

# San Diego Gas & Electric Company

8316 Century Park Court, CP52G San Diego, California 92123

# Wells and Springs Survey

Sunrise Powerlink Project Environmentally Superior Southern Route San Diego and Imperial Counties, California

Prepared by



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engineers | scientists | innovators

Project Number SC0525

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## WELLS AND SPRINGS SURVEY

## SUNRISE POWERLINK PROJECT

I certify that this document and attachments presented in this report are accurate and complete. This report was prepared by the staff of Geosyntec Consultants under my supervision to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who are directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

	6/29/2010
Veryl Wittig	Date
California Professional Geologist No. 7115	



#### 1. INTRODUCTION

# 1.1 Terms of Reference

This report presents the results of a Wells and Springs Survey (Survey) performed as part of the environmental site assessment for San Diego Gas and Electric's (SDG&E) Sunrise Powerlink Project (Project) within San Diego and Imperial Counties, California. This report was prepared by Mr. Alexander J. Greene, PG, CEG, and Mr. Doug Baumwirt, PG, and has been reviewed by Mr. Veryl Wittig, PG, CHg of Geosyntec Consultants (Geosyntec), in accordance with the peer review policies of the firm.

## 1.2 Project Background

We understand that SDG&E is planning the construction of an approximately 117-mile, 500 kV to 230 kV transmission line extending from the existing Imperial Valley Substation in Imperial County to the Sycamore Substation in San Diego County, California (Figure 1). The project entails the construction of approximately 441 towers in addition to the grading of numerous tower pads, access roads, and pull sites along the alignment, some of which may require blasting due to adverse ground conditions that preclude the use of conventional excavation techniques for construction. In accordance with Sunrise Mitigation Measure H-4B, as defined in the Sunrise Powerlink Environmental Impact Report/Environmental Impact Statement (EIR/EIS), we performed a survey to identify existing groundwater wells and springs within a half-mile radius of proposed tower locations and designated project grading sites that will potentially require construction-related blasting.

## 1.3 **Project Objectives**

As defined in the Sunrise Powerlink Final EIR/EIS, Sunrise Mitigation Measure H-4B states:

"Avoid blasting where damage to groundwater wells or springs could occur. Blasting shall be managed with a Blasting Plan for each site. The Plan shall include the blasting methods, distance calculations to estimate the area of effect of the blasting, and surveys for wells and springs within the blast influence area (no less than ½ mile from the blasting location). Blasting shall not be allowed where damage to wells or springs could occur according to the Applicant's Blasting Plan, and a rock anchoring or mini-pile system shall be used if these resources could be damaged as a result of blasting or any earth working method used as an alternative to blasting. Where inadvertent damage to wells within an EPA-designated Sole Source Aquifer occur as a result of earthwork, the Applicant shall compensate the landowner in the form of well repair or replacement, and shall provide the landowner with a water storage tank and sufficient potable water within 48 hours and throughout the interim between damage and repair or replacement. Where inadvertent damage to other wells or springs



occurs as a result of earthwork, the Applicant shall compensate the landowner in the form of remedial cash payment, repair, or replacement, as appropriate. The burden of proof of no impact shall rest with the Applicant."

The objective of this study was to supply SDG&E with the necessary information to facilitate the blasting contractor's preparation of Blasting Plans as specified in the Sunrise Mitigation Measure H-4B. The Spring and Well Survey is not intended to present a list of sites where blasting will occur as part of the Powerlink construction, rather, it is document to address Mitigation Measure H-4B and to provide the necessary information for the blasting contractors when they are preparing their site-specific blasting plans, as necessary.

Based on our experience with previous blasting studies performed for SDG&E infrastructure, it is our professional opinion that a ½-mile influence radius is an acceptable range to satisfy the intentions described within Sunrise Mitigation Measure H-4B.

# 1.4 Scope of Services

Geosyntec performed a multi-phased scope of work to identify wells and springs within the ½-mile radii of applicable towers, and project grading sites including:

A review of the preliminary geotechnical report prepared by URS Corporation [URS, 2009] to identify applicable proposed tower locations and subsurface conditions which may require blasting during construction;

A records review of available published maps, municipal and state databases, and aerial photographs along the alignment;

An aerial and ground reconnaissance performed to identify additional well and spring locations and to confirm locations of wells and springs identified during the records review; and Preparation of this report to present the findings of the Survey.

A detailed description of our survey is described in the following sections.



#### 2. IDENTIFICATION OF POTENTIAL BLASTING SITES

# 2.1 Tower Structures

Geosyntec understands that approximately 441 towers are proposed for the Sunrise Powerlink project. However, due to the subsurface conditions underlying many of the proposed tower locations, it was deemed unnecessary to evaluate each of the tower locations for the wells and springs survey. Therefore, a review of the preliminary geotechnical report for the proposed overhead transmission portion of the Project was performed to identify those proposed tower locations which, based on reported underlying geologic conditions, would not likely require blasting for construction.

The preliminary geotechnical report prepared by URS contains subsurface velocity data from seismic refraction surveys and limited geotechnical borings that were performed at the proposed tower locations for use in engineering evaluations for tower foundation design. Given the large number of tower locations along the alignment, the boring and seismic velocity data was reviewed and interpreted using industry-accepted correlations to rippability to determine which proposed tower locations for which blasting may be required. The criteria for determining if blasting may be required at an individual tower location was based on the presence of subsurface conditions in which seismic velocities (apparent P-wave Vp) of greater than or equal to 5,000 feet per second (fps) within a depth of 30 feet below ground surface at or near the tower location. Additionally, locations in which crystalline bedrock outcropped at the ground surface were also considered as having the potential for blasting. Based on this initial screening, the number of tower sites potentially requiring blasting was reduced from 441 to 248. A list of the identified towers is presented in Table 1.

## 2.2 Access Roads, Tower Pads, and Pull Sites

Prior to performing our survey, Geosyntec was provided a list from Bureau Veritas detailing 85 proposed grading sites for project access roads, tower pads, and pull sites delineating sites in which the proposed cuts exceed 5 feet in depth. The 5-foot cut screening criteria was based on the unlikelihood that conventional excavation methods would meet refusal, potentially resulting in blasting, within the upper weathering profile at each of the proposed grading sites. Similar to the survey performed for the individual tower locations, each of the 85 delineated grading sites was assessed for having the potential for blasting using a combination of the available subsurface data, aerial photographic review, and professional judgment. Based on this assessment, the number of grading sites determined to potentially require blasting in which proposed cuts exceeded 5 feet were reduced from 85 to 19. A list of the identified grading sites is presented in Table 2.



#### 3. RECORDS REVIEW

Following our identification of the 248 tower sites and 19 grading sites potentially requiring blasting, a records search was performed utilizing available literature and municipal and state databases to identify known wells and springs within the ½-mile search radii of each applicable tower and grading site. Additionally, United States Environmental Protection Agency (USEPA)-designated Sole Source Aquifer's were identified.

# 3.1 Published Maps

Our initial document review was performed using an electronic Geographic Information System (GIS) database of United States Geological Survey (USGS) 7.5-minute quadrangle topographic maps along the alignment. The topographic maps were overlayed in a GIS application with the proposed alignment, ½-mile buffer area, and identified tower and grading locations potentially requiring blasting. The locations of previously mapped wells and springs identified on the USGS topographic maps were limited, but generally did not include private property wells.

## 3.2 Municipal and State Database

The second phase of our document review consisted of contacting public agencies with jurisdiction along the alignment including the Bureau of Land Management (BLM), Forestry Department, and the County of San Diego (County), to collect published and unpublished information regarding the location of wells and springs within the search radii. Discussions with the BLM and Forestry Department indicated that USGS and County databases should be used to obtain the requested information. The search area and parameters were provided to the County and a list of locational data for registered wells on both public and private properties within the search radii was obtained. Similar to the information obtained from the USGS topographic maps, the provided County groundwater well GIS layer was overlayed with the proposed alignment, ½-mile buffer area, and identified tower and grading locations potentially requiring blasting. Due to unavailable detailed locational data and privacy concerns, the County database reported well locations in the center of the host parcel; therefore, additional detailed plotting was required.

# 3.3 Aerial Photographs

The July 2008 aerial base map utilized for our survey was obtained from SDG&E and provided a one-foot resolution along the entire alignment. Prior to conducting our field reconnaissance, a detailed review of the provided aerial photographic base map in combination with Google Earth Pro<sup>TM</sup> and Microsoft© satellite and photographic imagery was performed to further refine locations of wells provided from the municipal and state databases. While performing the aerial photographic review, potential locations of natural springs within the influence radius were



noted by identifying suspect features such as surficial ponding or streams, intersecting bedrock lineaments, and localized dense vegetation which may suggest shallow or day-lighting groundwater related to springs. Additional survey of the potential spring locations noted during the aerial photograph review was performed as part of the field reconnaissance task.

# 3.4 <u>EPA Sole Source Aquifer Designations</u>

Geosyntec obtained the EPA-designated Sole Source Aquifer (SSA) list from the EPA website [USEPA, 2010]. Two SSAs exist along the Sunrise Powerlink alignment, including:

The Ocotillo-Coyote Wells Aquifer, which approximately extends from Mile Post 18 to Mile Post 31; and

The Campo Cottonwood Aquifer, which approximately extends from Mile Post 52 to Mile Post 84

Although the Sunrise Mitigation Measure H-4B does not explicitly require the delineation of the SSAs, it should be noted that these areas represent an additional level of sensitivity with respect to protection of existing wells and springs. The two applicable SSAs are plotted on Figures 2 through 9.



#### 4. FIELD RECONNAISSANCE

Given the number of proposed tower and grading locations identified to potentially require blasting for construction, and the remote nature of portions of the proposed alignment, our field reconnaissance required utilization of both ground and aerial surveys. The purpose of our field reconnaissance was to "ground truth" data on the locations of wells and springs identified in our records review, and to identify additional wells and springs not included in the data obtained.

# 4.1 <u>Aerial Reconnaissance</u>

Aerial reconnaissance was performed on 11 March 2010 along the length of the alignment. The helicopter used for this task was provided by Corporate Helicopters of San Diego, California. The aerial reconnaissance was performed to confirm well and spring locations identified in the records review as well as to identify unknown wells and suspect features which might suggest shallow or day-lighting groundwater. The aerial reconnaissance allowed for a detailed review along the remote sections of the alignment as well as in areas where ground surveys were problematic due to private property access constraints. During the reconnaissance, locations of identified wells and springs were plotted on aerial photographs displaying the proposed tower locations along with the ½-mile buffer zone. Additionally, a Global Positioning Systems (GPS) device was used to create a track log of the flight for further documentation.

# 4.2 **Ground Reconnaissance**

Ground reconnaissance was performed between 23 March and 10 June 2010 by two-person teams from our firm. Prior to performing ground surveys for the project, our field personnel attended SDG&E's SWEAP training and followed all mandated safety protocol detailed therein during the extent of the ground reconnaissance.

The ground surveys were generally performed to locate private wells on properties not identified in the County database and to confirm and spot check locations that had been identified. This visual survey was performed from public right-of-ways without entering private property. Similar to the aerial reconnaissance, locations were plotted on aerial photographs displaying the proposed tower and grading locations along with the ½-mile buffer zone.



## 5. SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Information obtained from our survey detailing the locations of the identified wells and springs was compiled using a GIS application. Locations of wells and springs that were refined during our aerial photographic review and aerial and ground reconnaissance were accurately plotted to the extent possible. Where access or aerial photographic constraints limited the accurate identification of well and spring locations, the locations were plotted conservatively by plotting the feature on the alignment-side of the parcel.

