Lake NAWS) are located approximately two miles north of the Wells 9A/10 site.

None of the Project sites are located within the Inyokern Airport Comprehensive Land Use Plan, as depicted on Figure 4-21 of the County of Kern Airport Land Use Compatibility Plan, dated November 13, 2012.

There are restrictions on certain kinds of structures and development in certain areas surrounding China Lake NAWS. These areas are part of the Joint Service Restricted R-2508 Complex (R-2508 Complex), which is depicted in Figure 4-81 of the County of Kern Airport Land Use Compatibility Plan (2012). The R-2508 Complex covers over 3,200 square miles of eastern Kern County, plus portions of Inyo, Mono, Los Angeles, San Bernardino, and Tulare Counties, as well as a small portion of the State of Nevada. Other restricted airspaces, such as R-2505 and R-2506, are located within the R-2508 Complex.

All of the Project sites are located within the Joint Service Restricted R-2508 Complex. The Wells 9A/10 and Arsenic Treatment Plant No. 2, Well 30, Well 31, and the IWVWD Office sites are additionally located within R-2505. Pursuant to Chapter 4.17 of the County of Kern Airport Land Use Compatibility Plan (2012),"Any environmental document within the R-2505 and R-2506 complexes requires a copy sent to China Lake NAWS and primary notification to Edwards AFB [Air Force Base]."

The Project would not result in any environmental impacts that would interfere with the missions of China Lake NAWS, such as elevated structures or other obstructions to visibility. The Project would not result in a safety hazard for people residing or working in the Project area.

Issue VIII. Hazards and Hazardous Materials (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	❑	❑	❑	☒

The Project sites are not located within the vicinity of a private airstrip.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	❑	❑	❑	☒

Transportation corridors would remain open during Project construction and operation; therefore, the Project would not obstruct corridors into or out of the various Project sites or the community. Project operation is expected to result in approximately 5 vehicle trips per year per Project site, which totals approximately 30 vehicle trips per year. The increase in traffic that would result from these vehicle trips is negligible. For these reasons, the Project would not impair implementation of any emergency response plan or emergency evacuation plan.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	❑	❑	❑	☒

The risk of a fire occurring during Project construction is less than significant and short-term. Additionally, IWVWD's standard construction contract documents would require construction contractors to comply with safety standards specified in Title 8, California Code of Regulations, and that any equipment or machinery that poses a risk of emitting sparks or flame be equipped with an arrestor, thereby further limiting potential impacts. Operation of Project facilities would not pose a risk of fire, as it would not involve the use or storage of flammable materials. For these reasons, the Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

Issue IX. Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project violate any water quality standards or waste discharge requirements?	❑	❑	☒	❑

The Project would comply with all applicable water quality standards, waste discharge requirements, and all other requirements of the Lahontan Regional Water Quality Control Board, and would not result in any violations of water quality standards or waste discharge requirements.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	❑	❑	❑	☒

In addition to temporary water use during construction for grading and dust control, the Project will use water periodically during operation for washing the photovoltaic (PV) panels. Estimated annual water use for Project operation at each site is set forth in ***Table 6*** *herein. Quantities of water use expected during Project construction and operation are minimal and would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.*

Table 6
IWVWD Solar Project
Estimated Annual Water Usage

Project Site	Gallons per Year*
Wells 9A/10 +Arsenic Treatment	1,009
Well 30	2,692
Well 31	841
Well 33	1,009
Well 34	442
IWVWD Office	63
Total Gallons Per Year	**6,056**

* Based on estimates provided by OpTerra Energy Services

Issue IX. Hydrology and Water Quality (Continued)

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ☒	No Impact ❑

Project grading would occur at each Project site around and within the perimeter of the proposed solar panels. Said grading activities would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion onsite or offsite.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ☒	No Impact ❑

The proposed solar panels would be elevated above the ground surface atop posts. While the solar panels themselves are impervious, the exposed ground surface beneath said panels will remain pervious with the exception of the IWVWD Office site, which already includes asphalt pavement. Further, the proposed facilities are not located within or adjacent to the course of a stream or river. For these reasons, the Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ☒	No Impact ❑

The Project is not anticipated to result in substantial quantities of additional runoff. At the Project sites, any stormwater runoff will continue to flow in a similar manner as pre-Project conditions. Because the solar panels will be elevated above the ground surface by posts, the Project facilities would not present an obstruction to existing storm flows. For these reasons, the Project would not create or contribute runoff water which would exceed the capacity of existing

or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

Issue IX. Hydrology and Water Quality (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project otherwise substantially degrade water quality?	❑	❑	❑	☒

Construction and operation of the Project would comply with all applicable water quality requirements and would not substantially degrade water quality. Refer also to ***Issues IX.a through IX.e*** *herein.*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	❑	❑	❑	☒

The Project does not include the construction of housing.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?	❑	❑	❑	☒

The Project sites are depicted on the following Federal Emergency Management Agency Flood Insurance Rate Maps, each effective as of September 26, 2008:

Wells 9A/10 and Arsenic Treatment Plant No. 2: Map Number 06029C1039E
Wells 30 and 31: Map Number 06029C1019E
Wells 33 and 34: Map Number 06029C1575E
IWVWD Office: Map Number 06029C1600E

The following paragraphs describe the flood areas for each Project site.

The Wells 9A/10 and Arsenic Treatment Plant No. 2 site is mapped as being within two flood areas: "Other Areas, Zone X", which is defined as "areas determined to be outside the 0.2% annual chance floodplain" and "Special Flood Hazard Areas (SFHAs) Subject to Inundation By

the 1% Annual Chance Flood, Zone A", which is defined as "The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood…The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood." SFHA, Zone A indicates "No Base Flood Elevations determined."

The proposed placement of Project facilities on said Project site are within both of those flood areas. The proposed PV panels are within "Other Areas, Zone X" and adjoin a portion of the site that is within SFHA, Zone A. The proposed AC wire and conduit proposed to extend from the PV panels to the existing electrical switchgear are mostly located within the portion of the site within SFHA, Zone A. The AC wire and conduit are proposed to be installed belowground and would not impede or redirect flood flows. The proposed PV panels are elevated above the ground surface atop poles which are not large enough to impede or redirect flood flows.

The Well 30 site is mapped within SFHA, Zone AE, which indicates that Base Flood Elevations have been determined. The Base Flood Elevation at the Well 30 site is approximately 2418 feet. While the Well 30 site is located within a 100-year flood zone, it is not located within a "Floodway Area in Zone AE". The AC wire and conduit are proposed to be installed belowground and would not impede or redirect flood flows. The proposed PV panels are elevated above the ground surface atop poles which are not large enough to impede or redirect flood flows.

The Well 31 site is mapped within "Other Areas, Zone X", which is defined as "areas determined to be outside the 0.2% annual chance floodplain". Project facilities at the Well 31 site would not impede or redirect flood flows.

The Well 33 site is mapped within "Other Areas, Zone X", which is defined as "areas determined to be outside the 0.2% annual chance floodplain". Project facilities at the Well 33 site would not impede or redirect flood flows.

The Well 34 site is mapped within "Other Areas, Zone X", which is defined as "areas determined to be outside the 0.2% annual chance floodplain". Project facilities at the Well 34 site would not impede or redirect flood flows.

The IWVWD Office site is mapped within "Other Areas, Zone X", which is defined as "areas determined to be outside the 0.2% annual chance floodplain". Project facilities at the IWVWD Office site would not impede or redirect flood flows.

For the reasons described above, the Project would not place within a 100-year flood hazard area structures which would impede or redirect flood flows.

Issue IX. Hydrology and Water Quality (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	❑	❑	❑	☒

The Project does not involve the construction of any levees or dams and is not located downslope from any levees or dams. Further, the Project does not include any structures intended for human occupancy. For these reasons, the Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or a dam.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
j) Would the project expose people or structures to inundation by seiche, tsunami, or mudflow?	❑	❑	❑	☒

The Project sites are not located within the vicinity of any bodies of water large enough to generate a seiche or a tsunami. The Project area is relatively flat and is not subject to mudflows.

For the reasons described above, the Project would not expose people or structures to inundation by seiche, tsunami, or mudflow.

Issue X. Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project physically divide an established community?	❑	❑	❑	☒

The Project sites are all existing District sites with existing District facilities; therefore, the Project would not physically divide an established community.

Issue X. Land Use and Planning (Continued)

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project adopted for the purpose of avoiding or mitigating an environmental effect.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project sites are not located within an area covered by a habitat conservation plan or a natural community conservation plan; therefore, the Project would not conflict with the provisions of any such plan.

Issue XI. Mineral Resources

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

All of the Project sites contain existing District facilities, and there are no known mineral resources on said sites. The Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

Issue XI. Mineral Resources (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	❑	❑	❑	☒

The Project would not result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Refer to ***Issue XI.a*** *herein.*

Issue XII. Noise

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	❑	❑	☒	❑

Noise standards set forth by County of Kern specify that noise shall not exceed 65 dB at the exterior of a residence. Residential noise standards set forth by City of Ridgecrest specify that noise levels up to 60 dB are "Normally Acceptable", and noise levels from 61-70 dB are "Conditionally Acceptable". The Project sites are located within unincorporated areas of County of Kern, except for the IWVWD Office, which is located within the City of Ridgecrest.

Noise levels at the Project sites would temporarily increase during construction activities. Project construction times vary at the different sites and range from 4 weeks to 8 weeks. Noise generated by Project operation will include that resulting from approximately five annual vehicle trips to and from each Project site (approximately 30 vehicle trips per year) and onsite inspection and maintenance activities. These vehicle trips and inspection and maintenance activities are expected to result in insignificant and periodic increases in noise.

Project construction and operation will comply with the applicable noise standards, and would not result in exposure of persons to, or in generation of, noise levels in excess of standards established by the applicable local general plan.

Issue XII. Noise (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	❑	❑	☒	❑

Construction at the Project sites may result in periodic groundborne vibration during construction activities; however, said groundborne vibration would be not be excessive and would be temporary. The Project would not result in any permanent groundborne noise or vibration. Any impacts would be less than significant and short-term. For these reasons, the Project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	☒	❑

Noise generated by Project construction will be temporary. Project operation would result in approximately five vehicle trips to each Project site per year (approximately 30 vehicle trips per year above current vehicle trips to the site) for routine inspection and maintenance activities. These vehicle trips and activities would not result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	☒	❑

The Project is expected to temporarily generate increased noise levels during construction activities. Although the construction noise levels may be perceptible at the nearest residences, said levels will be less than significant and short-term and will comply with the City and County noise standards. Refer also to ***Issue XII.a*** *herein.*

Issue XII. Noise (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	☒

Based on Figure 9, "Circulation Element Kern Region Airports" of the Kern County General Plan (2009), there are two airports located in the Project region. Inyokern Airport is located approximately 2.5 miles west of the Well 30 site, and the runways at China Lake Naval Air Weapons Station (China Lake NAWS) are located approximately two miles north of the Wells 9A/10 site.

None of the Project sites are located within the Inyokern Airport Comprehensive Land Use Plan, as depicted on Figure 4-21 of the County of Kern Airport Land Use Compatibility Plan, dated November 13, 2012. The airport component of China Lake NAWS are not a public airport or public use airport. For a summary of development restrictions in the region surrounding China Lake NAWS, refer to ***Issue XIII.e*** *herein.*

Although the Project will generate a temporary increase in noise during Project construction, noise resulting from Project operation will be negligible. For these reasons, the Project would not expose people residing or working in the Project area to excessive noise levels.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	☒

The Project is not located within the vicinity of a private airstrip.

Issue XIII. Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of road or other infrastructure)?	❑	❑	❑	☒

The Project consists of solar power facilities that are intended to offset the quantities of traditionally-generated energy used to power District facilities. The Project will not result in the District hiring additional employees, and the Project does not propose new homes, businesses, or roads. For these reasons, the Project would not induce substantial population growth in the area, either directly or indirectly.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	☒

The Project is located within existing District-owned sites that do not contain any housing. The Project does not have the potential to displace existing housing and does not include construction of any housing.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	☒

The Project is located within existing District-owned sites. The Project would not displace any people and does not necessitate the construction of housing. Refer also to ***Issues XIII.a and XIII.b*** *herein.*

Issue XIV. Public Services

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Fire protection?	❑	❑	❑	☒
ii) Police protection?	❑	❑	❑	☒
iii) Schools?	❑	❑	❑	☒
iv) Parks?	❑	❑	❑	☒
v) Other public facilities?	❑	❑	❑	☒

i) The Project does not include any features or facilities that would require additional or unusual fire protection resources.

ii) The Project does not include any features or facilities that would be occupied or that would otherwise require enhanced levels of police protection.

iii) The Project would not require the District to hire additional employees. The Project does not have the potential to increase or decrease the Project area's population, and would therefore not result in a greater or lesser demand for schools.

iv) The Project would not require the District to hire additional employees. The Project does not have the potential to increase or decrease the Project area's population, and would therefore not result in a greater or lesser demand for parks.

v) The Project will have no effect upon other public facilities.

Issue XV. Recreation

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	❑	❑	❑	☒

The Project would not require the District to hire additional employees. The Project consists of solar power facilities located on existing District-owned sites. The Project does not have the

potential to increase or decrease the Project area's population, and would therefore not result in increased or decreased use of parks or other recreational facilities. Refer also to ***Issue XIII.a*** *herein.*

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project does not include recreational facilities and would not require the construction or expansion of any recreational facilities.

Issue XVI. Transportation / Traffic

a) Would the project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ☒	No Impact ❑

During construction, the Project would result in an increase in traffic as a result of workers' vehicles and construction vehicles and equipment; however, said increase would be less than significant and short-term. Operation of the Project would generate approximately 30 additional vehicle trips per year (approximately 5 vehicle trips per year to each Project site). These trips are infrequent, and any traffic impacts would be less than significant.

For the reasons described above, the Project would not conflict with an applicable plan, ordinance, or policy relating to traffic or circulation systems.

Issue XVI. Transportation / Traffic (Continued)

b) Would the project conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ☒	No Impact ❑

During construction, the Project would result in an increase in traffic as a result of workers' vehicles and construction vehicles and equipment; however, said increase would be less than significant and short-term. Operation of the Project would generate approximately 30 additional vehicle trips per year (approximately 5 vehicle trips per year to each Project site). These trips are infrequent, and any traffic impacts would be less than significant. For these reasons, the Project would not conflict with any congestion management program, level of service standards, or any other standards pertaining to transportation and traffic.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The heights of the proposed solar panels would extend approximately eight to twelve feet above the ground surface at each Project site; therefore, the Project would have no effect upon air traffic patterns, levels, or safety.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project would not impact street design and would not substantially increase hazards due to design features or incompatible uses. In the event that any road or lane closures are needed during Project construction, safe and adequate traffic control measures will be provided.

Issue XVI. Transportation / Traffic (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project result in inadequate emergency access?	❑	❑	❑	☒

Access to residences and businesses will not be obstructed during construction and operation of the Project. The Project would not result in inadequate emergency access. There would be no impact.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	❑	❑	❑	☒

The Project would have no impact on policies, plans, or programs regarding transportation. The Project does not include any features or facilities that would conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or the performance or safety of such facilities.

Issue XVII. Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	❑	❑	❑	☒

The Project will not generate sanitary wastewater. Any water discharged to the ground surface at the Project sites would include water runoff from washing the proposed solar panels. Such discharge would be in compliance with the requirements of the Regional Water Quality Control Board, Lahontan Region. The Project would not exceed wastewater treatment requirements of the Regional Water Quality Control Board.

Issue XVII. Utilities and Service Systems (Continued)

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project includes construction of solar panels and appurtenances to provide power to existing District facilities. The Project would not require or result in the construction of new water or wastewater treatment facilities or the expansion of existing water or wastewater treatment facilities. Refer also to ***Issue XVII.a*** *herein.*

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? In making this determination, the Lead Agency shall consider whether the project is subject to the water supply assessment requirements of Water Code Section 10910 *et seq* (SB 610), and the requirements of Government Code Section 66473.7 (SB 221).	Potentially Significant Impact ❑	Less Than Significant with Mitigation Incorporated ❑	Less Than Significant Impact ❑	No Impact ☒

The Project does not meet the definition of a "project" as set forth in Section 10912 of the Water Code, and is therefore not subject to the water supply assessment requirements of Water Code Section 10910 et seq *(SB 610). Further, the Project is not a "subdivision" pursuant to Government Code Section 66473.7 (SB 221) and is therefore not subject to the provisions of Government Code Section 66473* et seq.

Water needed during Project construction and operation is available from IWVWD's existing supplies and facilities. The Project does not require any new or expanded entitlements.

Issue XVII. Utilities and Service Systems (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	❑	❑	❑	☒

*The Project will not generate sanitary wastewater. Refer also to **Issue XVII.a** herein.*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	❑	❑	☒	❑

Debris resulting from construction of the Project is expected to be minimal and will be disposed of at a local landfill. No solid waste is expected to be generated by Project operation. Any impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?	❑	❑	❑	☒

*The Project would comply with all federal, state, and local statutes and regulations related to solid waste. Refer also to **Issue XVII.f** herein.*

Issue XVIII. Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	❑	☒	❑	❑

*With incorporation of the biological resources mitigation measures set forth in the Mitigation Monitoring and Reporting Program attached to the draft Mitigated Negative Declaration included in **Appendix A** herein, the Project does not have the potential to degrade the quality of*

the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. Refer to ***Issues IV.a through IV.b*** *herein.*

For the reasons described in ***Issues V.a through V.d****, the Project would not eliminate important examples of the major periods of California history or prehistory.*

Issue XVIII. Mandatory Findings of Significance (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	❑	❑	❑	☒

The Project does not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	❑	❑	❑	☒

The Project does not have impacts that are individually limited but cumulatively considerable.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	❑	❑	☒	❑

None of the potential environmental effects of the Project would cause substantial adverse effects on human beings.

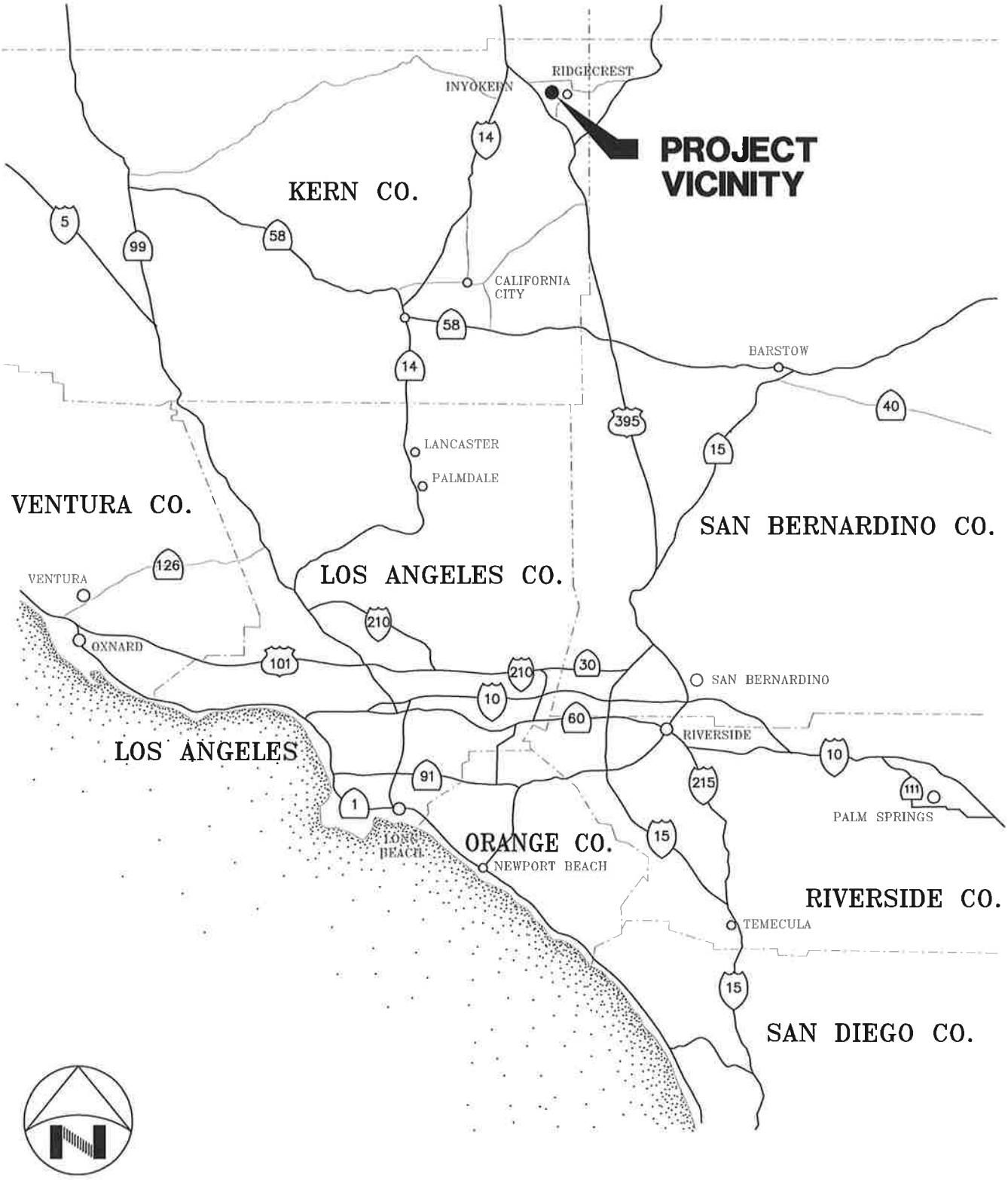
PART 3
REFERENCES AND SOURCES

PART 3 - REFERENCES AND SOURCES

- California Air Resources Board Website for California Ambient Air Quality Standards, www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm
- California Aquatic Resource Inventory Website, www.ecoatlas.org/regions/ecoregion/mojave
- California Code of Regulations, Title 14, Division 6, Chapter 3; Guidelines for Implementation of the California Environmental Quality Act, Section 15000 *et seq;* as amended January 4, 2013
- California Department of Toxic Substances Control Website, EnviroStor Database, www.envirostor.dtsc.ca.gov/public
- California Emissions Estimator Model (CalEEMod) Software, Version 2013.2.2
- California Scenic Highways Mapping System Website, www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm
- City of Ridgecrest General Plan, City of Ridgecrest, 2009
- City of Ridgecrest General Plan Land Use Diagram, approved December 2, 2009
- City of Ridgecrest Zoning Map, December 2, 2009
- County of Kern Airport Land Use Compatibility Plan, County of Kern, November 13, 2012
- County of Kern Zoning Map, Map Nos. 47, 47-27, 47-28, 48, 48-30, and 70
- Eastern Kern Air Pollution Control District Policy Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving As Lead CEQA Agency, adopted March 8, 2012
- Eastern Kern Air Pollution Control District Website, www.kernair.org
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Kern County, California and Incorporated Areas, Map Number 06029C1575E, FEMA National Flood Insurance Program, Map Effective September 26, 2008
- Federal Emergency Management Agency (FEMA) Map Service Center Website, www.msc.fema.gov
- Focused Survey for Agassiz's Desert Tortoise, Habitat Assessments for Burrowing Owl and Mohave Ground Squirrel, and General Biological Resource Assessment for Six Solar Sites in the City of Ridgecrest and Kern County, California, Circle Mountain Biological Consultants, Inc., January 2016
- Kern County General Plan, County of Kern, September 22, 2009
- Kern County Important Farmland 2012, Sheet 3 of 3, California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, August 2014
- Kern County General Plan Land Use, Open Space & Conservation Element Map, Kern County, Ridgecrest Priority Area, November 20, 2009
- Kern County Williamson Act FY 2013/2014, Sheet 3 of 3, California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, 2013

- Historical/Archaeological Resources Survey Report Indian Wells Valley Water District PV Layouts Project, CRM TECH, January 31, 2016
- State of California Special Studies Zones Maps for the Ridgecrest North, Ridgecrest South, and Inyokern Quadrangles, each effective January 1, 1990
- United States Environmental Protection Agency Website for National Ambient Air Quality Standards, www.epa.gov/air/criteria.html
- Western Regional Climate Center Website, www.wrcc.dri.edu

FIGURES



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Engineering Consultants

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INDIAN WELLS VALLEY WATER DISTRICT

SOLAR PROJECT

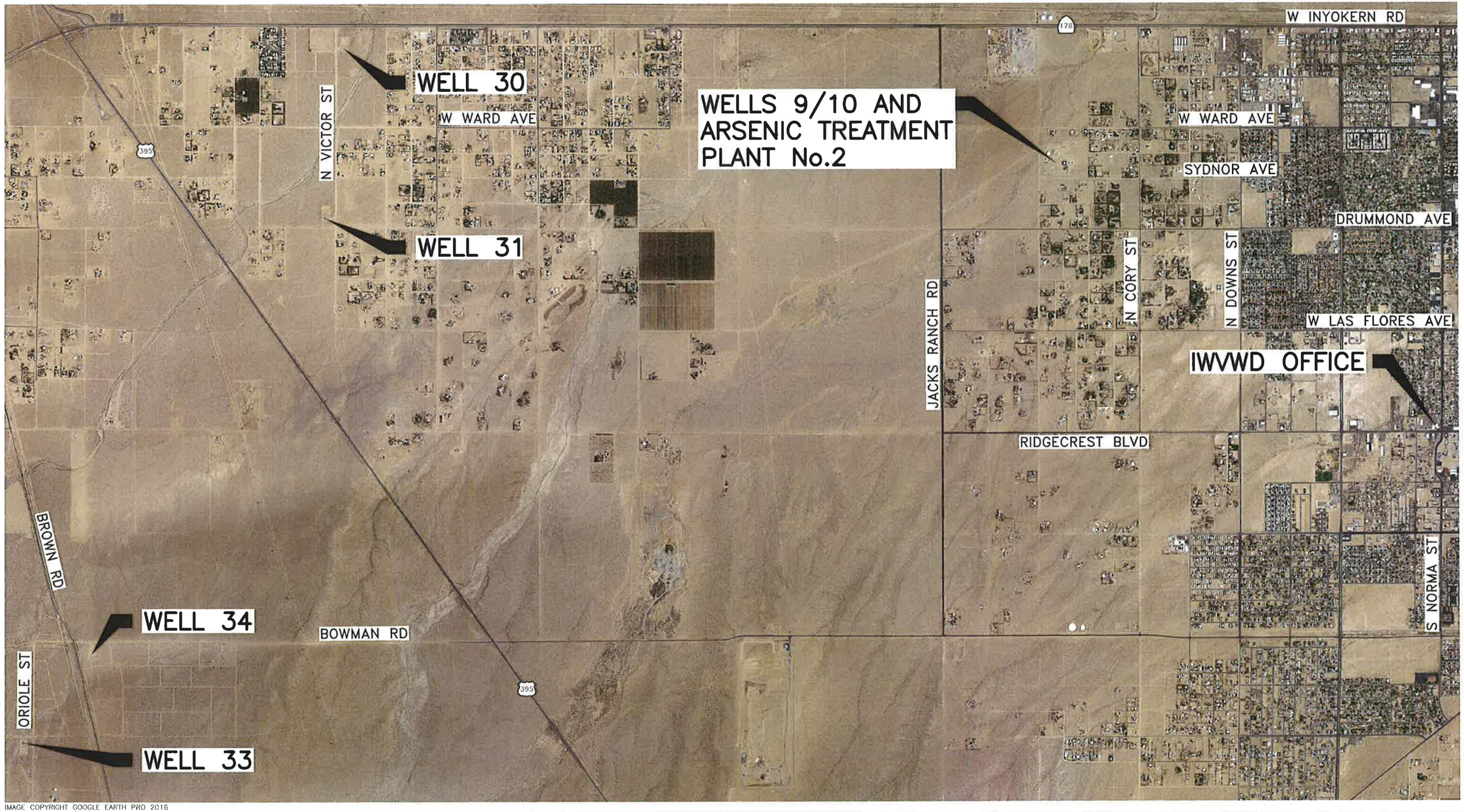
PROJECT VICINITY

FIGURE 1

SCALE: N/A DATE: 01/25/16 DRAWN BY: SPK CHECKED BY: VEM W.O.: 178-143

OF 9

\178\143\Drawings\Figures\178-143_f1.dwg



VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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INDIAN WELLS VALLEY WATER DISTRICT

SOLAR PROJECT

PROJECT LOCATIONS

FIGURE 2 OF 9

SCALE: 1"=2500' DATE: 01/25/16 DRAWN BY: SPK CHECKED BY: VEM W.O.: 178-143

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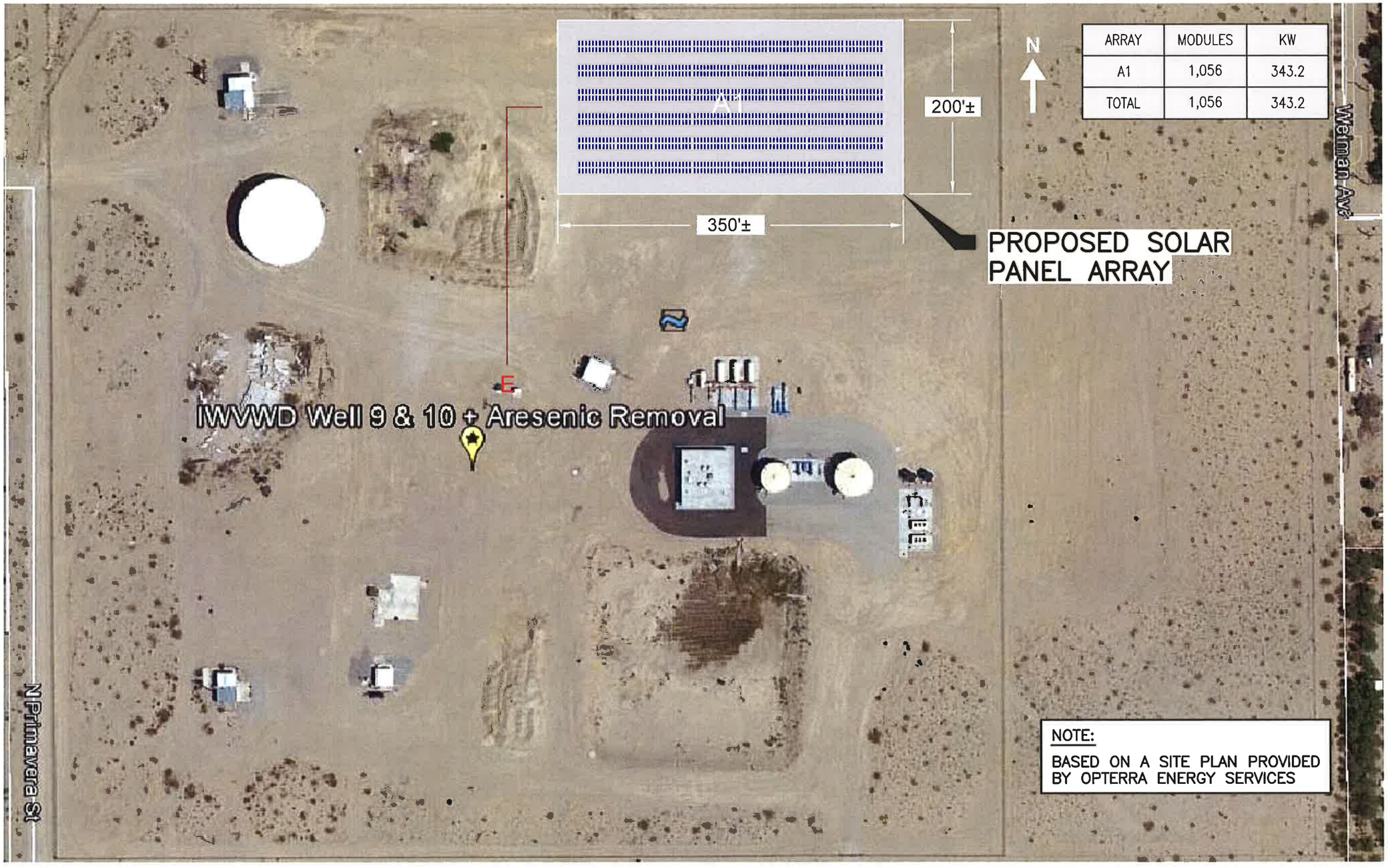

LEGEND

——— PROPOSED AC WIRE AND CONDUIT

E EXISTING ELECTRICAL SWITCH GEAR

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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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INDIAN WELLS VALLEY WATER DISTRICT

SOLAR PROJECT

WELLS 9A/10 AND ARSENIC TREATMENT PLANT No.2

FIGURE 3 OF 9

SCALE: 1"=100' DATE: 01/25/16 DRAWN BY: SPK CHECKED BY: VEM W.O.: 178-143

PRELIMINARY

\178\143\Drawings\Figures\178-143_f3.dwg

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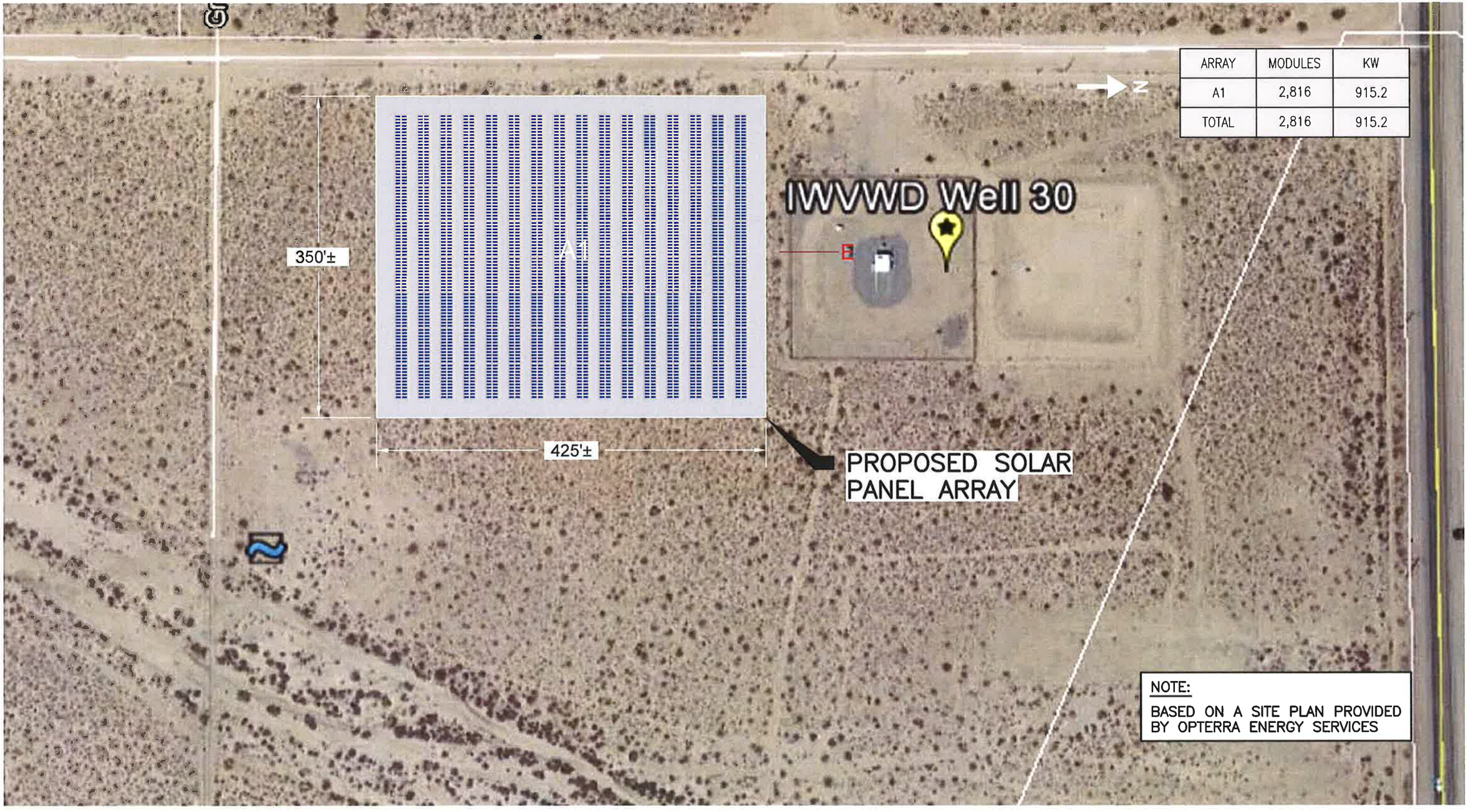
TOTAL	2,816	915.2



NOTE:
BASED ON A SITE PLAN PROVIDED BY OPTERRA ENERGY SERVICES

LEGEND

PROPOSED AC WIRE AND CONDUIT

EXISTING ELECTRICAL SWITCH GEAR

VERIFY SCALES
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INDIAN WELLS VALLEY WATER DISTRICT

SOLAR PROJECT

WELL 30

FIGURE 4 OF 9

SCALE: 1"=100' DATE: 01/25/16 DRAWN BY: SPK CHECKED BY: VEM W.O.: 178-143

PRELIMINARY

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LEGEND

PROPOSED AC WIRE AND CONDUIT

E EXISTING ELECTRICAL SWITCH GEAR

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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INDIAN WELLS VALLEY WATER DISTRICT

SOLAR PROJECT

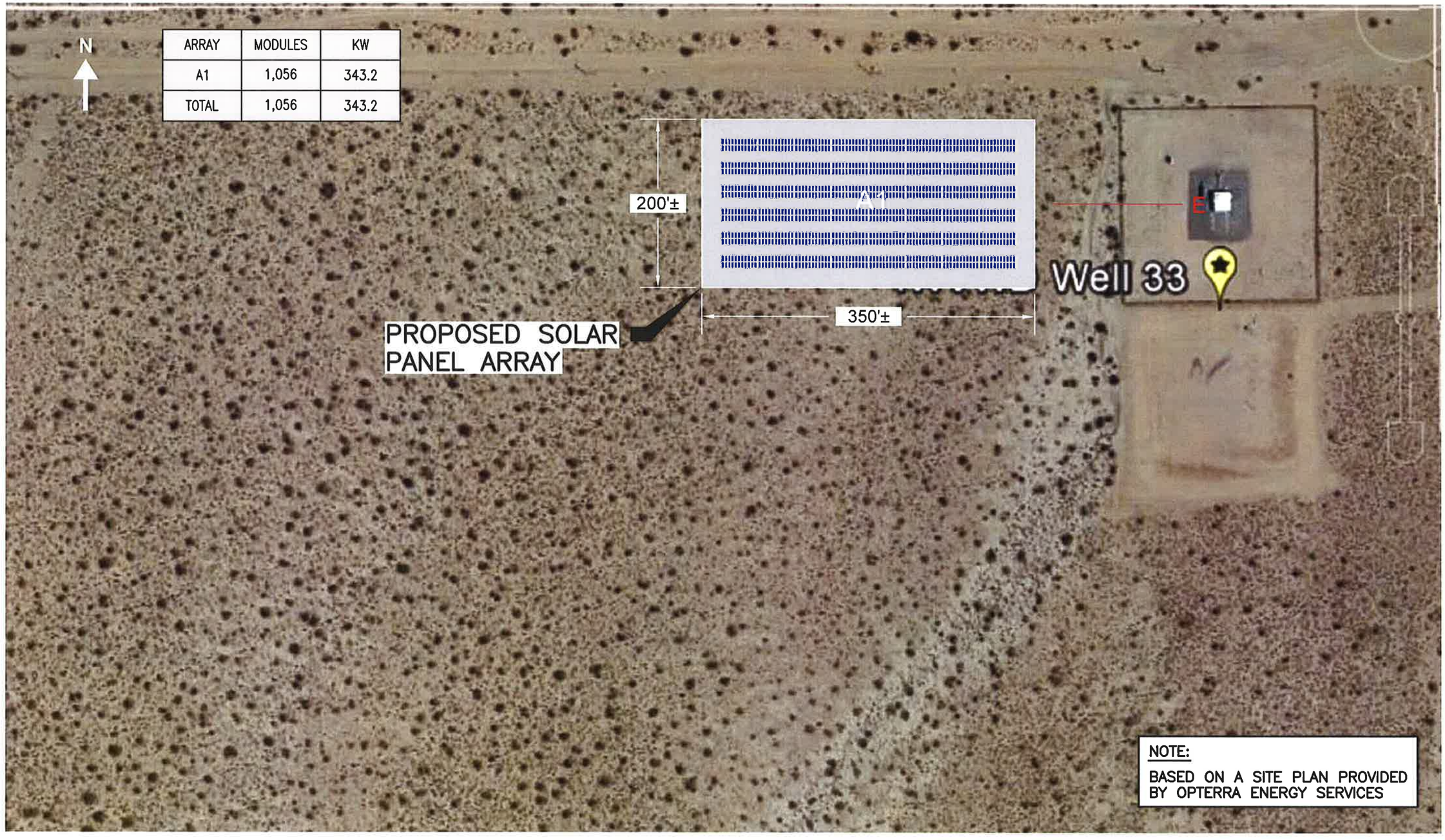
WELL 31

FIGURE 5 OF 9

SCALE: 1"=100' DATE: 01/25/16 DRAWN BY: SPK CHECKED BY: VEM W.O.: 178-143

PRELIMINARY

\178\143\Drawings\Figures\178-143_f5.dwg



LEGEND

PROPOSED AC WIRE AND CONDUIT

E EXISTING ELECTRICAL SWITCH GEAR

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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INDIAN WELLS VALLEY WATER DISTRICT

SOLAR PROJECT

WELL 33

FIGURE 6 OF 9

SCALE: 1"=100' DATE: 01/25/16 DRAWN BY: SPK CHECKED BY: VEM W.O.: 178-143

PRELIMINARY

\178\143\Drawings\Figures\178-143_f6.dwg

ARRAY	MODULES	KW
A1	462	150.2
TOTAL	462	150.2

LEGEND

PROPOSED AC WIRE AND CONDUIT

E EXISTING ELECTRICAL SWITCH GEAR

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
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INDIAN WELLS VALLEY WATER DISTRICT

SOLAR PROJECT

WELL 34

FIGURE 7 OF 9

SCALE: 1"=100' DATE: 01/25/16 DRAWN BY: SPK CHECKED BY: VEM W.O.: 178-143

PRELIMINARY

\178\143\Drawings\Figures\178-143_f7.dwg

ARRAY	MODULES	KW
A1	132	42.9
TOTAL	132	42.9

LEGEND

PROPOSED AC WIRE AND CONDUIT

E EXISTING ELECTRICAL SWITCH GEAR

VERIFY SCALES
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INDIAN WELLS VALLEY WATER DISTRICT

SOLAR PROJECT

IWVWD OFFICE

FIGURE 8 OF 9

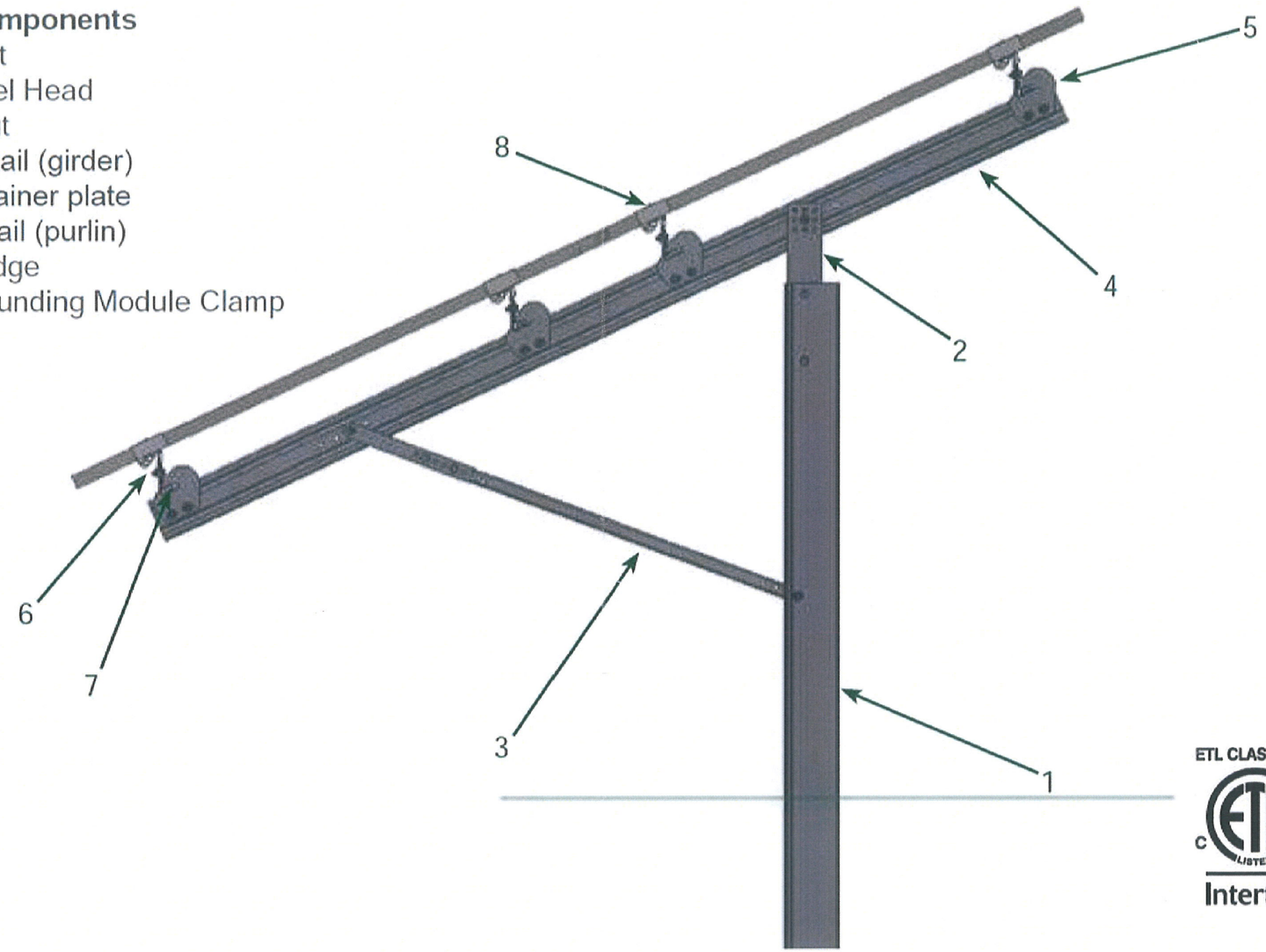
SCALE: 1"=60' DATE: 01/25/16 DRAWN BY: SPK CHECKED BY: VEM W.O.: 178-143

PRELIMINARY

\178\143\Drawings\Figures\178-143_f8.dwg

Key Components

1. Post
2. Steel Head
3. Strut
4. C-Rail (girder)
5. Retainer plate
6. Z-Rail (purlin)
7. Wedge
8. Grounding Module Clamp



ETL CLASSIFIED
C ETL US LISTED
Intertek

NOTE:
MAXIMUM HEIGHT = 8'.