The results from our assessment of groundwater wells, springs, and SSAs within the ½-mile influence radii of towers and grading sites potentially requiring blasting is presented graphically on Figures 2 through 13 of this report. Tabulated summaries of wells and springs identified within ½-mile of towers and grading areas is presented in Tables 1 and 2, respectively. Additionally, a GIS layer of the alignment is provided on a compact disk as Appendix A to this report which allows for specific portions of the alignment to be viewed at various scales and configurations for use in project planning.

Geosyntec believes that the information reported herein includes the necessary well and spring locational data for blasting contractors to prepare Blasting Plans in accordance with Sunrise Mitigation Measure H-4B.

We understand that as part of the construction blasting, the blasting contractor will perform preand post-blast surveys of the existing improvements within the vicinity of the proposed blasting. We recommend that the wells and springs within ½ mile of the proposed blasting be included as part of these surveys. We further understand that the blasting contractor will measure ground vibrations using seismographs located near existing improvements as part of the blasting. The nearby wells and springs should be considered when measuring the ground vibrations resulting from construction blasting. The proposed Blasting Plans and the results of the blasting measurements should be reviewed by SDG&E's blasting consultant.



#### 6. LIMITATIONS

The wells and springs survey performed for this project consisted of a records review of available published maps and state and municipal databases, aerial photographic review, and aerial and ground reconnaissance. The information provided herein is based on those specific resources and is of the assumption that the available data is correct and provides a complete record of the locations of known wells and springs. Due to private property access constraints on portions of the alignment, some of the identified locations are generalized and may require further site-specific surveys to refine the exact locations. Additionally, the presence of unregistered private wells may not have been identified. For the purpose of this assessment, Geosyntec considers springs as exhibiting established, reliable, long-term discharge capable of supporting localized dense vegetation, streams, ponds, or economically useful quantities of water. This report has been performed in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in this area.

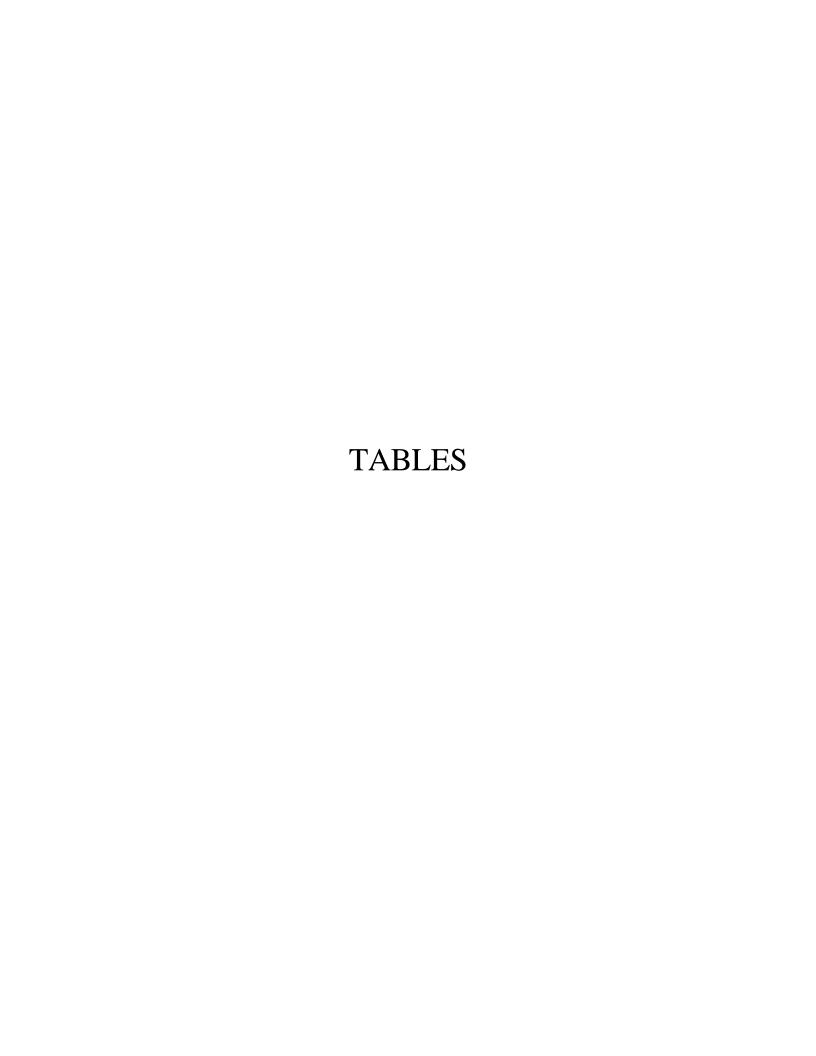
It is our understanding that the exact number of towers requiring blasting for foundation construction has not yet been identified. Our identification of ground conditions at individual towers and grading sites requiring blasting is based on conservative estimates of industry accepted correlations between seismic velocity and rippability with conventional equipment. Additionally, the subsurface information utilized to refine the locations of towers and grading sites potentially requiring the use of blasting was based on information provided by others and is assumed to be accurate. Should actual ground conditions vary at specific tower and grading locations from that presented in the preliminary geotechnical report, the need for additional surveys to identify wells and springs may be required.

Geosyntec is not liable for any use of the information contained in this data report by persons other than the SDG&E or their subconsultants, or the use of information in this report for any purposes other than referenced in this report without the expressed, written consent of Geosyntec.



## 7. REFERENCES

- URS Corporation (URS), 2009. "Draft Report-Revision 2, Geotechnical and Geologic Hazards Investigation, Sunrise Powerlink Project, San Diego and Imperial Counties, California", prepared for San Diego Gas & Electric Company, dated October 16, 2009.
- USEPA, 2010. "USEPA Publications and Resources, Sole Source Aquifers" USEPA Website, December 2001. Web. Accessed 20 April 2010.





Structure Designation <sup>1</sup>	Link	Section	Segment	Voltage (kilovolts)	Potential Helicopter Only Sites <sup>2</sup>	Number of Wells and Springs
SSDE1	5	4	18	230	No	N/A
CP2	5	4	18	230	No	N/A
CP3	5	4	18	230	No	N/A
CP6-1	5	4	18	230	No	0
CP7	5	4	18	230	No	0
CP8-2	5	4	18	230	No	N/A
CP9-1	5	4	18	230	No	0
CP10	5	4	18	230	No	0
CP11-1	5	4	18	230	No	0
CP12-1	5	4	18	230	No	0
CP13-2	5	4	18	230	Yes	N/A
CP14	5	4	18	230	Yes	N/A
CP15-1	5	4	18	230	No	0
CP16-1	5	4	18	230	No	0
CP17-1	5	4	18	230	No	0
CP18-1	5	4	18	230	No	1
CP19-1	5	4	18	230	No	1
CP20	5	4	18	230	Yes	N/A
CP21	5	4	18	230	No	N/A
CP22-1	5	4	18	230	No	N/A
CP23	5	4	18	230	Yes	N/A
CP24-1	5	4	18	230	No	N/A
CP25-2	5	4	18	230	No	9
CP26	5	4	18	230	No	8
CP27	5	4	18	230	Yes	N/A
CP28-1	5	4	18	230	Yes	N/A
CP29-1	5	4	18	230	No	3
CP31-2	5	5	18	230	No	3
CP32-2	5	5	18	230	Yes	N/A
CP33-2	5	5	17	230	Yes	N/A
CP33A	5	5	17	230	Yes	N/A
CP34-2	5	5	17	230	Yes	N/A
CP35-2	5	5	17	230	Yes	N/A
CP36-1	5	5	17	230	Yes	N/A
CP37-2	5	5	17	230	Yes	N/A
CP39	5	5	17	230	Yes	N/A
CP40-2	5	5	17	230	No	0
CP41-2	5	5	17	230	No	4
CP42-1	5	5	17	230	Yes	N/A
CP43-1	5	5	17	230	Yes	N/A
CP44-1	5	5	17	230	Yes	N/A
CP45-1	5	5	17	230	Yes	N/A
CP46-2	5	5	17	230	Yes	N/A
CP47-2	5	5	17	230	Yes	N/A
CP47A-1	5	5	17	230	Yes	N/A
CP48-2	5	5	17	230	Yes	N/A
CP49-1	5	5	17	230	Yes	N/A
CP50-1	5	5	17	230	Yes	N/A
CP51-2	5	5	17	230	Yes	N/A
CP52	5	5	17	230	Yes	N/A
CP53-1	5	5	17	230	Yes	N/A



Structure Designation <sup>1</sup>	Link	Section	Segment	Voltage (kilovolts)	Potential Helicopter Only Sites <sup>2</sup>	Number of Wells and Springs <sup>3</sup>
CP54-1	5	5	17	230	Yes	N/A
CP55	5	5	17	230	Yes	N/A
CP56-1	5	5	17	230	Yes	N/A
CP57	5	5	17	230	Yes	N/A
CP58-1	5	5	17	230	Yes	N/A
CP59	5	5	17	230	Yes	N/A
CP60	5	5	17	230	Yes	N/A
CP61-1	5	5	17	230	Yes	N/A
CP62-2	5	5	17	230	Yes	N/A
CP62A	5	5	17	230	Yes	N/A
CP63-3	5	5	17	230	Yes	N/A
CP64-2	5	5	17	230	Yes	N/A
CP65-1	5	5	17	230	Yes	N/A
CP66-2	5	5	16	230	Yes	N/A
CP67-3	5	5	16	230	Yes	N/A
CP68-1	5	5	16	230	Yes	N/A
CP69-2	5	5	16	230	No	4
CP70-3	5	5	16	230	No	N/A
CP71	5	5	16	230	Yes	N/A
CP72-2	5	5	16	230	Yes	N/A
CP73-2	5	5	16	230	Yes	N/A
CP74-2	5	5	16	230	Yes	N/A
CP75-1	5	5	16	230	Yes	N/A
CP76-1	5	5	16	230	Yes	N/A
CP77	5	5	16	230	Yes	N/A
CP78-2	5	5	16	230	Yes	N/A
CP79-1	5	5	16	230	Yes	N/A
CP80-1	5	5	16	230	Yes	N/A
CP81-1	5	5	16	230	Yes	N/A
CP82-1	5	5	16	230	Yes	N/A
CP83	5	5	16	230	Yes	N/A
CP84	5	5	16	230	Yes	N/A
CP85-1	5	5	16	230	Yes	N/A
CP86	5	5	16	230	Yes	N/A
CP87-1	5	5	16	230	No	N/A
CP88-1	5	5	16	230	No	N/A
CP95-1	5	7	16	230	No	N/A
CP96-1	5	7	16	230	No	N/A
CP98-1	5	7	14	230	No	N/A
CP99-2	5	7	14	230	No	16
CP100-1	5	7	14	230	No	11
CP101-1	5	7	14	230	Yes	N/A
CP103-2	5	7	14	230	Yes	N/A
CP104-1	5	7	14	230	Yes	N/A
CP105-1	5	7	14	230	Yes	N/A
CP106-1	5	7	14	230	Yes	N/A
CP107	5	7	14	230	Yes	N/A
CP108	5	7	14	230	Yes	N/A
CP109-1	5	7	14	230	Yes	N/A
SSDE2	5	7	14	230	No	N/A
SSDE3	5	7	14	230	No	N/A