NOTE:
BASED ON A DIAGRAM PROVIDED BY OPTERRA ENERGY SERVICES

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INDIAN WELLS VALLEY WATER DISTRICT

SOLAR PROJECT

TYPICAL SOLAR PANEL UNIT

FIGURE 9 OF 9

SCALE: N.T.S. DATE: 01/25/16 DRAWN BY: SPK CHECKED BY: VEM W.O.: 178-143

PRELIMINARY

\178\143\Drawings\Figures\178-143_f9.dwg

APPENDIX A

DRAFT MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM

INDIAN WELLS VALLEY WATER DISTRICT SOLAR PROJECT

DRAFT MITIGATED NEGATIVE DECLARATION

Project: The Solar Project (the Project) consists of construction and operation of photovoltaic solar panel arrays and AC wire and conduit at six existing IWVWD sites. Project facilities will serve to provide solar-generated electrical power to existing IWVWD facilities. A more detailed description of the Project is included in the Project Initial Study. A copy of the Project Initial Study is available for review at IWVWD's office, located at the address referenced below.

Location: The Project sites include six sites containing existing IWVWD facilities: Wells 9A/10 and Arsenic Treatment Plant No. 2 site, Well 30 site, Well 31 site, Well 33 site, Well 34 site, and IWVWD Office site.

Figures 1 through 8, copies of which are included with each copy of the Initial Study for the Project, depict the location of each Project site and the facilities proposed thereon. A copy of the Initial Study is available for review at IWVWD's office located at 500 West Ridgecrest Boulevard, Ridgecrest, California 93555 during regular business hours or on IWVWD's website at www.iwvwd.com/public-documents/public-reports/.

Entity: Indian Wells Valley Water District

The Board of Directors, having conducted a careful and independent review of the Initial Study for the Project, having reviewed the written comments received prior to the public meeting of the Board, and having heard at a public meeting of the Board the comments of any and all concerned persons or entities, including the recommendation of IWVWD staff, does hereby find and declare that the Project will not have a significant effect on the environment. A brief statement of the reasons supporting the Board's findings is as follows:

> Construction and operation of the Project as modified will not result in significant adverse impacts upon any threatened or endangered species of plants or animals, nor will it result in damage to or destruction of any significant examples of California history or prehistory. Potential impacts related to biological resources will be avoided or reduced by adhering to the terms of a Mitigation Monitoring and Reporting Program (see Exhibit A, attached, which is incorporated herein by reference) throughout construction and operation of the Project.

The Board of Directors hereby finds that the Mitigated Negative Declaration reflects its independent judgment. The Initial Study was prepared by David F. Scriven with Krieger & Stewart, the District's Consulting Engineer. The Initial Study may be viewed at the offices of Indian Wells Valley Water District, located at 500 West Ridgecrest Boulevard, Ridgecrest CA 93555.

DATED: _____

_____

Don Zdeba
General Manager
INDIAN WELLS VALLEY WATER DISTRICT

MITIGATION MONITORING AND REPORTING PROGRAM

EXHIBIT A TO THE MITIGATED NEGATIVE DECLARATION

Section I – Introduction

Section 21081.6 of the California Environmental Quality Act (CEQA) requires that a mitigation monitoring program be prepared prior to the approval of any project which incorporates mitigation measures as a condition of approval. Mitigation measures are generally adopted to reduce the potentially significant adverse environmental impacts of a project to a level that is less than significant. The mitigation monitoring program must ensure compliance with mitigation measures during project construction (and, if applicable, during operation). Since the project considered by the Initial Study for Indian Wells Valley Water District's Solar Project (Project) incorporates mitigation measures as a condition of approval, this mitigation monitoring and reporting program has been prepared and incorporated into the Mitigated Negative Declaration for the Project.

Section II – Biological Resources Measures and Mitigation Monitoring and Reporting Program

As discussed in Issue IV of the Project Initial Study, there is a potential for special status species to be present on most of the Project sites. Without mitigation, the Project could potentially result in significant adverse impacts upon special status species present at the Project sites. This Mitigation Monitoring and Reporting Program is intended to reduce potential impacts by the Project upon biological resources, including special status species, by specifying methods and procedures for avoiding or reducing such impacts.

The following mitigation measures (**BIO-1** through **BIO-5**) will be implemented in order to ensure that construction and operation of Project facilities do not result in a significant adverse impact upon biological resources. Each measure is attended by a notation of the party responsible for its implementation and of the period for which it will be in effect.

BIO-1: Desert Tortoise

Prior to commencement of ground disturbance at the Wells 9A/10 and Arsenic Treatment Plant No. 2, Well 30, Well 31, Well 33, and Well 34 Project sites, IWVWD will acquire from CDFW a Section 2081 incidental take permit to authorize potential take of desert tortoise.

Preconstruction surveys will be conducted at each of the following Project sites: Wells 9A/10 and Arsenic Treatment Plant No. 2, Well 30, Well 31, Well 33, and Well 34 prior to ground disturbance. At each site, if no tortoise sign is found during the preconstruction survey, then a metal mesh fence, extending two feet below ground and two feet above ground, will be placed around the construction area to preclude tortoises from entering the construction zone. IWVWD will also perform any mitigation that may be required by the Section 2081 incidental take permit.

Additionally, IWVWD will seek Technical Assistance from USFWS to confirm that protective measures can be implemented in lieu of a federal Section 10 incidental take permit.

Responsible Party: District Engineer
Implementation Period: Prior to and During Project Construction

BIO-2: Mohave Ground Squirrel

Prior to commencement of ground disturbance at the Wells 9A/10 and Arsenic Treatment Plant No. 2, Well 30, Well 31, Well 33, and Well 34 sites, IWVWD will acquire from CDFW a Section 2081 incidental take permit to authorize potential take of Mohave ground squirrel.

IWVWD anticipates that the Section 2081 incidental take permit will require dedication of habitat at a ratio of 3:1 for Mohave ground squirrel habitat taken as a result of the Project at the Well 30, Well 31, Well 33, and Well 34 sites; therefore, IWVWD would dedicate compensatory habitat ranging from approximately 19.5 to 21.0 acres in a nearby mitigation bank that has been accepted by CDFW as appropriate compensatory habitat.

Responsible Party: District Engineer
Implementation Period: Prior to and During Project Construction

BIO-3: Burrowing Owl

Within ten (10) calendar days prior to commencement of construction at the Well 30, Well 31, Well 33, and Well 34 Project sites, a qualified biologist will conduct a preconstruction survey for burrowing owls. If no burrowing owls are identified during the preconstruction surveys at each site, then ground-disturbing activities may commence without further mitigation for burrowing owls. If construction does not commence within ten (10) calendar days after the preconstruction survey, then an additional preconstruction survey will be conducted within ten (10) calendar days prior to commencement of construction.

If preconstruction surveys detect burrowing owls on or within 250 feet of the Project site during the breeding season of February 1 through August 31, then a construction buffer area of approximately 250 feet will be established and demarcated around the perimeter of each burrow. If it is not practicable to avoid the established buffer area during construction, and construction cannot be delayed until after the breeding season or until all young burrowing owls have fledged, then IWVWD will permanently dedicate a minimum of 6.5 acres of suitable foraging habitat for each pair of breeding burrowing owls (with or without dependent young) and each single unpaired resident bird.

If preconstruction surveys detect burrowing owls on or within 160 feet of the Project site during the nonbreeding season of September 1 through January 31, then a construction buffer area of approximately 160 feet will be established and demarcated around the perimeter of each burrow. If it is not practicable to avoid the established buffer area during construction, then the burrowing owls may be passively relocated by a qualified biologist. Once the qualified biologist has determined that all burrowing owls have vacated the Project site, then construction may proceed at that site.

Responsible Party: District Engineer
Implementation Period: Prior to and During Project Construction

BIO-4: LeConte's Thrasher and Other Nesting Bird Species

If practicable, vegetation removal and grading activities will not be conducted during the bird breeding season of March 15 through September 15. If said construction activities will take place during the breeding season, then a qualified biologist will conduct a preconstruction nesting bird survey during the appropriate time of day, with the surveys ending no more than three days prior to site clearing or grading. If no nesting birds are found during the surveys, then construction activities may commence. If an active bird nest is located, then the plant in which it occurs will be left in place until the birds leave the nest. No construction will be allowed near the active bird nests of threatened or endangered species.

Responsible Party: District Engineer
Implementation Period: Prior to Commencement of Project Construction

BIO-5: Silver Chollas

Prior to commencement of ground disturbing activities at the Well 30, Well 33, and Well 34 sites, all silver chollas at said sites shall be transplanted onto adjacent lands owned by IWVWD.

Responsible Party: District Engineer

Implementation Period: Prior to Commencement of Project Construction

APPENDIX B

BIOLOGICAL RESOURCES ASSESSMENT REPORT

Focused Survey for Agassiz's Desert Tortoise,
Habitat Assessments for Burrowing Owl and Mohave Ground Squirrel, and
General Biological Resource Assessment for Six Solar Sites
in the City of Ridgecrest and Kern County, California

Job#: 16-001

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I hereby certify that the statements furnished herein, including attached exhibits, present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a nondisclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.

Circle Mountain Biological Consultants, Inc.
Author and Field Investigator: Edward L. LaRue, Jr.

January 2016

Figure 1a. Six Solar Sites: Vicinity Map

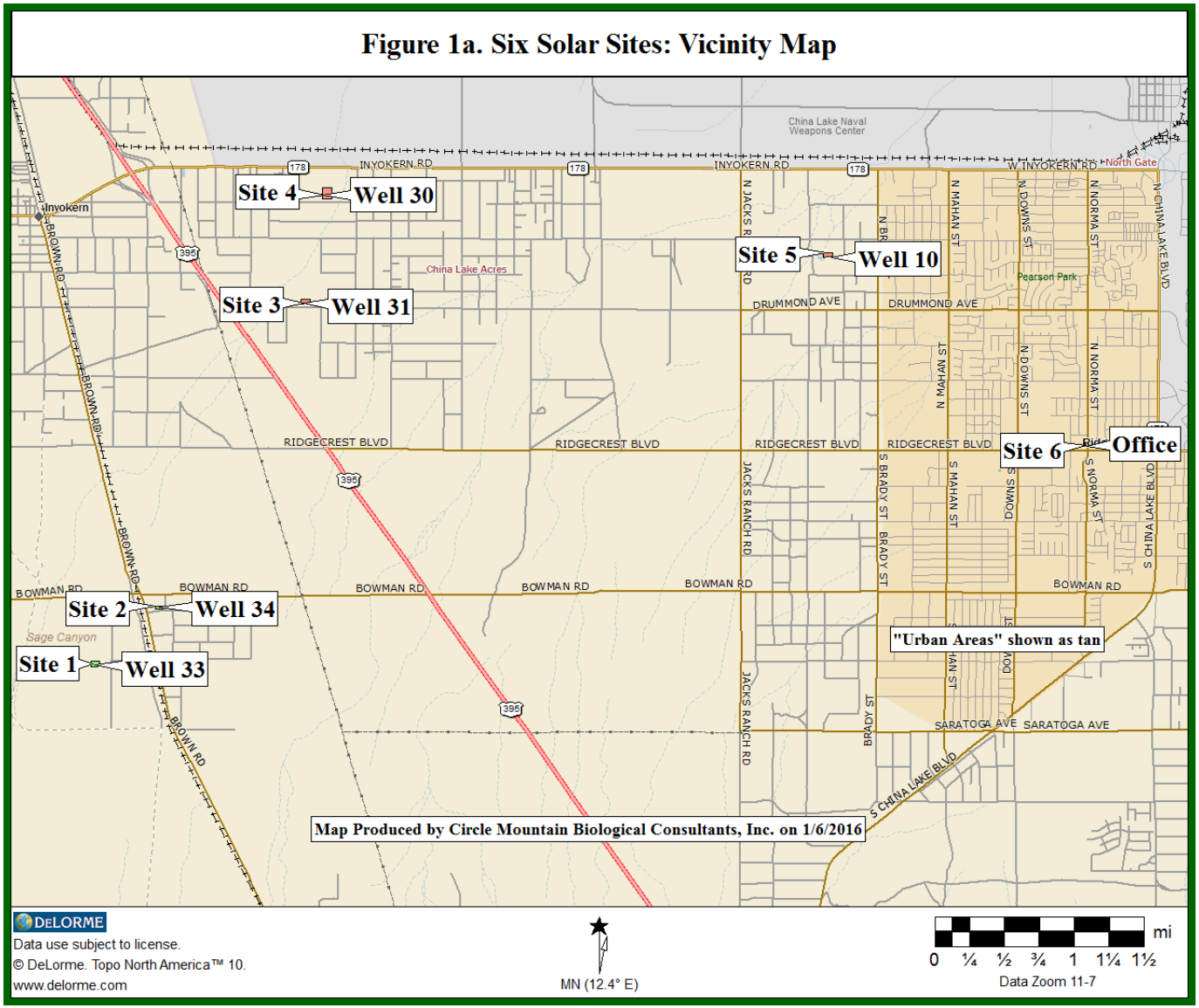


Figure 1b. Aerial Photograph Index of Six Solar Sites

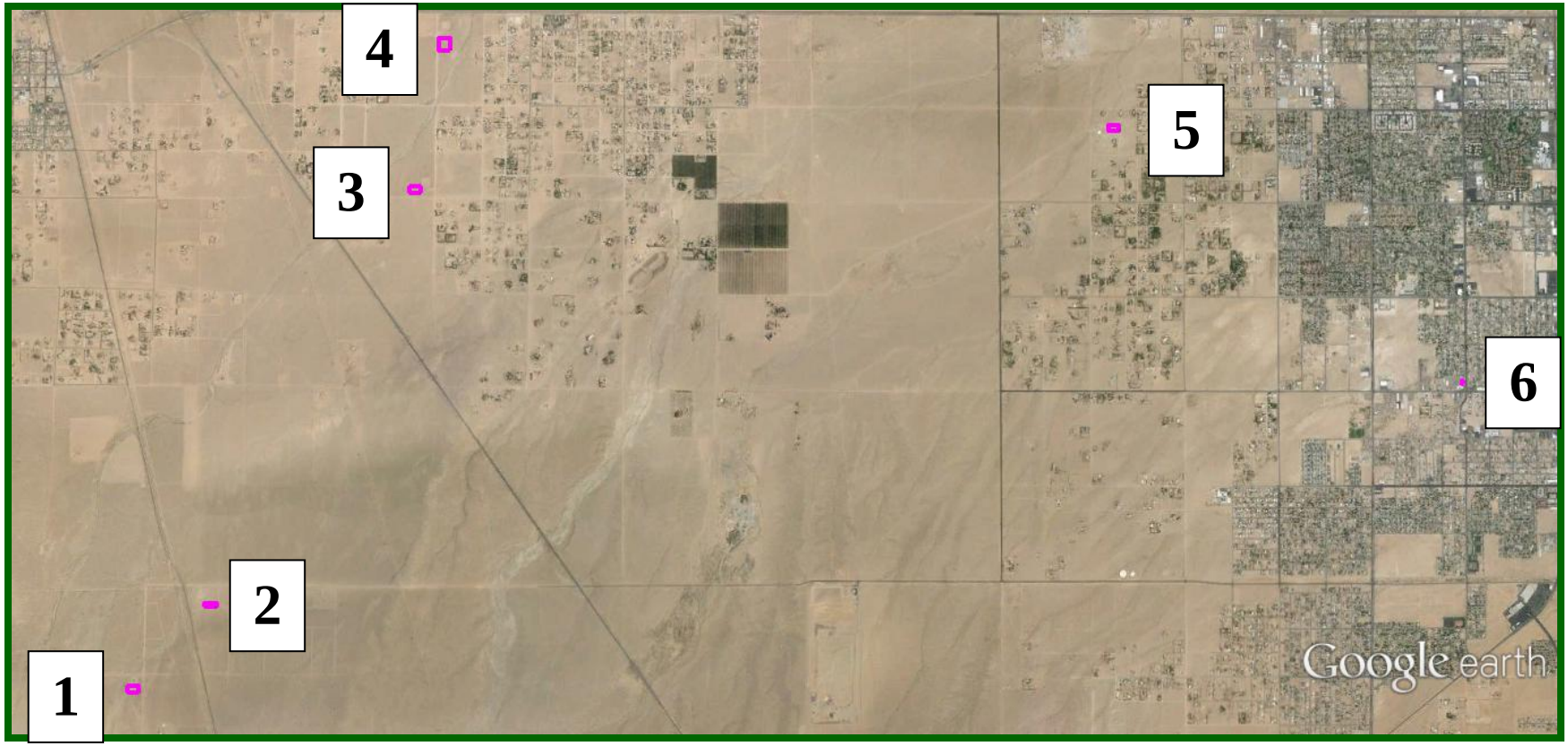


Figure 2a. Site 1 Map with Transect and Species Locations

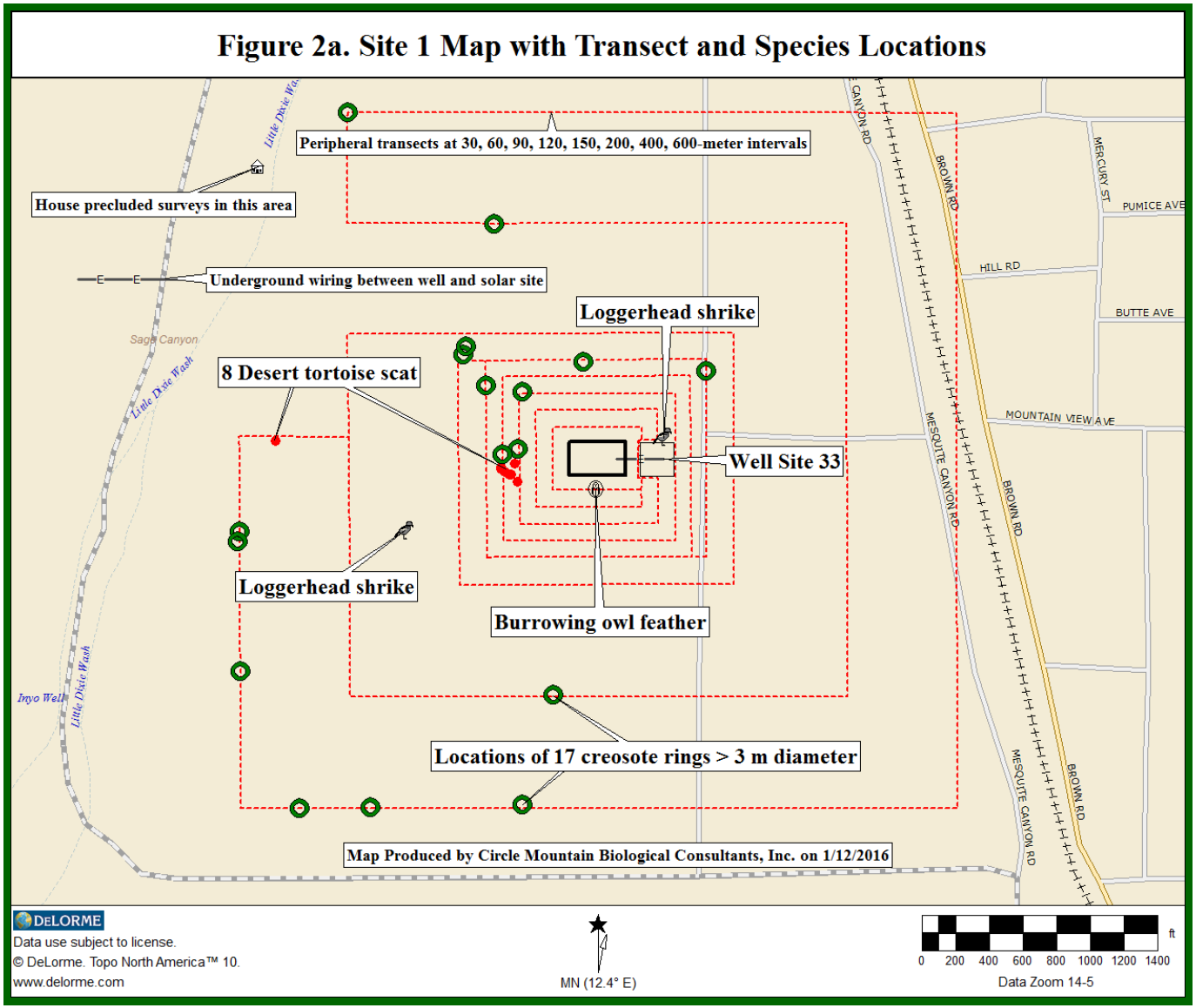


Figure 2b. Aerial Photograph of Site 1

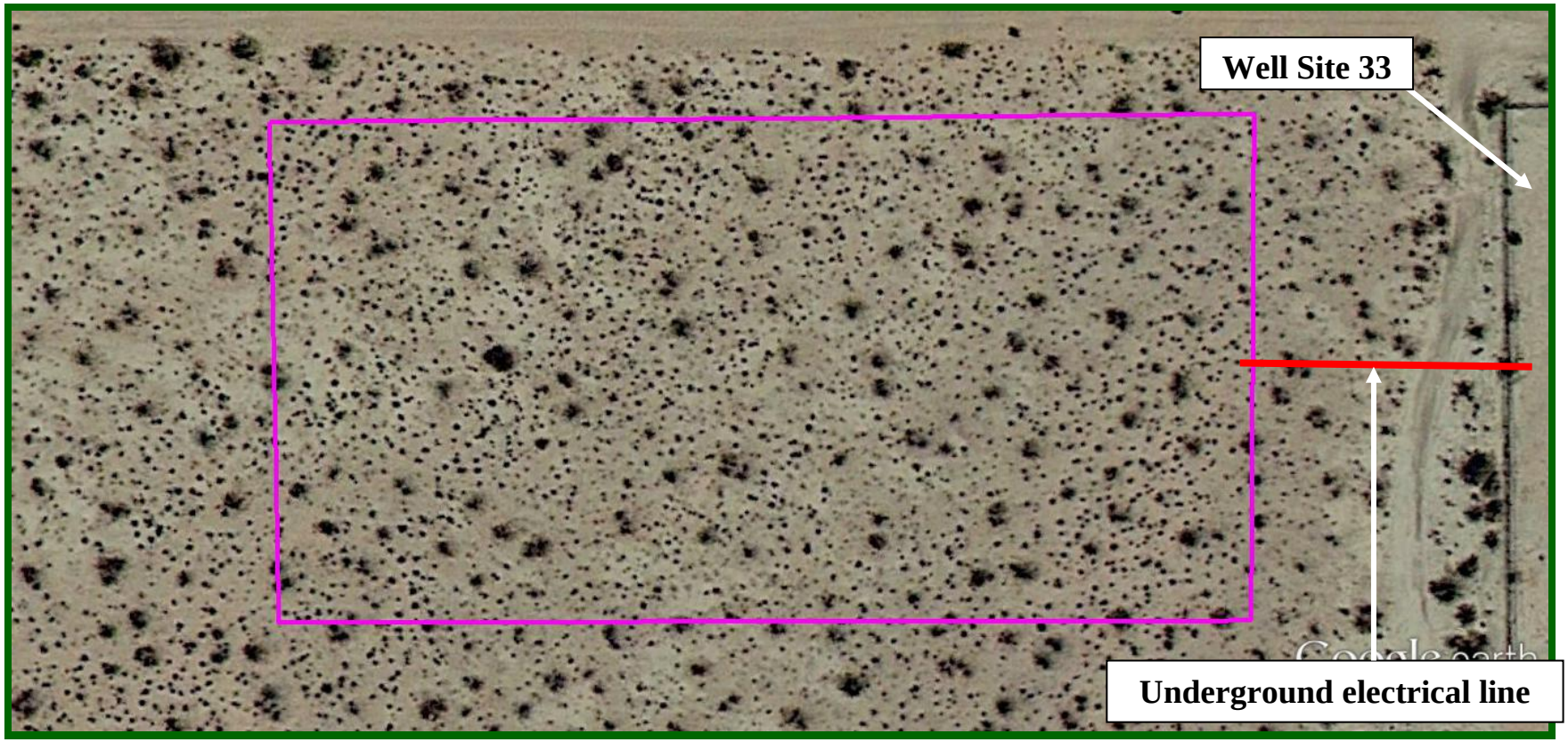


Figure 3a. Site 2 Map with Transect and Species Locations

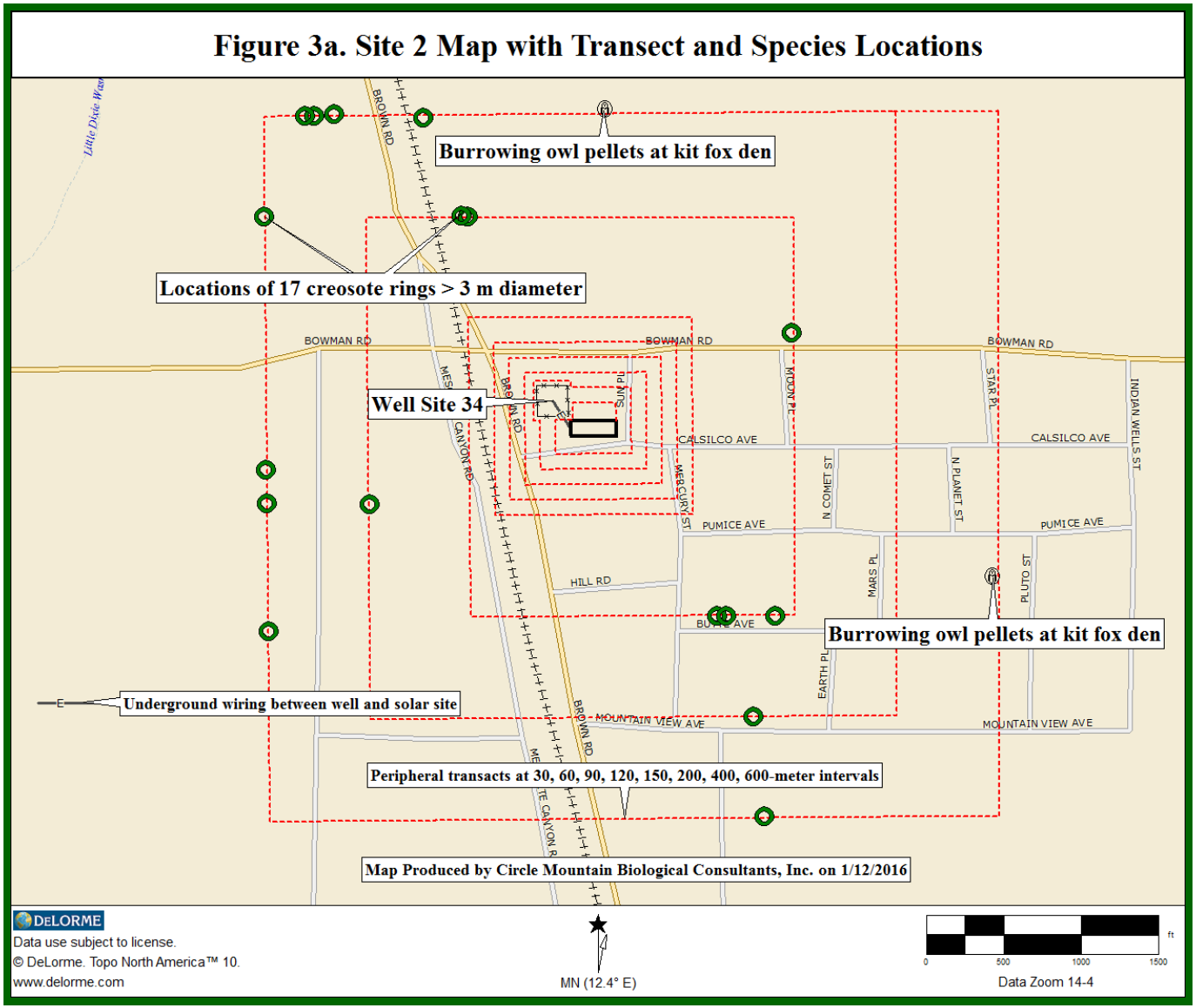


Figure 3b. Aerial Photograph of Site 2

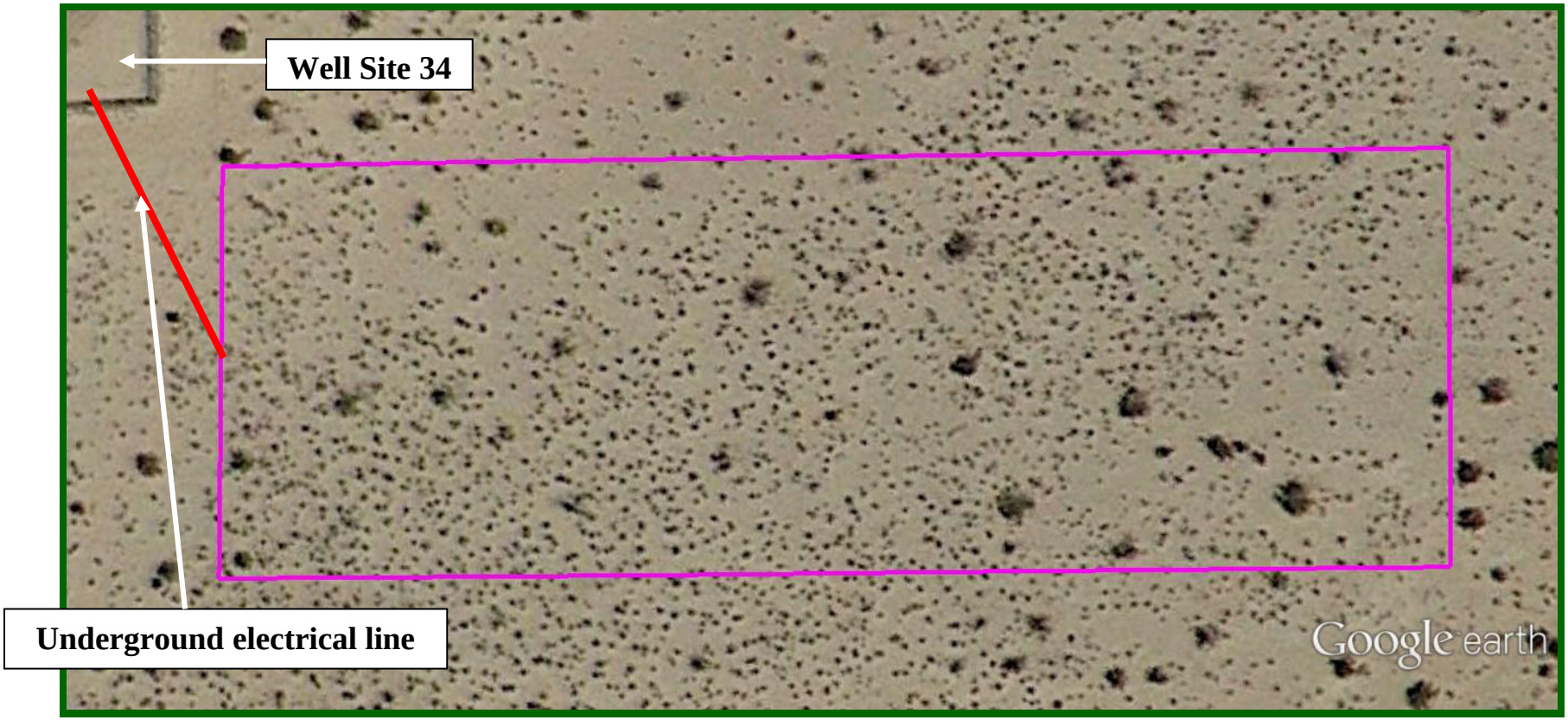


Figure 4a. Site 3 Map with Transect and Species Locations

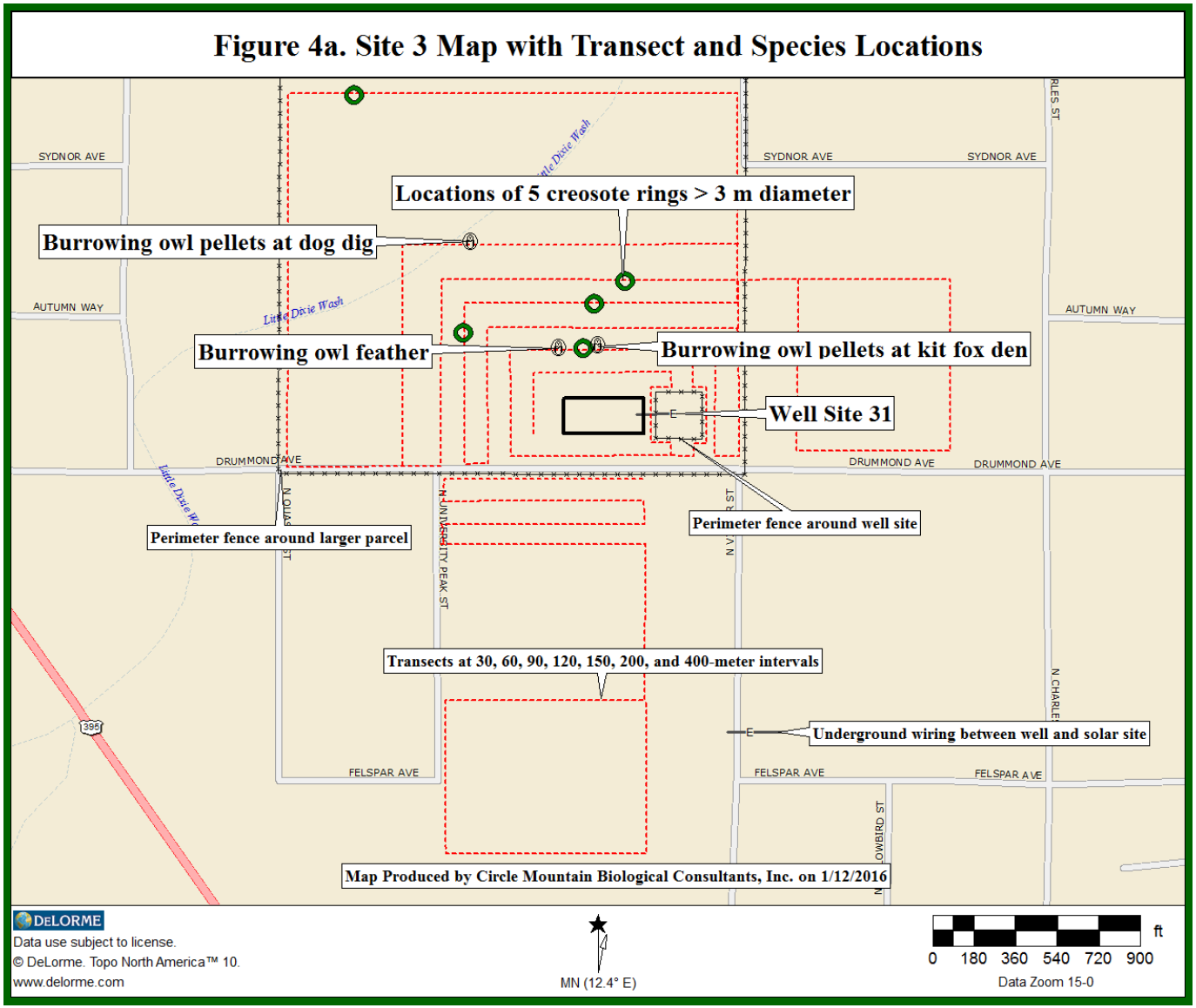


Figure 4b. Aerial Photograph of Site 3

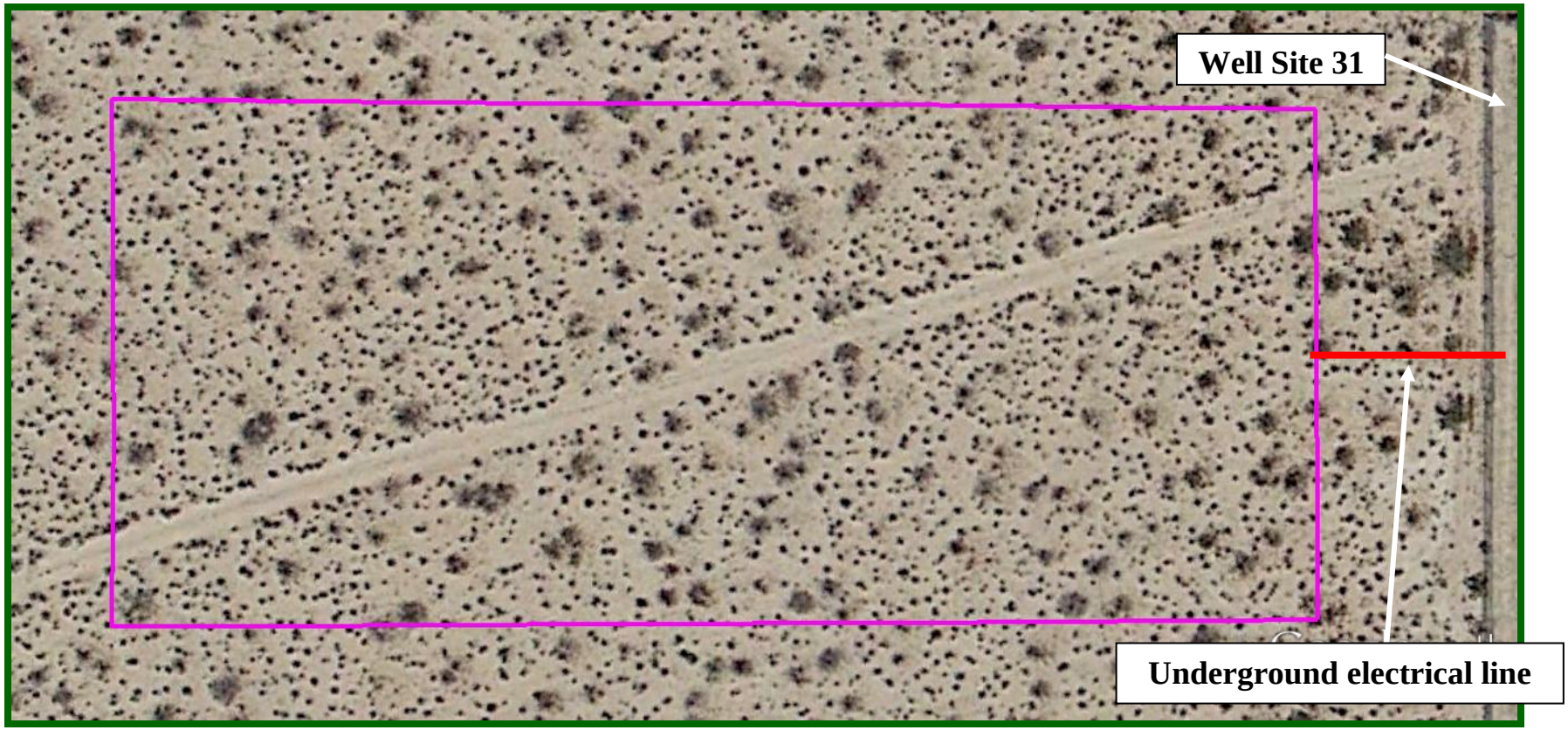


Figure 5a. Site 4 Map with Transect and Species Locations

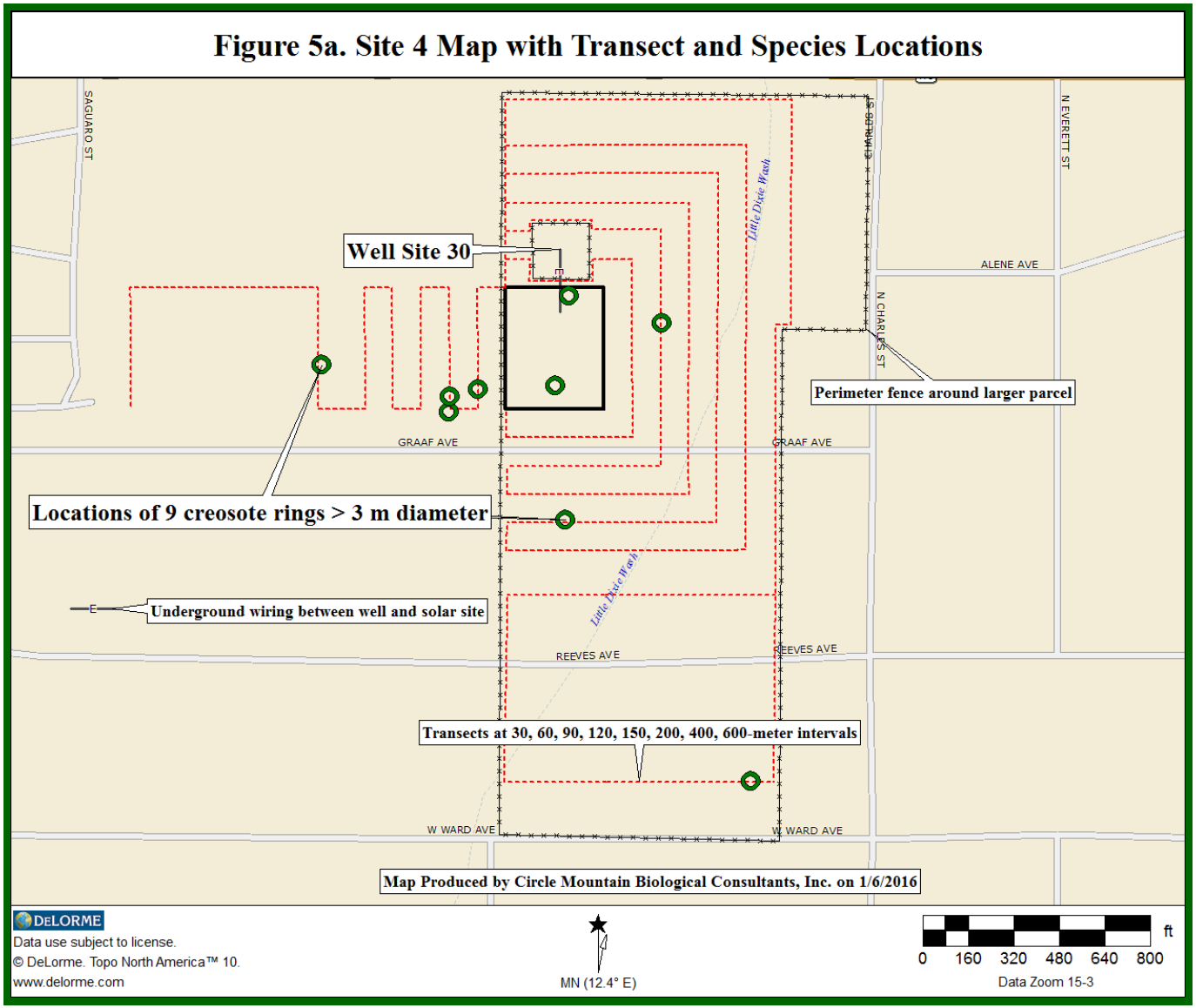


Figure 5b. Aerial Photograph of Site 4

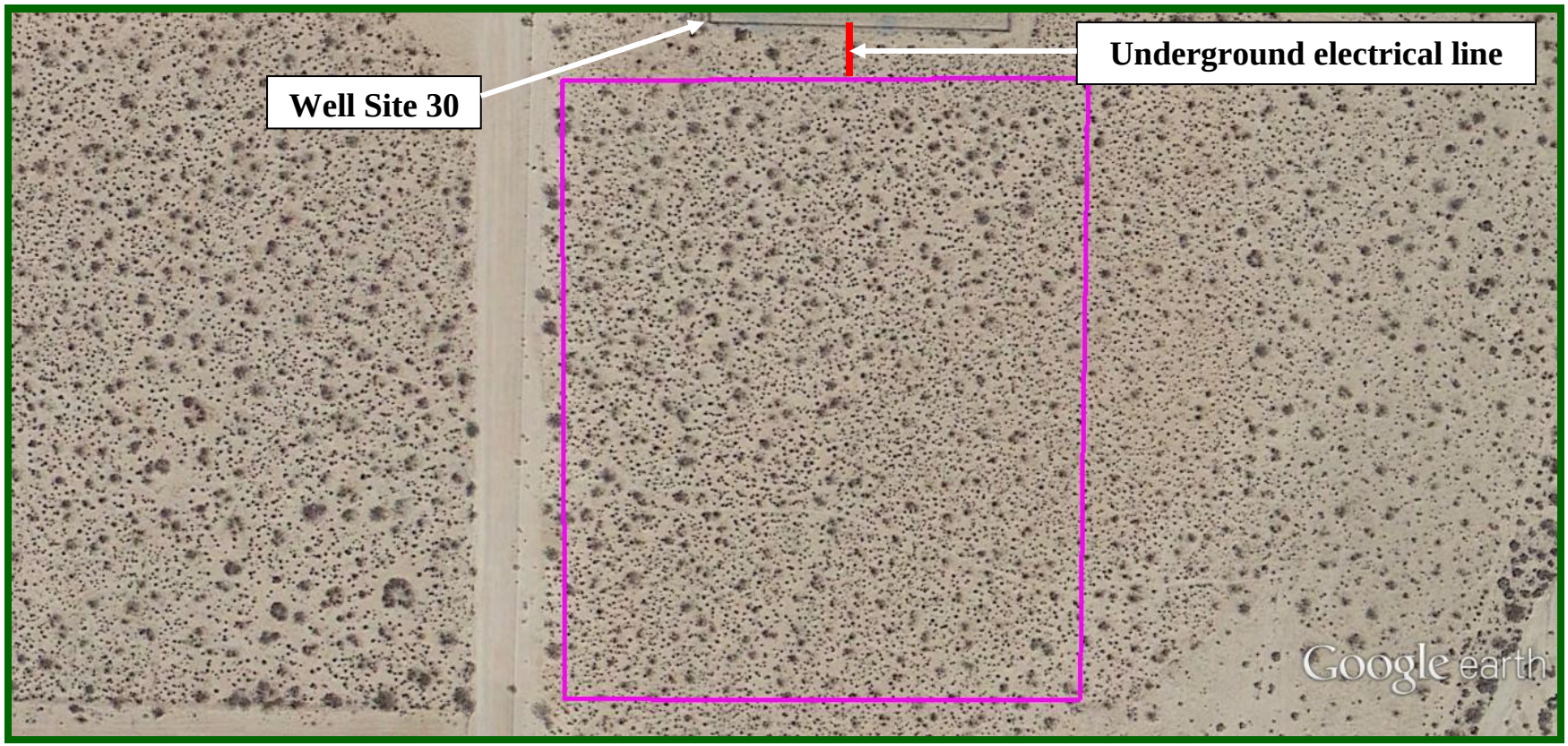


Figure 6a. Site 5 Map with Transect and Species Locations

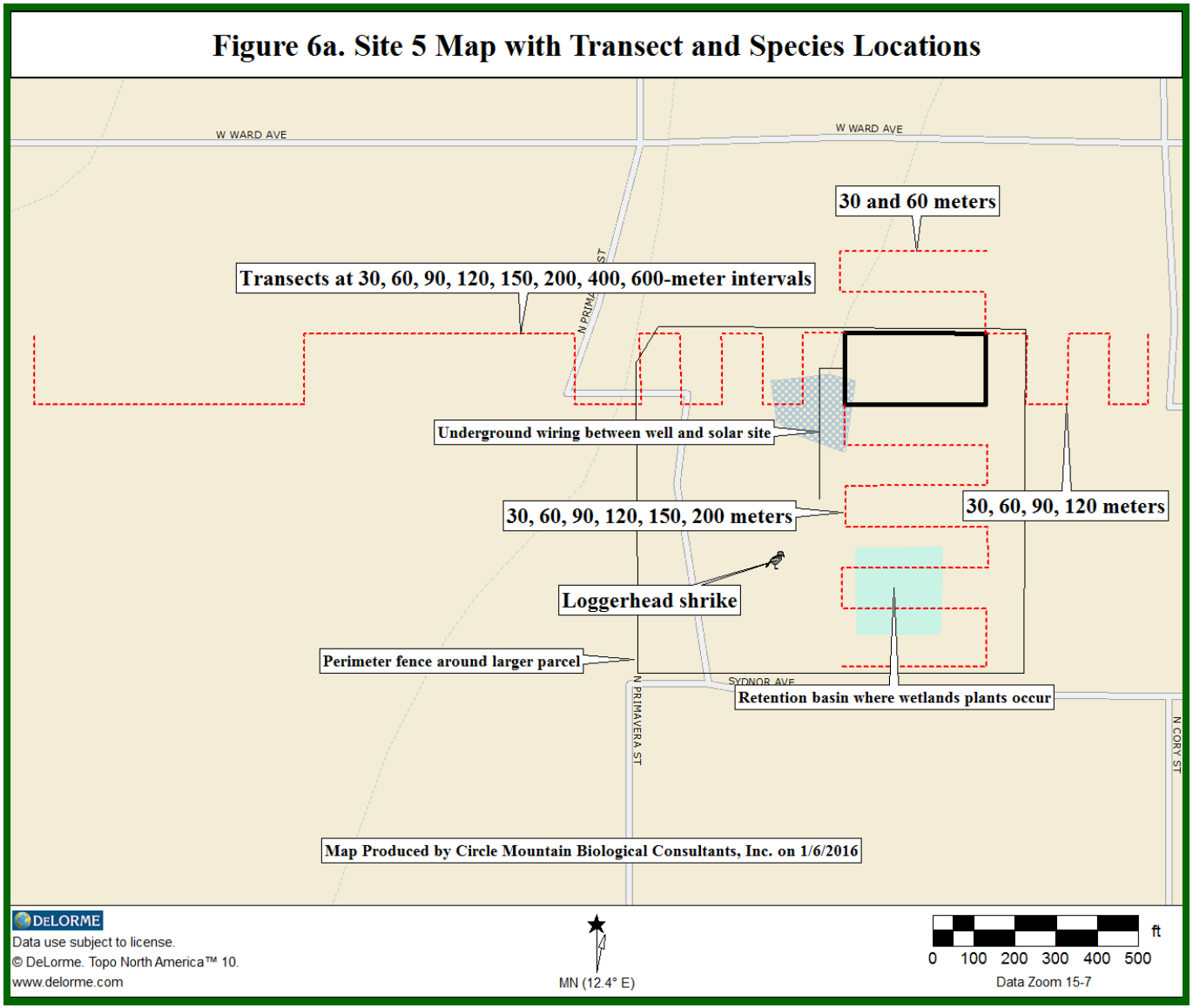


Figure 6b. Aerial Photograph of Site 5

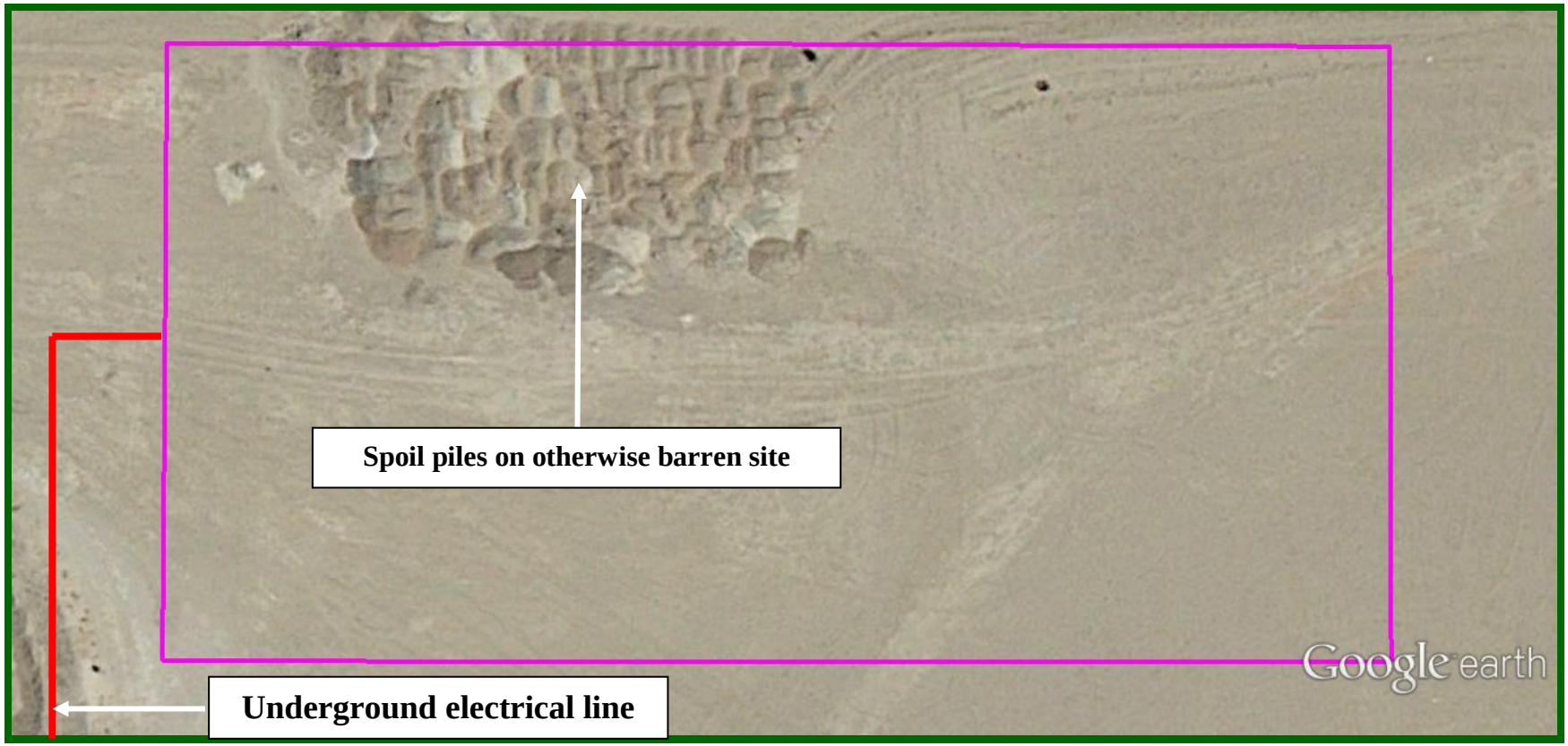


Figure 7a. Site 6 Location Map

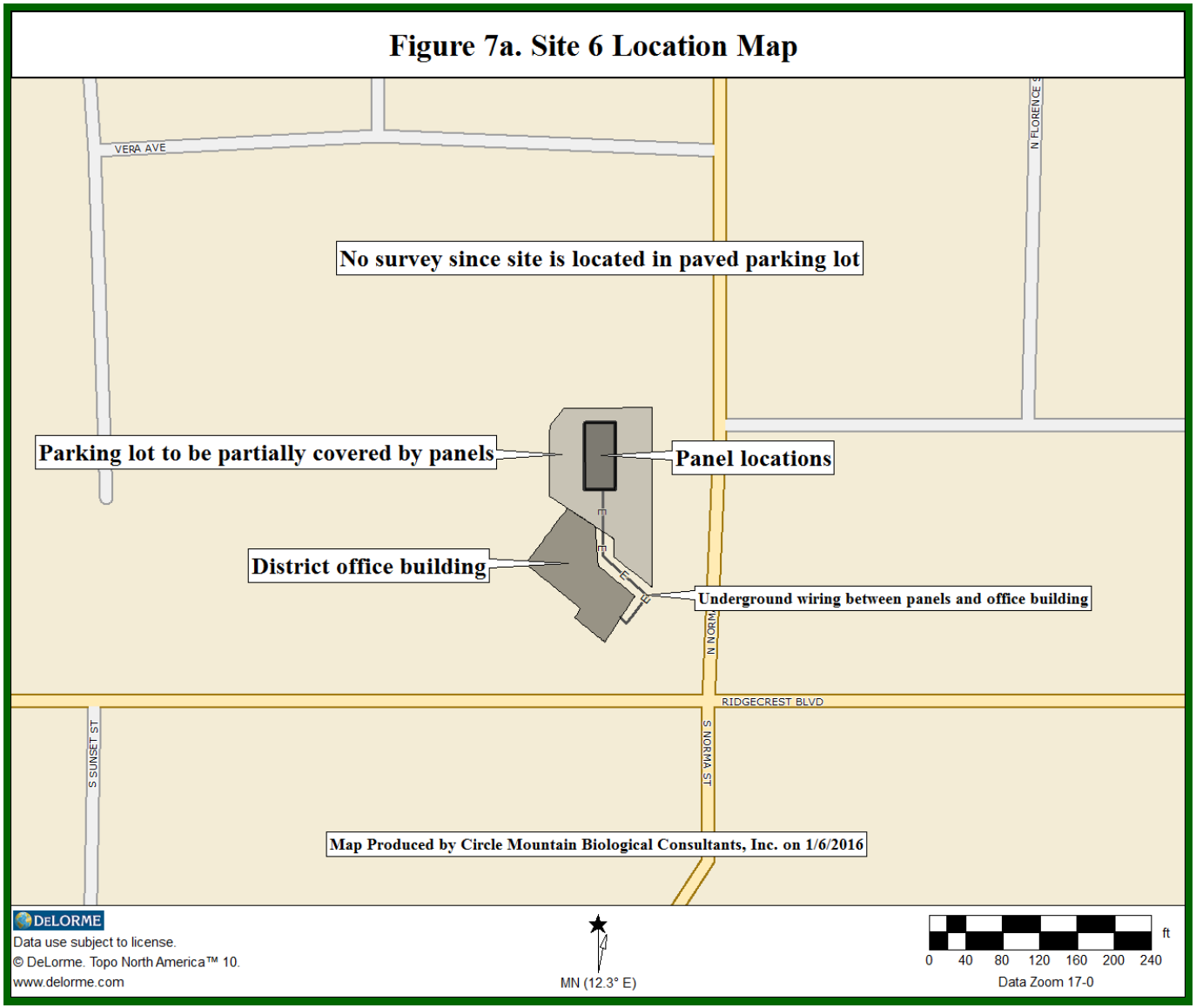


Figure 7b. Aerial Photograph of Site 6

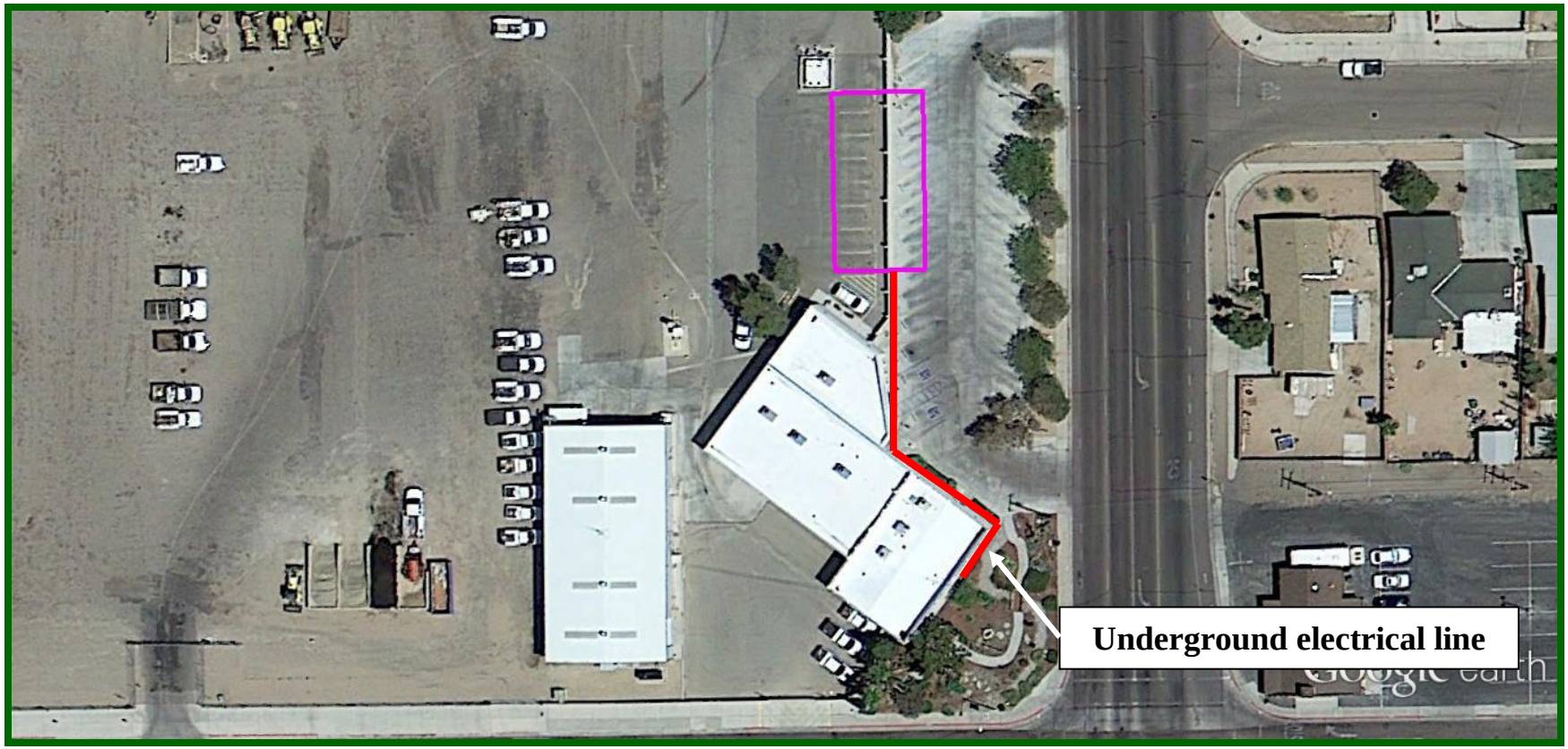


Figure 8. Regional Tortoise Survey Results between 1991 and 2016

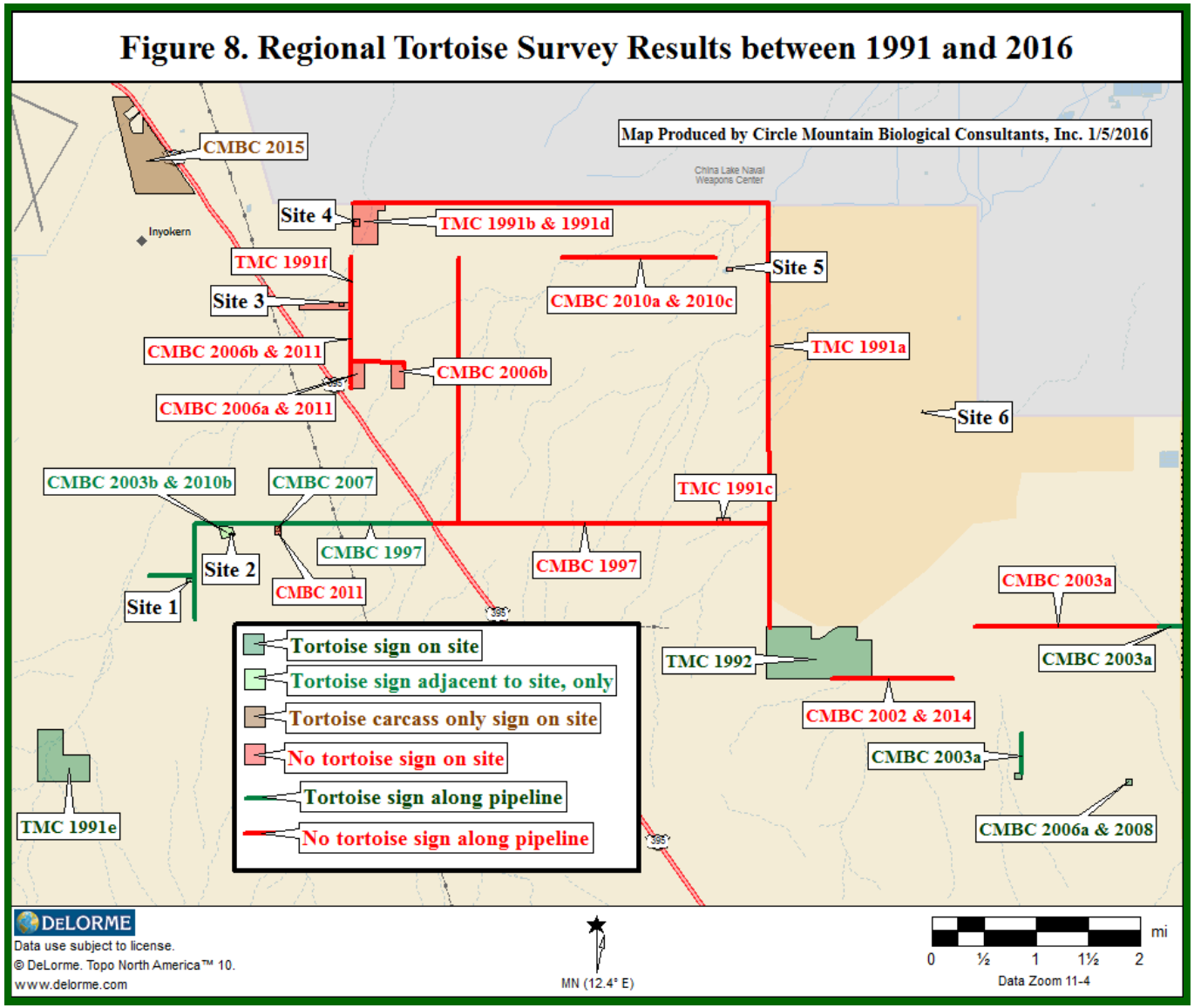
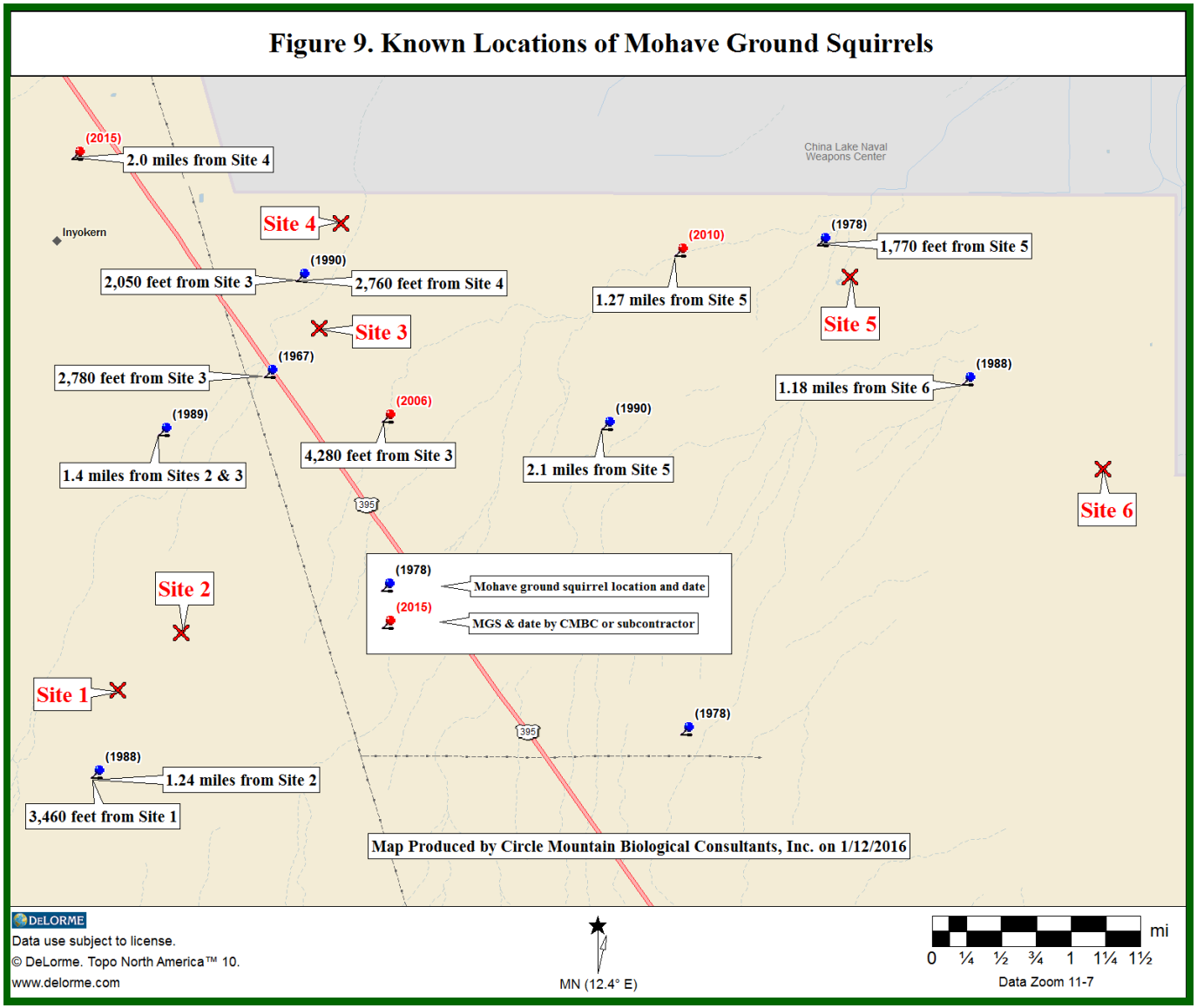


Figure 9. Known Locations of Mohave Ground Squirrels



Executive Summary

Circle Mountain Biological Consultants, Inc. was contracted by Indian Wells Valley Water District to perform focused surveys for Agassiz's desert tortoise, habitat assessments for burrowing owl and Mohave ground squirrel, and general biological resource assessments on six proposed solar sites located in the city of Ridgecrest and Kern County, California. For a total of about 25 hours between January 5 and 9, 2016 Ed LaRue of CMBC performed these surveys and assessments as given herein.

Ranging in elevations from 2,310 feet (704 meters) at Site 6 up to 2,559 feet (780 meters) at Site 1, the six sites include four sites (1, 2, 3, and 4) that are comprised of native creosote bush scrub and two sites (5 and 6) that are devoid of native habitats. Terrain for Sites 1, 2, 3, and 4 are relatively similar; being relatively flat and sandy. Site 5 is comprised of barren, compacted dirt and Site 6 is paved. None of the six sites have any USGS-designated blueline streams, although Little Dixie Wash occurs immediately north of Site 3 and east of Site 4. The 65 plant species identified during the surveys are listed in Appendix A. The 4 reptile, 22 bird, and 6 mammal species identified during the surveys are listed in Appendix B.

Based on the absence of tortoise sign onsite and in areas adjacent to Sites 3, 4, 5, and 6, and available information reviewed for this habitat assessment, CMBC concludes that tortoises are absent from these four sites. There is tortoise sign immediately adjacent to Site 1 and given recent occurrences near Site 2, there is the potential for tortoises to occur and be impacted during development of these two sites. It is likely that all six sites can be developed without a federal incidental take permit, so long as Technical Assistance is solicited from the USFWS to identify an approach to avoid take by implementing best management practices.

Based on the field survey and habitat assessment, CMBC concludes that none of the following special status species reported from the region will be adversely affected by site development: Loggerhead shrike, osprey, or Swainson's hawk. As such, no adverse impacts have been identified and no mitigation measures are recommended. Those species either identified during the current survey or for which suitable habitats are present include LeConte's thrasher, burrowing owl, and Mohave ground squirrel.

There are requirements relative to all nesting birds given in Section 4.2.2.b. that would ensure LeConte's thrashers are not adversely affected by development of Sites 1, 2, 3, and 4. Protective measures implemented during biological monitoring can effectively avoid impacts to burrowing owls. Finally, IWVWD has decided to solicit a Section 2081 incidental take permit that will authorize take of Mohave ground squirrels and desert tortoises. An existing mitigation bank with a residual balance of 70.70 acres will be used to compensate impacts associated with site development.

Table of Contents

Focused Survey for Agassiz's Desert Tortoise,
Habitat Assessments for Burrowing Owl and Mohave Ground Squirrel, and
General Biological Resource Assessment for Six Solar Sites
in the City of Ridgecrest and Kern County, California

1.0. Introduction

1.1. Purpose and Need for Study. Circle Mountain Biological Consultants, Inc. (CMBC) was contacted by Dr. Renee Morquecho on behalf of Indian Wells Valley Water District (IWVWD) to perform focused surveys for Agassiz's desert tortoise (*Gopherus agassizii*), habitat assessments for burrowing owl (*Athene cunicularia*) and Mohave ground squirrel (*Xerospermophilus mohavensis*), and general biological resource assessments on six proposed solar sites located in the city of Ridgecrest and Kern County, California (see Figures 1a and 7b). Given the locations of the sites in the city and in an unincorporated portion of the county and because neither the city nor county planning departments have specific guidelines for biological reports, this report has been prepared, in part, according to County of San Bernardino's *Report Protocol for Biological Assessment Reports* (County of San Bernardino 2006).

As the California Environmental Quality Act (CEQA) Lead Agency, IWVWD is required to complete an initial study to determine if development of the sites will result in any adverse impacts to rare biological resources. The information may also be useful to federal and State regulatory agencies, including U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), respectively, if the Lead Agency asks them to assess impacts associated with proposed development. Results of CMBC's focused tortoise surveys, burrowing owl and Mohave ground squirrel habitat assessments, and general biological resource assessments are intended to provide sufficient baseline information to these agencies to determine if impacts will occur and to identify mitigation measures, if any, to offset those impacts.

1.2. Project Location and Description. Site numbers (unique to this document to facilitate reporting results), locations, acreages, legal descriptions, assessor's parcel numbers, and U.S. Geological Survey 7.5-minute map names for each of the six sites are given below in Table 1 (see Figures 1a through 7b for regional and local vicinity maps).

Table 1. Site Descriptions for Six Solar Sites

Site No. (Location)	Acres	Legal Description (APN)	USGS 7.5' Home Quad
1 (Well 33)	1.26	T27S, R39E, SW1/4S8 (APN 341-082-18)	Inyokern SE
2 (Well 34)	0.83	T27S, R39E, NE1/4S8 (APN 341-251-04)	Inyokern SE
3 (Well 31)	1.15	T26S, R39E, SE1/4S28 (APN 352-201-35)	Inyokern
4 (Well 30)	2.83	T26S, R39E, NW1/4S27 (APN 352-095-38)	Inyokern
5 (Well 10)	1.12	T26S, R40E, SE1/4S30 (APN 454-090-20)	Ridgecrest North
6 (Office)	0.05	T27S, R40E, NW1/4S4 (APN 067-050-17)	Ridgecrest South
6 Sites	**7.24**		**4 Quad Maps**

The following information was provided by IWVWD (Source: ©2015 OpTerra Energy Services):

Table 2. Solar Energy Systems Summary for Six Solar Sites			
Site # (Primary Location)	**Size in kW DC**	**Rate Schedule**	**Serving**
1 (Well 33)	343.2	NEM-A	Wells 18 and 33
2 (Well 34)	150.2	NEM	Well 34
3 (Well 31)	286.0	NEM	Well 31
4 (Well 30)	915.2	RES-BCT	Wells 11, 13, 17, 30, Treatment Plant 1, and Gateway, Salisbury, C-Zone, RCH Boosters
5 (Well 10)	343.2	NEM-A	Well 10, Well 9A, Treatment Plant 2
6 (Office)	42.9	NEM	District Office
6 Sites	**2,080.7**		**17 Facilities**

Given the above summary, a total of 2.08 MW of solar photovoltaic is being proposed. Five of the sites (Sites 1-5) would accommodate ground-mounted, fixed-tilt solar systems, and the office (Site 6) would involve parking shade structure solar panels.

2.0. Methods

2.1. Literature Review. CMBC consulted materials included in our library to determine the nearest tortoise locations and other special status plant and animal species that have been reported from the vicinity of the six subject properties. Between 1991 and 2016, CMBC has completed focused tortoise surveys on approximately 25 projects in the Indian Wells Valley Area, including Inyokern to the west, Ridgecrest to the east, and Olancha to the north, which are mapped in Figure 8. These and other materials used in the completion of this report are listed in Section 5.0, below.

2.2. Field Survey.

2.2.1. *Survey and Habitat Assessment Protocols*. For **Agassiz's desert tortoise**, CMBC generally followed the survey protocol first identified by the USFWS (1992) and recently revised (USFWS 2010) for their detection. USFWS (2010) protocol recommends that transects be surveyed at 30-foot (10-meter) intervals throughout all portions of a given parcel. If neither tortoises nor sign are encountered during *action area* surveys and the project, or any portion of project, is ≤ 0.8 km^2 (200 acres) or linear, three additional 30-foot (9 meters) belt transects at 655-foot (200 meters), 1,310-foot (400 meters), and 1,970-foot (600 meters) intervals parallel to and/or encircling the project perimeter should be surveyed.

The *action area* is defined by regulation as all areas to be affected directly or indirectly and not merely the immediate area involved in the action (50 CFR §402.02). For these surveys, the action areas are considered to correspond to the solar panels and underground electrical lines that connect to existing well sites and the IWVWD's district office.

Like the USFWS 1992 and 2009 protocols that recommended seasonal restrictions for completing tortoise surveys, the USFWS 2010 protocol recommends that tortoise surveys should occur in the April-to-May and September-to-October time frames, with a few exceptions. Importantly, the 2010 protocol revised the 2009 version to indicate that sites *less than 40 acres* may be surveyed for tortoises year-round. As such, since the sites cumulatively comprise 7.4 acres, these surveys conform to the current protocol. Although the survey protocol was developed by the USFWS, CMBC also felt it prudent to discuss the survey approach with the CDFW. On 4 January 2016 prior to surveys, Ed LaRue spoke with CDFW Biologist, Lisa Gymer, who agreed that the intended approach to surveys and literature review were appropriate for this project.

For **burrowing owl**, the CDFW (CDFG 2012) survey protocol recommends transects be surveyed at 30-meter intervals throughout a given site, with five additional transects surveyed at 30-meter intervals out to 150 meters in adjacent areas in potential habitat (i.e., excluding areas substantially developed for commercial, residential, and/or industrial purposes). With its narrower transect intervals, the tortoise survey is sufficient to cover the site for burrowing owl. The focus of the survey is to find and inspect all burrows sufficiently large to be used by burrowing owls. UTM coordinates were collected for all such burrows, which are mapped in Figures 2a through 6a. Importantly, this methodology is considered a formal *habitat assessment* for presence of burrowing owls, which can be conducted any time of the year.

For **Mohave ground squirrel**, some jurisdictions have recently required that habitat assessments be performed by individuals certified by CDFW for trapping the species. Ed LaRue who performed the fieldwork and drafted this assessment possesses a Mohave ground squirrel Memorandum of Understanding with CDFW, dated 11 April 2012 as an attachment to scientific collecting permit (SC-001544), which expires on 30 April 2016. The primary assessment herein asks the following questions: (1) Is the site within the range of the species? (2) Is there native habitat with a relatively diverse shrub component? And, (3) is the site surrounded by development and therefore isolated from potentially occupied habitat?

2.2.2. *Field Survey Methods*. Pertinent survey data of the six sites are summarized in Table 3, including dates, survey hours, number and orientation of transects.

Table 3. Survey Data from 5-9 January 2016

Site	Dates	Times and total hours	No. Transects Onsite/Orientation/Peripheral Transects
1	1/6/2016 1/7/2016	1430 to 1630 = 2 hrs 0930 to 1400 = 4.5 hrs	11 transects/North-South/Peripheral transects at 30, 60, 90, 120, 150, 200, 400, and 600 meters in all directions
2	1/8/2016	0900 to 1515 = 6.25 hrs	10 transects/North-South/ Peripheral transects at 30, 60, 90, 120, 150, 200, 400, and 600 meters in all directions
3	1/7/2016 1/8/2016	1430 to 1700 = 2.5 hrs 1545 to 1645 = 1.0 hr	12 transects/North-South/Peripheral transects at 30, 60, 90, 120, 150, 200, and 400 meters in all directions; not 600 meters due to residences
4	1/6/2016	0900 to 1530 = 6.5 hrs	14 transects/East-West/Peripheral transects at 30, 60, 90, 120, 150, 200, 400, and 600 meters South; only 200 meters North due to road and 200 meters East due to residences; only 400 meters West due to houses

Table 3 (continued). Survey Data from 5-9 January 2016			
Site	**Dates**	**Times and total hours**	**No. Transects Onsite/Orientation/Peripheral Transects**
5	1/5/2016	0915 to 1130 = 2.25 hrs	10 transects/North-South/Peripheral transects at 30, 60, 90, 120, 150, 200, 400, and 600 meters West; only 30 and 60 meters North due to residences; only 30, 60, 90, and 120 meters East due to residences; and no transects 400 and 600 meters South due to residences
6	1/5/2016	0845 to 0900 = 0.25 hrs	No survey due to lack of habitat
6	**1/5-8/16**	**0845-1700 = 25.25 hrs**	**Variable**

Sites 1 through 5 were each surveyed by transects spaced at 10-meter intervals, resulting in 100% surveys of these five sites. There was no need to survey Site 6, at the district office, as all areas are comprised of paved parking areas. Figures 2a through 6a show the locations of peripheral transects surveyed adjacent to Sites 1 through 5.

As transects were surveyed, LaRue kept tallies of observable human disturbances encountered within 5 meters either side of each transect. The results of this method provide *encounter rates* for observable human disturbances. For example, two roads observed on each of 10 transects would yield a tally of 20 roads (i.e., two roads encountered ten times). Habitat quality, adjacent land uses, and this disturbance information are discussed below in Section 3.2 relative to the potential occurrence of Agassiz's desert tortoise and other special status species for each of the properties.

Weather conditions recorded at the beginning and end of each survey period were recorded and are summarized in Table 4.

Table 4. Weather Data from 5-9 January 2016						
Site	**Temperature (°F/°C)**		**Cloud Cover**		**Average ↑ Maximum Wind and Direction**	
	Beginning	**Ending**	**Beginning**	**Ending**	**Beginning**	**Ending**
1	48°F/9°C 40°F/4°C	44°F/6°C 47°F/8°C	100% 40%	100% 15%	2 ↑ 8 mph Calm	3 ↑ 14 mph 1 ↑ 3 mph
2	45°F/7°C	54°F/12°C	0%	0%	3 ↑ 10 mph	1 ↑ 6 mph
3	50°F/10°C 54°F/12°C	52°F/11°C 54°F/12°C	10% 0%	10% 0%	1 ↑ 3 mph 1 ↑ 3 mph	2 ↑ 7 mph 1 ↑ 3 mph
4	45°F/7°C	52°F/11°C	95% Rain	65% Clear	2 ↑ 10 mph	2 ↑ 8 mph
5	50°F/10°C	46°F/7°C	100% Rain	100% Rain	1 ↑ 3 mph	Calm
6	48°F/9°C	48°F/9°C	100%	100%	1 ↑ 3 mph	1 ↑ 3 mph

All plant and animal species identified during the surveys were recorded in field notes and are listed in Appendices A and B, respectively. A Garmin® hand-held, global positioning system (GPS) unit was used to survey straight transects and record Universal Transverse Mercador (UTM) coordinates (North American Datum – NAD 83) for property boundaries, rare species locations, and other pertinent information (Appendix C). A digital camera was used to take representative photographs (Appendix D), with locations and directions of exhibits shown in Figures 10a through 10f. ©2016Google™ Earth was accessed via the internet to provide recent aerial photographs of the subject properties and surrounding areas (Figures 2b through 7b).

3.0. Results

3.1. Common Biological Resources. The common plant and animal species identified during the surveys were influenced by multiple factors such as elevation, topography, soil substrates, and adjacent land uses. Based on DeLorme Topo USA® 10.0 software, elevational ranges among the six subject properties are given in Table 5.

Table 5. Elevation Ranges among the Six Sites

Site	Elevational Ranges from Lowest to Highest Points
1	2,556 feet (779 meters) at NE corner up to 2,559 feet (780 meters) at SW corner
2	2,538 feet (774 meters) at SW corner up to 2,541feet (775 meters) at SE corner
3	2,446 feet (746 meters) at NE corner up to 2,448 feet (747 meters) at SW corner
4	2,413 feet (735 meters) at NW corner up to 2,418 feet (737 meters) at SW corner
5	2,341 feet (713 meters) at NE, NW, and SE corner up to 2,343 feet (714 meters) at SW corner
6	2,310 feet (704 meters) at all four corners

Terrain for Sites 1, 2, 3, and 4 is relatively similar; being essentially flat and sandy. The four sites are vegetated by creosote bush scrub with an assortment of native desert shrubs. Native habitats have been eliminated from Site 5, which is barren, compacted dirt and Site 6, which is paved. None of the six sites has any USGS-designated blueline streams, although Little Dixie Wash occurs immediately north of Site 3 and east of Site 4.

3.1.1. *Common Flora*. The 65 plant species identified during the surveys are listed in Appendix A. As shown in Appendix A, Sites 1, 2, 3, and 4 each have creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*), with silver cholla (*Cylindropuntia echinocarpa*) occurring on each of the sites except Site 3. Allscale (*Atriplex polycarpa*), a type of saltbush, was either found onsite or in adjacent areas for the first five sites. Other common perennial plants identified included cheesebush (*Ambrosia salsola*), desert goldenhead (*Acamptopappus sphaerocephalus*), and spiny hop-sage (*Grayia spinosa*). Still other perennial plants found on or adjacent to several sites included rubber rabbitbrush (*Chrysothamnus nauseosus*), beavertail cactus (*Opuntia basilaris*), Cooper's goldenbush (*Ericameria cooperi* var. *cooperi*), desert milk aster (*Stephanomeria pauciflora*), bladderpod (*Isomerus arborea*), and desert needlegrass (*Achnatherum speciosum*).

Though not physically found on the sites, there are two wetland areas where mesic-adapted species were identified. For example, sandpaper plant (*Petalonyx thurberi*) and scale-broom (*Lepidospartum squamatum*) were found in Little Dixie Wash adjacent to Sites 3 and 4. Each of the sites, excluding Site 6, has retention basins adjacent to the well sites. In most cases, these basins are barren, essentially devoid of perennial plants, although a few annual plants still occur. The basin at Site 5 has relatively more plants, including mare's tail (*Conyza canadensis*), Bermuda grass (*Cynodon dactylon*), honey mesquite (*Prosopis glandulosa*), Fremont's cottonwood (*Populus fremontii*), cat-tail (*Typha latifolia*), salt cedar (*Tamarix ramosissima*), and spike-rush (*Eleocharis* sp.).