SSDE4   2	Structure Designation <sup>1</sup>	Link	Section	Segment	Voltage (kilovolts)	Potential Helicopter Only Sites <sup>2</sup>	Number of Wells and Springs <sup>3</sup>
EP2-3         2         8A         12         S00         Yes         N/A           EP3-3         2         8A         12         S00         Yes         N/A           EP4-3         2         8A         12         S00         Yes         N/A           EP5-2         2         8A         12         S00         Yes         N/A           EP6-1         2         8A         12         S00         Yes         N/A           EP7-1         2         8A         12         S00         Yes         N/A           EP7-1         2         8A         12         S00         Yes         N/A           EP8-2         2         8A         12         S00         No         N/A           EP1-1         2         8A         12         S00         Yes         N/A           EP10-2         2         8A         12         S00         Yes         N/A           EP11-3         2         8A         12         S00         No         7           EP12-3         2         8A         12         S00         Yes         N/A           EP13-3         2         8A	SSDE4	2	8A	14	500	No	N/A
EP3-3	EP1-3	2	8A	12	500	No	6
EP4-3	EP2-3	2	8A	12	500	Yes	N/A
EP4-3		2	8A	12	500	Yes	N/A
EP5-2							
EPG-1		2		12			
EP7-1				12			
EP8-2         2         8A         12         500         Yes         N/A           EP0-1         2         8A         12         500         No         N/A           EP10-2         2         8A         12         500         Yes         N/A           EP11-3         2         8A         12         500         No         7           EP13-3         2         8A         12         500         Yes         N/A           EP14-1         2         8A         12         500         Yes         N/A           EP14-1         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP17         2         8A         12         500         Yes         N/A           EP17-1         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A				12			
EP9-1							
EP10-2         2         8A         12         500         Yes         N/A           EP11-3         2         8A         12         500         No         7           EP12-3         2         8A         12         500         No         7           EP13-3         2         8A         12         500         Yes         N/A           EP14-1         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP17-2         2         8A         12         500         Yes         N/A           EP18-8         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP11-3         2         8A         12         500         No         7           EP13-3         2         8A         12         500         No         7           EP13-3         2         8A         12         500         Yes         N/A           EP14-1         2         8A         12         500         Yes         N/A           EP15         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP17         2         8A         12         500         Yes         N/A           EP18         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP23-2-2         2         8A					500		
EP12-3         2         8A         12         500         No         7           EP13-3         2         8A         12         500         Yes         N/A           EP14-1         2         8A         12         500         Yes         N/A           EP15         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP18         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP23-1         2         8A							
EP13-3         2         8A         12         500         Yes         N/A           EP14-1         2         8A         12         500         Yes         N/A           EP15         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP17         2         8A         12         500         Yes         N/A           EP18         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP20-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP23-2         2         8A         12         500         Yes         N/A           EP24-1         2         8A <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP14-1         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP17         2         8A         12         500         Yes         N/A           EP18         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP24-1         2         8A         12         500         Yes         N/A           EP25-2         2         8A </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP15         2         8A         12         500         Yes         N/A           EP16-1         2         8A         12         500         Yes         N/A           EP17         2         8A         12         500         Yes         N/A           EP18         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP25-2         2         8A         12         500         No         N/A           EP25-1         2         8A							
EP16-1         2         8A         12         500         Yes         N/A           EP17         2         8A         12         500         Yes         N/A           EP18         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP23-2         2         8A         12         500         Yes         N/A           EP24-1         2         8A         12         500         Yes         N/A           EP24-1         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         No         N/A           EP25-1         2         8A         12         500         No         N/A           EP26-1         2         8A							
EP17         2         8A         12         500         Yes         N/A           EP18         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP23-2         2         8A         12         500         No         N/A           EP24-1         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         No         N/A           EP26-1         2         8A         12         500         No         N/A           EP27-1         2         8A         12         500         No         N/A           EP29-2         2         8A							
EP18         2         8A         12         500         Yes         N/A           EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP23-2         2         8A         12         500         Yes         N/A           EP23-2         2         8A         12         500         Yes         N/A           EP24-1         2         8A         12         500         Yes         N/A           EP25-2         2         8A         12         500         Yes         N/A           EP26-1         2         8A         12         500         No         N/A           EP27-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP30-2         2         8A </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP19-1         2         8A         12         500         Yes         N/A           EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP23-2         2         8A         12         500         Yes         N/A           EP24-1         2         8A         12         500         No         N/A           EP24-1         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         No         N/A           EP25-1         2         8A         12         500         No         N/A           EP26-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP30-2         2         8A <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP20-2         2         8A         12         500         Yes         N/A           EP21-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP23-2         2         8A         12         500         Yes         N/A           EP24-1         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         No         N/A           EP25-1         2         8A         12         500         No         N/A           EP26-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP30-2         2         8A <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP21-1         2         8A         12         500         Yes         N/A           EP22-1         2         8A         12         500         Yes         N/A           EP23-2         2         8A         12         500         Yes         N/A           EP24-1         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         No         N/A           EP26-1         2         8A         12         500         No         N/A           EP26-1         2         8A         12         500         No         N/A           EP26-1         2         8A         12         500         No         N/A           EP27-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP38-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         No         N/A           EP31-1         2         8A							
EP22-1         2         8A         12         500         Yes         N/A           EP23-2         2         8A         12         500         Yes         N/A           EP24-1         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         Yes         N/A           EP25-1         2         8A         12         500         No         N/A           EP26-1         2         8A         12         500         No         N/A           EP27-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP29-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         Yes         N/A           EP31-1         2         8A         12         500         Yes         N/A           EP33-1         2         8A </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP23-2         2         8A         12         500         Yes         N/A           EP24-1         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         Yes         N/A           EP26-1         2         8A         12         500         No         N/A           EP27-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         Yes         N/A           EP31-1         2         8A         12         500         Yes         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A<							
EP24-1         2         8A         12         500         No         N/A           EP25-2         2         8A         12         500         Yes         N/A           EP26-1         2         8A         12         500         No         N/A           EP27-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP29-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         No         N/A           EP30-1         2         8A         12         500         No         N/A           EP31-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A							
EP25-2         2         8A         12         500         Yes         N/A           EP26-1         2         8A         12         500         No         N/A           EP27-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP28-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         No         N/A           EP31-1         2         8A         12         500         No         N/A           EP32-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP26-1         2         8A         12         500         No         N/A           EP27-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP29-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         No         N/A           EP31-1         2         8A         12         500         Yes         N/A           EP31-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         Yes         N/A           EP37-2         2         8A         12         500         No         10           EP39-1         2         8A <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP27-1         2         8A         12         500         No         N/A           EP28-3         2         8A         12         500         Yes         N/A           EP29-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         No         N/A           EP31-1         2         8A         12         500         Yes         N/A           EP32-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         Yes         N/A           EP37-2         2         8A         12         500         Yes         N/A           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP28-3         2         8A         12         500         Yes         N/A           EP29-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         No         N/A           EP31-1         2         8A         12         500         Yes         N/A           EP32-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         Yes         N/A           EP37-2         2         8A         12         500         Yes         N/A           EP40-1         2         8A         12         500         Yes         N/A           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EP29-2         2         8A         12         500         Yes         N/A           EP30-2         2         8A         12         500         No         N/A           EP31-1         2         8A         12         500         Yes         N/A           EP32-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         No         10           EP37-2         2         8A         12         500         No         10           EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A							
EP30-2         2         8A         12         500         No         N/A           EP31-1         2         8A         12         500         Yes         N/A           EP32-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         No         10           EP37-2         2         8A         12         500         No         10           EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         Yes         N/A           EP43-1         2         8B							
EP31-1         2         8A         12         500         Yes         N/A           EP32-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         No         10           EP37-2         2         8A         12         500         Yes         N/A           EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP45-1         2         8B							
EP32-1         2         8A         12         500         No         N/A           EP33-1         2         8A         12         500         Yes         N/A           EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         No         10           EP37-2         2         8A         12         500         Yes         N/A           EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         Yes         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C							
EP33-1         2         8A         12         500         Yes         N/A           EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         No         10           EP37-2         2         8A         12         500         Yes         N/A           EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         Yes         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP44-2         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP48-2         2         8C							
EP34-1         2         8A         12         500         Yes         N/A           EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         No         10           EP37-2         2         8A         12         500         Yes         N/A           EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         No         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP44-2         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C							
EP35-1         2         8A         12         500         Yes         N/A           EP36-1         2         8A         12         500         No         10           EP37-2         2         8A         12         500         Yes         N/A           EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         No         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP36-1         2         8A         12         500         No         10           EP37-2         2         8A         12         500         Yes         N/A           EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         No         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP44-2         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP37-2         2         8A         12         500         Yes         N/A           EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         No         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP44-2         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP39-1         2         8A         12         500         No         6           EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         No         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP44         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP40-1         2         8A         11         500         Yes         N/A           EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         No         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP44         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP41         2         8A         11         500         Yes         N/A           EP42         2         8A         11         500         No         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP44         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP42         2         8A         11         500         No         N/A           EP43-1         2         8B         11         500         Yes         N/A           EP44         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP43-1         2         8B         11         500         Yes         N/A           EP44         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP44         2         8B         11         500         Yes         N/A           EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP45-1         2         8B         11         500         Yes         N/A           EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP47-2         2         8C         11         500         Yes         N/A           EP48         2         8C         10         500         Yes         N/A							
EP48 2 8C 10 500 Yes N/A							
	EP48 EP49	2	8C	10	500	No	1N/A
EP49 2 8C 10 500 No 1 EP50 2 8C 10 500 Yes N/A							



Structure Designation <sup>1</sup>	Link	Section	Segment	Voltage (kilovolts)	Potential Helicopter Only Sites <sup>2</sup>	Number of Wells and Springs <sup>3</sup>
EP51-1	2	8C	10	500	No	1
EP52-1	2	8C	10	500	No	2
EP53-2	2	8C	10	500	Yes	N/A
EP54	2	8C	10	500	No	5
EP56-3	2	8C	10	500	Yes	N/A
EP57-1	2	8C	10	500	Yes	N/A
EP58-2	2	8C	10	500	Yes	N/A
EP62A-1	2	8C	10	500	Yes	N/A
EP63	2	8C	10	500	Yes	N/A
EP64	2	8C	10	500	Yes	N/A
EP65-1	2	8C	10	500	No	0
EP66	2	8C	10	500	No	1
EP67	2	8C	10	500	No	1
EP68	2	8D	9	500	No	1
EP69	2	8D	9	500	Yes	N/A
EP70	2	8D	9	500	Yes	N/A
EP71	2	8D	9	500	Yes	N/A
EP72	2	8D	9	500	Yes	N/A
EP73	2	8D	9	500	Yes	N/A
EP74-1	2	8D	9	500	Yes	N/A
EP75-2	2	8D	9	500	Yes	N/A
EP76-2	2	8D	9	500	Yes	N/A
EP77	2	8D	9	500	Yes	N/A
EP78	2	8D	9	500	Yes	N/A
EP78A	2	8D	9	500	Yes	N/A
EP79	2	8D	9	500	Yes	N/A
EP80	2	8D	8	500	Yes	N/A
EP81	2	8D	8	500	Yes	N/A
EP82	2	8D	8	500	Yes	N/A
EP83	2	8D	8	500	Yes	N/A
EP84	2	8D	8	500	No	N/A
EP85-2	2	8D	8	500	No	N/A
EP86-1	2	8D	8	500	Yes	N/A
EP87-1	2	8D	8	500	Yes	N/A
EP88-2	2	8D	8	500	Yes	N/A
EP89-1	2	8D	8	500	No	35
EP90-1	2	8E	8	500	No	N/A
EP91	2	8E	8	500	No	30
EP92	2	8E	8	500	No	25
EP93	2	8E	8	500	No	23
EP94	2	8E	8	500	No	N/A
EP95	2	8E	8	500	No	N/A
EP96	2	8E	8	500	No	5
EP97	2	8E	8	500	No	N/A
EP98-1	2	8E	8	500	No	N/A
EP99-2	2	8E	8	500	No	N/A
EP101-2	2	8E	7	500	Yes	N/A
EP102-3	2	8E	7	500	Yes	N/A
EP102A-1	2	8E	7	500	Yes	N/A