Native annual plants found on most of the sites (excluding Site 6) included desert dandelion (*Malacothrix glabrata*), fiddleneck (*Amsinckia tessellata*), four species of forget-me-not (*Cryptantha angustifolia*, *C. dumetorum*, *C. micrantha*, and *C. nevadensis*), thistle sage (*Salvia carduacea*), brown-eyed primrose (*Camissonia claviformis*), little blazing star (*Mentzelia albicaulis*), broad-flowered gilia (*Gilia latiflora*), spotted buckwheat (*Eriogonum maculatum*), and California mustard (*Guillenia lasiophylla*). Several non-native plants are also common on most sites, including tansy (*Descurainia pinnata*), tumble mustard (*Sisymbrium altissimum*), red-stemmed filaree (*Erodium cicutarium*), and split-grass (*Schismus* sp.).

3.1.2. *Common Fauna*. The 4 reptile, 22 bird, and 6 mammal species identified during the surveys are listed in Appendix B. Regardless of survey timing, reptiles are absent from Sites 5 and 6. Few reptile species were detected due to the wintertime survey period. Side-blotched lizards (*Uta stansburiana*) were observed on Sites 2 and 3. The other reptiles, including desert horned lizard (*Phrynosoma platyrhinos*) and desert iguana (*Dipsosaurus dorsalis*), were detected by diagnostic scat (droppings) on several sites. Other locally common reptile species that may occur on Sites 1, 2, 3, and 4 include western whiptail (*Cnemidophorus tigris*), zebra-tailed lizard (*Callisaurus draconoides*), long-nosed leopard lizard (*Gambelia wislizenii*), red racer (*Masticophis flagellum*), glossy snake (*Arizona elegans*), gopher snake (*Pituophis melanoleucus*), long-nosed snake (*Rhinocheilus lecontei*), and various rattlesnake species (*Crotalus* ssp.).

Most of the birds identified during the surveys are either benefited by or tolerant of human development, and were even detected at Site 6 where native habitats have been eliminated. These species included European starling (*Sturnus vulgaris*), Eurasian collared-dove (*Streptopelia decaocto*), rock dove (*Columba livia*), house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), and northern flicker (*Colaptes auratus*), which in this area is associated with landscaped yards. Common raven (*Corvus corax*) was the only species identified on all six sites, and horned larks (*Eremophila alpestris*) were observed on all but Site 6.

The bird species that may be found in both urbanizing and pristine areas include red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), great-horned owl (*Bubo virginianus*), mourning dove (*Zenaida macroura*), and house finch (*Carpodacus mexicanus*). Migrant species that are incidental to the sites and would not nest there include lesser nighthawk (*Chordeiles acutipennis*), yellow-rumped warbler (*Dendroica coronata*), and white-crowned sparrow (*Zonotrichia leucophrys*). Finally the few species that are most often found in native desert scrub habitats include black-throated sparrow (*Amphispiza bilineata*), sage sparrow (*Amphispiza belli*), and verdin (*Auriparus flavipes*).

Only six mammal species were either observed or detected. Small mammals included kangaroo rat (*Dipodomys* sp.), which were identified by burrows. Medium-sized mammals, and the only ones observed, included Audubon cottontail (*Sylvilagus audubonii*) and black-tailed hare (*Lepus californicus*). Predators identified during the surveys included coyote (*Canis latrans*), bobcat (*Lynx rufus*), and kit fox (*Vulpes macrotis*), the latter of which was only found in the least-disturbed habitats around Sites 2 and 3. The absence of American badger (*Taxidea taxus*) digs and relatively few active kit fox dens may be indicative that native desert habitats in the Indian Wells Valley are being significantly degraded by deleterious human uses.

3.2. Uncommon Biological Resources.

3.2.1. *Agassiz's Desert Tortoise*. A significant paper was published in June 2011 (Murphy et al. 2011) whereby the "desert tortoise" of the Mojave Desert was split into two species, including *G. agassizii*, referred to as "Agassiz's desert tortoise," and a newly described species, *G. morafkai*, referred to as "Morafka's desert tortoise," which occurs in the Sonoran Desert. According to Murphy et al. (2011), "…this action reduces the distribution of *G. agassizii* to only 30% of its former range. This reduction has important implications for the conservation and protection of *G. agassizii*, which may deserve a higher level of protection." Agassiz's desert tortoise is the threatened species that occurs in the region surrounding the subject properties.

Site 1 (between Wells 18 and 33) was the only site at which tortoise sign was found. As documented on the USFWS data sheet in Appendix C, eight older and fresher scat, or droppings of tortoises were found. The "fresher" scat were likely deposited in the fall of 2015 and the older scat before that, maybe even before 2015. Three of the scat were estimated to be between 11 and 14 millimeters in diameter, which means that these scat were deposited by a relatively small tortoise. Given these smaller scat and the larger ones, we believe that there are at least two tortoises in the area between the two well sites.

Among the other five sites, there are no suitable habitats on either Site 5 or 6, there are suitable but unoccupied habitats on Sites 3 and 4, and Site 2 has a marginal chance that tortoises may be observed there in the future, including during construction. Sites 3 and 4 were initially surveyed in 1991 (TMC 1991b, d, and f) and were deemed at that time to be devoid of tortoises. Since 1992, the IWVWD has allowed the Desert Tortoise Council to use those two sites for field techniques classes, and no tortoises have been observed there in the past 23 years. This is most likely due to the locations of the two sites in residential neighborhoods, where domestic dogs and pet collection of wild tortoises likely eliminated resident tortoises many years ago. One can see in Table 6 the relative impacts of human uses on the four sites included in the disturbance analysis.

Encounter rates for observable human disturbances are tallied in Table 6.

Table 6. Observable Human Disturbances from 5-9 January 2016

Site	OHV	Roads	Dogs	Shotgun	Target
1				1	1
2	3		2	1	
3		9	1		3
4	15		3		1
	18	9	6	2	5

There are a number of factors that affect the observable human disturbances tallied on four of the six sites. Disturbances were not tallied on Site 5, which is comprised of a barren, compacted lot and Site 6, which is paved. There are relatively few OHV (off-highway vehicle) tracks on Site 3 because it is enclosed in a perimeter fence. Site 4 is also fenced; the highest prevalence of OHV tracks is attributed to five tracks around the

fenced well site and a single bicycle track that was detected on nine of the 14 transects. A single road was detected nine times on Site 3, which is otherwise protected by the perimeter fence. Shot gun shells and shooting targets on Sites 1 and 2 are relatively recent, whereas the shooting targets found on Sites 3 and 4 are older, perforated tin cans. Domestic dogs were found on all sites, except Site 1, which is the least disturbed of the six sites.

As depicted in Figure 3, CMBC personnel have surveyed approximately 22 sites in the Indian Wells Valley. All sites (except Site 6 at the district office) have been subject to previous surveys: Site 1 (CMBC 1997), Site 2 (CMBC 2003b and 2010b), Site 3 (2006b and 2011, TMC 1991f), Site 4 (TMC 1991b and 1991d), Site 5 (CMBC 2010a and 2010c). Only Sites 1 and 2 previously had tortoises in the area. Whereas tortoises still occur at Site 1, it may be that tortoises have been eliminated from the area surveyed adjacent to Site 2. In 2003 (CMBC 2003b), LaRue had found an active tortoise burrow approximately 3,500 feet north of Site 3 and a fractured tortoise carcass had been found about 2,100 feet north in 2010 (CMBC 2010b).

The regional occurrence of tortoise sign shown in Figure 8 indicates that tortoises are slowly being eliminated from Ridgecrest and the Indian Wells Valley. Whereas tortoise sign was still being found in residential neighborhoods in 1992 (TMC 1992), it now appears that they are found only to the south in the vicinity of Cerro Coso Junior College, to the east (see CMBC 2003a), and west of Brown Road. Ten years ago, they were being detected between Brown Road and Highway 395, but that may no longer be the case, pending results of additional, more extensive surveys. Recent sheep grazing (see Exhibits 5 and 6 for Site 1) seems to be very heavy in the areas around Sites 1 and 2 and will, in time, eliminate even the few tortoises that remain in that area.

The County (2004) requires that habitat categories designated by the U.S. Bureau of Land Management (1989) be identified in all Agassiz's desert tortoise technical reports. Although habitat categories apply only to public lands administered by the BLM, regulatory agencies typically determine habitat compensation ratios based on the nearest BLM habitat categories (U.S. Bureau of Land Management 2005, 2006). With the formulation of the West Mojave Plan (U.S. Bureau of Land Management 2005) and its formal adoption through a Record of Decision (U.S. Bureau of Land Management 2006), all lands that are outside Desert Wildlife Management Areas, including the subject property, are characterized as Category 3 Habitat, which is the lowest priority management area for viable populations of the Agassiz's desert tortoise.

The site is not found within Agassiz's desert tortoise critical habitat, which was designated in 1994 (U.S. Fish and Wildlife Service 1994a) nor is it within a Desert Wildlife Management Area as recommended in the Desert Tortoise (Mojave Population) Recovery Plan (U.S. Fish and Wildlife Service 1994b) and formally adopted in March 2006 as a result of the West Mojave Plan Record of Decision (U.S. Bureau of Land Management 2006). The nearest such areas are the Fremont-Kramer Critical Habitat Unit and Desert Wildlife Management Area, which are located approximately 13 miles south, in the Fremont Valley which is bounded to the north by Garlock Road.

3.2.2. *Other Special Status Species*. U.S. Fish and Wildlife Service (2008), California Department of Fish and Wildlife (CDFW 2016a, 2016b, 2016c), and California Native Plant Society (CNPS 2016) maintain lists of animals and/or plants considered rare, threatened, or endangered, which are collectively referred to as "special status species." Special status species identified on or adjacent to the sites during the current survey included loggerhead shrike and burrowing owl. Each of the bird species discussed below is considered a Bird of Conservation Concern by the USFWS (2008) and/or a Bird Species of Special Concern by the CDFW (2016c).

Burrowing owl (*Athene cunicularia*), which was one of the focal animals sought during these and previous surveys, was detected 90 feet south of Site 1 (Figure 2a) where a single feather was found; 2,600 feet southeast and 2,000 feet north of Site 2 (Figure 3a), where pellets and whitewash were found at two abandoned kit fox dens; and 200 feet north of Site 3 (Figure 4a), where in one place a feather was found and in another diagnostic signs were found at an abandoned kit fox den, and a third place 780 feet northwest of Site 3 where signs were found at a domestic dog dig. Additionally, on 8 January 2016, one of the IWVWD field staff indicated seeing a burrowing owl at one of the demonstration tortoise burrows at Site 4 (see Exhibit 6 of Site 4). They have also been detected on or adjacent to the following sites, which are depicted in Figure 8: CMBC 2002, 2003b, 2006a, 2007a, 2010a, 2010b, 2011, and 2015. Given these data, there is potential for burrowing owls to occur adjacent to Sites 1, 2, 3, and 4. Measures to avoid impacts and mitigation measures if impacts cannot be avoided are given in Section 4.2.

Loggerhead shrikes (*Lanius ludovicianus*) were observed at Sites 1 (two locations in Figure 2a) and Site 5 (one location in Figure 6a). They have also been observed adjacent to Site 2 (CMBC 2003b), in the vicinity of Site 5 (CMBC 2010a), and in the vicinity of Site 3 (TMC 1991f). Although there are suitable foraging habitats at Sites 1, 2, 3, and 4 (and none at Sites 5 and 6), there are no nesting sites for loggerhead shrikes at any of the sites. Ironically, there is potential for them to nest in residential landscaped trees and shrubs, so they may nest in residential yards *adjacent* to Sites 3, 4, 5, and 6, but again, would not nest *on* any of these sites. As such, loggerhead shrike should not be adversely affected by development of the sites.

LeConte's thrashers (*Toxostoma lecontei*) has been observed only one time on the sites depicted in Figure 8, which was two miles southwest of Site 1 in 1991 (TMC 1991e). They are relatively common in more pristine desert habitats, and may be largely absent from those areas surveyed since 1991 due to human habitation and associated impacts in the region. There is some limited chance they may occur on Sites 1, 2, 3, an 4 (particularly along Little Dixie Wash adjacent to Sites 3 and 4). They will not be adversely affected if prudent protection measures are conscientiously implemented (as described in Section 4.2.2.b).

Osprey (*Pandion haliaetus*) and **Swainson's hawk** (*Buteo swainsoni*) are two rare raptor species that have been observed during previous surveys. An osprey was observed flying over Ward Avenue, west of Site 5, during Mohave ground squirrel trapping performed in May 2010 (CMBC 2010c). And, a Swainson's hawk was observed last spring flying over a site in Inyokern (CMBC 2015). Either of these species would be only incidental to any of the six sites, would not forage or nest there, and would not be adversely affected by development of the sites.

Creosote bush rings larger than 10 feet in diameter are listed as a Regulated Desert Native Plant in the San Bernardino County development code. Although they are not protected in Kern County, their occurrence is still considered noteworthy, in part because it takes hundreds or thousands of years for them to develop, so their presence indicates relatively intact habitat. Creosote ring locations are shown in maps for Site 1 (17 locations in Figure 2a), Site 2 (17 locations in Figure 3a), Site 3 (5 rings in Figure 4a), and Site 4 (9 locations in Figure 5a, and the only site where two rings would be lost to construction).

Mohave ground squirrel is designated as a Threatened species by the California Fish and Game Commission and is not federally listed. In spite of two petitions, one in 1993 and another in 2005, to list the Mohave ground squirrel as a federally Endangered species, the USFWS ruled in both instances that listing was not warranted at those times. In recent years, the CDFW has considered three criteria in assessing potential impacts to the Mohave ground squirrel (Adrienne Disbrow, personal communication to CMBC in 2004): (1) Is the site within the range of the species? (2) Is there native habitat with a relatively diverse shrub component? (3) Is the site surrounded by development and therefore isolated from potentially occupied habitats?

First, Figure 9 shows known locations of Mohave ground squirrels relative to the subject properties (California Department of Fish and Wildlife 2016a), all of which are located within the suspected range of the species (Gustafson 1993; U.S. Bureau of Land Management 2005). The nearest reported occurrences are also shown in Figure 9 and summarized below in Table 7.

Table 7. Proximate Locations of Mohave Ground Squirrels to Six Solar Sites

Site	Proximate Locations (see Figure 9)
1	3,460 feet south of Site in 1988
2	1.24 miles southwest of Site 2 in 1988 (same record as above); 1.4 miles north in 1989
3	2,050 feet north of Site 3 in 1980; 2,780 feet southwest in 1987; 4,280 feet southeast in 2006*
4	2,760 feet southwest of Site 4 in 1980; 2.0 miles west/northwest in 2015*
5	1,770 feet northwest of Site 5 in 1978; 1.27 miles west in 2010*
6	1.18 miles west of Site 6 in 1988

*Sites where CMBC personnel (2010 and 2015) or subcontractors (2006) trapped Mohave ground squirrels

One can see from this table, that there are proximate locations of Mohave ground squirrels to the six sites, ranging from as close as 1,770 feet from Site 5 to as far away as 1.4 miles from Site 2. Another important consideration is the date on which the squirrel was observed or (typically) trapped. The three most recent records were reported by Ed LaRue (2010) and Sharon Dougherty (2015) and by subcontractor Steve Boland (2006). These records indicate that Mohave ground squirrels are persisting in habitats where desert tortoises are apparently disappearing.

Mohave ground squirrel has been reported between 1,800 feet (549 meters) and 5,600 feet (1,707 meters) elevation from a wide range of habitats including creosote bush scrub, Joshua tree woodland, juniper woodland, and Mohave mixed woody scrub (U.S. Bureau of Land Management 2005). The elevations on the six subject properties, which are reported in Table 5, range from 2,310 feet (704 meters) on Site 6 up to 2,560 feet (780 meters) on Site 1, so all six sites are well within the known range of the species.

Given this elevational information, the characteristics of the native plant community on a given site are more important than the elevational range of that site. We firmly conclude that no suitable habitats occur on either Sites 5 or 6, as the native plant community has been removed from these two sites. Sites 1, 2, 3, and 4 are vegetated by a relatively similar creosote bush scrub plant community. With only four dominant shrub species occurring on these four sites, perennial plant diversity is relatively low.

In the Coso Range approximately 30-35 miles north of Ridgecrest, winter fat and spiny hop-sage are ecologically important shrubs for Mohave ground squirrel (U.S. Bureau of Land Management 2005 citing studies by Dr. Phil and Barbara Leitner). Although a few spiny hop-sage plants were observed adjacent to Sites 1, 2, and 4, none was observed on any of the sites; nor were any winter fat plants observed. Though not essential for Mohave ground squirrels to occur, the presence of these two shrub species is positively correlated with squirrel occurrence (Phil Leitner, personal communication).

The final considerations are habitat quality and development levels in adjacent areas. Again, Sites 5 and 6 are excluded from this discussion, as all potential habitats have been eliminated. Although effectively surrounded by residential development, Sites 3 and 4 have the advantage of being surrounded by a perimeter fence since the 1990's. Although permeable to dogs and limited human foot traffic, public vehicle traffic and sheep are excluded from these areas, and habitats therein are considered suitable for Mohave ground squirrel. In fact, the juvenile Mohave ground squirrel trapped 4,300 feet± southeast in 2006, occurred on a fenced parcel owned by IWVWD within several hundred meters of occupied residences. Whereas neither Sites 1 nor 2 are fenced, they are sufficiently far removed from immediate and direct human uses (except sheep grazing) that they remain in relatively intact condition and are also deemed to be suitable.

Given the above information, CMBC concludes that the Mohave ground squirrel is absent from Sites 5 and 6 and may occur on Sites 1, 2, 3, and/or 4. Measures intended to mitigate and authorize potential impacts are discussed below in Section 4.2.1

3.3. Other Protected Biological Resources.

At the State level, the 1998 Food and Agricultural Code, Division 23: California Desert Native Plants, Chapter 3: Regulated Native Plants, Section 80073 states: The following native plants, or any parts thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing:

(a) All species of the family Agavaceae (century plants, nolinas, yuccas).
(b) All species of the family Cactaceae (cacti), except for the plants listed in subdivisions (b) and (c) of Section 80072 (i.e., saguaro and barrel cacti), which may be harvested under a permit obtained pursuant to that section.
(c) All species of the family Fouquieriaceae (ocotillo, candlewood).
(d) All species of the genus *Prosopis* (mesquites).
(e) All species of the genus *Cercidium* (palo verdes).
(f) *Senegalia (Acacia) greggii* (catclaw acacia).
(g) *Atriplex hymenelytra* (desert holly).
(h) *Dalea (Psorothamnus) spinosa* (smoke tree).
(i) *Olneya tesota* (desert ironwood), including both dead and live desert ironwood.

Silver cholla is the only plant species included in the above list that was observed, having been found on Sites 1, 2, and 4.

4.0. Conclusions and Recommendations

4.1. Impacts to Agassiz's Desert Tortoise and Proposed Mitigation. Based on the absence of tortoise sign onsite and in areas adjacent to Sites 3, 4, 5, and 6, and available information reviewed for this habitat assessment, CMBC concludes that tortoises are absent from these four sites. There is tortoise sign immediately adjacent to Site 1 and given recent occurrences near Site 2, there is the potential for tortoises to occur and be impacted during development of these two sites.

According to USFWS (2010) pre-project survey protocol the results of these surveys will remain valid for the period of one year, or until January of 2017, after which time, if the sites have not been developed in the interim, another survey may be required to confirm the absence of tortoises. This requirement is not likely to apply to development of the six sites, as IWVWD has indicated its intent to acquire a Section 2081 incidental take permit from CDFW for development of Sites 1, 2, 3, 4, and 5.

Given that the tortoise is also federally listed, a Section 10(a)(1)(B) incidental take permit would be required if impacts cannot be avoided during otherwise lawful activities, including site development as proposed. At the time of the surveys, there is no evidence that tortoises are using any of the sites, including Site 1, where the nearest tortoise sign was found 310 feet to the west. It is advisable that IWVWD seek Technical Assistance from USFWS Biologist, Brian Croft (760-322-2070 x 210, brian_croft@fws.gov) in his Palm Springs office to confirm that protective measures can be implemented in lieu of a formal federal incidental take permit.

It has often been the case where tortoise sign has been found only in adjacent areas (as was done for D-Zone Tank construction addressed in CMBC 2006a and 2008) that the site can be surveyed, and if no tortoise sign found, fenced with a 1 x 2-inch mesh perimeter fence to preclude tortoises from entering the construction zone. This, along with administering an education awareness program and implementing protective measures such as maintaining a clean workplace and slower speed limits (15 mph in the vicinity of Site 1), have been effective in avoiding unauthorized take of tortoises where adjacent habitats are occupied. Again, it is advisable that Technical Assistance be solicited from the USFWS and an approach identified to avoid the unlikely event a tortoise is harmed in spite of implementing best management practices.

Regardless of survey results and conclusions given herein, tortoises are protected by applicable State and federal laws, including the California Endangered Species Act and Federal Endangered Species Act, respectively. As such, if a tortoise is found onsite at the time of construction, all activities likely to affect that animal(s) should cease and the USFWS contacted to determine appropriate steps, particularly since a federal take permit would not be solicited.

Importantly, nothing given in this report, including recommended mitigation measures, is intended to authorize the incidental take of Agassiz's desert tortoises during site development. Such authorization must come from the appropriate regulatory agencies, including CDFW (i.e., authorization under section 2081 of the Fish and Game Code) and USFWS [i.e., authorization under section 10(a)(1)(B) of the Federal Endangered Species Act].

Finally, it has been CMBC's practice since 1994 to NOT submit technical reports to either the USFWS or the CDFW unless asked to do so by IWVWD. However, IWVWD is advised of the following three conditions identified in January 2010 in the USFWS' revised pre-project survey protocol and assumes responsibility for implementing (or not) these recommendations:

- Occurrence of either live tortoises or tortoise sign (burrows, scats, and carcasses) in the action area indicated desert tortoise presence and therefore requires formal consultation with USFWS ["Technical Assistance" would be considered one type of formal consultation].

- If neither tortoises nor tortoise sign are encountered during the action area surveys, as well as project perimeter surveys where appropriate, please contact your local USFWS office. Informal consultation with the USFWS may be required even though no desert tortoises or sign are found during surveys.

- Please submit a copy of the original data sheets with results of the survey to the local USFWS office within 30 days of survey completion.

4.2. Impacts to Other Biological Resources and Proposed Mitigation.

4.2.1 *Other Special Status Species*. Based on the field survey and habitat assessment, CMBC concludes that none of the following special status species reported from the region will be adversely affected by site development: Loggerhead shrike, osprey, or Swainson's hawk. As such, no adverse impacts have been identified and no mitigation measures are recommended.

Those species either identified during the current survey or for which suitable habitats are present include LeConte's thrasher, burrowing owl, and Mohave ground squirrel. It is not likely that LeConte's thrasher would occur on Sites 1, 2, 3, or 4, much less nest there, but there are still requirements relative to all nesting birds given below in Section 4.2.2.b. that would ensure LeConte's thrashers would not be adversely affected by development of these four sites.

For burrowing owl, CDFG (2012) has stipulated that the following should be considered impacts to the species:

> - *Disturbance within 50 meters (approximately 160 feet), which may result in harassment of owls at occupied burrows;*
>
> - *Destruction of natural or artificial burrows (i.e., culverts, concrete slabs, and debris piles that provide shelter to burrowing owls); and*
>
> - *Destruction and/or degradation of foraging habitat adjacent [within 100 meters (approximately 320 feet)] of an occupied burrow(s).*

If impacts cannot be avoided, specified mitigation measures include (a) avoiding occupied burrows during the breeding season, between February 1 and August 31; (b) purchasing and permanently protecting 6.5 acres of foraging habitat per pair or unpaired resident bird impacted; (c) creating new burrows or enhancing others when destruction of occupied burrows is unavoidable; (d) implementing passive relocation if owls must be moved; and (e) provide funding for long-term management and monitoring of protected lands.

Given this information, CMBC reiterates that it is highly advisable (and cost effective) to avoid impacts. CDFG (2012) states the following:

> *If avoidance is the preferred method of dealing with potential project impacts, then no disturbance should occur within 50 meters (approximately 160 feet) of occupied burrows during the nonbreeding season of September 1 through January 31 or within 75 meters (approximately 250 feet) during the breeding season of February 1 through August 31. Avoidance also requires that a minimum of 6.5 acres of foraging habitat be permanently preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird. The configuration of the protected habitat should be approved by the Department [CDFW].*

At the time of the surveys, burrowing owls were detected at Sites 1, 2, and 3, and have been observed at least one time at Site 4 since early November 2015. However, none of the burrows were occupied at the time of inspection, nor were any suitable burrows found on the sites. CMBC has worked with the IWVWD in the past to avoid burrowing owls and has been successful in completing construction projects even during the breeding season when burrowing owls with nests and young were not unduly affected by proximate construction activities (CMBC 2007b). Therefore, we believe it is entirely possible that construction can be performed without any adverse impacts to burrowing owls.

Although a focused Mohave ground squirrel trapping survey was not performed, CMBC assessed habitats and reviewed available information to provide a professional opinion as to the presence or absence of this species on the six subject properties. Given the information discussed herein, CMBC concludes that there is some potential for Mohave ground squirrel to occur on Sites 1, 2, 3 and 4, and would not occur on Sites 5 and 6.

Knowing that they have the option to trap the four sites to determine presence or assume presence and mitigate accordingly, IWVWD has opted to acquire a Section 2081 incidental take permit to authorize potential take of Mohave ground squirrels on Sites 1, 2, 3, 4, and 5 (even though there is no likelihood of occurrence on Site 5, it is prudent to include it in case a Mohave ground squirrel is accidentally harmed enroute to the barren site). Given that desert tortoise is known to occur at Site 1, with some potential to occur at Site 2, limited potential to occur at Sites 3 and 4, and no potential to occur at Sites 5 and 6, it is still prudent to include desert tortoise in the State incidental take permit (even though the analogous federal take permit will not be solicited).

Given the information presented in this report, compensable habitats for potential impacts to Mohave ground squirrel are found at Site 1 (1.26 acres), Site 2 (0.83 acres), Site 3 (1.15 acres), and Site 4 (2.83 acres), for a total of 6.07 acres. So that the Section 2081 incidental take permit does not need to be amended after construction should the estimated habitat loss be larger than 6.07 acres, it is suggested that the total acreage of disturbance be estimated at 6.5 or 7.0 acres. Since CDFW has identified a compensation ratio of 3:1 for the last three projects, IWVWD would likely be required to compensate development of Sites 1, 2, 3, an 4 by protecting between 19.5 and 21.0 acres.

IWVWD already has a mitigation bank located south of Inyokern that has been accepted by CDFW as appropriate compensatory habitat. In the latest 2081 incidental take permit (ITP) issued to IWVWD for compensable impacts along the "Kendall Avenue Water Pipeline Emergency Repair Project" (ITP #2081-2014-067-04 signed by Jeffrey Single on 17 October 2014), 72.32 acres remained in the bank prior to construction of that project. Owing to the fine-tuned techniques used by IWVWD to measure project-related impacts, a total of 0.54 acres was impacted by repair activities. Given the compensation ratio of 3:1 required by CDFW in that ITP and the loss of 0.54 acres, a total of 1.62 acres were subtracted from the remaining 72.32 acres, leaving a current balance of 70.70 acres in the mitigation bank. This information would be included in the 2081 permit application that CMBC has been contracted to prepare for IWVWD to authorize impacts associated with this project.

4.2.2. *Other Protected Biological Resources.*

4.2.2.a. Protected Plants. LaRue did not count the numbers of silver chollas that occur on Sites 1, 2, and 4. Even so, he recalls that there are four or five silver chollas on Site 1 and fewer on the other two sites. Since IWVWD owns lands that are contiguous to each of these sites, it is suggested that all silver cholla plants be removed from the site prior to blading and transplanted onto adjacent lands owned by IWVWD to minimize this impact.

4.2.2.b. Bird Nests. Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests, including raptors and other migratory nongame birds (As listed under the Migratory Bird Treaty Act). Typically, CDFW requires that vegetation not be removed from a project site between March 15 and September 15 to avoid impacts to nesting birds. If it is necessary to commence project construction between March 15 and September 15, a qualified biologist should survey all shrubs and structures within the project site for nesting birds, prior to project activities (including construction and/or site preparation).

Surveys should be conducted at the appropriate time of day during the breeding season, and surveys would end no more than three days prior to clearing. CDFW is typically notified in writing prior to the start of the surveys. Documentation of surveys and findings should be submitted to the CDFW within ten days of the last survey. If no nesting birds were observed project activities may begin. If an active bird nest is located, the plant in which it occurs should be left in place until the birds leave the nest. No construction is allowed near active bird nests of threatened or endangered species.

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Appendix A. Plant Species Detected

The following plant species were identified on-site (**bold font**) or in adjacent areas (regular font) during the general biological inventories described in this report. The numbers in the left-hand margin correspond to each of the six sites. Those plant species that are protected by pertinent State ordinances are highlighted in red and signified by "(SC)" following the common name.

ANGIOSPERMAE: DICOTYLEDONES	DICOT FLOWERING PLANTS
Asteraceae	**Sunflower family**
1,3,4 *Acamptopappus sphaerocephalus*	Desert goldenhead
2,3,**5** *Ambrosia acanthicarpa*	Annual bur-sage
1,**2**,**3**,**4**,5 *Ambrosia dumosa*	Burrobush
2,3,4,5 *Ambrosia salsola*	Cheesebush
1,4 *Baileya* sp.	Marigold
5 *Camomilla suaveolens*	Pineapple weed
1 *Chaenactis fremontii*	Desert pincushion
3,5 *Chrysothamnus nauseosus*	Rubber rabbitbrush
5 *Conyza canadensis*	Mare's tail
4 *Ericameria cooperi* var. *cooperi*	Cooper's goldenbush
2,4 *Lepidospartum squamatum*	Scale-broom
1,**2**,**3**,**4**,**5** *Malacothrix glabrata*	Desert dandelion
5 *Stephanomeria exigua*	Milk aster
2,3,5 *Stephanomeria pauciflora*	Desert milk aster
Boraginaceae	**Borage family**
1,**2**,**3**,**4**,**5** *Amsinckia tessellata*	Fiddleneck
1,2,**3**,**4**,**5** *Cryptantha angustifolia*	Narrow-leaved forget-me-not
1,2,**3**,**4**,5 *Cryptantha dumetorum*	Forget-me-not
1,**2**,3,4 *Cryptantha* c.f. *micrantha*	Forget-me-not
1,**2**,**3**,**4**,5 *Cryptantha nevadensis*	Nevada forget-me-not
5 *Cryptantha pterocarya*	Wing-nut forget-me-not
Brassicaceae	**Mustard family**
1,2,**5** **Brassica tournefortii*	Saharan mustard
4 *Caulanthus cooperii*	Cooper's mustard
1,2,**4**,**5** **Descurainia pinnata*	Tansy
4,**5** **Descurainia sophia*	Flixweed
1,**2**,**3**,**4**,5 *Guillenia lasiophylla*	California mustard
2 *Lepidium lasiocarpum*	Sand peppergrass
2,**3**,**4**,**5** **Sisymbrium altissimum*	Tumble mustard
Cactaceae	**Cactus family**
1,**2**,**4**,5 *Cylindropuntia echinocarpa*	Silver cholla (SC)
1,4 *Opuntia basilaris*	Beavertail cactus (SC)

Capparaceae	**Caper family**
1,2 *Isomerus arborea*	Bladderpod
Chenopodiaceae	**Goosefoot family**
1,**2**,3,4,**5** *Atriplex polycarpa*	Allscale
1,2,4 *Grayia spinosa*	Spiny hop-sage
4,**5** **Salsola tragus*	Russian thistle
Euphorbiaceae	**Spurge family**
1,2 *Eremocarpus setigerus*	Doveweed
Fabaceae	**Pea family**
5 *Prosopis glandulosa*	Honey mesquite (SC)
Geraneaceae	**Geranium family**
1,**2**,**4**,**5** **Erodium cicutarium*	Red-stemmed filaree
Lamiaceae	**Mint family**
1,2,**3**,**4** *Salvia carduacea*	Thistle sage
1,3,4 *Salvia columbariae*	Chia
Loasaceae	**Stick-leaf family**
1,**2**,**3**,**4**,**5** *Mentzelia albicaulis*	Little blazing star
2,3,4 *Petalonyx thurberi*	Sandpaper plant
Onagraceae	**Evening-primrose family**
4 *Camissonia boothii*	Red primrose
1,2,**4**,**5** *Camissonia claviformis*	Brown-eyed primrose
Papaveraceae	**Poppy family**
1 *Eschscholzia minutiflora*	Little gold-poppy
Polemoniaceae	**Phlox family**
1,2 *Eriastrum* sp.	Woolly star
1,**2**,**3**,**4**,5 *Gilia latiflora*	Broad-flowered gilia
2,3,4 *Loeseliastrum* c.f. *matthewsii*	Sunbonnets
1,2 *Linanthus dichotomus*	Evening snow
Polygonaceae	**Buckwheat family**
4 *Centrostegia thurberi*	Thurber's spineflower
1,**5** *Chorizanthe brevicornu*	Brittle spineflower
5 *Chorizanthe rigida*	Rigid spineflower
5 *Eriogonum deflexum*	Desert skeleton weed
2,**4**,**5** *Eriogonum maculatum*	Spotted buckwheat
5 *Oxytheca perfoliata*	Punctured bract

Salicaceae	**Willow family**
5 *Populus fremontii*	Fremont's cottonwood
Solanaceae	**Nightshade family**
2,5 *Datura wrightii*	Jimsonweed
Tamaricaceae	**Tamarisk family**
5 **Tamarix ramosissima*	Tamarisk
Zygophyllaceae	**Caltrop family**
1,**2**,**3**,**4**,**5** *Larrea tridentata*	Creosote bush
ANGIOSPERMAE: MONOCOTYLEDONES	MONOCOT FLOWERING PLANTS
Cyperaceae	**Sedge family**
5 *Eleocharis* sp.	Spike-rush
Poaceae	**Grass family**
1,2 *Achnatherum speciosum*	Desert needlegrass
1,**4** **Bromus madritensis* ssp. *rubens*	Red brome
3,**4** **Bromus tectorum*	Cheat grass
5 **Cynodon dactylon*	Bermuda grass
4 **Hordeum murinum*	Hare barley
1,**2**,**3**,**4**,**5** **Schismus* sp.	Split-grass
Typhaceae	**Cat-tail family**
5 *Typha latifolia*	Cat-tail

* - indicates a non-native (introduced) species.
c.f. - compares favorably to a given species when the actual species is unknown.

Some species may not have been detected because of the seasonal nature of their occurrence. Common names are taken from Beauchamp (1986), Hickman (1993), Jaeger (1969), and Munz (1974).

Appendix B. Animal Species Detected

The following animal species were identified on-site (**bold font**) or in adjacent areas (regular font) during the general biological inventories described in this report. The numbers in the left-hand margin correspond to each of the six sites. Those animal species that are protected by pertinent State ordinances are highlighted in red and signified by "(SC)" following the common name.

REPTILIA	REPTILES
Testudinidae	**Land tortoises**
1 *Gopherus agassizii*	Agassiz's desert tortoise (SC)
Iguanidae	**Iguanids**
1 *Dipsosaurus dorsalis*	Desert iguana
2,**3** *Uta stansburiana*	Common side-blotched lizard
1,5 *Phrynosoma platyrhinos*	Desert horned lizard
AVES	BIRDS
Accipitridae	**Hawks, eagles, harriers**
1,5 *Buteo jamaicensis*	Red-tailed hawk
Falconidae	**Falcons**
1,4,5 *Falco sparverius*	American kestrel
Columbidae	**Pigeons and doves**
6 *Columba livia*	Rock dove
5,6 *Streptopelia decaocto*	Eurasian collared-dove
3,4,5,6 *Zenaida macroura*	Mourning dove
Strigidae	**Typical owls**
4 *Bubo virginianus*	Great horned owl
1,2,3 *Athene cunicularia*	Burrowing owl (SC)
Camprimulgidae	**Nightjars**
3,4,5 *Chordeiles acutipennis*	Lesser nighthawk
Picidae	**Woodpeckers**
4 *Colaptes auratus*	Northern flicker
Tyrannidae	**Tyrant flycatchers**
1,4 *Sayornis saya*	Say's phoebe
Alaudidae	**Larks**
1,2,**3**,**4**,5 *Eremophila alpestris*	Horned lark

Corvidae **1**,**2**,**3**,**4**,5,6 *Corvus corax*	**Crows and jays** Common raven
Remizidae 1 *Auriparus flavipes*	**Verdins** Verdin
Mimidae 4 *Mimus polyglottos*	**Mockingbirds and thrashers** Northern mockingbird
Laniidae **1**,5 *Lanius ludovicianus*	**Shrikes** Loggerhead shrike (SC)
Sturnidae 3,6 *Sturnus vulgaris*	**Starlings** European starling
Emberizidae 1,**2** *Dendroica coronata* 1,**2** *Amphispiza bilineata* 1,2 *Amphispiza belli* **1**,**2**,**4**,5 *Zonotrichia leucophrys*	**Sparrows, warblers, tanagers** Yellow-rumped warbler Black-throated sparrow Sage sparrow White-crowned sparrow
Fringillidae 3,**4**,5,6 *Carpodacus mexicanus*	**Finches** House finch
Passeridae 5 *Passer domesticus*	**Weavers** House sparrow
MAMMALIA	MAMMALS
Leporidae **1**,2,**3**,**4**,5 *Lepus californicus* 2,**3**,**4**,**5** *Sylvilagus audubonii*	**Hares and rabbits** Black-tailed hare Audubon cottontail
Heteromyidae **1**,2,**3**,**4**,5 *Dipodomys* sp.	**Pocket mice** Kangaroo rat
Canidae 1,2,4,5 *Canis latrans* 3 *Vulpes macrotis*	**Foxes, wolves and coyotes** Coyote Kit fox
Felidae 1,2,**4** *Lynx rufus*	**Cats** Bobcat

Nomenclature follows Stebbins, *A Field Guide to Western Reptiles and Amphibians* (2003), third edition; Sibley, National Audubon Society, the Sibley Guide to Birds (2000), first edition; and Ingles, Mammals of the Pacific States (1965), second edition.

Appendix C. Field Data Sheets Completed in January 2016

The USFWS has recently required consultants to include copies of the data collected in the field from which the results and conclusions given in reports are derived. As such, following this page are copies of the data sheets completed by Ed LaRue in January 2016.