Structure Designation <sup>1</sup>	Link	Section	Segment	Voltage (kilovolts)	Potential Helicopter Only Sites <sup>2</sup>	Number of Wells and Springs <sup>3</sup>
EP103-2	2	8E	7	500	Yes	N/A
EP103A	2	8E	7	500	No	5
EP104-2	2	8E	7	500	No	5
EP105-2	2	8E	7	500	No	3
EP106-3	2	8E	7	500	Yes	N/A
EP107-3	2	8E	7	500	Yes	N/A
EP108-2	2	8E	7	500	Yes	N/A
EP109-1	2	8E	7	500	Yes	N/A
EP110-2	2	8E	7	500	Yes	N/A
EP111-4	2	8E	7	500	Yes	N/A
EP112-3	2	8E	7	500	No	N/A
EP112A	2	8E	7	500	No	N/A
EP113-4	2	8E	7	500	No	0
EP114-2	2	8E	7	500	Yes	N/A
EP115-1	2	8E	7	500	Yes	N/A
EP116-1	2	8E	7	500	Yes	N/A
EP117-2	2	8E	7	500	Yes	N/A
EP118-2	2	8E	7	500	Yes	N/A
EP119-2	2	8E	7	500	Yes	N/A
EP120-4	2	9A	7	500	Yes	N/A
EP120A	2	9A	7	500	Yes	N/A
EP121-3	2	9A	7	500	Yes	N/A
EP121A-1	2	9A	7	500	Yes	N/A
EP122-1	2	9A	7	500	Yes	N/A
EP123-1	2	9A	7	500	Yes	N/A
EP124	2	9A	7	500	Yes	N/A
EP125	2	9A	7	500	No	N/A
EP126-1	2	9A	7	500	No	N/A
EP127	2	9A	7	500	No	N/A
EP128	2	9A	7	500	Yes	N/A
EP129	2	9A	7	500	Yes	N/A
EP130-1	2	9A	7	500	No	N/A
EP131	2	9A	7	500	No	0
EP132-2	2	9A	7	500	Yes	N/A
EP134-1	2	9A	7	500	Yes	N/A
EP135	2	9A	7	500	Yes	N/A
EP136	2	9A	7	500	Yes	N/A
EP137	2	9A	7	500	Yes	N/A
EP138-2	2	9A	7	500	Yes	N/A
EP139-1	2	9A	7	500	Yes	N/A
EP140	1	9A	7	500	Yes	0
EP141	1	9B	7	500	No	N/A
EP142-1	1	9B	6	500	Yes	N/A
EP143-1	1	9B	6	500	Yes	N/A
EP144	1	9B	6	500	Yes	N/A
EP145	1	9B	6	500	Yes	N/A
EP146	1	9B	6	500	Yes	N/A
EP147	1	9B	6	500	Yes	N/A
EP148-1	1	9B	6	500	Yes	N/A
EP149-1	1	9B	6	500	Yes	N/A
EP150	1	9B	6	500	Yes	N/A



Structure Designation <sup>1</sup>	Link	Section	Segment	Voltage (kilovolts)	Potential Helicopter Only Sites <sup>2</sup>	Number of Wells and Springs
EP151	1	9B	6	500	Yes	N/A
EP152-2	1	9B	6	500	Yes	N/A
EP170	1	9B	6	500	No	1
EP171	1	9B	6	500	No	N/A
EP172	1	9B	6	500	No	N/A
EP173-1	1	9B	6	500	No	N/A
EP174	1	9B	6	500	No	N/A
EP175	1	9B	6	500	No	N/A
EP176	1	9B	6	500	No	N/A
EP177	1	9B	6	500	No	N/A
EP178	1	9B	6	500	No	N/A
EP179	1	9B	6	500	No	N/A
EP180	1	9B	6	500	No	N/A
EP181	1	9B	6	500	No	N/A
EP182	1	9B	6	500	No	1
EP183	1	9B	6	500	Yes	N/A
EP184-1	1	9B	6	500	No	1
EP185-1	1	9B	6	500	No	0
EP186-1	1	9B	6	500	No	0
EP187-2	1	9B	6	500	No	0
EP188-1	1	9B	6	500	Yes	N/A
EP189-3	1	9B	6	500	Yes	N/A
EP190-2	1	9B	6	500	No	0
EP191-1	1	9B	6	500	No	0
EP192-1	1	9B	6	500	No	0
EP193-1	1	9B	6	500	No	0
EP194-2	1	9B	6	500	Yes	N/A
EP195-1	1	9B	6	500	Yes	N/A
EP196-1	1	9B	6	500	No	1
EP197-2	1	9B	6	500	No	1
EP198-3	1	9B	6	500	No	1
EP199-3	1	9B	6	500	No	1
EP200-3	1	9B	6	500	No	2
EP200A-1	1	9B	6	500	No	N/A
EP201-3	1	9B	6	500	No	2
EP202-3	1	9B	6	500	No	N/A
EP203-3	1	9B	6	500	No	N/A
EP204-3	1	9B	6	500	No	4
EP205-2	1	9B	6	500	No	4
EP206-1	1	9B	6	500	No	N/A
EP207	1	9B	5	500	No	3
EP208	1	9B	5	500	No	3
EP209-1	1	9B	5	500	No	4
EP210	1	9B	5	500	No	3
EP211	1	9B	5	500	No	2
EP213	1	9B	5	500	No	1
EP214	1	9B	5	500	No	3
EP215	1	9B	5	500	No	7
EP217-1	1	9C	5	500	No	8
EP218-1	1	9C	5	500	No	4
EP219-1	1	9C	5	500	No	3



Structure Designation <sup>1</sup>	Link	Section	Segment	Voltage (kilovolts)	Potential Helicopter Only Sites <sup>2</sup>	Number of Wells and Springs <sup>3</sup>
EP220-1	1	9C	5	500	No	10
EP221-2	1	9C	5	500	Yes	N/A
EP221A	1	9C	5	500	Yes	N/A
EP223-1	1	9C	5	500	Yes	N/A
EP224-1	1	9C	5	500	Yes	N/A
EP225-1	1	9C	5	500	Yes	N/A
EP226-1	1	9C	5	500	Yes	N/A
EP227	1	9C	5	500	Yes	N/A
EP228	1	9C	5	500	Yes	N/A
EP229-1	1	9C	5	500	Yes	N/A
EP230-1	1	9C	5	500	Yes	N/A
EP231-1	1	9C	5	500	Yes	N/A
EP231A	1	9C	5	500	Yes	N/A
EP232-1	1	9C	5	500	Yes	N/A
EP233-1	1	9C	5	500	Yes	N/A
EP234-1	1	9C	5	500	Yes	N/A
EP235-1	1	9C	5	500	Yes	N/A
EP236-1	1	9C	5	500	Yes	N/A
EP237-1	1	9C	5	500	Yes	N/A
EP238-1	1	9C	5	500	Yes	N/A
EP239-1	1	9C	5	500	No	N/A
EP240	1	9C	5	500	No	N/A
EP242	1	9C	5	500	No	N/A
EP243	1	9C	5	500	No	N/A
EP244	1	9C	5	500	No	N/A
EP245-1	1	9C	5	500	No	0
EP246	1	9C	5	500	No	0
EP247	1	9C	5	500	No	0
EP248	1	9C	5	500	No	0
EP249	1	9C	5	500	No	0
EP250	1	9C	5	500	No	N/A
EP251	1	9C	5	500	No	N/A
EP252-1	1	9C	5	500	No	N/A
EP252A-1	1	9C	4	500	Yes	N/A
EP253-2	1	9C	4	500	Yes	N/A
EP254-3	1	9C	4	500	Yes	N/A
EP255-2	1	9C	4	500	No	0
EP256	1	9C	4	500	No	0
EP257	1	9C 9C	4	500	No No	0
EP257 EP258-3	1	9C	4	500	No	N/A
EP259-3	1	9C	4	500	Yes	N/A N/A
EP259B	1	9C	4	500	Yes	N/A N/A
EP239B EP261-2	1	9C 9C	4	500	Yes	N/A N/A
EP261-2 EP261A	1	9C	4	500	Yes	N/A N/A
EP262-4	1	9C	4	500	Yes	N/A N/A
EP262-4 EP263A-2	1	9C 9C	4	500	Yes	N/A N/A
EP263A-2 EP263B-2	1	9C 9C	4	500	Yes	N/A N/A
EP264-4	1	9C	4	500	Yes	N/A N/A
EP264-4 EP265-2	1	9C 9C	4	500	Yes	N/A N/A
			+			
EP266-2	1	9C	4	500	Yes	N/A
EP267-2	1	9C	4	500	Yes	N/A



Structure Designation <sup>1</sup>	Link	Section	Segment	Voltage (kilovolts)	Potential Helicopter Only Sites <sup>2</sup>	Number of Wells and Springs <sup>3</sup>
EP269-1	1	9C	4	500	Yes	N/A
EP270-2	1	10A	4	500	Yes	N/A
EP271-2	1	10A	4	500	Yes	N/A
EP272-3	1	10A	4	500	Yes	N/A
EP273-1	1	10A	4	500	Yes	N/A
EP274-1	1	10A	4	500	Yes	N/A
EP275-1	1	10A	4	500	Yes	N/A
EP276-1	1	10A	4	500	Yes	N/A
EP277-1	1	10A	3	500	Yes	N/A
EP278-1	1	10A	3	500	Yes	N/A
EP279-1	1	10A	3	500	Yes	N/A
EP280-1	1	10A	3	500	Yes	N/A
EP281	1	10A	3	500	Yes	N/A
EP290	1	10B	3	500	No	N/A
EP291-1	1	10B	3	500	No	N/A
EP292-1	1	10B	3	500	No	N/A
EP293	1	10B	3	500	No	N/A
EP294	1	10B	3	500	No	N/A
EP295	1	10B	3	500	No	N/A
EP296	1	10B	3	500	No	N/A
EP297	1	10B	3	500	No	N/A
EP298	1	10B	3	500	No	N/A
EP299	1	10B	3	500	No	N/A
EP300-1	1	10B	3	500	No	N/A
EP301	1	10B	3	500	No	N/A
EP302-1	1	10B	2	500	No	N/A
EP303-2	1	10B	2	500	No	N/A
EP304-2	1	10B	2	500	No	1VA
EP305-3	1	10B	2	500	Yes	N/A
EP305-3 EP306-1	1	10B	2	500	No	N/A
EP307-1	1	10B	2	500	No	N/A
EP307-1 EP308	<u>1</u>	10B	2	500	No	N/A N/A
					No	N/A N/A
EP309	1	10B	2	500		
EP310	1	10B	2	500	Yes	N/A
EP311-1	1	10B	2	500	Yes	N/A
EP312	1	10B	2	500	Yes	N/A
EP313	1	10B	2	500	No	N/A
EP314	1	10B	2	500	Yes	N/A
EP315-1	1	10B	2	500	Yes	N/A
EP316-2	1	10B	2	500	No	N/A
EP317	1	10B	2	500	Yes	N/A
EP318-1	1	10B	2	500	No	N/A
EP319	1	10B	2	500	No	N/A
EP320-1	1	10B	2	500	No	N/A
EP321-1	1	10B	2	500	No	N/A
EP322-1	1	10B	2	500	No	N/A
EP323-1	1	10B	2	500	Yes	N/A
EP324	1	10B	2	500	Yes	N/A
EP325-2	1	10B	2	500	No	N/A
EP326	1	10B	2	500	No	N/A
EP327	1	10B	2	500	No	N/A



Structure Designation <sup>1</sup>	Link	Section	Segment	Voltage (kilovolts)	Potential Helicopter Only Sites <sup>2</sup>	Number of Wells and Springs <sup>3</sup>
EP328-1	1	10B	2	500	No	N/A
EP329-1	1	10B	2	500	No	N/A
EP330-1	1	10B	2	500	No	N/A
EP331	1	10B	2	500	No	N/A
EP332	1	10B	2	500	No	N/A
EP333	1	10B	2	500	No	N/A
EP334	1	10B	2	500	No	N/A
EP335	1	10B	2	500	No	N/A
EP336	1	10B	2	500	No	N/A
EP337	1	10B	2	500	No	N/A
EP338	1	10B	2	500	No	N/A
EP339	1	10B	2	500	No	N/A
EP340	1	10B	2	500	No	N/A
EP341	1	10B	2	500	No	N/A
EP342	1	10B	2	500	No	N/A
EP343	1	10B	2	500	No	N/A
EP344	1	10B	2	500	No	N/A
EP345	1	10B	2	500	No	N/A
EP346	1	10B	2	500	No	N/A
EP347	1	10B	2	500	No	N/A
EP348	1	10B	2	500	No	N/A
EP349	1	10B	2	500	No	N/A
EP350	1	10B	2	500	No	N/A
EP351	1	10B	2	500	No	N/A
EP352	1	10B	2	500	No	N/A
EP353	1	10B	2	500	No	N/A
EP354	1	10B	2	500	No	N/A
EP355	1	10B	2	500	No	N/A
EP356	1	10B	2	500	No	N/A
EP357	1	10B	2	500	No	N/A
EP358	1	10B	2	500	No	N/A
EP359	1	10B	2	500	No	N/A
EP360	1	10B	2	500	No	N/A
EP361	1	10B	2	500	No	N/A
EP362-1	1	10B	2	500	No	N/A
EP363-1	1	10B	2	500	No	N/A
SSDE5	1	10B	2	500	No	N/A

#### Notes:

- 1 Structural tower designation as of May  $2010\,$
- 2 List of helicopter only construction sites (provided by SDG&E, dated  $5/1/10)\,$
- 3 Number of wells and springs within 1/2 mile of designated tower location identified as potentially requiring blasting based on surficial geology and/or subsurface conditions

#### TABLE 2 Summary of Grading Area Assessments Spring and Well Survey Sunrise Powerlink



Designated Grading Area <sup>1</sup>	Approximate Location of Designated Grading Area	Number of Wells and Springs <sup>2</sup>
CP6-1 Pad	CP6-1	N/A
CP7 Pad and Road	CP7	N/A
CP8-2 Pad	CP8-2	N/A
CP10 Pad and Road	CP10	N/A
CP11-1 Pad and Road	CP11-1	N/A
CP12-1 Pad and Road	CP12-1	N/A
Pull Site Pad and Road	South of CP14 and CP15	N/A
Pull Site Pad and Road	North of CP23	N/A
CP24-1 Pad	CP24	N/A
Pull Site Pad	East of CP31-2	N/A
Pull Site Pad and Road	Southeast of CP40-2	N/A
Pull Site Pad and Road	West-southwest to CP49-1, CP50-1, CP51-2	62
Pull Site Pad and Road	East -southeast of CP55	32
Pull Site Pad and Road	South and east of CP64-2	N/A
CP87-1 and CP88-1 Pad	CP87-1 and CP88-1	N/A
Pull Site Pad and Road	Southwest of CP87-1 and CP88-1	N/A
Access Road Improvements	Bauer Property off Peutz Valley Road	N/A
Pull Site Pad and Road	North of CP95-1 and CP96-1	N/A
CP95-1 and CP96-1 Access Road	CP95-1 and CP96-1	N/A
CP98-1 Pad and Road	CP98-1	N/A
Pull Site Pad	East of CP109-1	N/A
Pull Site Pad	West of EP9-1	N/A
Pull Site Pad and Road	North and east of EP22-1	N/A
Pull Site Pad and Road	South and north of EP23-2	N/A
Pull Site Pad	South of EP36-1	14
Pull Site Pad and Road	North of EP-42 and west of EP40-1 and EP41	19
EP-42 Pad	EP42	N/A
Pull Site Pad and Road	East of 47-2	0
Existing Road Improvement	East of EP50	1
EP52-1 Pad and Road	EP52-1	5
Pull Site Pad	Southwest of EP67	N/A
Pull Site Pad	East of EP67	N/A
Pull Site Pad	East of EP78	N/A
Pull Site Pad	West of EP78A	N/A
Pull Site Pad and Road	East of EP83	N/A
Pull Site Pad and Road	East of EP89-1	N/A
Pull Site Pad	South of EP89-1	N/A
Pull Site Pad and Road	Southwest of EP91	70
Pull Site Pad and Road	East of EP91	74
EP98-1 Road	Northeast of EP98-1	N/A
EP99-2 Pad and Road	EP99-2	N/A
Pull Site Pad and Road	Northeast of EP99-2	N/A
EP105-2	EP105-2	N/A
Pull Site Road	West of EP106-3	N/A
Pull Site Pad and Road	West and southwest of EP108-2 and east of EP107-3	N/A
Pull Site Pad and Road	North and northeast of EP108-2	2
Pull Site Pad and Road	South of EP113-4	13
Pull Site Pad	East of EP113-4	13
Pull Site Pad and Road	Southwest of EP125	N/A
EP125 Pad and Road	EP125	N/A
EP126-1 Pad and Road	EP126-1	N/A
Pull Site Pad and Road	Southwest of EP131	N/A

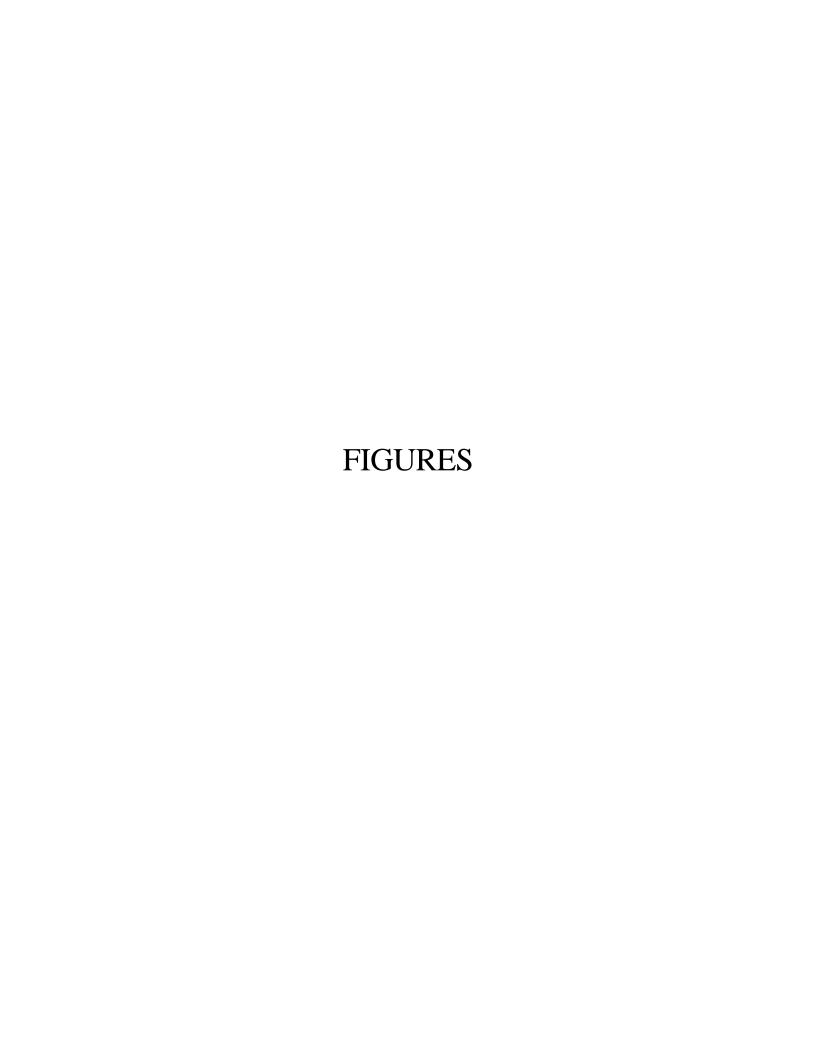
#### TABLE 2 Summary of Grading Area Assessments Spring and Well Survey Sunrise Powerlink