2016 Field Season Page __ of __

SACI

1-7 0930-1400

JOB #/NAME	DATE	DRIVE TIME TO	DRIVE TIME FROM	MILES	FIELD TIME BEGIN	FIELD TIME END	SURVEYORS
Well SAe 33	1-6-2016			1-6	1430	1630	EdLaRe

WEATHER CONDITIONS (Start/End)

1-6 TEMP: 48°F WIND X: 2 ↑ 8 N S E W CLOUD: 100%
1-7 40 Calm 40%
1-6 TEMP: 44°F WIND X: 3 ↑ 14 N S E W CLOUD: 100%
1-7 47°F 1 ↑ 13; NE 15%

UTM (NAD 83) (circle starting corner)

NE→ S	NW→	SE→	SW→
7100	7000	427100	7000
9955	9955	3939900	9900

PERENNIAL PLANTS				ANNUAL PLANTS				BIRDS		HERP	MAM
LarTri				TriLas	ChyAng			CoRA		DEHO	Krat
AmbDum				Sch sp.	OnoBre			SAPH		DEIG	BTJR
DysEch				Cryp Nev	SalCar			HOLA			
				AmsTes	Boomaj			VESP			Coyote
				Cry (Mic)	EscMin			LOSH	7170/9964		Bobcat
AcaGre				Ono (Fre)	Erkes sp.				6700/9800		
Krascri				Tri (Lat)	SalCol			AmKE			
AcaSpe				CamCla	EreSet			RTHA			
IsoArb				Lin (Dic)	BraTou			P-TSP			
AtrPol				MenAlb				YRWA			
OpuBas				MalGla				VERD			
				Bai sp.				SASP			
				DesPin							
				EroCic							
				CryPtn							

Photographs

1	NE →	SW
2	SE →	NW
3	NW →	SE
4	SW →	NE
5 = Sheep Tracks	7051	9101
6 = Old sheep scat	7083/	9548

OBSERVABLE HUMAN DISTURBANCES

T#	East	North	OHV	Road	Dog	Dump	S Gun	Rifle	Target		
1	7100	9955									
2	7090	9900									
3	7080	9955									
4	7070	9900									
5	7060	9955									
6	7050	9900									
7	7040	9955									
8	7030	9900									
9	7020	9955									
10	7010	9900									
11	7000	9955									
	E	N		N	E		E	N		N	E
30S	7100	9870	30E	9870	7130	30N	7100	9985	30W	9985	6970
60S	7130	9840	60E	0015	7160	60N	6940	0015	60W	9840	6940
90S	7160	9810	90E	0045	7190	90N	6910	0045	90W	9810	6910
120S	7190	9780	120E	0075	7220	120N	6880	0075	120W	9780	6880
150S	7220	9750	150E	0105	7250	150N	6850	0105	150W	9750	6850
200S	7250	9700	200E	0155	7300	200N	6800	0155	200W	9700	6800
400S	7220	9500	400E	9800	7500	400N	6600	9970	400W	9500	6600
600S	6400	9300	600E	9800	7700	600N	6400	9300	600W	9300	6400

2016 Field Season

Page __ of __

SAC 2

JOB #/NAME	DATE	DRIVE TIME TO	DRIVE TIME FROM	MILES	FIELD TIME BEGIN	FIELD TIME END	SURVEYORS
SAC#34	1-8-2016				0900	1515	E&L Rue

WEATHER CONDITIONS (Start/End)

TEMP: 45 °F WIND X: 3 ↑ 10 (N) S E W CLOUD: 0 %

TEMP: 54 °F WIND X: 1 ↑ 6 N (S) E (W) CLOUD: 0 %

UTM (NAD 83) (circle starting corner)

NE→	(NW)→ S	SE→	SW→
7840	7750	427840	7750
0585	0585	3940555	0555

PERENNIAL PLANTS				ANNUAL PLANTS				BIRDS		HERP	MAM
LarTri				SchSp	CryAng			YRWA		SBLI	KRGT
AmbDum				AmsTes	AmbAca			[illegible]			
AtrPol				EriCal	BroTou			CORA			AUCO
OpuEch (dead)				MenAlb	CamCla			BTSP			BTJR
				EndCle	LinDic						Coyote
HymSal				MalFil	DesPin			HOLA			Bobcat
StePau				EucUrg	SalCol			[illegible]			
IsoAb				CryMac	Loe(rmd)						
GraSp				CryMic	LepLas						
LepSau				EriMac							
PetThy											
AcaSpe				EriSet							
				Eri sp.							
				PatWil							
				CryMon							
				SISAH							

Photographs

1	NW →	SE
2	SW →	NE
3	SE →	NW
4	NE →	SW

OBSERVABLE HUMAN DISTURBANCES Sheep Camp

T#	East	North	OHV	Road	Dog	Dump	S Gun	Rifle	Target		
1	7750	0585									
2	7760	0555	'								
3	7770	0585	'								
4	7780	0555	'		'						
5	7790	0585			'						
6	7800	0555									
7	7810	0585									
8	7820	0555									
9	7830	0585									
10	7840	0555					'				
	E	N		E	N		E	N		E	N
30N	7840	0620	30W	7720	0620	30S	7700	0520	30E	7870	0520
60N	7870	0650	60W	7690	0650	60S	7690	0490	60E	7900	0490
90N	7900	0680	90W	7660	0680	90S	7660	0460	90E	7930	0460
120N	7930	0710	120W	7630	0710	120S	7630	0430	120E	7960	0430
150N	7960	0740	150W	7600	0740	150S	7600	0400	150E	7990	0400
200N	7990	0790	200W	7550	0790	200S	7550	0200	200E	8190	0200
400N	8190	0990	400W	7350	0990	400S	7350	0000	400E	8390	0000
600N	8390	1190	600W	7150	1190	600S	7150	9800	600E	8590	9800
	8590	1390									

2016 Field Season

Site 3

1-8 1545 - 1645

JOB #/NAME	DATE	DRIVE TIME TO	DRIVE TIME FROM	MILES	FIELD TIME BEGIN	FIELD TIME END	SURVEYORS
Well SAC 31	1-7-2016 1-8-16	N	A	1-7→	1430	1700	Ed LaRue

WEATHER CONDITIONS (Start/End)

1-7 TEMP: 50°F WIND X: 1 ↑ 3 (N) S E W CLOUD: 10%

1-8 See Site 2 for begin

1-7 TEMP: 52 °F WIND X: 2 ↑ 7 N S E (W) CLOUD: 10%

1-8 54°F 1 ↑ 3 W 0%

UTM (NAD 83) (circle starting corner)

NE→	NW→	(SE→) N	SW→
9565	9460	9565	429460
4105	4105	4060	3944060

PERENNIAL PLANTS				ANNUAL PLANTS				BIRDS		HERP	MAM
[illegible]				MenAlb	(LoeMat)			HOLA		SBLA	KRAT
AmbDum				AmTes	BroTec			LEWH			BTHA
				Sch sp.				CORA			AWG
				GilLas				MODO			
ChrNau				CryAng							
StePan				SalCol				HoFI			KFox
AcaSpa				MalGla				EUST			
AtrPol				CryMal							
AmbSal				CryPum							
PetThu				SisArt							
				GilLat							
									Photographs		
									1	SE→	NW
									2	NE→	SW
				CryMic					3	NW→	SE
				AmbAca					4	SW→	NE
				SclCol							

PeteB's ☒ Scat

OBSERVABLE HUMAN DISTURBANCES

T#	East	North	OHV	Road	Dog	Dump	S Gun	Rifle	Target		
1	9565	4060		'							
2	9555	4105		'	'						
3	9545	4060									
4	9535	4105									
5	9525	4060							•		
6	9515	4105									
7	9505	4060									
8	9495	4105									
9	9485	4060							• old perforated can		
10	9475	4105									
11	9465	4060									
12	9455	4105							•		
	E	N		E	N		E	N		E	N
30W	9420	4060	30N	942	4140	30E	9600	4140	30S	9600	4030
60W	9390	4030	60N	9390	4170	60E	9630	4170	60S	9390	4000
90W	9360	4200	90N	9330	4230	90E	9660	4200	90S	9360	3970
120W	9330	4230	120N	9300	4260	120E	9690	4260	120S	9565	3940
150W	9300	4260	150N	9270	4290	150E	9720	4260	150S	9300	3910
200W	9250	4310	200N	9250	4310	200E	9770	4260	200S	9565	3710
400W	9050	4510	400N	(9100)	4510	400E	9970	4260	400S	9300	3510
Ø600W due to towers									600S	9565	3310

Site 4

2016 Field Season Page __ of __

JOB #/NAME	DATE	DRIVE TIME TO	DRIVE TIME FROM	MILES	FIELD TIME BEGIN	FIELD TIME END	SURVEYORS
WellsAc30	1-6-2016	0845 →	N/A		0900	1530	Ed LaRue

WEATHER CONDITIONS (Start/End)

TEMP: 45 °F WIND X: 2 ↑ 10 N (S) E (W) CLOUD: 95%
1015: Rain stops at 1230, some sun
TEMP: 52 °F WIND X: 2 ↑ 8 N S E W CLOUD: 65%

UTM (NAD 83) (circle starting corner)

NE→	(NW)→ E	SE→	SW→
9825	9720	9825	429720
5395	5395	5265	3945265

PERENNIAL PLANTS				ANNUAL PLANTS				BIRDS		HERP	MAM
LarTri				Sch sp.	Cam Cla			CaRA			Krat
AmbDum				Cry Ang	Cho Thu			WCSP			BTHA
				Men Alb	Cro Cic			HOLA			Bobcat
↓Z of I↓				Gil Lat	↓Z of I↓			HoFI			Auco
CylEch				Amy Tes	Ca (Torre)						
AtrPol				Gni Las	CauCoo			Z of I			Z of I
PetThu				Cry Dum	CamBoo			GtHOW			Coyote
LepSqu				Mal Gla	SalGol			LFNH			
EriCoo				Cry Nev	SatTra			AMKE			
OpuBas				EriMac	BaiPle			NOFL			
AcaSpa				BroTec	Loest sp.			MODO	**Photographs**		
HymSal				SisAlt	CenThu			SAPH	1	NW →	SE
EraSpi				DesPin	HorMur			NOMO	2	NE →	SW
				SalCor	DesSop				Rm.	9788	5386
				Cam(Bec)					3	SE →	NW
				BroMad					4	SW →	NE

OBSERVABLE HUMAN DISTURBANCES DTC (B)s 9713 5334

T#	East	North	OHV	Road	Dog	Dump	S Gun	Rifle	Target	Rm.	LarTri
1	9720	5390	5		2					9788	5386
2	9825	5380								9773	5290
3	9720	5370								9896	5356?
4	9825	5360								9782	5146
5	9720	5350								9978	4866
6	9825	5340	1		1					9690	5287
7	9720	5330	1	bicycle						9659	5263
8	9825	5320	1	↓					1	9660	5279
9	9720	5310	1	↓						9471	5315
10	9825	5300	1								
11	9720	5290	1								
12	9825	5280	1								
13	9720	5270	1								
14	9825	5260	1								
Z of I	N =	30, 60, 90, 120, 150, 200, then Hwy 178									
	E =	30, 60, 90, 120, 150, 200, then houses									
	S =	30, 60, 90, 120, 150, 200, 400 then house									
	W =										

2016 Field Season

Site (5)

JOB #/NAME	DATE	DRIVE TIME TO	DRIVE TIME FROM	MILES	FIELD TIME BEGIN	FIELD TIME END	SURVEYORS
Wells 9+10	1/5/2016				0915	1130	Ed LaRue

WEATHER CONDITIONS (Start/End)

TEMP: 50°F WIND X: 0 ↑ 1 N S (E) W CLOUD: 100%
Light rain during survey, intermittent

TEMP: 46°F WIND X: Calm N S E W CLOUD: 100%
Steady rain

UTM (NAD 83) (circle starting corner)

(NE)→ S	NW→	SE→	SW→
435592	5488	5592	5488
3944602	4602	4550	4550

PERENNIAL PLANTS				ANNUAL PLANTS				BIRDS		HERP	MAM
LarTri	:			DesSop	EriDef			WCSP		DeHo(S)	AuCo
AtrPol	'			CryAn	CynDac			CORA			
				Sch sp.	ChoBre			AMKE			Mo(B)'s
↓ 2ofI↓				AmiTes	(2ofI↓)			ECDO			
ProGla				EroCic	OxyFr			MODO			Zol
PopFre				AmbAca	GilLas			HOLA			BTJA
HymSal				CryPte	CryDum			RTHA(I)			KRat
StePau				BraTou	CryNev			HOSP			Coyote
CylEch				EriMac	Camomile			HOFI			
AmbDum				StcExi	DatMet			(LOSH)	- onsite		
OrMan				GSAH	ConCan			LENH			
Typha				MenAlb	ChoRig						
TamRam				DesPin	EriCla						
(Bacca)				SalTra							
(Carex)				CamCla							
				MalGla							

Photographs

1	SE →	NW
2	NW →	SE

OBSERVABLE HUMAN DISTURBANCES

T#	East	North	OHV	Road	Dog	Dump	S Gun	Rifle	Target		
1	5575	4605									
2	5565	4560									
3	5555	4605									
4	5545	4560									
5	5535	4605									
6	5525	4560									
7	5515	4605									
8	5505	4560									
9	5495	4605									
10	5485	4560									
30 W	(5455)	4605	4530	30S	(4530)	5455	5605	30E	(5605)	4530	4605
60W	5425			60S	4500			60E	5635		
90W	5395			90S	4470			90E	5665		
120W	5365			120S	4440			120E	5695		
150W	5335			150S	4410			Then houses			
200W	5285			200S	4360			30N	(4635)	5575	5490
400W	5085				Then houses			60N	4665		
600W	4885								Then houses		

All Barren / Spoil Piles
West 2/3

Site (6)

2016 Field Season Page __ of __

JOB #/NAME	DATE	DRIVE TIME	MILES	FIELD TIME	SURVEYORS
District office	11/5/16	TO – FROM –	–	BEGIN 0845 END 0900	E&Lake

WEATHER CONDITIONS (Start/End)

TEMP: 43°F WIND X: O ↑ | N (S) E W CLOUD: 100%

TEMP: 48°F WIND X: O ↑ | N S (E) W CLOUD: 10%

UTM (NAD 83) (circle starting corner)

NE→	NW→	(SE)→	SW→
3496	3486	4384496	3486
2386	2386	394,2364	2384

PERENNIAL PLANTS	ANNUAL PLANTS	BIRDS	HERP	MAM
Ø	Ø	RODO MODO ECDO EUSI HOFI ORA	Ø	

Photographs

1	SE →	NW
2	NW →	SE

OBSERVABLE HUMAN DISTURBANCES

T#	East	North	OHV	Road	Dog	Dump	S Gun	Rifle	Target		
		Not Applicable									

Appendix C. (cont.) USFWS Data Sheet Completed on 14 January 2016

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

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

Date of survey: 6 Jan 2016 (day, month, year) Survey biologist(s): EQ Galvez (name, email, and phone number)

Site description: 1.5-acre parcel beside well 33 2,200 feet west of Brown Road (project name and size; general location)

County: Kern County Quad: Inyokern SE Location: 427050/3939950 (NAD 83) (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 1.5 Transect #: 11 Transect length: 200 feet

GPS Start-point: 427100/3939955 (2555 feet) (easting, northing, elevation in meters) Start time: 1430 am/pm

GPS End-point: 427000/3939855 (2560) (easting, northing, elevation in meters) End time: 1630 am/pm

Start Temp: _____ °C End Temp: _____ °C

Live Tortoises

See above for 1st coordinates

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

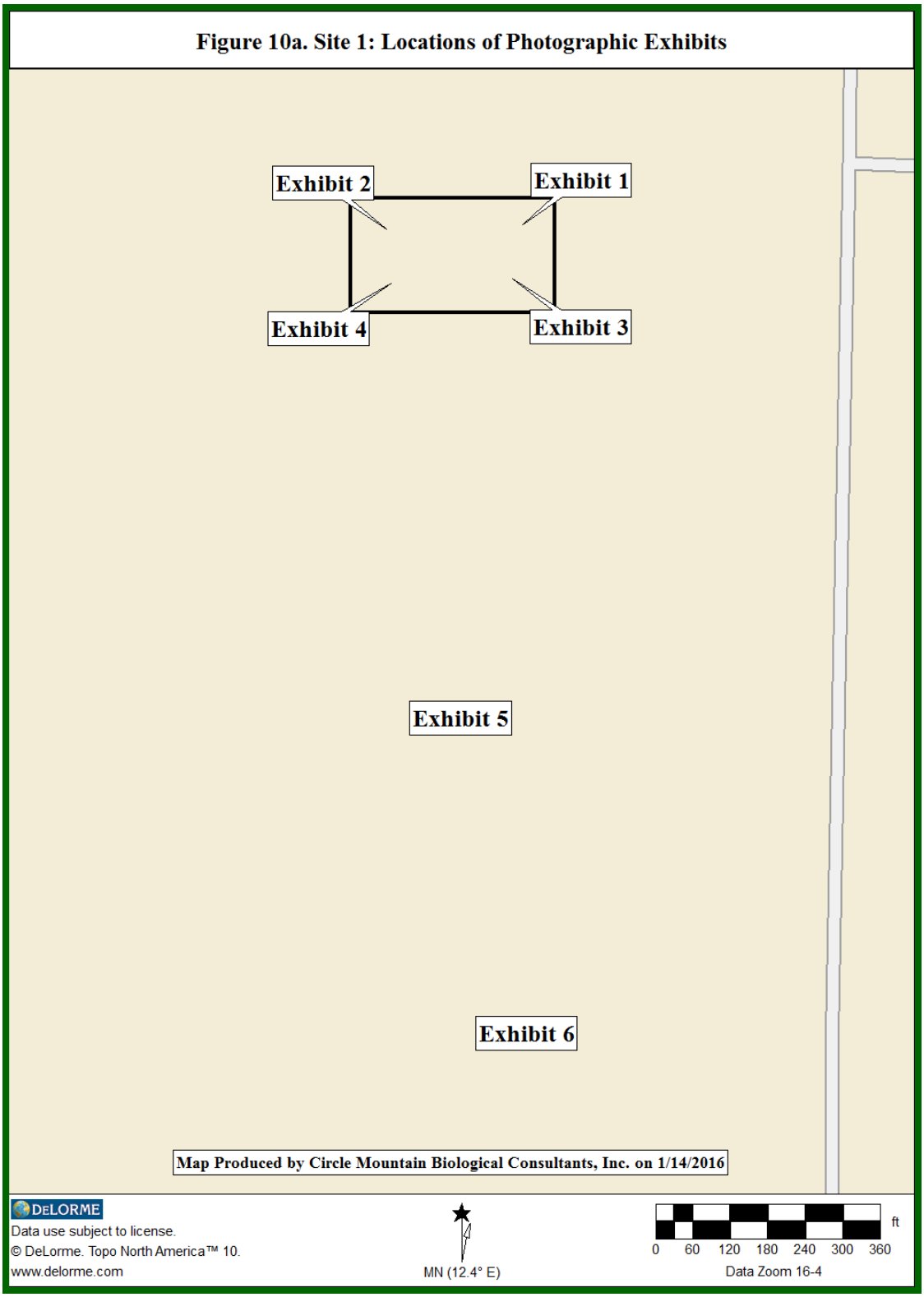
Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	6906	9887	MTY 12mm	Older scat, subadult
2	6901	9920	MTY 17mm	Older scat, adult
3	6894	9899	MTY 18mm	Older scat, adult
4	6876	9905	TY 22mm	Fresh scat, adult
5	6883	9905	TY 18mm	Fresh scat, adult
6	6869	9964	TY 22mm	Fresh scat, adult
7	6890	9900	MTY 14mm	Older scat, adult
8	6876	9913	MTY 11mm	Older scat, subadult

Page: 1 of 1

Transect number: _____

Appendix D. Photographic Exhibits



Locations of the six photographic exhibits on the next three pages are depicted above in Figure 10a.

Exhibit 1. Site 1: View from the northeast corner of the parcel, facing southwest (see Figure 10a for locations and directions of photographs).

Exhibit 2. View from the northwest corner of the parcel, facing southeast.

Exhibit 3. View from the southeast corner of the parcel, facing northwest.

Exhibit 4. View from the southwest corner of the parcel, facing northeast.

Exhibit 5. View of sheep tracks prevalent throughout the area (see Exhibit 3 for onsite).

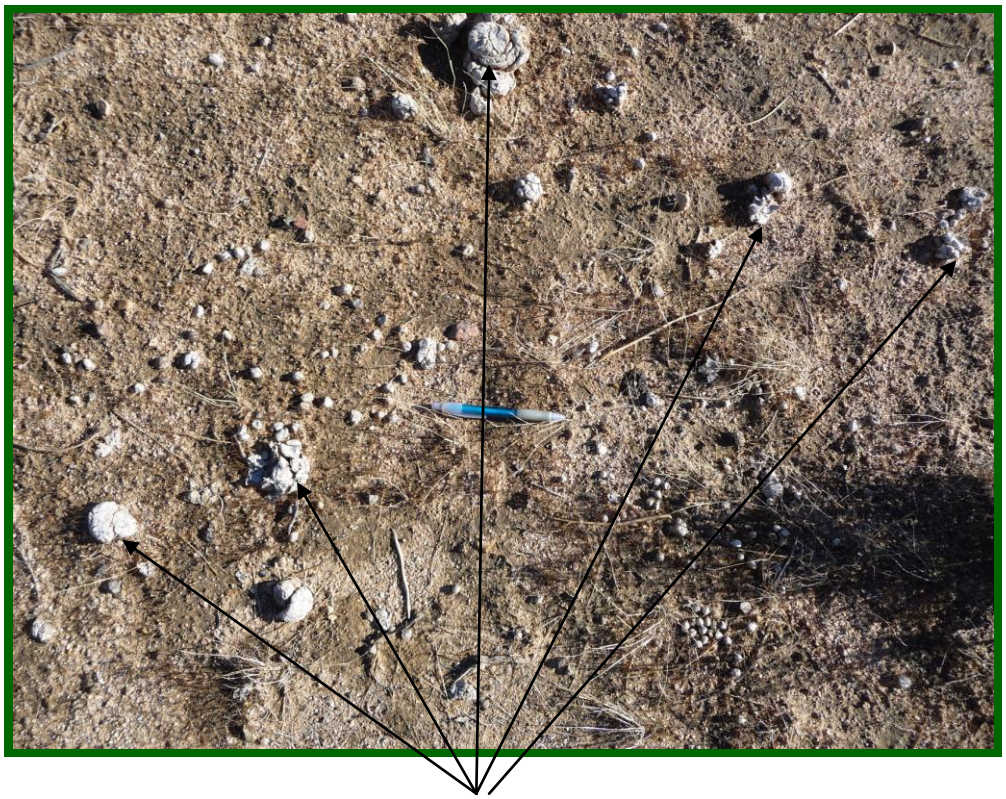
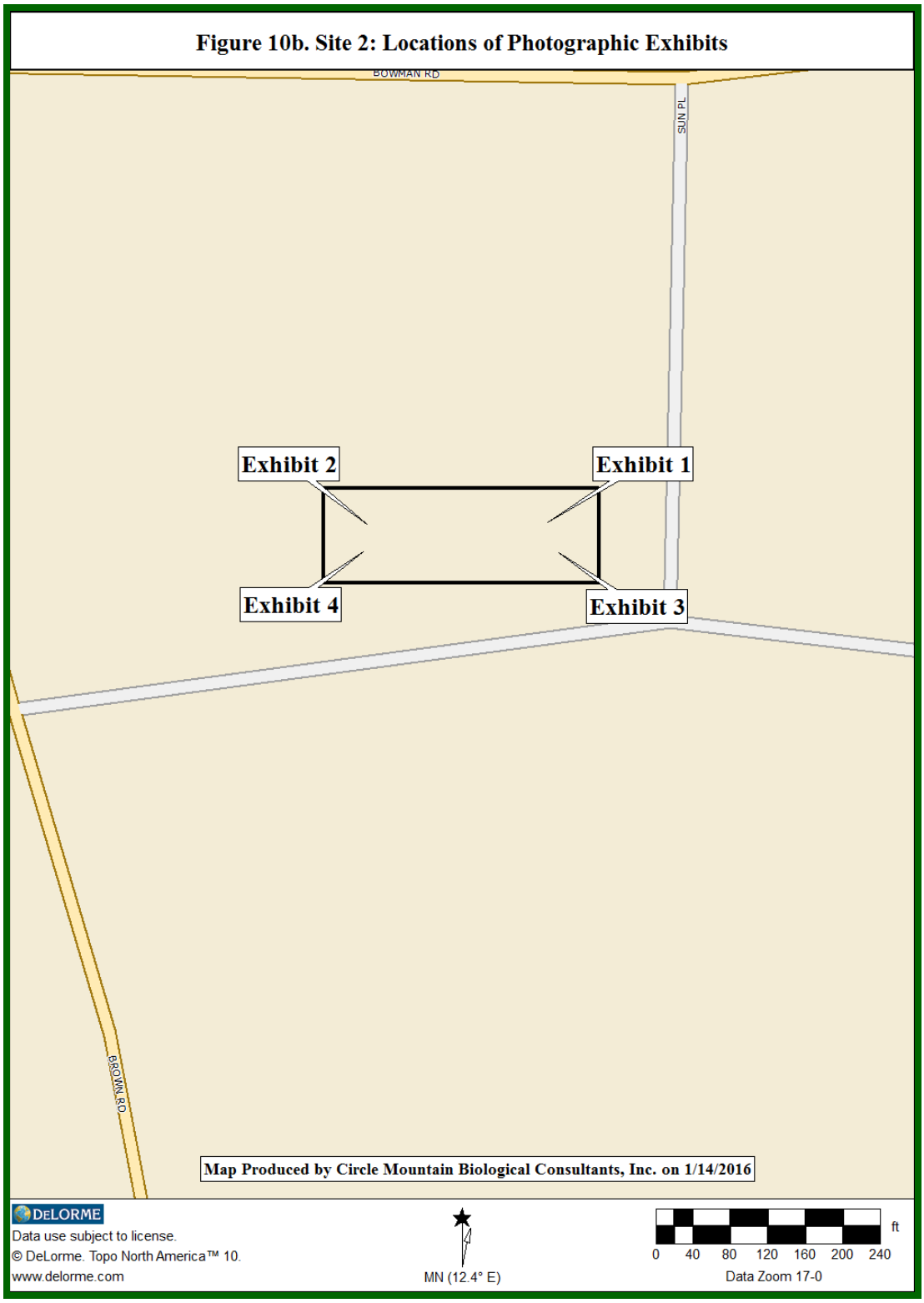


Exhibit 6. View of abundant sheep droppings located south of the site.



Locations of the four photographic exhibits on the next two pages are depicted above in Figure 10b.

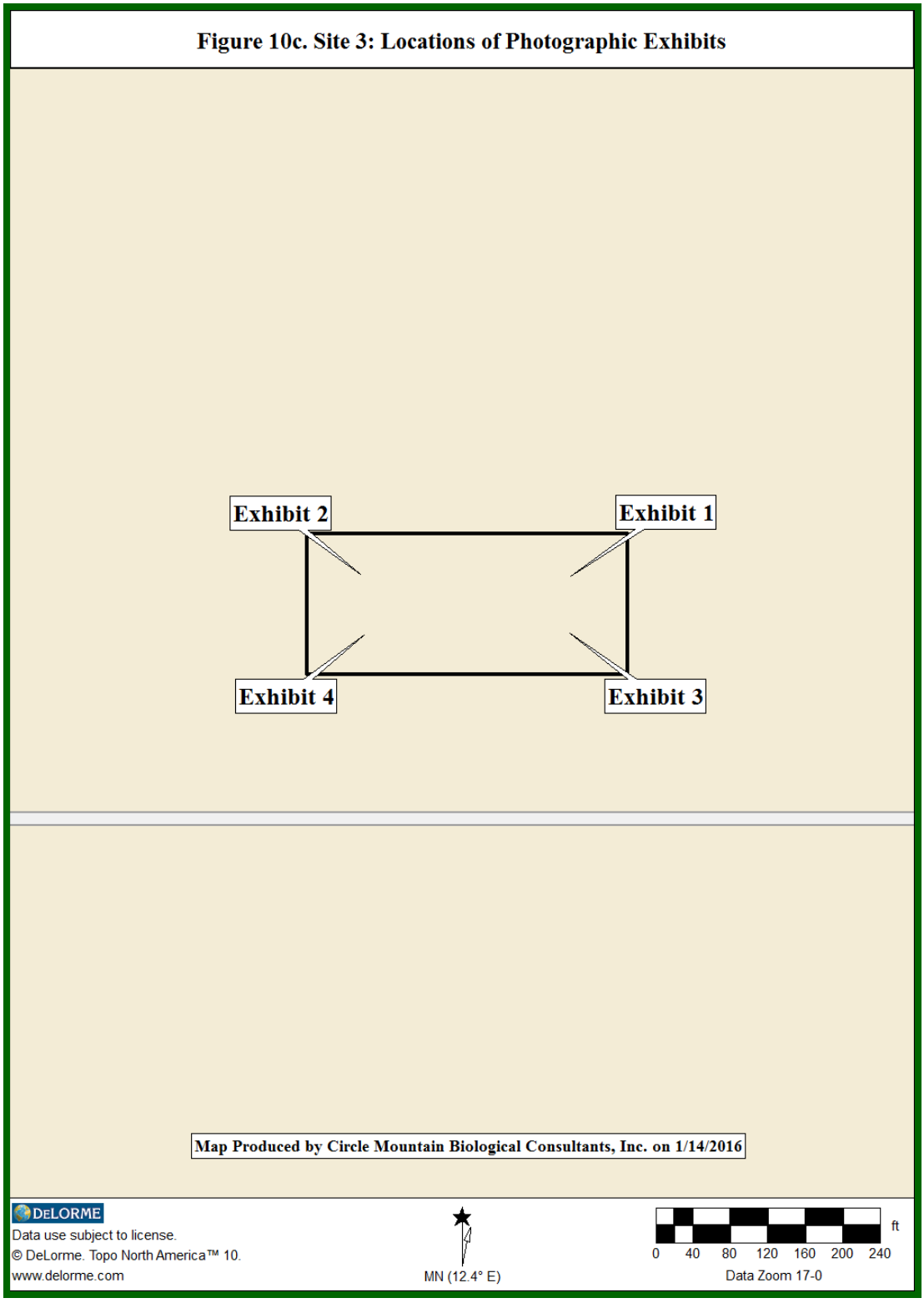
Exhibit 1. Site 2: View from the northeast corner of the parcel, facing southwest (see Figure 10b for locations and directions of photographs).

Exhibit 2. View from the northwest corner of the parcel, facing southeast.

Exhibit 3. View from the southeast corner of the parcel, facing northwest.

Exhibit 4. View from the southwest corner of the parcel, facing northeast.

Figure 10c. Site 3: Locations of Photographic Exhibits



Locations of the four photographic exhibits on the next two pages are depicted above in Figure 10c.

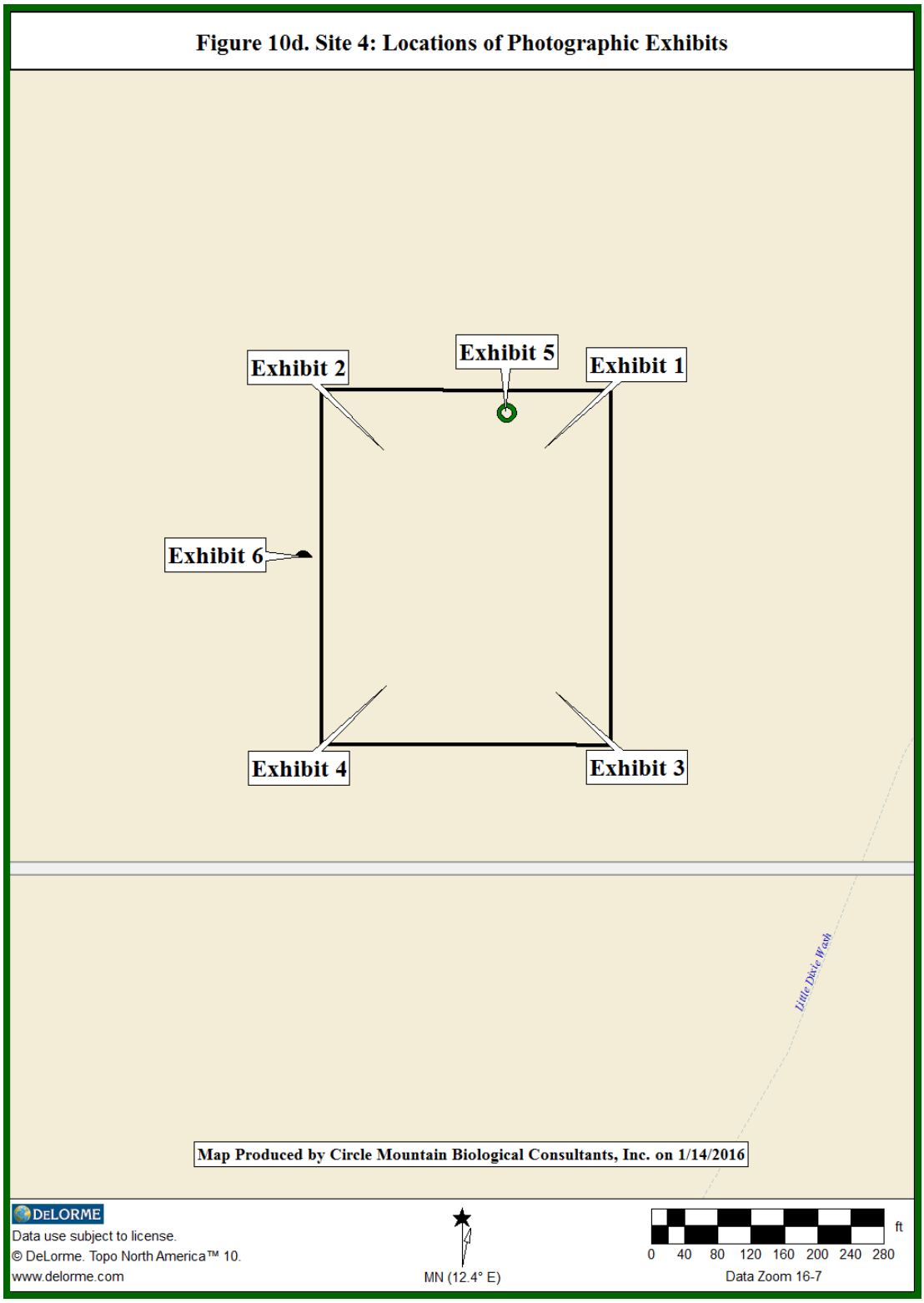
Exhibit 1. Site 3: View from the northeast corner of the parcel, facing southwest (see Figure 10c for locations and directions of photographs).

Exhibit 2. View from the northwest corner of the parcel, facing southeast.

Exhibit 3. View from the southeast corner of the parcel, facing northwest.

Exhibit 4. View from the southwest corner of the parcel, facing northeast.

Figure 10d. Site 4: Locations of Photographic Exhibits



Locations of the six photographic exhibits on the next three pages are depicted above in Figure 10d.

Exhibit 1. Site 4: View from the northeast corner of the parcel, facing southwest (see Figure 10d for locations and directions of photographs).

Exhibit 2. View from the northwest corner of the parcel, facing southeast.

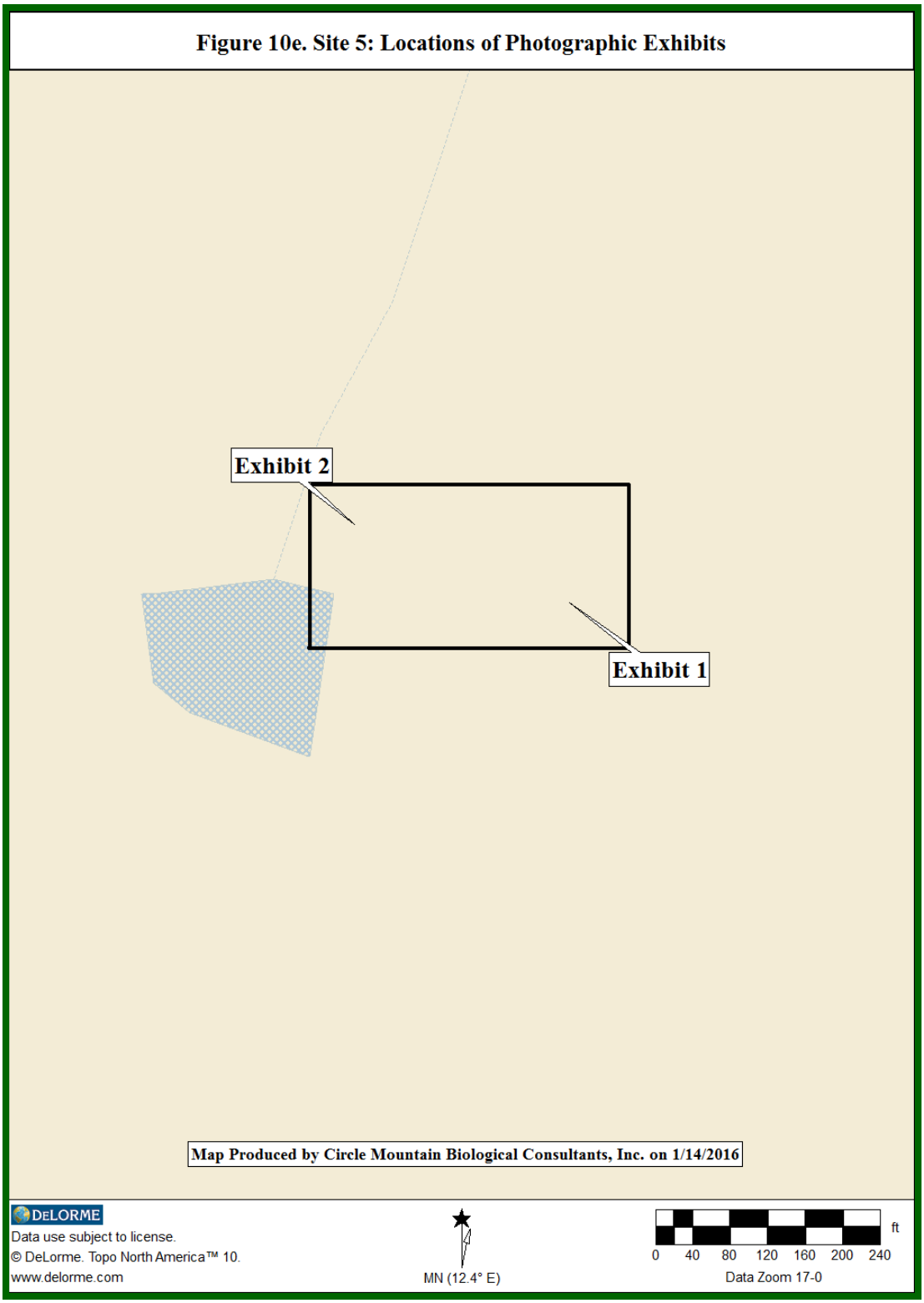
Exhibit 3. View from the southeast corner of the parcel, facing northwest.

Exhibit 4. View from the southwest corner of the parcel, facing northeast.

Exhibit 5. View of a larger creosote bush ring near the north boundary of the site.

Exhibit 6. Three demonstration tortoise burrows created in November 2015.

Figure 10e. Site 5: Locations of Photographic Exhibits

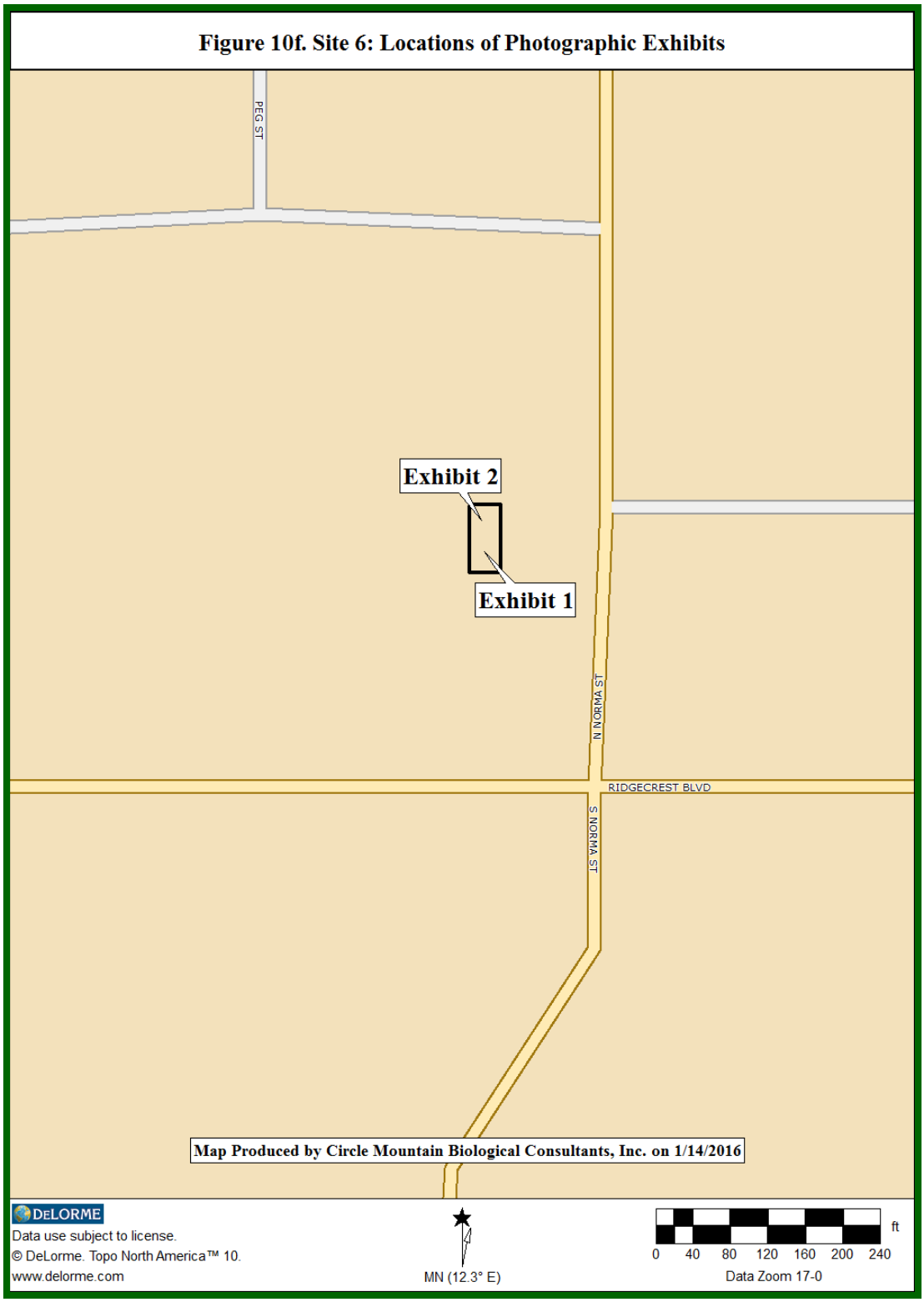


Locations of the two photographic exhibits on the next page are depicted above in Figure 10e.

Exhibit 1. Site 5: View from the southeast corner of the parcel, facing northwest (see Figure 10e for locations and directions of photographs).

Exhibit 2. View from the northwest corner of the parcel, facing southeast.

Figure 10f. Site 6: Locations of Photographic Exhibits



Locations of the two photographic exhibits on the next page are depicted above in Figure 10f.

Exhibit 1. Site 6: View from the southeast corner of the parcel, facing northwest (see Figure 10f for locations and directions of photographs).

Exhibit 2. View from the northwest corner of the parcel, facing southeast.

APPENDIX C

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT

INDIAN WELLS VALLEY WATER DISTRICT PV LAYOUTS PROJECT

Inyokern Area
Kern County, California

For Submittal to:

Indian Wells Valley Water District
500 West Ridgecrest Boulevard
Ridgecrest, CA 93555

Prepared for:

Krieger and Stewart, Inc.
3602 University Avenue, Suite 201
Riverside, CA 92501

Prepared by:

CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

January 31, 2016
CRM TECH Contract No. 3019

Title: Historical/Archaeological Resources Survey Report: Indian Wells Valley Water District PV Layouts Project, Inyokern Area, Kern County, California

Author: Bai "Tom" Tang, Principal Investigator/Historian
Jesse Yorck, Archaeologist/Report Writer
Daniel Ballester, Archaeologist/Field Director
Nina Gallardo, Archaeologist/Native American Liaison

Consulting Firm: CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324
(909) 824-6400

Date: January 31, 2016

For Submittal to: Indian Wells Valley Water District
500 West Ridgecrest Boulevard
Ridgecrest, CA 93555

Prepared for: David Scriven
Krieger and Stewart, Inc.
3602 University Avenue, Suite 201
Riverside, CA 92501

Project Size: Approximately 5.8 acres

USGS Quadrangle: Inyokern and Inyokern SE, 7.5' quadrangles; Section 27 and 28 of T26S R39E and Section 8 of T27S R39E, Mount Diablo Baseline and Meridian

Keywords: Indian Wells Valley, Mojave Desert; Phase I historical/archaeological resources survey; Site 15-0012543/CA-KER-7078H (possible late 19th century wagon trail); no "historical resources" under CEQA

MANAGEMENT SUMMARY

In December 2015 and January 2016, at the request of Krieger and Stewart, Inc., CRM TECH performed a cultural resources study on approximately 5.8 acres of undeveloped land in an unincorporated area near the community of Inyokern, Kern County, California. The subject property of the study consists of portions of Assessor's Parcel Numbers 341-082-18, 341-251-05, 352-095-38, and 352-201-35, known as Well 33, Well 34, Well 30, and Well 31, respectively. Well 30 and Well 31 are located east of U.S. Highway 395 and south of Inyokern Road, in Sections 27 and 28 of T26S R39E, Mount Diablo Baseline and Meridian, while Well 33 and Well 34 sites are located generally along Brown Road in Section 8 of T27S R39E.

The study is a part of the environmental review process for the proposed installation of photovoltaic solar power modules facilities at each of these four well sites. The Indian Wells Valley Water District (IWVWD), as the lead agency for the project, required the study pursuant to the California Environmental Quality Act (CEQA). The purpose of this study is to provide the IWVWD with the necessary information and analysis to determine whether the project would cause a substantial adverse change to any "historical resources," as defined by CEQA, that may exist in or around the project area. In order to identify such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey.

As a result of these research procedures, a previously recorded historic-period site, 15-0012543 (CA-KER-7078H), was identified as lying partially within the project boundaries. Representing the possible remnants of a late 19th century wagon trail, the site was previously determined not to qualify as a "historical resource" under CEQA provisions. No other potential "historical resources" were encountered within or adjacent to the project area. Therefore, CRM TECH recommends to the IWVWD a finding of *No Impact* regarding cultural resources. No further cultural resources investigation is recommended for the project unless construction plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are discovered during earth-moving operations associated with the project, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

In December 2015 and January 2016, at the request of Krieger and Stewart, Inc., CRM TECH performed a cultural resources study on approximately 5.8 acres of undeveloped land in an unincorporated area near the community of Inyokern, Kern County, California (Figure 1). The subject property of the study consists of portions of Assessor's Parcel Numbers 341-082-18, 341-251-05, 352-095-38, and 352-201-35, known as Well 33, Well 34, Well 30, and Well 31, respectively. Well 30 and Well 31 are located east of U.S. Highway 395 and south of Inyokern Road, in Sections 27 and 28 of T26S R39E, Mount Diablo Baseline and Meridian, while Well 33 and Well 34 sites are located generally along Brown Road in Section 8 of T27S R39E (Figures 2, 3).

The study is a part of the environmental review process for the proposed installation of photovoltaic solar power modules facilities at each of these four well sites. The Indian Wells Valley Water District (IWVWD), as the lead agency for the project, required the study pursuant to the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of this study is to provide the IWVWD with the necessary information and analysis to determine whether the project would cause a substantial adverse change to any "historical resources," as defined by CEQA, that may exist in or around the project area.

In order to identify such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey. The following report is a complete account of the methods, results, and final conclusion of the study.