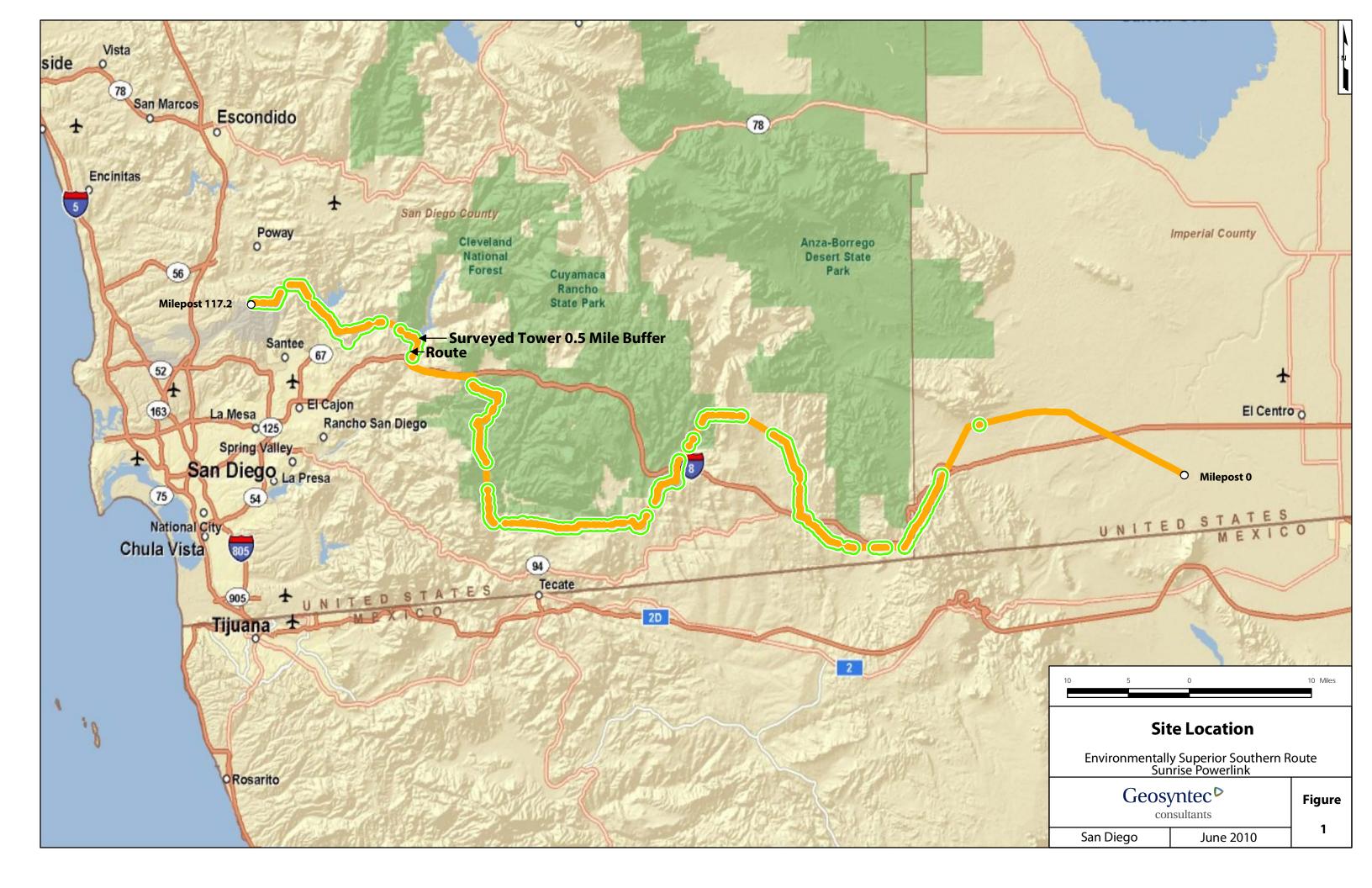


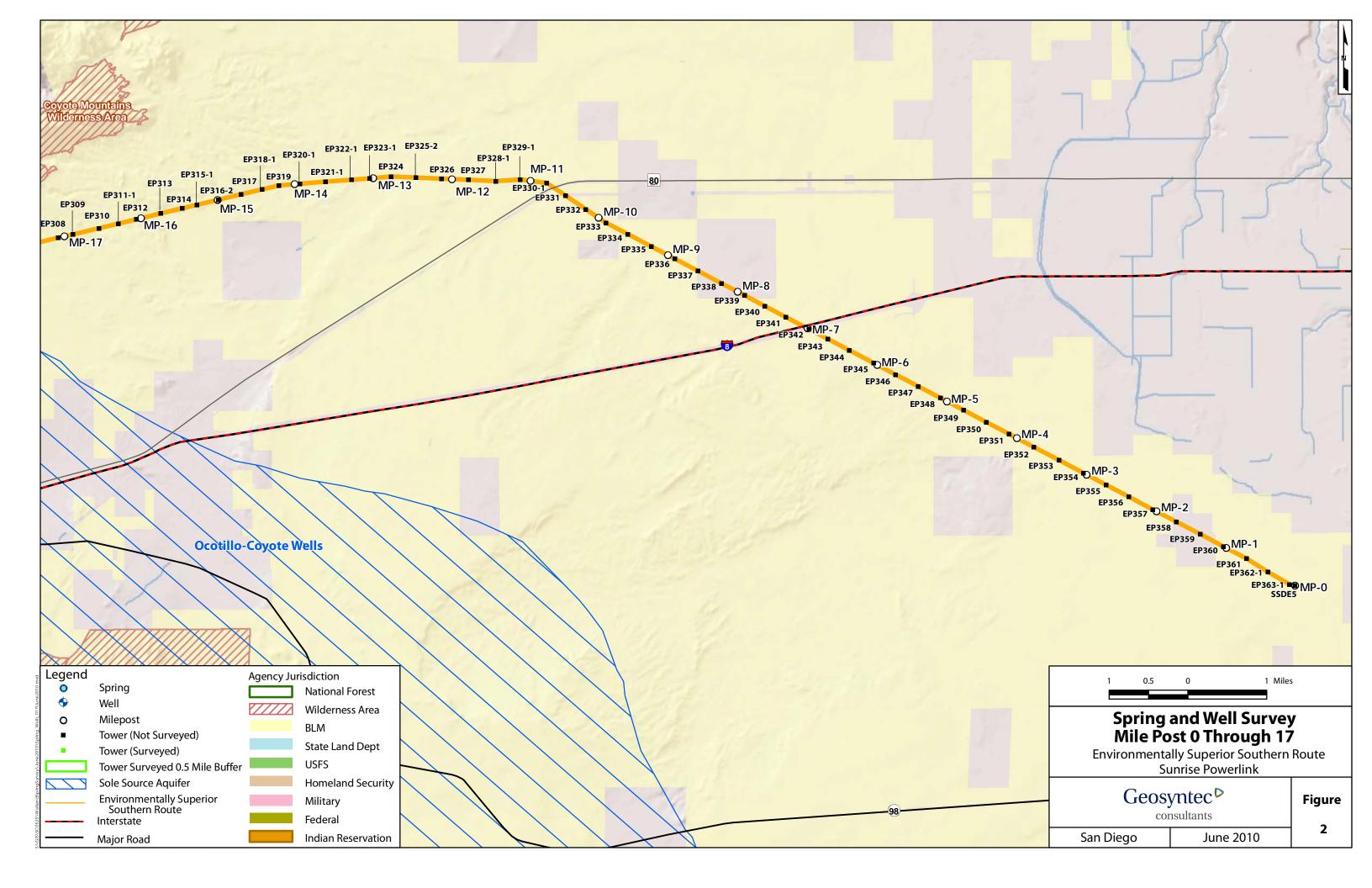
Designated Grading Area <sup>1</sup>	Approximate Location of Designated Grading Area	Number of Wells and Springs <sup>2</sup>
Existing Road Improvement	North of EP137 along Thing Valley Road	N/A
Pull Site Pad and Road	West of EP141	N/A
EP141 Pad and Road	EP141	N/A
Pull Site Pad and Road	North of EP141	N/A
Pull Site Pad	West-northwest of EP170	5
Pull Site Pad	East of EP170	N/A
EP176 Pad and Road	EP176	N/A
Pull Site Pad and Road	Northwest of EP178	N/A
EP185-1 Pad and Road	EP185-1	0
Pullsite Pad and Road	Southeast of EP187-2	N/A
EP192-1 Pad and Road	EP 192-1	N/A
Pull Site Pad	South-southeast of EP192-1	N/A
Pull Site Pad and Road	South of EP193-1	0
Pull Site Pad and Road	South of EP203-3	N/A
Pull Site Pad and Road	North of EP204-3	N/A
EP214 Pad and Road	EP214	N/A
Pull Site Pad and Road	North of EP215	N/A
Pull Site Pad and Road	West of EP215	N/A
Pull Site Pad and Road	West of EP219-1	19
Pull Site Pad and Road	Northwest of EP219-1	20
Pull Site Pad	North-northwest of EP220-1	N/A
Pull Site Pad and Road	West of EP221-2	N/A
Pull Site Pad	Southeast of EP225-2	N/A
EP246 Pad and Road	EP246 and east of EP246	0
Pull Site Pad and Road	Southwest of 255-2	N/A
Pull Site Pad and Road	East of EP255-2	N/A
Pull Site Pad and Road	North-northeast of EP269-1	0
Pull Site Pad and Road	West of EP301	N/A
Pull Site Pad and Road	North-northeast of EP301	N/A
Pull Site Pad	East of EP313	N/A
Pull Site Pad	East of EP322-1	N/A
Pull Site Pad and Road	Southeast of EP338	N/A
Pull Site Pad and Road	Southeast of EP343	N/A

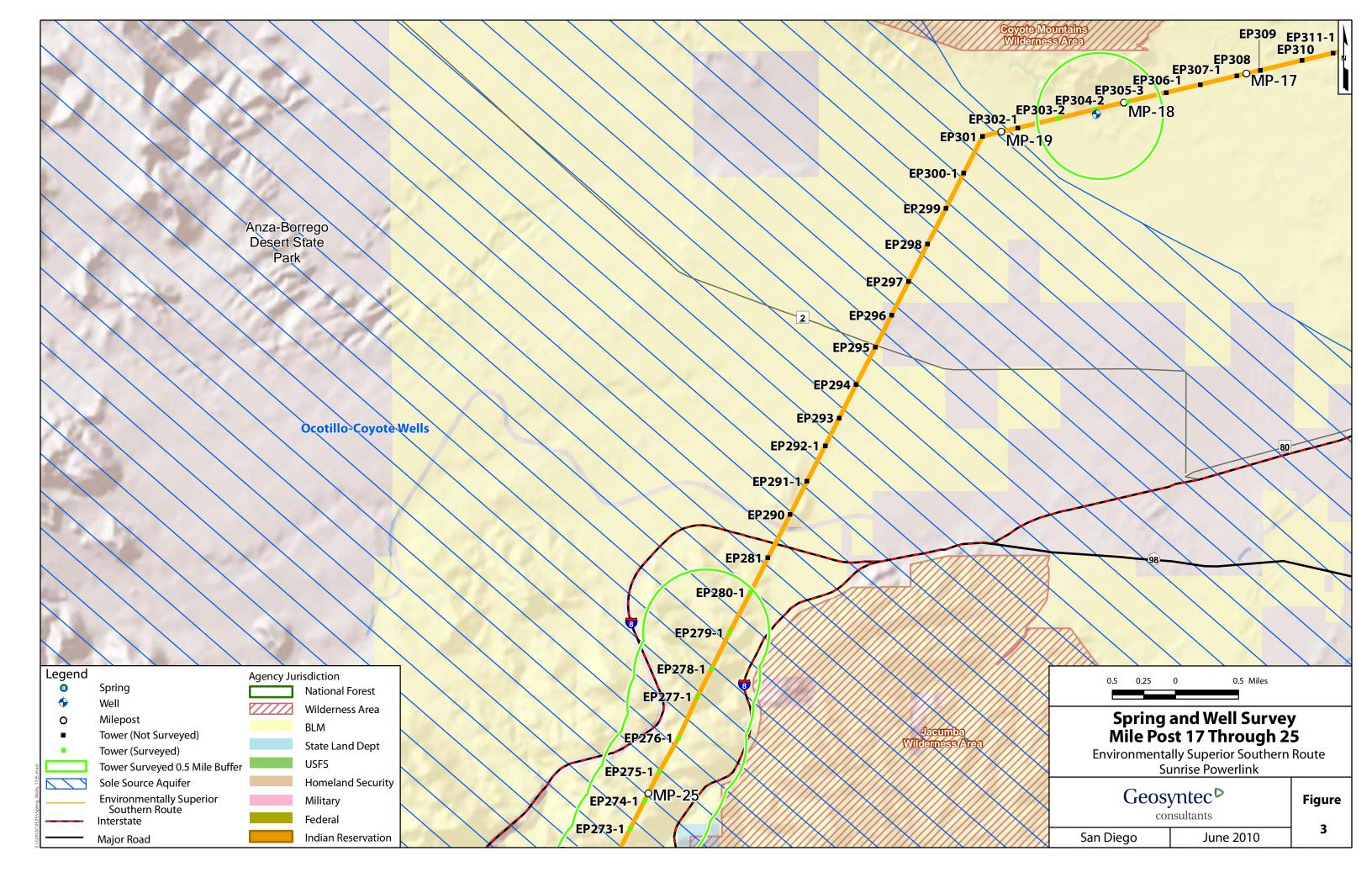
#### Notes:

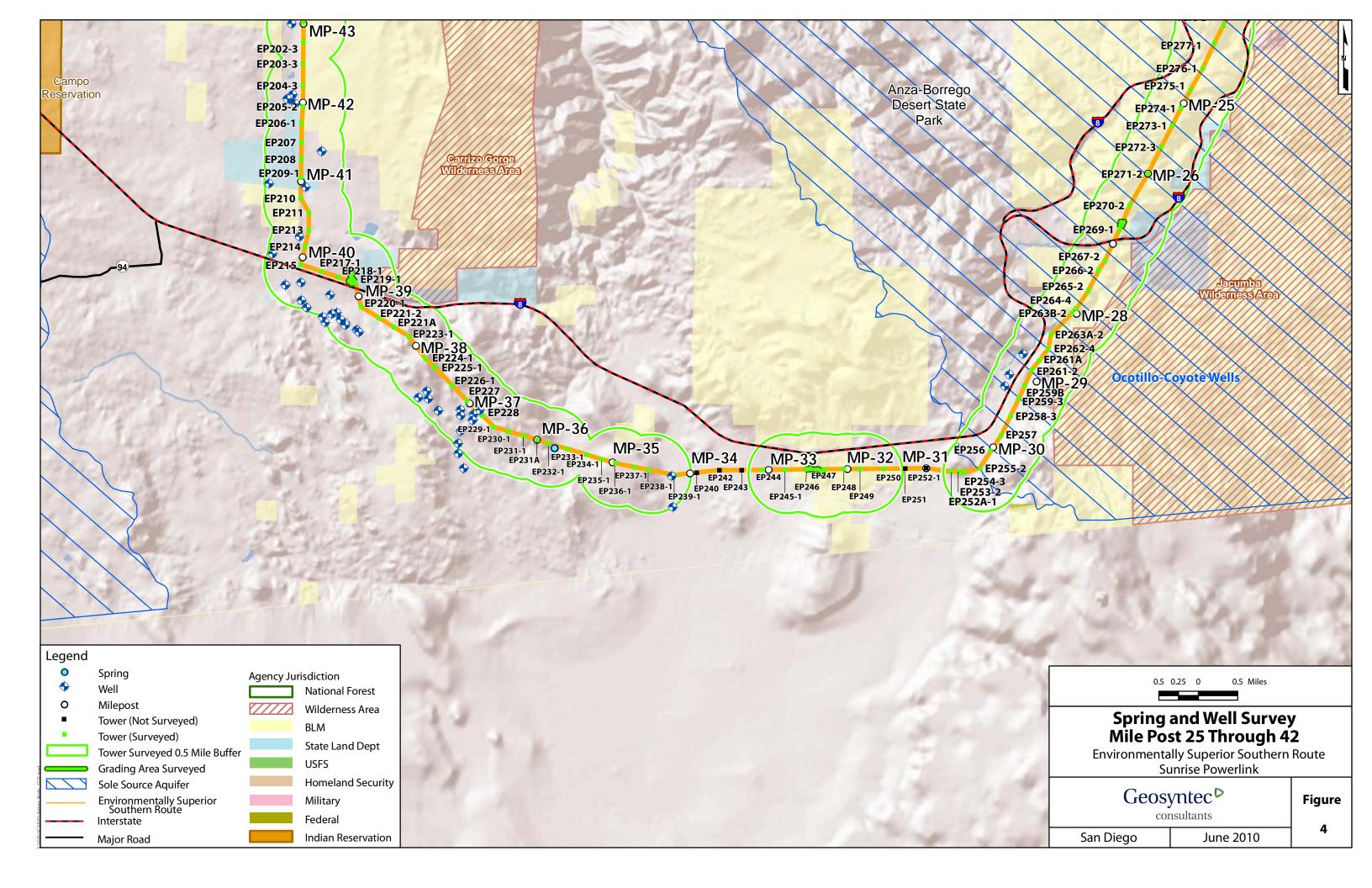
- 1 Proposed grading area designation as of May 2010 with planned cuts greater than five feet
- 2 Number of wells and springs within 1/2 mile of designated grading areas identified as potentially requiring blasting based on surficial geology and/or subsurface conditions