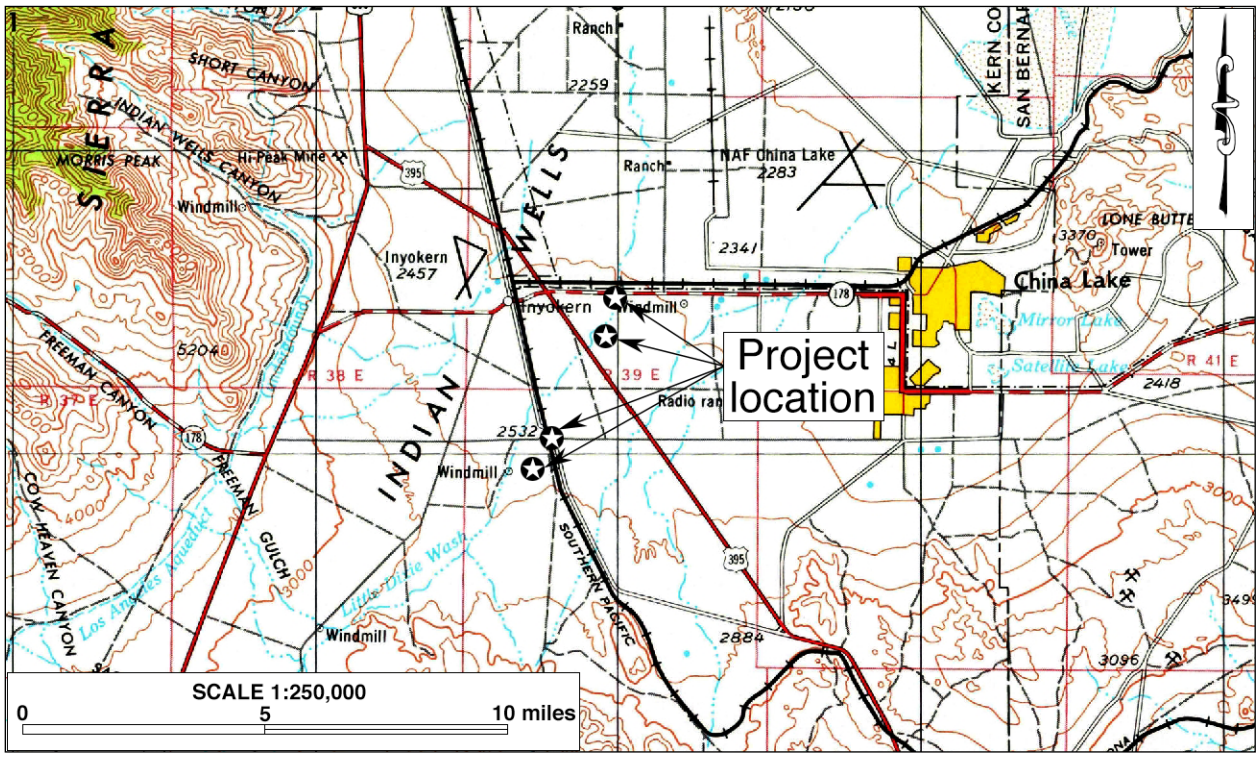


Figure 1. Project vicinity. (Based on USGS Trona, Calif., 1:250,000 quadrangle [USGS 1969])

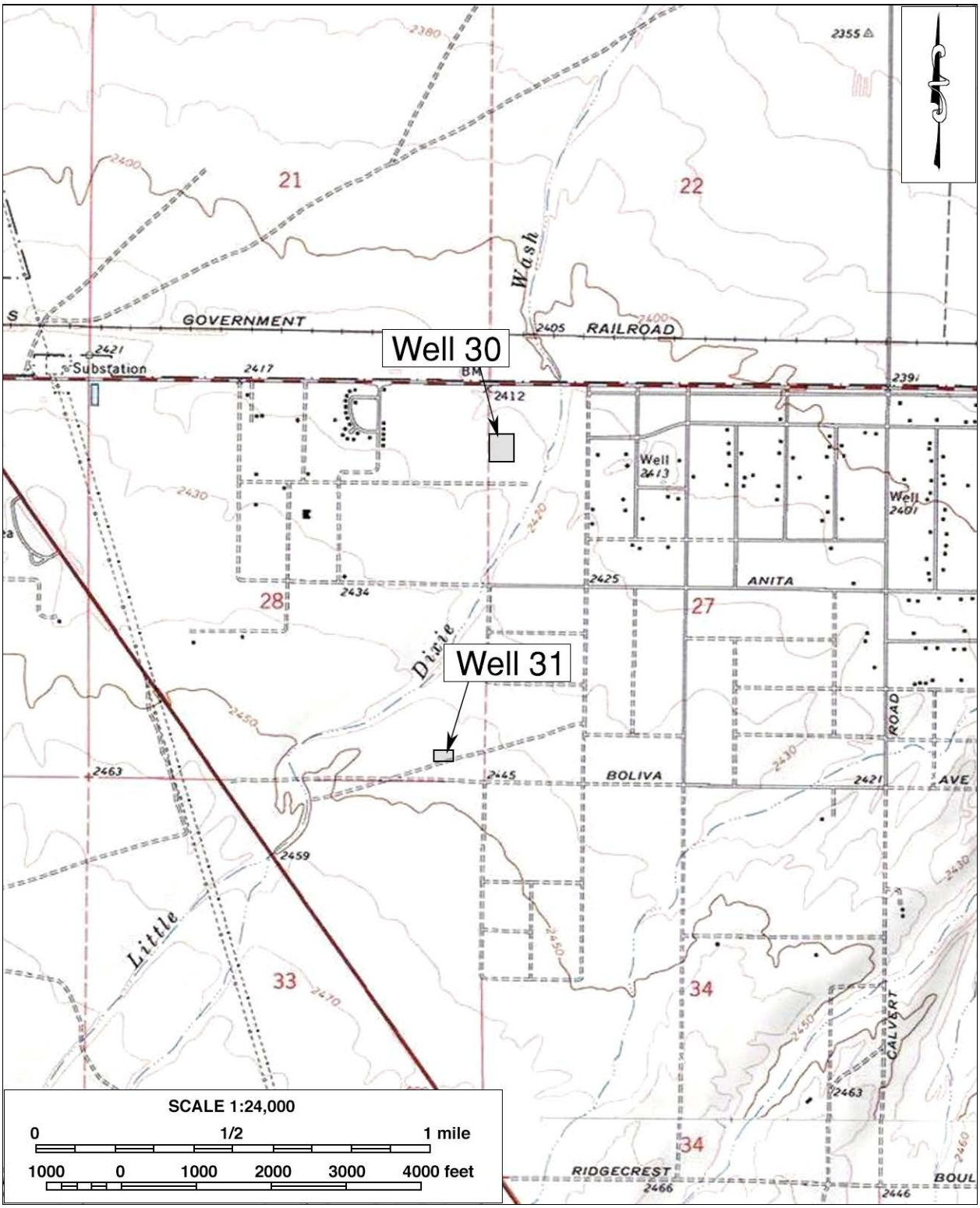


Figure 2. Project area (northeastern portion). (Based on USGS Inyokern and Inyokern SE, Calif., 1:24,000 quadrangles [USGS 1972a; 1972b])

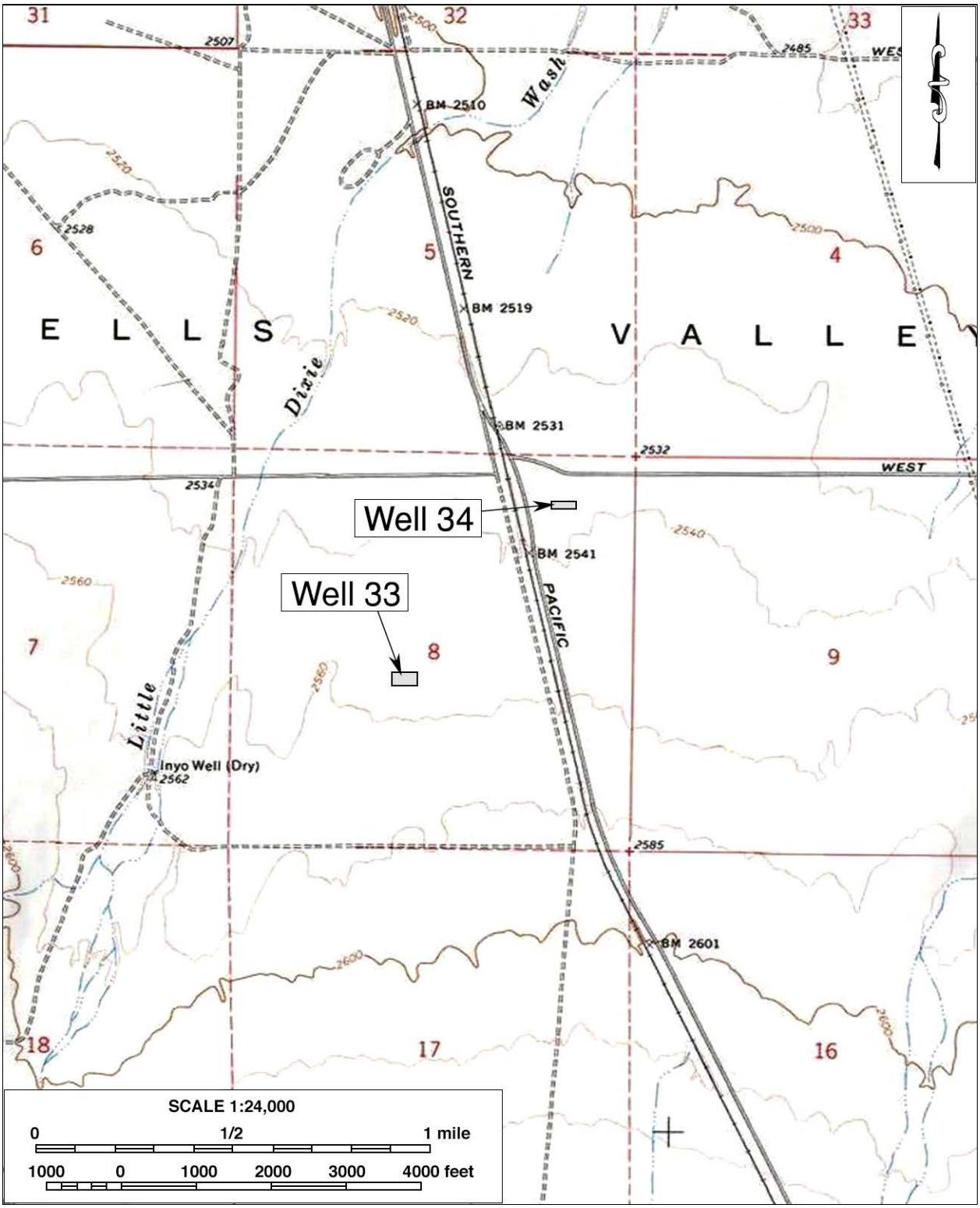


Figure 3. Project area (southwestern portion). (Based on USGS Inyokern SE, Calif., 1:24,000 quadrangle [USGS 1972b])

SETTING

CURRENT NATURAL SETTING

The project area is located in the Indian Wells Valley, an inland desert valley surrounded by the Sierra Nevada on the west, the Coso Range on the north, the Argus Range on the east, and the El Paso Mountains on the south. With the tall, steep Sierra Nevada effectively blocking the marine air flow from the Pacific Ocean, the climate and environment of the Indian Wells Valley are typical of the Mojave Desert region, characterized by hot days and cool nights, with extremely arid conditions prevailing throughout the summer months. The mean annual temperature is 65ºF, while actual daily temperatures fluctuate from 0ºF to 118ºF. Average annual precipitation in the valley is less than five inches.

More specifically, the project area lies on open desert land to the east and the south of Inyokern, and to the south of Naval Air Weapons Station China Lake. Each of the four project site is adjacent to an existing well facility operated by the IWVWD, and all of them are within a mile from the intermittent Dixie Wash. The elevations at the project sites range approximately from 2,415 feet to 2,555 feet above mean sea level, and the terrain is generally level, with a gradual decline towards the northwest. The soil in this area consists of light grayish brown fine- to medium-grained sands with small to medium-sized rocks. Vegetation in the project vicinity included creosote, cholla cactus, and other small desert scrub and grasses (Figure 4).

Figure 4. Overview of the current natural setting of the project area. *Top left*: Well 30, view to the east; *top right*: Well 31, view to the northwest; *bottom left*: Well 33, view to the south; *bottom right:* Well 34, view to the north. (Photos taken on December 28, 2015)

CULTURAL SETTING

Prehistory

To understand the processes of Native American culture changes prior to European contact, archaeologists have devised chronological frameworks based on artifacts and site types for the past 12,000 years. One of the more frequently used chronological sequences for the southern California deserts was developed by Claude Warren (1984), which divided the region's prehistory into five periods marked by changes in archaeological remains that reflect different ways in which native peoples adapted to their surroundings. These five periods, according to Warren (1984) and Warren and Crabtree (1986), are the Lake Mojave Period (12,000-7,000 years ago), the Pinto Period (7,000-4,000 years ago), the Gypsum Period (4,000-1,500 years ago), the Saratoga Springs Period (1,500-800 years ago), and the Protohistoric Period (800 years ago to European contact).

This chronology is meant only to provide a very broad outline, a framework that is continually revised and refined. It is based on general technological changes from large stone projectile points with few milling stones for grinding food products to smaller projectile points with an increase in milling stones. The scheme also notes increases in population, cultural complexity, and changes in food procurement and resource exploitation through time. Subsistence activities included hunting, fishing, and gathering. During the Protohistoric Period, there is evidence of contact with the Colorado River tribes and the introduction of pottery across the Mojave Desert.

In the vicinity of the project area, sites around China Lake have yielded artifact assemblages that are possibly more than 11,000 years old (Moratto 1984:85-86; Hall and Barker 1975:43-51). According to local historian Elizabeth Babcock (n.d.):

> The earliest nearby village appeared near Little Lake perhaps 4,000 years ago. Obsidian mining began, and local people found that the hard, black volcanic glass made arrow and spear points that could be used or traded for other goods. Black Mountain, the 5,259-foot basalt peak overlooking our valley to the south, served as a gathering place and site of peacemaking ceremonies.
>
> Sometime during the last few hundred years, Shoshonean people began traveling through our valley on the "Big Trail," which made its way to Little Lake along the lower slopes of the Sierra Nevada. As recently as the 19th century, the Kawaiisu people still organized hunting parties into what are now China Lake ranges.

Ethnography

The Indian Wells Valley lies near the center of a broad region once used by the Kawaiisu Indians. The Kawaiisu homeland, however, was in the Tehachapi and Piute Mountain area in the southern Sierra Nevada to the west (Zigmond 1986:398). Seasonal forays into the present-day Inyokern area were made to gather plants and hunt animals not available in the mountains. The following ethnographic discussion of Kawaiisu culture and history is based primarily on Zigmond (1986), the basic reference source on this subject.

Dictated by the environmental setting of their homeland, the Kawaiisu were mainly acorn harvesters, with the typical desert plants such as mesquite and screwbean playing a minor role in their diet. Nevertheless, more than a hundred plant species are known to have been food sources. Additionally, a large number of faunal species were also utilized for food, including large and small game, rodents, birds, and insects, with fish as a minor dietary item. As hunters and gatherers, the Kawaiisu acquired and processed their foodstuffs with various stone, wooden, and woven tools similar to those used by other tribes in southern California. The presence of ceramic sherds around some old settlements gives evidence of the manufacture of undecorated pottery, but during protohistoric and early historic times Kawaiisu typically traded for pottery instead of making it.

Social and political organization among the Kawaiisu was minimal beyond the family group. Although some families, usually related, tended to associate in daily activities, such groups can be considered bands only in an informal sense. The concept of chieftainship was recognized, but a chief was usually acknowledged as such simply by virtue of wealth and generosity. Since the Kawaiisu had little consciousness of tribal unity, several leaders might be accepted locally.

Due to their remote location from the centers of European colonization activities, there was little contact between the Kawaiisu and non-Natives until the mid-19th century, when Euroamerican trappers, stockmen, farmers, and prospectors began to penetrate the region. After gold discoveries in the 1850s, the heart of the Kawaiisu territory was dotted with mining claims. During the 150 years since then, traditional Kawaiisu social and cultural institutions declined continuously, and by the 1960s manifestations of tribal life had disappeared.

History

According to local history, the first non-Indian to set foot in the Indian Wells Valley, in 1834, was Joseph R. Walker, a legendary American explorer of the eastern California desert (Babcock n.d.). Over the next few decades, a number of American immigrants crossed the valley on their way to the California coast or the gold rush country, including the ill-fated Death Valley Party of 1849 (McClung 1953:27). Since the majority of immigrants preferred the well-established cross-desert thoroughfares such as the Old Spanish Trail/Mormon Trail, however, the Indian Wells Valley remained largely unexplored during this period.

Between the 1860s and the 1890s, several mining booms took place in the surrounding region, most notably in the El Paso and Rand Mountains to the south, the Coso area to the north, and Searles Valley to the east, resulting in increased traveling and transportation activities in the Indian Wells Valley (McClung 1953:27-28; Hall and Barker 1975:20-21). In addition, “cattlemen from Kern River Valley and Owens Valley brought their stock here for winter pasturage and water, while Native American herders came down from Haiwee Meadows with herds of Angora goats to winter here” (Babcock n.d.).

Except the rudimentary trails across the desert floor, however, these early activities left little lasting impact in the valley. In the 1880s, a number of Chinese laborers who had been employed on railroad construction in Owens Valley briefly settled in the Indian Wells Valley, but they too left behind little evidence of their presence except the name of China Lake (McClung 1953:28-29; Garrett 1996:40). In 1908-1913, the construction of the Los Angeles Aqueduct finally ended the isolation of the Indian

Wells Valley by bringing the Southern Pacific Railroad into the valley, and brought about the establishment of the valley's first post office, first school, first church, and several small farming communities around that period (McClung 1953:28; Babcock n.d.).

The oldest community in the Indian Wells Valley, Inyokern, was founded by a group of Los Angeles developers in 1909 (LaBerge 1953:39). Several miles to the east of the project location, in what is now the City of Ridgecrest, a settlement known as Crumville began to take shape around a dairy farm during the 1920s-1930s (Babcock n.d.). In addition to dairy farming, local residents also experimented with apple orchards and alfalfa cultivation. Due to its harsh natural environment, agricultural ventures in the Indian Wells Valley proved to be less than successful (Sepetoski 1953:38). Consequently, growth was very slow and nearly stagnant in the pre-WWII years.

In 1943, the landscape of the region changed dramatically when the U.S. Navy selected Indian Wells Valley for the new China Lake Naval Ordnance Test Station. Within the next 10-15 years, the influx of military personnel as well as civilian employees at the navy base transformed the twin communities of China Lake and Ridgecrest into a sizable urban center. Today, the City of Ridgecrest, incorporated in 1963, is the second largest municipality in Kern County, and the navy base, with its 4,000 workers, remained by far the largest local employer in the region well into the modern era (Pahuta and Moore 1992:73; Babcock 2003-2004).

RESEARCH METHODS

RECORDS SEARCH

The Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield, which is the State of California's official cultural resource records repository for the County of Kern, provided the records search service for this study. During the records search, SSJVIC Coordinator Celeste Thomson examined records and maps on file at the SSJVIC for previously identified historical/archaeological resources and existing cultural resources reports pertaining to the project area or the area within a one-mile radius. Previously identified historical/archaeological resources include properties designated as California Historical Landmarks or Points of Historical Interest as well as those included in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

HISTORICAL RESEARCH

Historical background research for this study was conducted by CRM TECH archaeologist Jesse Yorck (see Appendix 1 for qualifications). In addition to published literature in local and regional history, sources consulted during the research included the U.S. General Land Office (GLO) land survey plat maps dated 1856, USGS topographic maps dated 1943-1972, and aerial photographs taken between 1971 and 2012. The historic maps are collected at the Science Library of the University of California, Riverside, and the California Desert District of the U.S. Bureau of Land Management, located in Moreno Valley. The aerial photographs are available at the NETR Online website.

NATIVE AMERICAN PARTICIPATION

On December 8, 2015, CRM TECH submitted a written request to the State of California's Native American Heritage Commission (NAHC) for a records search in the commission's sacred lands file. Following the NAHC's recommendations, on January 4, 2016, CRM TECH further contacted a total of eight tribal representatives in the region in writing to solicit local Native American input regarding possible cultural resources concerns over the proposed project. The correspondences between CRM TECH and the Native American representatives are attached to this report in Appendix 2.

FIELD SURVEY

On December 28, 2015, CRM TECH archaeologist Daniel Ballester (see Appendix 1 for qualifications) carried out the field survey of the project area. The survey was completed at an intensive level by walking a series of parallel east-west transects spaced 15 meters (approximately 50 feet) apart. In this way, the ground surface in all four portions of the project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years ago or older). Ground visibility was fair (70%) to excellent (90%), depending on the density of vegetation growth.

RESULTS AND FINDINGS

RECORDS SEARCH

Records of the SSJVIC indicate that the northeastern portion of the project area, at Well 30 and Well 31, were included in a large-scale overview study completed in 1997 (KE2054 in Figure 5), while a 1987 study may have included a small portion of the project site at Well 33 (KE306 in Figure 6). As a cultural resources overview, the 1997 study did not entail a systematic field inspection (Love and Tang 1997). Furthermore, both of these studies are now well over ten years old. Since none of the four project sites was surveyed at an intensive level in recent years, a systematic field inspection of the entire project area was deemed necessary for this project.

SSJVIC records further indicate that a previously recorded historic-period site, 15-0012543 (CA-KER-7078H), lies partially within the project area, specifically across the project site at Well 31. The site was originally recorded in 2003 as "an unimproved path through the desert landscape, forming a shallow ditch without vegetation" (Hope 2003:1; see Appendix 3). Based on its location, the site was considered to be the remnant segment of a wagon trail that was established in the 1870s across the Indian Wells Valley from Freeman Junction to silver-mining operations in the Panamint Mountains (*ibid*.:1, 3). Since it did not meet any of the significance criteria and did not retain sufficient historic integrity, the site was determined not to be eligible for listing in the National Register of Historic Places, and not to qualify as a "historical resource" under CEQA (*ibid.*:4-5).

Outside the project boundaries but within a one-mile radius, SSJVIC records show more than 20 other previous studies covering various tracts of land and linear features (Figures 5, 6). As a result, nine additional historical/archaeological sites and four isolates—i.e., localities with fewer than three

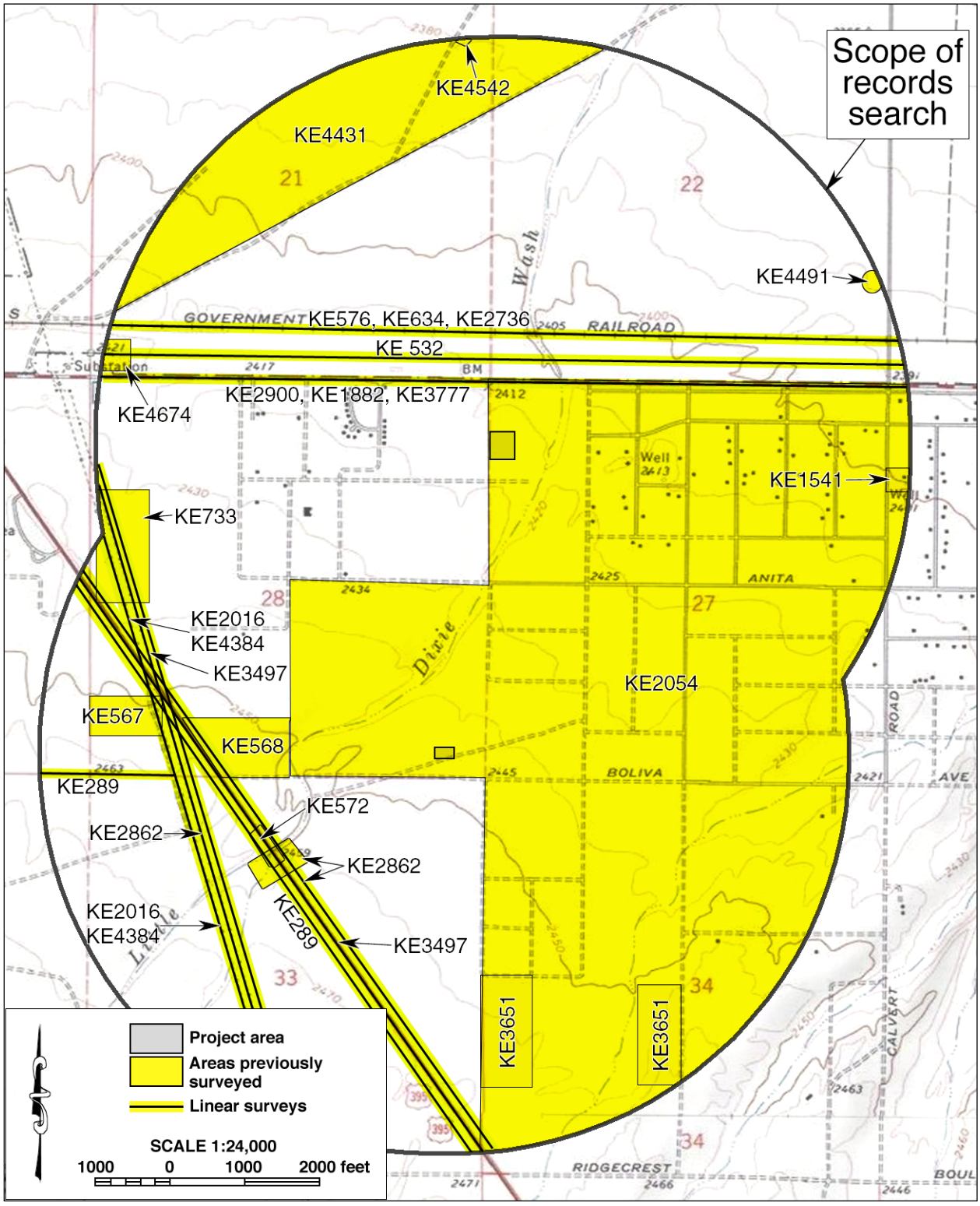


Figure 5. Previous cultural resources studies in the project vicinity (northeastern portion), listed by SSJVAIC file number. Locations of historical/archaeological sites are not shown as a protective measure.

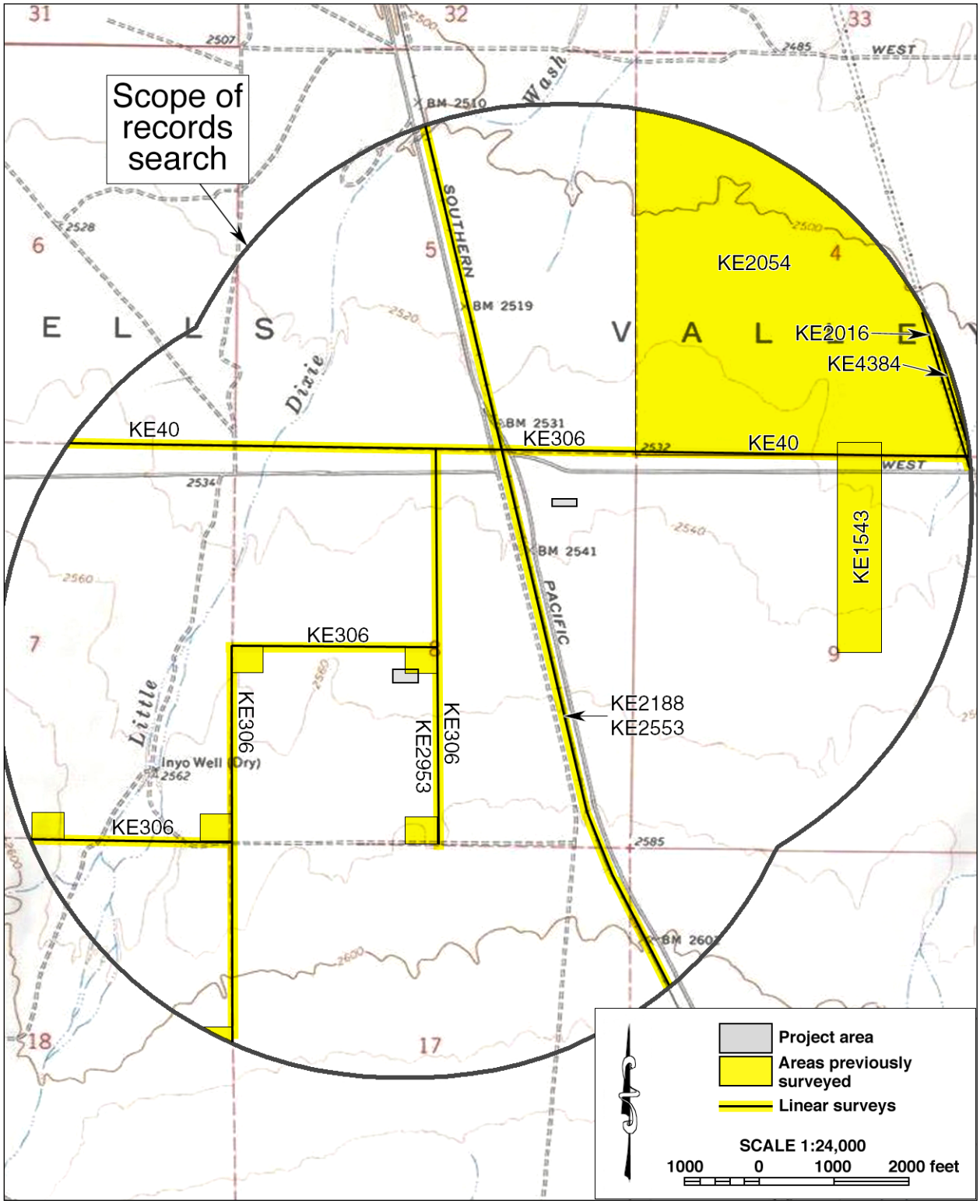


Figure 6. Previous cultural resources studies in the project vicinity (southwestern portion), listed by SSJVAIC file number.

artifacts—have been recorded within the scope of the records search. One of the sites was of prehistoric—i.e., Native American—origin, consisting of a light scatter of lithic artifacts, and the four isolates consisted of similar artifacts. The other eight sites dated to the historic period and included roads, power transmission lines, a railroad spur, refuse scatters, and the remains of a homestead. None of these sites or isolates was found in the immediate vicinity of the project area, and thus none of them requires further consideration during this study.

HISTORICAL RESEARCH

Historic maps consulted for this study demonstrate that other than various linear infrastructure features, little evidence of human activities were reported in the immediate vicinity of the project area during the historic period (Figures 7-11). In the 1850s, no man-made features of any kind were observed within or adjacent to the project area (Figures 7, 8). During the first half of the 20th century, a few roads were known to be present in the project vicinity, along with the Owenyo branch of the Southern Pacific Railroad, but no settlement or land development activities were evident within the project boundaries (Figures 9-11). Most notably, the road recorded as Site 15-0012543 was first shown across the project site at Well 31 by the historic maps in the early 1940s (Figure 10).

In the area around Well 30 and Well 31, small grids of dirt roads had been laid out by the early 1970s, presumably in anticipation of upcoming development (NETR Online 1971). Some scattered buildings had appeared in that area by 1971, joined by others between then and 1994 (NETR Online 1971; 1994). Similar grids of dirt roads were also laid out around Well 33 and Well 34 between 1972 and 1994, but no buildings were constructed in that area (NETR Online 1972; 1994). In the

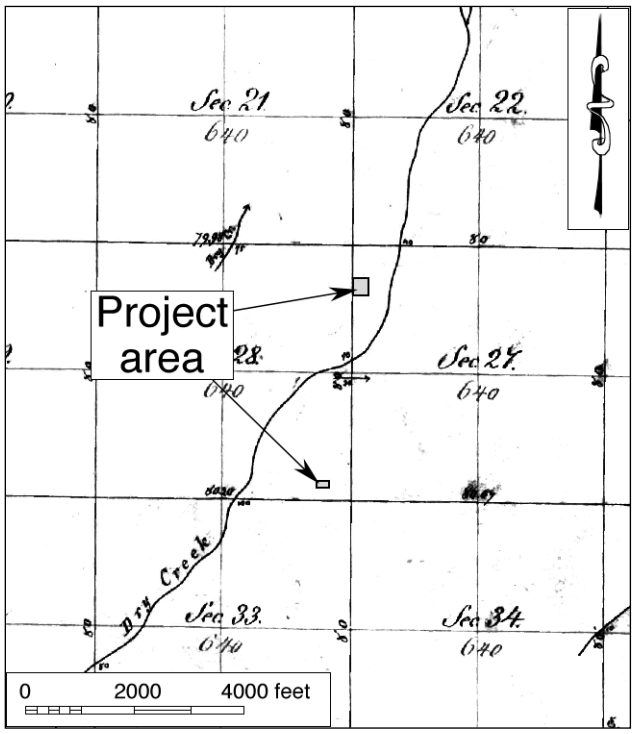


Figure 7. The project area (northeastern portion) in 1855. (Source: GLO 1856a)

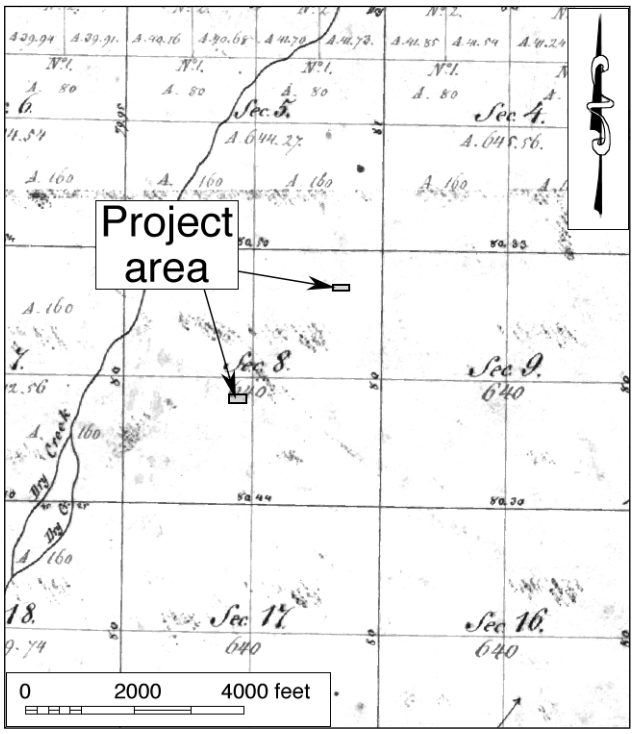


Figure 8. The project area (southwestern portion) in 1855. (Source: GLO 1856b)

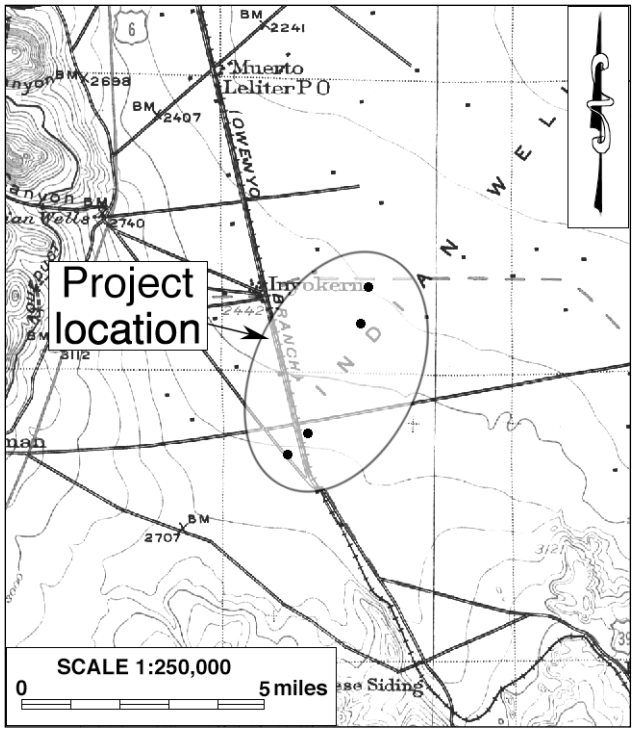


Figure 9. The project vicinity in 1911-1913. (Source: USGS 1915)

meantime, the project area has remained developed desert land to the present time despite the establishment of the adjacent well facilities between 1971 and 2009 (NETR Online 1971-2012).

NATIVE AMERICAN PARTICIPATION

In response to CRM TECH's inquiry, the NAHC reports in a letter dated December 11, 2015, that the sacred lands record search identified no Native American cultural resources in the project area, but recommends that local Native American groups be contacted for further information. For that purpose, the NAHC provided a list of potential contacts in the region (see Appendix 2). On January 4, 2016, CRM TECH sent written requests for comments to all eight individuals on the referral list and the organizations they represent (see Appendix 2). As of this time, none of the tribal representatives contacted has responded.

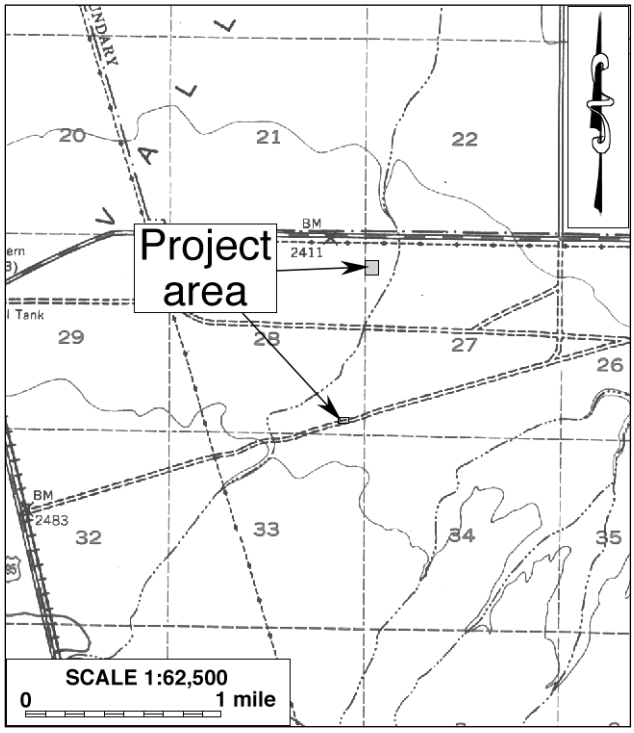


Figure 10. The project area (northeastern portion) in 1943. (Source: USGS 1943)

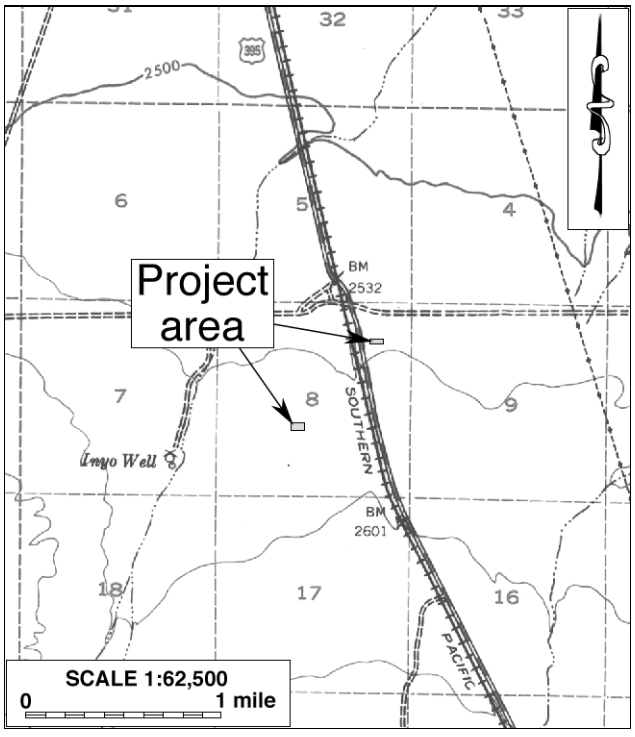


Figure 11. The project area (southwestern portion) in 1943. (Source: USGS 1943)

Figure 12. Dirt road recorded previously as Site 15-012543, view to the northeast. (Photo taken on December 28, 2015)

FIELD SURVEY

During the field survey, Site 15-012543 was observed along its previously recorded course across the project site at Well 31. At this location, the site is represented by a nondescript dirt road that exhibits no distinctively historical character (Figure 12). No other features or artifacts of prehistoric or historical origin were found throughout the survey. The project site at Well 33 has been highly disturbed in the past, apparently by the construction of a water retention basin in the northern portion of the project area. The other three project sites, in comparison, remain relatively undisturbed.

DISCUSSION

The purpose of this study is to identify any cultural resources within or adjacent to the project area, and to assist the IWVWD in determining whether such resources meet the official definitions of "historical resources," as provided in the California Public Resources Code, in particular CEQA. According to PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)). Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that "generally a resource shall

be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

In summary of the research results presented above, Site 15-0012543, representing the possible remnants of a late 19th century wagon trail, was previously recorded as lying partially within the project boundaries. The site was evaluated for historic significance in 2003, and found not to constitute a "historical resource" for CEQA-compliance purposes (Hope 2003:5). Since the portion of the site within the project area is a nondescript dirt road with no particular historical characteristics, this study concurs with that conclusion. Since no other potential "historical resources" were encountered during the course of the study, this study concludes that *no historical resources exist within or adjacent to the project area*.

CONCLUSION AND RECOMMENDATIONS

CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired."

As stated above, the present study has concluded that no "historical resources," as defined by CEQA, are present within or adjacent to the project area. Therefore, CRM TECH presents the following recommendations to the IWVWD:

- The proposed project will *No Impact* on any known historical resources.
- No further cultural resources investigation is necessary for the proposed project unless construction plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during any earth-moving operations associated with the project, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, UC Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.
2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, UC Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, UC Riverside.
1988-1993	Research Assistant, American Social History, UC Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Honors and Awards

1988-1990	University of California Graduate Fellowship, UC Riverside.
1985-1987	Yale University Fellowship, Yale University Graduate School.
1980, 1981	President's Honor List, Northwestern University, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (with Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA*

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.
2002	Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998	Assistant Research Anthropologist, University of California, Riverside
1992-1995	Project Director, Archaeological Research Unit, U. C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U. C. Riverside.
1984-1998	Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

* Register of Professional Archaeologists; Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Jesse Yorck, M.A., RPA*

Education

2009	M.A., the Center for Pacific Islands Studies, University of Hawaii at Manoa.
2002	B.A., Anthropology, University of Hawaii at Manoa.
2005-	Section 106 of the National Historic Preservation Act Training, National Preservation Institute.
2005	Native American Graves Protection and Repatriation Act Application, National Preservation Institute.
2005	Basic Geographic Information Systems Training, National Preservation Institute.

Professional Experience

2015-	Project Archaeologist/Report Writer, CRM TECH, Colton, California.
2014-2015	Archaeologist/Principal Investigator, ESA, Seattle, Washington.
2012-2014	Archaeologist, Bonneville Power Administration, Portland, Oregon.
2012-2012	Lead Archaeologist, Warm Springs Geo Visions, Warm Springs, Oregon.
2011-2012	Archaeologist/Principal Investigator, ESA, San Francisco, California.
2010-2011	Senior Archaeologist, Pacific Consulting Services, Honolulu, Hawaii.
2007-2009	Lead Advocate-Historic Preservation, Office of Hawaiian Affairs, Honolulu, Hawaii.
2005-2007	Policy Advocate-Native Rights, Land and Culture, Office of Hawaiian Affairs, Honolulu, Hawaii.
1998-2005	Supervising Archaeologist, Cultural Surveys Hawaii, Inc., Kailua, Hawaii.

Research Interests

Cultural Resource Management, Hawaiian Archaeology, Southern Californian Archaeology Geoarchaeology, Geography and Physical Anthropology.

Cultural Resources Management Reports

Author, co-author, and contributor of numerous cultural resources management study reports since 1998.

Memberships

*Register of Professional Archaeologists.

ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, M.S.

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.
2007	Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
2002	"Historic Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base; presented at CRM TECH, Riverside, California.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

PROJECT ARCHAEOLOGIST/NATIVE AMERICAN LIAISON
Nina Gallardo, B.A.

Education

2004	B.A., Anthropology/Law and Society, University of California, Riverside.

Honors and Awards

2000	Dean's Honors List, University of California, Riverside.

Professional Experience

2004-	Project Archaeologist, CRM TECH, Riverside/Colton, California.

APPENDIX 2

CORRESPONDENCE WITH NATIVE AMERICAN REPRESENTATIVES*

* A total of eight local Native American representatives were contacted; a sample letter is included in this report.

SACRED LANDS FILE & NATIVE AMERICAN CONTACTS LIST REQUEST

NATIVE AMERICAN HERITAGE COMMISSION
915 Capitol Mall, RM 364
Sacramento, CA 95814
(916) 653-4082
(916) 657-5390 (fax)
nahc@pacbell.net

Project: OpTerra/Indian Wells Valley Water District PV Layouts Project (CRM TECH Contract No. 3019)

County: Kern

USGS Quadrangle Name: Inyokern, Calif.

Township 26 South **Range** 39 East MD **BM; Section(s)** 27 & 28

USGS Quadrangle Name: Inyokern SE, Calif.

Township 27 South **Range** 39 East MD **BM; Section(s)** 8

USGS Quadrangle Name: Ridgecrest North, Calif.

Township 26 South **Range** 40 East MD **BM; Section(s)** 30

USGS Quadrangle Name: Ridgecrest South, Calif.

Township 26 South **Range** 40 East MD **BM; Section(s)** 33

Company/Firm/Agency: CRM TECH

Contact Person: Nina Gallardo

Street Address: 1016 E. Cooley Drive, Suite A/B

City: Colton, CA **Zip:** 92324

Phone: (909) 824-6400 **Fax:** (909) 824-6405

Email: ngallardo@crmtech.us

Project Description: The primary component of the project is to install photovoltaic solar panel at six Indian Wells Valley Water District well sites in the Inyonkern-Ridgecrest area, Kern County, California.

December 8, 2015

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

December 11, 2015

Nina Gallardo
CRM TECH

Via Email: ngallardo@crmtech.us
Number of Pages: 2

RE: OpTerra/Indian Wells Valley Water District PV Layout Project (CRM TECH Contract No. 3019), Kern County

Ms. Gallardo,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

Katy Sanchez
Associate Environmental Planner

Native American Contact List
Kern County
December 11, 2015

Kern Valley Indian Council
Julie Turner, Secretary
P.O. Box 1010
Lake Isabella, CA 93240
(661) 366-0497
(661) 340-0032 Cell

Southern Paiute
Kawaiisu
Tubatulabal
Koso
Yokuts

Kern Valley Indian Council
Robert Robinson, Co-Chairperson
P.O. Box 401
Weldon , CA 93283
brobinson@iwvisp.com
(760) 378-4575 Home
(760) 549-2131 Work

Tubatulabal
Kawaiisu
Koso
Yokuts

Tejon Indian Tribe
Katherine Montes Morgan, Chairperson
1731 Hasti-acres Drive, Suite
Bakersfield , CA 93309
kmorgan@tejontribe.net
(661) 834-8566

(661) 834-8564 Fax

Yowlumne
Kitanemuk
Kawaiisu

Tubatulabals of Kern Valley
Robert L. Gomez, Jr., Tribal Chairperson
P.O. Box 226
Lake Isabella, CA 93240
(760) 379-4590

(760) 379-4592 Fax

Tubatulabal

Tule River Indian Tribe
Neil Peyron, Chairperson
P.O. Box 589
Porterville , CA 93258
chairman@tulerivertribe-nsn.gov
(559) 781-4271

(559) 781-4610 Fax

Yokuts

Tule River Indian Tribe
Kerri Vera, Environmental Department
P.O. Box 589
Porterville , CA 93258
(559) 783-8892

(559) 783-8932 Fax

Yokuts

Tule River Indian Tribe
Joey Garfield, Tribal Archeological
P.O. Box 589
Porterville , CA 93258
(559) 783-8892

(559) 783-8932 Fax

Yokuts

Wuksache Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas , CA 93906
kwood8934@aol.com
(831) 443-9702

Foothill Yokuts
Mono
Wuksache

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed OpTerra/Indian Wells Valley Water District PV Layouts Project (CRM TECH Contract No. 3019), Kern County.

January 4, 2016

Katherine Montes-Morgan, Chairperson
Tejon Indian Tribe
1731 Hasti Acres Drive Suite 108
Bakersfield, CA 93309

RE: OpTerra/Indian Wells Valley Water District PV Layouts Project
Four Locations near the Community of Inyokern
Kern County, California
CRM TECH Contract #3019

Dear Ms. Montes-Morgan:

I am writing to bring to your attention an ongoing CEQA-compliance sturdy for the proposed project referenced above. The project entails the installation of photovoltaic solar panels at four existing water facilities. The project areas encompass approximately six acres of undeveloped land located on both sides of U.S. Highway 395 and south of Inyokern Road, just southeast of the community of Inyokern.

Area One is located northwest of the intersection of Sun Place and Calsilco Avenue, to the southeast of the existing water facility. Area Two is located southwest of the intersection of View Avenue and Oriole Street, immediately to the south of the existing water facility. Area Three is located northeast of the intersection of Graaf Avenue and Victor Street, also south of the existing water facility. Area Four is located northwest of the intersection of Victor Street and Drummond Avenue, west of the existing water facility. The accompanying maps, based on the USGS Inyokern and Inyokern SE, Calif., 7.5' quadrangles, depict the location of the project areas in Sections 27 and 28, T26S R39E, and Section 8, T27S R39E, MDBM.

According to records on file at the Southern San Joaquin Valley Information Center (SSJVIC), there is one known historical/archaeological site lying partially within the boundaries of the project areas. Site 15-0012543 consisted of a 19th century wagon road that transects Area Four (Well 31 Site). Outside the project boundaries but within a one-mile radius, SSJVIC records indicate that nine historical/archaeological sites and four isolates—i.e., localities with fewer than three artifacts—have been previously recorded. One of these known sites and all of the isolates were of prehistoric—i.e., Native American—origin.

Site 15-002222 consisted of a light lithic scatter located about 0.6 mile southwest of the southernmost portion of the project area. The four isolates were described as a quartzite cobbled core, several chert flakes, and an obsidian flake. The other eight sites dated to the historic period and included several roads, power transmission lines, a railroad spur, refuse scatters, and the remains of a homestead. During an intensive-level field survey conducted on December 28, 2015, no new historical/archaeological resources were encountered within or adjacent to the project areas. Site 15-012543 was revisited and the trail was evaluated as not significant.

In a letter dated December 11, 2015, the Native American Heritage Commission reports that the sacred lands record search identified no Native American cultural resources within the project areas, but recommends that local Native American groups be contacted for further information (see attached). Therefore, as part of the cultural resources study for this project, I am writing to request your input on potential Native American cultural resources in or near the project areas.

Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value within or near the project areas that need to be taken into consideration as part of the cultural resources investigation. Any information or concerns may be forwarded to CRM TECH by telephone, e-mail, facsimile, or standard mail. Requests for documentation or information we cannot provide will be forwarded to our client and/or the lead agency, namely the Indian Wells Valley Water District. We would also like to clarify that CRM TECH, as the cultural resources consultant for the project, is not the appropriate entity to initiate government-to-government consultations or the AB 52-compliance process that should be conducted by the lead agency. Thank you for the time and effort in addressing this important matter.

Respectfully,

Nina Gallardo
Project Archaeologist/Native American Liaison
CRM TECH
Email: ngallardo@crmtech.us

Encl.: NAHC response letter and project location maps

APPENDIX 3

CALIFORNIA HISTORICAL RESOURCES INVENTORY RECORD FORMS

UPDATE

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-15012543
HRI #
Trinomial CA-KER-7078H
NRHP Status Code

Other Listings
Review Code Reviewer Date

 *Resource Name or #: (UPDATE)

P1. Other Identifier:
*P2. Location: ☒ Not for Publication ☐ Unrestricted
*a. County: Kern and (P2b and P2c or P2d. Attach a Location Map as necessary.)
*b. USGS 7.5' Quad: Inyokern Date: 1982 T 26S; R 39E; NE ¼ of NW ¼ of Sec 33; M.D. B.M.
c. Address: Bureau of Land Management City: Ridgecrest Zip: 93555
d. UTM: Zone 11; 428810 mE / 3943660 mN (G.P.S.) NAD83
e. Other Locational Data:

*P3a. Description: This site was originally recorded by Andrew Hope of CalTrans in January of 2004. Hope describes the road/trail as "a remnant segment of a nineteenth century wagon trail" located near Highway 395. This trail was used to travel from Freeman Junction across Indian Wells Valley toward to Panamint City. This was recommended as ineligible to the National Register by Mr. Hope.

The only segment of this wagon trail that was revisited during the current investigation is the portion within the project area. Field crews had difficulty making it out at that time. The trail has been partially disturbed by modern use as a dirt road, and is also bisected by two-track roads and utility lines. The wagon trail runs along an east/west axis (65° / 245°).

*P3b. Resource Attributes: AH7. Roads / trails / railroad grades
*P4. Resources Present: ☐Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: Overview of wheel ruts toward Highway 395; frame number 0452; view toward 245°

*P6. Date Constructed/Age and Sources: ☒ Historic ☐ Prehistoric ☐Both

*P7. Owner and Address: Bureau of Land Management, 300 South Richmond Ave., Ridgecrest, CA 93555

*P8. Recorded by: O. Ford, A. Nicchitta, J. Grounds, G. Burns
Epsilon Systems Solutions, Inc.
901 N. Heritage Dr., Ste. 204
Ridgecrest, CA 93555

*P9. Date Recorded: 05/19/2010

*P10. Survey Type: Pedestrian

*P11. Report Citation: *Downs 60-Mile Fiber Optic Line Installation Cultural Resources Survey, San Bernardino and Kern Counties, California*, by Christopher A. Duran (2010).

*Attachments: ☐NONE ☒ Location Map ☒Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record
☒ Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List):

*Required information

UPDATE

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-15-012543
HRI #
Trinomial CA-KER-7078H

 Resource Name or # CA_iny-7078H Update

L1. Historic and/or Common Name: Freight road to Panamint Mines.

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:**

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map) See attached maps.

L3. Description: The site consists of an old wagon trail used to haul freight to the Panamint Valley. The wagon trial is in disrepair and is overgrown with vegetation after years of disuse. The observed portion extends E-W across an existing dirt road that is still in use. Survey crews who crossed it were able to recognize a faint difference in vegetation and soil surface, which may have extended beyond the survey area.

L4. Dimensions: Approximately 6 feet wide (roughly 2 meters)

a. Top Width: 6 feet (Roughly 2 meters)

b. Bottom Width: 6 feet (Roughly 2 meters)

c. Height or Depth: 12 inches (Roughly 30cm.)

d. Length of Segment:

L5. Associated Resources: One tin can was noted in proximity to the road.

L4e. Sketch of Cross-Section (include scale) **Facing:**
Dimensions not discernable from condition of the wagon trail.

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.) The trial crosses the flat, desert landscape of the Indian Wells Valley.

L7. Integrity Considerations: The road is no longer in use and in disrepair because of natural forces and other modern activities in the area.

UPDATE

P-15-012543
CA-KER-012543

L8b. Description of Photo, Map, or Drawing (View, scale, etc.) View southwest.

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address)
Christopher Duran
Epsilon Systems Solutions, Inc.
Ridgecrest CA 93555

L11. Date: 6/1/10

DPR 523E (1/95)

UPDATE

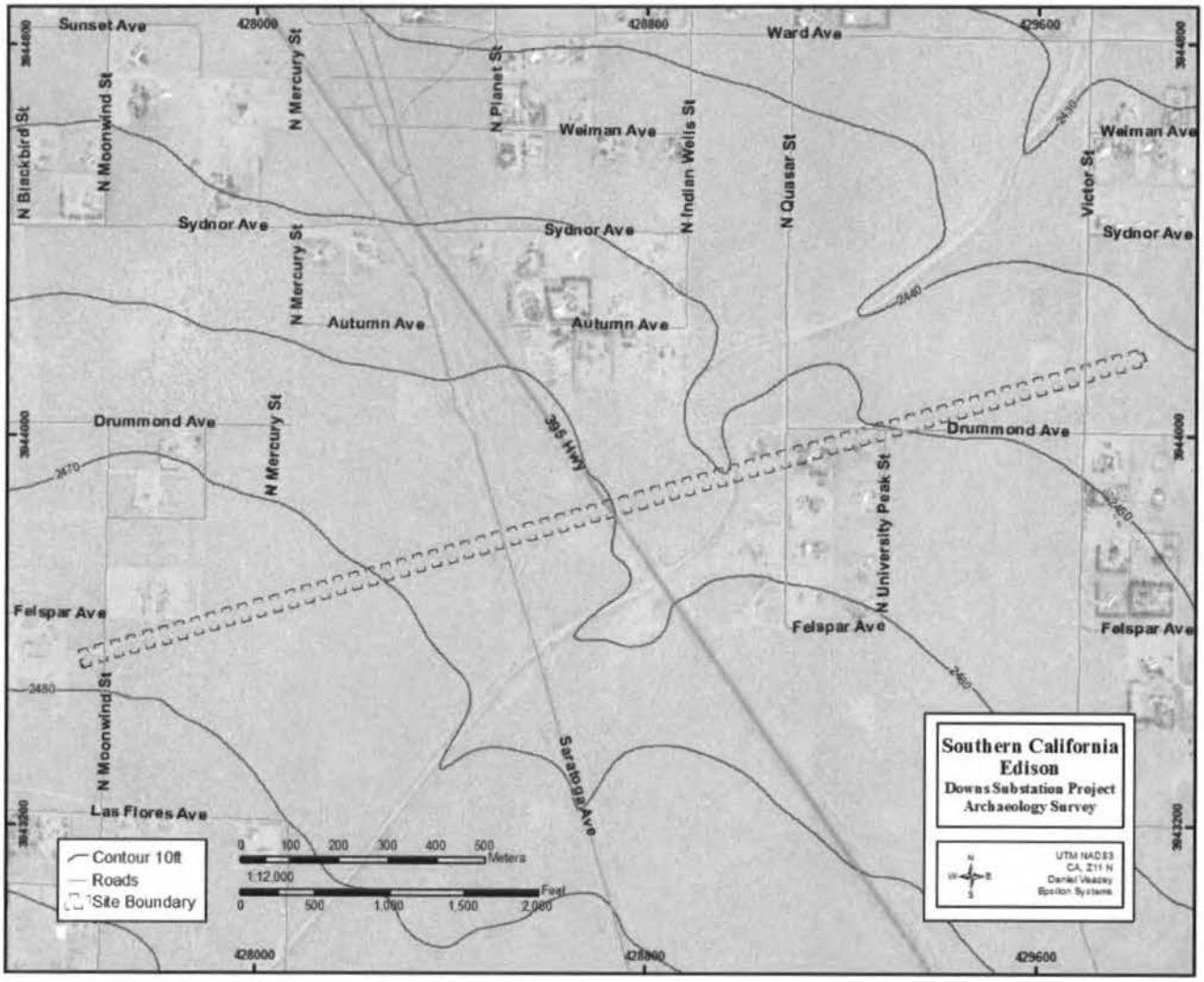
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary # P-15012513
HRI#
Trinomial CA-KER-7078H

 *Resource Name or # (UPDATE)

*Drawn By: D. Veazey

*Date: 6/9/2010



*Required information

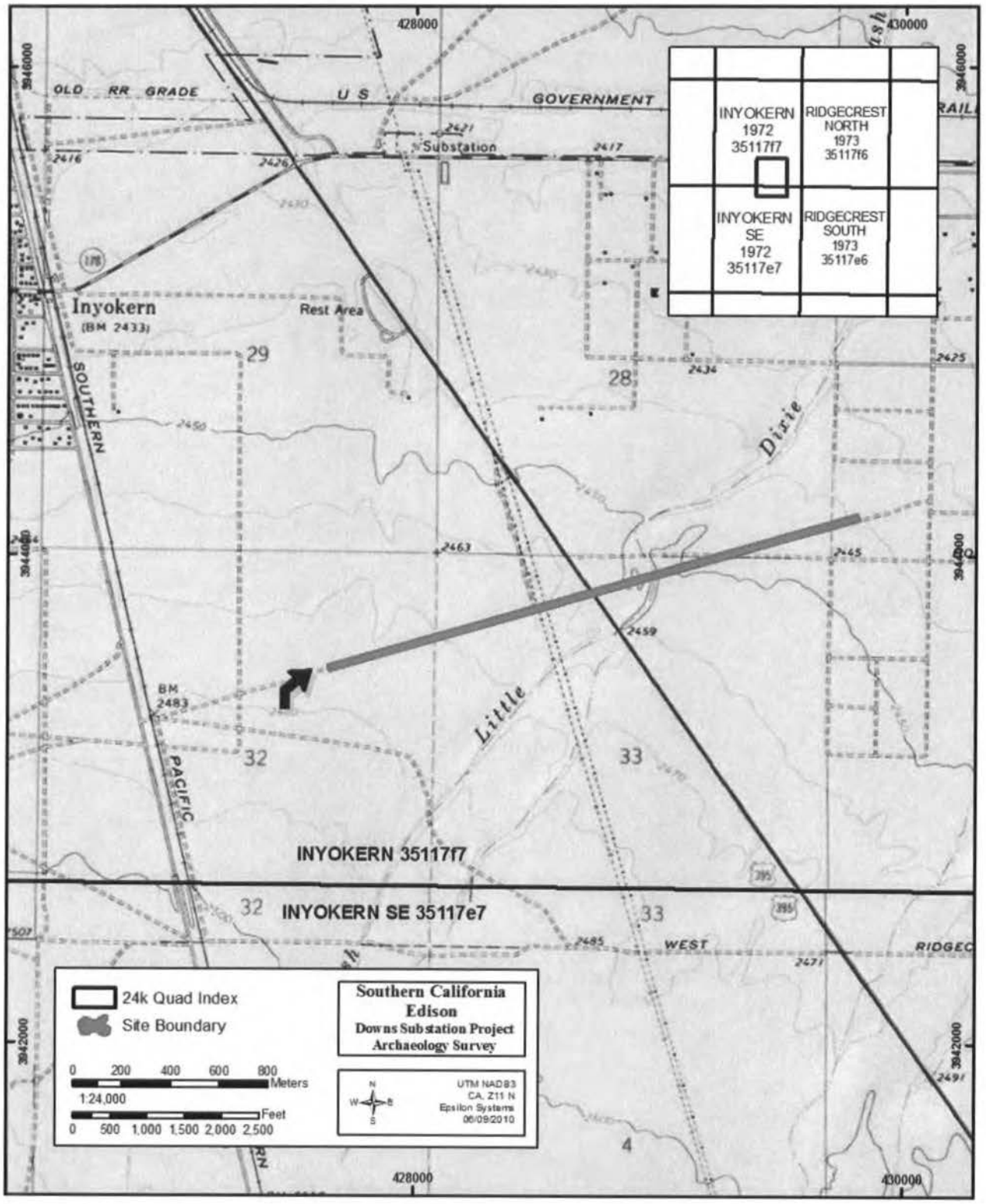
UPDATE

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # P-15012543
HRI#
Trinomial CA-KER-7078H

 *Resource Name or #: (UPDATE)

*Map Name: Inyokern *Scale: 1:24,000 *Date of Map: 1982



*Required information

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #: P-15-612543
HRI #
Trinomial CA-KER-7078H
NRHP Status Code: 6
Other Listings
Review Code ____ Reviewer ____ Date ____

***Resource Name or #:** Wagon trail

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted** ***a. County** Kern

***b. USGS 7.5' Quad** Inyokern **Date** 1972 **T** 26S; **R** 39E; NE ¼ **of** NW ¼ **of Sec.** 33

c. Address N/A **City** Inyokern (vicinity) **Zip** N/A

***d. UTM:** Where the trail intersects the eastern edge of the Hwy. 395 right-of-way: 428810 mE / 3943660 mN

***e. Other Locational Data:** The trail crosses U.S. Highway 395 approximately 1-1/2 miles south of SR 178.

***P3a. Description:**

This property is a remnant segment of a nineteenth century wagon trail. The photo below shows the trail looking east-northeast from the Highway 395 right-of-way. It is an unimproved path through the desert landscape, forming a shallow ditch without vegetation. On the east side of Highway 395, the trail begins just inside the right-of-way fence. Within the rest of the highway right-of-way, the trail has been completely obliterated by grading. When surveyed in October of 2003, the trail was too faint to see on the west side of the highway, although it is visible in aerial photographs (see Figure 7 on page 9). A portion of the trail is also visible on the east side of Highway 14, approximately 6-1/2 miles southwest of this location, just north of the junction of Highways 14 and 178 (see Figure 3 on page 6).

***P3b. Resource Attributes:** HP37 – Trail

***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ■ Other

Figure 1: Remnant wagon trail at Highway 395

P5b. Description of Photo: View east-northeast October 10, 2003

***P6. Date Constructed/Age and Sources:** ■Historic ca. 1873

***P7. Owner and Address:** multiple property owners

***P8. Recorded by:**
Andrew Hope, Caltrans
1120 N Street
Sacramento, CA 95814
(916) 654-5611

***P9. Date Recorded:** Jan. 2004

***P10. Type of Survey:** Intensive

***P11. Report Citation:** *Historic Resource Evaluation Report for the Proposed Improvements to Highway 395 in Kern County (K.P. 23.7/37.0; P.M. 14.8/23.0; EA 06-443100).* Andrew Hope, Caltrans. January 2004.

***Attachments:** ■ Linear Feature Record ■ Continuation Sheets

RECEIVED
JAN 18 2007
By

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-15-012543
HRI #
Trinomial CA-KER-7078H

Resource Name or #: Wagon trail

L1. Historic and/or Common Name: Freight Road to Panamint Mines

L2a. Portion Described: ❑ Entire Resource ■ Segment ❑ Point Observation **Designation:**

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map)

The observed portion of the trail extends east-northeast from the east edge of the Highway 395 right-of-way. It is visible for a distance of a few hundred feet from this location.

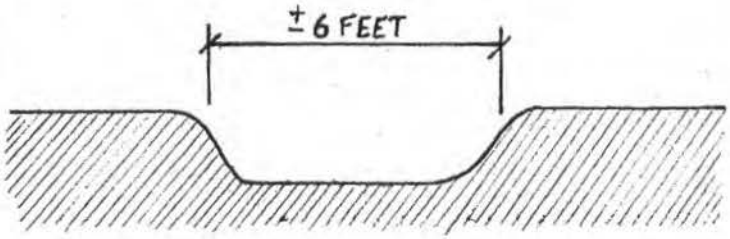
L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

See Primary Record, page 1.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)

a. Top Width: 6 feet
b. Bottom Width: 6 feet
c. Height or Depth: 18 inches
d. Length of Segment: approx. 200 feet

L4e. Sketch of Cross-Section (include scale)



L5. Associated Resources: none

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

The trail crosses the flat, desert landscape of Indian Wells Valley.

L7. Integrity Considerations:

See page 4 for a discussion of the property's integrity.

Figure 2: Detail view of the remnant wagon trail

L8b. Description of Photograph
View east-northeast
October 10, 2003

L9. Remarks:

L10. Form Prepared by:
Andrew Hope, Caltrans
1120 N Street
Sacramento, CA 95814

L11. Date: January 2004

National Register evaluation:

History

In 1873, silver was discovered in the Panamint Mountains to the northeast of Indian Wells Valley. The mining camp of Panamint grew from about 125 men in March of 1874 to a population of over 1,000 by November of that year and to more than 2,000 the following year. More than $1 million in silver was taken from the Panamint mines, although they remained in production for only a few years, closing in the late 1870s [Chalfant, 1933: 286-92; HSUMD website, 2003]. Panamint City was located about two miles north and four miles east of Ballarat, on the western slope of the Panamint Mountains. It was reached by ascending the narrow Surprise Canyon, from an elevation of about 1,100 feet at the floor of the Panamint Valley to the town at approximately 7,000 feet.

With the need to ship large quantities of silver from the Panamint mines, a wagon route was established from Freeman Junction across Indian Wells Valley in a northeasterly direction. This trail entered the smaller Salt Wells Valley just after crossing the Kern / San Bernardino county line, then proceeded north past the dry lake bed of Searles Lake to the Panamint Valley in Inyo County. The total distance from Freeman Junction to Panamint is about 36 miles. From Freeman Junction, wagons could proceed south to Mojave on the existing Midland Trail. The wagon road from Freeman Junction to the Panamint mines was established by the Cerro Gordo Freighting Company, which had been formed initially to transport silver from the more northerly Cerro Gordo mines. The freight company was organized by Remi Nadeau, and their roads were laid out by his construction engineer, Mr. Hamilton [NAWS website, 2003; Pierson, 1956: 20-21].

An 1883 map of this portion of California shows a road labeled "Freight Road to Panamint." The road shown on this map is in the general location of the present trail. Both the 1904 and 1914 maps show a trail extending northeast from the vicinity of Freeman, in the same location as the 1883 map (see Figure 4 on page 6).

The USGS "Searles Lake" quad of 1915 shows a road from Freeman Junction across Indian Wells Valley, but this road is approximately two miles south of the present trail. This more southerly route also appears on the 1919 Kern County map, but is not shown on subsequent maps.

More recent maps, including the USGS "Inyokern" quads of 1943 and 1972, show the trail as observed in the field and identified in aerial photos. The segment of the trail to the east of the old Highway 395 alignment is shown as an unimproved, dirt road on the 1943 map, but the segment continuing west to Freeman Junction is not included, indicating that it had fallen into disuse by this time (see Figure 5 on page 7). This map and the 1953 "Ridgecrest" quad to the east show the trail extending only about two miles east from the current project location, where it terminates at the intersection of a north-south road. The 1972 quad shows the trail in three discontinuous segments (see Figure 6 on page 8). The trail may have been used intermittently for automobile traffic in the early twentieth century, although improved roads offered superior alternatives by the mid-1920s.

The trail as shown on the earliest maps (through 1914) tracks more sharply to the north than the present trail as shown on the 1943 and 1972 USGS maps and observed in the field. Inaccuracies in the earliest mapping may account for this variation, but it is also possible that the location of the trail shifted over time, since the open and flat desert landscape presents no constraining factors or clearly superior locations in the choice of a route across the valley. Nonetheless, based on the presence of the freight road on historic maps, the present trail is presumed to be the historic wagon road across Indian Wells Valley, dating to the 1870s.

Integrity

The trail does not appear to be an engineered or graded road, but merely a trace across the landscape, formed by repeated use and later altered by environmental conditions. Therefore, integrity of design, materials, and workmanship are not relevant to the evaluation of this property. Integrity of location, setting, association and feeling are important considerations.

The segment of the wagon trail that is visible to the east of Highway 395 appears as a prominent ditch or channel, in contrast to the observed portion of the trail adjacent to Highway 14, which is merely a wide path across the landscape distinguishable by its relative lack of vegetation (compare Figures 1 and 3). The segment of the trail east of Highway 395 intersects Little Dixie Wash and has been subject to erosion from periodic filling with water. As a result, this segment of the trail does not retain its historic appearance, since the present ditch is the result of the action of water rather than the action of draft animals, wagons, and vehicles. Furthermore, this segment of the trail is only a short fragment of the historic wagon trail across Indian Wells Valley, less than one mile in length, as it disappears in the grid pattern of dirt roads and modern houses to the east of Highway 395. This segment of the trail may be considered to retain integrity of location and setting, but its integrity of association and feeling have been compromised due to alteration from erosion and its truncated length.

The segment of the wagon trail on the west side of Highway 395 is barely visible in aerial photographs and was not observed in the field. Grading for the new Highway 395 alignment in the 1960s severed the trail, so that the western segment does not experience the periodic flooding of the eastern segment. Although it has not been transformed to a ditch as has the eastern segment, this segment of the trail is disappearing due to disuse and the gradual return of vegetation. It is possible that this segment of the trail would be discernable on the ground with more careful observation. However, even if this portion of the trail were identified, it would be just barely visible and would not convey its historic use as a wagon trail.

A more westerly portion of the trail appears clearly on the aerial photo (Figure 7) and is also shown on the 1972 USGS map (Figure 6). This segment extends from the railroad line to the north-south trails that parallel the power line which crosses the valley, and has probably seen continued, if intermittent, use in the twentieth century. This segment of the trail was not surveyed, but its prominence on the aerial photo suggests that it may be sufficiently intact to convey its historic use as a wagon trail. However, within the proposed right-of-way for the Highway 395 widening project, the wagon trail does not appear to retain enough of its original appearance to be eligible for National Register listing.

The integrity of the entire length of the trail, from Freeman Junction to the mouth of Surprise Canyon, was not assessed. However, the portion of the trail across Indian Wells Valley survives only as a series of discontinuous segments with varying degrees of visibility. It is likely that other portions of the trail have been severed, paved over for portions of Highway 178 and local roads, and otherwise destroyed, so that the trail exists at present only as a series of fragments.

Significance

The wagon trail has some association with the Panamint mines and the Cerro Gordo Freighting Company. However, the surviving trail fragments do not convey the significance of Remi Nadeau or Mr. Hamilton. Any intact engineered and graded roads constructed by these two men might be significant examples of their accomplishments, but the wagon trail across Indian Wells Valley does not appear to meet National Register Criterion B.

Under National Register Criterion C, the trail is not significant for its method of construction or any specific features, since it is merely the physical evidence of a past transportation route. The property is an example of a nineteenth century wagon trail, a rare and vanishing property type. While such properties may be significant for their association with historic events, they are unlikely to be considered significant under Criterion C for their physical features. When viewed without reference to its history, this wagon trail is indistinguishable from numerous other trails of undetermined age that cross the desert landscape of Indian Wells Valley.

This wagon trail was used in the 1870s to haul silver from the Panamint mines to Freeman Junction, where it joined the Midland Trail heading south to Mojave. The Panamint mines are more than thirty miles from this wagon trail at the point where the trail crosses Highway 395. The trail consists of discontinuous segments which do not convey any clear association with the mines. Any remnant features of the mines themselves might be eligible for National Register listing, and a mining property with multiple features might include the road from Panamint down through Surprise Canyon to the floor of the Panamint Valley, as the only route from the mines. However, the road from the mouth of the canyon to Freeman Junction is a trail across the open desert and is too tenuously associated with the mines to be a contributing feature of a larger mining-related property.

Some nineteenth century wagon trails have been determined eligible for National Register listing. Emigrant trails, in particular, are of unquestioned historic significance. However, most roads and trails, regardless of their age, are not associated with important historical events except in the most general sense. Like bridges, facilitating transportation is their function, and carrying out this function does not constitute historic significance with respect to National Register Criterion A. The remnant wagon road across Indian Wells Valley is not significant as a road, lacks integrity, and is not eligible for listing on the National Register of Historic Places. In addition, this property is not considered an historical resource for the purposes of CEQA.

Written and Internet Sources

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Historical Society of the Upper Mojave Desert (HSUMD). 2003, "Some History of the Indian Wells Valley and surrounding areas in Kern, Inyo, and Mono Counties." On the historical society's website at http://www.ridgecrest.ca.us/~matmus/Hist.html#localhist.

Naval Air Weapons Station, Cultural Projects Office (NAWSCPO). 2003 Cultural Resources Management, Historic Trails and Roads. Electronic document: http://www.nawcwpns.navy.mil~epo/crm.html.

Pierson, Erma. *Kern's Desert.* Bakersfield: Kern County Historical Society, 1956.

Map Sources

Automobile Road Map of Kern County, California. Automobile Club of Southern California, 1919.

Map of Kern County. Fresno: Progressive Map Service, 1925.

Map of Kern County, Caliofornia. San Francisco: State Mining Bureau, 1904.

Punnett Brothers. *Kern County, California.* San Francisco: C.F. Weber & Co., 1914.

U.S.G.S. quad maps: Ballarat, 1913 (1°); Inyokern, 1943 (15') and 1972 (7.5'); Inyokern SE, 1972 (7.5'); Ridgecrest, 1953 (15'); Ridgecrest South, 1973 (7.5'); Searles Lake, 1915 (1°).

Wheeler, George M. *Part of Southern California.* Washington: U.S. Geographical Surveys West of the 100th Meridian, 1883. David Rumsey Map Collection, available on-line at http://www.davidrumsey.com.

Figure 3: Remnant wagon trail extending east from Highway 14.

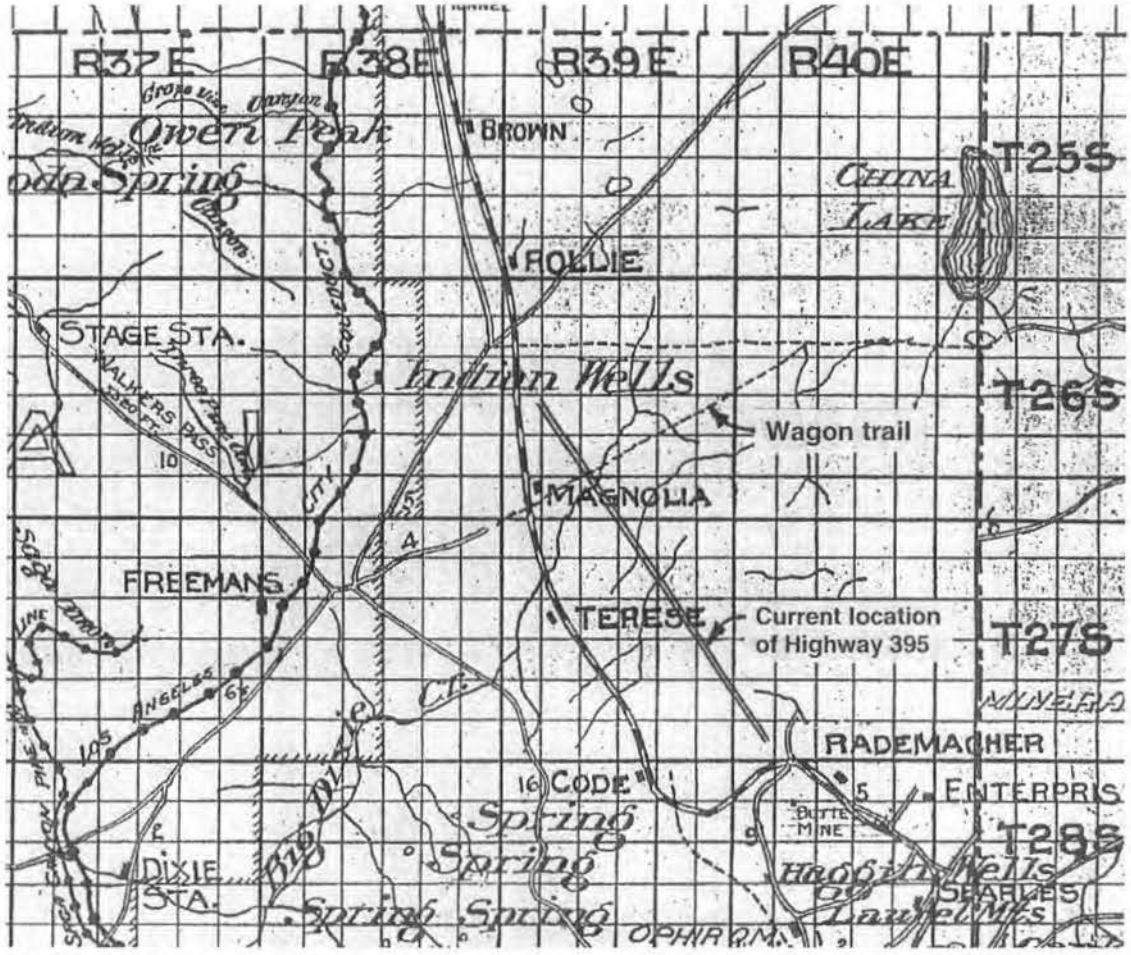

Figure 4: Portion of the 1914 Punnett Brothers map, with the current location of Hwy. 395 added.

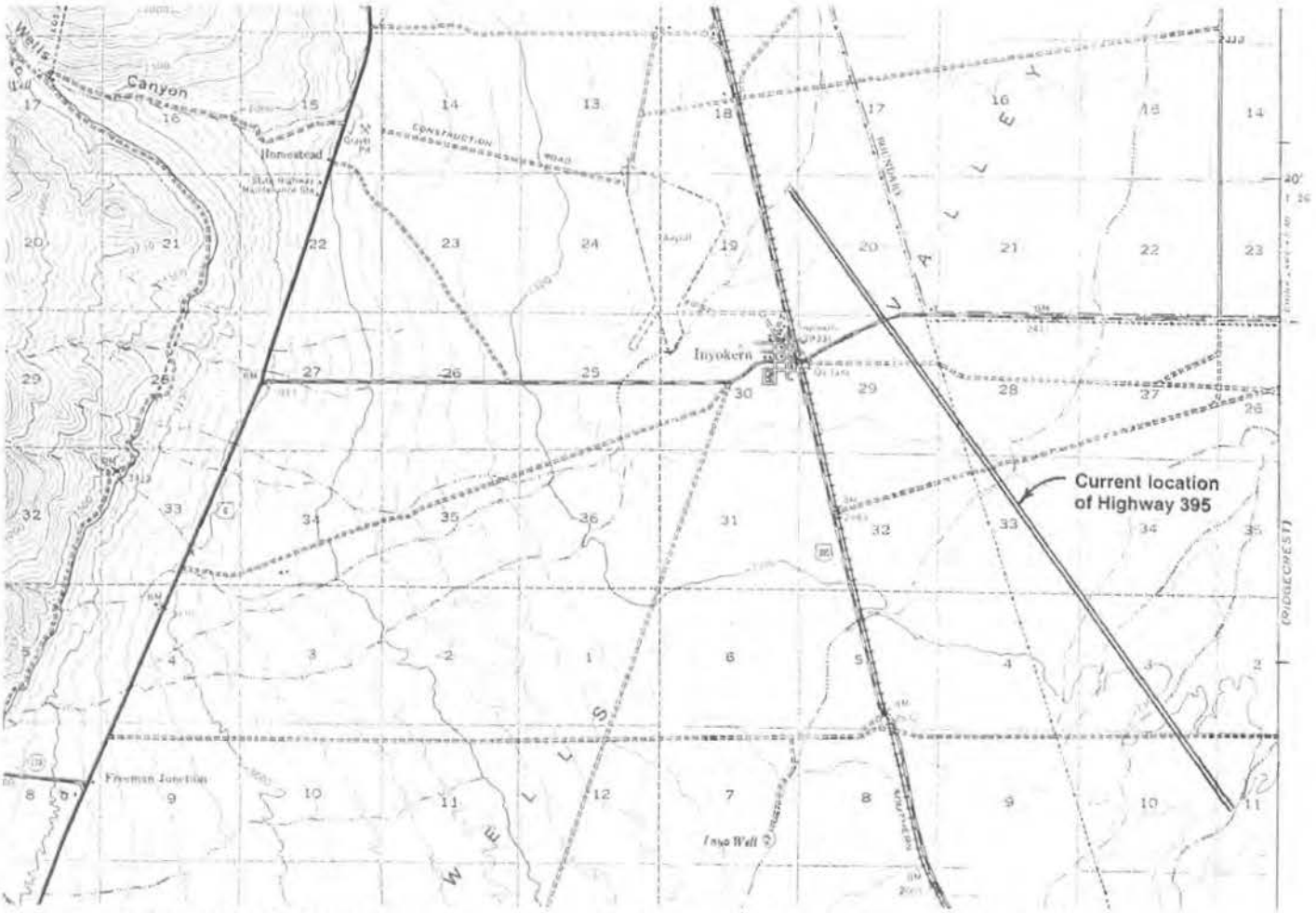

Figure 5: Portion of the 1943 USGS "Inyokern" quad, with the current location of Hwy. 395 added.

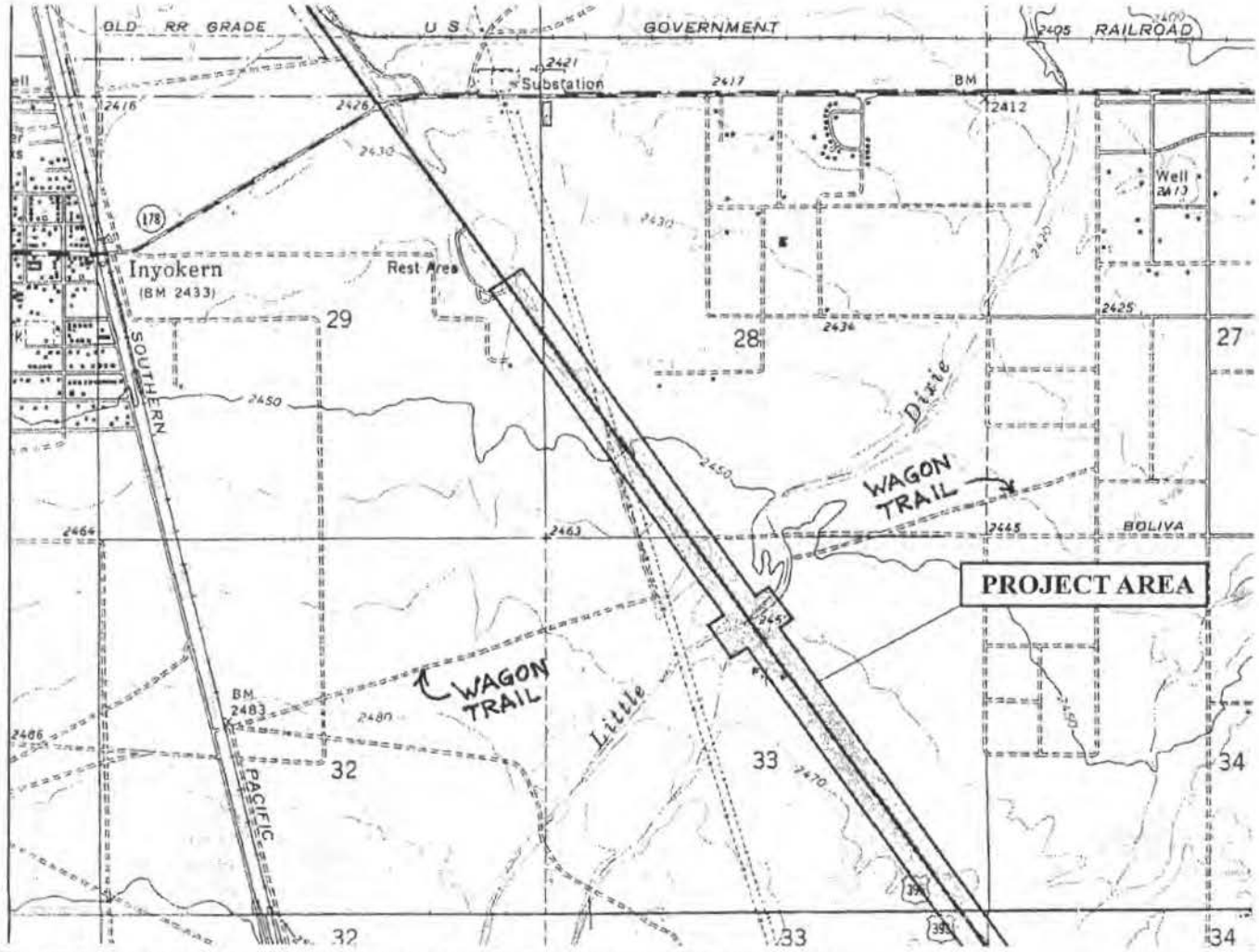

Figure 6: Portion of the 1972 USGS "Inyokern" quad, with wagon trail labeled.

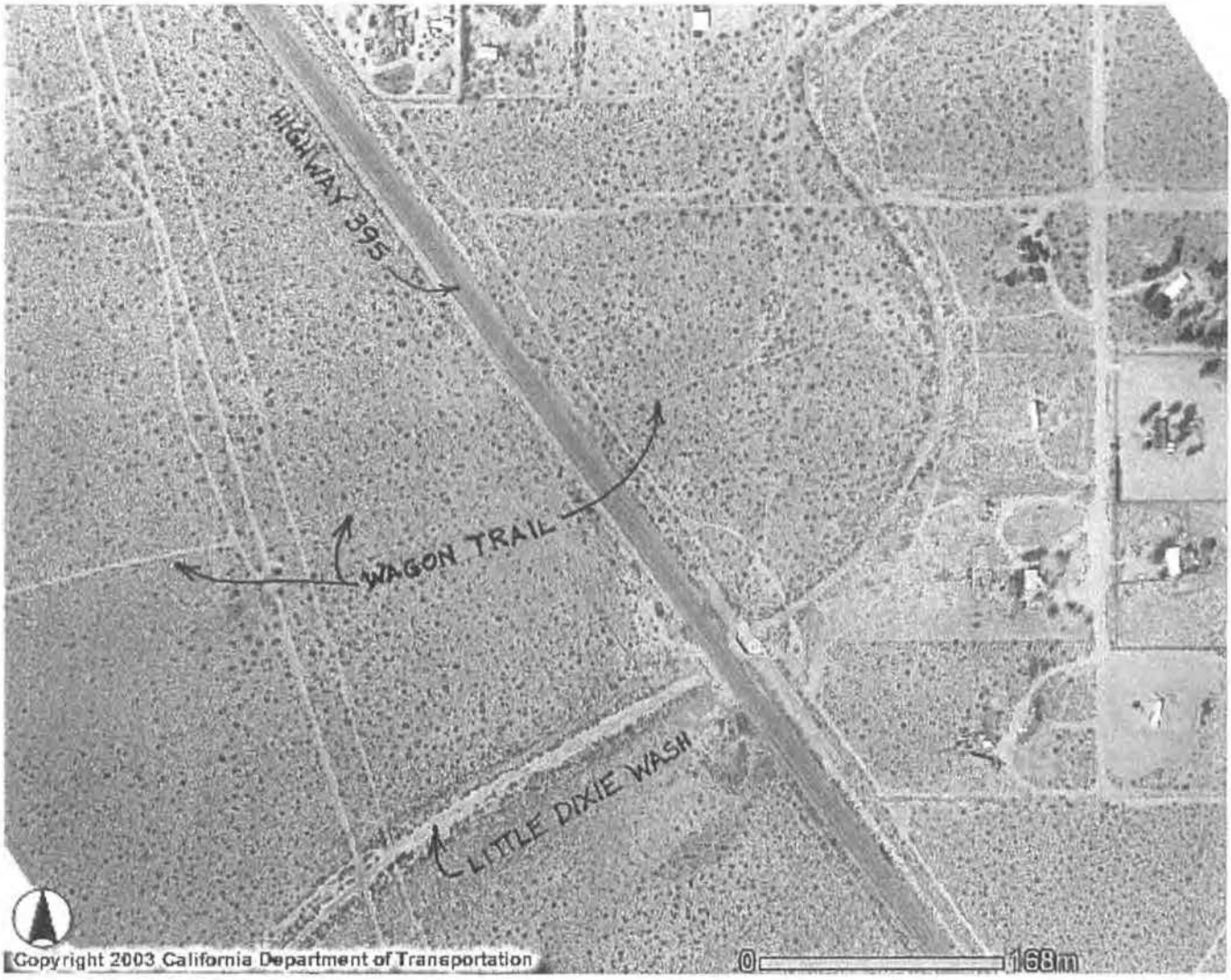

Figure 7: 2003 Aerial photo with wagon trail labeled.

APPENDIX D

CALEEMOD REPORTS

Solar Project - IWVWD Wells 9A/10 + As Treatment Plant No. 2

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Residential	0.00	Dwelling Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on Kern County Land Use Designation for Wells 9A/10 + Arsenic Treatment Plant No. 2

Construction Phase - 6 weeks total construction time (approximately 32 working days). Grading and Building phases are approximately 3 weeks each.