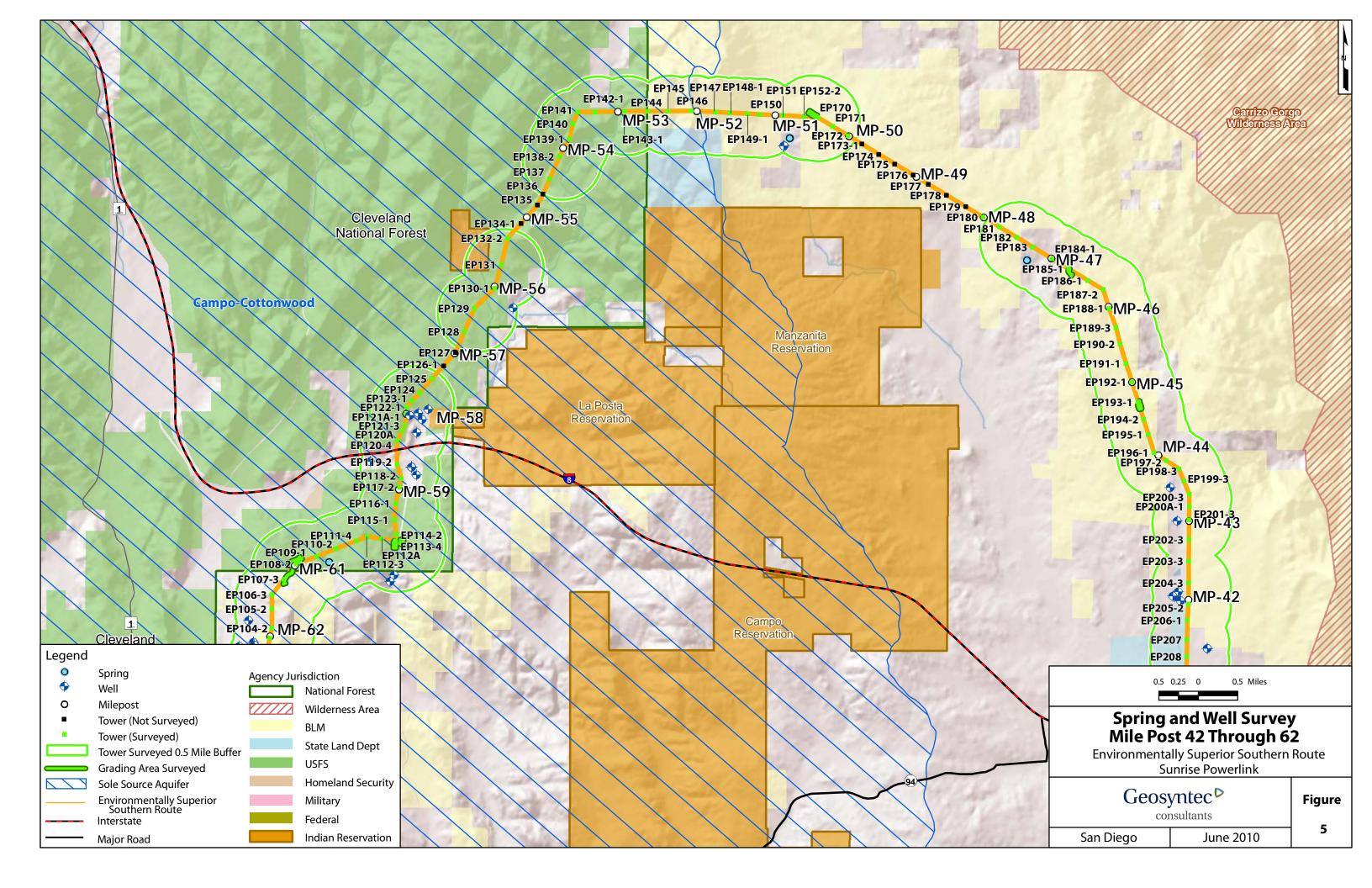


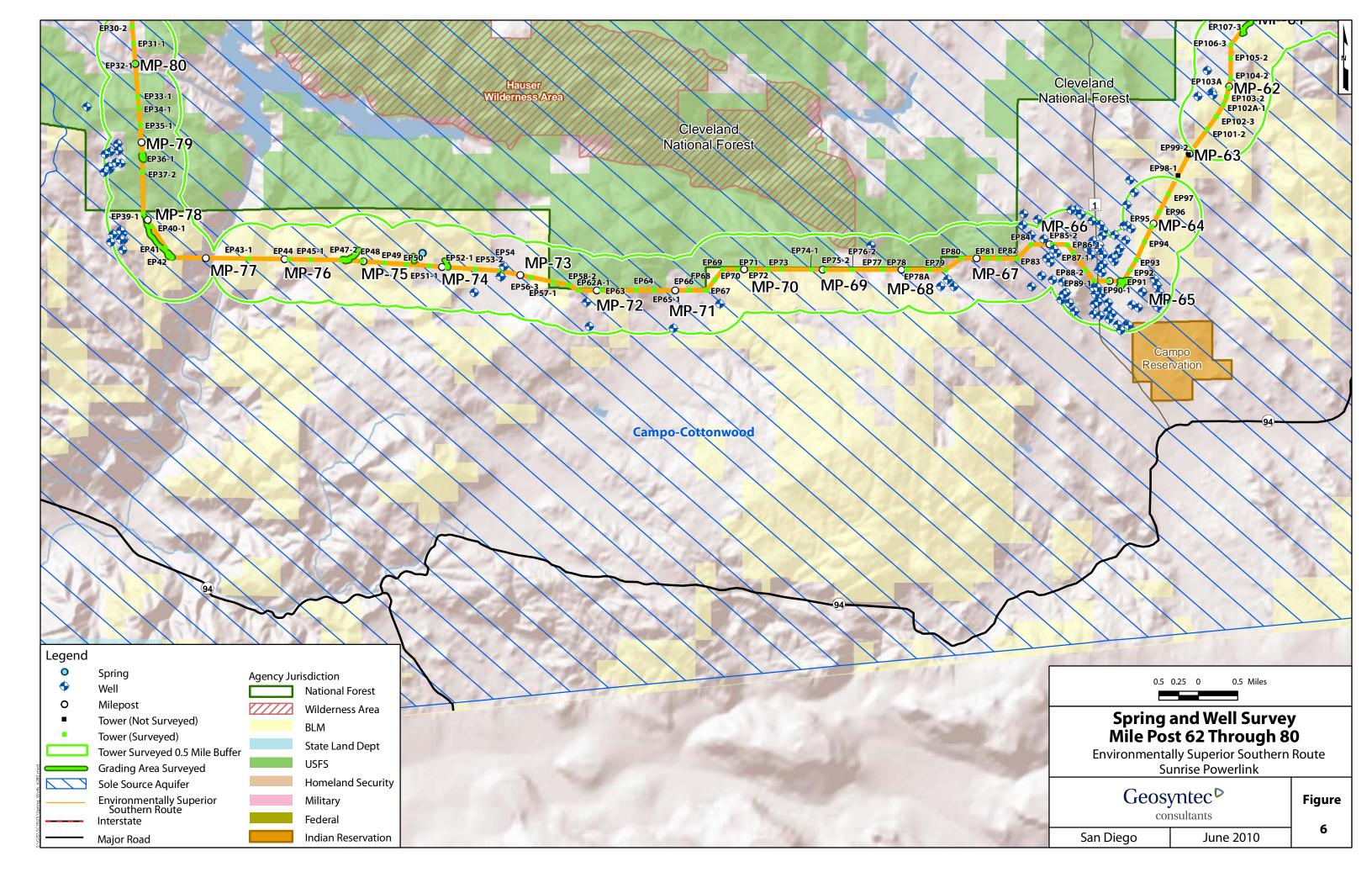


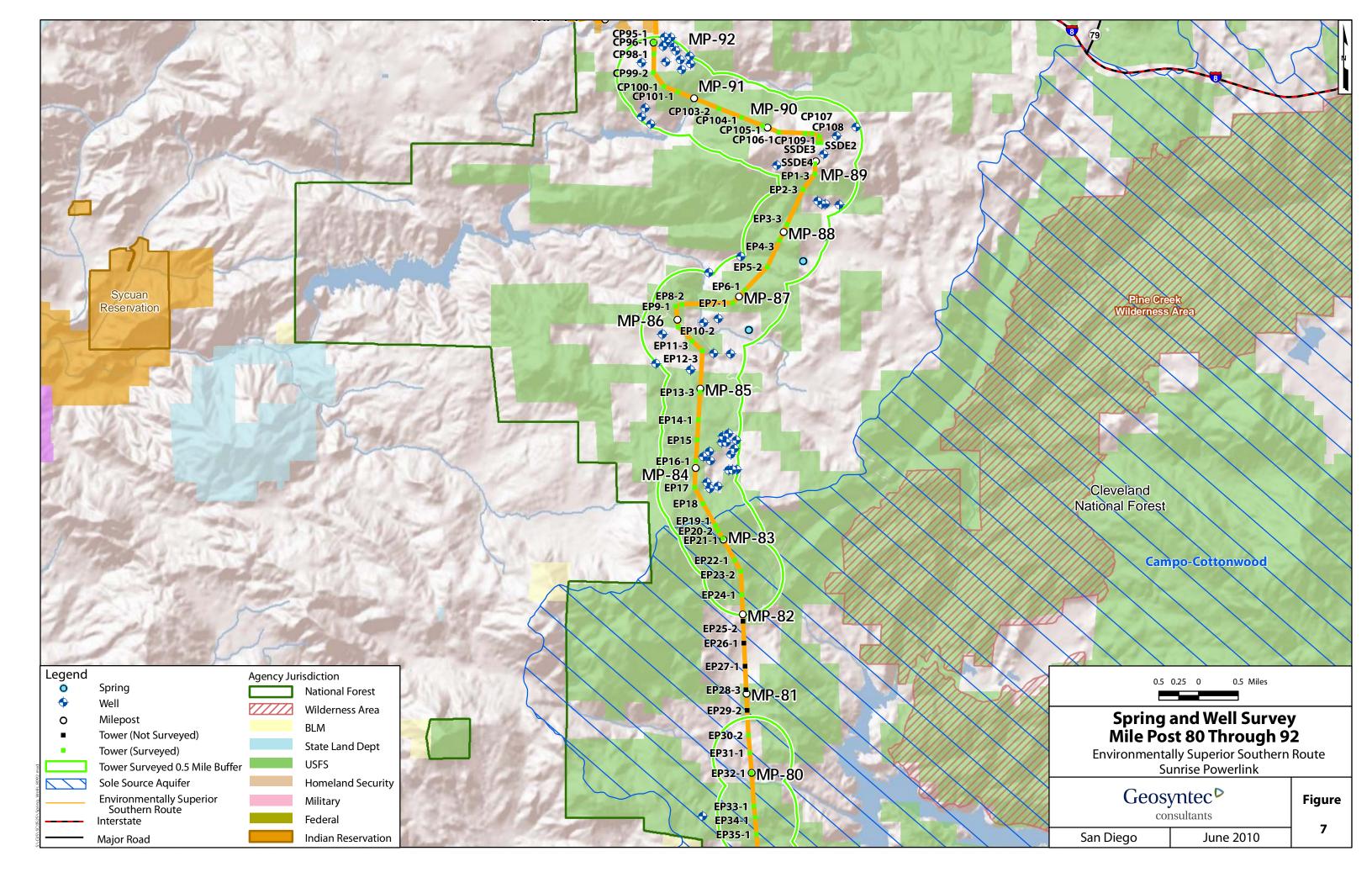


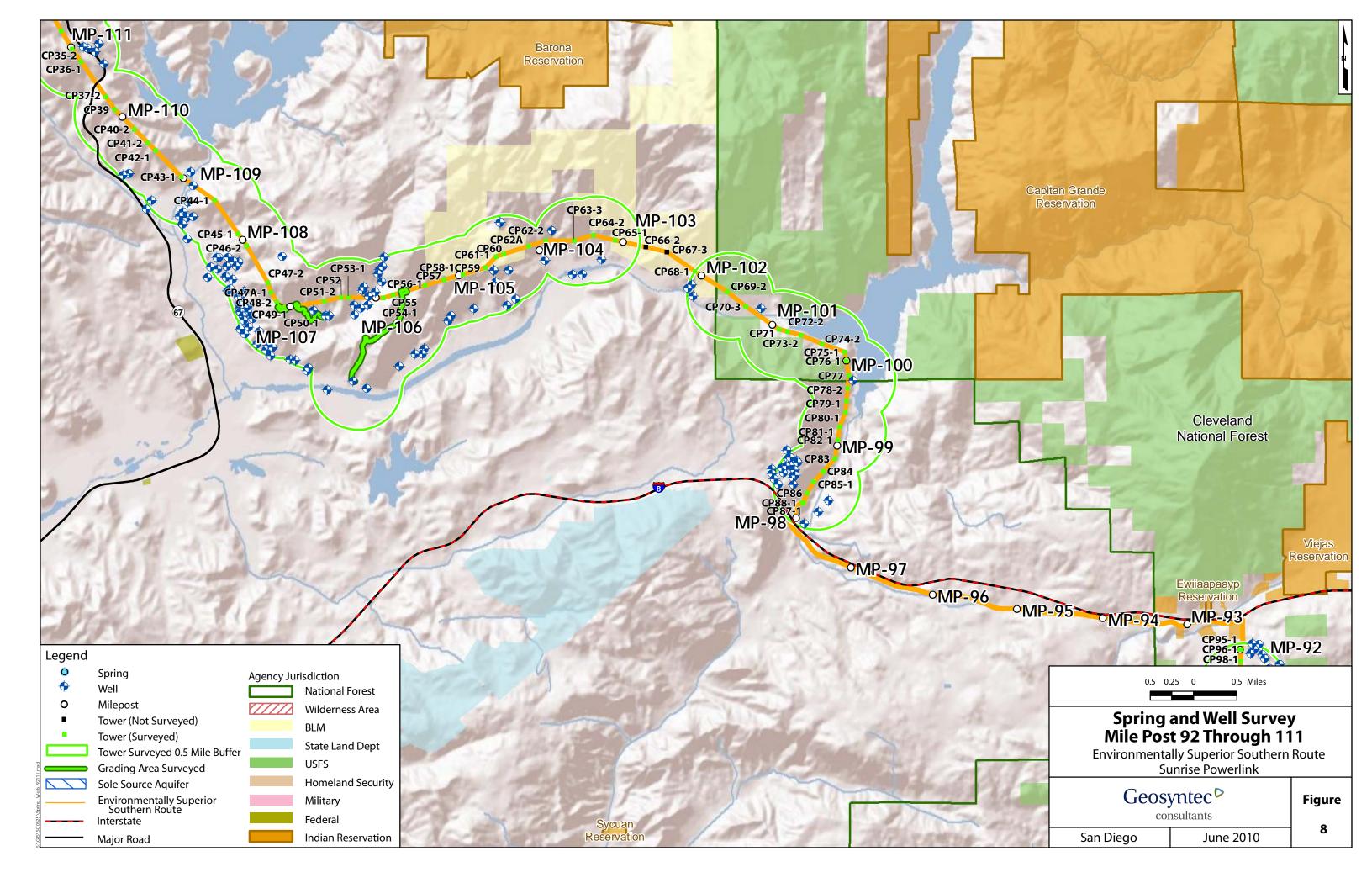


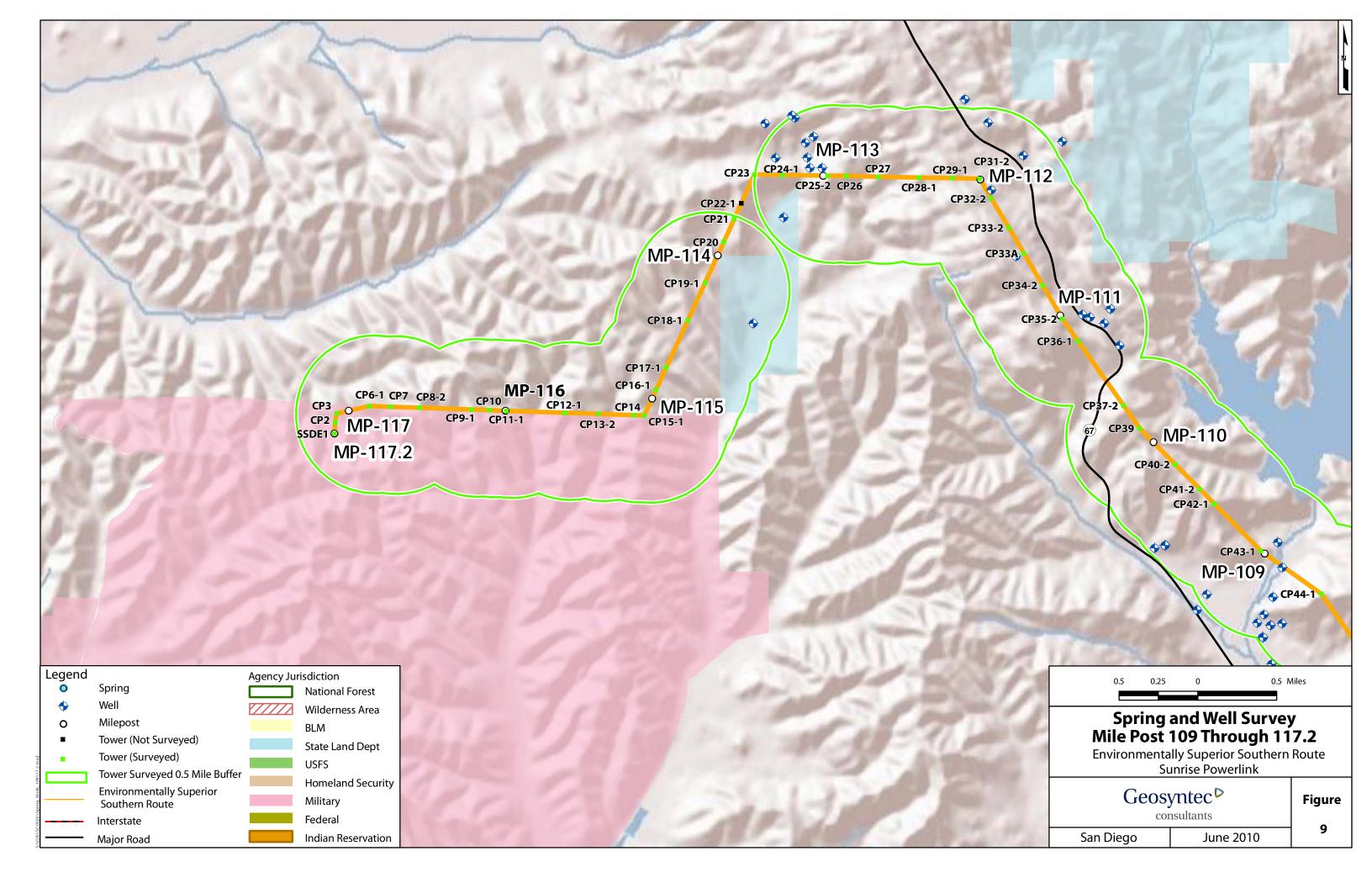












APPENDIX A

GIS Shape Files (Compact Disk)