Off-road Equipment - Based on 3 off-highway trucks, a forklift, a skip loader, and a sheeps foot compactor wheel

Off-road Equipment - Based on a water truck, 2 construction work trucks, a small excavator, and a pile driving machine

Trips and VMT - Based on an estimated 15 workers' vehicles trips per day, with 25 miles per trip.

On-road Fugitive Dust -

Road Dust -

Water And Wastewater -

Operational Off-Road Equipment - Assumes five vehicle trips to the site per year for routine inspections and maintenance.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	16.00
tblConstructionPhase	NumDays	0.00	16.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00

tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	5.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.44	0.44
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	WorkerTripLength	10.80	25.00
tblTripsAndVMT	WorkerTripLength	10.80	25.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0441	0.4848	0.2709	6.2000e-004	4.4700e-003	0.0202	0.0247	1.1900e-003	0.0186	0.0198	0.0000	56.9960	56.9960	0.0162	0.0000	57.3366
Total	**0.0441**	**0.4848**	**0.2709**	**6.2000e-004**	**4.4700e-003**	**0.0202**	**0.0247**	**1.1900e-003**	**0.0186**	**0.0198**	**0.0000**	**56.9960**	**56.9960**	**0.0162**	**0.0000**	**57.3366**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0441	0.4848	0.2709	6.2000e-004	4.4700e-003	0.0202	0.0247	1.1900e-003	0.0186	0.0198	0.0000	56.9960	56.9960	0.0162	0.0000	57.3365
Total	**0.0441**	**0.4848**	**0.2709**	**6.2000e-004**	**4.4700e-003**	**0.0202**	**0.0247**	**1.1900e-003**	**0.0186**	**0.0198**	**0.0000**	**56.9960**	**56.9960**	**0.0162**	**0.0000**	**57.3365**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	9.2000e-004	0.0106	7.6800e-003	1.0000e-005		5.4000e-004	5.4000e-004		4.9000e-004	4.9000e-004	0.0000	1.0788	1.0788	3.3000e-004	0.0000	1.0857
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.2000e-004**	**0.0106**	**7.6800e-003**	**1.0000e-005**	**0.0000**	**5.4000e-004**	**5.4000e-004**	**0.0000**	**4.9000e-004**	**4.9000e-004**	**0.0000**	**1.0788**	**1.0788**	**3.3000e-004**	**0.0000**	**1.0857**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	9.2000e-004	0.0106	7.6800e-003	1.0000e-005		5.4000e-004	5.4000e-004		4.9000e-004	4.9000e-004	0.0000	1.0788	1.0788	3.3000e-004	0.0000	1.0857
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.2000e-004**	**0.0106**	**7.6800e-003**	**1.0000e-005**	**0.0000**	**5.4000e-004**	**5.4000e-004**	**0.0000**	**4.9000e-004**	**4.9000e-004**	**0.0000**	**1.0788**	**1.0788**	**3.3000e-004**	**0.0000**	**1.0857**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**100.00**	**100.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**100.00**	**0.00**	**100.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	7/18/2016	8/8/2016	5	16	
2	Grading	Grading	8/9/2016	8/30/2016	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	3	6.00	400	0.38
Grading	Forklifts	1	6.00	89	0.20
Grading	Skid Steer Loaders	1	6.00	64	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Grading	Plate Compactors	1	4.00	8	0.43
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Off-Highway Trucks	3	6.00	400	0.38
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Cranes	0	0.00	226	0.29
Building Construction	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading	Rubber Tired Dozers	0	0.00	255	0.40
Building Construction	Excavators	1	6.00	162	0.38
Building Construction	Other Construction Equipment	1	4.00	171	0.42
Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	15.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0234	0.2640	0.1365	3.0000e-004		0.0112	0.0112		0.0103	0.0103	0.0000	28.5988	28.5988	8.6300e-003	0.0000	28.7800
Total	**0.0234**	**0.2640**	**0.1365**	**3.0000e-004**		**0.0112**	**0.0112**		**0.0103**	**0.0103**	**0.0000**	**28.5988**	**28.5988**	**8.6300e-003**	**0.0000**	**28.7800**

3.2 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.4700e-003	0.0131	3.0000e-005	2.2400e-003	1.0000e-005	2.2500e-003	5.9000e-004	1.0000e-005	6.1000e-004	0.0000	1.9131	1.9131	1.0000e-004	0.0000	1.9153
Total	**7.3000e-004**	**1.4700e-003**	**0.0131**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**5.9000e-004**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**1.9131**	**1.9131**	**1.0000e-004**	**0.0000**	**1.9153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0234	0.2640	0.1365	3.0000e-004		0.0112	0.0112		0.0103	0.0103	0.0000	28.5988	28.5988	8.6300e-003	0.0000	28.7800
Total	**0.0234**	**0.2640**	**0.1365**	**3.0000e-004**		**0.0112**	**0.0112**		**0.0103**	**0.0103**	**0.0000**	**28.5988**	**28.5988**	**8.6300e-003**	**0.0000**	**28.7800**

3.2 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.4700e-003	0.0131	3.0000e-005	2.2400e-003	1.0000e-005	2.2500e-003	5.9000e-004	1.0000e-005	6.1000e-004	0.0000	1.9131	1.9131	1.0000e-004	0.0000	1.9153
Total	**7.3000e-004**	**1.4700e-003**	**0.0131**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**5.9000e-004**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**1.9131**	**1.9131**	**1.0000e-004**	**0.0000**	**1.9153**

3.3 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0193	0.2179	0.1082	2.6000e-004		8.9200e-003	8.9200e-003		8.2100e-003	8.2100e-003	0.0000	24.5709	24.5709	7.3900e-003	0.0000	24.7260
Total	**0.0193**	**0.2179**	**0.1082**	**2.6000e-004**	**0.0000**	**8.9200e-003**	**8.9200e-003**	**0.0000**	**8.2100e-003**	**8.2100e-003**	**0.0000**	**24.5709**	**24.5709**	**7.3900e-003**	**0.0000**	**24.7260**

3.3 Grading - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.4700e-003	0.0131	3.0000e-005	2.2400e-003	1.0000e-005	2.2500e-003	5.9000e-004	1.0000e-005	6.1000e-004	0.0000	1.9131	1.9131	1.0000e-004	0.0000	1.9153
Total	**7.3000e-004**	**1.4700e-003**	**0.0131**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**5.9000e-004**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**1.9131**	**1.9131**	**1.0000e-004**	**0.0000**	**1.9153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0193	0.2179	0.1082	2.6000e-004		8.9200e-003	8.9200e-003		8.2100e-003	8.2100e-003	0.0000	24.5709	24.5709	7.3900e-003	0.0000	24.7260
Total	**0.0193**	**0.2179**	**0.1082**	**2.6000e-004**	**0.0000**	**8.9200e-003**	**8.9200e-003**	**0.0000**	**8.2100e-003**	**8.2100e-003**	**0.0000**	**24.5709**	**24.5709**	**7.3900e-003**	**0.0000**	**24.7260**

3.3 Grading - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.4700e-003	0.0131	3.0000e-005	2.2400e-003	1.0000e-005	2.2500e-003	5.9000e-004	1.0000e-005	6.1000e-004	0.0000	1.9131	1.9131	1.0000e-004	0.0000	1.9153
Total	**7.3000e-004**	**1.4700e-003**	**0.0131**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**5.9000e-004**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**1.9131**	**1.9131**	**1.0000e-004**	**0.0000**	**1.9153**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Residential	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Residential	10.80	7.30	7.50	46.40	16.40	37.20	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.358007	0.043765	0.190242	0.131928	0.068306	0.010114	0.015571	0.155413	0.002639	0.000255	0.016423	0.001358	0.005980

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Residential	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Residential	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Tractors	1	8.00	5	122	0.44	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Off-Highway Tractors	9.2000e-004	0.0106	7.6800e-003	1.0000e-005		5.4000e-004	5.4000e-004		4.9000e-004	4.9000e-004	0.0000	1.0788	1.0788	3.3000e-004	0.0000	1.0857
Total	**9.2000e-004**	**0.0106**	**7.6800e-003**	**1.0000e-005**		**5.4000e-004**	**5.4000e-004**		**4.9000e-004**	**4.9000e-004**	**0.0000**	**1.0788**	**1.0788**	**3.3000e-004**	**0.0000**	**1.0857**

10.0 Vegetation

Solar Project - IWVWD Well 30

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
	0.00		0.00		0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Total construction time is estimated at 8 weeks. 3 weeks for grading plus 5 weeks for constructing facilities.

Off-road Equipment - Based on a water truck, two construction work trucks, a forklift, a skip loader, and a sheeps foot compactor wheel.

Off-road Equipment - Based on a water truck, two construction work trucks, a forklift, a small excavator, and a pile driver machine.

Trips and VMT - Based on an estimate of 15 worker vehicle trips per day, with approximately 25 miles per trip.

Operational Off-Road Equipment - Based on one truck visiting the site for routine inspection and maintenance on approximately 5 days per year

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	26.00
tblConstructionPhase	NumDays	0.00	16.00

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00

tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	5.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.38	0.38
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblTripsAndVMT	WorkerTripLength	10.80	25.00
tblTripsAndVMT	WorkerTripLength	10.80	25.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0557	0.6126	0.3395	7.8000e-004	5.8700e-003	0.0253	0.0311	1.5600e-003	0.0233	0.0248	0.0000	72.5751	72.5751	0.0206	0.0000	73.0080
Total	**0.0557**	**0.6126**	**0.3395**	**7.8000e-004**	**5.8700e-003**	**0.0253**	**0.0311**	**1.5600e-003**	**0.0233**	**0.0248**	**0.0000**	**72.5751**	**72.5751**	**0.0206**	**0.0000**	**73.0080**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0557	0.6126	0.3395	7.8000e-004	5.8700e-003	0.0253	0.0311	1.5600e-003	0.0233	0.0248	0.0000	72.5750	72.5750	0.0206	0.0000	73.0079
Total	**0.0557**	**0.6126**	**0.3395**	**7.8000e-004**	**5.8700e-003**	**0.0253**	**0.0311**	**1.5600e-003**	**0.0233**	**0.0248**	**0.0000**	**72.5750**	**72.5750**	**0.0206**	**0.0000**	**73.0079**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	2.1900e-003	0.0247	0.0118	3.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	3.0640	3.0640	9.4000e-004	0.0000	3.0837
Total	**2.1900e-003**	**0.0247**	**0.0118**	**3.0000e-005**		**9.2000e-004**	**9.2000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.0640**	**3.0640**	**9.4000e-004**	**0.0000**	**3.0837**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	2.1900e-003	0.0247	0.0118	3.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	3.0640	3.0640	9.4000e-004	0.0000	3.0837
Total	**2.1900e-003**	**0.0247**	**0.0118**	**3.0000e-005**		**9.2000e-004**	**9.2000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.0640**	**3.0640**	**9.4000e-004**	**0.0000**	**3.0837**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**100.00**	**100.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**100.00**	**0.00**	**100.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/1/2016	9/22/2016	5	16	
2	Building Construction	Building Construction	9/23/2016	10/28/2016	5	26	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	3	6.00	400	0.38
Grading	Forklifts	1	6.00	89	0.20
Grading	Skid Steer Loaders	1	6.00	64	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Cranes	0	0.00	226	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Grading	Plate Compactors	1	4.00	8	0.43
Building Construction	Off-Highway Trucks	3	6.00	400	0.38
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Excavators	1	4.00	162	0.38
Grading	Rubber Tired Dozers	0	0.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction	Other Construction Equipment	1	2.00	171	0.42
Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	15.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0193	0.2179	0.1082	2.6000e-004		8.9200e-003	8.9200e-003		8.2100e-003	8.2100e-003	0.0000	24.5709	24.5709	7.3900e-003	0.0000	24.7260
Total	**0.0193**	**0.2179**	**0.1082**	**2.6000e-004**	**0.0000**	**8.9200e-003**	**8.9200e-003**	**0.0000**	**8.2100e-003**	**8.2100e-003**	**0.0000**	**24.5709**	**24.5709**	**7.3900e-003**	**0.0000**	**24.7260**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.4700e-003	0.0131	3.0000e-005	2.2400e-003	1.0000e-005	2.2500e-003	5.9000e-004	1.0000e-005	6.1000e-004	0.0000	1.9131	1.9131	1.0000e-004	0.0000	1.9153
Total	**7.3000e-004**	**1.4700e-003**	**0.0131**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**5.9000e-004**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**1.9131**	**1.9131**	**1.0000e-004**	**0.0000**	**1.9153**

3.2 Grading - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0193	0.2179	0.1082	2.6000e-004		8.9200e-003	8.9200e-003		8.2100e-003	8.2100e-003	0.0000	24.5709	24.5709	7.3900e-003	0.0000	24.7260
Total	**0.0193**	**0.2179**	**0.1082**	**2.6000e-004**	**0.0000**	**8.9200e-003**	**8.9200e-003**	**0.0000**	**8.2100e-003**	**8.2100e-003**	**0.0000**	**24.5709**	**24.5709**	**7.3900e-003**	**0.0000**	**24.7260**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.4700e-003	0.0131	3.0000e-005	2.2400e-003	1.0000e-005	2.2500e-003	5.9000e-004	1.0000e-005	6.1000e-004	0.0000	1.9131	1.9131	1.0000e-004	0.0000	1.9153
Total	**7.3000e-004**	**1.4700e-003**	**0.0131**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**5.9000e-004**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**1.9131**	**1.9131**	**1.0000e-004**	**0.0000**	**1.9153**

3.3 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0346	0.3908	0.1970	4.6000e-004		0.0163	0.0163		0.0150	0.0150	0.0000	42.9821	42.9821	0.0130	0.0000	43.2544
Total	**0.0346**	**0.3908**	**0.1970**	**4.6000e-004**		**0.0163**	**0.0163**		**0.0150**	**0.0150**	**0.0000**	**42.9821**	**42.9821**	**0.0130**	**0.0000**	**43.2544**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1800e-003	2.3900e-003	0.0213	4.0000e-005	3.6300e-003	2.0000e-005	3.6600e-003	9.7000e-004	2.0000e-005	9.9000e-004	0.0000	3.1089	3.1089	1.6000e-004	0.0000	3.1123
Total	**1.1800e-003**	**2.3900e-003**	**0.0213**	**4.0000e-005**	**3.6300e-003**	**2.0000e-005**	**3.6600e-003**	**9.7000e-004**	**2.0000e-005**	**9.9000e-004**	**0.0000**	**3.1089**	**3.1089**	**1.6000e-004**	**0.0000**	**3.1123**

3.3 Building Construction - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0346	0.3908	0.1970	4.6000e-004		0.0163	0.0163		0.0150	0.0150	0.0000	42.9821	42.9821	0.0130	0.0000	43.2543
Total	**0.0346**	**0.3908**	**0.1970**	**4.6000e-004**		**0.0163**	**0.0163**		**0.0150**	**0.0150**	**0.0000**	**42.9821**	**42.9821**	**0.0130**	**0.0000**	**43.2543**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1800e-003	2.3900e-003	0.0213	4.0000e-005	3.6300e-003	2.0000e-005	3.6600e-003	9.7000e-004	2.0000e-005	9.9000e-004	0.0000	3.1089	3.1089	1.6000e-004	0.0000	3.1123
Total	**1.1800e-003**	**2.3900e-003**	**0.0213**	**4.0000e-005**	**3.6300e-003**	**2.0000e-005**	**3.6600e-003**	**9.7000e-004**	**2.0000e-005**	**9.9000e-004**	**0.0000**	**3.1089**	**3.1089**	**1.6000e-004**	**0.0000**	**3.1123**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.356917	0.043712	0.189936	0.131318	0.067991	0.010009	0.015902	0.157651	0.002623	0.000252	0.016380	0.001349	0.005958

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	1	8.00	5	400	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Off-Highway Trucks	2.1900e-003	0.0247	0.0118	3.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	3.0640	3.0640	9.4000e-004	0.0000	3.0837
Total	**2.1900e-003**	**0.0247**	**0.0118**	**3.0000e-005**		**9.2000e-004**	**9.2000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.0640**	**3.0640**	**9.4000e-004**	**0.0000**	**3.0837**

10.0 Vegetation

Solar Project - IWVWD Well 31

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2014
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Total estimated construction time of 5 weeks (2 weeks grading, 3 weeks construction)

Off-road Equipment - Based on a water truck, a forklift, two construction work trucks, a skip loader, and a sheeps foot compactor wheel

Off-road Equipment - Based on a water truck, a forklift, two construction work trucks, a small excavator, and a pile driver machin

Trips and VMT - Based on 15 worker vehicle trips per day at 25 miles per trip.

On-road Fugitive Dust - Assumes that 60 percent of worker vehicle miles traveled (VMT) will be on paved roads, with the remaining VMT on unpaved roads.

Operational Off-Road Equipment - Estimate 5 annual vehicle trips to the Well 31 site for routine inspection and maintenance.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	16.00
tblConstructionPhase	NumDays	0.00	11.00
tblOffRoadEquipment	LoadFactor	0.38	0.38

tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	60.00
tblOnRoadDust	WorkerPercentPave	100.00	60.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	5.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.38	0.38

tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0362	0.4090	0.2068	4.8000e-004	0.4789	0.0171	0.4960	0.0478	0.0158	0.0636	0.0000	44.8873	44.8873	0.0135	0.0000	45.1713
Total	**0.0362**	**0.4090**	**0.2068**	**4.8000e-004**	**0.4789**	**0.0171**	**0.4960**	**0.0478**	**0.0158**	**0.0636**	**0.0000**	**44.8873**	**44.8873**	**0.0135**	**0.0000**	**45.1713**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0362	0.4090	0.2068	4.8000e-004	3.5000e-004	0.0171	0.0175	8.0000e-005	0.0158	0.0158	0.0000	44.8873	44.8873	0.0135	0.0000	45.1712
Total	**0.0362**	**0.4090**	**0.2068**	**4.8000e-004**	**3.5000e-004**	**0.0171**	**0.0175**	**8.0000e-005**	**0.0158**	**0.0158**	**0.0000**	**44.8873**	**44.8873**	**0.0135**	**0.0000**	**45.1712**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**99.93**	**0.00**	**96.48**	**99.83**	**0.00**	**75.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	2.6500e-003	0.0316	0.0140	3.0000e-005		1.2100e-003	1.2100e-003		1.1100e-003	1.1100e-003	0.0000	3.1839	3.1839	9.4000e-004	0.0000	3.2036
Total	**2.6500e-003**	**0.0316**	**0.0140**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.1100e-003**	**1.1100e-003**	**0.0000**	**3.1839**	**3.1839**	**9.4000e-004**	**0.0000**	**3.2036**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	2.6500e-003	0.0316	0.0140	3.0000e-005		1.2100e-003	1.2100e-003		1.1100e-003	1.1100e-003	0.0000	3.1839	3.1839	9.4000e-004	0.0000	3.2036
Total	**2.6500e-003**	**0.0316**	**0.0140**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.1100e-003**	**1.1100e-003**	**0.0000**	**3.1839**	**3.1839**	**9.4000e-004**	**0.0000**	**3.2036**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	100.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00	0.00	100.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	10/31/2016	11/14/2016	5	11	
2	Building Construction	Building Construction	11/15/2016	12/6/2016	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	3	6.00	400	0.38
Grading	Forklifts	1	6.00	89	0.20
Grading	Skid Steer Loaders	1	2.00	64	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Cranes	0	0.00	226	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Grading	Plate Compactors	1	4.00	8	0.43
Building Construction	Off-Highway Trucks	3	6.00	400	0.38
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Excavators	1	6.00	162	0.38
Grading	Rubber Tired Dozers	0	0.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction	Other Construction Equipment	1	4.00	171	0.42
Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00		0.00	10.80	7.30				
Building Construction	6	0.00		0.00	10.80	7.30				

3.1 Mitigation Measures Construction

3.2 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0129	0.1451	0.0702	1.7000e-004		5.8800e-003	5.8800e-003		5.4100e-003	5.4100e-003	0.0000	16.2885	16.2885	4.9000e-003	0.0000	16.3913
Total	**0.0129**	**0.1451**	**0.0702**	**1.7000e-004**	**0.0000**	**5.8800e-003**	**5.8800e-003**	**0.0000**	**5.4100e-003**	**5.4100e-003**	**0.0000**	**16.2885**	**16.2885**	**4.9000e-003**	**0.0000**	**16.3913**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.4789	0.0000	0.4789	0.0478	0.0000	0.0478	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.4789**	**0.0000**	**0.4789**	**0.0478**	**0.0000**	**0.0478**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Grading - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0129	0.1451	0.0702	1.7000e-004		5.8800e-003	5.8800e-003		5.4100e-003	5.4100e-003	0.0000	16.2885	16.2885	4.9000e-003	0.0000	16.3913
Total	**0.0129**	**0.1451**	**0.0702**	**1.7000e-004**	**0.0000**	**5.8800e-003**	**5.8800e-003**	**0.0000**	**5.4100e-003**	**5.4100e-003**	**0.0000**	**16.2885**	**16.2885**	**4.9000e-003**	**0.0000**	**16.3913**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					3.5000e-004	0.0000	3.5000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**3.5000e-004**	**0.0000**	**3.5000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0234	0.2640	0.1365	3.0000e-004		0.0112	0.0112		0.0103	0.0103	0.0000	28.5988	28.5988	8.6300e-003	0.0000	28.7800
Total	**0.0234**	**0.2640**	**0.1365**	**3.0000e-004**		**0.0112**	**0.0112**		**0.0103**	**0.0103**	**0.0000**	**28.5988**	**28.5988**	**8.6300e-003**	**0.0000**	**28.7800**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0234	0.2640	0.1365	3.0000e-004		0.0112	0.0112		0.0103	0.0103	0.0000	28.5988	28.5988	8.6300e-003	0.0000	28.7800
Total	**0.0234**	**0.2640**	**0.1365**	**3.0000e-004**		**0.0112**	**0.0112**		**0.0103**	**0.0103**	**0.0000**	**28.5988**	**28.5988**	**8.6300e-003**	**0.0000**	**28.7800**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.360587	0.044083	0.190967	0.134212	0.069272	0.010367	0.014748	0.149089	0.002664	0.000260	0.016326	0.001390	0.006034

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	1	8.00	5	400	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Off-Highway Trucks	2.6500e-003	0.0316	0.0140	3.0000e-005		1.2100e-003	1.2100e-003		1.1100e-003	1.1100e-003	0.0000	3.1839	3.1839	9.4000e-004	0.0000	3.2036
Total	**2.6500e-003**	**0.0316**	**0.0140**	**3.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.1100e-003**	**1.1100e-003**	**0.0000**	**3.1839**	**3.1839**	**9.4000e-004**	**0.0000**	**3.2036**

10.0 Vegetation

Solar Project - IWVWD Well 33

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Total estimated construction time of 6 weeks (3 weeks grading plus 3 weeks constructing facilities)

Off-road Equipment - BAsed on a water truck, a forklift, two construction work trucks, a skip loader, and a sheeps foot compactor wheel

Off-road Equipment - Based on a water truck, a forklift, two construction work trucks, a small excavator, and a pile driving machine.

Trips and VMT - Estimate of 15 worker vehicle trips to the site daily, at 25 miles per trip.

On-road Fugitive Dust - Estimate that approximately 50 percent of worker vehicle miles traveled (VMT) to the Well 33 site during construction will be on paved roads, while the remaining 50 percent of worker VMT will be on unpaved roads.

Road Dust - Estimate that approximately 50 percent of VMT during project operation will be on paved roads, while the remaining 50 percent VMT during operation will be on unpaved roads.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	16.00
tblConstructionPhase	NumDays	0.00	18.00

tblConstructionPhase	PhaseEndDate	1/23/2017	1/24/2017
tblConstructionPhase	PhaseStartDate	12/31/2016	1/3/2017
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	50.00

tblOnRoadDust	WorkerPercentPave	100.00	50.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblRoadDust	RoadPercentPave	100	50

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0215	0.2438	0.1210	2.9000e-004	0.9793	9.9800e-003	0.9893	0.0978	9.1900e-003	0.1070	0.0000	27.4819	27.4819	8.2700e-003	0.0000	27.6556
2017	0.0217	0.2407	0.1297	3.0000e-004	0.0000	0.0102	0.0102	0.0000	9.3500e-003	9.3500e-003	0.0000	28.1309	28.1309	8.6200e-003	0.0000	28.3119
Total	**0.0433**	**0.4844**	**0.2506**	**5.9000e-004**	**0.9793**	**0.0201**	**0.9995**	**0.0978**	**0.0185**	**0.1163**	**0.0000**	**55.6128**	**55.6128**	**0.0169**	**0.0000**	**55.9674**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0215	0.2438	0.1210	2.9000e-004	4.7000e-004	9.9800e-003	0.0105	1.2000e-004	9.1900e-003	9.3000e-003	0.0000	27.4819	27.4819	8.2700e-003	0.0000	27.6555
2017	0.0217	0.2407	0.1296	3.0000e-004	0.0000	0.0102	0.0102	0.0000	9.3500e-003	9.3500e-003	0.0000	28.1308	28.1308	8.6200e-003	0.0000	28.3118
Total	**0.0433**	**0.4844**	**0.2506**	**5.9000e-004**	**4.7000e-004**	**0.0201**	**0.0206**	**1.2000e-004**	**0.0185**	**0.0187**	**0.0000**	**55.6127**	**55.6127**	**0.0169**	**0.0000**	**55.9674**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**99.95**	**0.00**	**97.94**	**99.88**	**0.00**	**83.97**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	12/7/2016	12/30/2016	5	18	
2	Building Construction	Building Construction	1/3/2017	1/24/2017	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	3	6.00	400	0.38
Grading	Forklifts	1	6.00	89	0.20
Grading	Skid Steer Loaders	1	6.00	64	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Cranes	0	0.00	226	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Grading	Plate Compactors	1	3.00	8	0.43
Building Construction	Off-Highway Trucks	3	6.00	400	0.38
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Excavators	1	6.00	162	0.38
Grading	Rubber Tired Dozers	0	0.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction	Other Construction Equipment	1	4.00	171	0.42
Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00		0.00	10.80	7.30				
Building Construction	6	0.00		0.00	10.80	7.30				

3.1 Mitigation Measures Construction

3.2 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0215	0.2438	0.1210	2.9000e-004		9.9800e-003	9.9800e-003		9.1900e-003	9.1900e-003	0.0000	27.4819	27.4819	8.2700e-003	0.0000	27.6556
Total	**0.0215**	**0.2438**	**0.1210**	**2.9000e-004**	**0.0000**	**9.9800e-003**	**9.9800e-003**	**0.0000**	**9.1900e-003**	**9.1900e-003**	**0.0000**	**27.4819**	**27.4819**	**8.2700e-003**	**0.0000**	**27.6556**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.9793	0.0000	0.9793	0.0978	0.0000	0.0978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.9793**	**0.0000**	**0.9793**	**0.0978**	**0.0000**	**0.0978**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Grading - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0215	0.2438	0.1210	2.9000e-004		9.9800e-003	9.9800e-003		9.1900e-003	9.1900e-003	0.0000	27.4819	27.4819	8.2700e-003	0.0000	27.6555
Total	**0.0215**	**0.2438**	**0.1210**	**2.9000e-004**	**0.0000**	**9.9800e-003**	**9.9800e-003**	**0.0000**	**9.1900e-003**	**9.1900e-003**	**0.0000**	**27.4819**	**27.4819**	**8.2700e-003**	**0.0000**	**27.6555**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					4.7000e-004	0.0000	4.7000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**4.7000e-004**	**0.0000**	**4.7000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0217	0.2407	0.1297	3.0000e-004		0.0102	0.0102		9.3500e-003	9.3500e-003	0.0000	28.1309	28.1309	8.6200e-003	0.0000	28.3119
Total	**0.0217**	**0.2407**	**0.1297**	**3.0000e-004**		**0.0102**	**0.0102**		**9.3500e-003**	**9.3500e-003**	**0.0000**	**28.1309**	**28.1309**	**8.6200e-003**	**0.0000**	**28.3119**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0217	0.2407	0.1296	3.0000e-004		0.0102	0.0102		9.3500e-003	9.3500e-003	0.0000	28.1308	28.1308	8.6200e-003	0.0000	28.3118
Total	**0.0217**	**0.2407**	**0.1296**	**3.0000e-004**		**0.0102**	**0.0102**		**9.3500e-003**	**9.3500e-003**	**0.0000**	**28.1308**	**28.1308**	**8.6200e-003**	**0.0000**	**28.3118**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.356917	0.043712	0.189936	0.131318	0.067991	0.010009	0.015902	0.157651	0.002623	0.000252	0.016380	0.001349	0.005958

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Solar Project - IWVWD Well 34

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Total construction time of 4 weeks (2 weeks for grading and 2 weeks for facilities construction)

Off-road Equipment - Based on one water truck, two construction work trucks, one skip loader, and one sheeps foot compactor wheel

Off-road Equipment - Based on a water truck, a forklift, two construction work trucks, a small excavator, and a pile driver machine

Trips and VMT - Based on 15 worker vehicle trips to the Well 34 site daily, at 25 miles per trip.

Operational Off-Road Equipment - Based on an estimate of 5 vehicle trips to the Well 34 site per year for routine inspection and maintenance.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	NumDays	0.00	11.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20

tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00

tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	5.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.38	0.38
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	OperationalYear	2014	2017

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0284	0.3149	0.1677	4.0000e-004	5.8000e-004	0.0133	0.0138	1.4000e-004	0.0122	0.0123	0.0000	37.0994	37.0994	0.0114	0.0000	37.3381
Total	**0.0284**	**0.3149**	**0.1677**	**4.0000e-004**	**5.8000e-004**	**0.0133**	**0.0138**	**1.4000e-004**	**0.0122**	**0.0123**	**0.0000**	**37.0994**	**37.0994**	**0.0114**	**0.0000**	**37.3381**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0284	0.3149	0.1677	4.0000e-004	5.8000e-004	0.0133	0.0138	1.4000e-004	0.0122	0.0123	0.0000	37.0994	37.0994	0.0114	0.0000	37.3381
Total	**0.0284**	**0.3149**	**0.1677**	**4.0000e-004**	**5.8000e-004**	**0.0133**	**0.0138**	**1.4000e-004**	**0.0122**	**0.0123**	**0.0000**	**37.0994**	**37.0994**	**0.0114**	**0.0000**	**37.3381**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	2.1900e-003	0.0247	0.0118	3.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	3.0640	3.0640	9.4000e-004	0.0000	3.0837
Total	**2.1900e-003**	**0.0247**	**0.0118**	**3.0000e-005**		**9.2000e-004**	**9.2000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.0640**	**3.0640**	**9.4000e-004**	**0.0000**	**3.0837**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	2.1900e-003	0.0247	0.0118	3.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	3.0640	3.0640	9.4000e-004	0.0000	3.0837
Total	**2.1900e-003**	**0.0247**	**0.0118**	**3.0000e-005**		**9.2000e-004**	**9.2000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.0640**	**3.0640**	**9.4000e-004**	**0.0000**	**3.0837**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**100.00**	**0.00**	**0.00**	**0.00**	**0.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**100.00**	**0.00**	**100.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/25/2017	2/8/2017	5	11	
2	Building Construction	Building Construction	2/9/2017	2/23/2017	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	3	6.00	400	0.38
Grading	Forklifts	1	6.00	89	0.20
Grading	Skid Steer Loaders	1	8.00	64	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Cranes	0	0.00	226	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Grading	Other Construction Equipment	1	3.00	171	0.42
Building Construction	Off-Highway Trucks	3	6.00	400	0.38
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Excavators	1	6.00	162	0.38
Grading	Rubber Tired Dozers	0	0.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction	Other Construction Equipment	1	3.00	171	0.42
Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00		0.00	10.80	7.30				
Building Construction	6	0.00		0.00	10.80	7.30				

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0136	0.1516	0.0797	1.9000e-004		6.3200e-003	6.3200e-003		5.8100e-003	5.8100e-003	0.0000	17.9511	17.9511	5.5000e-003	0.0000	18.0666
Total	**0.0136**	**0.1516**	**0.0797**	**1.9000e-004**	**0.0000**	**6.3200e-003**	**6.3200e-003**	**0.0000**	**5.8100e-003**	**5.8100e-003**	**0.0000**	**17.9511**	**17.9511**	**5.5000e-003**	**0.0000**	**18.0666**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					5.8000e-004	0.0000	5.8000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**5.8000e-004**	**0.0000**	**5.8000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0136	0.1516	0.0797	1.9000e-004		6.3200e-003	6.3200e-003		5.8100e-003	5.8100e-003	0.0000	17.9511	17.9511	5.5000e-003	0.0000	18.0666
Total	**0.0136**	**0.1516**	**0.0797**	**1.9000e-004**	**0.0000**	**6.3200e-003**	**6.3200e-003**	**0.0000**	**5.8100e-003**	**5.8100e-003**	**0.0000**	**17.9511**	**17.9511**	**5.5000e-003**	**0.0000**	**18.0666**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					5.8000e-004	0.0000	5.8000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**5.8000e-004**	**0.0000**	**5.8000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0148	0.1633	0.0880	2.1000e-004		6.9400e-003	6.9400e-003		6.3900e-003	6.3900e-003	0.0000	19.1484	19.1484	5.8700e-003	0.0000	19.2716
Total	**0.0148**	**0.1633**	**0.0880**	**2.1000e-004**		**6.9400e-003**	**6.9400e-003**		**6.3900e-003**	**6.3900e-003**	**0.0000**	**19.1484**	**19.1484**	**5.8700e-003**	**0.0000**	**19.2716**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0148	0.1633	0.0880	2.1000e-004		6.9400e-003	6.9400e-003		6.3900e-003	6.3900e-003	0.0000	19.1483	19.1483	5.8700e-003	0.0000	19.2715
Total	**0.0148**	**0.1633**	**0.0880**	**2.1000e-004**		**6.9400e-003**	**6.9400e-003**		**6.3900e-003**	**6.3900e-003**	**0.0000**	**19.1483**	**19.1483**	**5.8700e-003**	**0.0000**	**19.2715**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.356917	0.043712	0.189936	0.131318	0.067991	0.010009	0.015902	0.157651	0.002623	0.000252	0.016380	0.001349	0.005958

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	1	8.00	5	400	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Off-Highway Trucks	2.1900e-003	0.0247	0.0118	3.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	3.0640	3.0640	9.4000e-004	0.0000	3.0837
Total	**2.1900e-003**	**0.0247**	**0.0118**	**3.0000e-005**		**9.2000e-004**	**9.2000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.0640**	**3.0640**	**9.4000e-004**	**0.0000**	**3.0837**

10.0 Vegetation

Solar Project - IWVWD Office

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Residential	0.00	Dwelling Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - IWVWD Office site

Construction Phase - 6 weeks total construction time (approx. 33 days) at IWVWD Office site

Off-road Equipment - Based on drill rig, forklift, man lift, 3 off-highway trucks (one water truck and two work trucks), and a concrete boom pump.

Off-road Equipment - Backhoe, Water Truck, 2 construction work trucks, Forklift, Sheeps foot compactor wheel, drum roller compactor, skip loader

Off-road Equipment - Forklift, backhoe, water truck, and two construction work trucks.

Trips and VMT - Based on 15 worker trips to the site daily, at 25 vehicle miles traveled (VMT) per day.

On-road Fugitive Dust - Assumes that 5% of worker vehicle trips related to Project construction will be on paved roads.

Road Dust - Assumes that 5% of vehicle trips associated with the Project will be made on paved roads.

Water And Wastewater - 1,009 gallons of water per year estimated for PV panel washing

Operational Off-Road Equipment - Assume 5 vehicle trips to the site annually for routine inspection and maintenance.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	17.00
tblConstructionPhase	NumDays	0.00	16.00
tblOffRoadEquipment	HorsePower	84.00	89.00
tblOffRoadEquipment	HorsePower	400.00	97.00
tblOffRoadEquipment	HorsePower	400.00	97.00
tblOffRoadEquipment	HorsePower	205.00	226.00
tblOffRoadEquipment	LoadFactor	0.74	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.29
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Pumps

tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	95.00
tblOnRoadDust	WorkerPercentPave	100.00	95.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	5.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblRoadDust	RoadPercentPave	100	95
tblTripsAndVMT	WorkerTripLength	10.80	25.00
tblTripsAndVMT	WorkerTripLength	10.80	25.00
tblTripsAndVMT	WorkerTripNumber	23.00	15.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0129	0.1185	0.1083	1.8000e-004	0.4198	7.8200e-003	0.4276	0.0426	7.2100e-003	0.0498	0.0000	15.7041	15.7041	3.6800e-003	0.0000	15.7814
Total	**0.0129**	**0.1185**	**0.1083**	**1.8000e-004**	**0.4198**	**7.8200e-003**	**0.4276**	**0.0426**	**7.2100e-003**	**0.0498**	**0.0000**	**15.7041**	**15.7041**	**3.6800e-003**	**0.0000**	**15.7814**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0129	0.1185	0.1083	1.8000e-004	4.4100e-003	7.8200e-003	0.0122	1.1800e-003	7.2100e-003	8.3800e-003	0.0000	15.7040	15.7040	3.6800e-003	0.0000	15.7814
Total	**0.0129**	**0.1185**	**0.1083**	**1.8000e-004**	**4.4100e-003**	**7.8200e-003**	**0.0122**	**1.1800e-003**	**7.2100e-003**	**8.3800e-003**	**0.0000**	**15.7040**	**15.7040**	**3.6800e-003**	**0.0000**	**15.7814**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**98.95**	**0.00**	**97.14**	**97.23**	**0.00**	**83.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	2.3500e-003	0.0271	0.0126	3.0000e-005		1.0200e-003	1.0200e-003		9.4000e-004	9.4000e-004	0.0000	3.1000	3.1000	9.4000e-004	0.0000	3.1196
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3500e-003**	**0.0271**	**0.0126**	**3.0000e-005**	**0.0000**	**1.0200e-003**	**1.0200e-003**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**3.1000**	**3.1000**	**9.4000e-004**	**0.0000**	**3.1196**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	2.3500e-003	0.0271	0.0126	3.0000e-005		1.0200e-003	1.0200e-003		9.4000e-004	9.4000e-004	0.0000	3.1000	3.1000	9.4000e-004	0.0000	3.1196
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3500e-003**	**0.0271**	**0.0126**	**3.0000e-005**	**0.0000**	**1.0200e-003**	**1.0200e-003**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**3.1000**	**3.1000**	**9.4000e-004**	**0.0000**	**3.1196**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**100.00**	**100.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**0.00**	**100.00**	**100.00**	**100.00**	**0.00**	**100.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	6/1/2016	6/22/2016	5	16	Grading
2	Building Construction	Building Construction	6/23/2016	7/15/2016	5	17	Facilities Construction

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Grading	Forklifts	1	8.00	89	0.20
Grading	Aerial Lifts	1	8.00	62	0.31
Grading	Rollers	2	4.00	80	0.38
Grading	Skid Steer Loaders	1	8.00	64	0.37
Building Construction	Pumps	1	2.00	89	0.20
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Forklifts	1	6.00	89	0.20
Grading	Off-Highway Trucks	3	6.00	97	0.37
Building Construction	Cranes	0	4.00	226	0.29
Building Construction	Off-Highway Trucks	3	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Bore/Drill Rigs	1	4.00	226	0.29
Grading	Rubber Tired Dozers	0	0.00	255	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	9	15.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	15.00	0.00	0.00	25.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-003	0.0858	0.0653	9.0000e-005		6.1100e-003	6.1100e-003		5.6200e-003	5.6200e-003	0.0000	8.2585	8.2585	2.4900e-003	0.0000	8.3108
Total	**8.6000e-003**	**0.0858**	**0.0653**	**9.0000e-005**	**0.0000**	**6.1100e-003**	**6.1100e-003**	**0.0000**	**5.6200e-003**	**5.6200e-003**	**0.0000**	**8.2585**	**8.2585**	**2.4900e-003**	**0.0000**	**8.3108**

3.2 Grading - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.4700e-003	0.0131	3.0000e-005	0.2036	1.0000e-005	0.2036	0.0207	1.0000e-005	0.0207	0.0000	1.9131	1.9131	1.0000e-004	0.0000	1.9153
Total	**7.3000e-004**	**1.4700e-003**	**0.0131**	**3.0000e-005**	**0.2036**	**1.0000e-005**	**0.2036**	**0.0207**	**1.0000e-005**	**0.0207**	**0.0000**	**1.9131**	**1.9131**	**1.0000e-004**	**0.0000**	**1.9153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-003	0.0858	0.0653	9.0000e-005		6.1100e-003	6.1100e-003		5.6200e-003	5.6200e-003	0.0000	8.2585	8.2585	2.4900e-003	0.0000	8.3108
Total	**8.6000e-003**	**0.0858**	**0.0653**	**9.0000e-005**	**0.0000**	**6.1100e-003**	**6.1100e-003**	**0.0000**	**5.6200e-003**	**5.6200e-003**	**0.0000**	**8.2585**	**8.2585**	**2.4900e-003**	**0.0000**	**8.3108**

3.2 Grading - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.4700e-003	0.0131	3.0000e-005	2.1400e-003	1.0000e-005	2.1500e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.9131	1.9131	1.0000e-004	0.0000	1.9153
Total	**7.3000e-004**	**1.4700e-003**	**0.0131**	**3.0000e-005**	**2.1400e-003**	**1.0000e-005**	**2.1500e-003**	**5.7000e-004**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**1.9131**	**1.9131**	**1.0000e-004**	**0.0000**	**1.9153**

3.3 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0297	0.0160	4.0000e-005		1.6800e-003	1.6800e-003		1.5600e-003	1.5600e-003	0.0000	3.4997	3.4997	9.9000e-004	0.0000	3.5204
Total	**2.8000e-003**	**0.0297**	**0.0160**	**4.0000e-005**		**1.6800e-003**	**1.6800e-003**		**1.5600e-003**	**1.5600e-003**	**0.0000**	**3.4997**	**3.4997**	**9.9000e-004**	**0.0000**	**3.5204**

3.3 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	1.5600e-003	0.0139	3.0000e-005	0.2163	2.0000e-005	0.2163	0.0220	1.0000e-005	0.0220	0.0000	2.0327	2.0327	1.1000e-004	0.0000	2.0350
Total	**7.7000e-004**	**1.5600e-003**	**0.0139**	**3.0000e-005**	**0.2163**	**2.0000e-005**	**0.2163**	**0.0220**	**1.0000e-005**	**0.0220**	**0.0000**	**2.0327**	**2.0327**	**1.1000e-004**	**0.0000**	**2.0350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0297	0.0160	4.0000e-005		1.6800e-003	1.6800e-003		1.5600e-003	1.5600e-003	0.0000	3.4997	3.4997	9.9000e-004	0.0000	3.5204
Total	**2.8000e-003**	**0.0297**	**0.0160**	**4.0000e-005**		**1.6800e-003**	**1.6800e-003**		**1.5600e-003**	**1.5600e-003**	**0.0000**	**3.4997**	**3.4997**	**9.9000e-004**	**0.0000**	**3.5204**

3.3 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	1.5600e-003	0.0139	3.0000e-005	2.2700e-003	2.0000e-005	2.2900e-003	6.1000e-004	1.0000e-005	6.2000e-004	0.0000	2.0327	2.0327	1.1000e-004	0.0000	2.0350
Total	**7.7000e-004**	**1.5600e-003**	**0.0139**	**3.0000e-005**	**2.2700e-003**	**2.0000e-005**	**2.2900e-003**	**6.1000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**2.0327**	**2.0327**	**1.1000e-004**	**0.0000**	**2.0350**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Residential	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Residential	10.80	7.30	7.50	46.40	16.40	37.20	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.358007	0.043765	0.190242	0.131928	0.068306	0.010114	0.015571	0.155413	0.002639	0.000255	0.016423	0.001358	0.005980

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Residential	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Residential	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Residential	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	1	8.00	5	400	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Off-Highway Trucks	2.3500e-003	0.0271	0.0126	3.0000e-005		1.0200e-003	1.0200e-003		9.4000e-004	9.4000e-004	0.0000	3.1000	3.1000	9.4000e-004	0.0000	3.1196
Total	**2.3500e-003**	**0.0271**	**0.0126**	**3.0000e-005**		**1.0200e-003**	**1.0200e-003**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**3.1000**	**3.1000**	**9.4000e-004**	**0.0000**	**3.1196**

10.0 Vegetation